Appendix VII (search strategy) bis Appendix X (funnel plots) finden Sie unter diesem Link:https://doi.org/10.25972/OPUS-34799

APPENDIX VII: Search strategy

Acupuncture

1 MEDLINE via Pubmed search strategy

#1	craniomandibular disorders [MeSH]
#2	temporomandibular joint disorders [MeSH]
#3	temporomandibular joint dysfunction syndrome [MeSH]
#4	TMJ [tiab] OR TMJD [tiab]
#5	“craniomandibular disorder*” [tiab] OR “craniomandibular disease*” [tiab] OR “Craniomandibular dysfunction*” [tiab]
#6	“facial pain” [tiab] OR “craniofacial pain “[tiab] OR “Orofacial pain” [tiab] OR “myofascial pain” [tiab] OR “Jaw pain”[tiab]
#7	“Temporomandibular joint pain dysfunction syndrom*” [tiab] OR “Temporomandibular disorder*” [tiab] OR “temporomandibular joint disorder*” [tiab] OR “Temporomandibular disease”[tiab] OR “temporomandibular joint disease”[tiab] OR “Temporomandibular dysfunction*”[tiab] OR “temporomandibular joint dysfunction*”[tiab] OR “temporomandibular disk derangement”[tiab] OR “temporomandibular disk displacement” [tiab] OR “temporomandibular dislocation”[tiab]
#8	“Jaw dysfunction*” [tiab]
#9	Costen* syndrome [tiab]
#10	“masticatory muscle disorder*” [tiab] OR “myofunctional disorder*” [tiab] OR “myofacial pain” [tiab] OR “masticatory muscle pain”[tiab]
#11	OR/#1-10
#12	medicine, chinese traditional [MeSh]
#13	Acupuncture [MeSh]
#14	Acupuncture therapy [MeSh]
#15	Acupuncture analgesia [MeSh]
#16	Acupunctur*[tiab]
#17	Acupunctur*[tiab] AND therap*[tiab] OR Acupunctur*[tiab] AND treatment[tiab]
#18	“Traditional Chinese Medicine*“[tiab]
#19	TCM [tiab]
#20	“Dry needl*“[tiab]
#21	OR/#12-20
#22	#11 AND #21
#23	randomized controlled trial [pt]
#24	controlled clinical trial [pt]
#25	randomized [tiab]
#26	placebo [tiab]
#27	drug therapy [sh]
#28	randomly [tiab]
#29	trial [tiab]
#30	groups [tiab]
#31	#23 OR #24 OR #25 OR #26 OR #27 OR #28 OR #29 OR #30
#32	animals [mh] NOT humans [mh]
#33	#31 NOT #32
#34	#22 AND #33

2 EMBASE search strategy

#1	craniomandibular disorders/
#2	temporomandibular joint disorders/
#3	temporomandibular joint dysfunction syndrome/
#4	(TMJ or TMJD). ab, ti.
#5	(craniomandibular disorder* or craniomandibular disease* or Craniomandibular dysfunction*). ab, ti.
#6	(facial pain OR craniofacial pain OR Orofacial pain OR myofascial pain OR Jaw pain). ab, ti.
#7	(Temporomandibular joint pain dysfunction syndrom* or Temporomandibular disorder* or temporomandibular joint disorder* or Temporomandibular disease or temporomandibular joint disease or Temporomandibular dysfunction* or temporomandibular joint dysfunction* or temporomandibular disk derangement or temporomandibular disk displacement or temporomandibular dislocation). ab, ti.
#8	Jaw dysfunction*. ab, ti.
#9	Costen* syndrome. ab, ti.
#10	(masticatory muscle disorder* or myofunctional disorder* or myofacial pain or masticatory muscle pain). ab, ti.
#11	OR/1-10
#12	medicine, chinese traditional/
#13	Acupuncture/
#14	Acupuncture therapy/

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#15	Acupuncture analgesia/
#16	(Acupunctur*). ab, ti.
#17	(Acupunctur* AND therap* OR Acupunctur* AND treatment). ab, ti.
#18	(Traditional Chinese Medicine*). ab, ti.
#19	(TCM). ab,ti.
#20	(Dry needl*). ab,ti.
#21	OR/12-20
#22	#11 AND #21
#23	random$ or factorial$ or crossover$ or cross over$ or cross-over$ or placebo$; doubl$ adj blind$ or singl$ adj blind$ or assign$ or allocat$ or volunteer$
#24	exp crossover procedure/ or exp double blind procedure/ or exp randomized controlled trial/ or exp single blind procedure/
#25	#24 or #23
#26	#25 and #22

3 CENTRAL search strategy

#1	MeSH descriptor: [Craniomandibular Disorders] explode all trees
#2	MeSH descriptor: [Temporomandibular Joint Disorders] explode all trees
#3	MeSH descriptor: [Temporomandibular Joint Dysfunction Syndrome] explode all trees
#4	((TMJ) OR (TMJD) OR (craniomandibular disorder*) OR (craniomandibular disease*) OR (Craniomandibular dysfunction*) OR (facial pain) OR (craniofacial pain) OR (Orofacial pain) OR (myofascial pain) OR (Jaw pain) OR (Temporomandibular joint pain dysfunction syndrom*) OR (Temporomandibular disorder*) OR (temporomandibular joint disorder*) OR (Temporomandibular disease) OR (temporomandibular joint disease) OR (Temporomandibular dysfunction*) OR (temporomandibular joint dysfunction*) OR (temporomandibular disk derangement) OR (temporomandibular disk displacement) OR (temporomandibular dislocation) OR (Jaw dysfunction*) OR (Costen* syndrome) OR (masticatory muscle disorder*) OR (myofunctional disorder*) OR (myofacial pain) OR (masticatory muscle pain)
#5	#1 or #2 or #3 or #4
#6	MeSH descriptor: [medicine, chinese traditional] explode all trees
#7	MeSH descriptor: [Acupuncture] explode all trees
#8	MeSH descriptor: [Acupuncture therapy] explode all trees
#9	MeSH descriptor: [Acupuncture analgesia] explode all trees
#10	((Acupunctur*) OR (Acupunctur* AND therap*) OR (Acupunctur* AND treatment) OR (Traditional Chinese Medicine*) OR (TCM) OR (Dry needl*)): ti, ab, kw
#11	OR/#6-10
#12	#11 AND #5

4 LIVIVO English search strategy

TI= (" craniomandibular disorders" OR" temporomandibular joint disorders" OR "temporomandibular joint dysfunction syndrome" OR TMJ OR TMJD OR "craniomandibular disease*")
AND
TI= ("medicine, chinese traditional" OR Acupuncture OR Acupuncture analgesia" OR TCM OR "Dry needl*")

5 LIVIVO Deutsch search strategy

TI= („Craniomandibuläre Dysfunktionen"OR CMD OR TMD OR „temporomandibuläre Dysfunktionen")
AND TI= ("traditionelle chinesische medizin" OR akupunktur OR "Akupunktur-Analgesie" OR TCM OR "Triggerpunkt" OR "trockenes Nadeln" OR Akupunkturtechnik)

6 Clinicaltrials.gov search strategy

(Craniomandibular disorders OR temporomandibular joint disorders OR temporomandibular joint dysfunction syndrome) AND (medicine, chinese traditional OR Acupuncture OR Acupuncture therapy OR Acupuncture analgesia)

7 Drks.de search strategy

Craniomandibuläre Dysfunktionen OR CMD OR TMD AND medicine, chinese traditional OR Acupuncture OR Acupuncture therapy OR Acupuncture analgesia
CMD OR TMD

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8 Open Grey Literature search strategy

(“Craniomandibular disorders” OR “temporomandibular joint disorders” OR “temporomandibular joint dysfunction syndrome” OR TMJ OR TMJD OR “craniomandibular disease*” OR “Craniomandibular dysfunction*” OR “facial pain” OR “craniofacial pain“ OR “Orofacial pain” OR “myofascial pain” OR “Jaw pain” OR “Temporomandibular disorder*” OR “temporomandibular joint disorder*” OR “Temporomandibular disease” OR “temporomandibular joint disease” OR “Temporomandibular dysfunction*” OR “temporomandibular joint dysfunction*” OR “temporomandibular disk derangement” OR “temporomandibular disk displacement” OR “temporomandibular dislocation” OR “Jaw dysfunction*” OR “Costen* syndrome” OR “masticatory muscle disorder*” OR “myofunctional disorder*” OR “myofacial pain” OR “masticatory muscle pain”) AND (“medicine, chinese traditional” OR “Acupuncture” OR “Acupuncture therapy” OR “Acupuncture analgesia”)

APPENDIX VII: Search strategy

Laser

1 MEDLINE via Pubmed search strategy

#1 craniomandibular disorders [MeSH]
#2 temporomandibular joint disorders [MeSH]
#3 temporomandibular joint dysfunction syndrome [MeSH]
#4 TMJ [tiab] OR TMJD [tiab]
#5 “craniomandibular disorder*” [tiab] OR “craniomandibular disease*” [tiab] OR “Craniomandibular dysfunction*” [tiab]
#6 “facial pain” [tiab] OR “craniofacial pain “[tiab] OR “Orofacial pain” [tiab] OR “myofascial pain” [tiab] OR “Jaw pain” [tiab]
#7 “Temporomandibular joint pain dysfunction syndrom*” [tiab] OR “Temporomandibular disorder*” [tiab] OR “temporomandibular joint disorder*” [tiab] OR “Temporomandibular disease” [tiab] OR “temporomandibular joint disease” [tiab] OR “Temporomandibular dysfunction*”[tiab] OR “temporomandibular joint dysfunction*”[tiab] OR “temporomandibular disk derangement”[tiab] OR “temporomandibular disk displacement” [tiab] OR “temporomandibular dislocation”[tiab]
#8 “Jaw dysfunction*” [tiab]
#9 Costen* syndrome [tiab]
#10 “masticatory muscle disorder*” [tiab] OR “myofunctional disorder*” [tiab] OR “myofacial pain” [tiab] OR “masticatory muscle pain” [tiab]
#11 OR/#1-10
#12 Low-Level Light Therapy [Mesh]
#13 Phototherapy [Mesh]
#14 “Laser Therap*“[tiab]
#15 LLLT [tiab]
#16 “Low-Power Laser Irradiation “[tiab] OR “Low Power Laser Irradiation “[tiab]
#17 “Laser Biostimulation” [tiab]
#18 “Low-Level Laser Therap*“[tiab] OR “Low Level Laser Therap*“[tiab]
#19 OR/#12-18
#20 #11 AND #19
#21 randomized controlled trial [pt]
#22 controlled clinical trial [pt]
#23 randomized [tiab]
#24 placebo [tiab]
#25 drug therapy [sh]
#26 randomly [tiab]
#27 trial [tiab]
#28 groups [tiab]
#29 #21 OR #22 OR #23 OR #24 OR #25 OR #26 OR #27 OR #28
#30 animals [mh] NOT humans [mh]
#31 #29 NOT #30
#32 #20 AND #31

2 EMBASE search strategy

#1 craniomandibular disorders/
#2 temporomandibular joint disorders/
#3 temporomandibular joint dysfunction syndrome/
#4 (TMJ or TMJD). ab, ti.
#5 (craniomandibular disorder* or craniomandibular disease* or Craniomandibular dysfunction*). ab,ti.
#6 (facial pain OR craniofacial pain OR Orofacial pain OR myofascial pain OR Jaw pain). ab,ti.
#7 (Temporomandibular joint pain dysfunction syndrom* or Temporomandibular disorder* or temporomandibular joint disorder* or Temporomandibular disease or temporomandibular joint disease or Temporomandibular dysfunction* or temporomandibular joint dysfunction* or temporomandibular disk derangement or temporomandibular disk displacement or temporomandibular dislocation). ab, ti.
#8 Jaw dysfunction*. ab,ti.
#9 Costen* syndrome. ab,ti.
#10 (masticatory muscle disorder* or myofunctional disorder* or myofacial pain or masticatory muscle pain). ab,ti.
#11 OR/1-10
#12 Low-Level Light Therapy/
#13 Phototherapy/
#14 (Laser Therap*). ab,ti.
#15 LLLT.ab, ti.
#16 (Low-Power Laser Irradiation OR Low Power Laser Irradiation). ab,ti.
#17 (Laser Biostimulation). ab,ti.
#18 (Low-Level Laser Therap* OR Low-Level Laser Therap*). ab,ti.

APPENDIX VII: Search strategy

#19	OR/12-18
#20	#11 AND #20
#21	random$ or factorial$ or crossover$ or cross over$ or cross-over$ or placebo$; doubl$ adj blind$ or singl$ adj blind$ or assign$ or allocat$ or volunteer$
#22	exp crossover procedure/ or exp double blind procedure/ or exp randomized controlled trial/ or exp single blind procedure/
#23	#22 or #21
#24	#23 and #20

3 CENTRAL search strategy

#1	MeSH descriptor: [Craniomandibular Disorders] explode all trees
#2	MeSH descriptor: [Temporomandibular Joint Disorders] explode all trees
#3	MeSH descriptor: [Temporomandibular Joint Dysfunction Syndrome] explode all trees
#4	((TMJ) OR (TMJD) OR (craniomandibular disorder*) OR (craniomandibular disease*) OR (Craniomandibular dysfunction*) OR (facial pain) OR (craniofacial pain) OR (Orofacial pain) OR (myofascial pain) OR (Jaw pain) OR (Temporomandibular joint pain dysfunction syndrom*) OR (Temporomandibular disorder*) OR (temporomandibular joint disorder*) OR (Temporomandibular disease) OR (temporomandibular joint disease) OR (Temporomandibular dysfunction*) OR (temporomandibular joint dysfunction*) OR (temporomandibular disk derangement) OR (temporomandibular disk displacement) OR (temporomandibular dislocation) OR (Jaw dysfunction*) OR (Costen* syndrome) OR (masticatory muscle disorder*) OR (myofunctional disorder*) OR (myofacial pain) OR (masticatory muscle pain)):ti,ab,kw
#5	#1 or #2 or #3 or #4
#6	MeSH descriptor: [Low-Level Light Therapy] explode all trees
#7	MeSH descriptor: [Phototherapy] explode all trees
#8	((Laser Therap*) OR (LLLT) OR (Low-Power Laser Irradiation) OR (Low Power Laser Irradiation) OR (Laser Biostimulation) OR (Low-Level Laser Therap*) OR (Low Level Laser Therap*)): ti, ab,kw
#9	#6 or #7 or #8
#10	#5 and #9

4 LIVIVO English search strategy

TI= (" craniomandibular disorders" OR "temporomandibular joint disorders" OR "temporomandibular joint dysfunction syndrome" OR TMJ OR TMJD OR "craniomandibular disease*") AND
TI= ("Low- Level Light Therapy" OR Phototherapy OR "Laser Therap*" OR LLLT OR "Low-Power Laser Irradiation" OR "Low Power Laser Irradiation " OR "Low Power Laser Irradiation" OR "Laser Biostimulation" OR "Low-Level Laser Therap*" OR "Low Level Laser Therap*

5 LIVIVO Deutsch search strategy

TI= („Craniomandibuläre Dysfunktionen" OR CMD OR TMD OR „temporomandibuläre Dysfunktionen") AND TI= ("Low-Level-Lasertherapie" OR Phototherapie OR Lasertherapie OR Laserstrahlung)

6 Clinicaltrials.gov search strategy

MeSH:
(Craniomandibular disorders OR temporomandibular joint disorders OR temporomandibular joint dysfunction syndrome) AND (Low-Level Light Therapy OR Phototherapy)

7 Drks.de search strategy

Craniomandibuläre Dysfunktionen OR CMD OR TMD
AND
Low-Level-Lasertherapie OR Phototherapie OR Lasertherapie OR Laserstrahlung

8 Open Grey Literature search strategy

("craniomandibular disorders" OR "temporomandibular joint disorders" OR "temporomandibular joint dysfunction syndrome" OR TMJ OR TMJD OR "craniomandibular disease*" OR "Craniomandibular dysfunction*" OR "facial pain" OR "craniofacial pain" OR "Orofacial pain" OR "myofascial pain" OR "Jaw pain" OR "Temporomandibular disorder*" OR "temporomandibular joint disorder*" OR "Temporomandibular disease" OR "temporomandibular joint disease" OR "Temporomandibular dysfunction*" OR "temporomandibular joint dysfunction*" OR "temporomandibular disk derangement" OR "temporomandibular disk displacement" OR "temporomandibular dislocation" OR "Jaw dysfunction*" OR "Costen* syndrome" OR "masticatory muscle disorder*" OR "myofunctional disorder*" OR "myofacial pain" OR "masticatory muscle pain") AND ("Low-Level Light Therapy" OR "Phototherapy" OR "Laser Therap*" OR LLLT OR "Low-Power Laser Irradiation" OR "Low Power Laser Irradiation" OR "Laser Biostimulation" OR "Low-Level Laser Therap*" OR "Low Level Laser Therap*")

APPENDIX VII: Search strategy

Medication

1 MEDLINE via Pubmed search strategy

#1 craniomandibular disorders [MeSH]
#2 temporomandibular joint disorders [MeSH]
#3 temporomandibular joint dysfunction syndrome [MeSH]
#4 TMJ [tiab] OR TMJD [tiab]
#5 craniomandibular disorder* [tiab] OR craniomandibular disease* [tiab] OR Craniomandibular dysfunction* [tiab]
#6 facial pain [tiab] OR craniofacial pain [tiab] OR Orofacial pain [tiab] OR myofascial pain [tiab] OR Jaw pain [tiab]
#7 Temporomandibular joint pain dysfunction syndrom* [tiab] OR Temporomandibular disorder* [tiab] OR temporomandibular joint disorder*[tiab] OR Temporomandibular disease [tiab] OR temporomandibular joint disease [tiab] OR Temporomandibular dysfunction* [tiab] OR temporomandibular joint dysfunction* [tiab] OR temporomandibular disk derangement [tiab] OR temporomandibular disk displacement [tiab] OR temporomandibular dislocation [tiab]
#8 Jaw dysfunction* [tiab]
#9 Costen* syndrome [tiab]
#10 masticatory muscle disorder* [tiab] OR myofunctional disorder* [tiab] OR myofacial pain [tiab] OR masticatory muscle pain [tiab]
#11 OR/#1-10
#12 Analgesics [MeSH]
#13 Anti-inflammatory agents, nonsteroidal [MeSH]
#14 Anticonvulsants [MeSH]
#15 Benzodiazepines [MeSH]
#16 Baclofen [MeSH]
#17 Capsaicin [MeSH]
#18 Neuromuscular agents [MeSH]
#19 Propranolol [MeSH]
#20 Amitriptyline [MeSH]
#21 Antidepressive agents [MeSH]
#22 Botulinum Toxins [MeSH]
#23 Diclofenac [MeSh]
#24 Muscle Relaxants, Central [MeSH]
#25 Hyaluronic Acid [MeSH]
#26 Gabapentin [MeSH]
#27 Glucosamine [MeSH]
#28 Analgesic*[tiab] OR “Analgesic Drug*[tiab]” OR “Analgesic Agent*[tiab]”
#29 “Antiinflammatory Agents, Non Steroidal”[tiab] OR NSAID*[tiab] OR “Non-Steroidal Anti-Inflammatory Agent*”[tiab] OR “Non Steroidal Anti Inflammatory Agent*”[tiab] OR “Nonsteroidal Anti-Inflammatory Agent*”[tiab] OR “Nonsteroidal Anti Inflammatory Agent*”[tiab] OR “Anti Inflammatory Agent*, Nonsteroidal” [tiab] OR “Antiinflammatory Agent*, Nonsteroidal” [tiab] OR “Nonsteroidal Antiinflammatory Agent*”[tiab] OR “Analgesic*, Anti-Inflammatory”[tiab] OR “Anti-Inflammatory Analgesic*”[tiab] OR “Aspirin-Like Agent*”[tiab] OR “Aspirin Like Agent*”[tiab] OR “Antinociceptive agent*”[tiab] OR “Anti-rheumatic*”[tiab]
#30 “Anticonvulsive Agent*“[tiab] OR “Anticonvulsive Drug*“[tiab] OR “Anticonvulsant Drug*“[tiab] OR “Antiepileptic Agent*“[tiab] OR “Antiepileptic*“[tiab] OR “Antiepileptic Drug*“[tiab]
#31 Benzodiazepine[tiab] OR” Benzodiazepine Compound*” [tiab]
#32 “Antidepressive agent*” [tiab] OR “Anti-depressant drug*” [tiab] OR Antidepressant*[tiab] OR Thymoanaleptic*[tiab] OR Thymoleptic*[tiab]
#33 Baclofen[tiab] OR Baclophen[tiab]
#34 Capsaicin [tiab] OR Capsaicin[tiab] OR “8-Methyl-N-Vanillyl-6-Nonenamide” [tiab] OR “8 Methyl N Vanillyl 6 Nonenamide” [tiab] OR “Antiphlogistine Rub A-535 Capsaicin” [tiab] OR Axsain[tiab] OR Zacin[tiab] OR Capsidol[tiab] OR Zostrix[tiab] OR Capzasin[tiab] OR Gelcen[tiab] OR Katrum[tiab] OR NGX-4010[tiab] OR NGX 4010[tiab] OR NGX4010[tiab] OR „Capsicum Farmaya “[tiab] OR Capsin[tiab]
#35 Propranolol[tiab] OR Inderal[tiab] OR Avlocardyl[tiab] OR AY-20694[tiab] OR AY 20694[tiab] OR AY20694[tiab] OR Rexigen[tiab] OR Dexpropranolol[tiab] OR Dociton[tiab] OR Obsidan[tiab] OR Obzidan[tiab] OR “Propranolol Hydrochloride”[tiab] OR Anaprilin[tiab] OR Anapriline[tiab] OR Betadren[tiab] OR Tryptine[tiab] OR Amineurin[tiab] OR Amitrip[tiab] OR “Amitriptylin Beta”[tiab] OR “Amitriptylin Desitin”[tiab] OR “Amitriptylin RPh”[tiab] OR “RPh, Amitriptylin”[tiab] OR “Amitriptylin-Neuraxpharm”[tiab] OR “Amitriptylin Neuraxpharm”[tiab] OR “Amitriptyline Hydrochloride”[tiab] OR Amitrol[tiab] OR Anapsique[tiab] OR Apo- [tiab] OR “Apo Amitriptyline”[tiab] OR Damilen[tiab] OR Domical[tiab] OR Laroxyl[tiab] OR Lentizol[tiab] OR Novoprotect[tiab] OR Saroten[tiab] OR Sarotex[tiab] OR Syneudon[tiab] OR Triptafen[tiab] OR Endep[tiab] OR Tryptizol[tiab] OR Elavil[tiab] OR Tryptanol[tiab]
#36 “Botulinum Toxin*” [tiab] OR “Toxins, Botulinum” [tiab] OR “Toxin, Botulinum” [tiab] OR “Clostridium botulinum Toxins” [tiab] OR “Toxins, Clostridium botulinum”[tiab] OR Botulin[tiab]
#37 “Pain killer*” [tiab]

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#38 “Diclofenac sodium” [tiab] OR Diclophenac[tiab] OR Dicrofenac[tiab] OR Dichlofenal[tiab] OR “Sodium Diclofenac “ [tiab] OR “Diclofenac, Sodium “[tiab] OR “Diclonate P” [tiab] OR Feloran[tiab] OR Voltarol[tiab] OR Novapirina[tiab] OR Orthofen[tiab] OR Ortofen[tiab] OR Orthophen[tiab] OR “SR

38 “[tiab] OR “SR 38“[tiab] OR “SR38“[tiab] OR Voltaren[tiab] OR “Diclofenac Potassium “[tiab] OR “GP-45,840” [tiab] OR “GP 45,840” [tiab] OR ”GP45,840”[tiab]

#39 “Neuromuscular agents” [tiab] OR “Skeletal Muscle Relaxant*” [tiab] OR “Neuromuscular Effect*” [tiab]

#40 “Central Muscle Relaxant*” [tiab] OR “Relaxants, Central Muscle*” [tiab] OR “Centrally Acting Muscle Relaxant*” [tiab] OR Methocarbamol[tiab] OR Ortoton[tiab]

#41 “Acid, Hyaluronic*” [tiab] OR “Amo Vitrax*” [tiab] OR “Vitrax, Amo*” [tiab] OR Biolon[tiab] OR Etamucine[tiab] OR Hyaluronan[tiab] OR Hyvisc[tiab] OR Luronit[tiab] OR “Sodium Hyaluronate*”[tiab] OR “Hyaluronate, Sodium*”[tiab] OR “Hyaluronate Sodium*”[tiab] OR Amvisc[tiab] OR Healon[tiab]

#42 Palmitylethanolamid*[tiab] OR N-palmitoylethanolamin*[tiab] OR palmitoylethanolamid*[tiab] OR N-(2-hydroxyethyl) palmitat*[tiab] OR Impulsin[tiab] OR MimyX[tiab] OR Peapure[tiab]

#43 “1-(Aminomethyl)cyclohexaneacetic Acid*”[tiab]OR Neurontin*[tiab] OR “Gabapentin Hexal*”[tiab]OR Convali*[tiab]OR “Gabapentin-Ratiopharm*”[tiab]OR “Gabapentin Ratiopharm*”[tiab] OR “Novo-Gabapentin*”[tiab]OR “Novo Gabapentin*”[tiab]OR NovoGabapentin*[tiab] OR ”PMS-Gabapentin*”[tiab]OR ”Apo-Gabapentin*”[tiab]OR “Apo Gabapentin*”[tiab]OR ”ApoGabapentin*”[tiab]OR “Gabapentin Stada*”[tiab]

#44 “2-Amino-2-Deoxyglucos*” [tiab] OR “2 Amino 2 Deoxyglucose*” [tiab] OR Hespercorbin*[tiab] “Glucosamine Sulfate*”[tiab] OR “Sulfate, Glucosamine*”[tiab] OR Dona*[tiab] OR “Dona S*”[tiab] OR Xicil*[tiab]

#45 OR/#12-44

#46 #11 AND #45

#47 randomized controlled trial [pt]

#48 controlled clinical trial [pt]

#49 randomized [tiab]

#50 placebo [tiab]

#51 drug therapy [sh]

#52 randomly [tiab]

#53 trial [tiab]

#54 groups [tiab]

#55 #47 OR #48 OR #49 OR #50 OR #51 OR #52 OR #53 OR #54

#56 animals [mh] NOT humans [mh]

#57 #55 NOT #56

#58 #45 AND #57

2 EMBASE search strategy

#1 craniomandibular disorders/

#2 temporomandibular joint disorders/

#3 temporomandibular joint dysfunction syndrome/

#4 (TMJ or TMJD). ab, ti.

#5 (craniomandibular disorder* or craniomandibular disease* or Craniomandibular dysfunction*). ab, ti.

#6 (facial pain OR craniofacial pain OR Orofacial pain OR myofascial pain OR Jaw pain). ab, ti.

#7 (Temporomandibular joint pain dysfunction syndrom* or Temporomandibular disorder* or temporomandibular joint disorder* or Temporomandibular disease or temporomandibular joint disease or Temporomandibular dysfunction* or temporomandibular joint dysfunction* or temporomandibular disk derangement or temporomandibular disk displacement or temporomandibular dislocation). ab, ti.

#8 Jaw dysfunction*. ab,ti.

#9 Costen* syndrome. ab, ti.

#10 (masticatory muscle disorder* or myofunctional disorder* or myofacial pain or masticatory muscle pain). ab, ti

#11 OR/1-10

#12 Analgesics/

#13 Anti-inflammatory agents, nonsteroidal/

#14 Anticonvulsants/

#15 Benzodiazepines/

#16 Baclofen/

#17 Capsaicin/

#18 Neuromuscular agents/

#19 Propranolol/

#20 Amitriptyline/

#21 Antidepressive agents/

#22 Botulinum Toxins/

#23 Diclofenac/

#24 Muscle Relaxants, Central/

#25 Hyaluronic Acid/

#26 Gabapentin/

#27 Glucosamine/

#28 (Analgesic* OR Analgesic Drug* OR Analgesic Agent*). ab,ti.

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#29 (Antiinflammatory Agents, Non Steroidal OR NSAID* OR Non-Steroidal Anti-Inflammatory Agent* OR Non Steroidal Anti Inflammatory Agent* OR Nonsteroidal Anti-Inflammatory Agent* OR Nonsteroidal Anti Inflammatory Agent* OR Anti Inflammatory Agent*, Nonsteroidal OR Antiinflammatory Agent*, Nonsteroidal OR Nonsteroidal Antiinflammatory Agent* OR Analgesic*, Anti-Inflammatory OR Anti-Inflammatory Analgesic* OR Aspirin-Like Agent* OR Aspirin Like Agent* OR Antinociceptive agent* OR Anti-rheumatic*).ab,ti.

#30 (Anticonvulsive Agent* OR Anticonvulsive Drug* OR Anticonvulsant Drug* OR Antiepileptic Agent* OR Antiepileptic* OR Antiepileptic Drug*). ab, ti.

#31 (Benzodiazepine OR Benzodiazepine Compound*). ab,ti.

#32 (Antidepressive agent* OR Anti-depressant drug* OR Antidepressant* OR Thymoanaleptic* OR Thymoleptic*). ab,ti.

#33 (Baclofen OR Baclophen). ab,ti.

#34 (Capsaicin OR Capsaicine OR 8-Methyl-N-Vanillyl-6-Nonenamide OR 8 Methyl N Vanillyl 6 Nonenamide OR Antiphlogistine Rub A-535 Capsaicin OR Axsain OR Zacin OR Capsidol OR Zostrix OR Capzasin OR Gelcen OR Katrum OR NGX-4010 OR NGX 4010 OR NGX4010 OR Capsicum Farmaya OR Capsin). ab,ti.

#35 (Propranolol OR Inderal OR Avlocardyl OR AY-20694 OR AY 20694 OR AY20694 OR Rexigen OR Dexpropranolol OR Dociton OR Obsidan OR Obzidan OR Propranolol Hydrochloride OR Anaprilin OR Anapriline OR Betadren OR Tryptine OR Amineurin OR Amitrip OR Amitriptylin Beta OR Amitriptylin Desitin OR Amitriptylin RPh OR RPh, Amitriptylin OR Amitriptylin-Neuraxpharm OR Amitriptylin Neuraxpharm OR Amitriptyline Hydrochloride OR Amitrol OR Anapsique OR Apo- OR Apo Amitriptyline OR Damilen OR Domical OR Laroxyl OR Lentizol OR Novoprotect OR Saroten OR Sarotex OR Syneudon OR Triptafen OR Endep OR Tryptizol OR Elavil OR Tryptanol).ab,ti.

#36 (Botulinum Toxin* OR Toxins, Botulinum OR Toxin, Botulinum OR Clostridium botulinum Toxins OR Toxins, Clostridium botulinum OR Botulin). ab, ti.

#37 (Pain killer*). ab,ti.

#38 (Diclofenac sodium OR Diclophenac OR Dicrofenac OR Dichlofenal OR Sodium Diclofenac OR Diclofenac, Sodium OR Diclonate P OR Feloran OR Voltarol OR Novapirina OR Orthofen OR Ortofen OR Orthophen OR SR-38 OR SR 38 OR SR38 OR Voltaren OR Diclofenac Potassium OR GP-45,840 OR GP 45,840 OR GP45,840). ab,ti.

#39 (Neuromuscular agents OR Skeletal Muscle Relaxant* OR Neuromuscular Effect*). ab,ti.

#40 (Central Muscle Relaxant* OR Relaxants, Central Muscle* OR Centrally Acting Muscle Relaxant* OR Methocarbamol OR Ortoton). ab,ti.

#41 (Acid, Hyaluronic* OR Amo Vitrax* OR Vitrax, Amo* OR Biolon OR Etamucine OR Hyaluronan OR Hyvisc OR Luronit OR Sodium Hyaluronate* OR Hyaluronate, Sodium* OR Hyaluronate Sodium* OR Amvisc OR Healon). ab,ti.

#42 (Palmitylethanolamid* OR N-palmitoylethanolamin* OR palmitoylethanolamid* OR Impulsin OR MimyX OR Peapure). ab,ti.

#43 (Neurontin* OR Gabapentin Hexal* OR Convali* OR Gabapentin-Ratiopharm* OR Gabapentin Ratiopharm* OR Novo-Gabapentin* OR Novo Gabapentin* OR NovoGabapentin* OR PMS-Gabapentin* OR Apo-Gabapentin* OR Apo Gabapentin* OR ApoGabapentin* OR Gabapentin Stada*). ab,ti.

#44 (2-Amino-2-Deoxyglucos* OR 2 Amino 2 Deoxyglucose* OR Hespercorbin* Glucosamine Sulfate* OR Sulfate, Glucosamine* OR Dona* OR Dona S* OR Xicil*). ab,ti.

#45 OR/12-44

#46 random$ or factorial$ or crossover$ or cross over$ or cross-over$ or placebo$; doubl$ adj blind$ or singl$ adj blind$ or assign$ or allocat$ or volunteer$

#47 exp crossover procedure/ or exp double blind procedure/ or exp randomized controlled trial/ or exp single blind procedure/

#48 #46 or #47

#49 #45 and #11

#50 #49 and #48

3 CENTRAL search strategy

#1 MeSH descriptor: [Craniomandibular Disorders] explode all trees

#2 MeSH descriptor: [Temporomandibular Joint Disorders] explode all trees

#3 MeSH descriptor: [Temporomandibular Joint Dysfunction Syndrome] explode all trees

#4 ((TMJ) OR (TMJD) OR (craniomandibular disorder*) OR (craniomandibular disease*) OR (Craniomandibular dysfunction*) OR (facial pain) OR (craniofacial pain) OR (Orofacial pain) OR (myofascial pain) OR (Jaw pain) OR (Temporomandibular joint pain dysfunction syndrom*) OR (Temporomandibular disorder*) OR (temporomandibular joint disorder*) OR (Temporomandibular disease) OR (temporomandibular joint disease) OR (Temporomandibular dysfunction*) OR (temporomandibular joint dysfunction*) OR (temporomandibular disk derangement) OR (temporomandibular disk displacement) OR (temporomandibular dislocation) OR (Jaw dysfunction*) OR (Costen* syndrome) OR (masticatory muscle disorder*) OR (myofunctional disorder*) OR (myofacial pain) OR (masticatory muscle pain)):ti,ab,kw

#5 #1 or #2 or #3 or #4

#6 MeSH descriptor: [Analgesics] explode all trees

#7 MeSH descriptor: [Anti-Inflammatory Agents, Non-Steroidal] explode all trees

#8 MeSH descriptor: [Anticonvulsants] explode all trees

#9 MeSH descriptor: [Benzodiazepines] explode all trees

#10 MeSH descriptor: [Baclofen] explode all trees

#11 MeSH descriptor: [Capsaicin] explode all trees

#12 MeSH descriptor: [Neuromuscular agents] explode all trees

APPENDIX VII: Search strategy

#13 MeSH descriptor: [Propanolol] explode all trees
#14 MeSH descriptor: [Amitriptyline] explode all trees
#15 MeSH descriptor: [Antidepressive agents] explode all trees
#16 MeSH descriptor: [Botulinum Toxins] explode all trees
#17 MeSH descriptor: [Diclofenac] explode all trees
#18 MeSH descriptor: [Muscle Relaxants, Central] explode all trees
#19 MeSH descriptor: [Hyaluronic Acid] explode all trees
#20 MeSH descriptor: [Glucosamine] explode all trees
#21 ((Analgesic*) OR (Analgesic Drug*) OR (Analgesic Agent*) OR (Antiinflammatory Agents, Non Steroidal) OR (NSAID*) OR (Non-Steroidal Anti-Inflammatory Agent*) OR (Non Steroidal Anti Inflammatory Agent*) OR (Nonsteroidal Anti-Inflammatory Agent*) OR (Nonsteroidal Anti Inflammatory Agent*) OR (Anti Inflammatory Agent*, Nonsteroidal) OR (Antiinflammatory Agent*, Nonsteroidal) OR (Nonsteroidal Antiinflammatory Agent*) OR (Analgesic*, Anti-Inflammatory) OR (Anti-Inflammatory Analgesic*) OR (Aspirin-Like Agent*) OR (Aspirin Like Agent*) OR (Antinociceptive agent*) OR (Anti-rheumatic*) OR (Anticonvulsive Agent*) OR (Anticonvulsive Drug*) OR (Anticonvulsant Drug*) OR (Antiepileptic Agent*) OR (Antiepileptic*) OR (Antiepileptic Drug*) OR (Benzodiazepine) OR (Benzodiazepine Compound*) OR (Antidepressive agent*) OR (Anti-depressant drug*) OR (Antidepressant*) OR (Thymoanaleptic*) OR (Thymoleptic*)):ti,ab,kw
#22 ((Baclofen) OR (Baclophen)): ti, ab,kw
#23 ((Capsaicin OR Capsaicine) OR (8 Methyl N Vanillyl 6 Nonenamide) OR (Capsaicin) OR (Axsain) OR (Zacin) OR (Capsidol) OR (Zostrix) OR (Capzasin) OR (Gelcen) OR (Katrum) OR (NGX 4010) OR (Capsicum Farmaya OR Capsin)): ti,ab,kw
#24 ((Propranolol) OR (Inderal) OR (Avlocardyl) OR (AY20694) OR (Rexigen) OR (Dexpropranolol) OR (Dociton) OR (Obsidan) OR (Obzidan) OR (Propranolol Hydrochloride) OR (Anaprilin OR Anapriline) OR (Betadren) OR (Tryptine) OR (Amineurin) OR (Amitrip) OR (Amitriptylin Beta) OR (Amitriptylin Desitin) OR (Amitriptylin RPh) OR (RPh, Amitriptylin) OR (Amitriptylin Neuraxpharm) OR (Amitriptyline Hydrochloride) OR (Amitrol) OR (Anapsique) OR (Apo AND Amitriptyline) OR (Damilen) OR (Domical) OR (Laroxyl) OR (Lentizol) OR (Novoprotect) OR (Saroten) OR (Sarotex) OR (Syneudon) OR (Triptafen) OR (Endep) OR (Tryptizol) OR (Elavil) OR (Tryptanol)):ti,ab,kw
#25 ((Botulinum Toxin*) OR (Toxins, Botulinum) OR (Toxin, Botulinum) OR (Clostridium botulinum Toxins) OR (Toxins, Clostridium botulinum) OR (Botulin)): ti, ab,kw
#26 (Pain killer*): ti,ab,kw
#27 ((Diclofenac sodium) OR Diclophenac OR Dicrofenac OR Dichlofenal OR (Sodium Diclofenac) OR (Diclonate P) OR Feloran OR Voltarol OR Novapirina OR Orthofen OR Ortofen OR Orthophen OR (SR 38) OR (SR38) OR Voltaren OR (Diclofenac Potassium) OR (GP45,840)): ti, ab,kw
#28 ((Neuromuscular agents) OR (Skeletal Muscle Relaxant*) OR (Neuromuscular Effect*)): ti,ab,kw
#29 ((Central Muscle Relaxant*) OR (Centrally Acting Muscle Relaxant*) OR Methocarbamol OR Ortoton): ti, ab,kw
#30 ((Acid, Hyaluronic*) OR (Amo Vitrax*) OR (Vitrax, Amo*) OR Biolon OR Etamucine OR Hyaluronan OR Hyvisc OR Luronit OR (Sodium Hyaluronate*) OR (Hyaluronate, Sodium*) OR (Hyaluronate Sodium*) OR Amvisc OR Healon): ti,ab,kw
#31 (Palmitylethanolamid* OR palmitoylethanolamid* OR Impulsin OR MimyX OR Peapure): ti,ab,kw
#32 (Neurontin* OR (Gabapentin Hexal*) OR Convali* OR (Gabapentin Ratiopharm*) OR (Novo Gabapentin*) OR NovoGabapentin* OR (Apo Gabapentin*) OR (ApoGabapentin*) OR (Gabapentin Stada*)):ti,ab,kw
#33 ((2 Amino 2 Deoxyglucose*) OR Hespercorbin* OR (Glucosamine Sulfate*) OR (Sulfate, Glucosamine*) OR Dona* OR (Dona S*) OR Xicil*): ti,ab,kw
#34 #6 OR #7 OR #8 OR #9 OR #10 OR #11 OR #12 OR #13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19 OR #20 OR #21 OR #22 OR #23 OR #24 OR #25 OR #26 OR #27 OR #28 OR #29 OR #30 OR #31 OR #32 OR #33
#35 #5 AND #34

4 LIVIVO English search strategy

”craniomandibular disorders” OR ”temporomandibular joint disorders” OR ”temporomandibular joint dysfunction syndrome” OR TMJ OR TMJD OR “craniomandibular disease*” AND Analgesics OR ”Anti-inflammatory agents, non steroidal” OR Anticonvulsants OR Benzodiazepines OR Baclofen OR Capsaicin OR ”Neuromuscular agents” OR Propranolol OR Amitriptyline OR ”Antidepressive agents” OR ”Botulinum Toxins” OR Diclofenac OR ”Muscle Relaxants, Central” OR ”Hyaluronic Acid” OR Gabapentin OR Glucosamine OR Antiepileptic* OR Thymoanaleptic* OR Thymoleptic* OR Axsain OR Zacin OR Capsidol OR Zostrix OR Capzasin OR Gelcen OR Katrum OR Capsin OR Inderal OR Avlocardyl OR Rexigen OR Dexpropranolol OR Dociton OR Obsidan OR Obzidan OR Anaprilin OR Anapriline OR Betadren OR Tryptine OR Amineurin OR Amitrip OR Amitrol OR Anapsique OR Damilen OR Domical OR Laroxyl OR Lentizol OR Novoprotect OR Saroten OR Sarotex OR Syneudon OR Triptafen OR Endep OR Tryptizol OR Elavil OR Tryptanol OR ”Botulinum Toxin*” OR ”Toxins, Botulinum” OR ”Toxin, Botulinum” OR Botulin OR Pain killer* OR Diclophenac OR Feloran OR Voltarol OR Novapirina OR Orthofen OR Ortofen OR Voltaren OR Methocarbamol OR Ortoton OR Biolon OR Etamucine OR Hyaluronan OR Hyvisc OR Luronit OR Amvisc OR Healon OR Palmitylethanolamid* OR palmitoylethanolamid OR Impulsin OR MimyX OR Peapure OR Neurontin* OR Convali* OR Dona*

APPENDIX VII: Search strategy

5 LIVIVO Deutsch search strategy

TI= („Craniomandibuläre Dysfunktionen“OR CMD OR TMD OR „temporomandibuläre Dysfunktionen“) AND TI=((Analgetika OR Schmerztabletten OR Antikonvulsiva OR Benzodiazepine OR Baclofen OR Capsaicin OR "Neuromuskuläre Agenten" OR Propranolol OR Amitriptylin OR Antidepressiva OR Botulinumtoxine OR Diclofenac OR Muskelentspannungsmittel OR Hyaluronsäure OR Gabapentin OR Glucosamin OR Cyclobenzaprin OR clonazepam OR ibuprofen OR palmitoylethylamide))

6 Clinicaltrials.gov search strategy

MeSH: (craniomandibular disorders OR temporomandibular joint disorders OR temporomandibular joint dysfunction syndrome) AND (Analgesics OR Anti-inflammatory agents, nonsteroidal OR Anticonvulsants OR Benzodiazepines OR Baclofen OR Capsaicin)
(Craniomandibular disorders OR temporomandibular joint disorders OR temporomandibular joint dysfunction syndrome) AND (Neuromuscular agents OR Propranolol OR Amitriptyline OR Antidepressive agents OR Botulinum Toxins OR Diclofenac)
(Craniomandibular disorders OR temporomandibular joint disorders OR temporomandibular joint dysfunction syndrome) AND (Muscle Relaxants, Central OR Hyaluronic Acid OR Gabapentin OR Glucosamine)

7 Drks.de search strategy

Craniomandibuläre Dysfunktionen OR CMD OR TMD

8 Open Grey Literature search strategy

(“craniomandibular disorders” OR “temporomandibular joint disorders” OR “temporomandibular joint dysfunction syndrome” OR TMJ OR TMJD OR “craniomandibular disease*” OR “Craniomandibular dysfunction*” OR “facial pain” OR “craniofacial pain“ OR “Orofacial pain” OR “myofascial pain” OR “Jaw pain” OR “Temporomandibular disorder*” OR “temporomandibular joint disorder*” OR “Temporomandibular disease” OR “temporomandibular joint disease” OR “Temporomandibular dysfunction*” OR “temporomandibular joint dysfunction*” OR “temporomandibular disk derangement” OR “temporomandibular disk displacement” OR “temporomandibular dislocation” OR “Jaw dysfunction*” OR “Costen* syndrome” OR “masticatory muscle disorder*” OR “myofunctional disorder*” OR “myofacial pain” OR “masticatory muscle pain”) AND Drugs

APPENDIX VII: Search strategy

Psychosocial interventions

1 MEDLINE via Pubmed search strategy

#1 craniomandibular disorders [MeSH]
#2 temporomandibular joint disorders [MeSH]
#3 temporomandibular joint dysfunction syndrome [MeSH]
#4 TMJ [tiab] OR TMJD [tiab]
#5 “craniomandibular disorder*” [tiab] OR “craniomandibular disease*” [tiab] OR “Craniomandibular dysfunction*”[tiab]
#6 “facial pain” [tiab] OR “craniofacial pain “[tiab] OR “Orofacial pain” [tiab] OR “myofascial pain”[tiab] OR “Jaw pain”[tiab]
#7 “Temporomandibular joint pain dysfunction syndrom*” [tiab] OR “Temporomandibular disorder*” [tiab] OR “temporomandibular joint disorder*”[tiab] OR “Temporomandibular disease”[tiab] OR “temporomandibular joint disease”[tiab] OR “Temporomandibular dysfunction*”[tiab] OR “temporomandibular joint dysfunction*”[tiab] OR “temporomandibular disk derangement”[tiab] OR “temporomandibular disk displacement” [tiab] OR “temporomandibular dislocation”[tiab]
#8 “Jaw dysfunction*” [tiab]
#9 Costen* syndrome [tiab]
#10 “masticatory muscle disorder*” [tiab] OR “myofunctional disorder*”[tiab] OR “myofacial pain”[tiab] OR “masticatory muscle pain”[tiab]
#11 OR/#1-10
#12 Biofeedback, Psychology [MeSH]
#13 Mind-Body Therapies[MeSH]
#14 Cognitive Behavioral Therapy [MeSH]
#15 Self-care [MeSH]
#16 Hypnosis, dental [MeSH]
#17 Counsel*[tiab]
#18 “Self care “[tiab] OR self-care[tiab] OR “self care treatment” [tiab] OR “self-care treatment” [tiab] OR “self-care strateg*”[tiab] OR “self care strateg*”[tiab] OR “self-efficacy enhancement*”[tiab] OR “self efficacy enhancement*”[tiab] OR “fear-avoidance technique*”[tiab]
#19 Cogniti*[tiab] AND therap*[tiab] OR Cogniti*[tiab] AND psychotherap*[tiab] OR Cogniti* AND Behavioral[tiab] AND intervention*[tiab] OR Cogniti*[tiab] AND Behavioral[tiab] AND treatment*[tiab] OR “Cognitive Behavioral Therap*” [tiab] OR “Cognition Therap*” [tiab] OR “Cognitive Psychotherap*”[tiab] OR “Cognitive Therap*”[tiab] OR “Cognitive Behavior Therap*“[tiab]
#20 “Relaxation treatment “[tiab] OR “Relaxation training “[tiab]
#21 Dental[tiab] AND hypnos*[tiab] OR “Dental Hypnos*” [tiab]
#22 “Self management” [tiab] OR self-management[tiab]
#23 “mind-body therap*” [tiab] OR “mind body therap*“[tiab] OR “Mind-Body Medicin*”[tiab] OR “Mind Body Medicin*”[tiab]
#24 Biofeedback*[tiab] AND Psychology[tiab] OR “Psychology Biofeedback*” [tiab] OR “Psychophysiologic Feedback*”[tiab] OR “Bogus Physological Feedback”[tiab]
#25 Oral habit reversal[tiab]
#26 Psychotherap*[tiab]
#27 OR/#12-26
#28 #11 AND #27
#29 randomized controlled trial [pt]
#30 controlled clinical trial [pt]
#31 randomized [tiab]
#32 placebo [tiab]
#33 drug therapy [sh]
#34 randomly [tiab]
#35 trial [tiab]
#36 groups [tiab]
#37 #29 OR #30 OR #31 OR #32 OR #33 OR #34 OR #35 OR #36
#38 animals [mh] NOT humans [mh]
#39 #37 NOT #38
#40 #28 AND #39

2 EMBASE search strategy

#1 craniomandibular disorders/
#2 temporomandibular joint disorders/
#3 temporomandibular joint dysfunction syndrome/
#4 (TMJ or TMJD). ab, ti.
#5 (craniomandibular disorder* or craniomandibular disease* or Craniomandibular dysfunction*). ab, ti.
#6 (facial pain OR craniofacial pain OR Orofacial pain OR myofascial pain OR Jaw pain). ab, ti.
#7 (Temporomandibular joint pain dysfunction syndrom* or Temporomandibular disorder* or temporomandibular joint disorder* or Temporomandibular disease or temporomandibular joint disease or Temporomandibular dysfunction* or

APPENDIX VII: Search strategy

temporomandibular joint dysfunction* or temporomandibular disk derangement or temporomandibular disk displacement or temporomandibular dislocation). ab, ti.
#8 Jaw dysfunction*. ab, ti.
#9 Costen* syndrome. ab, ti.
#10 (masticatory muscle disorder* or myofunctional disorder* or myofacial pain or masticatory muscle pain). ab,ti
#11 OR/1-10
#12 Biofeedback, Psychology/
#13 Mind-Body Therapies/
#14 Cognitive Behavioral Therapy/
#15 Self care/
#16 Hypnosis, dental/
#17 (Counsel*). ab, ti.
#18 (Self care OR self-care OR self care treatment OR self-care treatment OR self-care strateg* OR self care strateg* OR self-efficacy enhancement* OR self efficacy enhancement* OR fear-avoidance technique*). ab, ti.
#19 ((Cogniti* AND therap*) OR (Cogniti* AND psychotherap*) OR (Cogniti* AND Behavioral AND intervention*) OR (Cogniti* AND Behavioral AND treatment*) OR Cognitive Behavioral Therap* OR Cognition Therap* OR Cognitive Psychotherap* OR Cognitive Therap* OR Cognitive Behavior Therap*).ab,ti.
#20 (Relaxation treatment OR Relaxation training). ab, ti.
#21 ((Dental AND hypnos*) OR (Dental Hypnos*)). ab, ti.
#22 (Self management OR self-management). ab, ti.
#23 (mind-body therap* OR mind body therap* OR Mind-Body Medicin* OR Mind Body Medicin*). ab, ti.
#24 ((Biofeedback* AND Psychology) OR Psychology Biofeedback* OR Psychophysiologic Feedback* OR Bogus Physological Feedback). ab, ti.
#25 (Oral habit reversal). ab,ti.
#26 (Psychotherap*). ab,ti.
#27 OR/12-26
#28 #11 AND #27
#29 random$ or factorial$ or crossover$ or cross over$ or cross-over$ or placebo$; doubl$ adj blind$ or singl$ adj blind$ or assign$ or allocat$ or volunteer$
#30 exp crossover procedure/ or exp double blind procedure/ or exp randomized controlled trial/ or exp single blind procedure/
#31 #29 or #30
#32 #28 and #31

3 CENTRAL search strategy

#1 MeSH descriptor: [Craniomandibular Disorders] explode all trees
#2 MeSH descriptor: [Temporomandibular Joint Disorders] explode all trees
#3 MeSH descriptor: [Temporomandibular Joint Dysfunction Syndrome] explode all trees
#4 ((TMJ) OR (TMJD) OR (craniomandibular disorder*) OR (craniomandibular disease*) OR (Craniomandibular dysfunction*) OR (facial pain) OR (craniofacial pain) OR (Orofacial pain) OR (myofascial pain) OR (Jaw pain) OR (Temporomandibular joint pain dysfunction syndrom*) OR (Temporomandibular disorder*) OR (temporomandibular joint disorder*) OR (Temporomandibular disease) OR (temporomandibular joint disease) OR (Temporomandibular dysfunction*) OR (temporomandibular joint dysfunction*) OR (temporomandibular disk derangement) OR (temporomandibular disk displacement) OR (temporomandibular dislocation) OR (Jaw dysfunction*) OR (Costen* syndrome) OR (masticatory muscle disorder*) OR (myofunctional disorder*) OR (myofacial pain) OR (masticatory muscle pain)):ti,ab,kw
#5 #1 or #2 or #3 or #4
#6 MeSH descriptor: [Biofeedback, Psychology] explode all trees
#7 MeSH descriptor: [Mind-Body Therapies] explode all trees
#8 MeSH descriptor: [Cognitive Behavioral Therapy] explode all trees
#9 MeSH descriptor: [Self care] explode all trees
#10 MeSH descriptor: [Hypnosis, dental] explode all trees
#11 ((Counsel*) OR (Self care) OR (self care treatment) OR (self care strateg*) OR (self efficacy enhancement*) OR (fear avoidance technique*)): ti, ab, kw
#12 ((Cogniti* AND therap*) OR (Cogniti* AND psychotherap*) OR (Cogniti* AND Behavioral AND intervention*) OR (Cogniti* AND Behavioral AND treatment*) OR (Cognitive Behavioral Therap*) OR (Cognition Therap*) OR (Cognitive Psychotherap*) OR (Cognitive Therap*) OR (Cognitive Behavior Therap*)): ti, ab,kw
#13 ((Relaxation treatment) OR (Relaxation training)): ti, ab,kw
#14 ((Dental AND hypnos*) OR (Dental Hypnos*)): ti, ab,kw
#15 (Self management): ti, ab,kw
#16 ((mind body therap*) OR (Mind Body Medicin*)): ti, ab,kw
#17 ((Biofeedback* AND Psychology) OR (Psychology Biofeedback*) OR (Psychophysiologic Feedback*) OR (Bogus Physological Feedback)): ti, ab,kw
#18 #6 OR #7 OR #8 OR #9 OR #10 OR #11 OR #12 OR #13 OR #14 OR #15 OR #16 OR #17
#19 #5 and #18

APPENDIX VII: Search strategy

4 LIVIVO English search strategy

TI=(”craniomandibular disorders” OR ”temporomandibular joint disorders” OR ”temporomandibular joint dysfunction syndrome” OR TMJ OR TMJD OR “craniomandibular disease*”) AND TI=(Biofeedback OR Psychology OR “Mind-Body Therapies” OR “Cognitive Behavioral Therapy” OR “Self care” OR “Hypnosis, dental” OR Counsel*)

5 LIVIVO Deutsch search strategy

TI= („Craniomandibuläre Dysfunktionen“ OR CMD OR TMD OR „temporomandibuläre Dysfunktionen“)
AND TI= („Geist-Körper-“ OR “Kognitive Verhaltenstherapie“ OR Selbstversorgungstherapie OR “Hypnose” OR Psychotherapie OR Biofeedback)

6 Clinicaltrials.gov search strategy

MeSH: (craniomandibular disorders OR temporomandibular joint disorders OR temporomandibular joint dysfunction syndrome) AND (Biofeedback, Psychology OR Mind-Body Therapies OR Cognitive Behavioral Therapy OR Self care OR Hypnosis, dental)

7 Drks.de search strategy

Craniomandibuläre Dysfunktionen OR CMD OR TMD

8 Open Grey Literature search strategy

(“craniomandibular disorders” OR “temporomandibular joint disorders” OR “temporomandibular joint dysfunction syndrome” OR TMJ OR TMJD OR “craniomandibular disease*” OR “Craniomandibular dysfunction*” OR “facial pain” OR “craniofacial pain“ OR “Orofacial pain” OR “myofascial pain” OR “Jaw pain” OR “Temporomandibular disorder*” OR “temporomandibular joint disorder*” OR “Temporomandibular disease” OR “temporomandibular joint disease” OR “Temporomandibular dysfunction*” OR “temporomandibular joint dysfunction*” OR “temporomandibular disk derangement” OR “temporomandibular disk displacement” OR “temporomandibular dislocation” OR “Jaw dysfunction*” OR “Costen* syndrome” OR “masticatory muscle disorder*” OR “myofunctional disorder*” OR “myofacial pain” OR “masticatory muscle pain”) AND Counsel* OR “self-care” OR “self care treatment” OR “self-care treatment” OR “self-care strateg*” OR “self care strateg*” OR “self-efficacy enhancement*” OR “self efficacy enhancement*” OR “fear-avoidance technique*” OR “Cogniti* AND therap*” OR “Cogniti* AND psychotherap*” OR “Cogniti* AND (“Behavioral AND intervention*” OR “Cogniti* AND Behavioral AND treatment*” OR “Cognitive Behavioral Therap*” OR “Cognition Therap*” OR “Cognitive Psychotherap*” OR “Cognitive Therap*” OR “Cognitive Behavior Therap*” OR “Relaxation treatment” OR “Relaxation training” OR “Dental AND hypnos*” OR “Dental Hypnos*” OR “Self management” OR “self-management” OR “mind-body therap*” OR “mind body therap*” OR “Mind-Body Medicin*” OR “Mind Body Medicin*” OR “Biofeedback* AND Psychology” OR “Psychology Biofeedback*” OR “Psychophysiologic Feedback*” OR “Bogus Physological Feedback” OR “Oral habit reversal” OR Psychotherapy

APPENDIX VII: Search strategy

Physiotherapy

1 MEDLINE via Pubmed search strategy

#1 craniomandibular disorders [MeSH]
#2 temporomandibular joint disorders [MeSH]
#3 temporomandibular joint dysfunction syndrome [MeSH]
#4 TMJ [tiab] OR TMJD [tiab]
#5 “craniomandibular disorder*” [tiab] OR “craniomandibular disease*” [tiab] OR “Craniomandibular dysfunction*” [tiab]
#6 “facial pain” [tiab] OR “craniofacial pain “[tiab] OR “Orofacial pain” [tiab] OR “myofascial pain” [tiab] OR “Jaw pain” [tiab]
#7 “Temporomandibular joint pain dysfunction syndrom*” [tiab] OR “Temporomandibular disorder*” [tiab] OR “temporomandibular joint disorder*” [tiab] OR “Temporomandibular disease” [tiab] OR “temporomandibular joint disease” [tiab] OR “Temporomandibular dysfunction*” [tiab] OR “temporomandibular joint dysfunction*” [tiab] OR “temporomandibular disk derangement” [tiab] OR “temporomandibular disk displacement” [tiab] OR “temporomandibular dislocation” [tiab]
#8 “Jaw dysfunction*” [tiab]
#9 Costen* syndrome [tiab]
#10 “masticatory muscle disorder*” [tiab] OR “myofunctional disorder*” [tiab] OR “myofacial pain” [tiab] OR “masticatory muscle pain” [tiab]
#11 OR/#1-10
#12 Exercise Therapy [MeSH]
#13 Massage [MeSH]
#14 Myofunctional therapy [MeSH]
#15 Musculoskeletal Manipulations [MeSH]
#16 Manipulation, Osteopathic [MeSH]
#17 Kinesiology, Applied [MeSH]
#18 Exercise [tiab] AND therap*[tiab] OR “Remedial Exercis*” [tiab] OR “Rehabilitation Exercis*” [tiab] OR “Exercise Therap*” [tiab]
#19 myotherap*[tiab] OR “myofunctional therap*” [tiab] OR “Orofacial Myotherap*” [tiab] OR “Oral Myotherap*” [tiab] OR” Orofacial Myolog*” [tiab]
#20 massage[tiab] OR “Craniosacral Massage*” [tiab] OR “Zone Therap*” [tiab] OR Reflexolog*[tiab] OR Rolfing[tiab] OR Bodywork*[tiab] OR “Massage Therap*” [tiab]
#21 “Jaw exercise*” [tiab] OR “Postural correction*” [tiab]
#22 Musculoskeletal*[tiab] AND manipulation*[tiab] OR “Manual Therap*” [tiab] OR” Manipulation Therap*” [tiab] OR” Manipulative Therap*” [tiab]
#23 ” Osteopathic Manipulative Treatment*” [tiab] OR “Osteopathic Manipulation*” [tiab]
#24 ” Applied Kinesiolog*” [tiab]
#25 Biofeedback* AND EMG OR “Biofeedback AND Electromyograph*”
#26 OR/#14-25
#27 #11 AND #26
#28 randomized controlled trial [pt]
#29 controlled clinical trial [pt]
#30 randomized [tiab]
#31 placebo [tiab]
#32 drug therapy [sh]
#33 randomly [tiab]
#34 trial [tiab]
#35 groups [tiab]
#36 #28 OR #29 OR #30 OR #31 OR #32 OR #33 OR #34 OR #35
#37 animals [mh] NOT humans [mh]
#38 #36 NOT #37
#39 #27 AND #38

2 EMBASE search strategy

#1 craniomandibular disorders/
#2 temporomandibular joint disorders/
#3 temporomandibular joint dysfunction syndrome/
#4 (TMJ or TMJD). ab, ti.
#5 (craniomandibular disorder* or craniomandibular disease* or Craniomandibular dysfunction*). ab, ti.
#6 (facial pain OR craniofacial pain OR Orofacial pain OR myofascial pain OR Jaw pain). ab, ti.
#7 (Temporomandibular joint pain dysfunction syndrom* or Temporomandibular disorder* or temporomandibular joint disorder* or Temporomandibular disease or temporomandibular joint disease or Temporomandibular dysfunction* or temporomandibular joint dysfunction* or temporomandibular disk derangement or temporomandibular disk displacement or temporomandibular dislocation). ab,ti.

APPENDIX VII: Search strategy

#8 Jaw dysfunction*. ab,ti.
#9 Costen* syndrome. ab, ti.
#10 (masticatory muscle disorder* or myofunctional disorder* or myofacial pain or masticatory muscle pain). ab,ti
#11 OR/1-10
#12 Exercise Therapy/
#13 Massage/
#14 Myofunctional therapy/
#15 Musculoskeletal Manipulations/
#16 Manipulation, Osteopathic/
#17 Kinesiology, Applied/
#18 ((Exercise AND therap*) OR (Remedial Exercis*) OR (Rehabilitation Exercis*) OR (Exercise Therap*)). ab, ti.
#19 (myotherap* OR myofunctional therap* OR Orofacial Myotherap* OR Oral Myotherap* OR Orofacial Myolog*). ab, ti.
#20 (massage OR Craniosacral Massage* OR Zone Therap* OR Reflexolog* OR Rolfing OR Bodywork* OR Massage Therap*). ab,ti.
#21 (Jaw exercise* OR Postural correction*). ab,ti.
#22 ((Musculoskeletal* AND manipulation*) OR (Manual Therap*) OR (Manipulation Therap*) OR (Manipulative Therap*)). ab,ti.
#23 ((Osteopathic Manipulative Treatment*) OR (Osteopathic Manipulation*)). ab,ti.
#24 (Applied Kinesiolog*). ab,ti.
#25 ((Biofeedback* AND EMG) OR (Biofeedback AND Electromyograph)). ab,ti.
#26 OR/#12-25
#27 #11 AND #26
#28 random$ or factorial$ or crossover$ or cross over$ or cross-over$ or placebo$; doubl$ adj blind$ or singl$ adj blind$ or assign$ or allocat$ or volunteer$
#29 exp crossover procedure/ or exp double blind procedure/ or exp randomized controlled trial/ or exp single blind procedure/
#30 #28 or #29
#31 #27 and #30

3 CENTRAL search strategy

#1 MeSH descriptor: [Craniomandibular Disorders] explode all trees
#2 MeSH descriptor: [Temporomandibular Joint Disorders] explode all trees
#3 MeSH descriptor: [Temporomandibular Joint Dysfunction Syndrome] explode all trees
#4 ((TMJ) OR (TMJD) OR (craniomandibular disorder*) OR (craniomandibular disease*) OR (Craniomandibular dysfunction*) OR (facial pain) OR (craniofacial pain) OR (Orofacial pain) OR (myofascial pain) OR (Jaw pain) OR (Temporomandibular joint pain dysfunction syndrom*) OR (Temporomandibular disorder*) OR (temporomandibular joint disorder*) OR (Temporomandibular disease) OR (temporomandibular joint disease) OR (Temporomandibular dysfunction*) OR (temporomandibular joint dysfunction*) OR (temporomandibular disk derangement) OR (temporomandibular disk displacement) OR (temporomandibular dislocation) OR (Jaw dysfunction*) OR (Costen* syndrome) OR (masticatory muscle disorder*) OR (myofunctional disorder*) OR (myofacial pain) OR (masticatory muscle pain)):ti,ab,kw
#5 #1 or #2 or #3 or #4
#6 MeSH descriptor: [Exercise Therapy] explode all trees
#7 MeSH descriptor: [Massage] explode all trees
#8 MeSH descriptor: [Myofunctional therapy] explode all trees
#9 MeSH descriptor: [Musculoskeletal Manipulations] explode all trees
#10 MeSH descriptor: [Manipulation, Osteopathic] explode all trees
#11 MeSH descriptor: [Kinesiology, applied] explode all trees
#12 ((Exercise AND therap*)OR (Remedial Exercis*) OR (Rehabilitation Exercis*) OR (Exercise Therap*) OR (myotherap*) OR (myofunctional therap*) OR (Orofacial Myotherap*) OR (Oral Myotherap*) OR (Orofacial Myolog*) OR (massage) OR (Craniosacral Massage*) OR (Zone Therap*) OR (Reflexolog) OR (Rolfing) OR (Bodywork*) OR (Massage Therap*) OR (Jaw exercise*) OR (Postural correction*) OR (Musculoskeletal* AND manipulation*) OR (Manual Therap*) OR (Manipulation Therap*) OR (Manipulative Therap*) OR (Osteopathic Manipulative Treatment*) OR (Osteopathic Manipulation*) OR (Applied Kinesiolog*) OR (Biofeedback*AND EMG) OR (Biofeedback AND Electromyograph*)):ti,ab,kw
#13 OR/#6-12
#14 #5 and #13

4 LIVIVO English search strategy

TI=(”craniomandibular disorders” OR ”temporomandibular joint disorders” OR ”temporomandibular joint dysfunction syndrome” OR TMJ OR TMJD OR “craniomandibular disease*”) AND TI=(Exercise OR Massage OR Myofunctional OR Musculoskeletal Manipulations OR Manipulation, Osteopathic OR Kinesiology, Applied OR Remedial OR Rehabilitation OR myotherapy OR Orofacial Myotherapy OR Oral Myotherapy OR Orofacial Myology OR Craniosacral Massage OR Zone OR Reflexology OR

APPENDIX VII: Search strategy

Rolfing OR Bodywork OR Jaw exercise OR Postural correction OR Manual OR Osteopathic Manipulative OR Biofeedback OR EMG OR Electromyograph)

5 LIVIVO Deutsch search strategy

TI= („Craniomandibuläre Dysfunktionen“ OR CMD OR TMD OR „temporomandibuläre Dysfunktionen“)
AND
TI= (Bewegungstherapie OR myoreflextherapie OR Massage OR „myofunktionel“ OR „Muskuloskelatale Manipulationen OR manuel OR angewandte Kinesiologie OR Rehabilitationsübung OR „orofaziale Myotherapie“ OR „orale Myotherapie“ OR „Orofaziale Myologie“ OR „Craniosacrale Massage“ OR Zonentherapie OR Reflexzonenmassage OR Rolfing OR Körpertraining OR Kieferübung OR „Posturale Korrektur“ OR Elektromyographie)

6 Clinicaltrials.gov search strategy

MeSH: (craniomandibular disorders OR temporomandibular joint disorders OR temporomandibular joint dysfunction syndrome) AND (Exercise Therapy OR Massage OR Myofunctional therapy OR Musculoskeletal Manipulations OR Manipulation, Osteopathic OR Kinesiology)

7 Drks.de search strategy

Craniomandibuläre Dysfunktionen OR CMD OR TMD
AND
Bewegungstherapie OR Myofunktionelle Therapie OR Muskuloskelettale Manipulationen OR Manipulation, Osteopathie OR Kinesiologie OR Kieferübung OR Elektromyograph OR massage OR Myotherapie OR Massage

8 Open Grey Literature search strategy

temporomandibular joint

APPENDIX VIII: Characteristics of studies

The following study characteristics regarding the included were created with the help of the Review Manager (RevMan version 5.3) and extracted from it.

They are presented on the following pages.

Characteristics of included studies: Acupuncture

Aksu 2019

Methods	RCT. single centre; three parallel groups;
Participants	63 patients: 84 % women; mean age 39.4 (SD±14.9); range 18-65 years. Inclusion criteria: 18-65 ages, temporal, lateral pterygoid and/or masseter tenderness, and existing trigger points (MPS diagnosed according to the criteria defined by Travel and Simon), and symptoms for at least three months. Exclusion criteria: having active odontogenic disease; undergoing jaw joint operation; having a diagnosis of a systematic; metabolic; endocrine; tumoral; infectious; inflammatory; rheumatic; neurological disease (trigeminal neuralgia, atypical fascial pain), having a psychiatric diagnosis, and any haemorrhagic disease. Time: March 2013-September 2013 Country: Turkey Clinic: Physical Medicine and Rehabilitation Clinic of Istanbul Training and Research Hospital
Interventions	Group A (n=21): only the exercise and protection training Group B (n=20): dry needling + exercise + protection training. Dry needling or trigger point injection was performed for three times to the patients in Group 2 and Group 3 on a weekly basis by a single physiatrist. Trigger point injection: The trigger point in the right or left or bilateral masseter and lateral pterygoid muscles was detected by palpation, and 1 mL of prilocaine was injected using a 22-Gauge 5 mL injector. After injection, the patient was observed for 10 min. Dry needling: The trigger point in the right or left or bilateral masseter and lateral pterygoid muscles was detected by palpation. An acupuncture needle was applied to the point and the needle was turned around itself once in five min. The needle was kept in the muscle for 20 min until the muscle became relaxed. Group C (n=22): trigger point injection + exercise + protection training
Outcomes	Pain (VAS) Changes in the mouth opening level Changes in the low disability limitation level Examination of the tender points of facial and neck muscles via palpation and using algometry method.
Chronicity	Low disability
Hints to chronicity	Exclusion: having a psychiatric diagnosis
Duration	All patients were followed on Day 10 and at one month
Notes	

APPENDIX VIII: Characteristics of studies

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: "Randomization was performed according to the order of arrival of the patients."
Allocation concealment (selection bias)	Unclear risk	No information
Blinding of participants and personnel (performance bias)	Unclear risk	No information about the blinding
Blinding of outcome assessment (detection bias)	Unclear risk	No information about the blinding
Incomplete outcome data (attrition bias)	Low risk	No dropouts recorded
Selective reporting (reporting bias)	Low risk	All the outcomes reported
Other bias	Low risk	Cite: "The authors declared no conflicts of interest with respect to the authorship and/or publication of this article. There was no significant difference in the median age, education level, career life, general health condition, oral health, depression, and somatization among the groups. In addition, there was no statistically significant difference in the pain type, intensity, grade, the number of restricted days, and restriction scores among the study groups."

Dalewski 2019

Methods	RCT. single centre; three parallel groups;
Participants	90 patients: 80 % women; mean age 30.73; 18-65 years old. Inclusion criteria: unilateral pain localized in the TMJ or in the preauricular area; who had no analgesic treatment in the head and neck during the last 12months; aged 18– 65years; no tooth losses within occlusal support zones. Exclusion criteria: bilateral pain; inflammation in the oral cavity that emerged as myospasm or preventive muscle contraction; earlier splint therapy; pharmacotherapy (e.g., oral contraception, hormone replacement therapy, and antidepressants); systemic diseases (e.g., rheumatic and metabolic diseases); lack of stability in the masticatory organ motor system; masticatory organ injury; pregnancy; patients undergoing orthodontic treatment; other types of inflammation in the oral cavity (e.g., pulp inflammation or impacted molars); fibromyalgia Time: 1st July 2016-1st December 2017 Country: Poland Clinic: Prosthetic Outpatient Clinic of Pomeranian Medical University

APPENDIX VIII: Characteristics of studies

Interventions	Group A (n=30): occlusal appliance (OA) with nonsteroid anti-inflammatory drug (NSAID) therapy (nimesulide) Group B (n=30): occlusal appliance with dry needling (DN) Group C (n=30): occlusal appliance therapy (OA-control group)
Outcomes	Pain (VAS) Sleep and Pain Activity Questionnaire (SPAQ)
Chronicity	Low disability
Hints to chronicity	1. Exclusion criteria include bilateral pain 2. Exclusion: earlier splint therapy, pharmacotherapy (e.g., oral contraception, hormone replacement therapy, and antidepressants), fibromyalgia.
Duration	3 weeks treatment
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "Sealed, opaque envelopes were used for randomization as well as for achieving equal number of patients in each group."
Allocation concealment (selection bias)	Low risk	Cite: "Sealed, opaque envelopes were used for randomization as well as for achieving equal number of patients in each group."
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Low risk	Cite: "One examiner performed all clinical examination, splint therapy, and dry needling and controlled the visits of all patients. Another operator, blinded to patients group assignments, performed data acquisition throughout control appointments."
Incomplete outcome data (attrition bias)	Low risk	No dropouts recorded
Selective reporting (reporting bias)	High risk	Study protocol given: NCT03400462 All the outcomes reported No data for VAS
Other bias	Low risk	Cite: "The authors declare that they have no conflicts of interest. „Comparison of pain intensity between control group and both treated groups result in the pre-treatment stage shows no significant difference."

de Salles-Neto 2020

Methods	RCT. single centre; two parallel groups;

APPENDIX VIII: Characteristics of studies

Participants	40 patients: 100% women; mean age Group A 37.5 (SD±13.3); Group B 41.4 (SD±12.6). Inclusion criteria: adult women; aged 18-60 years diagnosed with masticatory myofascial pain according to the RDC/TMD and pain intensity >4, as measured with VAS for at least 3 months. Exclusion criteria: history of facial trauma, pregnancy, needle phobia, continuous use of non-steroidal anti-inflammatory drugs, analgesics, antidepressants or central myorelaxant drugs, neurological disorders/ other major causes of headache, other causes of orofacial pain (caries, periodontal disease and atypical toothache), arthralgia in the TMJ, diagnosis of fibromyalgia, edentulism, use of total prosthesis, other current treatment for TMD or non-acceptance to voluntarily participate in the research in the research. Time: August 2018-June 2019 Country: Brazil Clinic: Clinics Hospital of Universiade Federal Minas Gerais
Interventions	Group A (n=20): Acupuncture (4-Hegu, 34-Yanglingquan, 18-Quanliao; 19-Tinggong, 6-Jiache, 7-Xiaguam, 20-Fengchi; each session 20 minutes for 5 weeks) Group B (n=20): placebo acupuncture (actual insertion did not occur)
Outcomes	Pain (VAS) McGill pain questionnaire (SF-MPQ) Mandibular function (MOPDS) Quality of life (OHIP-14)
Chronicity	Low disability
Hints to chronicity	Per mail: -Did they receive any treatment before participating into the study? One of the exclusion criteria was that the patient could not be under other current treatment for TMD. Most of the patients had not received previous treatment for TMD. However, it they had, they should have been off treatment (including regular use of medication) for at least 3 months before participating in the trial. -Did the patients take pain killers or any other medication during the study? All patients were asked not to undergo other pharmacological or non-pharmacological treatments for pain during the study. If necessary, rescue medication for pain relief by analgesics or non-steroidal anti-inflammatory drugs was allowed as recommended by IMMPACT, but participants were instructed to report it to the researcher for documentation. Only one patient used an analgesic drug during the study period. - Do you have any data on localized or widespread pain of the participants? Our data on pain was focused on orofacial area and we did not evaluate widespread pain. We used VAS and McGill questionnaire for pain evaluation. At the time of data collection, the DC/TMD was not translated and validated for the Brazilian Portuguese, which led us to use the RDC/TMD for TMD diagnosis (which also evaluates orofacial pain)
Duration	1 month follow up
Notes	

APPENDIX VIII: Characteristics of studies

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "A double-blind randomized (1:1 allocation ratio) controlled parallel group"
Allocation concealment (selection bias)	Low risk	Cite: "…order number upon recruitment, and interventions were sealed in sequentially numbered identical containers according to the allocation sequence after the enrolled participants completed all baseline assessments. Researcher responsible was not involved in the study."
Blinding of participants and personnel (performance bias)	Low risk	Cite: "Clinicians and researchers recruited and evaluated patients, assessed outcomes were kept blinded to the allocation. The acupuncturist was not involved in the allocation of patients or in examinations, to guarantee blinding."
Blinding of outcome assessment (detection bias)	Low risk	Cite: "Clinicians and researchers recruited and evaluated patients, assessed outcomes were kept blinded to the allocation. The acupuncturist was not involved in the allocation of patients or in examinations, to guarantee blinding."
Incomplete outcome data (attrition bias)	Low risk	Cite: "Reported about the dropouts, balanced and reasons given"
Selective reporting (reporting bias)	Low risk	REBEC RBR-9HDPQ5 All the outcomes reported
Other bias	Low risk	Cite: "No significantly significant difference between groups was detected regarding demographic data. The authors declared no conflicts of interest."

Dıraçoğlu 2012

Methods	RCT. single centre; two parallel groups;
Participants	52 patients: 86.54% women; age 18-57 years old; Group A 33.00 (SD±12.70); Group B 35.88 (SD±9.60). Inclusion criteria: symptoms of at least six weeks, who had two or more myofascial trigger points in the temporomandibular muscles. Exclusion criteria: TMJ degeneration; reducible or non-reducible disc replacements; TMJ subluxation; TMJ neoplasms; inflammatory diseases involving TMJ; TMJ ankylosis; fracture in the bones forming the TMJ; history of TMJ surgery; radiotherapy to the TMJ region; occlusion anomaly; major anomalies in the mandible; teeth and gums; hypermobility syndrome; blood dyscrasias; trigeminal neuralgia and major psychiatric disorders. Country: Turkey Clinic: Multidisciplinary Temporomandibular Joint Disorders Unit of a University Hospital
Interventions	Group A (n=26): Dry needling (intramuscular stimulation on the trigger points using standard single-use sterile acupuncture needles (0.22 mm × 30 mm) with plastic guide tubes (3 times with 7-day intervals, inserted to the depth allowed by the guide tube and was stimulated 3 or 5 times)

APPENDIX VIII: Characteristics of studies

	Group B (n=26): Sham dry needling (areas away from the trigger points in masseter and temporalis muscles with attention not to insert deeper than the subcutaneous stratum)
Outcomes	Pain pressure threshold (pressure algometry) Pain intensity (VAS) Unassisted jaw opening without pain measurement
Chronicity	Low disability
Hints to chronicity	1. Exclusion: major psychiatric disorders 2. Patients having symptoms of at least six weeks 3. Patients who had two or more myofascial trigger points in the temporomandibular muscles 4. Tertiary care
Duration	Follow up 1 week
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: “Using randomized numbers obtained from Quick Calcs Graph Path Software) software".
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Cite: "Patients were also not informed about which group they belonged to"
Blinding of outcome assessment (detection bias)	Low risk	Cite: "Evaluations were done by a physician blinded to the data"
Incomplete outcome data (attrition bias)	Low risk	Two dropouts reported with reasons on why they dropped out.
Selective reporting (reporting bias)	Low risk	All the outcomes were reported
Other bias	Unclear risk	No other inequalities

Faria 2014

Methods	RCT. single centre; three parallel groups;
Participants	30 patients: 96.7 % women; mean age (SD±). Inclusion criteria: localized spontaneous pain; presence of a taut, palpable band; localized tenderness in a precise point along taut band; referred pain area for a given MTrP; replication of the patient’s pain symptoms with the referred pain elicited by pressure on MTrP. Exclusion criteria: other TMD diagnostic besides myofascial pain (RDC/TMD axis I or axis II); previously received acupuncture; DN or other TMD treatment in the last 6 months; under eighteen years old; had a bleeding disorder; had needle phobia; rheumatologic; metabolic; neurologic or psychiatric disorders.

APPENDIX VIII: Characteristics of studies

	Time: July-December 2013 Country: Brazil Clinic: Stomatology TMD department at the Hospital São João, Oporto Medical School
Interventions	Group A (n=10): DN therapy (MTrPs; 3 sessions with 7 days intervals; needle penetrated the MTrP a movement “up and down” was repeated 3-5 times (without being completely removed). The procedure was repeated for several MTrPs (active and latent). Group B (n=10): placebo group (sham DN was applied pricking the skin with a blunted needle after the skin was disinfected with alcohol and the trigger points determined using the same protocol as in the DN group. The sham DN looked very similar to real DN except) Group C (n=10): counselling (educational and counselling program about MP and MTrPs including its benign condition and were asked to relax their masticatory muscles, not to clench their teeth, not to chew gum, not to bite their nails, not to bite pens and to avoid other similar oral habits)
Outcomes	Pain intensity (VAS) Unassisted jaw opening without pain (PFJO)
Chronicity	Low disability
Hints to chronicity	1. Localized spontaneous pain 2. Exclusion criteria: previously received acupuncture. DN or other TMD treatment in the last 6 months 3. Exclusion criteria: neurologic or psychiatric disorders
Duration	3 weeks treatment; 1 month follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "The first ten patients were assigned for DN group, the following ten patients were assigned for counselling group and the last ten patients were assigned for sham DN. The groups were randomized by Random.org."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	Cite: "All needling's were performed by the same physician experienced in DN (CAF) using the same needles within a constant time period."
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Low risk	Cite: "Reported about the dropouts, balanced"
Selective reporting (reporting bias)	Low risk	All outcomes reported

Other bias	Unclear risk	Cite: "There were no statistically significant differences between groups with respect to VAS and PFJO scores prior to the treatment."

Fernández-Carnero 2010

Methods	RCT. single centre; cross-over trial with two groups;
Participants	12 patients: 100% women; age 20-41 years old; mean age 25 (SD±6). Inclusion criteria: primary diagnosis of myofascial pain according to the RDC/TMD; pain involving the masseter muscle; duration of symptoms of at least six months; pain on palpation of the jaw muscles; limitation of mandibular movement; mean intensity of pain corresponding to a weekly average of at least 3 cm on a 10 cm VAS. Exclusion criteria: cervical trauma (whiplash injury); any systematic joint or muscle disease (e.g., fibromyalgia, rheumatoid arthritis); needle phobia; bleeding disorders; metabolic disease (diabetes); any neurological disorder (e.g., trigeminal neuralgia); any vascular disease; have previously received acupuncture; dry needling; physical therapy in the 6 months prior to the study. Country: Spain Clinic: Department of Physical Therapy, Occupational Therapy, Rehabilitation and Physical Medicine (Universidad Rey Juan Carlos)
Interventions	Group A (n=6): first session dry needling, second session sham acupuncture Group B (n=6): first session sham acupuncture, second session dry needling
Outcomes	Facial pain (NPRS) Pressure pain threshold (PPT) (kPa) Pain-free maximal jaw opening (mm)
Chronicity	Low disability
Hints to chronicity	1. Exclusion criteria: have previously received acupuncture, dry needling, or physical therapy in the 6 months prior to the study
Duration	7 days follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "The order of interventions was randomized by an external clinical assistant who used a computerized randomization program to generate intervention allocation."
Allocation concealment (selection bias)	Low risk	Cite: "The order of interventions was randomized by an external clinical assistant."
Blinding of participants and personnel (performance bias)	Low risk	Cite: "Neither the assessor nor the patient was aware of the real objective of the TrP dry needling."

Blinding of outcome assessment (detection bias)	Low risk	Cite: „...by an examiner blinded to the treatment allocation of the subject."
Incomplete outcome data (attrition bias)	Low risk	No dropouts
Selective reporting (reporting bias)	Low risk	All the outcomes reported
Other bias	Low risk	Unclear

Ferreira 2013

Methods	RCT. single centre; two parallel groups;
Participants	40 patients: 100% women; mean age 34.17 years (SD±8.83). Inclusion criteria: female; age 20-40 years old; diagnoses of myofascial pain and arthralgia present for a period of at least 6 months; without any treatment; pain intensity equal to or higher than 4.0 indicated by VAS. Exclusion criteria: presence of systemic Musculo-articular pathologies; radiographic signs of TMJ osteoarthritis; dermatological alterations at the acupoints; under other treatment for TMD; pregnant women; history of facial trauma; and those previously submitted to the evaluated treatments. Country: Brazil Clinic: Diagnostic and Guidance Centre for Patients with TMD of the Federal University of Juiz de Fora, Brazil.
Interventions	Group A (n=20): laser acupuncture as adjunct to reversible occlusal splint therapy (50 mW continuous radiation for 90 secs to acupoints ST6, SI19, GB20, GB43, LI4, LR3, NT3, and EX-HN3; 4.5-J energy; 1250-W/cm2 density point; 112.5-J/cm2 total density. Group B (n=20): placebo laser associated with occlusal splint therapy
Outcomes	Pain intensity (VAS) (spontaneous pain)
Chronicity	Low disability
Hints to chronicity	1. Patients without any treatment 2. Pain intensity equal to or higher than 4.0 indicated by VAS 3. Exclusion criteria: under other treatment for TMD
Duration	3-month treatment; monthly follow up
Notes	The study was a single-blind, randomized, placebo-controlled clinical trial with two parallel arms: in the first, it evaluated the adjuvant action of laser acupuncture therapy, while in the second, it observed the effects resulting from the placebo therapy

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "A simple random allocation procedure among the selected subjects, by means of a randomization table (Software SPSS for Windows 13.0)"

APPENDIX VIII: Characteristics of studies

Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	The volunteers were aware of and agreed to the possibility of receiving one of the two forms of therapy; however, they were not informed about the nature of these therapies.
Blinding of outcome assessment (detection bias)	Low risk	All evaluations were made by an assessor who was blind to the treatment.
Incomplete outcome data (attrition bias)	Low risk	Dropouts reported
Selective reporting (reporting bias)	Low risk	Outcomes reported
Other bias	Unclear risk	No further inequalities

Ferreira 2015

Methods	RCT. single centre; two parallel groups;
Participants	20 patients: 100% women; age 18-60 years old. Inclusion criteria: diagnosed at least six months ago; considering the first time they reported pain; painful symptoms in at least four orofacial structures; had reported centric and/or eccentric bruxism. Exclusion criteria: orthodontic treatment; facial trauma history; pregnancy; acuphobia; use of analgesic/nonsteroidal anti-inflammatory drugs; other support therapeutic modalities as psychotherapy, physical therapy, speech therapy; use of self-medication Time: from March-June 2012 Country: Brazil Clinic: Diagnostic and Guidance Centre for Patients with TMDs of the Federal University of Juiz de Fora
Interventions	Group A (n=10): auricular acupuncture + occlusal splint (electroacupuncture locator and stimulator therapy; intradermal needles of 1.0 mm in the ear region; splint was used during night-time sleep; weekly; 5 sessions/50 minutes; retention of needles in each ear lasted 5 days) Group B (n=10): occlusal splint plate alone (used during night-time)
Outcomes	Intensity of pain (VAS)
Chronicity	Low disability
Hints to chronicity	1. Exclusion: use of analgesic/nonsteroidal anti-inflammatory drugs; and other support therapeutic modalities as psychotherapy, physical therapy, and speech therapy 2. Patients who were making use of self-medication were advised not to take those drugs during the study
Duration	5 weeks follow up
Notes	

APPENDIX VIII: Characteristics of studies

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	No further information: „...were randomly allocated into two groups of ten individuals"
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	Not possible due to the treatments
Blinding of outcome assessment (detection bias)	Low risk	Cite: „...the same blinded examiner..."
Incomplete outcome data (attrition bias)	Low risk	All dropouts reported
Selective reporting (reporting bias)	Low risk	No data missing
Other bias	Unclear risk	Cite: "The authors declare no conflict of interests."

Goddard 2002

Methods	RCT. single centre; two parallel groups;
Participants	18 patients: 83.33% women; mean age Group A 35.49 (SD±10.63); Group B 34.53 (SD±6.78). Inclusion criteria: men or women; age >18; seeking treatment; chief complaint of frequent pain (at least 4 times/week) in the jaw muscles of at least 12 weeks' duration; pain of jaw muscle origin, including a complaint of pain as well as pain associated with localized areas of tenderness to palpation in muscle; report of pain or ache in the jaw, temples, face, preauricular area, or inside the ear at rest or during function; pain reported by the subject in response to palpation of 3 or more of the following 20 muscle sites (right side and left side count as separate sites for each muscle): posterior temporalis, middle temporalis, anterior temporalis, origin of masseter, body of masseter, insertion of masseter, posterior mandibular region, submandibular region, lateral pterygoid area, and tendon of the temporalis. At least 1 of the sites must be on the same side as the complaint of pain. Exclusion criteria: clinical (e.g., crepitation) and/or radiographic evidence of organic changes in the TMJs (e.g., patients with signs and symptoms similar to the ones described for the categories "disc displacements" and "arthralgia, arthritis, arthrosis" in the RCD/TMD; metabolic disease (e.g. diabetes, hyperthyroidism); neurological disorders (e.g. dyskinesia, trigeminal neuralgia); vascular disease (e.g., migraine, hypertension); neoplasia; history of psychiatric disorders, history of drug abuse, and/or recent facial or cervical trauma (e.g. whiplash); receiving prescription medication or other treatments (e.g. physical therapy) that cannot be stopped before and during the study; have been treated with acupuncture in the previous 3 months." Country: USA Clinic: University of California at San Francisco Centre for Orofacial Pain.

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	The patients responded to advertisements placed on campus and on the Internet.
Interventions	Group A (n=10): Acupuncture (four needles, inserted to a depth of 10-30 mm at both right and left Hoku points (Large intestine 4), right and left Stomach 6 points, left in for 30 minutes, twirled once for 5 seconds at the halfway point of the 30-minute period. Group B (n=8): Sham Acupuncture (four needles, inserted to a depth of 2-4 mm at 4 sham points: right and left hand 1 cm distal of the Hoku point (not on the acupuncture meridian), 1 cm dorsal to the Stomach 6 point) Addition the same certified dental acupuncturist inserted the needles, which were left in place for 30 minutes, and twirled once for only 5 seconds at the halfway point of the 30-minute period.
Outcomes	Changes in masseter muscle pain (VAS) evoked by mechanical stimulation of the masseter muscle
Chronicity	Low disability
Hints to chronicity	1. localized pain 2. no treatment before 3. no mental illness 4. no drug abuse
Duration	30-min therapy
Notes	The patients were all paid $50 for completing the study.

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	A random table was generated
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Cite: "Subjects were blinded to group assignment."
Blinding of outcome assessment (detection bias)	Low risk	Cite: "The experimenter who performed the algometer readings and collected the pain ratings on ... was also blinded to the subject's group assignment."
Incomplete outcome data (attrition bias)	Low risk	No dropouts
Selective reporting (reporting bias)	Low risk	Reported the wanted outcomes. No study protocol
Other bias	Unclear risk	Cite: "There was no significant group difference in age or gender"

Gonzalez-Perez 2015

Methods	RCT. single centre; two parallel groups;

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Participants	48 patients: 79.17% women; age 18-65 years; mean age Group A 34.3 (SD±13.8); Group B 35.5 (SD±11.2). Inclusion criteria: myofascial pain of more than six months' duration only or with moderate limitation of mandibular movement (interincisal opening limited to <40mm and passive stretching required to force the opening by ≥5 mm, according to Group I criteria of the International RDC-TMD Consortium; with the presence of TPs in the LPM; strong pain in the anterior part of the lower belly of the LPM on palpation; deep-seated pain in the TMJ and/or region of the maxillary sinus (referred pain); significant motor dysfunction (limited jaw opening, painful protrusion of the chin against resistance, mandibular lateralization to the opposite side upon opening). Exclusion criteria: TMJ internal derangements with anterior disk displacement without reduction; degenerative joint disease; history of jaw trauma; vascular diseases; migraine and tension headaches; and history of infectious-inflammatory conditions of odontogenic origin. Country: Spain Clinic: Outpatient Clinic of the Department of Oral and Maxillofacial Surgery at the Virgen del Rocio University Hospital, Seville
Interventions	Group A (n=24): Deep dry needling (3x applications of needling of the lateral pterygoid muscle (LPM) once per week for three weeks) Group B (n=24): Drug-treated control group (methocarbamol (380 mg) +paracetamol (300 mg) combination drug therapy, 2xtablets every six hours for three weeks)
Outcomes	Pain at rest and upon mastication (VAS) Range of mandibular movements (opening of the mouth, lateral movements, protrusion) (mm) TMJ affectation (100-point scale) Overall efficiency ratings (5-point scale) Tolerability to the treatment (5-point scale)
Chronicity	Unclear (low disability)
Hints to chronicity	Exclusion criteria: migraine and tension headaches
Duration	3 weeks treatment; 70 days follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "Patients were assigned randomly to one of two groups (Epidat 4.0)"
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel	Unclear risk	No information given

(performance bias)		
Blinding of outcome assessment (detection bias)	Unclear risk	No further information other than: "Data were collected at each visit by a same observer"
Incomplete outcome data (attrition bias)	High risk	Cite: "A third limitation is that the control group had a significant number of withdrawal study subjects (8 patients), with the main reason for dropping out being due to personal difficulties associated with patients keeping their scheduled appointments."
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	The authors report no conflict of interest. This investigation was carried out without funding.

Grillo 2015

Methods	RCT. single centre; two parallel groups;
Participants	40 patients: 100% women; age 18-45 years old; mean age 30 (SD±6.59). Inclusion criteria: women presenting energy imbalance with predominance of Yang Liver Ascension; 18-45 years; myogenic TMD (Group Ia or Ib); pain and/or clinical signs and symptoms for longer than 3 months; use of contraceptives; no arthritis, arthrosis, diabetes, or neurological pathologies; Angle's Class I; no absence of teeth (except third molars). Exclusion criteria: history of traumas in the face/TMJ; undergoing orthodontic treatment; using anti-inflammatory, analgesic and/or myorelaxation medication; with phobia of needles. Country: Brazil Clinic: Specialization Clinic of the Piracicaba Dental School of the University of Campinas, Piracicaba
Interventions	Group A(n=20): Acupuncture; four sessions, one session per week/20 minutes; acupuncture points: LI4 (Hegu), LI11 (Quchi), SI19 (Tinggong), LR2 (Xingjian), GB20 (Fengchi), GB21 (Jianjing), GB34 (Yan-glingquan), BL2 (Zanzhu), CV23 (Lianquan), and TE23 (Sizhukong) based on their energy functions, related to the imbalance) Group B(n=20): Flat occlusal plane appliance (return for four sessions (1 session/wk) to verify and undergo any adjustment of the occlusal contacts of the flat appliance when necessary)
Outcomes	Electromyographic activity (root mean square) Pain pressure threshold (kgf) Pain intensity (VAS) Range of mouth opening (mm)
Chronicity	Low disability
Hints to chronicity	Per Mail: GCPS: 34 low disability, 6 high disability Per Mail: "received no prior treatment"
Duration	4 weeks follow up
Notes	

APPENDIX VIII: Characteristics of studies

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	No information given
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Due to occlusal therapy, it was not possible
Blinding of outcome assessment (detection bias)	Unclear risk	No information given about the blinding "Patient selection; VAS, RMO, PPT, and surface electromyography evaluations; and application of acupuncture were performed by the same examiner to avoid inter examiner variability, with the examiner being calibrated in RDC/TMD and an experienced acupuncturist. The procedures of impression taking of the dental arches, insertion, and occlusal adjustments of the appliance during the treatment follow-up sessions were performed by another examiner, who happened to be experienced in this area."
Incomplete outcome data (attrition bias)	Low risk	No dropouts
Selective reporting (reporting bias)	Low risk	All reported
Other bias	Unclear risk	The author declare that they have no conflicts of interest and no financial interests related to the material of this manuscript

Grillo 2018

Methods	RCT. Single centre; two parallel groups;
Participants	40 patients: 90% women; median age 38 years (SD±8.7). Inclusion criteria: musculoskeletal or mixed TMD according to RDC/TMD (Portuguese version) Exclusion criteria: severe trauma or TMJ infections; in treatment for other TMD; under treatment with analgesic/ anti-inflammatory drugs; pregnant; reported being afraid of needle; edentulous people; total prosthesis. Country: Brazil Clinic: Specialization Clinic of the Piracicaba Dental School of the University of Campinas, Piracicaba
Interventions	Group A (n= 20): Acupuncture group (0.30 x 30 mm special acupuncture needle) Group B (n= 20): Sham acupuncture group (non- penetrating sham acupuncture (0.30 x 30 mm sham acupuncture needle)
Outcomes	Intensity of each sensation (17 Deqi descriptors and a Likert scale)

APPENDIX VIII: Characteristics of studies

	Intensity of pain experienced during the needling procedure (VAS)
Chronicity	Low disability
Hints to chronicity	1. Exclusion criteria: patients in treatment for other TMD 2. Patients under treatment with analgesic/ anti-inflammatory drugs
Duration	4 weeks follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	No information given
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	The patients were blinded to the treatment: the „procedure was executed in both the groups (acupuncture and sham acupuncture) so that the patients could not see any difference between them because they did not know which group, they belonged to"
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Low risk	No dropouts
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	No financial support

Han 2015

Methods	RCT. single centre; two parallel groups;
Participants	120 patients: 59.17% women; mean age Group A 40.3 (SD±12.2), Group B 35.7 (SD±10.5). Inclusion criteria: >18 years old; VAS more than 3 points; necessary imagological examination (X-ray, CT, and MRI) and biochemical test were performed. Exclusion criteria: TMJ organic diseases (ankylosis, extracapsular fractures, congenital abnormalities); received other treatment 48 hours before this treatment; pregnant or lactating; allergic constitution; unwilling to accept the therapy; difficulty in understanding the content of scale. Country: China Clinic: department of stomatology in Xiyuan Hospital of China Academy of Chinese Medical Sciences

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Interventions	Group A (n=62): Acupuncture (HegLi (LI 4) and Talchong (LR 3) combined with medicated cupping on the affected parts with Sonqi (Radix et Rhizoma Notoginseng) and BaizhT (Radix Angelicae Dahuricae)) Group B (n=58): Medicated cupping
Outcomes	Craniomandibular index (CMI) Dysfunction index (D1) Palpation index (PI) Changes in pain degree (VAS)
Chronicity	Unclear (low disability)
Hints to chronicity	1. short term of pain recorded (34.4 days)
Duration	Treatment: 30 min each time, once daily, and 10 times were considered as one course of treatment. Follow up after 1 treatment
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "random number table and random number remainder method"
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Low risk	No dropouts reported
Selective reporting (reporting bias)	Low risk	All outcomes reported, no study protocol given
Other bias	Unclear risk	No further inequalities

Hansen 1983

Methods	RCT. single centre. Cross-over trial; two groups;
Participants	20 patients: 81.25% women; age 46-78 years old, mean age 60.6 years. Time: March-December 1980 Country: Denmark Clinic: University Department of Neurology, Aarhus Kommunehospital
Interventions	Group A (n=10): First period: traditional Chinese acupuncture; second period: placebo acupuncture. (TCA: sterilized Chinese stainless steel acupuncture needles (25.4-38.1mm long and a diameter of 0.32 mm); depth of 10-30mm, until the patient observed the characteristic needling sensation of soreness, numbness, or distension around the point; left in situ for 15 minutes during which period they were not manipulated; choice of

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	acupuncture points depended on the localization of the pain) Group B (n=10): First period: placebo acupuncture; second period: traditional Chinese acupuncture (same number of acupuncture needles were carefully inserted to a depth of 2-4mm in the same regions of the skin, but in areas with no acupuncture points, and in such a way that the patient did not experience the just described needling sensation.
Outcomes	By the means of the daily pain scheme registration of the patients a period index (IP) has been calculated, using the formula: PI=OxA+1xB+2xC+3xD (A being the number of days in the period without pain, B the number of days in the period with less pain than usual, C the number of days in the period with same pain as usual, and D the number of days in the period with more pain as usual. As the PI has been calculated based on the pain registration in the non-treatment periods, the duration of each being 28 days, the range of the PI= 0-84.)
Chronicity	High disability
Hints to chronicity	1. One patient suffered from typical trigeminal neuralgia and 13 from atypical facial pain, as previously defined 2. Duration of the disease was 4-33 years (mean 13.1 years) 3. Eight patients has tried every available medical treatment and eight patient's trigeminal surgery without satisfactory results 4. Tertiary care 5. "Chronic facial pain"
Duration	16 weeks treatment
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	No information about the randomization
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the treatment
Blinding of outcome assessment (detection bias)	Unclear risk	Cite "... the acupuncturist knows the therapy he is offering the patient, who therefore may be manipulated by the doctor's bias. To counter this criticism, there was no verbal communication between the patient and the acupuncturist except the patient saying yes when the needling sensation was contained."
Incomplete outcome data (attrition bias)	Low risk	Reported about the dropouts with explanation why. No follow up

Selective reporting (reporting bias)	Unclear risk	Outcome reported. No study protocol
Other bias	Unclear risk	No further inequalities

Itoh 2012

Methods	RCT. single centre; two parallel groups
Participants	16 patients: 31.25% women; age 19-24 years old. Inclusion criteria: orofacial pain lasting for 6 months or longer; Helkimo clinical dysfunction index of I or III; no acupuncture in the previous 6 months; failure to respond to the medications prescribed by a specialist. Exclusion criteria: major trauma or systemic disease; other conflicting or concurrent treatments. Country: Japan Clinic: Acupuncture school in Kyoto, Japan (Meiji University of Integrative Medicine)
Interventions	Group A (n=7): trigger point acupuncture (disposable stainless-steel needles (0.2 mm x 50 mm); inserted over the trigger point to a depth of 5-15 mm; appropriate to the muscle targeted, and the ‘sparrow pecking’ technique was used to elicit a local muscle twitch response) Group B (n=8): sham acupuncture
Outcomes	Pain intensity (VAS) Maximal mouth opening (mm)
Chronicity	High disability
Hints to chronicity	1. Orofacial pain lasting for 6 months or longer 2. No acupuncture in the previous 6 months 3. Failure to respond to the medications prescribed by a specialist 4. Pain duration
Duration	10 weeks follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Used computerized randomization and block randomization
Allocation concealment (selection bias)	Unclear risk	No information about the concealment
Blinding of participants and personnel (performance bias)	Low risk	Cite: "Patients were blinded to their treatment assignment."
Blinding of outcome assessment (detection bias)	Low risk	Cite: "The measurements were performed by an independent investigator who was not informed about the treatment sequence or the treatment the patient received before each

		measurement."
Incomplete outcome data (attrition bias)	Low risk	Reported about the one dropout in Group A due to worsening symptoms
Selective reporting (reporting bias)	Low risk	All outcomes reported. No study protocol given
Other bias	High risk	The data of the drop out was not added to the final analyse. Could have worsen the outcome

Iunes 2015

Methods	RCT. single centre; two parallel groups;
Participants	44 patients: 93.18% women; mean age Group A 21.61(SD±3.27); Group B 20.87(SD±1.5). Inclusion criteria: >18 years; availability for auriculotherapy sessions; high levels of anxiety according to the State Trait Anxiety Inventory (STAI). Exclusion criteria: ear piercings (except a regular earring); inflammation; infection; injury to the ear; receiving drug treatment for TMDs and anxiety; orofacial pain; pregnancy. Land: Brazil Clinic: Federal University of Alfenas, Alfenas
Interventions	Group A (n=31): Auriculotherapy (mustard seeds were applied to the shen men, rim, sympathetic, brain stem, and TMJ points in the AA group) Group B (n=13): AA sham group (mustard seeds were applied to sham points in the external ear and wrist in the AA sham group)
Outcomes	State Trait Anxiety Inventory (STAI) Mobility evaluation of the mouth movements Tender points of the masticatory muscles Intensity of pain (VAS)
Chronicity	Low disability
Hints to chronicity	1. no drug treatment before
Duration	6 weeks follow up
Notes	Study Limitation. The limitations of this study were the small sample size, absence of follow-up, and absence of a control group.

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: "Fifty-six volunteers fulfilled the eligibility criteria and were evaluated at baseline and received a number. Then by a simple selection in draw fewer volunteers were separated for the sham AA group (n=16) and getting the other for the auriculotherapy group (AA) (n=40)"
Allocation concealment (selection bias)	Unclear risk	No information given

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Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Low risk	The examiner was blinded: "The study subjects were evaluated before the first auriculotherapy session and after the 10th session by the same trained examiner who had no knowledge of the type of treatment applied".
Incomplete outcome data (attrition bias)	Low risk	Cite: "During the intervention, some subjects dropped out; (missed three or more sessions)"
Selective reporting (reporting bias)	Low risk	All reported, study protocol (Protocol number: U111-1147- 3083)
Other bias	Unclear risk	The authors declare no conflict of interests. This work was carried out with the financial support of The National Council of Technological and Scientific Development (Process nos. 477383/2012-2 and 401126/2013-7).

Johansson 1991

Methods	RCT. single centre; three parallel groups;
Participants	45 patients: gender and age not given. Inclusion criteria: history of signs and symptoms of CMD; complaints of headache and/or facial pain; clinical examination demonstrating tenderness to palpation in the masticatory muscles; exclusion of individuals with psychologic/psychogenic factors, trauma, surgery, or systemic joint, muscle, or skin diseases influencing the symptoms; presence of a complete or almost complete complement of natural teeth (single crowns were permitted); the absence of previous acupuncture or stomatognathic therapy for treatment of the disorder in the individuals selected. Country: Sweden Clinic: Department of Stomatognathic Physiology
Interventions	Group A: (n=15): acupuncture (sterile stainless steel needles (0.2 x 15 mm and 0.3 x 5O mm) inserted in painful area (local points) and a ‘strongly reacting’ site (distal point); three-seven needles locally and one distally (Li4); manual stimulation was done with rotation and some lifting and thrusting of the needle; Each session/30min; three stimulations were given in each session until the ‘Qi-feeling’, a sensation of deep muscle pain, heaviness, and tingling in the surrounding area, was felt; total of six acupuncture treatment sessions Group B (n=15): splint Group C: (n=15): control
Outcomes	Subjective dysfunction score (SDS) Pain (VAS) TMJ sounds Clinical signs (CDS, muscles tender to palpation)
Chronicity	Low disability
Hints to chronicity	1. Exclusion of individuals with psychologic/psychogenic factors 2. Absence of previous acupuncture or stomatognathic therapy for treatment of the disorder in the individuals selected.

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	3. Had complaints of headache and/or facial pain. 4. The patients in this study had a long history of pain (mean 6.8 years)
Duration	3 months-follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	No information about the randomization
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to therapy
Blinding of outcome assessment (detection bias)	Low risk	Cite: "The examiner was unaware of which group the patient belonged to."
Incomplete outcome data (attrition bias)	Low risk	No dropouts
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	Unclear

Kang 2012

Methods	RCT.single centre; three parallel groups;
Participants	42 patients: 26.19% women; age 18-71 years old; Group A 31.43 (SD±12.48); Group B 32.14 (SD±18.96); Group C 30.14 (SD±11.41). Inclusion criteria: men and women; 18-71 years; no other medical co-morbidities except for unilateral or bilateral TMD; participants with TMD were diagnosed following the RCD/TMD required to have an Axis I, Group I diagnosis; no contraindications to acupuncture treatment. Exclusion criteria: previous surgery on the TMJ; history of rheumatoid disease or degenerative arthritis; extensive anatomical destruction or deterioration of the TMJ; pain of neuropathic or odontogenic origin; planning to become pregnant within the next 3 months; TMD had been caused by non-mechanical or psychological factors; scored less than 4 points (or 4 cm) on the Temporomandibular Function scale and on the VAS. Time: 31. July - 27. September 2006 Country: Korea Clinic: Korea Institute of Oriental Medicine
Interventions	Group A (n=14): adjacent point selection group (six acupuncture sessions (twice a week for 3 weeks); points located on the same side as the pain, close to the affected side of the TMD: TE17, GB20, ST7, ST6, SI19, and EX21, with 1.5–3 cm depths; sterile, single-use, 40 mm × 0.30 mm stainless steel acupuncture needles; inserted at the six points and the “deqi” sensation was evoked by rotating each needle 10 times manually, being confirmed by the participant’s response)

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	Group B (n=14): distant point selection group (six acupuncture sessions (twice a week for 3 weeks); only acupoints that were distant from the affected joints: ipsilateral acupuncture (LI4 and SI3) and contralateral acupoints (ST36, BL60, TE5 and GB41 Group C (n=14): combination group (six acupuncture sessions (twice a week for 3 weeks); six different adjacent and distant points were selected, as previously described: TE17, GB20, ST7 from the adjacent points and ST6, LI4, ST36 from the distant points, to use same number of acupuncture points)
Outcomes	Pain intensity (VAS) Palpation index of the muscle and TMJ
Chronicity	Unclear (Low disability)
Hints to chronicity	1. Excluded: TMD had been caused by non-mechanical or psychological factors. Additionally, participants were excluded if they scored less than 4 points (or 4 cm) on the Temporomandibular Function scale and on the VAS.
Duration	3 weeks treatment, 4 weeks follow-up
Notes	Potential participants were told that they had an equal chance to be assigned to one of three active acupuncture interventions.

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite "For assignment to the groups, random numbers were generated by the clinical statistician with a ratio of 1:1:1 (Trt: Con1: Con2) using the SAS statistical package (version 9.1.3; SAS Institute Inc., Cary, NC, USA)."
Allocation concealment (selection bias)	High risk	The third limitation was the lack of allocation concealment, possibly leading to bias related to foreknowledge of the treatment assignment.
Blinding of participants and personnel (performance bias)	Low risk	Cite: " …randomized, participant-blind, assessor-blind."
Blinding of outcome assessment (detection bias)	Low risk	Cite: "Only the doctors who performed the treatment were aware of the group assignment of each participant. In addition, the outcome assessors were blind to the group allocation and not involved in providing the intervention."
Incomplete outcome data (attrition bias)	Low risk	Reported about the dropouts: "Three participants discontinued the treatment due to adverse events, and one declined to participate in the study." "During the study, three participants discontinued participation because of gastroenteritis or dental, and gum and mouth pain"
Selective reporting (reporting bias)	Low risk	All reported, study protocol: "Clinical Research Information Service (registration number: KCT0000269)".
Other bias	Unclear risk	"None of the authors has a financial relationship with a commercial entity that has an interest in the subject of this

		manuscript."

Kim 2006

Methods	RCT. single centre; two parallel groups
Participants	31 patients: 77.42% women. Time: 23. May- 30. April 2006 Country: Korea Clinic: Dept. of Acupuncture & Moxibustion of Hospital of Hana Oriental Medicine
Interventions	Group A: Distance Acupuncture (Wijungyug(胃正格) or Damjungyug(膽正格)) Group B: Chuna (Distraction & Translation technique)
Outcomes	Modified Craniomandibular Index(mCMI)
Chronicity	Unclear
Hints to chronicity	None
Duration	No information
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "tossed a coin"
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Unclear risk	No information given
Selective reporting (reporting bias)	Unclear risk	No information given
Other bias	Unclear risk	No information given

Kütük 2019

Methods	RCT. single centre; two parallel groups
Participants	40 patients: 72.5 % women; mean age 33.8 (range: 21–54) (SD±8.1) years old. Inclusion criteria: having a diagnosis of myofascial pain syndrome; being between 18 and 60 years of age, literacy, having biochemical test results within normal limits. Exclusion criteria: cervical disc hernia; presence of radiculopathy or myelopathy; tumoral; infectious; psychiatric; systemic disease; bleeding diathesis; grade 3-4 osteodegeneration; having diagnosis of fibromyalgia

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	syndrome according to criteria of American College of Rheumatology; presence of kyphoscoliosis; pregnancy; previous brain or shoulder surgery; treatment for MPS within the last 6 months; having symptoms shorter than 3 months; lack of cooperation, intractable hypertension. Contraindications to dry needling include early term pregnancy, local infection; bleeding diathesis may be enumerated. Time: n.a. Country: Turkey Clinic: Physical medicine and rehabilitation clinic of a tertiary-care centre
Interventions	Group A (n=20): Abobotulinum toxin-A (flacon of Dysport (500mL) diluted with 10 cc 0.9% NaCl; trigger point on the lateral pterygoid muscle; 25 U-150 U, not exceeding 150 U in total) Group B (n=20): dry needling (38 mm long needle with a green tip; inserted into the muscle until the trigger point in the muscle band with the tip was found; same point was needled rapidly 8 to 10 times with the tip of the needle mounted to the empty syringe)
Outcomes	Pain (VAS) Crepitation (present or absent) Maximum mouth opening (mm) Low disability limitation during normal jaw movements (0-3) Strength of jaw (1-3) Palpable muscular spasms (0-4)
Chronicity	Low disability
Hints to chronicity	1. Exclusion: psychological disease; treatment before; fibromyalgia
Duration	6 weeks follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	No information given
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to different therapies
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Unclear risk	No information given
Selective reporting (reporting bias)	Low risk	All the outcomes reported
Other bias	Low risk	Cite: "We observed that there was no difference between 2

		groups concerning average age, gender, and side of involvement. The authors report no conflicts of interest"

List 1992

Methods	RCT; single centra; three parallel groups
Participants	110 patients: 79.09% women; age 19-76 years old. Exclusion criteria: removable complete dentures; extreme malocclusion; pregnancy; patients with obvious language communication problems; patients with a complex psychological problem. Country: Sweden Clinic: Cite: "had been referred to the Department of Stomatognathic Physiology at the Institute for Postgraduate Dental Education in Jönköping, Sweden, for treatment of CMD."
Interventions	Group A (n=40): acupuncture (6-8 weekly treatment) Group B (n=40): stabilization splint (worn at night-time for 6-8 weeks) Group C (n=30): waiting list (for 3 month)
Outcomes	Pain diary: pain intensity (VAS) Pain diary: frequency of pain Clinical dysfunction Score CDS Pain diary: medication Activity of daily living ADL Anamnestic index Ai (Anamnestic questionnaire) Subjective evaluation of the treatment
Chronicity	High disability
Hints to chronicity	1. 37% had treatment before (Cite: "The improvement, if any, had been temporary or marginal") 2. 75% have depressive moods due to the TMD 3. 61% took analgesics 4. 60% of the patients reported symptoms from the neck and shoulder regions, 43% low back pain, 10% migraine, 11% GIT 5. Tertiary care
Duration	6-8 weeks treatment, follow up in later publications
Notes	Further publications: Part II: "Acupuncture and occlusal splint therapy in the treatment of craniomandibular disorders II. A I-year follow-up study" (List, 1992) Further Outcomes: "Index for occlusal state and incisal and occlusal tooth wear" (List, 1992) Subgroup-Studies: "Pressure pain thresholds in patients with craniomandibular disorders before and after treatment with acupuncture and occlusal splint therapy: a controlled clinical study" (List, 1993) "Adverse events of acupuncture and occlusal splint therapy in the treatment of craniomandibular disorders" (List, 1992)

Risk of bias table

Bias	Authors'	Support for judgement

APPENDIX VIII: Characteristics of studies

	judgement	
Random sequence generation (selection bias)	Low risk	Per mail: "Computer generated list where the patients were allocated to the different groups."
Allocation concealment (selection bias)	Unclear risk	Per Mail: "I remember that they we had the numbered envelopes, but I don't remember any details regarding this."
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Low risk	Cite: "The investigation was carried out by two examiners: one (MH) performed the screening and the evaluation of the treatment outcome; the other (TL) performed the treatment of the patients" Per mail: "One person blind to treatment was evaluating the patients (MH) at baseline and follow-up and another person (TL) performed the treatment."
Incomplete outcome data (attrition bias)	Low risk	Cite: „none of the patients accepted for the study dropped out during Part I of the investigation (this study)" Cite from the follow-up publication: "Of the 80 participants entering the study, 3 patients dropped out and 3 were excluded (3 in group A, 3 in group B). Two patients moved from the district, one patient died, one was not interested in continuing the treatment, one received extensive dental treatment, and one patient received physical therapy affecting the CMD symptoms."
Selective reporting (reporting bias)	Low risk	All outcomes were reported
Other bias	High risk	Cite: "significant differences in sex, age and pain duration existed between the three groups." Subjects who were dissatisfied could receive the other therapy. Part II shows that 15 subjects of the acupuncture group and 12 subjects of the splint group received the combined therapy. 10 of each group received additional therapies

Lopez-Martos 2018

Methods	RCT. single centre; three parallel groups;
Participants	60 patients: 87% women; 18-62 years old. Inclusion criteria: age 18-65 years; myogenic pain in the temporomandibular area of at least 6 months' duration; moderately limited mandibular movement (interincisal opening limited to <40 mm; requiring passive stretching to increase opening by >5mm); according to Group I criteria of the RDC/TMD Consortium; criteria satisfied for active TrPs in the LMP (pain upon intraoral palpation; limited range of movement; painful chin protrusion against resistance; lateralization of the contralateral side with mouth opening; and pain in the ipsilateral TMJ) according to the protocol used previously; following confirmation according to magnetic resonance study and panoramic radiography to rule out the presence of other conditions. Exclusion criteria: presence of TrPs in any other masticatory or cervical

APPENDIX VIII: Characteristics of studies

	muscle; intra-articular pathology according to diagnostic criteria for TMDs; dento-facial deformities; facial paralysis; vascular diseases; tension headache or migraine; previous infectious-inflammatory diseases of dental origin; belonephobia; fibromyalgia; depression; other medical co-morbidities (diabetes, hypo- or hyperthyroidism). Time: June 2015 to June 2016 Country: Spain Clinic: Department of Oral and Maxillofacial Surgery of the Virgen del Rocío University Hospital, Seville
Interventions	Group A (n=20): percutaneous needle electrolysis (PNE) (transcutaneous puncture in the LPM, according to the technique described by Koole et al. Sterile stainless-steel needles (length 40 mm/ calibre 0.25 mm, with a cylindrical plastic guide; connected to an electrosurgical device, and the electrotherapy equipment produced a continuous galvanic current of 2 mA for 3 seconds, three times through the cathode (electrosurgical scalpel), while the patient held the anode (hand electrode)) Group B (n=20): deep dry needling (deep intra-muscular puncture of the TPs; objective was to provoke a jump reaction or local twitch response when the needle was inserted in a TrP; operator used the volume of the electrotherapy equipment as a guide, simulating the EPI® technique. Group C (n=20): sham needling procedure (needle was pressed against the skin with its plastic protective tube, simulating a puncture, with the same noise reproduced with the EPI® equipment)
Outcomes	Pain at rest and pain on mastication (VAS) Maximum interincisal opening (MIO) (mm) Pain in daily activities (100-point questionnaire) Overall efficacy scores (5-point scale) Tolerability to the treatment (5-point scale)
Chronicity	Low disability
Hints to chronicity	1. Exclusion criteria: tension headache or migraine; previous infectious-inflammatory diseases of dental origin; fibromyalgia; depression.
Duration	3 weeks treatment
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "Patients were randomly assigned by Epidat 4.0 software to one of the three groups."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Cite: "The principal investigator and patients were all blinded to the assigned group until completion of the statistical analysis."
Blinding of outcome assessment (detection bias)	Low risk	Cite: "The principal investigator and patients were all blinded to the assigned group until completion of the

APPENDIX VIII: Characteristics of studies

		statistical analysis."
Incomplete outcome data (attrition bias)	Low risk	used „...intention-to-treat analysis and the per-protocol analysis yielded identical results for all parameter measures";
Selective reporting (reporting bias)	Unclear risk	All outcomes reported
Other bias	Unclear risk	Cite: "The authors report no conflict of interest related to this study."

Ma 2010

Methods	RCT. single centre; three parallel groups;
Participants	43 patients: 51% women; mean age 42.3 (SD±5.1); 42.2 (SD±5.3); 42.6 (SD±4.9). Inclusion criteria: Myofascial pain syndrome (MPS) with trigger points (TrPs) in one side of the upper trapezius muscle and some degree of restricted ROM when measurable; no experience with acupuncture or MSN before the recruitment; able to follow instructions and complete a home-based stretching program. Exclusion criteria: age of less than 18 years; more than 80 years old; acute trauma or serious illness; more than 2 TrPs on 1 side of the trapezius muscle; mental retardation; injections to TrPs within the last 2 months. Fibromyalgia syndrome, cervical radiculopathy, and myelopathy with severe disc or skeletal lesion. Country: China Clinic: Pain Treatment Centre of Department of Rehabilitation Medicine, Sun Yatsen Memorial Hospital, Sun Yatsen University, Guangzhou, Guangdong Province, China
Interventions	Group A (n=15, 28 TrPs): Miniscapel-needle MSN release in conjunction with self-neck-stretching exercises Group B (n=15, 30 TrPs): received acupuncture needling treatment and performed self-neck-stretching exercises Group C (n=13, 25 TrPs): control group was assigned self-neck-stretching exercises only
Outcomes	Pain intensity (PI) (VAS) Pressure pain threshold (PPT) Contralateral bending ROM of cervical spine
Chronicity	Unclear (High disability)
Hints to chronicity	1. Tertiary care 2. Symptoms: 6 months -5 years
Duration	3 months follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement

Random sequence generation (selection bias)	Low risk	Computer randomization schedule
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Unclear risk	No information given about the blinding: Cite "Patients' treatments and follow-ups were performed at outpatient clinic of the hospital"
Incomplete outcome data (attrition bias)	Low risk	There were no dropouts from the study
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	Cite: "There was no difference among the 3 groups at baseline with respect to age, sex, duration of pain, and number of TrPs."

Madani 2020

Methods	RCT. single centre; three parallel groups;
Participants	45 patients: 71 % women; mean age 38 (SD±15.3). Inclusion criteria: limited mouth opening or function and the presence of pain in masticatory muscles and/or TMJs; either in clenching or in jaw movements (TMD muscular disturbance (class Ia, Ib) or arthralgia (class IIIa), according to RDC/TMD) Exclusion criteria: major systemic disorders; who received analgesic or anti-depressants over the last 2 weeks; any bony abnormalities of the jaws such as arthropathy of the TMJ or rheumatoid arthritis; psychological illness; who received any form of treatment for TMD within the last month; pregnant; feeding women. Time: January 2017-February 2018 Country: Iran Clinic: Occlusion and TMD Department of Mashhad Dental School, Mashhad University of Medical Sciences, Mashhad
Interventions	Group A (n=15): low-level laser therapy (LLLT) GaAlAs laser (painful masticatory muscles and TMJs (810 nm, 200 mW, 30 s per point, Gaussian beam, spot size 0.28 cm2, 21 J/cm2) two times a week for 5 weeks) Group B (n=15): laser acupuncture therapy (LAT) (ST6, ST7, LI4; 810-nm diode laser; local Ashi point was not irradiated in this study) Group C (n=15): (placebo) underwent treatment with sham laser
Outcomes	Mouth opening and the range of protrusive and lateral excursive movements (mm) Pain at rest Pain degree at tender points Pain intensity (VAS) was used for measuring pain intensity upon palpation
Chronicity	Low disability
Hints to chronicity	Exclusion: psychological disease; analgetic misuse; fibromyalgia; treatment

	before
Duration	1 month follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "patients were randomly divided into three groups of 15 according to a random numbers table with a random block size of 3."
Allocation concealment (selection bias)	Low risk	Cite: "details of the allocated groups were written on cards contained in sequentially numbered, opaque, and sealed envelopes. These cards were prepared by an independent person who was not involved in the study protocol."
Blinding of participants and personnel (performance bias)	Low risk	Cite: "Once the participant completed the TMJ examination and was eligible for laser therapy, the allocation assignment was revealed by opening the envelope by this independent person. Laser treatment was carried out by a single, trained, and experienced operator. For ensuring double-blind design of the study, neither the patient nor the subject who evaluated the outcomes was aware of the group assignment."
Blinding of outcome assessment (detection bias)	Low risk	see above
Incomplete outcome data (attrition bias)	Low risk	All the participants completed the study period
Selective reporting (reporting bias)	Low risk	Clinical Trials with IRCT number IRCT2017010131770N1 All outcomes reported
Other bias	Low risk	Cite: "The authors declare that they have no conflict of. All the participants completed the study period. The study groups were well matched in baseline characteristics at enrolment."

McMillan 1997a

Methods	RCT. single centre; three parallel groups;
Participants	30 patients: 100 % women; age 23-53 years. Inclusion criteria: women in the age range of 20-50 years (because significantly more women than men seek treatment for TMD; primary complaint of frequent pain (at least four times per week) in the jaw muscles, of at least 12 weeks' duration; tenderness to palpation at a minimum of three sites in the jaw muscles, including at least one in the masseter; palpation of a tender area in the masseter which led to changes in patterns of referred pain. Exclusion criteria: clinical and/or radiography signs of pathology in the TMJ; metabolic disease; neurologic disorders such as dyskinesia; vascular disorders such as migraine; bleeding diatheses; neoplasia; a history of

APPENDIX VIII: Characteristics of studies

	psychiatric illness; a history of drug abuse; recent facial or neck trauma; medication or adjunctive treatment (e.g., physiotherapy) that could not be stopped during the study; or allergy to local anaesthetic solutions. Time: Country: UK Clinic: Newcastle Dental Hospital Admissions Department and Temporomandibular Joint Clinic
Interventions	Group A (n=10): Frocaine + simulated dry needling (percutaneous injection of 0.5 mL Procaine (1%) local anaesthetic with no vasoconstrictor into the active TP in the right or left masseter by means of a 27-gauge hypodermic needle and disposable syringe. An acupuncture needle (Seirin Kasei, Shimizu City, Japan) was also placed just into the skin over a nontender part of the muscle, then removed immediately (simulated dry needling) Group B (n=10): dry needling + simulated local anaesthetic; acupuncture needle percutaneously into an active TP in the masseter (1 to 2 minutes; drop of isotonic saline was also introduced just below the skin using a 27-gauge needle over a nontender part of the muscle (simulated LA) Group C (n=10): control (simulated local anaesthetic + simulated dry needling)
Outcomes	Pain intensity (VAS) Fain pressure thresholds
Chronicity	Low disability
Hints to chronicity	1. Primary complaint of frequent pain (at least four times per week) in the jaw muscles, of at least 12 weeks' duration 2. Exclusion: a history of drug abuse
Duration	3 weeks treatment
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: "subjects were randomly assigned to one of the experimental treatment groups. A, B, or C, which were stratified by age {above and below 35 years)"
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Low risk	Cite: "During each of the three experimental sessions, subjects were invited to respond to a VAS, supervised by a research assistant who was blinded to the patient's treatment regimen."
Incomplete outcome data (attrition bias)	Unclear risk	No information given
Selective reporting	Low risk	All outcomes reported

(reporting bias)		
Other bias	Unclear risk	No further inequalities

Ritenbaugh 2008

Methods	RCT. multi-centre; three parallel groups
Participants	160 patients: 100% women; 25-55 yrs.; mean age group A 40.1 (±8.5), mean age group B 40.6 (±9.2), mean age group C 40.5 (±9.4). Inclusion criteria: women; 25–55 years of age; presence of concomitant diagnoses of multiple chronic systemic health problems and/or chronic fatigue and fibromyalgia as determined through the electronic health record. Exclusion criteria: factors that would prevent full participation in the study; including expecting to move; major psychiatric illness; life threatening medical conditions such as cancer. Time: 2001–2003 Country: USA Clinic: Kaiser Permanente Northwest (KPNW), and practitioner offices in Portland, Oregon
Interventions	Group A (n=50): TCM (19 sessions: insertion of up to 20 acupuncture needles to a depth of 0.25-1.25 inches at acupoints according to TCM diagnoses, and additionally acupoints for TMD treatment [ST7 and/or ST6, GB20 and/or GB21, yintang, LI4, LV3] for 20-30 min. + herbal prescription + massage [tuina] on the neck and shoulders + relaxation tapes) Group B (n=50): Naturopathic Medicine (practice guidelines related to naturopathic philosophy giving particular attention to the stress + 6 months of multimineral /multivitamin supplement, antioxidants, and a liver support formula + individualized nutritional, stress reduction and exercise recommendations) Group C (n=60): Specialty Care (splint + individual counselling about self-care and pain management strategies, with possible referrals for physical therapy, psychological and counselling support)
Outcomes	Self-reported worst and average facial pain and interference with activities (scaled 0–10 where 10 is worst). GCPS
Chronicity	High disability
Hints to chronicity	1. Used GCPS 2. Eligibility criteria included the presence of concomitant diagnoses of multiple chronic systemic health problems and/or chronic fatigue and fibromyalgia 3. per mail: 1. They had tried various things, including TMD-specific massage (which was provided at Kaiser in Portland for the patients who came from there). If their problems were already solved, they didn't join our trial. 2. We assessed depression and there was a protocol for referring folks who were severely depressed. Our study patients therefore could have some degree of depression, but not enough to warrant a psych referral. 3. They took whatever they wanted or had prescribed. We continually assessed what they were taking at every acupuncture visit. In the second study, we wrote a paper on the decline in usage of opiates during treatment (Elder et al).

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	4. All had to have local TMD pain at the eligibility assessment by a trained dentist. There was variability in the level of pain patients experienced, but the study didn't include folks with popping and clicking only. In the second study, we also did a standardized protocol at baseline to assess distal pain using a protocol for arm tenderness (I can't remember the name of the procedure as I sit here.) The was huge variability in that measure. In the analysis, we looked at whether that pain sensitivity predicted outcome. It did not. We didn't measure that at the end the study. 3. the GCPS is very high"
Duration	3 month follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: „...using a design-adaptive allocation program with randomization, which was managed solely by the project biostatistician."
Allocation concealment (selection bias)	Low risk	Cite: "Project managers notified participants of their assignments"
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Low risk	Cite „...all assessors were blinded to treatment assignment."
Incomplete outcome data (attrition bias)	Low risk	Dropouts were reported and stated why
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	None of the authors have any conflicts of interest

Ritenbaugh 2012

Methods	RCT. multi centre; three parallel groups
Participants	168 patients: 1. Allocation: SC Group 86.1% women, TCM 87.2% women; age SC Group 42.3 (SD 13.5), age TCM Group 42.9 (SD 13.0). 2. Allocation SC Group 86.0% women, TCM 88.1% women; age SC Group 43.7 (SD 12.4), age TCM Group 43.6 (SD 12.0) Inclusion criteria: age 18-70; WFP $5; research diagnosis of TMD; presence of 1 of 10 TCM diagnoses (chosen to account for 90% of participants in prior study); completion of the run-in (TMD class) process. Exclusion criteria: serious pathology of the TMJ, e.g. infection, rheumatoid arthritis, fracture; presence of cancer or acute infection of the teeth, ears, eyes, nose, or throat; and individuals undergoing active orthodontic treatment; serious psychiatric conditions; surgical implants for treatment of TMD; bleeding disorders; other life- threatening conditions, e.g. cancer,

APPENDIX VIII: Characteristics of studies

	uncontrolled severe hypertension; severe joint/disk displacement; use of full dentures; use of medications for which study herbs are contraindicated; and current pregnancy or plans to become pregnant during active treatment. Country: USA Clinic: Kaiser Permanente Northwest (KPNW) and practitioner offices in Portland, Oregon
Interventions	Group A (n=39): TCM (20 sessions: insertion of up to 20 acupuncture needles to a depth of 0.25-1.25 inches at acupoints according to TCM diagnoses, and additionally acupoints for TMD treatment [ST7 and/or ST6, GB20 and/or GB21, "yintang", LI4, LV3] for 20-30 min. + herbal prescription + massage ["tuina"] + lifestyle and nutrition counselling) Group B (n=40): Self-Care (2 in-person education/training session and 3 phone call follow-ups, which include a first period and a second period: - In Period 1: education about biopsychosocial model, TMD aetiology, and self-management + guided reading with structured feedback to explore participant s understanding of and identification with major themes + relaxation and stress management training + self-monitoring of signs and symptoms + "personal TMD self-care plan" + supervised practice and reinforcement of prescribed self-care treatments + maintenance and relapse prevention of the "personal TMD self-care". - In Period 2: resiliency intervention [CBT]) Group C (n=88): Self-care. Not randomized group (report of worst pain below the cut-point [predefined as WFP = 7in the Period1, and WFP=5 in the Period2]) Cointervention: all groups received education about TMD + jaw relaxation techniques (run-in phase)
Outcomes	Worst facial pain (0–10) Average facial pain (0–10) Facial pain today (0–10) Characteristic facial pain (0–10) Days of facial pain Amt. interferes with daily activities (0–10) Amt. interferes with social activities (0–10) Amt. interferes with ability to work (0–10) Depression (PHQ2) Sleep (1-item summary sleep measure) N of medications AIOS (0–10)
Chronicity	High disability
Hints to chronicity	1. used GCPS 2. per Mail: 1. They had tried various things, including TMD-specific massage (which was provided at Kaiser in Portland for the patients who came from there). If their problems were already solved, they did not join our trial. 2. We assessed depression and there was a protocol for referring folks who were severely depressed. Our study patients therefore could have some degree of depression, but not enough to warrant a psych referral. 3. They took whatever they wanted or had prescribed. We continually assessed what they were taking at every acupuncture visit. In the second study, we wrote a paper on the decline in usage of opiates during treatment (Elder et al).

APPENDIX VIII: Characteristics of studies

	4. All had to have local TMD pain at the eligibility assessment by a trained dentist. There was variability in the level of pain patients experienced, but the study didn't include folks with popping and clicking only. In the second study, we also did a standardized protocol at baseline to assess distal pain using a protocol for arm tenderness (I cannot remember the name of the procedure as I sit here.) The was huge variability in that measure. In the analysis, we looked at whether that pain sensitivity predicted outcome. It did not. We did not measure that at the end the study."
Duration	18 weeks period
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "Dynamic allocations to treatment groups at weeks 2 and 10 were accomplished by an automated design adaptive allocation procedure that sequentially balanced the SC and TCM groups with regard to WFP, gender, depression, and age as each person became eligible for allocation" Cite: "Allocations were computer-generated."
Allocation concealment (selection bias)	Low risk	Cite: "Dr. Aickin using a computer program to which he alone had access, thereby concealing the allocation process from all other project staff. Moreover, participants were allocated in blocks, and an undisclosed feature of the allocation program rendered accurate prediction of allocation extremely unlikely."
Blinding of participants and personnel (performance bias)	Low risk	No possible due to the different therapies
Blinding of outcome assessment (detection bias)	Low risk	Cite: "The interviewer was kept unaware of study design details and blinded to individual participant treatment assignment. Participants were encouraged not to divulge any treatment-related information to the interviewer, and the interviewer was trained to avoid any such discussions."
Incomplete outcome data (attrition bias)	Low risk	Cite: "The analysis of the first 2 dynamic allocations presented here was undertaken on an intent-to-treat basis. Missing data were rare and were not replaced by imputation."
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	No further inequalities

Rodrigues 2019

Methods	RCT. single centre; three parallel groups;
Participants	89 (59 with TMD +30 healthy controls): 100% women; age 18–60 years old, 31.94 (SD±9.57).

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	Inclusion criteria: muscle pain in the face; presence of: -pain for at least 6 months (chronic pain), -joint dysfunction, -natural teeth and prosthetic rehabilitation minimum (fixed prostheses) in good condition, -low disability occlusion; no use of analgesics and/or anti-inflammatory during the applications and evaluations. Exclusion criteria: dental absences; presence of removable partial dentures; total dentures; occlusal discrepancies; periodontal disease and caries; use of occlusal splints; under any treatment for TMD; history of tumours, trauma, or head and neck surgeries; neurological disorders; use of hormonal anti-inflammatory drugs and central-acting medication; undergoing dental, phono audiological or physiotherapeutic treatment; fibromyalgia; history of neoplasia; psychiatric disorders; pregnant; pacemaker. Country: Brazil Clinic: Department of Restorative Dentistry, School of Dentistry, University of São Paulo, Ribeirão Preto, SP.
Interventions	Group A (n=34): active laser (low-intensity laser apparatus used for the study was gallium-aluminum-arsenide (GaAlAs) Group B (n=33): placebo laser Group C (n=30): control
Outcomes	Orofacial Myofunctional Evaluation with Scores (OMES) TMD severity (TI) Pain intensity (VAS) Pressure pain threshold (PPT)
Chronicity	Low disability
Hints to chronicity	1. GCPS < III 2. Excluded: if mental illness 3. Excluded: if associated therapies, such as interocclusal appliances, psychotherapy, physiotherapy 4. Excluded: if recent use of medications that interfere with pain
Duration	1 month follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: „...randomly selected by lottery method to receive active laser or placebo"
Allocation concealment (selection bias)	Low risk	Cite: "The lottery was performed after the initial assessment of the patients; a total of 67 slips (33 indicating tip A and 34 indicating tip B) were placed in an envelope and randomly selected for each patient, to avoid directing patients to specific groups."
Blinding of participants and personnel (performance bias)	Low risk	Cite: "The nomination of laser tips A and B was necessary for the study blinding. "

Blinding of outcome assessment (detection bias)	Low risk	Cite: "Researchers and patients were given access to information on laser and placebo tips only after completion of the study (double-blind)."
Incomplete outcome data (attrition bias)	Low risk	Reported about all the dropouts
Selective reporting (reporting bias)	Low risk	Reported all the outcomes stated. Study protocol given
Other bias	Unclear risk	Cite: "The authors declare that they have no conflict of interest."

Schmid-Schwap 2006

Methods	RCT. single centre; two parallel groups;
Participants	23 patients: 100% women; mean age Group A 35 (SD±14); Group B 40 (SD±14). Inclusion criteria: females; TMJ pain; tenderness on pressure of the craniomandibular musculature. Exclusion criteria: crepitation noises suggesting arthrotic changes; pre-treated patients. Time: Between Nov 2001 and June 2003 Country: Austria Clinic: Outpatient Unit for Dysfunction at the University Clinic of Dentistry, Vienna
Interventions	Group A (n=11): acupuncture therapy (points by very-point method after palpation: Intraoral: Maxilla retromolar, Mandible retromolar, Maxilla vestibulum and Mandible – vestibulum; extraoral: large intestine 4, small intestine 2 and 3 (hand), ear and sternum; intraoral points were infiltrated with insulin syringes 0.33 mm (BD® microfine 1 ml) with 0.5 ml procaine; extraoral points were punctured; needles remained in situ for about 20 minutes) Group B (n=12): sham laser (randomly selected points (small intestine 2 and 3, ear and Maxilla and Mandible retromolar) without contact and without being activated; patient was encouraged to count the time (15s) when the laser was in place and had no possibility to see the “treated points”; 20 minutes)
Outcomes	Subjective pain (VAS) Mouth opening (mm) Muscular tenderness and pain on pressure Mandibular joint movement (electronic axio graphy)
Chronicity	Low disability
Hints to chronicity	1. Exclusion criteria: Patients with crepitation noises suggesting arthrotic changes and pre-treated patients.
Duration	No follow-up
Notes	

Risk of bias table

Bias	Authors'	Support for judgement

APPENDIX VIII: Characteristics of studies

	judgement	
Random sequence generation (selection bias)	Low risk	Cite: "A randomization list applying blocks of 10 was prepared."
Allocation concealment (selection bias)	Low risk	Cite: "For each list entry the respective treatment (acupuncture or placebo) was written on a card and put into an opaque envelope numbered consecutively and sealed."
Blinding of participants and personnel (performance bias)	Low risk	Cite: "Patients were blinded for treatment."
Blinding of outcome assessment (detection bias)	Low risk	Cite: "Personnel doing the assessment was blinded for treatment."
Incomplete outcome data (attrition bias)	Low risk	Reported about the dropouts. "Three patients did not appear at the arranged date and were excluded"
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	Unclear

Sen 2020

Methods	RCT. single centre; two parallel groups
Participants	49(41) patients: 93.9 % women; mean age Group A 41.56 (SD±17.1) years; Group B 39.09 (SD±16.52). Inclusion criteria: adult patients of both sexes; seeking treatment for painful non-chronic (i.e., non-high disability) TMD-related pain (DC/ TMD); pain of myogenous and/or arthrogenous origin; GCPS score of 1-2 Exclusion criteria: chronic (i.e., high disability) facial pain (GCPS score of 3 or 4); facial pain of dental; systemic (e.g., rheumatoid arthritis); traumatic (facial trauma or surgery); neuropathic origin; in need of dental treatment; insufficiently fluent in the German language; pregnancy; regular use of sedative drugs, drug, or alcohol abuse; needle phobia. Time: May 2014-April 2016 Country: Germany Clinic: Department of Orthodontics and Dentofacial Orthopaedics, University of Heidelberg, Heidelberg, Germany
Interventions	Group A (n=22): acupuncture on specific points Group B (n=27): acupuncture on non-specific points
Outcomes	Characteristic pain intensity (CPI) Maximum corrected active mouth-opening without pain (MAO) Patients' expectations regarding acupuncture treatment and pain development Depressively Oral health-related quality of life (OHRQoL)
Chronicity	Low disability
Hints to chronicity	Cite: "All subjects were diagnosed with a non-chronic (GCPS grade <3) painful TMD, as assessed using the DC/TMD"

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Duration	4 weeks treatment; follow-up 5 weeks from T0
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "This allocation was performed on the basis of a standard randomization protocol (block randomization with four patients in each group) developed by a person not connected to the study (external randomization centre)"
Allocation concealment (selection bias)	Low risk	Cite: „...in which numbered, sealed, non-transparent envelopes containing the allocation data were opened sequentially after the DC/TMD examination"
Blinding of participants and personnel (performance bias)	Low risk	Cite: ...we used penetrating needle acupuncture in non-specific points outside the main meridians. This was an attempt to ensure that patients were unaware whether they were receiving a specific or non-specific approach, which would have otherwise been at risk in our clinical setting (i.e., patients could check the presence of needles)."
Blinding of outcome assessment (detection bias)	Low risk	Cite: "One week after the fourth acupuncture session, the same calibrated examiner (who was still unaware of the group allocations) used the DC/TMD to examine all patients again (T5)"
Incomplete outcome data (attrition bias)	Low risk	Reported about all dropouts and reasons given
Selective reporting (reporting bias)	Low risk	Reported all the outcomes. Study protocol was given.
Other bias	Unclear risk	The authors declare that they have no conflict of interest.

Shen 2007

Methods	RCT. single centre; two parallel groups;
Participants	15 patients: 93.33% women; age 43.1 (SD±13.6) Inclusion criteria: >18 years of age; diagnosed with chronic myofascial pain syndrome of the masticatory muscles; chronic pain (at least 4 times/ week) in the jaw muscles for at least 12 weeks; pain severity of at least 4 on an 11-point (0 to 10) numeric rating scale (NRS) lasting at least 1 hour per day; pain in the jaw, temples, face, preauricular area, or in the ear at rest or during function. Exclusion criteria: current opioid use; metabolic disease (e.g., diabetes, hyperthyroidism); coagulopathies (e.g., haemophilia, anticoagulants); neurological disorders (e.g., dyskinesia, trigeminal neuralgia); vascular disease (e.g., migraine, hypertension); neoplasia. Country: USA Clinic: University of California San Francisco (UCSF) Orofacial Pain Centre
Interventions	Group A (n=9): real acupuncture (needles Seirin 30 gauge) Group B (n=6): sham acupuncture (lightly pricking the skin with a shortened,

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	blunted acupuncture needle through a foam pad, without penetrating the skin)
Outcomes	General pain (NRS) Facial Pain (VAS)
Chronicity	Unclear (low disability)
Hints to chronicity	Exclusion criteria: current opioid use; neurological disorders (e.g., dyskinesia, trigeminal neuralgia); vascular disease (e.g., migraine, hypertension).
Duration	No follow-up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "randomly assigned to study subjects based on order of involvement."
Allocation concealment (selection bias)	Unclear risk	No information given.
Blinding of participants and personnel (performance bias)	Low risk	Cite: "To maintain blinding to the study subjects and the data collector, the needles were inserted through a poly foam pad, 10mmx10mmx10mm thick (Ace weather strip, Oak Brook, IL, U.S.A.)."
Blinding of outcome assessment (detection bias)	Low risk	Cite: "Because this study involved acupuncture, it was not possible to blind the acupuncturist to the treatment (i.e., acupuncture or sham acupuncture); therefore, an independent observer, who was blinded to the treatment, collected the data from the study subjects, who were also blinded to the treatment." "To maintain blinding to the study subjects and the data collector, the needles were inserted through a poly foam pad, 10mmx10mmx10mm thick (Ace weather strip, Oak Brook, IL, U.S.A.)."
Incomplete outcome data (attrition bias)	Low risk	No dropouts. No follow-up.
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	Free of other bias. Funding was provided by the UCSF Osher Centre for Alternative and Integrative Medicine.

Shen 2009

Methods	RCT. single centre; two parallel groups;
Participants	28 patients: 100% women; mean age Group A: 36.94 (SD±13.82); Group B: 44.83 (SD±11.61).

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	Inclusion criteria: >18 years of age; confirmed diagnosis of chronic myofascial pain of the jaw muscles; pain at least 4 times a week in the jaw muscles for at least 12 weeks; average pain severity of at least 4 on a 10-point scale for at least 1 hour per day; acupuncture naive; pain in the jaw, temples, face, pre-auricular area, or in the ear during rest or function. Exclusion criteria: pregnancy; current opioid use; diagnosis of metabolic disease; coagulopathy; neurological disorder; vascular disease; or neoplasia. Country: USA Clinic: University of California San Francisco (UCSF) Orofacial Pain Centre
Interventions	Group A (n=16): real acupuncture (needle insertion through the sterile foam pad into the left hand Hegu LI4 acupoint to a depth of 10-20 mm; depth of the needle into tissue was estimated by subtracting the 10-mm thickness of the foam pad from the 30-mm length of the needle) Group B (n=12): sham acupuncture (blunted needle insertion through the sterile foam pad, positioned 1 cm distal to Hegu LI4 acupoint, until the needle touched and did not penetrate the skin)
Outcomes	General head and neck pain ratings (NRS) Masseter muscle pain (VAS)
Chronicity	High disability
Hints to chronicity	1. "have a diagnosed chronic myofascial pain syndrome of the masticatory muscles" 2. have had chronic pain (at least 4 times/week) in the jaw muscles for at least 12 weeks, have pain severity of at least 4 on a 0- to-10 numerical scale, lasting at least 1 hour per day, and have pain in the jaw, temples, or face, at rest or during function. 3. Tertiary care
Duration	No follow-up
Notes	The authors acknowledge the UCSF Osher Centre for Alternative and Integrative Medicine for funding this study and like to thank Charles McNeill, DDS, and Patricia Rudd, PT, DPT, for the recruitment of subjects.

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	"A list of 50 random numbers was generated by computer and subjects were assigned a number subsequently by enrolment"
Allocation concealment (selection bias)	Unclear risk	"Subjects with an odd number received sham acupuncture, while those with an even number received real acupuncture."
Blinding of participants and personnel (performance bias)	Low risk	"To ensure blinding of both subject and experimenter, needles were inserted through a 10 × 10 × 10-mm poly foam pad (Ace weather strip)."
Blinding of outcome assessment (detection bias)	Low risk	"To ensure blinding of both subject and experimenter, needles were inserted through a 10 × 10 × 10-mm poly foam pad (Ace weather strip)" ..."the blinded experimenter applied pressure to

		the right masseter muscle..."
Incomplete outcome data (attrition bias)	Low risk	The dropouts were reported: "Three subjects withdrew prior to the start of the study because of needle phobia, claustrophobia, and lack of posterior teeth for clenching".
Selective reporting (reporting bias)	Low risk	All the outcomes were reported
Other bias	Unclear risk	Free of other bias. Even though unequal participants in each treatment group

Simma 2009

Methods	RCT. single centre; two parallel groups;
Participants	23 patients: 100% women; age 18-64 years old. Inclusion criteria: female; aged 18-64 years; dysfunction; pain in the stomatognathic system particularly in the TMJ; all receiving no therapy. Country: Austria Clinic: Department of Prosthetic Dentistry of the Medical University of Vienna
Interventions	Group A (n=11): Acupuncture (superficial injection cannulas; ‘very- point’ technique was used) Group B (n=12): Sham laser (soft laser pen; inactivated – only a normal red light was emitted)
Outcomes	Pain (VAS) Pain sensation at muscle palpation (four-point scale)
Chronicity	Low disability
Hints to chronicity	1. All receiving no therapy 2. Craniomandibular disorders, headache, and local pain in the orofacial, cervical, and TMJ areas
Duration	No follow-up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "A computer generated random permutation."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Cite: "The patients were unaware of whether they were receiving verum or placebo treatment."
Blinding of outcome assessment (detection bias)	Low risk	Cite: ..."the assessor being blinded to the patients' allocation" ..."The physician who palpated the different muscles

		and registered patients' pain scores was blinded to their verum or placebo status."
Incomplete outcome data (attrition bias)	Low risk	No dropouts
Selective reporting (reporting bias)	Low risk	All outcomes reported. No follow-up Study protocol provided
Other bias	Unclear risk	Free of other bias

Smith 2007

Methods	RCT. single centre; two parallel groups;
Participants	27 patients: 88.89% women; mean age 40.5 (SD±13.63). Inclusion criteria: condition for at least six months; two or more of the following diagnostic criteria: pain on palpation of the associated muscles; limitation or deviation of mandibular movement; intermittent joint sounds such clicking or cracking (but not crepitus); headache may also be present. Exclusion criteria: cervical trauma (whiplash/chronic cervical problems); systematic joint and muscle disease; metal allergy; needle phobia; bleeding disorders. Time: June–July 2003 Country: UK Clinic: TMD Clinic, at the School of Dentistry, The University of Manchester
Interventions	Group A (n=15): real acupuncture (true penetrative needle, i.e., with a sharp point; needle was inserted 6–12 mm into the skin until resistance or pain were felt) Group B (n=12): sham acupuncture (needle looks exactly like a real needle, but is blunt and free to slide within its handle so that, when pressed, it telescopes into the handle rather than penetrating the skin; same size as the real one (0.35 mmx70 mm))
Outcomes	Patient low disability perspective (VAS) Pain intensity (VAS) Pain distribution (head chart) Incisor opening and lateral movement measurement (mm) Muscle tenderness TMJ tenderness Headaches Deviation TMJ sounds (stereo stethoscope)
Chronicity	Unclear (high disability)
Hints to chronicity	1. condition for at least 6 months 2. intermittent joint sounds such clicking or cracking (but not crepitus). headache may also be present. 3. Tertiary care "
Duration	3 weeks treatment; 1 month follow up
Notes	

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Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "A computerized randomization program was used to generate group allocation of patients"
Allocation concealment (selection bias)	Low risk	Cite: "were concealed in opaque envelopes by a person not involved with the study"
Blinding of participants and personnel (performance bias)	Low risk	Cite: "Both the assessor and the patient were blinded regarding the group allocation".
Blinding of outcome assessment (detection bias)	Low risk	Cite: "Both the assessor and the patient were blinded regarding the group allocation".
Incomplete outcome data (attrition bias)	Unclear risk	No reason given why the patient dropped out. At the results the same number of patients reported as at baseline, even though one dropout was stated "Only one patient dropped out without reason from the real acupuncture group."
Selective reporting (reporting bias)	Low risk	All reported outcomes were stated
Other bias	High risk	Comment: significant difference at baseline between the groups (VAS)

Speer 2013

Methods	RCT. single centre; two parallel groups;
Participants	30 patients: 66.66% women; age 24-60 years old, mean age Group A 30.8 years; Group B 32.6 years. Country: Germany Clinic: Department of prosthetics at the University of Friedrich-Alexander, Erlangen, Nurnberg
Interventions	Group A (n=15): Acupuncture + splint (points of acupuncture (Mg 6-8, Dü 3, Dü 19, Gb 2, SJ 21) at three sessions) Group B (n=15): control group splint-therapy only
Outcomes	Activity of the masseter (EMG) Muscle activity at mouth opening, closing, clenching Pain (VAS)
Chronicity	High disability
Hints to chronicity	1. All patients had already been fitted with adjusted occlusal splints to treat their complaints before the study began 2. Tertiary care
Duration	3 days treatment; no follow up
Notes	

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Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	No information how
Allocation concealment (selection bias)	Unclear risk	No information how
Blinding of participants and personnel (performance bias)	Unclear risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Low risk	Cite: "Bei jedem dieser Patienten wurde eine Craniomandibuläre Dysfunktion myogener Ursache von einem unabhängigen Behandler festgestellt."
Incomplete outcome data (attrition bias)	Low risk	Reported about dropouts „Drei Patienten konnten aufgrund von Umzügen und Zeitmangel nicht an der dritten Sitzung teilnehmen." and "Auch in dieser Gruppe fielen zwei Patienten durch Umzug nach der zweiten Sitzung aus."
Selective reporting (reporting bias)	Low risk	All reported
Other bias	Unclear risk	Free of other bias

Taşkesen 2020

Methods	RCT. single centre; three parallel groups;
Participants	45 patients: 13 % women; mean age 25.9 (18–54) years. Inclusion criteria: definite diagnosis of myofascial pain with a referral; based on the DC/TMD criteria; presence of the myofascial pain for at least 6 months; presence of one or more trigger points in the unilateral or bilateral masseter muscle; no history of any invasive procedures in the related masseter muscle in the last 2 years. Exclusion criteria: factors that can cause pain in the orofacial region other than MTPs (decayed tooth, TMJ internal disorder, etc.); presence of any muscle disorders or neuropathy (e.g., Fibromyalgia); patients with a history of hypersensitivity to local anaesthetics. Time: n.a. Country: Turkey Clinic: Erzincan Binali Yildirim University Clinical Research
Interventions	Group A (n =15): MNB (Masseter Nerve block; injection of the local anaesthetic (0.2 ml of 2% lidocaine) was performed using a 30-gauge-inch needle; haemostasis was achieved by applying compression on the injection site) Group B (n =15): Needling therapy (LA injections and DN were performed two times with a 7-day interval Group C (n=15): trigger point injection with LA (Local anaesthetic is injected posterior to the index finger at this location at approximately a 40o angle in

	the coronal plane and a 20o angle in the sagittal plane, with the needle directed toward the neck of the mandibular condyle; 1.0 mL of anaesthetic is injected at this location
Outcomes	Pain on palpation (PoP) Pain on function (PoF) Maximum mouth opening (MMO)
Chronicity	Unclear (low disability)
Hints to chronicity	Inclusion criteria: no history of any invasive procedures in the related masseter muscle in the last 2 years.
Duration	12 weeks follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: "Patients were grouped according to the treatment they received: dry needling (DN), TrP injections with local anaesthetic (LA), or masseteric nerve block (MNB)."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Unclear risk	No information given
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	Cite: "The gender distribution between the groups was found to be statistically the same. The numbers of patients in both low and high pain categories were statistically similar between the groups."

Uemoto 2013

Methods	RCT. multiple centre; three parallel studies;
Participants	21 patients: 100% women; 20-52 years. Inclusion criteria: female; Caucasian; >20 years of age; presence of active MTPs in both masseter muscles, previously identified by manual palpation. Exclusion criteria: use of pain killers; muscle relaxants; anti-inflammatory medication and benzodiazepines; pregnancy; receiving treatment for TMJD. Country: Brazil Clinic: Universidad Federal Fluminense (UFF) and Universiade Salgado de

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	Oliveira (UNIVERSO), both in the city of Niterói, Rio de Janeiro, Brazil.
Interventions	Group A (n=7): Infrared laser (wavelength of 795 nm at 80 mW power; MTPs located in the right masseter of each patient were irradiated with the laser at a dose of 4 J/cm2, dose of 8 J/cm2 was applied to the left side) Group B (n=7): dry needling (MTPs located in the right masseter muscle; same muscle on the left side was injected with 0.25 ml of 2% lidocaine without epinephrine) Group C (n=7): control (placebo treatment at trigger points located in the right and left masseter muscles. In this group laser therapy was simulated, i.e., no laser light irradiation was used)
Outcomes	Pain (VAS) Pressure pain threshold Mouth-opening (mm)
Chronicity	Low disability
Hints to chronicity	1. Exclusion criteria: use of pain killers; muscle relaxants; anti-inflammatory medication and benzodiazepines 2. Exclusion criteria: receiving treatment for TMJD
Duration	No follow-up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	No information given
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Low risk	No dropouts. No follow up
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	Important information missing

Vera 2017

Methods	RCT. single centre; two parallel groups;
Participants	40 patients: 80 % women; age mean (SD) 36.5 (8.6); age 20-50 years old. Inclusion criteria: adults; 20-50 years; pain due to TMD of muscular or mixed origin, with or without opening mouth limitation, according to the RDC Exclusion criteria: patients with severe trauma or infections in TMJ, on analgesic and/or anti-inflammatory medications; pregnant; being afraid of needles; undergoing some other treatment for TMD; edentulous patients; patients with total dental prosthesis. Country: Brazil

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	Clinic: Piracicaba Dental School (FOP/Unicamp), in Piracicaba SP, Brazil and from municipal Denatl Specialties Centre of the Piracicaba city
Interventions	Group A (n=20): Acupuncture (acupoints: ST6, ST7, SI18, GV20, GB20, BL10, and LI4) Group B (n=20): Sham treatment without needle penetration
Outcomes	Pain (numerical visual analogue scale (NVAS)) Mouth opening limitation ((1) unassisted painless mouth opening; (2) unassisted mouth opening; (3) assisted mouth opening (mm) Energy circulating at the meridians (Ryodoraku method)
Chronicity	Low disability
Hints to chronicity	1. Exclusion criteria: undergoing some other treatment for TMD 2. Exclusion criteria: on analgesic and/or anti-inflammatory medications
Duration	4 weeks treatment
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "The volunteers were randomly allocated using a computer program to generate numbers"
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Cite: "The researcher and the volunteer were unaware of the allocation"
Blinding of outcome assessment (detection bias)	Low risk	Cite: "The researcher and the volunteer were unaware of the allocation"
Incomplete outcome data (attrition bias)	Low risk	All dropouts reported but all from the same group, unbalanced group
Selective reporting (reporting bias)	Low risk	All outcomes reported, study protocol reported
Other bias	Low risk	Cite: "the authors declare that they have no conflicts of interest and no financial interests related to the material of this manuscript" Cite: "no statistically difference between the groups."

Vicente-Barrero 2012

Methods	RCT. single centre; two parallel groups;
Participants	120 patients: 85% women; 18-58 years old (average 39 years). Inclusion criteria: three month or longer history of at least two of the following signs or symptoms: pain upon palpation of the TMJ or associated muscles of mastication, restriction or deviation of jaw movement, headache plus joint noise. Headache and joint noise were not considered when they occurred separately; legal age; Normal vertical dimension with complete or

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	almost complete dentition. Exclusion criteria: Legal involvement such as traffic accidents, sick leave, etc.; dental malocclusion with variations from normal vertical dimension; malignancies or other diseases, especially those involving other joints; bone and/or degenerative diseases; Headache associated with general organic conditions; Fibromyalgia; Mental disorders; Previous treatment with acupuncture and/or decompression splint; Previous surgery of the TMJ; Orthodontic treatment at the time of the study; Wearing a complete removable prosthesis; Allergy to metal. Country: Spain Clinic: Dental Care Services of different Primary Health Centres in the Canary Islands. The patients had been referred to the Department of Stomatology and Oral and Maxillofacial Surgery of the Hospital Insular de Gran Canarias
Interventions	Group A (n=10): Acupuncture (local acupoints: EX-HN5, SJ 21, GB2, SJ17, ST6; distal acupoints: LI-4, ST-36, SJ5 and GB34; 0.25 mm x 25 mm needles) Group B (n=10): Decompression splint (preferentially on the upper arch, except when upper molars were absent; in that case, the splint was placed on the lower arch.
Outcomes	Pain (Analogue pain scale) Measurements of mouth opening and jaw lateral deviation (mm) Sensitivity to pressure on different points (preauricular, masseter muscle, temporal muscle, and trapezius)
Chronicity	Low disability
Hints to chronicity	1. Dental Care Services of different Primary Health Centres in the Canary Islands and had been referred to the Department of Stomatology and Oral and Maxillofacial Surgery of the Hospital Insular de Gran Canarias with symptoms compatible with a diagnosis of muscle related PDS. 2. 3 Month of pain, and at least 2 of the following signs or symptoms: pain upon palpation of the TMJ or associated muscles of mastication 3. Exclusion criteria: Headache associated with general organic conditions; Fibromyalgia; Mental disorders; Previous treatment with acupuncture and/or decompression splint
Duration	Treatment for 5 weeks; 30 days follow-up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	No information given on how the randomization was done
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of	Low risk	Not possible due to two different treatments

participants and personnel (performance bias)		
Blinding of outcome assessment (detection bias)	Unclear risk	Comment: no information about the blinding Cite: "Treatments were applied by two operators: a physician specialized in stomatology, who was in charge of patient examination before and after the treatments, as well as of designing the decompression splints; and an acupuncturist graduated in TCM, who applied the acupuncture treatment to all patients in the acupuncture group."
Incomplete outcome data (attrition bias)	Unclear risk	No information about dropouts
Selective reporting (reporting bias)	High risk	Comment: Outcomes reported but very short. No study protocol given. Outcomes firstly stated not fully reported.
Other bias	Unclear risk	Important data missing

Özden 2020

Methods	RCT. single centre; parallel groups;
Participants	60 patients: 52 % women; mean age (SD±). Inclusion criteria: Group I MTMD related to the masseter based on the international RDC-TMD Consortium Exclusion criteria: Group II TMD (e.g., disc displacement); Group III or other TMDs (e.g., arthralgia, osteoarthritis, and osteoarthrosis); Group I MTMDs with duration of less than 3 months; mouth opening less than 20 mm; pregnancy; and central nervous system disorders. Presence of MTMD in the masseter was confirmed by a palpable taut band or hypersensitive nodule in the masseter by the clinical signs suggested by Travell and Simons Time: n.a. Country: Turkey Clinic: Oral and Maxillofacial Surgery Department of Istanbul University
Interventions	Group A (n=20): SDN group Group B (n=20): DN group Group C (n=20): Control group (healthy participants)
Outcomes	Pressure pain threshold (PPT) Pain (VAS) Maximal jaw opening (mm)
Chronicity	Unclear (low disability)
Hints to chronicity	Inclusion criteria: localized pain
Duration	3 weeks treatment; 6 weeks follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement

Random sequence generation (selection bias)	Unclear risk	No information given
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to different therapies
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Unclear risk	No information given
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Low risk	Cite: "The two groups showed similar gender distributions. There is no conflict of interest to declare."

Characteristics of excluded studies: Acupuncture

Branco 2016

Reason for exclusion	Not randomized

Bu 2011

Reason for exclusion	No relevant outcomes

Carlsson 1990

Reason for exclusion	Not all patients had TMD

Edwards 2003

Reason for exclusion	No TMD

Elder 2012

Reason for exclusion	Secondary report to Rithenbaugh 2012

Elsharkawy 1995

Reason for exclusion	No relevant outcomes

Guo-Heng 2003

Reason for exclusion	Not randomized

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Hansen 1981

Reason for exclusion	Abstract

Huang 2014

Reason for exclusion	Not randomized

Johansson 1996

Reason for exclusion	Secondary report to Johansson 1991

Katsoulis 2010

Reason for exclusion	N too small of a sample size

Li 2003

Reason for exclusion	Not randomized

List 1987

Reason for exclusion	Not randomized

List 1992a

Reason for exclusion	Secondary report to List 1992

List 1993

Reason for exclusion	No relevant outcomes

McMillan 1994

Reason for exclusion	Not randomized

Nebeska 1999

Reason for exclusion	Sample size too small

New Study

Reason for exclusion	No relevant outcomes

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Oganesian 2013

Reason for exclusion	No TMD

Ozden 2018

Reason for exclusion	No relevant outcomes

Raustia 1985

Reason for exclusion	Not randomized

Raustia 1986

Reason for exclusion	Not randomized

Raustia 1987

Reason for exclusion	Not randomized

Riet 1989

Reason for exclusion	Not randomized

Rill 2008

Reason for exclusion	Not randomized

Schneider 2003

Reason for exclusion	Summary of more than one RCT

Shen 2009

Reason for exclusion	Study sample too small, no relevant outcomes

Thayer 2001

Reason for exclusion	Not randomized

Venancio 2008

Reason for exclusion	No TMD

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Venancio 2009

Reason for exclusion	No TMD

Vera 2012

Reason for exclusion	Not randomized

Virtanen 1986

Reason for exclusion	Abstract only

Wang 1998

Reason for exclusion	No results given

Wang 2009

Reason for exclusion	Only abstract

Wang 2015

Reason for exclusion	No relevant outcomes

Wang 2015a

Reason for exclusion	Case report

Wenneberg 2000

Reason for exclusion	Abstract only

Widerström-Noga 1998

Reason for exclusion	No relevant outcomes

Wu 2002

Reason for exclusion	Not randomized

Xue 2007

Reason for exclusion	No relevant outcomes

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Yao 2014

Reason for exclusion	Not randomized

Zhou 2004

Reason for exclusion	Abstract only

Zotelli 2018

Reason for exclusion	No RCT

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Characteristics of included studies: Laser

Abbasgholizadeh 2020

Methods	RCT. single centre; three parallel groups;
Participants	45 patients: 84.4 % women; 18-53 years; mean age 29.9 (SD±9.20). Inclusion criteria: unilateral disc displacement with a history of reduction in mouth opening (unassisted maximum interincisal mouth opening of <35 mm); mandibular opening with assistance increased by 3 mm over unassisted opening; TMJ pain during palpation/function. Exclusion criteria: presence of a known connective tissue or autoimmune disease; degenerative joint disease; osteoarthritis; history of major jaw trauma; bisphosphonate-derived drug use; pregnancy; alcohol or drug addiction; patient age under 18 years old. Time: No information given Country: Turkey Clinic: n.a.
Interventions	Group A (n=15): splint therapy Group B (n=15): splint therapy with ultrasound-guided arthrocentesis Group C (n=15): splint therapy with low-level laser therapy (Nd: YAG laser system at an output power of 500 mW, 321 J/cm2 energy intensity; 1064 nm wavelength; painful muscle and joint; applied for 1 minute to each painful point, three times weekly)
Outcomes	Pain (VAS) Low disability jaw movements (unassisted mouth opening without pain, maximum unassisted mouth opening, contralateral movements)
Chronicity	Unclear
Hints for Chronicity	None
Duration	6 months follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "using randomization software (QuickCalcs; GraphPad Software Inc., La Jolla, CA, USA)"
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Unclear risk	No information given

Incomplete outcome data (attrition bias)	Low risk	No dropouts according to the tables
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Low risk	Cite: "The average baseline values were comparable and there were no significant differences between the groups: UMO (P=0.434), MMO (P=0.367), CLM (P=0.056) and pain VAS (P=0.807)" "Conflicts of interest: Nothing to declare"

Ahmad 2017

Methods	RCT. single centre; two parallel groups;
Participants	60 patients: 75% women; age 37.56 (SD±8.26), 37.03 (SD±6.26). Inclusion criteria: 20–60 years old; pain in masticatory muscles or TMJ for at least 3 months in accordance with the RDC/TMD. Exclusion criteria: presence of systematic musculo-articular pathologies; pregnant women; history of facial trauma; facial palsy; fractures of the facial bones. Time: December 2016 to October 2017 Country: Egypt Clinic: Department of Physical Therapy University Hospital
Interventions	Group A (n=30): conventional therapy (active and stretching exercises for mandibular muscles with ultrasound and LLLT application on TMJ area) Group B (n=30): conventional therapy only
Outcomes	Pressure pain threshold Pain-related limitations in daily functions (LDF-TMDQ)
Chronicity	Low disability
Hints for Chronicity	1. Pain in masticatory muscles or TMJ for at least 3 months in accordance with the RDC/TMD 2. Per mail: no treatment before
Duration	1 month follow-up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "Randomization was performed simply by asking the patient to choose a piece of paper which (A) or (B) letter was written."
Allocation concealment (selection bias)	Unclear risk	No information
Blinding of participants and personnel (performance bias)	Unclear risk	No information

Blinding of outcome assessment (detection bias)	Unclear risk	No information
Incomplete outcome data (attrition bias)	Unclear risk	No information
Selective reporting (reporting bias)	Low risk	Reported the outcomes reported
Other bias	Unclear risk	Cite: "Conflicts of interest: None"

Ahrari 2014

Methods	RCT. single centre; two parallel groups;
Participants	20 patients: 100% women; mean age 35.5 years. Inclusion criteria: subjects suffering from myofascial pain with/without limited mouth opening; subjects with disc displacement (with/without reduction); arthralgia; or osteoarthritis of the TMJ. Exclusion criteria: analgesic or antidepressant medicine or underwent any other form of treatment for TMD. Country: Iran Clinic: Department of Prosthodontics, School of Dentistry, Mashhad University of Medical Sciences
Interventions	Group A (n=10): laser group Pulsed 810-nm laser (Mustang 2000+, Moscow, Russia). The laser was operated at a peak power of approximately 80 W, average power of 50 mW, pulse repetition rate of 1,500 Hz, pulse length of 1 μs, and spot size of 1.76 cm2 for 2 min per point, giving an effective energy of approximately 6 J and a dose of 3.4 J/cm2 to each painful area. Group B (n=10): placebo group (treatment was the same as that in the laser group, but without energy output)
Outcomes	Pain (VAS) Maximum mouth opening (mm)
Chronicity	Low disability
Hints for Chronicity	1. Exclusion criteria: analgesic or antidepressant medicine or underwent any other form of treatment for TMD
Duration	4 weeks treatment; 1 month follow-up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	No information how
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants	Low risk	Cite: "To have a double-blind study, neither the patients nor

and personnel (performance bias)		the evaluator was aware of the group the participant was assigned to."
Blinding of outcome assessment (detection bias)	Low risk	see above
Incomplete outcome data (attrition bias)	Low risk	No dropouts
Selective reporting (reporting bias)	Low risk	All outcomes reported. Study protocol given (NCT01417637)
Other bias	Unclear risk	Cite: "The authors would like to thank the Vice- Chancellor for Research of Mashhad University of Medical Sciences for the financial support of this project (grant no. 88563)."

Altindiş 2019

Methods	RCT. single centre; two parallel groups;
Participants	20 patients: 100 % women; aged 18–45 years old. Inclusion criteria: Only patients assigned in the RDC 1a (myofascial pain without limited opening) and 1b (myofascial pain with limited opening). Exclusion criteria: systemic muscle disorders; chronic systemic disease; under psychiatric or orthodontic treatment; postmenopausal period Time: n.a. Country: Turkey Clinic: Department of Maxillofacial Surgery, Gaziantep University
Interventions	Group A (n=10): stabilisation splint Group B (n=10): low level laser therapy ((LLLT) 970nm; application extra orally temporal muscle, masseter muscle, sternocleidomastoid muscle, and retromandibular region and intraorally the point where inferior lateral pterygoid muscles attached with fovea pterygoidea selected; 0.5 W laser energy; 5 joules for 10 s; 10 LLLT sessions; 3/week for 3 weeks)
Outcomes	Pain intensity (11 points NS) Muscle sensitivity and the superficial skin temperature differences over the masseter and anterior temporal muscle were assessed, comparison was made within and between the groups pre- and post-operatively. Muscle palpations (0–3 scale) Muscle sensitivity score (maximum possible score=48)
Chronicity	Low disability
Hints for Chronicity	Exclusion: mental illness; medication
Duration	3 weeks treatment; 3 months follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation	Low risk	Cite: "Patients were randomly assigned to the two

(selection bias)		treatment groups according to a randomized block design."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to different therapies
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Unclear risk	No information given
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	No further inequalities

Amanat 2013

Methods	RCT. single centre; two parallel groups;
Participants	60 patients: 73.33% women; mean age 47.22 years. Inclusion criteria: patients meeting the diagnostic criteria presented by the IHS; history of orofacial pain who had failed to respond to medication therapy previously. Exclusion criteria: pregnancy; history of recovery following drug administration. Time: September 2009-December 2011 Country: Iran Clinic: Oral and Maxillofacial Department of the Dental School and the Neurology Clinic in Imam Reza Health Centre, affiliated to Shiraz University of Medical Sciences, Shiraz, Southern Iran
Interventions	Group A (n=30): GaAs laser. GaAs laser (peak power 10 W; pulse frequency 3000 Hz; average power 0.012 W; wavelength 980 nm; irradiation duration 300 sec; and dose 12.73 J/cm2, 10 sessions of treatment) Group B (n=30): sham laser
Outcomes	Pain (VAS)
Chronicity	High disability
Hints for Chronicity	1. Tertiary care 2. History of orofacial pain who had failed to respond to medication therapy previously 3. Exclusion criteria: history of recovery following drug administration 3. Per mail: Did they receive any treatment before? According to the policy of ethic committee they had received their routine treatment based on their type of orofacial pain. 4. Per mail: Did they have any kind of depression? Chronic pain is usually accompanied with depression. 5. Per mail: Did they take pain killers or any other medication? Yes, they have. been prescribed anticonvulsants and TCAs
Duration	4 months follow-up

APPENDIX VIII: Characteristics of studies

Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Used block randomization. Cite: "The block number was 10 and the size of each block was 6. Twenty possible permutations of treatments were listed and then a randomization code was generated for the order in which to select each block."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Cite: "The VAS score was recorded by a third person who was not involved in the treatment procedures. The operators were blind to the results of their treatments, recorded as VAS, whereas the patients were blind to all procedures"
Blinding of outcome assessment (detection bias)	Low risk	Cite: "The VAS score was recorded by a third person who was not involved in the treatment procedures. The operators were blind to the results of their treatments, recorded as VAS, whereas the patients were blind to all procedures"
Incomplete outcome data (attrition bias)	Low risk	Cite: „...Seven patients in each group withdrew from the postoperative evaluations and were excluded from analyses (one patient (3.3%) immediately after the final session and 6 (20%) on the 2 to 4 month follow up visits).
Selective reporting (reporting bias)	High risk	Outcomes from the study protocol were not reported
Other bias	Unclear risk	Cite: "No competing financial interests exist."

Bertolucci 1995

Methods	RCT. single centre; two parallel groups;
Participants	32 patients: Inclusion criteria: radiographic diagnosis of DJD (criteria outlined by Hatcher); subjective complaints of joint pain associated with mandibular dysfunction; abnormal mandibular movements that include a decreased range of movement; anterior disk displacement without reduction in one or both TMJ's. Country: USA Clinic: Sacramento Head, Neck, and Facial Pain Clinic.
Interventions	Group A: control (placebo) group. Placebo mid-laser treatment. The placebo mid-laser treatment was administered in the following manner. The patient was told that the instrument was being activated, but the clinician did not actually activate the stylus. The treatment was administered for a period of three weeks at three visits per week for a total of nine treatment sessions. Group B: mid-laser treatment group. Actual mid-laser treatment. Mid-laser treatment to the TMJ took place for a total of three weeks. The same format was used as in the placebo group. The laser exposure time was for nine

	minutes at 700 Hz at 27 Watts at 100% power output.
Outcomes	Total vertical opening (mm) Right and left lateral deviation (mm) Pain Index (VAS)
Chronicity	High disability
Hints for Chronicity	Patients received treatment before and were recruited from a tertiary care
Duration	treatment of 3 weeks; no follow-up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	No information given
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Cite: "After the completion of the three-week test, the patient had the option of breaking the key to see if they were in the placebo group and could then participate in receiving nine treatments of the infrared laser."
Blinding of outcome assessment (detection bias)	Unclear risk	Cite: "The treating clinician only administered the laser and placebo treatment. A different evaluating therapist did all the measuring and kept tract of the patient scoring of the VAS."
Incomplete outcome data (attrition bias)	Unclear risk	No information about dropouts
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	Important information missing

Borges 2018

Methods	RCT. single centre; four parallel groups;
Participants	44 patients: 90.9% women; age 15-59 years old, 31.9 (SD±12.9). Inclusion criteria: subjects diagnosed with TMD undergoing dental treatment at the dental service of the University's school clinic and in private dental clinics. Exclusion criteria: subjects with medication to control pain; with contraindications for laser therapy, such as suspicion of infections and/or tumours; patients using orthodontic appliance; total dental prosthesis. Country: Brazil Clinic: dental surgeons from the public and private services of the municipality of Três Cachoeiras/RS.
Interventions	Group A (n=11): 8 J/cm2 (AlGaAs) laser (brand Ibramed, model Laserpulse

APPENDIX VIII: Characteristics of studies

	Diamond Line) previously calibrated, with a wavelength of 830 nm, power of 30 mW/cm2, and contact area of 0.01160 cm2) Group B (n=11): 60 J/cm2 (AlGaAs) laser (brand Ibramed, model Laser pulse Diamond Line) previously calibrated, with a wavelength of 830 nm, power of 30 mW/cm2, and contact area of 0.01160 cm2) Group C (n=11): 105 J/cm2 (AlGaAs) laser (brand Ibramed, model Laser pulse Diamond Line) previously calibrated, with a wavelength of 830 nm, power of 30 mW/cm2, and contact area of 0.01160 cm2) Group D (n=11): placebo group (laser therapy with the equipment turned on, but with zero intensity for 15 s at each point. In all groups, photo biomodulation was performed punctually and in contact with the surface, perpendicular to the skin, bilaterally)
Outcomes	Pain (VAS) TMJ mobility (mm)
Chronicity	Low disability
Hints for Chronicity	1. Secondary care 2.Subjects who administered the use of analgesics and pain medications were excluded from the study, as well as the use of orthodontic appliances or dental prostheses 3. No treatment before
Duration	No follow-up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "The subjects were randomized by an independent researcher through a list of random numbers".
Allocation concealment (selection bias)	Low risk	Cite: "The allocation was made by an independent blind researcher who did not participate in any other phase of the study. The allocation was made through a list of random numbers."
Blinding of participants and personnel (performance bias)	Unclear risk	per mail: Patients were not aware of which intervention group he was allocated to. Comment: no information about the staff
Blinding of outcome assessment (detection bias)	Low risk	Cite: "Data collection was performed by a collaborating researcher, previously trained with the evaluation instruments and not knowledgeable of the group to which the subject belonged"
Incomplete outcome data (attrition bias)	Low risk	No dropouts. No follow-up.
Selective reporting (reporting bias)	Low risk	All outcomes reported. Study protocol stated
Other bias	Low risk	Cite: "The authors declare that they have no conflict of interest."

		Cite: „...no significant differences at baseline..."

Brochado 2018

Methods	RCT. single centre; three parallel groups;
Participants	51(41) patients: 95.12% women; 44.5 (SD±17.1). Inclusion criteria: 21 years or older; be diagnosed with myogenic and arthrogenic TMD based on RDC/TMD Axis I analysis; present pain in TMJ and limited mouth opening. Exclusion criteria: current dental therapies that could affect TMJ; rheumatic diseases; use of anti-inflammatory drugs and muscle relaxants. Time: May 2016-November 2016 Country: Brazil Clinic: Universidade Federal do Rio Grande do Sul, School of Dentistry, Department of Oral Pathology, Porto Alegre, RS, Brazil.
Interventions	Group A (n=18): photo biomodulation (PBM) with 808 nm, 100 mW, 13.3 J/cm2, and 4 J per point Group B (n=16): MT for 21 minutes each session on masticatory muscles and TMJ. Group C (n=17): combined therapy group (CT) applied during twelve sessions.
Outcomes	Pain intensity (VAS) Mandibular movements (mm) Psychosocial aspects (RDC/TMD Axis I Axis II) Anxiety symptoms (Beck anxiety inventory (BAI))
Chronicity	Mixed (separable)
Hints for Chronicity	GCPS scores given for each patient
Duration	8 weeks follow-up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "Randomization was performed by the same professional who applied the therapies, using a card system that maintains complete randomness of the assignment of a subject to a particular group."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	High risk	Cite: "The patient was aware of the treatment."
Blinding of outcome	Low risk	Cite: "A blinded researcher performed all the evaluations (LHJ)"

assessment (detection bias)		and "Evaluations were performed by a single calibrated professional who was blinded to the allocation of the participants to the different treatment groups"
Incomplete outcome data (attrition bias)	Low risk	All dropouts were reported
Selective reporting (reporting bias)	Low risk	All outcomes were reported. Study protocol given 52651416.1.0000.5347
Other bias	Unclear risk	Cite: "The authors certify that they have no commercial or associative interest that represents a conflict of interest in connection with the manuscript."

Carrasco 2008a

Methods	RCT. single centre; two parallel groups;
Participants	14 patients: n.a. % women; 14-50 age. Inclusion criteria: natural dentition; did not wear any removable dentures; did not have any periodontal problems; patient's history; masticatory and cervical muscle palpation, palpation of lateral and posterior aspects of the TMJ; joint noise auscultation; panoramic radiograph; diagnosis of TMD with pain in the joint area; associated or not with muscle tenderness. Exclusion criteria: chronic use of analgesic; anti-inflammatory and/or psychotropic medication, occlusal splint, or other treatment for pain control. Time: Country: Brazil Clinic: Temporomandibular Disorder Centre of the School of Dentistry, University of São Paulo
Interventions	Group A (n=7): Infrared laser (780 nm, 70 mw, 60s, 105J/cm2; five points of the TMJ area: lateral point (LP), superior point (SP), anterior point (AP), posterior point (PP), and posterior-inferior point (PIP) of the condylar position. This was performed 2/week, total of eight sessions. Group B (n=7): placebo treatment (power output 70 mW for 60 seconds, resulting in a dose of 105J/cm2)
Outcomes	Pain (VAS) Colorimetric capsule method
Chronicity	Low disability
Hints for Chronicity	Exclusion: analgetic misuse; other treatment
Duration	30 days follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: "The patients were randomly divided into two groups: the Active Group (received the effective dosage) and the Placebo Group (received the placebo application)."

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Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Cite: "During the entire study, neither the clinician nor the patient knew whether the probe was active or inactive. Probes were identified at the end of applications and evaluations."
Blinding of outcome assessment (detection bias)	Low risk	Cite: "During the entire study, neither the clinician nor the patient knew whether the probe was active or inactive. Probes were identified at the end of applications and evaluations."
Incomplete outcome data (attrition bias)	Low risk	No dropouts
Selective reporting (reporting bias)	Low risk	All outcome reported
Other bias	Unclear risk	Cite: "The authors would like to thank the CNPq - Conselho Nacional de Desenvolvimento Científico e Tecnológico - Brazil for providing financial support."

Carrasco 2009 105J/cm^2

Methods	RCT. single centre; six parallel groups.
Participants	60 patients: Inclusion criteria: the combination of regional pain; reference pain pattern; palpable taut band; presence of trigger point; motion restriction and induction of pain with pressure on a trigger point. Exclusion criteria: patients who had systemic; infectious; inflammatory; tumoral; cardiopulmonary; psychiatric diseases that posed a conflict to the clinical picture; TMD disk derangement patients; multiple active or latent trigger points; patients regularly taking medicines such as analgesics, anti-inflammatory and/or psychotropic medication; use of an occlusal splint; The patients were randomly allocated other treatment for pain control. Country: Brazil Clinic: School of Dentistry, University of São Paulo
Interventions	Group A (n=10): LLLT at 25J/cm2 Group B (n=10): LLLT at 60J/cm2 Group C (n=10): LLLT at 105J/cm2 Group D (n=10): placebo LLLT at 25J/cm2 Group E (n=10): placebo LLLT at 60J/cm2 Group F (n=10): placebo LLLT at 105J/cm2 The gallium-aluminium-arsenide (GaAlAs) diode laser (wavelength, 780 nm, potency, 50, 60 and 70 mW, dosage, 25 J/cm2, 60 J/cm2 or 105 J/cm2; Twin Laser, MM Optics Ltd., Class IIIb laser product) was applied in a continuous mode and in a meticulous way, twice a week, for four weeks.
Outcomes	Pain intensity (VAS)
Chronicity	High disability
Hints for Chronicity	1. Tertiary care 2. Pain for at least six months 3. "chronic patients were included in this study (IASP-Subcommittee on

APPENDIX VIII: Characteristics of studies

	Taxonomy, 1986)"
Duration	Follow-up 30 days
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: „...patients were randomly allocated..." Comment: no further information
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Cite: "Neither the clinician nor the subject knew whether or not the diode used was active or not until the data analysis was complete."
Blinding of outcome assessment (detection bias)	Low risk	Cite: "Neither the clinician nor the subject knew whether or not the diode used was active or not until the data analysis was complete."
Incomplete outcome data (attrition bias)	Unclear risk	No information about the dropouts reported
Selective reporting (reporting bias)	Low risk	All outcome reported
Other bias	High risk	Three interventions are the same (three inactive sham of diverse energy levels)

Carrasco 2009 25J/cm^2

Methods	RCT. single centre; six parallel groups.
Participants	60 patients: Inclusion criteria: the combination of regional pain; reference pain pattern; palpable taut band; presence of trigger point; motion restriction and induction of pain with pressure on a trigger point. Exclusion criteria: patients who had systemic; infectious; inflammatory; tumoral; cardiopulmonary; psychiatric diseases that posed a conflict to the clinical picture; TMD disk derangement patients; multiple active or latent trigger points; patients regularly taking medicines such as analgesics, anti-inflammatory and/or psychotropic medication; use of an occlusal splint; The patients were randomly allocated other treatment for pain control. Country: Brazil Clinic: School of Dentistry, University of São Paulo
Interventions	Group A (n=10): LLLT at 25J/cm2 Group B (n=10): LLLT at 60J/cm2 Group C (n=10): LLLT at 105J/cm2 Group D (n=10): placebo LLLT at 25J/cm2 Group E (n=10): placebo LLLT at 60J/cm2 Group F (n=10): placebo LLLT at 105J/cm2 The gallium-aluminum-arsenide (GaAlAs) diode laser (wavelength, 780 nm,

	potency, 50, 60 and 70 mW, dosage, 25 J/cm2, 60 J/cm2 or 105 J/cm2; Twin Laser, MM Optics Ltd., Class IIIb laser product) was applied in a continuous mode and in a meticulous way, twice a week, for four weeks.
Outcomes	Pain intensity (VAS)
Chronicity	High disability
Hints for Chronicity	1. Tertiary care 2. Pain for at least six months 3. "chronic patients were included in this study (IASP-Subcommittee on Taxonomy, 1986)"
Duration	Follow-up 30 days
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: „...patients were randomly allocated." Comment: no further information
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Cite: "Neither the clinician nor the subject knew whether or not the diode used was active or not until the data analysis was complete."
Blinding of outcome assessment (detection bias)	Low risk	Cite: "Neither the clinician nor the subject knew whether or not the diode used was active or not until the data analysis was complete."
Incomplete outcome data (attrition bias)	Unclear risk	No information about the dropouts reported
Selective reporting (reporting bias)	Low risk	All outcome reported
Other bias	High risk	Three interventions are the same (three inactive sham of diverse energy levels)

Carrasco 2009 60J/cm^2

Methods	RCT. single centre; six parallel groups.
Participants	60 patients: Inclusion criteria: the combination of regional pain; reference pain pattern; palpable taut band; presence of trigger point; motion restriction and induction of pain with pressure on a trigger point. Exclusion criteria: patients who had systemic; infectious; inflammatory; tumoral; cardiopulmonary; psychiatric diseases that posed a conflict to the clinical picture; TMD disk derangement patients; multiple active or latent trigger points; patients regularly taking medicines such as analgesics, anti-inflammatory and/or psychotropic medication; use of an occlusal splint; The

APPENDIX VIII: Characteristics of studies

	patients were randomly allocated other treatment for pain control. Country: Brazil Clinic: School of Dentistry, University of São Paulo
Interventions	Group A (n=10): LLLT at 25J/cm2 Group B (n=10): LLLT at 60J/cm2 Group C (n=10): LLLT at 105J/cm2 Group D (n=10): placebo LLLT at 25J/cm2 Group E (n=10): placebo LLLT at 60J/cm2 Group F (n=10): placebo LLLT at 105J/cm2 The gallium-aluminum-arsenide (GaAlAs) diode laser (wavelength, 780 nm, potency, 50, 60 and 70 mW, dosage, 25 J/cm2, 60 J/cm2 or 105 J/cm2; Twin Laser, MM Optics Ltd., Class IIIb laser product) was applied in a continuous mode and in a meticulous way, twice a week, for four weeks.
Outcomes	Pain intensity (VAS)
Chronicity	High disability
Hints for Chronicity	1. Tertiary care 2. Pain for at least six months 3. "chronic patients were included in this study (IASP-Subcommittee on Taxonomy, 1986)"
Duration	Follow-up 30 days
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: „...patients were randomly allocated..." Comment: no further information
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Cite: "Neither the clinician nor the subject knew whether or not the diode used was active or not until the data analysis was complete."
Blinding of outcome assessment (detection bias)	Low risk	Cite: "Neither the clinician nor the subject knew whether or not the diode used was active or not until the data analysis was complete."
Incomplete outcome data (attrition bias)	Unclear risk	No information about the dropouts reported
Selective reporting (reporting bias)	Low risk	All outcome reported
Other bias	High risk	Three interventions are the same (three inactive sham of diverse energy levels)

APPENDIX VIII: Characteristics of studies

Cavalcanti 2016

Methods	RCT. single centre; three parallel groups;
Participants	60 patients: 100% women; age 20–50 years old. Inclusion criteria: with moderate and severe TMD; controlled in relation to the triggering agents (stress, para-low disability habits). Exclusion criteria: all patients diagnosed as mild TMD; whose TMD was associated with systemic diseases; arthrogenic TMD; traumas; disc displacements; cancer. Country: Brazil Clinic: Stomatology department of Centre for Dental Specialties (CEO), at Caruaru Federal University (ASCES)
Interventions	Group A (n=20): LLL (780 nm laser, dose of 35.0 J/cm2, for 20 sec, thrice a week, for 4 weeks) Group B (n=20): PDP (hot packs thrice a day, morning, afternoon, and evening, for 15 min, exercise of opening and closing the mouth, twice a day, myo-relaxing and anti-inflammatory drug administration) Group C (n=20): Placebo (450 nm halogen lamp, Max LD Gnatus, light curing unit)
Outcomes	Presence (P) or Absence (A) of pain (%)
Chronicity	Unclear
Hints for Chronicity	None
Duration	4 weeks treatment; 6 weeks follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	No information given
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Unclear risk	No information given about dropouts. Cite: "All patients were seen for 60 days and showed no recurrence during this period."
Selective reporting (reporting bias)	Low risk	All outcomes reported. Study protocol given number/UCS-167/2011
Other bias	Unclear risk	Cite: "No competing financial interests were reported"

APPENDIX VIII: Characteristics of studies

Chellappa 2020

Methods	RCT. single centre; 2 parallel groups;
Participants	60 patients: % women; mean age (SD±). Inclusion criteria: history of persistent, recurrent, or chronic TMJ pain for more than 3 months not relieved by analgesics; falling in (RDC/TMD); willing to participate; in pain with the presence of reciprocal joint clicking, restricted mouth opening, and jaw deviation who have not undergone any medical; no pharmacological treatment for TMD. Exclusion criteria: cases with congenital abnormality and neoplastic conditions in TMJ region; recent history of acute trauma or any form of treatment within the last month; who are not willing to participate in the study; epileptic patients; known skin disorders (psoriasis, eczema); handicap/mental disability; cerebrovascular problems (patients with claudication and cramping pain due to obstruction of arteries; allergic to adhesive tape or electrodes of TENS machine; neurological diseases involving head and neck; have already been treated with TENS without any improvement in condition; history of aneurysms, stroke, and transient ischemia; All the recruited patients were asked to refrain from consuming pain killers and other forms of therapy such as palliative care, massage, and physiotherapy. Time: n.a. Country: India Clinic: Department of Oral Medicine and Radiologyat a Dental Institution in Chennai
Interventions	Group A (n=30): LLLT group (photon 3-W semi-conductive laser; 50 mW; 3 Joules per site/ four sites of fluence (masseter, temporalis region, condylar region, and intra-auricular portion); 2 sessions/week for 3 weeks; tender point was exposed to 120 seconds of LLLT) Group B (n=30): TENS group (two-electrode unit at 20 W; 60 Hz; 2 sessions/week group
Outcomes	Pain (VAS) MMO
Chronicity	High disability
Hints for Chronicity	Patients had treatment before and were recruited from a tertiary care
Duration	3 weeks treatment
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	No information given
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given

APPENDIX VIII: Characteristics of studies

Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Unclear risk	No information given
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	Cite: "There are no conflicts of interest."

Costa 2017

Methods	RCT. single centre; two parallel groups.
Participants	60 patients: 90% women; age 18-76 years old, mean age 38.8 (SD±14.2). Inclusion criteria: patients of both genders; minimum age of 18 years; myalgia of the temporalis and masseter muscles after initial examination and independent of the final diagnosis of TMD. Exclusion criteria: patients with neurological issues and those using interocclusal splints or any other concurrent treatment for TMD; individuals who had been using medications that could have influenced pain sensations for at least 7 days before the start of the trial. Country: Brazil Clinic: School of Dentistry, University of São Paulo
Interventions	Group A (n=30): placebo (control) PBMT and placebo were applied bilaterally to specific points on the masseter and temporal muscles. The placebo treatment was given by placing a metallic film over the beam's output. This simulated PBMT (placebo) was applied to the same 5 points bilaterally as the actual PBMT. Group B (n=30): photobiomodulation therapy (PBMT). A Thera Laser (DMC Equipamentos Ltda, São Carlos, Brazil) infrared laser (830 nm) was used for the irradiation at the following settings: power: 100 mW, energy density: 100 J/cm2, exposure: 28 seconds at each irradiation point, and energy: 2.8 J per point. Five irradiation points were considered on each side of the face (temporal muscle: anterior, medium, and posterior; and superficial masseter muscle: superior and inferior), based on the methodology used by Ahrari et al. (2014), totaling the 14 J of energy applied to the tissue. The spot size of the laser beam was 0.028 cm2. The output power was measured using a power meter (Molectron PM600, Coherent, Santa Clara, USA) before and after irradiation of each volunteer.
Outcomes	Muscular palpation Mouth opening measurements (mm) Pain (VAS)
Chronicity	Low disability
Hints for Chronicity	1. Exclusion: patients with neurological issues and those using interocclusal splints or any other concurrent treatment for TMD; individuals who had been using medications that could have influenced pain sensations for at least 7 days before the start of the trial.
Duration	No follow up
Notes	

APPENDIX VIII: Characteristics of studies

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	"Randomization was done with a computer program (www.randomization.com)."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	Cite: "double-blind study" no information how the patients were blinded
Blinding of outcome assessment (detection bias)	Low risk	Cite: „...was blinded to the treatment for each volunteer"
Incomplete outcome data (attrition bias)	Low risk	No dropouts
Selective reporting (reporting bias)	Low risk	All outcomes reported. Study protocol given Protocol # 317.627
Other bias	Unclear risk	Cite: "The authors certify that they have no commercial or associative interest that represents a conflict of interest in connection with the manuscript."

Da Cunha 2008

Methods	RCT. single centre; two parallel groups;
Participants	40 patients: 97.5% women; mean age Group A 40.15; Group B 46.6. Inclusion criteria: been waiting for treatment for at least six months; without any form of professional care. Exclusion criteria: asymptomatic joint clicking; major psychological problems; heart disease; psoriasis; rheumatoid arthritis; pregnancy; patients with pacemaker; presenting myofascial trigger points; fibromyalgia. Country: Brazil Clinic: Centre of Occlusion and Temporomandibular Disorder of the Dental School of São Paulo State University (UNESP) at São José dos Campos.
Interventions	Group A (n=20): infrared laser (830nm, 500mW, 20s, 4J/point) at the painful points, once a week for four consecutive weeks. Group B (n=20): Control group (treatment performed exactly in the same manner, but without energy output)
Outcomes	Pain (VAS) Dysfunction index (DI) Palpation index (PI) Craniomandibular Index (CMI) (CMI is the arithmetic average between DI and PI)
Chronicity	Low disability
Hints for Chronicity	1. Inclusion criteria: without any form of professional care 2. Been waiting for treatment for at least six months

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Duration	Four weeks treatment; no follow-up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	No information about the randomization
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information
Blinding of outcome assessment (detection bias)	Low risk	Cite: "The professional responsible for evaluation during this study was not aware of the group to which the patient belonged."
Incomplete outcome data (attrition bias)	Unclear risk	No dropouts mentioned
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	Important information missing

Da Silva 2012

Methods	RCT. single centre; three parallel groups.
Participants	45 patients: 66.67% women; age 25-53 years old, average 39.7 years. Inclusion criteria: presenting signs and symptoms associated with TMD for over six months, thus characterizing the presence of chronic pain according to the International Association for Studies on Pain–IASP. Exclusion criteria: chronic users of analgesic; anti-inflammatory or psychotropic medications; who had used a stabilizing splint or any other type of treatment for TMDs, such as physical therapy or a home exercise program; upper quarter postural dysfunction, apart from TMD. Country: Brazil Clinic: Occlusion and Temporomandibular Joint Disorders Service – SODAT at the Ribeirão Preto School of Dentistry, University of São Paulo
Interventions	Group A (n=15): laser with energy dose of 52.5 J/cm2 Group B (n=15): laser with energy dose of 105.0 J/cm2 Group C (n=15): placebo group with energy dose of 0 J/cm2 Used was a low-level intensity infrared laser (Laser Twin Set MM Optics Ltda, São Carlos, São Paulo, with a 780 nm wavelength and 70 mW)
Outcomes	Maximum pain-free mouth opening (mm) Maximum left, right lateralities and maximum protrusion (pachymeter) Symptoms on palpation (condyle, pre-auricular region, external auditory meatus, masseter, anterior temporalis muscles) (VAS)
Chronicity	Low disability

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Hints for Chronicity	1. per mail: Exclusion criteria: chronic users of analgesic; anti-inflammatory or psychotropic medications 2. per mail: Exclusion criteria: who had used a stabilizing splint or any other type of treatment for TMDs, such as physical therapy or a home exercise program; upper quarter postural dysfunction, apart from TMD.
Duration	32 days follow-up
Notes	

Risk of bias table

Bias	Authors' judgement	**Support for judgement**
Random sequence generation (selection bias)	Unclear risk	No information given
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information about the blinding of the patients only cite: "The methodology adopted by the present study was the double-blind model for patient and investigator, so that the investigator would have no influence on the patient being treated."
Blinding of outcome assessment (detection bias)	Low risk	Cite: "The methodology adopted by the present study was the double-blind model for patient and investigator, so that the investigator would have no influence on the patient being treated."
Incomplete outcome data (attrition bias)	Unclear risk	No dropouts mentioned
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	No other conspicuous features

De Abreu 2005

Methods	RCT. single centre; two parallel groups.
Participants	30 patients: 83.33% women; 34.9 years (15–36), 37.6 years (13–63). Inclusion criterion: diagnosis of TMD, with pain restricted to the joint area; associated with the absence of any muscle tenderness during palpation; with capsulitis/synovitis; painful disk displacements with reduction. Exclusion criteria: any palpation tenderness of masticatory muscles; psychiatric disorders; heart diseases; epilepsy; pregnancy; rheumatoid arthritis; degenerative joint diseases, tumours; subjects with pacemakers. Country: Brazil Clinic: Occlusion and TMDs Clinic at a Dentistry School
Interventions	Group A (n=15): infrared laser (780 nm, 30 mW, 10 s, 6.3 J/cm2) at three TMJ points. The treatment was performed twice a week, for three consecutive weeks, with a 780 nm Ga–Al–As (Gallium– Aluminium–Arsenide) diode laser (Twin Laser) Group B (n=15): placebo group infrared laser (780 nm, 30 mW, 10 s, 6.3

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	J/cm2) at three TMJ points Country: Brazil Clinic: Occlusion and TMDs Clinic at a Dentistry School
Outcomes	Pain (VAS) Range of mandibular movements (mm) TMJ pressure pain threshold (electronic algometer)
Chronicity	Low disability
Hints for Chronicity	Exclusion: treatment before; mental illness.
Duration	Follow-up 60 days
Notes	Funding was done by FAPESP – 'Fundac¸de Amparo a Pesquisa do Estado de Sao Paulo' (Sao Paulo Research Support Foundation)

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	No information given
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Cite: „...the treating clinician did not know which were the active and the inactive probe during the entire experiment, and the patients did not know to which group they were assigned."
Blinding of outcome assessment (detection bias)	Low risk	Cite: „...the treating clinician did not know which were the active and the inactive probe during the entire experiment, and the patients did not know to which group they were assigned."
Incomplete outcome data (attrition bias)	Unclear risk	No information given about possible dropouts
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	Important information missing

de Carli 2013

Methods	RCT. single centre; three parallel groups.
Participants	32 patients: 90.63% women; 18-58 years old, mean age 32.4. Inclusion criteria: patients of both sexes; over the age of 18 years and arthralgia in at least one of the TMJ according to Dworkin and LeResche; occlusal contacts in four premolars and four molars, checked with shim stock film of 12 microns. Exclusion criteria: osteoarthritis or osteoarthrosis of the TMJ; allergy to NSAIDs; gastric disorders; neurological disorders; suspected TMJ's tumours; recent mandibular fracture; systemic inflammatory disorders;

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	autoimmune disorders; partial or full removable dentures; pregnancy; breastfeeding; intake analgesic and anti-inflammatory drugs for at least 15 days before the trial. Country: Brazil Clinic: Orofacial Pain and TMD Clinic in the Department of Stomatology at the School of Dentistry of the University of Sao Paulo
Interventions	Group A (n=11): active laser and placebo piroxicam Group B (n=10): placebo laser and piroxicam Group C (n=11): active laser and piroxicam The treatment was performed twice a week, over a 10-day period, with an 808 nm GaAlAs (Gallium–Aluminium–Arsenide) diode laser (Thera Laser). LLLT was performed with an output power of 100 mW, a time of 28 seconds for each point and energy density of 100 J cm2 at each point (energy per point of 28 J and total energy of 56 J, considering spot size of 0028 cm2 of the used laser equipment) The patients were instructed to take one capsule a day of piroxicam 20 mg (18) or placebo piroxicam for 10 consecutive days, concomitant to the laser therapy. The placebo piroxicam was like the piroxicam in appearance. All patients were informed about the possible side effects of piroxicam.
Outcomes	Pain (VAS) Maximum mouth opening (mm) Joint and muscle (temporal and masseter) pain on palpation
Chronicity	Mixed
Hints for Chronicity	Comment: The author sends us information about the patients 22 patients were Grade I-II, and 10 patients were Grade III-IV
Duration	10 days treatment; 30 days follow-up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "The method of randomisation used was the computerised random numbers that was generated using the web site ‘www.randomization.com’ by one of the non-treating authors."
Allocation concealment (selection bias)	Low risk	Cite: "Simple randomisation with a 1:1:1 allocation was used
Blinding of participants and personnel (performance bias)	Low risk	Cite: "In this double-blind randomised controlled trial (RCT), patients and research therapists were unaware of which treatment the subjects received during both the intervention and follow-up phases."
Blinding of outcome assessment (detection bias)	Low risk	Cite: "In this double-blind randomised controlled trial (RCT), patients and research therapists were unaware of which treatment the subjects received during both the intervention and follow-up phases." and "The research therapists were blind to group distribution."

Incomplete outcome data (attrition bias)	Unclear risk	Reported about all dropouts, but no information from which group
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Low risk	Cite: "The authors declare no conflict of interest." Cite: "Baseline comparisons between the three treatment groups were based on age, time since pain onset and subjective pain reporting. No significant differences were seen in the listed parameters"

De Carli 2016

Methods	RCT. single centre; two parallel groups;
Participants	15 patients: 87% women; mean age 38 years old. Inclusion criteria: unilateral or bilateral myofascial pain lasting more than a month; complaint of pain in mouth opening; bruxism, clenching, or tooth wear. Exclusion criteria: pregnancy and breastfeeding; heart disease and pacemaker; malignant tumour; degenerative joint diseases, psoriasis, and rheumatoid arthritis; myasthenia gravis and Lambert Eaton's syndrome; congenital abnormalities; recent history of trauma; treatment for pain in the month prior to the study; psychic disorders; dental diseases such as caries or pulpitis; epilepsy; use of chronic medication, occlusal splint or other treatment for pain control; use of aminoglycosides; allergy to lactose; tetanus vaccine in the last 12 months. Country: Brazil Clinic: Dental Clinic of the University of Passo Fundo
Interventions	Group A (n=8): low-level laser (low-level GaAlAs laser, 100 mW of power at a wavelength of 830 nm in continuous light emission) Group B (n=7): toxin group (received 30 U of botulinum toxin type A (BTX-A) in the first session, and 15 U after 15 days)
Outcomes	Pain (VAS) Mouth opening (mm)
Chronicity	Low disability
Hints for Chronicity	1. Exclusion: treatment for pain in the month prior to the study 2. Exclusion: psychic disorders 3. Exclusion: use of chronic medication, occlusal splint, or other treatment for pain control
Duration	15 days treatment
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection	Low risk	Cite: "Randomization was performed through an online program (www.random.org)."

bias)		
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Cite: "The methodology adopted by the present study was the double-blind model for patient and investigator, so that the investigator would have no influence on the patient being treated."
Blinding of outcome assessment (detection bias)	Low risk	Cite: "The methodology adopted by the present study was the double-blind model for patient and investigator, so that the investigator would have no influence on the patient being treated."
Incomplete outcome data (attrition bias)	Unclear risk	Reported about the dropouts, no further information. No follow-up.
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	No further inequalities

De Moraes 2014

Methods	RCT. single centre; two parallel groups.
Participants	21 patients: 90.45% women; age 27.76 (SD± 10.44). Inclusion criteria: reporting pain in the facial region at a minimum intensity of 5 on the VAS with a duration of at least 3 months; diagnosis of myofascial pain according to the Research Diagnostic Criteria for TMD Research Diagnostic Criteria (RDC/TMD) (axis I, categories Ia and Ib). This diagnosis was made by a systematically translated Brazilian version of the RDC/TMD (RDC/TMD axis I) Exclusion criteria: patients missing more than two posterior teeth (excluding third molars); presence of full denture or removable partial denture; presence of gross malocclusion (overbite and overjet greater than 6 mm, unilateral or anterior crossbite; or a discrepancy of centric relation to maximum intercuspation greater than 5 mm); patients undergoing orthodontic treatment; medical treatment; or on medication for pain. Time: March 2010-November 2011 Country: Brazil Clinic: Department of Odontology, Federal University of Sergipe
Interventions	Group A (n=12): laser group (Irradiation parameters were as follows: wavelength0 808 nm (infrared), laser optical power0100 mW, spot area00.028 cm2, distance between the points of application 0 1 cm, total energy 0 1.9 J, energy density 0 70 J/cm2, and time per point 0 19 s) Group B (n= 9): placebo group (apparatus was programmed to be used in the red wavelength (660 nm), with the pen tip covered by its own storage protector shield during the entire treatment, preventing the laser light output)
Outcomes	Masticatory performance (MP) by analysis of the geometric mean diameter (GMD) (chewed particles using Optocal test material) Pressure pain threshold (PPT) (pressure algometer) Pain intensity (VAS)
Chronicity	Low disability

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Hints for Chronicity	1. Exclusion: medical treatment; or on medication for pain 2. No treatment before
Duration	Four weeks treatment 30 days follow-up
Notes	Financial support from Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq) for the financial support.

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	No information given
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Unclear risk	Reported about all dropouts but no further information
Selective reporting (reporting bias)	Low risk	Reported all the outcomes
Other bias	Low risk	Cite: "The authors declare that they have no conflict of interest." Important information missing. Cite: "no significant differences at baseline."

De Oliveira 2017

Methods	RCT. single centre; two parallel groups.
Participants	19 patients (116 pain points): 78.95% women; age 21–55 years old (mean age 35). Inclusion criteria: good general health; TMD/RDC; presenting trigger points within pain score ≥ 5 on palpation, according to a NRS ranging from 0 to 10. Exclusion criteria: frequent use of analgesics; nonsteroidal anti-inflammatory drugs; antidepressants; had previously undergone TMD treatment; suffered facial trauma. Country: Brazil Clinic: Dental Clinic of the UFVJM
Interventions	Group A (n=15): articular points and 46 muscle points: red laser (660 nm) Group B (n=10): articular points and 45 muscle points: infrared laser (790 nm)
Outcomes	Pain (NS)
Chronicity	Low disability
Hints for Chronicity	1. Exclusion criteria: frequent use of analgesics; nonsteroidal anti-inflammatory drugs; antidepressants

APPENDIX VIII: Characteristics of studies

	2. Exclusion criteria: had previously undergone TMD treatment
Duration	180 days follow-up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "Restricted randomization was performed by an independent researcher, blinded to the patients."
Allocation concealment (selection bias)	Unclear risk	Cite: "Two opaque envelopes were assigned to each patient, one for the type of treatment to be performed." "A lottery by drawing was used, taking a paper out of each envelope showing the type of intervention and the corresponding hemiface"
Blinding of participants and personnel (performance bias)	Low risk	Cite: "This was masked, because the patients wore glasses with black lenses and a mask that prevented them from seeing the red light emitted by the laser."
Blinding of outcome assessment (detection bias)	Low risk	Cite: "All measurements were recorded by a blinded, trained, and calibrated examiner (ODF)."
Incomplete outcome data (attrition bias)	Unclear risk	Reported about the dropouts, but no information from which group
Selective reporting (reporting bias)	Low risk	Outcome reported
Other bias	Low risk	Cite: "No potential conflict of interest was reported by the authors." Cite: "Regarding the pain levels, there were no statistical differences (p>0.05) between the groups at baseline"

De Oliveira 2020

Methods	RCT. single centre; two parallel groups.
Participants	20 patients: 65 % women; mean age Group A 30.1 (SD±10.9); Group B 23.6 (SD±4.0). Inclusion criteria: age 18-60 years; diagnosis of myofascial pain with mouth opening limitation; having signed the informed consent from the research. Exclusion criteria: any other TMD diagnosis; acute traumatic injuries; patients who were completely or partially edentulous; including the anterior region and those undergoing treatment for TMD. Patients using analgesics and/or anti-inflammatories had to have suspended the medication at least 30 days before the study began (washout); they were instructed not to use the medication during the treatment period. Time: January 2017 - January 2018 Country: Brazil Clinic: Federal University of Santa Maria for TMD treatment

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Interventions	Group A (n=10): LLLT (two sessions; painful sensitivity on palpation points were irradiated; 808 nm; 100mW; fluency of 80 J/cm2; 22 sec per application) Group B (n=10): placebo
Outcomes	Maximum mouth opening (mm) Pain (3-point scale) Oral health-related quality of life (OHIP/TMD)
Chronicity	Low disability
Hints for Chronicity	No treatment before
Duration	30 days follow-up
Notes	Further publication: "Treatment of myofascial pain with a rapid laser therapy protocol compared to occlusal splint: A double-blind, randomized clinical trial (Maracci, 2020)"

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "Randomization and stealth allocation of the participants were performed by a researcher (M.M) who was not involved on the recruitment, evaluation, or treatment of the participants, through the online tool called Research Randomizer (http://www.randomizer.org), via lottery and by generating a random sequence in blocks of two."
Allocation concealment (selection bias)	Low risk	see above
Blinding of participants and personnel (performance bias)	Low risk	Cite: "The subjects in the placebo group received identical tip applications to the active one with the same time sound signal; however, it was deactivated and did not have the capacity to deliver energy to the tissue."
Blinding of outcome assessment (detection bias)	Low risk	Cite: "Only two researchers (M.M. and V.O.C) knew which patient belonged to which group." and "The blinding of the examiners was guaranteed throughout the study. The researchers (L.M.M and G.S.) and the volunteers only had access to information from the laser and placebo groups after the clinical trial was completed, thus characterizing a double-blind study."
Incomplete outcome data (attrition bias)	Low risk	Cite: "two patients from the placebo group were lost during the study"
Selective reporting (reporting bias)	Low risk	All outcomes reported; study protocol given: 74925717.6.0000.5346
Other bias	Unclear risk	The authors report no conflicts of interest

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de Souza 2018

Methods	RCT. multi-centre study; two parallel groups.
Participants	66 patients: 94% women; mean age 46.14 (SD±10.91). Inclusion criteria: myalgia (DC/TMD); sufficient cognitive levels to understand procedures; follow instructions without the assistance of another person. Exclusion criteria: patients who changed their systemic medications 3 months before the beginning of the treatments; those who related the previous experience of an allergic reaction to lidocaine or do not agree to participate voluntarily in this research. Country: Brazil Clinic: "two centres of orofacial pain (one public and one private), located in a small capital of the Northeast of Brazil."
Interventions	Group A (n=33): LLLT irradiation by Diode Laser GaAlAs (780nm) with expositions twice a week during six weeks Group B (n=33): anaesthetic infiltration of lidocaine 2% without vasoconstrictor once a week for four weeks
Outcomes	Pain (VAS) Tenderness to palpation
Chronicity	Unclear (High disability)
Hints for Chronicity	1. Secondary care 2. Exclusion criteria: patients who changed their systemic medications 3 months before the beginning of the treatments
Duration	4-6 weeks treatment
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "The block randomization was performed in Microsoft® Excel® 2016 software after the codification of each volunteer."
Allocation concealment (selection bias)	Unclear risk	No information on how
Blinding of participants and personnel (performance bias)	Unclear risk	No information on how
Blinding of outcome assessment (detection bias)	Low risk	Cite:"…accomplished by research blinded..."
Incomplete outcome data (attrition bias)	Low risk	All the volunteers completed the study
Selective reporting (reporting bias)	Low risk	All outcomes reported. Study protocol given
Other bias	Unclear risk	Cite: "The authors declare that they have no conflict of

		interest."

Del Vecchio 2019

Methods	RCT. single centre; three parallel groups;
Participants	90 patients: 86.6 % women; range 19–73 years old; mean age 42.55 (SD±14.84). Inclusion criteria: presence of pain in the joint area and/or radiating to the face, jaw, or neck for at least six months; reduced mouth opening or jaw locks; painful clicking, popping, or grating when opening or closing the mouth; occlusal changes; no muscle tenderness at palpation; and no drug consumption for at least three weeks before treatment. Exclusion criteria: n.a. Time: n.a. Country: Italy Clinic: Department of Dental Sciences and Maxillo-Facial Surgery of Sapienza, University of Rome
Interventions	Group A (n=30): 1-week home protocol LLLT (808 nm, 5 J/min, 250 mW, 15 KHz for 8', 40 J each, over pain area, twice daily seven consecutive days Group B (n=30): same protocol using sham devices with the same exterior characteristics of the effective device, including the guide beam and the working sound, but devoid of the therapeutic diode source Group C (n=30): conventional drug therapy (two non-consecutive cycles of five days of nimesulide (100 mg a day), interspersed with one 5-day cycle of cyclobenzaprine hydrochloride (10 mg a day))
Outcomes	Pain (VAS)
Chronicity	Low disability
Hints for Chronicity	Per mail: "Did they receive any treatment before or suffered of depression? No"
Duration	1 week treatment; n.a follow up
Notes	This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "The web Research Randomizer® free resource for researchers was used for randomization."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Cite: "In both groups, SG and PG, neither the patients nor the examiner knew whether the device was effective or not."
Blinding of outcome	Low risk	Cite: "In both groups, SG and PG, neither the patients nor

assessment (detection bias)		the examiner knew whether the device was effective or not."
Incomplete outcome data (attrition bias)	Low risk	No dropouts in this study
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Low risk	Cite: "No significant differences in the pain level, respectively, at T0 and T1 in the three groups. The authors declare that there is no conflict of interest regarding the publication of this paper."

Demirkol 2017

Methods	RCT. single centre; two parallel groups.
Participants	46 patients: 50% women; age 13-65 years old. Inclusion criteria: experienced tinnitus for at least 6 months. Exclusion criteria: patients with hearing loss; Meniere's disease; chronic otitis media; otitis media with effusion; vestibular schwannoma; cardiac disease; degenerative changes in TMJ; pregnancy; orofacial pain for more than 6 months. Country: Turkey Clinic: Department of Prosthodontics, Faculty of Dentistry, Gaziantep University
Interventions	Group A (n=15): low-level laser therapy (LLLT) with a Nd: YAG (1064 nm) laser Group B (n=16): LLLT with a diode laser (810 nm) Group C (n=16): placebo treatment (laser device was used and the handpiece was anteromedially applied to the external auditory meatus with no irradiation)
Outcomes	Pain (VAS)
Chronicity	Unclear (low disability)
Hints for Chronicity	Exclusion: orofacial pain for more than 6 months
Duration	1 month follow-up
Notes	No competing financial interests exist

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	No information given
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Unclear risk	No information given

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Incomplete outcome data (attrition bias)	Unclear risk	No dropouts reported
Selective reporting (reporting bias)	Low risk	The addressed outcome reported
Other bias	Unclear risk	Important information missing

Emshoff 2008

Methods	RCT. single centre; two parallel studies.
Participants	52 patients: 80.77% women; age 18-58 years (mean 42.9 years). Inclusion criteria: report of orofacial pain referred to the TMJ; presence of unilateral TMJ pain during function; absence of a clinical TMJ disorder condition defined according to the DC/TMD; preoperative (VAS) pain level greater than 20 mm and less than 80 mm; recently of pain onset of 2 years or less; be ambulatory and able to be treated as an outpatient; be available for the study schedule. Exclusion criteria: myalgia; collagen vascular disease; history of trauma. Country: Austria Clinic: Orofacial Pain and TMD Clinic in the Department of Oral and Maxillofacial Surgery at the University of Innsbruck
Interventions	Group A(n=26): active LLLT (Helium Neon, 632.8 nm, 30 mW) Group B(n=26): sham LLLT
Outcomes	Pain (VAS)
Chronicity	High disability
Hints for Chronicity	1. Tertiary care 2. All had failed to obtain satisfactory pain relief after an initial treatment protocol, including self-care (soft diet, cold/hot packs,) and topical 3% diclofenac gel (Voltaren, Novartis, Vienna, Austria), 3 times a day, plus occlusal appliance (hard acrylic, full-arch maxillary stabilization–type splint). Patients were instructed to adhere to this treatment protocol for a period of 6 weeks; they were not subjected to treatment within the last 2 weeks before the trial.
Duration	8 weeks follow-up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite "Participants were randomly assigned to either the active (26 patients) or sham laser group (26 patients) by one of the non-treating authors." and "The order of subject assignment was based on a sequence of computer-generated random numbers."
Allocation concealment (selection bias)	Unclear risk	No information given

Blinding of participants and personnel (performance bias)	Low risk	"Equipment used for both sham and active groups were identical in appearance except for a hidden code label, known only to the research assistant".
Blinding of outcome assessment (detection bias)	Low risk	Cite: „...research therapists, and investigators were unaware of which treatment the subjects received during both the intervention and follow-up phases"
Incomplete outcome data (attrition bias)	Low risk	Reported about the dropouts
Selective reporting (reporting bias)	Low risk	Outcome was reported
Other bias	Unclear risk	No other conspicuous features

Fornaini 2015

Methods	RCT. single centre; two parallel groups;
Participants	24 patients: 79.17% women; age 17-64 years old. Inclusion criteria: mono- or bilateral TMD, with acute pain restricted to the joint area; associated with the absence of any muscle tenderness during palpation. Country: Italy
Interventions	Group A (n=12): real LLLT (808 nm diode laser) Group B (n=12): inactive laser (placebo group)
Outcomes	Pain (VAS)
Chronicity	Unclear (Low disability)
Hints for Chronicity	1. Author mentioned "acute pain"
Duration	2 weeks treatment
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	No information given
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	The patients did not know to which group they were assigned
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Unclear risk	No information given about dropouts
Selective reporting (reporting bias)	Low risk	Reported the outcome addressed
Other bias	Unclear risk	Important information missing

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Frare 2008

Methods	RCT. single centre; two parallel groups;
Participants	18 patients: 100 % women; mean age 27 years (SD±7). Inclusion criteria: n.a. Exclusion criteria: n.a. Time: n.a. Country: Brazil Clinic: referred by dentists at the Dentistry Clinic of Unioeste, Occlusion Sector
Interventions	Group A (n=10): GaAs laser therapy (twice a week, for four consecutive weeks (totalling eight applications); 904 nm; 6 J/cm2; 0.38 mW/cm2; beam area of 0.039cm2 and continuous emission mode; applied at four pre-auricular points and one in the external auditory meatus) Group B (n=8): manipulated the same way as the treated group, but laser switched off
Outcomes	Pain (VAS)
Chronicity	Unclear (high disability)
Hints for Chronicity	Patients were recruited from a tertiary care
Duration	The medical care was provided twice a week, for four weeks, totalling eight sessions for each patient
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "The patients were randomly divided in two equal groups according to the order of attendance at the service."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Low risk	No dropouts in this study
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	No further inequalities

Herpich 2015

Methods	RCT. single centre; two parallel groups;

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Participants	30 patients: 100% women; age 18-40 years old. Inclusion criteria: women with dysfunction temporomandibular; limitation of mandibular opening below 40 mm; score of masticatory muscle pain greater than 3 cm in accordance with EVA. Exclusion criteria: women who have dental failures, total or partial prosthesis; systemic diseases; history of trauma to the face and or ATMor the ATM dislocation history; orthodontic treatment and/or medicated that affects the musculoskeletal system. Country: Brazil Clinic: Universidade Nove de Julho, São Paulo
Interventions	Group A (n=15): phototherapy (9,96 J/point) Group B (n=15): phototherapy (0 J/point)
Outcomes	Pain (VAS) Electromyography
Chronicity	Low disability
Hints for Chronicity	1. Per mail: Patients who reported using medication were excluded from the study. 2. Per mail: Patients did not receive treatment before the intervention.
Duration	48h follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Per mail: "-What kind of randomization did you use? http://www.randomization.com/"
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Per mail: "The participants were informed that they would receive treatment involving phototherapy and were blinded to whether the treatment was active or placebo."
Blinding of outcome assessment (detection bias)	Low risk	Per mail: "Four physiotherapists with at least three years of experience and having undergone a two month training period for administration of the procedures were designated to conduct the treatments. On the day of treatment, a researcher who was unaware of the volunteers scheduled the equipment according to the result described in randomization. The physiotherapists who then performed the treatment were blinded to the parameters programmed into the equipment. A blinded examiner evaluated the clinical outcomes before, immediately after as well as 24 and 48 h after phototherapy."

Incomplete outcome data (attrition bias)	Unclear risk	Per mail: " -Did you have drop-outs? Yes, two during the evaluation and two at the beginning of the application."
Selective reporting (reporting bias)	Low risk	Reported the outcomes
Other bias	Unclear risk	Important information missing

Herpich 2018

Methods	RCT. single centre; Four parallel groups.
Participants	60 patients: 100% women; age 14-18 years old. Inclusion criteria: history on TMD; confirmation of the diagnosis using the RDC/TMD and a physical examination. Exclusion criteria: age less than 18 years or more than 40 years; body mass index (BMI) greater than 25kg/m2 to standardize the relationship between muscle surface and the electromyographic electrode; currently undergoing orthodontic physiotherapeutic; psychological; or medicinal (analgesic, anti-inflammatory agent, or muscle relaxant) treatment; pregnancy; the use of a complete or partial dentures; use of a bite plate; history of trauma to the face or TMJ; a history of luxation or subluxation of the TMJ; missing teeth (except for third molars); a diagnosis of osteoarthritis (IIIb) or osteoarthrosis (IIIc), and Psychological disorder and/or psychological treatment using the RDC/TMD. Time: February and November 2014 Country: Brazil Clinic: Physical therapy clinic in the city of Sao Paulo, Brazil.
Interventions	Group A (n=15): 2.62 J Group B (n=15): 5.24 J Group C (n=15): 7.86 J Group D (n=15): placebo group Phototherapy with a combination of super-pulsed laser (905nm), red (640nm), and infrared (875nm) light emitting diodes in the same equipment on the masseter (three points) and temporal (two points) muscles bilaterally in a single session
Outcomes	Pain intensity (VAS) PPT (digital algometer) Vertical mandibular movement (mm) Myoelectrical activity of the masseter and temporal muscles (electromyography)
Chronicity	Low disability
Hints for Chronicity	1. Participants were recruited with the use of posters and flyers at physical therapy and dentistry clinics 2. per mail: patients did not receive treatment before the intervention 3. per mail: patients who reported using medication were excluded from the study
Duration	Follow up 48h
Notes	Funding for this study was provided by the State of Sao Paulo Research Foundation

APPENDIX VIII: Characteristics of studies

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "The patients participating in the study were randomized into groups according to a spread sheet generated in a computer program by a researcher who was not involved in the selection of patients." per mail: http://www.randomization.com/
Allocation concealment (selection bias)	Low risk	Cite: "The randomization procedure was performed by a researcher who was not involved in the recruitment, evaluation, or treatment of the participants."
Blinding of participants and personnel (performance bias)	Low risk	Cite: "The participants were informed that they would receive treatment involving phototherapy and were blinded to whether the treatment was active or placebo."
Blinding of outcome assessment (detection bias)	Low risk	Cite: "A blinded examiner evaluated the clinical outcomes before, immediately after as well as 24 and 48h after phototherapy." per mail: a researcher who was unaware of the volunteers scheduled the equipment according to the result described in randomization. The physiotherapists who then performed the treatment were blinded to the parameters programmed into the equipment. A blinded examiner evaluated the clinical outcomes before, immediately after as well as 24 and 48 h after phototherapy.
Incomplete outcome data (attrition bias)	Low risk	per mail: two dropouts during the evaluation and two at the beginning of the application
Selective reporting (reporting bias)	Low risk	All outcomes reported. Study protocol given
Other bias	Unclear risk	Cite: "The authors report no conflicts of interest."

Herpich 2020

Methods	RCT. single centre; two parallel groups;
Participants	30 patients: 100 % women; mean age Group A 25.44 (SD±5.76); mean age Group B 26.55 (SD± 4.6). Inclusion criteria: female sex; a diagnosis of myogenous and/or mixed TMD based on the RDC/TMD; moderate to severe pain according to the palpation of lateral pterygoid (question 10a of the RDC/TMD clinical axis) and VAS score of 3 to 8. Exclusion criteria: missing teeth; use of complete or partial dentures; systemic or neuromuscular disease; a history of trauma to the face or TMD; history of luxation of the TMJ; currently undergoing orthodontic treatment; currently using medication that affects the musculoskeletal system (analgesics, anti-inflammatory agents, or muscle relaxants) Time: n.a. Country: Brazil

APPENDIX VIII: Characteristics of studies

	Clinic: Department of Physical Therapy of the University Nove de Julho
Interventions	Group A (n=15): Photobiomodulation (intraorally pterygoid muscles, bilaterally; total of 6 sessions; portable cluster of nine diodes one laser diode (905 nm), four red LED diodes (670 nm), and four infrared LED diodes (875 nm LED); total energy 39.27 J per point; per point (J/cm2) 99.67) Group B (n=15): sham photobiomodulation
Outcomes	RDC/TMD Mandibular range of motion Pain intensity (VAS) Functioning (Patient-Specific Low disability Scale)
Chronicity	Low disability
Hints for Chronicity	1. Moderate to severe pain according to the palpation of lateral pterygoid (question 10a of the RDC/TMD clinical axis) and VAS score of 3 to 8 2. per mail: patients who reported using medication were excluded from the study
Duration	2 weeks follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "The 30 individuals were randomized into groups according to a spread sheet generated in a computer program. Randomization occurred in the order in which each patient was enrolled in the study: Treatment group and sham group.
Allocation concealment (selection bias)	Low risk	Cite: "The randomization procedure was performed by a researcher who was not involved in the recruitment, evaluation, or treatment of the participants." Comment: extern
Blinding of participants and personnel (performance bias)	Low risk	Cite: "To ensure the blinding of the participants, the same device was used in both groups. For the experimental group, it was necessary to press the button twice (once to switch on the device and once to activate the light). For the sham group, the button was only pressed once to simulate the application. The power of the device was tested with and without the adapter and no loss of power occurred with the use of the adapter." Cite: "The participants were informed that they would receive treatment involving phototherapy and were blinded to whether the treatment was active or placebo. The study was divided into five evaluation phases and two treatment phases."
Blinding of outcome assessment (detection bias)	Low risk	Cite: "A blind examiner assessed the clinical results before, immediately, 24 and 48 h after a session, and after 6 sessions within 2 weeks of phototherapy."
Incomplete outcome data (attrition bias)	Low risk	No dropouts in this study

APPENDIX VIII: Characteristics of studies

Selective reporting (reporting bias)	Low risk	All outcomes reported. Study protocol NCT02839967
Other bias	Unclear risk	Cite: "No Conflict of interest"

Hosgor 2017

Methods	RCT. single centre; four parallel groups;
Participants	40 patients: 90% women; age 18-59 years old, mean age 30.35 (SD±1.97). Inclusion criteria: unilateral painful TMD; falling into group II according to the RDC/TMD; disc displacement (DD) with reduction; DD without reduction with limited opening; DD without reduction without limited opening; the contralateral symptom-free TMJs of the patients were evaluated as the control group for the determination of effusion. Exclusion criteria: presence of a known connective tissue or autoimmune disease; prior TMJ surgery; degenerative joint disease; osteoarthritis; history of major jaw trauma; dento-facial deformity; concurrent use of steroids; muscle relaxants; narcotics. Time: 2012-2013 Country: Turkey Clinic: Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, Kocaeli University, Kocaeli, Turkey
Interventions	Group A (n=10): splint therapy. Hard acrylic occlusal appliances were fabricated and adjusted to have maximal contact in centric occlusion, as well as symmetrical anterior contact in a protrusive movement of the mandible and canine guidance in lateral jaw movement. Patients were advised to use the stabilization splint for two-thirds of the day for 6 months. Group B (n=10): arthrocentesis therapy. Arthrocentesis was performed to the upper joint space, as recommended by Nitzan et al. The upper joint compartment was irrigated with a total of 100 ml of lactated Ringer's solution. No medication (corticosteroid, hyaluronic acid, etc.) was injected into the joint after lavage with lactated Ringer's solution. Group C (n=10): non-steroidal anti-inflammatory drug (NSAID) therapy. Tenoxicam (Tilcotil 20-mg tablets, 1 1) was administered once per day for 1 month. Group D (n=10): laser therapy. LLLT (500 mW output power for 180 s and 321 J/cm2 energy density) was performed with an Nd–YAG laser device (1064 nm wavelength, Photon AT Fidelis Plus III, Fotona Ljubljana, Slovenia) for all patients in this group. Bio stimulation was performed in the region of the temporal muscle, masseter muscle, and mandibular condyle using a laser probe, which was applied 1–2 cm away from the skin. LLLT was administered in 3-min sessions, three times a week for 4 weeks.
Outcomes	Pain (VAS) Joint noises (clicking, crepitus, or none) Maximum mouth opening (mm)
Chronicity	Low disability
Hints for Chronicity	Excluded patients with analgetic misuse and patients were suffering of local pain
Duration	Follow-up 6 month
Notes	

APPENDIX VIII: Characteristics of studies

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: "All subjects were then allocated randomly to one of four treatment groups by another investigator who did not know the clinical or radiological diagnosis."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Unclear risk	Cite: "The clinical examination and diagnosis were made by one investigator, and the patients were sent for a radiological examination by the same surgeon" Cite: "The patients underwent MRI, and a radiological diagnosis was made by the radiologist who was blinded to the clinical diagnosis." Comment: the mentioning of just the blinded radiologist suggests that the other examiners were not blinded
Incomplete outcome data (attrition bias)	Low risk	Cite: "The clinical and radiological findings of 80 joints in 40 patients were evaluated."
Selective reporting (reporting bias)	High risk	No report about the joint noises
Other bias	Unclear risk	No competing interest

Juliana 2008

Methods	RCT. single centre; two parallel groups
Participants	20 patients: 75% women; age 18-40 years; Group A 28.2 years (SD±7), Group B 24.01 (SD±6.04). Inclusion criteria: clinical history of pain due to temporomandibular dysfunction in the last six months; who had facial and/or cervical muscle fatigue; who presented no low disability limitation; who were not using drugs such as anti-inflammatory, analgesic or myorelaxant in the last three months; who were or were not using myorelaxant plaque; who had not performed any physiotherapy treatment for the dysfunction in the last three months. Time: May-August 2007 Country: Brazil Clinic: Physiotherapy Clinic of the State University of Western Paraná, Cascavel campus
Interventions	Group A (n=10): MT techniques Group B (n=10): combination of MT techniques and low-level laser therapy (GaAs laser (904 nm), 6 J/cm2, 0.38 mW/cm2)
Outcomes	Pain intensity (VAS) Muscle tension (scale 0-3) Range of motion of the TMJ

APPENDIX VIII: Characteristics of studies

Chronicity	Low disability
Hints for Chronicity	1. No medication 2. No treatment before
Duration	4 weeks treatment
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "The sample was randomly divided, by lot, into two equal groups."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Unclear risk	Cite: "For the evaluation and follow-up of the patients, a physiotherapeutic evaluation form developed for the study was used, in which information such as identification of the patient, age, main complaint, palpation of the musculature involved, and low disability examination of the TMJ were included."
Incomplete outcome data (attrition bias)	Unclear risk	No information given
Selective reporting (reporting bias)	Unclear risk	All outcomes reported
Other bias	Unclear risk	No further inequalities

Keskin 2020

Methods	RCT. single centre; parallel groups;
Participants	40 patients: 75 % women; 18-60 years; mean age 22.35 years. Inclusion criteria: having DDR within the past six months; bilaterally TMJ retention; age 18-60 years; presence of natural posterior occlusion; no previous TMD treatment. Exclusion criteria: having TMD due to psychological reasons; orofacial pain unrelated to TMD; unilaterally TMJ retention; posterior tooth loss; partial removable prostheses; serious orthognathic deformities; systemic diseases; pregnancy or lactation; face or joint infection; history of trauma related to TMJ. Time: January 2016-March 2018 Country: Turkey Clinic: Van Yüzüncü Yıl University, Faculty of Dentistry, Department of

APPENDIX VIII: Characteristics of studies

	Prosthodontics and Maxillofacial Surgery
Interventions	Group A (n=20): received routine non-steroidal anti-inflammatory drug (NSAID) therapy and occlusal splint therapy for eight hours per day for a total of three months. Group B (n=20) received NSAID, occlusal splint therapy and 940 nm; 0.3 W therapy for two sessions per week for a total of four weeks; density of 2.14 J/cm2 for 20 sec in accordance with the manufacturer's recommendations.
Outcomes	PMO Pain (VAS) Maximum mouth opening (mm)
Chronicity	Low disability
Hints for Chronicity	1. no previous TMD treatment
Duration	12 weeks follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "The patients were randomly divided into two groups using a randomization procedure (GraphPad Prism version 6; GraphPad Inc., CA, USA)."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Unclear risk	Reported about the dropouts and they were balanced
Selective reporting (reporting bias)	Low risk	All outcomes reported. Study protocol YYÜ-06-19072016
Other bias	Low risk	Cite: "There was no statistically significant difference in sex and age between the groups. The authors declared no conflicts of interest with respect to the authorship and/or publication of this article."

Khairnar 2019

Methods	RCT. single centre; two parallel groups;
Participants	42 patients: 52.38 % women; age 25-45 years. Inclusion criteria: patients with history of TMD-related pain for the past 3 months; not taking any antidepressant medications; those willing to undergo

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	the treatment; not have any structural bony abnormalities of the TMJ. Exclusion criteria: taking any antidepressant medications. Time: n.a. Country: India Clinic: Department of Oral & Maxillofacial Surgery, Dr. D.Y. Patil Vidyapeeth, Pimpri, Pune, India
Interventions	Group A (n=21): 15 sessions of LLLT (LLLT of 660-nm laser light; over the TMJ region for three minutes at 2.2 Joules per minute) Group B (n=21): ultrasound therapy (1.8 w/cm2 for 10 min per session; frequency of 1 MHz and wavelength of 1.5 mm in the continuous mode) Patients were kept on a soft diet and asked to restrict mouth opening during the same period. All patients were prescribed a non-steroidal anti-inflammatory drug (NSAID) twice a day for 5 days for temporary relief of pain prior to the commencement of treatment.
Outcomes	Pain (VAS) Maximum mouth opening (mm)
Chronicity	Unclear (low disability)
Hints for Chronicity	Inclusion criteria comprised patients with history of TMD-related pain for the past 3 months, not taking any antidepressant medications.
Duration	Follow up post-therapy
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "Using the sequential numbering with opaque sealed envelope (SNOSE) technique, the participants were divided into group A (LLLT) and group B (ultrasound heat therapy)."
Allocation concealment (selection bias)	Low risk	Cite: "Using the sequential numbering with opaque sealed envelope (SNOSE) technique, the participants were divided into group A (LLLT) and group B (ultrasound heat therapy)."
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Unclear risk	No information given
Selective reporting (reporting bias)	Low risk	The research protocol was approved by the scientific committee and institutional ethics committee (DYPDCH/760/2015/33) All outcomes reported
Other bias	Unclear risk	CONFLICT OF INTEREST: None

APPENDIX VIII: Characteristics of studies

Khalighi 2016

Methods	RCT. single centre; two parallel groups;
Participants	40 patients: 75% women; mean age 36 (SD±12.34). Included criteria: myofascial pain with/without limited mouth opening; limited mouth opening was defined as pain-free unassisted mandibular opening of < 40 mm. Exclusion criteria: subjects who received analgesic or antidepressant medicine or underwent any other form of treatment for TMD. Country: Iran Clinic: department of oral and maxillofacial medicine, School of Dentistry, Shahid Beheshti University of Medical Sciences
Interventions	Group A (n=20): naproxen 500 mg bid for 3 weeks as treatment modality and had placebo laser sessions. Group B (n=20): active laser (diode 810 nm CW) as treatment and placebo drug
Outcomes	Pain intensity (VAS) Maximum painless mouth opening (mm)
Chronicity	Low disability
Hints for Chronicity	1. Exclusion: subjects who received analgesic or antidepressant medicine 2. Exclusion: underwent any other form of treatment for TMD
Duration	2 month follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	No information given on how
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Cite: "Neither the patient, nor the evaluator was aware of the group the participant was assigned to. So, the study was conducted in a double-blind fashion."
Blinding of outcome assessment (detection bias)	Low risk	Cite: "The data were recorded by an examiner who was unaware of the type of treatment."
Incomplete outcome data (attrition bias)	Low risk	No dropouts
Selective reporting (reporting bias)	Low risk	All outcomes reported. Study protocol stated (NCT01659372)
Other bias	Unclear risk	Cite: "There is no conflict of interest for any of the authors."

APPENDIX VIII: Characteristics of studies

Kogawa 2005

Methods	RCT. single centre; two parallel groups;
Participants	19 patients: 100% women; mean age 26.4 years. Inclusion criteria: myofascial pain, according to the RDC for TMD; tenderness to palpation in the masseter or anterior temporalis. Exclusion criteria: Patients with TMJ pain; systemic diseases (e.g., rheumatoid arthritis, fibromyalgia); previous treatment for TMD; occlusal factors of risk; toothache; neuralgia or local skin infection over the most tender spot of the masseter and temporal muscles. Country: Brazil Clinic: Orofacial Pain Centre of the Department of Prosthodontics, Bauru Dental School (University of São Paulo)
Interventions	Group A (n=9): low-level laser therapy (LLLT) (10 sessions, three times a week) Ga-Al-As with wavelength of 830-904nm, with an output of 4 joules per cm2 and power of 100mW. Group B (n=10): micro electric neuro stimulation (MENS) (10 sessions, three times a week). Application was done for 20 minutes, and the current frequency ranged from 40 to 160mA.
Outcomes	Pain (VAS) Measurement of active range of motion (AROM) Muscle palpation
Chronicity	Low disability
Hints for Chronicity	1. Exclusion: previous treatment for TMD, occlusal factors of risk, toothache, neuralgia, or local skin infection 2. Exclusion: presence of major psychological disturbances and restriction for the use of LASER and MENS (e.g., pacemaker users)
Duration	1 month treatment
Notes	A wash-out period (3 days without medication) was requested to all participants before beginning of the trial

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "Randomization was done with the help of a computer-generated sequence of distribution"
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Low risk	Cite: „.by a blinded TMD specialist."
Incomplete outcome data (attrition bias)	Low risk	No dropouts
Selective reporting (reporting	Low risk	Reported all the outcomes reported.

bias)		No study protocol though
Other bias	Unclear risk	No further inequalities

Kulekcioglu 2003

Methods	RCT. single centre; two parallel groups;
Participants	35 participants: 80% women; age 20-50 years old, mean age 37.0 (SD±12.3) years. Inclusion criteria: orofacial pain; TMJ sounds; limited mouth opening; TMJ locking. Exclusion criteria: congenital abnormality; concomitant inflammatory or neoplastic conditions; those with a recent history of acute trauma or any form of treatment within the last month. Country: Turkey Clinic: Uludag University Medical Faculty Department of Physical Medicine & Rehabilitation
Interventions	Group A (n=20): LLLT (15 sessions of LLLT) Group B (n=15): placebo (laser not turned on) All patients received an extra program consisting of range of motion exercises, stretching exercises and postural training on top of the therapy.
Outcomes	Pain Intensity (VAS) Maximal active and passive mouth opening (mm) Number of tender points and joint sounds
Chronicity	Mixed
Hints for Chronicity	1. Exclusion: if psychiatric disorders 2. Per mail: Depression was not evaluated. None of the patients received any medications within the last month before inclusion and during the study. 3. Per mail: Some of the patients had local, some had widespread pain (including fibromyalgia). Unfortunately, I cannot provide the numbers."
Duration	1 month follow-up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	No information given on how
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Low risk	Cite: "All patients were evaluated by the first investigator who was blinded to treatment groups."
Incomplete outcome data (attrition bias)	Unclear risk	No dropouts mentioned

Selective reporting (reporting bias)	Low risk	Reported all the outcomes reported
Other bias	Unclear risk	No other conspicuous features

Lassemi 2008

Methods	RCT. single centre; two parallel groups;
Participants	48 patients: 50% women; age Group A 33 (SD±9), age Group B 38.6 (SD±8.37). Exclusion: degenerative joints (DJD), para function (eg, bruxism) or systemic diseases. Country: Iran Clinic: Department of Oral and Maxillofacial Surgery, Azad Islamic University of Medical Sciences, Dental School, Tehran, Iran
Interventions	Group A (n=26): LLL (980 nm, 80 Hz, 6 J) at three points over the TMJ (2 J per point and 1.5 J at the other sites of muscle pain) for 1 min Group B (n=22): placebo (laser device was adjusted in the same positions but without power emission)
Outcomes	Pain (VAS) Clicking (stethoscope)
Chronicity	Unclear (High disability)
Hints for Chronicity	1. Tertiary care 2. Severity of pain before treatment: 9 and 8.9 ± 0.5
Duration	12 months follow-up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	No information given
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Low risk	Cite: "The methodology adopted by the present study was the double-blind model for patient and investigator, so that the investigator would have no influence on the patient being treated."
Incomplete outcome data (attrition bias)	Unclear risk	No information about dropouts
Selective reporting	Low risk	All outcomes reported

(reporting bias)		
Other bias	Unclear risk	Important information missing

Machado 2016

Methods	RCT. single centre; five parallel groups;
Participants	82 patients + 20 healthy patients: 92.69% women; no age given. Inclusion criteria: permanent dentition; no dental pain or periodontal problems; neurological or cognitive deficit; previous or current tumour or trauma in the head and neck region; current or prior orthodontic; orofacial myofunctional or TMD treatment; or current use of analgesic, anti-inflammatory, psychiatric drugs. Exclusion criteria: pregnant. Country: Brazil Clinic: Department of Ophtalmology, Otorhinolaryngology, and Head and Neck Surgery, School of Medicine, University of São Paulo, Av. dos Bandeirantes 3900, Ribeirão Preto, São Paulo 14049-900
Interventions	Group A (n=20): healthy control group Group B (n=21): low-level laser therapy + oral-motor exercises Group C (n=22): orofacial myo-low disability therapy (OMT) which contains pain relief strategies and OM-exercises Group D (n=21): LLLT placebo + OM- exercises Group E (n=18): low-level laser therapy (AsGaAl; 780-nm wave- length; average power of 60 mW, 40 s, and 60±1.0 J/cm2)
Outcomes	Muscle and joint tenderness to palpation TMD severity Orofacial myo-low disability status
Chronicity	Low disability
Hints for Chronicity	per Mail: "No treatment before participating into the study"
Duration	3 month follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "...using GraphPad software (Graphpad Software, Inc)"
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Cite: "The study was blinded, with the subjects not knowing which tip was active until the analysis of the data."

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Blinding of outcome assessment (detection bias)	Unclear risk	Cite: "A randomly selected percentage of the subjects (n=20) was re-evaluated by examiner (E1) and by a second blinded examiner (E2)" Comment: not sure if both were blinded
Incomplete outcome data (attrition bias)	Unclear risk	Reported about all the dropouts but unbalanced number
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	High risk	Cite: "The authors declare they have no conflicts of interest." Comment: "At baseline, inter group comparisons indicated significant differences (P ≤ 0.001) with TMD groups showing higher symptom scores (Pro TMD multi) and tenderness to palpation, as well as lower OMES scores than did the control group (GC). There was no statistical difference among TMD groups."

Madani 2014

Methods	RCT. single centre; two parallel groups;
Participants	20 patients: 95% women; age 35–60 years old. Inclusion criteria: patients had limited mandibular movements and suffered from arthralgia (joint pain) and crepitation, especially in the late afternoon or evening. Exclusion criteria: subjects with TMDs resulting from muscular or disc displacement (with or without reduction) disorders, and those having any systemic disease affecting the TMJs; psychiatric disorders; undergoing any other form of therapy during the study period, such as analgesic or anti-inflammatory drugs, or occlusal splints. Country: Iran Clinic: Department of Prosthodontics of Mashhad Dental School, Mashhad University of Medical Sciences, Mashhad, Iran
Interventions	Group A (n=10): laser group received irradiation from an 810 nm low-level laser (Peak power 80 W, average power 50 mW, 1500 Hz, 1 ms pulse width, 120 seconds, 6 J, 3.4 J/cm2 per point), which was applied on four points around the TMJs and on painful muscles three times a week for 4 weeks. (The laser device used in this study was a low-level laser emitting a pulsed infrared beam of 810 nm wavelength (Mustang 2000z, Moscow, Russia). The laser was applied in contact mode with a peak power of approximately 80 W, 50 mW average power at a pulse repetition rate of 1500 Hz, pulse length of 1 ms, 6 J per point, 3.4 J/cm2, and spot size 1.76 cm2, for 2 minutes per point. Painful muscles diagnosed at the first examination were irradiated, in addition to four points around the TMJs (posterior, anterior, and superior of the mandibular condyles, and inside the external auditory duct) Group B (n=10): placebo group, the treatment was the same as that in the laser group, but with laser simulation
Outcomes	Mouth opening (mm) Pain intensity (VAS) Presence or absence of joint sounds
Chronicity	Low disability

APPENDIX VIII: Characteristics of studies

Hints for Chronicity	1. Exclusion: patients with psychiatric disorders 2. Exclusion: those undergoing any other form of therapy during the study period, such as analgesic or anti-inflammatory drugs, or occlusal splints. 3. Tertiary care
Duration	1 months follow up
Notes	The authors would like to thank the vice-chancellor for research of Mashhad University of Medical Sciences for the financial support of this project

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: "The patients were randomly assigned into two groups of 10 each."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Cite: "The patients did not know in which group they were put into."
Blinding of outcome assessment (detection bias)	Low risk	Cite: "All evaluations were conducted by a blinded investigator who was not included in the study protocol and who had been instructed by a prosthodontist (AM) before starting the project, to achieve reliable pain measurements."
Incomplete outcome data (attrition bias)	Low risk	Cite: "All patients completed the study period." Comment: No dropouts
Selective reporting (reporting bias)	Low risk	Reported all the outcomes. Study protocol given
Other bias	Unclear risk	Cite: "The statistical analysis revealed no significant difference either between the study groups or between the different evaluation times in each group (P>0.05)."

Madani 2020

Methods	RCT. single centre; three parallel groups;
Participants	45 patients: 71 % women; mean age 38 (SD±15.3). Inclusion criteria: limited mouth opening or function and the presence of pain in masticatory muscles and/or TMJs, either in clenching or in jaw movements (TMD muscular disturbance (class Ia, Ib) or arthralgia (class IIIa), according to RDC/TMD). Exclusion criteria: major systemic disorders; who received analgesic or anti-depressants over the last 2 weeks; any bony abnormalities of the jaws such as arthropathy of the TMJ or rheumatoid arthritis; psychological illness; who received any form of treatment for TMD within the last month; pregnant; feeding women. Time: January 2017-February 2018

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	Country: Iran Clinic: Occlusion and TMD Department of Mashhad Dental School, Mashhad University of Medical Sciences, Mashhad
Interventions	Group A (n=15): low-level laser therapy (LLLT) GaAlAs laser (painful masticatory muscles and TMJs (810 nm, 200 mW, 30 s per point, Gaussian beam, spot size 0.28 cm2, 21 J/cm2) two times a week for 5 weeks, 10 sessions) Group B (n=15): laser acupuncture therapy (LAT) (ST6, ST7, LI4; 810-nm diode laser; local Ashi point was not irradiated in this study) Group C (n=15): (placebo) underwent treatment with sham laser
Outcomes	Mouth opening and the range of protrusive and lateral excursive movements (mm) Pain at rest Pain degree at tender points Pain intensity (VAS) was used for measuring pain intensity upon palpation"
Chronicity	Low disability
Hints for Chronicity	Patients who had been previously treated, depression and analgesic abuse were excluded.
Duration	1 month follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: „. patients were randomly divided into three groups of 15 according to a random numbers table with a random block size of 3."
Allocation concealment (selection bias)	Low risk	Cite: „. the details of the allocated groups were written on cards contained in sequentially numbered, opaque, and sealed envelopes. These cards were prepared by an independent per-son who was not involved in the study protocol."
Blinding of participants and personnel (performance bias)	Low risk	Cite: "Laser treatment was carried out by a single, trained and experienced operator. For ensuring double-blind design of the study, neither the patient nor the subject who evaluated the outcomes was aware of the group assignment."
Blinding of outcome assessment (detection bias)	Low risk	see above
Incomplete outcome data (attrition bias)	Low risk	All the participants completed the study period
Selective reporting (reporting bias)	Low risk	All outcomes reported. Clinical Trials with IRCT number IRCT2017010131770N1
Other bias	Low risk	Cite: "The authors declare that they have no conflict of. The study groups were well matched in baseline characteristics at enrolment."

APPENDIX VIII: Characteristics of studies

Magri 2017a

Methods	RCT. single centre; three parallel groups;
Participants	91 patients: 100% women; age 18-60 years old, Group A 38.45 (SD±12.56), Group B 38.87 (SD±10.88), Group C 38.67 (SD±11.18). Inclusion criteria: female; reporting pain in the facial area lasting at least 3 months; diagnosed with myofascial pain according to the criteria of the Research Diagnostic Criteria for Temporomandibular Disorder (RDC/TMD—axis I, categories Ia and Ib) Exclusion criteria: any treatment modality to TMD (interocclusal splints, acupuncture, pharmacological treatment, and others); tumour history; trauma or head and neck surgery; previous diagnosis of fibromyalgia and other painful musculoskeletal syndromes; presence of neurological and psychiatric disorders; women who used prescription drugs, such as anxiolytics, antidepressants, and anticonvulsants; pregnant women; pacemaker users. Time: October 2014 to December 2015 Country: Brazil Clinic: Department of Morphology, Basic Physiology and Pathology of University of São Paulo
Interventions	Group A (n=31): laser (LLLT was applied at pre-established points, twice a week, eight sessions (780 nm; masseter and anterior temporal = 5 J/cm2, 20 mW, 10 s; TMJ area = 7.5 J/cm2, 30 mW, 10 s) Group B (n=30): placebo (like active laser tip but emitting only a guide light and an audible signal) Group C (n=30): control group (no treatment)
Outcomes	Pain intensity (VAS) Pressure pain threshold SF-MPQ indexes
Chronicity	Low disability
Hints for Chronicity	1. No treatment before 2. Not allowed to take anti-depressions, reporting pain in the facial area for at least 3 months
Duration	1 month follow-up
Notes	This study was financially supported by São Paulo Research Foundation (FAPESP) and Coordination for the Improvement of Higher Education Personnel (CAPES). Further publications: "Non-specific effects and clusters of women with painful TMD responders and non-responders to LLLT: double-blind randomized clinical trial" (Magri, 2018); "Follow-up results of a randomized clinical trial for low-level laser therapy in painful TMD of muscular origins." (Magri, 2019)

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence	Low risk	Cite: "were randomly assigned by lottery method to

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generation (selection bias)		receive laser or placebo"
Allocation concealment (selection bias)	Unclear risk	Cite: "The lottery tickets were put in envelopes but no information about the opaqueness of the envelops"
Blinding of participants and personnel (performance bias)	Low risk	Cite: "Both patients and examiner were blinded"
Blinding of outcome assessment (detection bias)	Low risk	Cite: "Both patients and examiner were blinded"
Incomplete outcome data (attrition bias)	Low risk	Reported about the dropouts
Selective reporting (reporting bias)	Unclear risk	All outcomes reported. Cite: "registered at the Brazilian Registry of Clinical Trials (REBEC) under protocol RBR-2v6ghb. The first part of the results has been previously published. Pain intensity (VAS), pain sensitivity (PPT) in orofacial and corporal points, and the SF-MPQ indexes."
Other bias	Unclear risk	Cite: "The authors declare that they have no conflict of interest."

Manfredini 2018

Methods	RCT. single centre; three parallel groups;
Participants	30 patients: 100% women; mean age 35.3 (SD± 9.4). Inclusion criteria: female patients with a DC/TMD diagnosis of myofascial pain; with a low pain-related impairment based on the GCPS (i.e., GCPS grade I or II – low). Exclusion criteria: systemic diseases and/or history of trauma. Country: Italy Clinic: Not stated
Interventions	Group A (n=10): laser (808, 905 nm WL, with a frequency of 10–700 Hz, a total energy of 100–200 J, application time of 6–10 min, power of 25–100%) Group B (n=10): oral appliance therapy (OA) (flat rigid occlusal appliance) Group C (n=10): counselling (advice on the symptoms and how to try self-managing them)
Outcomes	Pain (VAS) Muscular Index (MI) of the Craniomandibular Index
Chronicity	Low disability
Hints for Chronicity	GCPS I - IIa
Duration	6 months follow-up (including laser treatment in the first three weeks)
Notes	

Risk of bias table

Bias	Authors'	Support for judgement

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	judgement	
Random sequence generation (selection bias)	Low risk	Cite: " ...according to a block randomization sequence..."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	It was not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Low risk	Cite: " A third TMD practitioner, blind to the patients' group assignment, assessed outcome variables at baseline and during follow up appointments."
Incomplete outcome data (attrition bias)	Low risk	Cite: "Only one patient belonging to the OA group dropped out of the study, due to family problems."
Selective reporting (reporting bias)	Low risk	Cite: „...study hypothesis that all three treatments are effective in reducing pain levels and muscular impairment in patients with myofascial pain of jaw muscles with low psychosocial impairment." All outcomes reported
Other bias	Unclear risk	"The other authors declare they do not have any conflicts of interest."

Mansourian 2019

Methods	RCT. single centre; three parallel groups;
Participants	108 patients: 81.46 % women; mean age 29; age 21-60 years. Inclusion criteria: age between 21-60 years; pain on palpation in masticatory muscles; normal posterior occlusion; suffering from orofacial pain for a minimum of 6 months. Exclusion criteria: presence of TMD with joint origin according to the Research Diagnostic Criteria for TMDs; systemic diseases such as cardiovascular disorders; infectious diseases; inflammatory diseases; epilepsy; tumours or mental illnesses which could affect the clinical picture of patients; osteoarthritis or cervical disc herniation; history of trauma; removable denture; missing of more than one tooth in each quadrant and major malocclusion. Time: Country: Clinic: Oral Medicine Department of Tehran University of Medical Sciences
Interventions	Group A (n=36): LLLT with diode GAAlAr 810 nm wavelength, 0.2 W power, 10 s time Group B (n=36): TENS (10 sessions (3 sessions per week using Newtons 900 F device; 20 W power; 220 v voltage; 50 Hz frequency for 10 minutes) Group C (n=36): control All groups received fluoxetine once daily, clonazepam once daily and baclofen three times a day
Outcomes	Pain intensity (VAS) Maximum mouth opening

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Chronicity	Unclear (high disability)
Hints for Chronicity	Patients were recruited from a tertiary care
Duration	2 months follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: „...using block randomization"
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Low risk	Cite: "Treatment was performed by one researcher and data were collected by another researcher. The study had a single-blind design. The examiner was blinded to the group allocation of patients."
Incomplete outcome data (attrition bias)	Low risk	Cite: "One patient in the LLLT group was excluded from the study because of getting pregnant. In addition, patients in the TENS group and patients in the control group were excluded from the study since they did not regularly show-up for the follow-up sessions."
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	Cite: "CONFLICT OF INTEREST STATEMENT. None declared."

Marini 2010

Methods	RCT. single centre; three parallel groups;
Participants	99 patients: 75% women; age 15-50 years old. Inclusion criteria: clinical diagnoses of TMJ DD without reduction and osteoarthritis; pain for more than 6 months of similar intensity. Exclusion criteria: patients with myogenic pain; musculoskeletal pain based on the RDC/TMJ; depressive disorder; dental diseases; pregnancy; malignancy; and other systemic rheumatologic diseases such as rheumatoid arthritis. Country: Italy Clinic: Department of Orofacial Pain of University of Bologna for specialist treatment because of TMJ pain

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Interventions	Group A (n=30): super pulsed low-level laser SLLLT (10 sessions over 2 weeks) Group B (n=30): ibuprofen (800 mg twice a day for 10 days) Group C (n=30): sham laser (as placebo in 10 sessions over 2 weeks)
Outcomes	Pain intensity (VAS) Active and passive mouth openings and right and left lateral motions
Chronicity	High disability
Hints for Chronicity	1. Tertiary care 2. more than 6-months pain 3. per mail: "Since the patients included presented with chronic pain, most of them were already examined their generic dentist who administered anti-inflammatory, bite etc. without any success or at least very low."
Duration	1 month follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	per mail: "A block random allocation was carried out (block size =3)"
Allocation concealment (selection bias)	Low risk	per mail: "Allocation concealment was obtained by means of a numbered sequence of closed and non-transparent envelopes containing the assignment codex to the group, planned by personnel not involved in the recruitment."
Blinding of participants and personnel (performance bias)	Low risk	Cite: „...patients belonging to L and C groups did not know whether they received laser treatment or laser treatment simulation." Cite: „...neither the operator knew whether the laser treatment he was applying was true or simulation."
Blinding of outcome assessment (detection bias)	Unclear risk	Cite: ...one blinded radiologist reviewed the MRI" Comment: no information about the examiners
Incomplete outcome data (attrition bias)	Unclear risk	Only in the experiment group were dropouts. but used intention-to-threat
Selective reporting (reporting bias)	High risk	They reported both outcomes but only MMO was reported after 1 month and not VAS
Other bias	Unclear risk	No other conspicuous features

Mazzetto 2007

Methods	RCT. single centre; two parallel groups;
Participants	48 patients: 87.5% women; age 14-50 years old. Inclusion criterion: diagnosis of TMD with pain in the joint area; associated or not with muscle tenderness; those with capsulitis, synovitis, retro-discitis,

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	and painful disk displacement with reduction. Exclusion criteria: chronic use of analgesic, anti-inflammatory and/or psychotropic medications, occlusal splint, or other treatment for pain control. Country: Brazil Clinic: Temporomandibular Disorder Centre of the School of Dentistry of Ribeirao Preto, University of Sao Paulo.
Interventions	Group A (n=24): infrared laser (780 nm, 70 mW, 10 s, 89.7 J/cm, at one point; inside the external auditive duct toward the retro distal region, twice a week, for four weeks) Group B (n=24): placebo application (inactive point)
Outcomes	Intensity of pain after palpation (VAS)
Chronicity	Low disability
Hints for Chronicity	1. Exclusion: chronic use of analgesic, anti-inflammatory and/or psychotropic medications, occlusal splint 2. Exclusion: other treatment for pain control
Duration	1 month follow up
Notes	Cite: "The authors would like to thank the CNPq - Conselho National de Desenvolviniento Cienti'tlco e Tecnologico -Brazil (Grant # 2004.1.495.58.7) for providing financial support." Other publications: "Measurements of jaw movements and TMJ pain intensity in patients treated with GaAlAs laser"

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	No information on how
Allocation concealment (selection bias)	Unclear risk	No information on how
Blinding of participants and personnel (performance bias)	Low risk	Cite: „...two identical probes supplied by the manufacturer were used: one for the active laser and one for the inactive placebo laser marked with different letters (A and B) by a clinician who did not perform the applications."
Blinding of outcome assessment (detection bias)	Low risk	Cite: "During the entire study, neither the clinician nor the subjects knew which one was the active probe. Probes were identified at the end of the applications and evaluations."
Incomplete outcome data (attrition bias)	Unclear risk	No dropouts mentioned
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	No other conspicuous features

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Mazzetto 2010

Methods	RCT. single centre; two parallel groups;
Participants	40 patients: 90% women; age 14-50 years. Inclusion criteria: n.a. Exclusion criteria: use of medications for pain control; use of occlusal splint; clinical conditions in which LLLT could be contraindicated such as aggressive tumour and infections. Time: n.a. Country: Brazil Clinic: TMJ Disorders Service at Ribeirão Preto Dental School, University of São Paulo
Interventions	Group A (n=20): effective dose (GaAlAs laser λ 830 nm, 40 mW, 5J/cm2) in continuous mode on the affected condyle lateral pole: superior, anterior, posterior, and posterior-inferior, twice a week for 4 weeks Group B (n=20): placebo application (0 J/cm2)
Outcomes	Pain on pressure (VAS) Measurements of mouth opening (mm)
Chronicity	Low disability
Hints for Chronicity	1. Exclusion criteria: use of medications for pain control. 2. Exclusion criteria: use of occlusal splint
Duration	4 weeks treatment; 30 days after application follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: „...were randomly divided into a treatment and a placebo group with 20 subjects each."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Unclear risk	No information given
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	No further inequalities

Molina-Torres 2016

Methods	RCT. single centre; two parallel groups;

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Participants	58 patients: 94.83% women; mean age Group A age 51.79 (SD±7.79); Group B age 51.00 (SD±8.32). Inclusion criteria: FMS diagnosis; presence of TMDs; pre-treatment visual analogue score (VAS) score of >30 mm; pain of muscle origin that was confirmed by palpation; availability for the study's schedule; willingness to attend the evening sessions of therapy. Exclusion criteria: history of recent trauma; use of therapeutic co-interventions during treatment; indication for surgical treatment of the TMJ; physical or mental illness that precluded attendance at therapy sessions; pain attributable to a confirmed neck pain condition; acute infection; the presence of a collagen vascular disease. Country: Spain Clinic: University of Granada (Granada, Spain)
Interventions	Group A (n=29): occlusal-splint (stabilization-splint therapy, wearing it during sleep every night, for an average of 8 hours per night, for the 12 weeks of treatment) Group B (n=29): laser (average power of 50 mW, a pulse-repetition rate of 1.500 Hz, a pulse length of 1 μs, and a dose of 3 J/cm2 for 2 minutes per point)
Outcomes	Pain intensity (VAS) Widespread pain (Widespread pain index, WPI) Quality of sleep (Pittsburgh Quality of sleep questionnaire index, PSQI) Severity of symptoms (Symptom severity scale (SSS) for FMS) Active and passive mouth opening (mm) Joint sounds
Chronicity	High disability
Hints for Chronicity	1. Fibromyalgia 2. WPI pre-treatment about 16 points from a maximum possible 19 points 3. Patients of care level III
Duration	3-months treatment
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "The groups were balanced for type of medication received, using a stratification system that generates a sequence of letters for each combination of categories. Sequences were derived from a table of correlatively ordered permutations of the letters A and B in groups of 6, with each letter appearing 3 times (AAABBB, ABABAB, etc)."
Allocation concealment (selection bias)	Unclear risk	Cite: "The sequences assigned to patients were placed in envelopes containing the allocation to each study group."
Blinding of participants and personnel	Low risk	Not possible due to the different therapies

(performance bias)		
Blinding of outcome assessment (detection bias)	Low risk	Cite: "All outcomes measured were completed by participants in both groups at baseline and immediately after the last intervention (ie. at the end of the 12 wk of the study) by an assessor blinded as to the treatment allocation of the participants."
Incomplete outcome data (attrition bias)	Low risk	All dropouts reported
Selective reporting (reporting bias)	Low risk	All outcomes were reported
Other bias	Unclear risk	"The authors declare that they have no potential conflicts of interest with respect to the research, authorship, and/or publication of the manuscript."

Nadershah 2020

Methods	RCT. single centre; two parallel groups;
Participants	202 patients: 54 % women; mean age Group A 34.3 (SD±10.5); Group B 33.3 (SD±10.7). Inclusion criteria: unilateral TMJ and masticatory muscles pain during function of a magnitude of at least 3 on VAS; absence of any other medical conditions. Exclusion criteria: history of trauma; collagen and vascular diseases; degenerative or arthritic changes; internal derangement; any known psychological problems. Time: Country: India Clinic: "Patients were recruited from the outpatient dental clinics of two Oral and Maxillofacial Surgery Department at two different institutions."
Interventions	Group A (n=108): LLLT (7 W laser beam; 940 nm; extra orally and at a 2 cm distance from the skin to 5 points at the temporal (centre of Temporalis muscle), zygomatic (origin of Masseter muscle), angle of the mandible (insertion of Masseter muscle), pre-auricular, and mastoid areas. Parameters of the laser treatment are outlined in 2 min approximately 300 J of energy per treatment) Group B (n=94): sham laser was used without notifying
Outcomes	Pain (VAS)
Chronicity	Low disability
Hints for Chronicity	Exclusion: depression
Duration	10 days treatment
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement

Random sequence generation (selection bias)	Low risk	Cite: "They were then randomly allocated to a control and test groups using a coin toss."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Cite: "For the control group, a sham laser was used without notifying the patient or the treating therapist statistician was blinded by assigning each patient a unique computer digital number."
Blinding of outcome assessment (detection bias)	Low risk	Cite: "For the control group, a sham laser was used without notifying the patient or the treating therapist statistician was blinded by assigning each patient a unique computer digital number."
Incomplete outcome data (attrition bias)	Unclear risk	No information given
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	Cite: "Conflict of interest. All authors declare no conflict of interest. There was no significant difference in age and gender distribution between the two groups."

Panhoca 2015

Methods	RCT. single centre; three parallel groups;
Participants	30 patients: 73.33% women; age 18-40 years old. Inclusion criteria: 18-50 years; signs and symptoms of TMD; limited or painful jaw movement with impaired oral aperture. Exclusion criteria: current or recent orthodontic and/or orthopaedic treatment; degenerative joint disease; systemic medication (sedatives, muscle relaxants, analgesics, corticosteroids, or nonsteroidal anti-inflammatory agents). Country: Brazil Clinic: private dental office in Ribeirão Preto, São Paulo, Brazil (NILO-Integrated Centre for Laser Dentistry)
Interventions	Group A (n=10): red LED (630±10 nm) (150 mW, irradiance of 300 mW/cm2, 9 J per point and fluence of 18 J/cm. The LED and laser therapies were applied bilaterally to the face for 60 s/point. Five points were irradiated: three points around the TMJ, one point on the temporalis and one on the masseter. Eight sessions of the phototherapy were performed, twice a week for 4 weeks) Group B(n=10): infrared LED (850± 10 nm) Group C(n=10): control (received the infrared laser (780 nm), with an average optical power of 70 mW, irradiance of 1.7 W/cm2, energy of 4.2 J per point and fluence of 105 J/cm2)
Outcomes	Pain induced by palpating the masseter muscle (NS) Mandibular range of motion (mm)
Chronicity	Low disability
Hints for Chronicity	1. No medication

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	2. Private practice 3. No psychiatric diseases that posed a conflict to the clinical picture; patients regularly taking medicines such as analgesics, anti-inflammatory and/or psychotropic medication, use of an occlusal splint, or other treatment for pain control
Duration	1 month follow up.
Notes	Cite: "We would like to thank the National Council for Scientific and Technological Development (CNPq)—grant no. 552720/ 2009-7 and the São Paulo Research Foundation (FAPESP)—grant no. 2013/07276-1 for financial support."

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "A computer program was used for the randomization."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Unclear risk	No information about dropouts
Selective reporting (reporting bias)	High risk	Range of motion not reported
Other bias	Unclear risk	No other conspicuous features

Pereira 2014

Methods	RCT. single centre; two parallel groups;
Participants	19 patients: 79% women; age 21– 55 years old, mean age 35 years. Inclusion criteria: systemic health; TMD diagnosed by the RDC for TMDs questionnaire; patients presenting trigger points within pain score >5 on palpation according to a NS. Exclusion criteria: frequent use of analgesics, non-steroidal anti-inflammatory drugs, and antidepressants; had previously undergone TMD treatment or suffered facial trauma. Time: September 2010 to November 2010 Country: Brazil Clinic: dentistry clinic of the Federal University of Jequitinhonha and Mucuri Valleys.
Interventions	Group A (n=19 hemiface): red laser therapy Group B (n=19 hemiface): infrared laser therapy
Outcomes	Pain by palpation (numerical rating scale) Quality of life (OHIP-14) Self-assessment (questionnaire)
Chronicity	Low disability

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Hints for Chronicity	per mail: "pain was localized“. 1. Exclusion: frequent use of analgesics, non-steroidal anti-inflammatory drugs, and antidepressants 2. Exclusion: had previously undergone TMD treatment, or suffered facial trauma
Duration	6 month follow up
Notes	"The authors appreciate the financial support provided by the Research Support Foundation of Minas Gerais — FAPEMIG."

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "Restricted randomization was performed by an independent researcher blinded to the patients." and "Lottery drawing was used to take a paper out of each envelope, showing the type of intervention and the corresponding hemiface."
Allocation concealment (selection bias)	Low risk	Cite: "Two opaque envelopes were assigned to each patient, one for the type of treatment to be performed (red or infrared laser), and the other indicating the side that would receive the intervention (left or right hemiface)."
Blinding of participants and personnel (performance bias)	Low risk	Cite: "The patient was blinded to the device used"
Blinding of outcome assessment (detection bias)	Unclear risk	Cite: "The interventions were performed by the same operator, who did not participate in the assessment."
Incomplete outcome data (attrition bias)	Low risk	All dropouts reported
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	Cite: "The authors report no conflict of interest related to this study."

Pihut 2018

Methods	RCT. single centre; two parallel groups;
Participants	112 patients: 74.11% women; age 24-45 years old, mean age 31 years. Inclusion criteria: unilateral or bilateral presence of clicking, popping, and/or snapping noise(s) detected with palpation during opening or closing or lateral or protrusive movements in TMJ in the previous 30 days; any TMJ noise(s) present with jaw movement or function; unilateral or bilateral pain in the area of TMJ(s); presence of masticatory muscle contracture during palpation; full dentition or single tooth loss; good general health; positive mandible protrusion test; no contraindications for laser therapy; patient consent to be involved in the study.

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	Exclusion criteria: partial tooth loss or edentulism; contraindications for laser therapy as well as absence of appropriate symptoms and/or consent to be involved in the study. Time: 2014-2016 Country: Poland Clinic: Consulting Room of Temporomandibular Joint Dysfunctions at the Jagiellonian University in Cracow
Interventions	Group A (n=56): repositioning splint (20 hours usage over a 4-month period) Group B (n=56): bio stimulation laser (wavelength 808 nm, power 32 J, over 12 sessions (the duration of each session was 3 min 45 s), performed every other day, on the area of both TMJs (distance to the skin was 1 cm)
Outcomes	Pain intensity (VNRS) Pain that occurs during food chewing or jaw movements Pain during palpation Impaired movement of the mandible Referral of pain within the head Clicking in TMJ
Chronicity	Low disability
Hints for Chronicity	1. Per mail: "patients didn't receive any treatment before"
Duration	4 month follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "Patients were randomly assigned to the study group or control group", but no information on how" per mail: "That was "Simple Randomization". We assigned subjects to each group purely randomly for every assignment."
Allocation concealment (selection bias)	High risk	Per mail: "Simple randomization was used to only allocate the patients to the groups and that's all. You are right that everyone knew the participant's intervention."
Blinding of participants and personnel (performance bias)	Low risk	Due to the different therapy, it was not possible. Per mail: "everyone knew the participant's intervention."
Blinding of outcome assessment (detection bias)	High risk	Mail: "it was a prospective study; examiner knew which treatment the participants received."
Incomplete outcome data (attrition bias)	Low risk	Per Mail: "We didn't notice dropouts during study"
Selective reporting (reporting bias)	Low risk	All outcomes reported and even more information. Study protocol given
Other bias	Unclear risk	Cite: "the author declare that they have no conflicts of interest."

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Rezazadeh 2017

Methods	RCT. single centre; two parallel groups;
Participants	34 patients: 73.53% women; age Group A 30.79; age Group B 31.87. Inclusion criteria: panoramic x-ray who used 1000 mg methocarbamol every 8 hours and 100 mg celecoxib every 12 hours for 10 days but did not feel better based on Visual Analog Scale (VAS). Exclusion criteria: five or more missing posterior teeth (except for the third molars); para low disability habits (bruxism, clenching, and so on); degenerative joint disorder; crepitus sound; any kind of systemic disease. Country: Iran Clinic: Department of Oral Medicine, in Shiraz Dental School.
Interventions	Group A (n=19): TENS (8 sessions within two weeks (NEURDYN 710L; Iran) Carbone electrodes (6.5×4.5cm), on the tender muscles with 75 HZ frequency and 0.75 millisecond pulse width for 20 minutes per session) Group B (n=15): LLLT (8 sessions within two weeks, (Ga-Al-As) (Azor-2k-02, 980 nm), on three regions of both sides including the posterior and anterior aspect of the joint, as well as the trigger points, 5 j/cm2, 200 mw for 2.5 minutes)
Outcomes	Pain intensity (VAS) Clinical evaluation of TMD (Helkimo index)
Chronicity	High disability
Hints for Chronicity	1. Tertiary care 2. Patients who did not respond to pharmacological therapy, drug resistant TMD. (The enrolled patients were those with panoramic x-ray who used 1000 mg methocarbamol every 8 hours and 100 mg celecoxib every 12 hours for 10 days but did not feel better based on Visual Analog Scale (VAS) and clinical examination) 3. Per mail: they didn't receive any treatment except medication 4. Per mail: some patients had depression 5. Per mail: patients had localized pain in one or more than one muscles in facial region or on TMJs
Duration	4 months follow-up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "block randomization"
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Unclear risk	No information given

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Incomplete outcome data (attrition bias)	High risk	Cite: "Out of 45 patients, 19 in the TENS and 15 in LLLT group completed the course of treatment." Comment: no information about the other dropouts
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Low risk	Cite: "The authors of this manuscript certify no financial or other competing interest regarding this article." Cite: „...no significant differences at baseline."

Rodrigues 2018

Methods	RCT. single centre; three parallel groups;
Participants	89 (59 with TMD +30 healthy controls): 100% women; age 18–60 years old, 31.94 (SD±9.57). Inclusion criteria: muscle pain in the face; presence of: -pain for at least 6 months (chronic pain), -joint dysfunction, -natural teeth and prosthetic rehabilitation minimum (fixed prostheses) in good condition, -low disability occlusion; no use of analgesics and/or anti-inflammatory during the applications and evaluations. Exclusion criteria: dental absences; presence of removable partial dentures; total dentures; occlusal discrepancies; periodontal disease and caries; use of occlusal splints; under any treatment for TMD; history of tumours, trauma, or head and neck surgeries; neurological disorders; use of hormonal anti-inflammatory drugs and central-acting medication; undergoing dental, phono audiological or physiotherapeutic treatment; fibromyalgia; history of neoplasia; psychiatric disorders; pregnant; pacemaker. Country: Brazil Clinic: Department of Restorative Dentistry, School of Dentistry, University of São Paulo, Ribeirão Preto, SP.
Interventions	Group A (n= 34): active laser (low-intensity laser apparatus used for the study was gallium-aluminium-arsenide (GaAlAs) Group B (n=33): placebo laser Group C (n=30): control
Outcomes	Orofacial Myofunctional Evaluation with Scores (OMES) TMD severity (TI) Pain intensity (VAS) Pressure pain threshold (PPT)
Chronicity	Low disability
Hints for Chronicity	Excluded patients with analgetic misuse
Duration	1 month follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement

Random sequence generation (selection bias)	Low risk	Cite: „...randomly selected by lottery method to receive active laser or placebo"
Allocation concealment (selection bias)	Low risk	Cite: "The lottery was performed after the initial assessment of the patients; a total of 67 slips (33 indicating tip A and 34 indicating tip B) were placed in an envelope and randomly selected for each patient, to avoid directing patients to specific groups."
Blinding of participants and personnel (performance bias)	Low risk	Cite: "The nomination of laser tips A and B was necessary for the study blinding."
Blinding of outcome assessment (detection bias)	Low risk	Cite: "Researchers and patients were given access to information on laser and placebo tips only after completion of the study (double-blind)."
Incomplete outcome data (attrition bias)	Low risk	Reported about all the dropouts.
Selective reporting (reporting bias)	Low risk	Reported all the outcomes stated. Study protocol given.
Other bias	Unclear risk	Cite: "The authors declare that they have no conflict of interest."

Rohlig 2011

Methods	RCT. single centre; two parallel groups;
Participants	40 patients: 60% women; age 43.7 (SD±1.8) years old. Inclusion criteria: presence of signs and symptoms of TMD of myogenic origin according to the RDC/TMD; orofacial pain lasting for more than 6 months; age between 18 and 60 years. Exclusion criteria: disk displacements (disk displacement with reduction, disk displacement without reduction, with limited opening and disk displacement without reduction, without limited opening) and arthralgia, arthritis, arthrosis; general inflammatory connective tissue diseases (e.g. rheumatoid arthritis); psychiatric disorders; tumour; heart diseases, pacemakers; pregnancy; symptoms which could be referred to other disorders of the orofacial region (such as toothache, neuralgia, migraine); any medication use or treatment for TMD within the last six months; very high baseline pain intensity; local skin infections over the masseter muscle, temporalis and/or sternocleidomastoid muscle. Time: March 2009 and December 2009 Country: Turkey Clinic: Istanbul University, Faculty of Dentistry Department of Maxillofacial Prosthodontics
Interventions	Group A (n=20): laser (low-intensity semiconductor laser 300 mW, 820 nm, 8 J/cm2, applied to the muscles of mastication every other day for three weeks, 10 sessions. Group B (n=20): placebo group (the laser device was only switched-on, not programmed)
Outcomes	Mandibular mobility (mm) Masticatory muscles tenderness (bilateral palpation) Pressure pain threshold (PPT)

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	Pain (VAS)
Chronicity	Low disability
Hints for Chronicity	1. Exclusion: any medication uses or treatment for TMD within the last six months; 2. Exclusion: very high baseline pain intensity; local skin infections over the masseter muscle, temporalis and/or sternocleidomastoid muscle 3. Exclusion: psychiatric disorders;
Duration	3 weeks treatment
Notes	This study was supported by Research Fund of Istanbul University (Project Number: UDP-4090/16072009) and presented (as oral presentation) in 33rd Annual Congress of European Prosthodontic Association 2009, Innsbruck.

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "The patients were randomized to laser and placebo groups with the help of a computer program."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Cite: "The patients did not know whether they were assigned to laser or placebo group." Cite: "All examinations were performed by the same clinician who was an experienced prosthodontist trained in the treatment of craniomandibular disorders and was calibrated in using Research Diagnostic Criteria for Temporomandibular Disorder (RDC/TMD) as the gold standard. The clinician was unaware of the study."
Blinding of outcome assessment (detection bias)	Low risk	Cite: "Assessment of the participants was conducted by an independent investigator who was unaware of the study."
Incomplete outcome data (attrition bias)	Unclear risk	No information given
Selective reporting (reporting bias)	Low risk	All outcomes stated
Other bias	Unclear risk	No further inequalities

Sancakli 2015

Methods	RCT. single centre; three parallel groups;
Participants	30 patients: 70% women; mean age of 39.2. Inclusion criteria: diagnosis of myofascial pain according to the Research Diagnostic Criteria for Temporomandibular Disorder (RDC/TMD); age 18–60 years; natural posterior occlusion. Exclusion criteria: disc displacement with reduction or without reduction with

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	or without limited opening, arthralgia, arthritis, or arthrosis; general inflammatory connective tissue disease (e.g. rheumatoid arthritis); psychiatric disorder; tumour; hearth disease or pacemaker; pregnancy; symptoms that could be referred to other orofacial region diseases (e.g. toothache, neuralgia, migraine); treatment or medication use for headache or bruxism in the last 2 years; local skin infection over the masseter muscle. Time: September-October 2011 Country: Turkey Clinic: Department of Prosthodontics, School of Dentistry, University of Istanbul, Turkey. "Patients with orofacial pain who reported to the school's primary TMD referral centre were selected."
Interventions	Group A (n=10): LLL at the point of greatest pain (three times per week, for a total of 12 sessions, laser diode, 820 nm, beam diameter of the device is 6 mm, and the probe has an angle of 45°, 3 J/cm2 by applying 300 mW output power for 10 s) Group B (n=10): LLL at pre-established points in the effected muscles (three times per week, for a total of 12 sessions) Group C (n=10): placebo group (three times per week, for a total of 12 sessions)
Outcomes	Mandibular mobility (mm) Masticator muscles tenderness (bilaterally by palpation) PPT Pain Intensity (VAS)
Chronicity	Low disability
Hints for Chronicity	1. Exclusion: psychiatric disorder 2. Exclusion: treatment or medication use for headache or bruxism in the last 2 years
Duration	4 weeks treatment
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "The randomizations of the patients were done with the help of a computer program."
Allocation concealment (selection bias)	Unclear risk	No information
Blinding of participants and personnel (performance bias)	Low risk	Cite: "Patients were unaware of their group assignments."
Blinding of outcome assessment (detection bias)	Low risk	Cite "An experienced prosthodontist who was blinded to the applied treatment evaluated the patients twice."
Incomplete outcome data (attrition bias)	Unclear risk	Cite: "Three enrolled patients did not attend appointments regularly and were excluded from the study." Comment: no information from which group

Selective reporting (reporting bias)	Low risk	Reported all the outcomes. Study protocol given (ISRCTN31085)
Other bias	Low risk	CiteNo significant differences in the baseline characteristics Cite: "The authors declare that they have no competing interests."

Sattayut 2012

Methods	RCT. single centre; three parallel groups;
Participants	30 patients: 100% women; age 20-50 years old, 35 years old (SD±9). Inclusion criteria: unilateral myogenous TMD with at least one trigger point in the muscles of mastication; ages of 20-50 years; chronic pain status; pain duration not less than 3months; no severe systemic disease; no radiological abnormalities of the TMJ. Ecxclusion criteria: not mentioned. Country: Thailand Clinic: Royal London Dental Teaching Hospital
Interventions	Group A (n=10): conventional low energy LILT (CLILT): 21.4 J/cm2, 4 J per point, 60 mW irradiance. 820 nm (GaAlAs) laser at energy densities of 21.4J/cm2. Group B (n=10): modified high energy LILT (MLILT): 107 J/cm2, 20 J per point, 300 mW irradiance. 820 nm GaAlAs laser at energy densities of 107 J/cm2. Group C (n=10): placebo laser
Outcomes	Pressure pain threshold (PPT) Unassisted maximum mouth opening without pain (MOSP) Symptom severity index (SSI) Jaw kinesiology Electromyography (EMG) Pain rating index (McGill pain questionnaire)
Chronicity	Unclear (low disability)
Hints for Chronicity	Patients were suffering of local pain
Duration	4 weeks follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "Block allocation"
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance	Low risk	Cite: "From the patient's viewpoint there was no possibility of recognising when the laser was active or inactive, or

bias)		when it was delivering CLILT or MLILT." ...
Blinding of outcome assessment (detection bias)	Low risk	Cite: "The built-in programme memory was set by another clinician." and "Hence double blinding was maintained."
Incomplete outcome data (attrition bias)	Low risk	No dropouts
Selective reporting (reporting bias)	High risk	McGill pain questionnaire is missing
Other bias	Unclear risk	No other conspicuous features

Seifi 2017

Methods	RCT. single centre; four parallel groups;
Participants	40 patients: age 18-50 years old. Inclusion criteria: head and neck pain and tenderness on palpation, especially around the ears and during function, and showed limited mouth-opening. Exclusion criteria: history of recent trauma; dental pain; bleeding in the area; neoplasia or systemic disease involving joints, such as osteoarthritis, rheumatoid arthritis, diabetes; cardiac arrhythmia or pacemakers; pregnant; patients who had been receiving other treatments were asked to cease treatment one month before the start of the study. Country: Iran Clinic: School of Dentistry at Shahid Beheshti University of Medical Sciences
Interventions	Group A (n=10): TENS (30 minutes at 500 W, a maximum frequency of 50 Hz and 15 mA output current) Group B (n=10): LLL (diode 810 nm CW, a continuous 0.5 W peak power output beam and a 5-mm, 60 seconds, four half-hour sessions per week) Group C (n=10): sham-TENS Group D (n=10): sham-LLL (the same procedure was followed at the same setting, but the device was turned off)
Outcomes	Pain (VAS) Tenderness of Masticatory Muscles and TMJ Area (VAS) Mouth-opening (mm)
Chronicity	High disability
Hints for Chronicity	Patients received treatment before for TMD
Duration	1 month follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	No information given

Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Unclear risk	No information given
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Low risk	Cite: "Conflict of Interests: None." Cite: „...matched before the study, and no significant difference was observed between the groups."

Shirani 2009

Methods	RCT. single centre; two parallel groups;
Participants	16 patients: 75% women; age 16-37 years old, mean age 23.8. Inclusion criteria: MPDS who did not have any other TMDs; unilateral pain in the masticatory muscles for up to 1 month; patients had not undergone any treatment for myofascial pain before this study; were able to be treated as outpatients and were available for the study schedule. Exclusion criteria: psychiatric disorders; epilepsy; heart diseases; pregnancy; pacemakers; tumours; intra-capsular disorders like degenerative joint disease; rheumatoid arthritis and disc displacement. Country: Iran Clinic: Oral Medicine department, School of Dentistry, Isfahan University of Medical Sciences
Interventions	Group A (n=8): laser (two diode laser probes (660 nm (nanometres), 6.2 J/cm2, 6 min, continuous wave, and 890 nm, 1 J/cm2 (joules per square centimetre), 10 min, 1,500 Hz (Hertz)) were used on the painful muscles) Group B (n=8): control (treatment was similar, but the patients were not irradiated, twice a week for 3 weeks)
Outcomes	Pain (VAS)
Chronicity	Low disability
Hints for Chronicity	1. No treatment before participating into the study 2. Patients with psychiatric disorders were excluded
Duration	3 weeks treatment; 1 month follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement

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Random sequence generation (selection bias)	Unclear risk	No information given
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Cite: "The patients did not know to which group they had been assigned."
Blinding of outcome assessment (detection bias)	Low risk	Cite: "by an independent investigator who was unaware of the participants' group allocation."
Incomplete outcome data (attrition bias)	Unclear risk	No information given
Selective reporting (reporting bias)	Low risk	The outcome stated was reported
Other bias	Unclear risk	Important information missing

Shobha 2017

Methods	RCT. single centre; two parallel groups;
Participants	40 patients: 77.5% women; age 18–40 years old, Group A 30.85 (SD±6.31); Group B 27.55 (SD±4.58). Inclusion criteria: age group of 18–40 years; diagnosed as per RDC/TMD Axis I criteria. Exclusion criteria: systemic disease; pregnancy; any form of treatment for TMD in the last 1 month; recent history of trauma; any other joint disorders, rheumatoid arthritis, etc. Time: September 2012-August 2014 Country: India Clinic: Department of Oral Medicine and Radiology, Coorg Institute of Dental Sciences, Virajpet, Karnataka
Interventions	Group A (n=20): received 2–3 treatments per week for 8 sessions of active LILT with diode laser (Ga-Al-As, 810 nm, 0.1 W) Group B (n=20): inactive LILT advised self-care including, soft diet, moist heat application, TMJ exercises during the treatment, such as Rocabado 6 × 6 program, which utilizes six exercises six times per day and isometric exercises: forcefully placing the chin on a closed hand during depression jaw movement (mouth opening) and hindering its elevation (closing) by pressing the inferior incisors with the index and middle fingers.
Outcomes	Pain (VAS) Mouth opening TMJ clicking. Muscle involvement
Chronicity	Low disability
Hints for Chronicity	1. Per mail: "I have excluded the patients who had already taken any treatment within 6 months of our study procedure starts."
Duration	1 month follow up
Notes	Funding by "Nil."

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Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Per mail: "It was double blinded study and randomisation done on walk in patients who complained about pain in TMJ. And we followed RDC TMJ criteria for selecting the subjects."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Low risk	Cite: "The clinician who performed the evaluation and the patient was blinded from the study. Calibration of the clinician performing the evaluation was revaluated by the senior faculty."
Incomplete outcome data (attrition bias)	Unclear risk	Per mail: " Yes. Few were dropped out because they failed to come for follow up visits."
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	No declaration of interest

Uemoto 2013

Methods	RCT. multiple centre; three parallel studies;
Participants	21 patients: 100% women; 20-52 years. Inclusion criteria: being female and Caucasian; more than 20 years of age; presence of active MTPs in both masseter muscles, previously identified by manual palpation. Exclusion criteria: use of pain killers; muscle relaxants; anti-inflammatory medication and benzodiazepines; pregnancy; receiving treatment for TMJD. Country: Brazil Clinic: Universidade Federal Fluminense (UFF) and Universidade Salgado de Oliveira (UNIVERSO), both in the city of Niterói, Rio de Janeiro, Brazil.
Interventions	Group A (n=7): Infrared laser (wavelength of 795 nm at 80 mW power. The MTPs located in the right masseter of each patient were irradiated with the laser at a dose of 4 J/cm2. On the other hand, a dose of 8 J/cm2 was applied to the left side) Group B (n=7): dry needling of MTPs located in the right masseter muscle. The same muscle on the left side was injected with 0.25 ml of 2% lidocaine without epinephrine. Group C (n=7): control (placebo treatment at trigger points located in the right and left masseter muscles. In this group laser therapy was simulated, i.e., no laser light irradiation was used)
Outcomes	Pain (VAS) Pressure pain threshold Mouth-opening (mm)

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Chronicity	Low disability
Hints for Chronicity	1. Exclusion criteria: use of pain killers; muscle relaxants; anti-inflammatory medication and benzodiazepines 2. Exclusion criteria: receiving treatment for TMJD
Duration	No follow-up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	No information given
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Unclear risk	No information about dropouts. No follow up
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	Important information missing

Venezian 2010 25J/cm^2

Methods	RCT. single centre; four parallel groups;
Participants	48 participants: 89.58% women; mean age 41.6 years. Inclusion criteria: diagnose of myofascial pain (group I.a and I.b) according to RDC/TMD; ages ranged 18-60yrs. Exclusion criteria: chronic analgesic, anti-inflammatory, or psychotropic medication users, and if they used an occlusal splint or had previously had any other kind of TMD treatment. Country: Brazil Clinic: Occlusion and Temporomandibular Joint Disorder Service at Ribeirão Preto College of Dentistry, University of São Paulo (SODAT/FORP-USP)
Interventions	Group A (n=12): 25 J/cm2 (50mW for 20 seconds, actual treatment) Group B (n=12): 25 J/cm2 (50mW for 20 seconds, placebo treatment) Group C (n=12): 60 J/cm2 (60mW for 40 seconds, actual treatment) Group D (n=12): 60 J/cm2 Group IV-dose of 60 J/cm2 (60mW for 40 seconds placebo treatment)
Outcomes	EMG Pain to palpation (VAS)
Chronicity	Low disability
Hints for Chronicity	1. Exclusion criteria: chronic analgesic; anti-inflammatory; psychotropic medication users

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	2. Exclusion criteria: used an occlusal splint or had previously had any other kind of TMD treatment
Duration	1 month follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: „...computer program..."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Cite: „...patients did not know which group they had been assigned to."
Blinding of outcome assessment (detection bias)	Low risk	Cite: „...points were identified only after finishing the data collection."
Incomplete outcome data (attrition bias)	Unclear risk	No information about the dropouts
Selective reporting (reporting bias)	Low risk	All the outcomes were reported
Other bias	High risk	No further inequalities but two interventions are the same (inactive sham of diverse energy levels)

Venezian 2010 60J/cm^2

Methods	RCT. single centre; four parallel groups;
Participants	48 participants: 89.58% women; mean age 41.6 years. Inclusion criteria: diagnose of myofascial pain (group I.a and I.b) according to RDC/TMD; ages ranged 18-60yrs. Exclusion criteria: chronic analgesic, anti-inflammatory, or psychotropic medication users, and if they used an occlusal splint or had previously had any other kind of TMD treatment. Country: Brazil Clinic: Occlusion and Temporomandibular Joint Disorder Service at Ribeirão Preto College of Dentistry, University of São Paulo (SODAT/FORP-USP)
Interventions	Group A (n=12): 25 J/cm2 (50mW for 20 seconds, actual treatment) Group B (n=12): 25 J/cm2 (50mW for 20 seconds, placebo treatment) Group C (n=12): 60 J/cm2 (60mW for 40 seconds, actual treatment) Group D (n=12): 60 J/cm2 Group IV-dose of 60 J/cm2 (60mW for 40 seconds placebo treatment)
Outcomes	EMG Pain to palpation (VAS)
Chronicity	Low disability
Hints for Chronicity	1. Exclusion criteria: chronic analgesic; anti-inflammatory; psychotropic

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	medication users 2. Exclusion criteria: used an occlusal splint or had previously had any other kind of TMD treatment
Duration	1 month follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: „...computer program."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Cite: „...patients did not know which group they had been assigned to."
Blinding of outcome assessment (detection bias)	Low risk	Cite: „...points were identified only after finishing the data collection."
Incomplete outcome data (attrition bias)	Unclear risk	No information about the dropouts
Selective reporting (reporting bias)	Low risk	All the outcomes were reported
Other bias	High risk	No further inequalities but two interventions are the same (inactive sham of diverse energy levels)

Wang 2011

Methods	RCT. single centre; two parallel groups;
Participants	42 patients: 76.19% women; age Group A 40.25 (SD±15.35); Group B 42.65 (SD±13.75). Country: China Clinic: Dept. Of Temporomandibular Joint, West China School of Stomatology
Interventions	Group A (n=21): laser Group B (n=21): control group
Outcomes	TMJ pain (VAS) Maximum vertical opening (MVO) Left lateral excursion (LLE) and right lateral excursion (RLE)
Chronicity	Unclear
Hints for Chronicity	None
Duration	n.a.
Notes	

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Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	No information given
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Unclear risk	No information given
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	No information given

Yamaner 2020

Methods	RCT. single centre; four parallel groups;
Participants	62 patients: 95 % women; mean age 31.51 (SD±10.32) years. Inclusion criteria: disc displacement with reduction diagnosis according to the DC/TMD; participants between 18-60 years of age; baseline VAS score equal to or higher than 50 mm. Exclusion criteria: diagnosis of myofascial pain and disc displacement without reduction; presence of any inflammatory connective tissue diseases; psychiatric problems (such as depression, anxiety, somatization, or trustfulness); presence of a tumour; heart disease or pacemaker; pregnancy; presence of any other orofacial region disease symptoms (e.g. toothache, neuralgia, migraine, arthralgia, arthritis, or arthrosis); treatment or medication use for headache or bruxism in the last 2 years; local skin infection over the masseter or temporal muscle. Instructed not to take any analgesics or receive any pain treatments for one week prior to the first application and until the last appointment. Time: November 2014-September 2016 Country: Turkey Clinic: Istanbul University, Faculty of Dentistry, Department of Prosthodontics.
Interventions	Group A (n=18): LLLT semiconductor (continuous infrared radiation 820 nm; 3 J/cm2 energy intensity; 300 mW output; three times per week for a total of six sessions) Group B (n=15): Ozone Group Ozone (high-frequency bio-oxidative (ozone concentration of 30% in level 3); three times per week for 10 min, for a total of six sessions) Group C (n=13): Sham Laser Group D (n=16): Sham Ozone Group
Outcomes	Low disability examination Pressure pain threshold (PPT) examination Pain (VAS)
Chronicity	Low disability
Hints for Chronicity	Excluded: psychiatric problems (such as depression, anxiety, somatization,

	or trustfulness); treatment or medication use for head- ache or bruxism in the last 2 years
Duration	3 months after the therapy ended; 6 months after the therapy ended follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: " Participants were randomized with the help of a computer program (Microsoft Excel; Microsoft, Redmond, WA, USA). First, 80 TMJs were randomized in a 1:1 ratio into one of two groups: (1) treatment or (2) placebo. Then, 40 TMJs in the treatment group were randomized in a 1:1 ratio into one of two subgroups: (1) laser or (2) ozone, and 40 TMJs in the placebo group were randomized in a 1:1 ratio into one of two sub- groups: (1) sham laser or (2) sham ozone. The “RANDBETWEEN” function was used to obtain equal subjects during the randomization process."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Cite: "The study was designed as a randomized, double-blind clinical study, where neither the participants nor the specialist who performed the low disability examinations were aware of the aim of the study."
Blinding of outcome assessment (detection bias)	Low risk	Cite: "The study was designed as a randomized, double-blind clinical study, where neither the participants nor the specialist who performed the low disability examinations were aware of the aim of the study."
Incomplete outcome data (attrition bias)	Low risk	No dropouts recorded
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	Cite: "Conflict of interest. The authors report no conflict of interest."

Öz 2010

Methods	RCT. single centre; two parallel groups;
Participants	44(40) patients: 85% women; age 18-60 years old, mean age Group A 31.25(SD±8.23), mean age Group B 34.52 (SD±12.82). Inclusion criteria: age 18-60 years; diagnosis of MP according to RDC/TMD; natural posterior occlusion; no TMD treatment in the last 2 years; orofacial pain for at least 6 months. Exclusion criteria: TMD of articular origin diagnosed according to RDC/TMD; psychiatric disorders, heart disease, or pacemakers; removable prosthesis

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	or the absence of more than 1 tooth per quadrant and major malocclusion (anterior open bite, unilaterally maxillary lingual crossbite, overjet >6 mm, slide from the retruded contact position to intercuspal position >2 mm); pregnancy; symptoms that could be caused by other orofacial region diseases (e.g., toothache, neuralgia, migraine); treatment or any medication for headache or bruxism during the previous year; local skin infections over the masseter muscle. Time: January 9, 2007- January 3, 2008 Country: Turkey Clinic: Department of Maxillofacial Prosthodontics, School of Dentistry, University of Istanbul.
Interventions	Group A ((n=22) (20)): Low-level laser (2 times per week, for a total of 10 sessions) Group B ((n=22) (20): occlusal splints (24 h/d for 3 months)
Outcomes	Pain intensity (VAS) Pain location (Headache / Earache / Muscles / Muscles and headache / Muscles and earache) Chronic pain status Depression (RDC/TMD) Pressure pain threshold (PPT) Active and passive mouth opening Muscle tenderness to palpation
Chronicity	Low disability
Hints for Chronicity	1. GCPS II (CPI >70 and disability score <2) 2. No TMD treatment in the last 2 years 3. Exclusion: if psychiatric disorders
Duration	3 month follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: "Randomization was done before the arrangements for the date of therapy were made. Selection bias was considered through a defined and concealed randomization process." Comment: Information is not enough
Allocation concealment (selection bias)	Unclear risk	Cite: "concealed randomization" but no further information
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapy. Cite: "The patients did not know if they were assigned to the study or control group and which group was study and which group was control."
Blinding of outcome assessment (detection bias)	Low risk	Cite: "Assessment of the participants was conducted by an independent investigator who was unaware of the study."

Incomplete outcome data (attrition bias)	Low risk	Dropouts were reported and reasons why were given.
Selective reporting (reporting bias)	Low risk	All the outcomes were reported. No study protocols.
Other bias	Unclear risk	Cite: "The authors report no conflicts of interest."

Characteristics of excluded studies: Laser

Azangoo 2020

Reason for exclusion	Number of participants too small

Basili 2017

Reason for exclusion	Not randomized

Bertolucci 1995a

Reason for exclusion	Secondary report to Bertolucci 1995

Carroll 2012

Reason for exclusion	No TMD

Cetiner 2006

Reason for exclusion	Not randomized

Ceylan 2004

Reason for exclusion	Not randomized

Clark 1987

Reason for exclusion	Wrong intervention and not randomized

Conti 1997

Reason for exclusion	Not randomized, number of participants too small

Costa 2018

Reason for exclusion	Sample size too small

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Demirkol 2015

Reason for exclusion	No TMD

Ferreira 2013

Reason for exclusion	Wrong intervention

Fikackova 2007

Reason for exclusion	Not randomized

Herpich 2014

Reason for exclusion	Study protocol

Huang 2014

Reason for exclusion	Not randomized

Jiang 2016

Reason for exclusion	Wrong intervention

Kato 2006

Reason for exclusion	No RCT

Katsoulis 2010

Reason for exclusion	Sample size too small

Magri 2017

Reason for exclusion	Further publication

Magri 2019

Reason for exclusion	Further publication to Magri et al. 2017

Maracci 2020

Reason for exclusion	Further publication de Oliveira et al. 2020

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McNamara 1996

Reason for exclusion	Wrong intervention

Melchior 2013

Reason for exclusion	Not randomized

Miller 2006

Reason for exclusion	No RCT

Nunez 2006

Reason for exclusion	Not randomized

Rodrigues 2019

Reason for exclusion	Low-power laser auriculotherapy

Salmos-Brito 2013

Reason for exclusion	No RCT

Schmid-Schwap 2006

Reason for exclusion	No laser intervention

Schokker 1990

Reason for exclusion	Not everyone received laser

Simma 2009

Reason for exclusion	Further publication to „Microsystem's acupuncture in craniomandibular pain syndromes - A randomised controlled trial “

Simma-Kletschka 2009

Reason for exclusion	Wrong intervention

Snyder-Mackler 1986

Reason for exclusion	No TMD

APPENDIX VIII: Characteristics of studies

Tde 2010

Reason for exclusion	Not randomized

Waylonis 1988

Reason for exclusion	No TMD

APPENDIX VIII: Characteristics of studies

Characteristics of included studies: Medication

Ahmed 2016

Methods	RCT. single centre; two parallel studies;
Participants	26 patients: 34.62% women; mean age Group A 32.92 (SD±10.9); Group B 36 (SD±14.21). Country: India Clinic: Oral & Maxillofacial Surgery of Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh
Interventions	Group A (n=13): occlusal splint (2h daily on the first day, then increasing to 24h/day except mealtimes for a total of 4 months) Group B (n=13): medications (analgesia and muscle relaxants) + supportive care
Outcomes	Palpatory tenderness at rest and during various jaw movements (VAS) Maximum comfortable mouth opening (mm) Clicking sound
Chronicity	Unclear
Hints to chronicity	No hints given
Duration	4-months treatment
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: "Twenty-six patients according to inclusion and exclusion criteria were selected randomly." Cite: "Randomization were done by lottery. Thirteen patients were given acrylic splint and another 13 patients have same criteria were given analgesic, muscle relaxant and supportive care." Comment: probably only 26 subjects were randomly selected and not assigned
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Low risk	No dropouts according to table
Selective reporting	Unclear risk	Cite: "Prior to the commencement of the study, the research

(reporting bias)		protocol was approved by the ethical institutional review board of BSMMU, Dhaka" Comment: Outcomes from Objectives were reported except for deviation. Protocol not found
Other bias	Unclear risk	No further inequalities

Alajbeg 2018

Methods	RCT. single centre; three parallel studies;
Participants	21 patients: gender not given; mean age Group A: 57.25 (SD±8.13); Group B: 46.5 (SD±18.15); Group C: 42.8 (SD±12.45). Exclusion criteria: periodontal disease; removable dentures or complete fixed prosthodontic restorations; ongoing orthodontic treatment; pain due to TMJ osteoarthritis (diagnostic category III in the RDC/TMD); other orofacial pain conditions; mental or neurological disorders; pain due to systemic disease; pregnancy; cardiac disease; known intolerance to amitriptyline. Country: Croatia Clinic: Department of Prosthodontics, School of Dental Medicine, University of Zagreb.
Interventions	Group A (n=7): 25 mg of amitriptyline Group B (n=7): placebo pill of the same size and appearance Group C (n=7): stabilization splint
Outcomes	Pain (VAS) Maximal comfortable mouth opening (mm) Oral health-related quality of life evaluation (OHIP-14)
Chronicity	Low disability
Hints to chronicity	For patients with non-odontogenic orofacial pain who had not been previously treated. Exclusion criteria: mental or neurological disorders
Duration	12 weeks follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "The randomization was performed using Microsoft Excel software after the codification of each patient."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies. Cite: "The same dental technician made all splints. The clinician (I.A.) adjusted the splint so that the simultaneous and symmetric contacts were obtained in maximum intercuspation."

		Cite: "The same clinician adjusted the splint at follow up appointments if there was a need for it."
Blinding of outcome assessment (detection bias)	Low risk	Cite: "The baseline examiner (R.B.B.), blind to a type of therapy, performed clinical examination of each patient at follow-up appointments at 1st (T1), 6th (T2) and 12th (T3) week after treatment initiation."
Incomplete outcome data (attrition bias)	Unclear risk	A lot of dropouts (8 out of 21 participants), no reasons given what, but the dropouts were balanced.
Selective reporting (reporting bias)	Low risk	All outcomes were reported (Reference Study Protocol in publication).
Other bias	Low risk	No conflicts of interest No statistically significant differences in baseline characteristics

Alencar 2014

Methods	RCT. single centre; three parallel groups
Participants	45 patients: 91.33% women; mean age Group A 37.1 years; Group B 36.5; Group C 36.9. Inclusion criteria: jaw pain upon awakening, occurring a minimum of 2 days per week, reproduced during the muscle digital palpation examination in the masseter muscle; diagnosis of myofascial jaw pain based on the guidelines AAOP; self-report of average jaw pain intensity in the past week of at least 4 on a numeric scale, persisting for at least 6 months; self-report of psychological stability; age range between 18-65 years. Exclusion criteria: systemic diseases such as fibromyalgia, rheumatoid arthritis, or lupus; self-report of persistent depression or an unstable regimen of medications of less than 3 months duration, as indicated by their history; pregnancy or lactation; history of drug or alcohol dependence; concomitant treatment with α2-adrenergic agonists (i.e., clonidine, methyldopa) or α2-adrenergic antagonists (i.e., phenothiazines), or use of monoamine oxidase; report of liver dysfunction, impaired renal function, acute recovery phase of myocardial infarction, heart block or conduction disturbances, arrhythmia, hypertension, hypotension, glaucoma, or hyperthyroidism, and use of congestive heart failure inhibitors; history of allergic reaction to tizanidine or cyclobenzaprine, or any other contraindications to the use of these medications; diagnosis of TMJ arthralgia/osteoarthrosis or mechanical TMJ disorders (disc displacements) according to the AAOP guidelines. Country: Brazil Clinic: São Paulo State University, Araraquara Dental School, TMDs and Orofacial Pain Clinic.
Interventions	Group A (n=15): placebo group (one capsule daily, consisting of lactose filler) Group B (n=15): TZA group (tizanidine 4 mg, one capsule daily) Group C (n=15): CYC group (cyclobenzaprine 10 mg, one capsule daily) All subjects were instructed to discontinue the use of any pain medication for a 1-week washout period before starting treatment. All subjects received patient education consisting of explanations about the aetiology of TMD and myofascial pain.
Outcomes	Pain intensity (VAS)

APPENDIX VIII: Characteristics of studies

	Frequency and duration (Severity Symptoms Index) Sleep quality (Pittsburgh Sleep Quality Index)
Chronicity	Low disability
Hints to chronicity	Exclusion: no depression
Duration	3 weeks follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "blocking variable for stratified random sampling in such a way that the three groups presented similar pain-intensity averages."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Cite: "The medications were distributed free of charge and all capsules were formulated to have the same appearance" "A double-blind study" Comment: we can assume the patients were unaware of the treatment
Blinding of outcome assessment (detection bias)	Low risk	Cite: "was carried out by one author (CAZ) who was blinded to the treatment group."
Incomplete outcome data (attrition bias)	Low risk	Cite: „...no patient dropped out."
Selective reporting (reporting bias)	Low risk	Reported all the outcomes
Other bias	Low risk	Cite: "There was no statistically significant difference (P > .05) in terms of age, with an average age of 37.1 years for the placebo group, 36.5 years for the TZA group, and 36.9 years for the CYC group." and "The authors reported no conflicts of interest related to this study."

Alpaslan 2012

Methods	RCT. single centre; four parallel groups
Participants	79 patients: 83.5% women; age 17–52 years old, mean 32 years. Inclusion criteria: Patients with MPS with limited oral opening according to RDC/TMD. Exclusion criteria: n.a. Country: Turkey Clinic: Gazi University, Faculty of Dentistry, Department of Oral and Maxillofacial Surgery

APPENDIX VIII: Characteristics of studies

Interventions	Group A (n=15): chlorzoxazone 250 mg [Paraflex®, Santafarma] Group B (n=15): phenprobamate 400 mg [Gamaflex®, AbdiIbrahim] Group C (n=15): mephenoxalone 200mg [Dorsiflex®, Sandoz] Group D (n=15): baclofen 10 mg [Lioresal®, Novartis] Group E (n=19): no medication, control group Patients were asked to use the prescribed muscle relaxant orally three times a day for three weeks.
Outcomes	Severity of pain (VAS) dysfunction (VAS)
Chronicity	Low disability
Hints to chronicity	Cite: „...duration of pain in all patients was less than three months at the time of admission." "Pain response to palpation of the masticatory muscles was positive. Patients with intracapsular disorders and patients who are on regular medications such as analgesics and anti-anxiety drugs were not included to the study."
Duration	4 weeks follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite. "By block randomization protocol"
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Unclear risk	Cite: "Twelve patients missed some of their appointments in the follow-up period. Sixty-seven out of 79 patients completed the four-week follow-up period. Due to the incomplete data, the results of 12 patients were not included in the statistical analysis. Comment: Didn't use intension-to-treat.
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	Cite: "The authors report no conflicts of interest."

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Altaweel 2019

Methods	RCT. single centre; parallel groups
Participants	14 patients: 71.14% women; mean age 23.13. Inclusion criteria: ADDWR; absence of osseous changes; ages between 20-35 years. The diagnosis of ADDWR was based on the presence of TMJ clicking and pain. Clinical diagnosis of ADDWR was confirmed by MRI. All patients were subjected to complete clinical examination and history taking. Exclusion criteria: degenerative joint disease; musculoskeletal; neuromuscular disorders; cardiovascular; bleeding disorders; breathing difficulties; pregnancy; history of taking regular drugs as opioid; muscle relaxants; calcium channel blockers; immunosuppressive drugs or aminoglycoside antibiotics or hypersensitivity to any botulinum toxin preparation; human albumin or sodium chloride. Time: November 2014-December 2017 Country: Egypt Clinic: Clinic of Oral and Maxillofacial Surgery, Faculty of Dental Medicine, Al-Azhar University, Cairo
Interventions	Group A (n=7): LPM extra orally (through space formed by the zygomatic arch and the sigmoid notch of the mandible below the centre of the zygomatic arch; needle was advanced perpendicular to the skin with mouth closed; muscle is approximately 3-4 cm deep) Group B (n=7): LPM intraorally (lateral to the maxillary tuberosity (midway between the muscle origin and attachment), with the needle just above the maxillary molars and parallel to the occlusal plane) After application of topical antiseptic agent (povidone-iodine), The LPM was approached, extraoral or intraoral according to the group, with 27-gauge needle attached to an audio-amplified EMG machine; portable device to confirm needle placement within the muscle. The correct needle tip placement assured by positive EMG activity with contralateral jaw movement against resistance and no EMG activity at rest. 0.2 mL (20 IU) of reconstituted drug injected as a bolus injection into the muscle. Patients were observed for 1-hour post-injection and instructed to stay in an upright position for 4 hours to avoid diffusion of the solution into the pharynx musculature which would cause dysphagia.
Outcomes	Maximum active mouth opening (mm) TMJ clicking Tenderness (palpation of the lateral pole of TMJ condyle) Orthopantomogram MRI Pain (VAS)
Chronicity	Unclear (low disability)
Hints to chronicity	Patients with a history of taking regular drugs as opioid, muscle relaxants, calcium channel blockers, immunosuppressive drugs or aminoglycoside antibiotics or hypersensitivity to any botulinum toxin preparation, human albumin or sodium chloride excluded from this study.
Duration	24 weeks follow up
Notes	

APPENDIX VIII: Characteristics of studies

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: "Patients were enrolled randomly into 2 groups according to injection approach; where extraoral used in group I, while intraoral approach used in group II."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Unclear risk	No information given
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	Cite: "There is a statistically significant difference between groups"

Ayesh 2008

Methods	RCT. single centre; two parallel groups.
Participants	18 patients: 83.33% women; 20–39 years old, mean age 26.5 (SD±1.4). Inclusion criteria: spontaneous pain or pain on movements (excursions or opening) in addition to pain on palpation of the TMJ on the same side (RDC/TMD group IIIa). Exclusion criteria: coarse crepitation (osteoarthritis) (group IIIc) or only myofascial pain (group Ia, b). Country: Denmark Clinic: Department of Clinical Oral Physiology
Interventions	Group A (n=9): intra-articular injection of ketamine (0.2 mL, 10 mM = 0.55 mg) was given in the painful/most painful joint (cross-over study) Group B (n=9): normal saline (0.2 ml, sodium chloride 9 mg/mL, Polyrinse-U, Alcon SA, France) was given in the painful/most painful joint. (Cross-over study)
Outcomes	Spontaneous pain (VAS) (24h) Pain on jaw function (VAS) (24h) Jaw opening (mm) Quantitative sensory tests (QST): tactile, pin-prick assessment Pressure pain threshold and pressure pain tolerance (at baseline-15 min after injections) Vital measures (Blood measure and blood oxygen saturation)
Chronicity	Unclear (High disability)
Hints to chronicity	1. Characteristic pain intensity (0–100): 57.6 (±6.1)

APPENDIX VIII: Characteristics of studies

	2. referred to Department of Clinical Oral Physiology 3. Duration of pain (years): 4.2 (±0.7)
Duration	1, 3, and 24 h after injection
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: „... was assigned according to a randomized list."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Cite: „...double-blinded design ... neither the investigator nor the patients knew the type of injection..."
Blinding of outcome assessment (detection bias)	Low risk	Cite: „. double-blinded design ... neither the investigator nor the patients knew the type of injection..."
Incomplete outcome data (attrition bias)	Unclear risk	Cite: „however, two patients received only one injection and then discontinued their participation" Comment: No information on why they dropped out
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	No further inequalities

Basterzi 2009

Methods	RCT. single centre; two parallel groups
Participants	33 patients: 87.88% women; mean age Group A 28.3 (SD±9.3); Group B 34.83 (SD±14). Inclusion criteria: patients who did not respond to conservative treatments were included in the study. Exclusion criteria: The use of nonsteroidal anti-inflammatory drugs (NSAIDs) was not permitted during the study. Country: Turkey Clinic: Mersin University
Interventions	Group A (n=20): intraarticular sodium hyaluronate (Ostenil, 20 mg sodium hyaluronate/2 mL, TRB Chemedica, Vouvry, Switzerland) injections at weekly intervals for 3 weeks Group B (n=20): intraarticular sodium hyaluronate (Ostenil, 20 mg sodium hyaluronate/2 mL, TRB Chemedica, Vouvry, Switzerland) injections at weekly intervals for 3 weeks.
Outcomes	Pain intensity (VAS) Presence of joint sounds Maximal mouth opening

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Chronicity	High disability
Hints to chronicity	1. Patients who did not respond to conservative treatments were included in the study
Duration	3 weeks treatment, 12 month follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	High risk	Cite: "Group 1 (n=20) was composed of joints with reducing disc displacement. Group 2 (n=20) was composed of joints with nonreducing disc displacement." Comment: the author declared that it was a randomized trial, but the group were not randomized.
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Low risk	Cite: "All patients included in the study were followed for a period of 12 months."
Selective reporting (reporting bias)	Unclear risk	All outcomes reported
Other bias	Unclear risk	No further inequalities

Bertolami 1993

Methods	RCT. multi-centre study; two parallel groups
Participants	121 patients: 94% women; mean age Group A 36.0; Group B 40.7. Inclusion criteria: confirmed diagnosis of either degenerative joint disease (OJD); reducing displaced disc (DDR); nonreducing displaced disc (DON); non responsiveness to non-surgical therapies; severe dysfunction as established by the Helkimo indices (HI), VASs, physical measurements of joint movement and joint noise (astrophotometry [APM]); 21 years of age or older; possess a documented diagnosis of an intracapsular TMJ disorder; exhibit severity at the level of Helkimo dysfunction class II or higher (severe dysfunction); prove refractory to conservative therapies for at least 2 months. Exclusion criteria: pregnant or lactating; unwilling or unable to return for follow-up; possessed purely extracapsular disorders or showed evidence of a combination of different intracapsular disorders; exhibited poor oral health or had received contraindicating therapies such as previous joint injections

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	or surgery; lacked ability to follow instructions. Country: USA Clinic: 1. the Oral and Maxillofacial Surgery Unit, Massachusetts General Hospital (MGH), Boston, MA; 2. Oral and Maxillofacial Associates, Fargo, ND (OMS); 3. Temporomandibular Pain Clinic of the University of California, Los Angeles, CA (UCLA).
Interventions	Group A (n=80): 1% sodium hyaluronate in physiologic saline those who received a single injection of high molecular weight (1.5 - 2.0 X 106 Da) sodium hyaluronate (10 mg/ml.) solubilized in USP physiologic saline for injection (experimental group) Group B (n=41): USP physiologic Salin, a single control injection of physiologic USP saline alone (placebo group)
Outcomes	Helkimo Index Level of pain (VAS) Actual linear values of mandibular displacement (arthrophonometry) joint noises
Chronicity	High disability
Hints to chronicity	1. per Mail: Did they receive any treatment before participating into the study? At the time, these were patients who had diagnoses of degenerative joint disease; anteriorly displaced disk with reduction; anteriorly displaced disk without reduction. I believe that conservative therapies were tried before these patients were referred to us." 2. Tertiary care
Duration	6 month follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "Patients who qualified for inclusion were divided into two groups" „...Syringes were coded and randomized by the manufacturer"
Allocation concealment (selection bias)	Low risk	Cite: „...then used sequentially with only the identifying number (not the syringe content) known to the participating clinicians, examiners, and investigators." Comment: extern
Blinding of participants and personnel (performance bias)	Low risk	see above
Blinding of outcome assessment (detection bias)	Low risk	Cite: "The control and hyaluronate solutions were both clear colourless fluids that were not distinguishable by visual inspection." "In all cases, the clinicians injecting test substances and the examiners performing clinical evaluations were separate individuals."

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Incomplete outcome data (attrition bias)	Low risk	No information given
Selective reporting (reporting bias)	High risk	APM missing
Other bias	Unclear risk	Free of other inequalities

Bjornland 2007

Methods	RCT. single centre; two parallel groups
Participants	40 patients: 85% women; mean age Group A 53.4 (SD±12.9); Group B 50.0 (SD±13.3). Inclusion criteria: subjective pain from the TMJ at function and rest for >1 year; restricted mandibular function; radiographic evidence of osteoarthritis of the TMJ, such as erosions; flattening; sclerosis and osteophytes of the condyle / articulating fossa; have tried adequate conservative treatments, such as information and reassurance; nonsteroidal anti-inflammatory drugs; physiotherapy; occlusal splints without alleviation of the symptoms. Exclusion criteria: history of general arthritis; other connective tissue diseases; treatment with immunosuppressive drugs; any organ disease; general infection; pregnant or lactating or had any known allergy or hypersensitivity to eggs; feather, avian proteins, or chicken, were excluded from the study. Additional exclusion criteria were injections of any corticosteroids or any sodium hyaluronate preparation within the previous 12 months. Time: October 2004-April 2006 Country: Norway Clinic: Department of Oral Surgery and Oral Medicine, University of Oslo
Interventions	Group A (n=20): Synvisc Group B (n=20): Celestone Chronodose
Outcomes	Pain intensity (VAS) Pain localisation Joint sounds Mandibular function and complications (mm)
Chronicity	High disability
Hints to chronicity	1. All patients seen in the Department of Oral Surgery and Oral Medicine, University of Oslo 2. Subjective pain from the TMJ at function and rest for >1 year 3. The patients should also have tried adequate conservative treatments, such as information and reassurance, non- steroidal anti-inflammatory drugs, physiotherapy, and occlusal splints without alleviation of the symptoms, before participation in the study
Duration	6-months follow-up
Notes	

Risk of bias table

Bias	Authors'	Support for judgement

APPENDIX VIII: Characteristics of studies

	judgement	
Random sequence generation (selection bias)	Unclear risk	Cite: "Patients were randomly allocated into two groups: (i) treatment with Synvisc or (ii) Celestone Chronodose" Comment: need more information
Allocation concealment (selection bias)	Unclear risk	Cite: "Forty sealed envelopes contained the code for participation in the two treatment groups, and the envelopes were not opened before it was determined that the patient was eligible for study inclusion, and that he or she had signed an informed consent for participation in the study." Comment: need information if the envelops were opaque
Blinding of participants and personnel (performance bias)	Low risk	Cite: "The patients were given information about the two drugs to be used for this study, without knowledge of which they were given."
Blinding of outcome assessment (detection bias)	Low risk	Cite: "The examinations prior to the two injections, and at follow-up, were always done without knowledge about the drugs being used."
Incomplete outcome data (attrition bias)	Low risk	Cite: "The patients could withdraw at any time during the study, and there were no dropouts for the clinical re-examinations."
Selective reporting (reporting bias)	Low risk	Reported all the outcomes
Other bias	Unclear risk	No further inequalities

Bouloux 2017a

Methods	RCT. multi-centre study; three parallel groups.
Participants	102 patients: 87.25% women; mean age Group A 39.6, Group B 44.3, Group C 51.8. Inclusion criteria: age at least 18 years; ability to give informed consent; arthralgia; disc displacement; degenerative joint disease of the TMJs as the primary source of pain. Exclusion criteria: myofascial pain dysfunction as the sole or primary source of pain; cervical pain as the sole or primary source of pain, Systemic arthropathy (systemic lupus erythematosus; rheumatoid arthritis; ankylosing spondylitis; fibromyalgia; nonsteroidal anti-inflammatory drug (NSAID) use within the previous 48 hours; allergy to study medications; limited mouth opening secondary to extra-articular pathology; pregnancy or breastfeeding; edentulous patients; current use of physical therapy; muscle relaxants; anti-seizure medications; current use of occlusal splint issued within the past 12 weeks; active infection or skin disease. Country: USA Clinic: Oral and maxillofacial departments at Emory University, the University of Pennsylvania, the University of California–Los Angeles, the University of Cincinnati, and the Oregon Health Sciences University
Interventions	Group A (n=36): Hyaluronic Acid HA1mL (Hyalgan; Fidia Pharma USA, Parsippany, NJ; 10 mg/mL) Group B (n=35): Corticosteroid CS 1 mL (Celestone; Merck, Whitehouse, NJ; 6 mg/mL) Group C (n=31): Lactated Ringer Solution LR 1 mL

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Outcomes	Pain (1 month, 3-months VAS) Analgesic consumption (3 month) Changes in quality of life (QoL) Jaw function (Jaw Function Limitation Scale [JFLS] score) Maximum incisal opening (MIO)
Chronicity	Low disability
Hints to chronicity	1. Current use of physical therapy, muscle relaxants, anti-seizure medications 2. Current use of occlusal splint issued within the past 12 weeks
Duration	1 and 3 months
Notes	Further publications: "Is Hyaluronic Acid or Corticosteroid Superior to Lactated Ringer Solution in the Short Term for Improving Function and Quality of Life After Arthrocentesis?" (Bouloux, 2016); "Is Hyaluronic Acid or Corticosteroid Superior to Lactated Ringer Solution in the Short-Term Reduction of Temporomandibular Joint Pain After Arthrocentesis? Part 1"(Bouloux, 2017)

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "by computer-generated block allocation to 1 of 3 arms"
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	Not addressed
Blinding of outcome assessment (detection bias)	Low risk	Cite: "Each investigator was blinded to the agent administered"
Incomplete outcome data (attrition bias)	Unclear risk	Cite: "3 patients excluded because of current use of nonsteroidal anti- inflammatory drugs or an allergy to the study medications. Four were lost to follow-up, leaving 98 patients" and "Although there was no difference in dropout rate among groups, the reason for dropping out might have differed among groups."
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	No further inequalities

Cahlin 2011

Methods	RCT. single centre; two parallel studies

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Participants	95 end 59 patients: 86.4% women; 51 women mean age of 60 (SD±13) and 8 men 57 (SD±11). Inclusion criterion: presence of OA in one or both TMJs (RDC) axis 1, IIIb; >18 old; able to understand and follow instructions in Swedish. Exclusion criteria: unwillingness to participate; unwillingness to disrupt ongoing treatment for the TMJ OA; ongoing treatment, e.g., pharmacologic, for any other painful condition; allergy/hypersensitivity to glucosamine/shellfish; pregnant/nursing. Time: June 2006-April 2010 Country: Sweden Clinic: Department of Orofacial Pain, Sahlgrenska University Hospital, Mölndal/Uddevalla
Interventions	Group A (n=30): oral glucosamine Sulphate (daily intake of 1,200 mg) Group B (n=29): placebo
Outcomes	Pain (VAS) Pain (verbal rating scale, VRS) Opening capacity (mm) Number of consumed tablets of rescue medication
Chronicity	Unclear (high disability)
Hints to chronicity	Ongoing therapy and tertiary care
Duration	6 weeks follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "Randomization to receive the active drug or placebo was performed in blocks of 6 by the hospital pharmacy."
Allocation concealment (selection bias)	Unclear risk	Cite: "Investigators, site personnel, and participating patients were all blinded to patient allocation, which was done consecutively according to a sequentially numbered randomization list and corresponding containers" and " Nonopaque code envelopes were available but the need to open any of them never occurred." Comment: need more information
Blinding of participants and personnel (performance bias)	Low risk	Cite: "Efforts were made to ensure that allocation concealment and patient blinding were sufficient." and "All the capsules and containers had an identical appearance and were manufactured by the hospital pharmacy without any industrial involvement."
Blinding of outcome assessment (detection bias)	Low risk	Cite: "Investigators, site personnel, and participating patients were all blinded to patient allocation..."
Incomplete outcome data (attrition bias)	Low risk	Used intention-to-treat

Selective reporting (reporting bias)	Low risk	Reported all the outcomes stated
Other bias	Unclear risk	Cite: "The investigators initiated the trial, without funding or other involvement from manufacturers, with the aim of reducing any possible industrial bias." "The treatment groups were similar at baseline, T0, apart from significantly more opening capacity without pain in the placebo group."

Calderon 2011

Methods	RCT. single centre; four parallel studies;
Participants	47 patients: gender not given; age 17–52-year-old; mean age 35.6 years. Inclusion criteria: history of orofacial pain for more than 6 months; pain occurring daily or almost daily for at least the month preceding enrolment; pain of at least moderate severity (i.e., at least 40 mm on a VAS) age ranging from 17-55. Exclusion criteria: major neurological or psychiatric disorders; glaucoma; history of intolerance to amitriptyline; pain secondary to trigeminal neuralgia; pain attributable to other local, well-defined condition. Country: Brazil Clinic: University-based orofacial pain clinic at Bauru Dental School, USP, Brazil
Interventions	Group A (n=11): amitriptyline 25 mg Group B (n=12): amitriptyline 25 mg + CBT Group C (n=11): placebo+ CBT Group D (n=13): placebo only
Outcomes	Pain intensity (VAS) Depression (BDI) Quality of life (Oral Health Impact Profile (OHIP) Sleep quality (Pittsburgh PSQI)
Chronicity	Low disability
Hints to chronicity	1. No mental illness
Duration	7 weeks of treatment; 4 weeks of follow-up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: „...using the web site www.randomization.com "
Allocation concealment (selection bias)	Unclear risk	Cite: „...a different person was designated to allocate the patients in their groups, for the medicine distribution and to lead the patients to the CBT"

		Comment: no more information on how.
Blinding of participants and personnel (performance bias)	Low risk	The researcher was blinded
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Low risk	Reported about the dropouts and they were balanced among the groups
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	No further inequalities

Calderon 2011 (CBT Group)

Methods	RCT. single centre; four parallel studies;
Participants	47 patients: gender not given; age 17–52-year-old; mean age 35.6 years. Inclusion criteria: history of orofacial pain for more than 6 months; pain occurring daily or almost daily for at least the month preceding enrolment; pain of at least moderate severity (i.e., at least 40 mm on a VAS) age ranging from 17-55. Exclusion criteria: major neurological or psychiatric disorders; glaucoma; history of intolerance to amitriptyline; pain secondary to trigeminal neuralgia; pain attributable to other local, well-defined condition. Country: Brazil Clinic: University-based orofacial pain clinic at Bauru Dental School, USP, Brazil
Interventions	Group A (n=11): amitriptyline 25 mg Group B (n=12): amitriptyline 25 mg + CBT Group C (n=11): placebo+ CBT Group D (n=13): placebo only
Outcomes	Pain intensity (VAS) Depression (BDI) Quality of life (Oral Health Impact Profile (OHIP) Sleep quality (Pittsburgh PSQI)
Chronicity	Low disability
Hints to chronicity	1. No mental illness
Duration	7 weeks of treatment; 4 weeks of follow-up
Notes	

Risk of bias table

Bias	Authors' judgement	**Support for judgement**
Random sequence generation (selection bias)	Low risk	Cite: „...using the web site www.randomization.com "

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Allocation concealment (selection bias)	Unclear risk	Cite: „...a different person was designated to allocate the patients in their groups, for the medicine distribution and to lead the patients to the CBT" Comment: no more information on how.
Blinding of participants and personnel (performance bias)	Low risk	The researcher was blinded
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Low risk	Reported about the dropouts and they were balanced among the groups
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	No further inequalities

Campbell 2017

Methods	RCT. single centre; two parallel groups and 2 control groups with healthy subjects.
Participants	60+ additional 10 patients: 100% women; age 18-65 years old. Inclusion criteria: healthy female volunteers (18-65 yrs. old) with ASA status 1 or 2 and deemed in good general health; TMJ pain of greater than 6 months duration; episodes of pain with an average rating of at least 3 out of 10 on a VAS for the week that immediately preceded the initial testing date or the day of testing; fulfilling RDC (group IIIa, arthralgia of the TMJ criteria). Exclusion criteria: ASA status of 3 to 5; pregnant or breastfeeding mothers; allergy to capsaicin/red chili peppers; presence of chronic disease(s) other than TMD; course crepitus (by subject report or examination) of the TMJ; any pain medications (e.g., ibuprofen, acetaminophen, opioids) within 48 h prior to participating in the trial for either testing day. Time: May 2006-January 2009 Country: USA Clinic: UF College of Dentistry, "identified through advertising within the greater Gainesville, Florida, region."
Interventions	Group A (n=8): capsaicin TMD Group B (n=21): capsaicin healthy control group Group C (n=8): vehicle TCM Group D (n=23): vehicle healthy subjects
Outcomes	Pain intensity (VAS) Effects of Capsaicin on Experimental and Global Pain Thermal Pain Threshold Pressure Pain Threshold
Chronicity	Unclear (low disability)
Hints to chronicity	Any subjects who had taken any pain medications (e.g., ibuprofen, acetaminophen, opioids) within 48 h prior to participating in the trial for either testing day were also excluded.
Duration	1 week

APPENDIX VIII: Characteristics of studies

Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "Treatments were assigned via a random-number generator, and syringes were labelled with a study protocol number"
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Cite: "Both the subject and investigator were blinded to the treatment"
Blinding of outcome assessment (detection bias)	Low risk	Cite: "Both the subject and investigator were blinded to the treatment"
Incomplete outcome data (attrition bias)	Low risk	Cite: "None of the participants dropped out"
Selective reporting (reporting bias)	Low risk	Reported all the outcomes
Other bias	Unclear risk	Cite: "All subjects received participation compensation ($50 gift cards)" "The authors declare no potential conflicts of interest with respect to the authorship and/or publication of this article."

Celakil 2017

Methods	RCT. single centre; two parallel groups;
Participants	40 patients: 100% women; mean age of 31.7; 18-60 years old. Inclusion criteria: diagnosis of myofascial pain according (RDC/TMD); age 18–60 years; female sex; natural posterior occlusion; baseline VAS score equal to or higher than 50 mm. Exclusion criteria: any TMJ internal derangement; inflammatory connective tissue disease; psychiatric problem; tumour; hearth disease or pacemaker; pregnancy; other orofacial region disease symptoms (e.g., toothache, neuralgia, migraine); treatment or medication use for headache or bruxism in the last 2 years; local skin infection over the masseter or temporal muscle. Country: Turkey Clinic: Department of Prosthodontics, Faculty of Dentistry, Istanbul University
Interventions	Group A (n=20): ozone therapy at the point of greatest pain Group B (n=20): sham ozone therapy at the point of greatest pain placebo group
Outcomes	Mandibular movements (mm) Masticator muscles tenderness Pressure Pain Threshold (PPT)

APPENDIX VIII: Characteristics of studies

	Pain levels (VAS)
Chronicity	Low disability
Hints to chronicity	Patients which received TMD/headache/bruxism treatment in the past two years were excluded. Patients with mental disorders were also excluded.
Duration	2 weeks of treatment (Ozon) and 4 weeks of (Splint) treatment
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "computer-generated randomization sequence"
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Low risk	Cite: "All clinical assessments were performed by a single researcher, who was blinded to the groups, for signs and symptoms of TMD that included muscle pains, joint pains, mouth openings, lateral excursions, and protrusion."
Incomplete outcome data (attrition bias)	Low risk	Cite: "however, one of the patients did not show up at the follow-up visit" Comment: one drop-out is unlikely to affect the outcomes.
Selective reporting (reporting bias)	Low risk	Clinical Trials: NCT02997410 All outcomes were reported
Other bias	Unclear risk	No differences in the baseline characteristics

Cen 2018

Methods	RCT. single centre; two parallel groups.
Participants	144 (136) patients: 86.76% women; mean age Group A 40.1 (SD±15.8); Group B 36.2 (SD±15.8). Inclusion criteria: males or females of 16–70 years old; be diagnosed as TMJ OA by RDC/TMD and cone beam CT (CBCT); consent to participate in the trial and can cooperate. Exclusion criteria: sensitive to feather or eggs or GS (Glucosamine) or other allergic diseases; get the same or other treatments of OA in the past 1 year; participated in other clinical trials in the past 3 months; have infections in the TMJ area; have severe diseases of heart, liver, kidney, or blood system. Country: China Clinic: TMJ Clinic of the Department of Oral Maxillofacial Surgery, West China Hospital of Stomatology, Sichuan University

APPENDIX VIII: Characteristics of studies

Interventions	Group A (n=72(67)): oral GS (Glucosamine)+ HA injection (intra-articular injection of 1.0 ml sodium HA into the superior and inferior space of TMJ, 1xweek for 4 weeks + 2x tablets of GS hydrochloride (Bumaixin, 240 mg) 3xday for 3 months. Group B (n=72(69)): oral placebo + HA injection (same treatment protocol as group GS + HA except that the tablets were placebo)
Outcomes	Maximum interincisal mouth opening (MMO) (mm) Levels of IL-1β, IL-6, and TGF-β in TMJ synovial (ELISA) TMJ pain (VAS)
Chronicity	Low disability
Hints to chronicity	Exclusion: treatment before
Duration	1 month + 1 year follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "The sequence of randomization was generated using SPSS (version 17. 0) by a statistician of Chinese Cochrane Centre and then kept in the Centre of Good Clinical Procedure of West China Hospital of Stomatology, Sichuan University."
Allocation concealment (selection bias)	Unclear risk	Cite: "The sequence list was disclosed for the group specification after the data input ended for the first time, and it was disclosed after all statistical analyses ended for the second time." Comment: need more information
Blinding of participants and personnel (performance bias)	Low risk	Cite: "The participants and clinicians as well as investigators enrolling the participants and assessing the outcomes were not aware of the allocation information during the trial."
Blinding of outcome assessment (detection bias)	Low risk	Cite: "The participants and clinicians as well as investigators enrolling the participants and assessing the outcomes were not aware of the allocation information during the trial."
Incomplete outcome data (attrition bias)	Low risk	Comment: reported about the dropouts and the number was balanced among the groups
Selective reporting (reporting bias)	Low risk	Reported about all the outcomes
Other bias	Low risk	Cite: "There was no significant difference either between group GS + HA and group placebo + HA or between the two aging groups (<45 and ≥45 years) of group GS + HA with respect to these items at baseline." and "The authors declare that there are no other competing interests."

Cigerim 2020

Methods	RCT. single centre; parallel groups

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Participants	169 patients: 78.1 % women; mean age 27.04 (SD±10.56) years old. Inclusion criteria: myofascial pain that was diagnosed by DC/TMD; patients older than 18 years, who were ASA 1 or ASA 2 (per ASA Physical Status Classification System, according to the anamnesis); complaint of clenching and tooth wear and/or fracture; normal preoperative TMJ MR examination; no TMJ sounds (clicking or crepitation); no interventional and/ or surgical procedure related to TMJ; no use of any drug in the last week; and complaints lasting more than 3 months. Exclusion criteria: smoking; para-low disability habits (determined by asking the patient and by clinical examinations); one or more tooth deficiencies; impacted third molar(s) (to prevent possible impacted toothache being confused with temporomandibular pain); pregnancy or nursing; allergy to study medication; unclear anamnesis; use of different or additional medication; non-compliance with the intended drug dosage; and non-compliance with the follow-up visits once. Time: January 2018-January 2019 Country: Turkey Clinic: Oral and Maxillofacial Surgery of the Faculty of Dentistry at Van Yüzüncü Yıl University
Interventions	Group A (n=42): naproxen sodium 550 mg (Apranax fort 550 mg tablet, BID) Group B (n=40): naproxen sodium 550 mg + codeine phosphate 30 mg (Apranax plus tablet, BID) Group C (n=40): naproxen sodium 550 mg + single-dose dexamethasone 8 mg (Apranax fort 550 mg tablet, BID + Kordexa 8 mg tablet, OD) Group D (n=47): paracetamol 500 mg //Before the initiation of the treatment, occlusal splints were produced for all patients, and patients were instructed to wear them for 8 hrs daily, along with taking the medication.
Outcomes	Pain (VAS)
Chronicity	Low disability
Hints to chronicity	Exclusion: treatment before and medication
Duration	4 weeks follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "Online software was used for the randomization (http://www.graphpad.com/quick calcs/randomize1.cfm)"
Allocation concealment (selection bias)	Low risk	Cite: "According to the results of the program, closed envelopes containing group numbers were selected by the patients, with supervision of auxiliary staff. Only the auxiliary staff knew the patient's group."
Blinding of participants and personnel	Low risk	Cite: " Neither the investigator nor the patient knew which drug was given..."

(performance bias)		
Blinding of outcome assessment (detection bias)	Low risk	Cite: " Neither the investigator nor the patient knew which drug was given..."
Incomplete outcome data (attrition bias)	Low risk	Cite: "Thirty-one patients were excluded from the study due to 26 patients having been lost to follow-up, 2 patients used different medication, and 3 patients did not comply with the intended drug dosage."
Selective reporting (reporting bias)	Low risk	All outcomes were reported. (Protocol Date/ No: 16.02.2018/12) and is registered at Clinical Trials. gov (Reg. No: NCT04066426)
Other bias	Low risk	Cite: "There was no statistically significant difference between the groups for age, gender, marital status, occupation, occlusion type of left/right side distributions; The authors report no conflict of interest."

Daif 2012

Methods	RCT. single centre; two parallel groups
Participants	60 patients: 81.66% women; age 22-46 years; mean age 32 years. Inclusion criteria: diagnosed as having internal derangement of the TMJ, disc displacement with reduction, by history and clinical examination. Exclusion criteria: generalized involvement of other joints and presence of pathologic changes affecting the osseous components of the TMJ. Country: Egypt Clinic: Department of Oral and Maxillofacial Surgery, Faculty of Oral and Dental Medicine, Cairo University
Interventions	Group A (n=30): direct injection of ozone gas into the superior joint space (each joint received 2 mL ozone-oxygen mixture, ozone gas concentration 10 g/mL, 2xweek for 3 weeks. Group B (n=30): nonsteroidal anti-inflammatory drugs and muscles relaxants.
Outcomes	Helkimo’s clinical dysfunction index: Joint noises and pain Masticatory muscle tenderness Range of mandibular motion Pain during mandibular movements
Chronicity	Unclear (high disability)
Hints to chronicity	Tertiary care
Duration	3 weeks of treatment; 2 weeks follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement

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Random sequence generation (selection bias)	Unclear risk	Cite: "They were divided randomly into 2 equal groups."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Low risk	No dropouts reported
Selective reporting (reporting bias)	Low risk	Reported about the Helkimo's clinical dysfunction index
Other bias	Unclear risk	A lot of important information missing!

Dalewski 2019

Methods	RCT. single centre; three parallel groups;
Participants	90 patients: 80 % women; mean age 30.73; 18-65 years old. Inclusion criteria: unilateral pain localized in the TMJ or in the preauricular area; who had no analgesic treatment around the head and neck during the last 12months; aged 18– 65years; no tooth losses within occlusal support zones. Exclusion criteria: bilateral pain; inflammation in the oral cavity that emerged as myospasm or preventive muscle contraction; earlier splint therapy; pharmacotherapy (e.g., oral contraception, hormone replacement therapy, and antidepressants); systemic diseases (e.g., rheumatic and metabolic diseases); lack of stability in the masticatory organ motor system; masticatory organ injury; pregnancy; patients undergoing orthodontic treatment; other types of inflammation in the oral cavity (e.g., pulp inflammation or impacted molars); fibromyalgia Time: 1st July 2016-1st December 2017 Country: Poland Clinic: Prosthetic Outpatient Clinic of Pomeranian Medical University
Interventions	Group A (n=30): occlusal appliance (OA) with nonsteroid anti-inflammatory drug (NSAID) therapy (nimesulide) Group B (n=30): occlusal appliance with dry needling (DN) Group C (n=30): occlusal appliance therapy (OA-control group)
Outcomes	Pain (VAS) Sleep and Pain Activity Questionnaire (SPAQ)
Chronicity	Low disability
Hints to chronicity	Patients with localized pain, no treatment before and no analgetic misuse were included.
Duration	3 weeks treatment
Notes	

Risk of bias table

Bias	Authors'	Support for judgement

APPENDIX VIII: Characteristics of studies

	judgement	
Random sequence generation (selection bias)	Low risk	Cite: "Sealed, opaque envelopes were used for randomization as well as for achieving equal number of patients in each group."
Allocation concealment (selection bias)	Low risk	Cite: "Sealed, opaque envelopes were used for randomization as well as for achieving equal number of patients in each group."
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Low risk	Cite: "One examiner performed all clinical examination, splint therapy, and dry needling and controlled the visits of all patients. Another operator, blinded to patients group assignments, performed data acquisition throughout control appointments."
Incomplete outcome data (attrition bias)	Low risk	No dropouts recorded
Selective reporting (reporting bias)	Low risk	Study protocol given: NCT03400462. All the outcomes reported
Other bias	Low risk	Cite: "The authors declare that they have no conflicts of interest." "Comparison of pain intensity between control group and both treated groups result in the pre-treatment stage shows no significant difference."

Damlar 2015

Methods	RCT. single centre; two parallel groups
Participants	34 patients: 100% women; age 18-40 years; mean age 28.6 (SD±6.89). Inclusion criteria: internal derangement of TMJ including Wilkes II or III; pain (longer than 4 weeks; limitation in mouth opening who had anterior disc displacement. Exclusion criteria: previously treated (any invasive treatment or non-steroidal anti-inflammatory drugs) for TMJ. Country: Turkey Clinic: not stated
Interventions	Group A (n=16): combination of 1500 mg glucosamine + 1200 mg chondroitin sulphate Group B (n=15): 50 mg tramadol HCl (twice daily) for pain control
Outcomes	Levels of pain (NRS) Maximum mouth opening (mm) Synovial fluid IL-1ß, IL-6, TNF-α and PGE2
Chronicity	Low disability
Hints to chronicity	Exclusion criteria: previously treated (any invasive treatment or non-steroidal anti-inflammatory drugs) for TMJ
Duration	8 weeks
Notes	

APPENDIX VIII: Characteristics of studies

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: "The patients were randomly assigned into 2 groups."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Cite: "The sampling procedures were performed by another researcher who did not know the groups of the patients formally. Moreover, during second sampling procedures, the results of the first samplings were masked"
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Unclear risk	Cite: "Three subjects were excluded due to blood aspiration and 1 due to vertigo owing to tramadol HCL. No other adverse effect was observed in either of the groups." Comment: didn't use intention-to-treat and not quite clear from which group the dropouts belonged to.
Selective reporting (reporting bias)	Low risk	Reported all the outcomes
Other bias	Unclear risk	No further inequalities

de Carli 2013

Methods	RCT. single centre; three parallel groups.
Participants	32 patients: 90.63% women; 18-58 years old, mean age 32.4. Inclusion criteria: patients of both sexes; over the age of 18 years and arthralgia in at least one of the TMJ according to Dworkin and LeResche; occlusal contacts in four premolars and four molars, checked with shim stock film of 12 microns. Exclusion criteria: osteoarthritis or osteoarthrosis of the TMJ; allergy to NSAIDs; gastric disorders; neurological disorders; suspected TMJ's tumours; recent mandibular fracture; systemic inflammatory disorders; autoimmune disorders; partial or full removable dentures; pregnancy; breastfeeding; intake analgesic and anti-inflammatory drugs for at least 15 days before the trial. Country: Brazil Clinic: Orofacial Pain and TMD Clinic in the Department of Stomatology at the School of Dentistry of the University of Sao Paulo
Interventions	Group A (n=11): active laser + placebo piroxicam Group B (n=10): placebo laser + piroxicam Group C (n=11): active laser + piroxicam The treatment was performed twice a week, over a 10-day period, with an 808 nm GaAlAs (Gallium–Alu- minimum–Arsenide) diode laser (Thera Laser). LLLT was performed with an output power of 100 mW, a time of 28 s

	for each point and energy density of 100 J cm2 at each point (energy per point of 28 J and total energy of 56 J, considering spot size of 0028 cm2 of the used laser equipment) The patients were instructed to take one capsule a day of piroxicam 20 mg (18) or placebo piroxicam for 10 consecutive days, concomitant to the laser therapy. The placebo piroxicam was like the piroxicam in appearance. All patients were informed about the possible side effects of piroxicam.
Outcomes	Pain (VAS) Maximum mouth opening (mm) Joint and muscle (temporal and masseter) pain on palpation
Chronicity	Mixed
Hints to chronicity	Comment: The author sends us information about the patients 22 patients were Grade I-II, and 10 patients were Grade III-IV
Duration	10 days treatment; 30 days follow-up.
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "The method of randomisation used was the computerised random numbers that was generated using the web site 'www.randomization.com' by one of the non-treating authors."
Allocation concealment (selection bias)	Low risk	Cite: "Simple randomisation with a 1:1:1 allocation was used
Blinding of participants and personnel (performance bias)	Low risk	Cite: "In this double-blind randomised controlled trial (RCT), patients and research therapists were unaware of which treatment the subjects received during both the intervention and follow-up phases."
Blinding of outcome assessment (detection bias)	Low risk	Cite: "In this double-blind randomised controlled trial (RCT), patients and research therapists were unaware of which treatment the subjects received during both the intervention and follow-up phases." and Cite „The research therapists were blind to group distribution."
Incomplete outcome data (attrition bias)	Low risk	Reported about all dropouts.
Selective reporting (reporting bias)	Low risk	All outcomes reported.
Other bias	Unclear risk	Cite: "The authors declare no conflict of interest."

De Carli 2016

Methods	RCT. single centre; two parallel groups;
Participants	15 patients: 87% women; mean age 38 years old. Inclusion criteria: unilateral or bilateral myofascial pain lasting more than a

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	month; complaint of pain in mouth opening; bruxism, clenching, or tooth wear. Exclusion criteria: pregnancy and breastfeeding; heart disease and pacemaker; malignant tumour; degenerative joint diseases, psoriasis, and rheumatoid arthritis; myasthenia gravis and Lambert Eaton's syndrome; congenital abnormalities; recent history of trauma; treatment for pain in the month prior to the study; psychic disorders; dental diseases such as caries or pulpitis; epilepsy; use of chronic medication, occlusal splint or other treatment for pain control; use of aminoglycosides; allergy to lactose; tetanus vaccine in the last 12 months. Country: Brazil Clinic: Dental Clinic of the University of Passo Fundo
Interventions	Group A (n=8): low-level laser (low-level GaAlAs laser, 100 mW of power at a wavelength of 830 nm in continuous light emission) Group B (n=7): toxin group (received 30 U of botulinum toxin type A (BTX-A) in the first session, and 15 U after 15 days)
Outcomes	Pain (VAS) Mouth opening (mm)
Chronicity	Low disability
Hints to chronicity	1. Exclusion: treatment for pain in the month prior to the study 2. Exclusion: psychic disorders 3. Exclusion: use of chronic medication, occlusal splint, or other treatment for pain control
Duration	15 days treatment
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "Randomization was performed through an online program (www.random.org)."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Low risk	Reported about the dropouts. No follow-up.
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	Free of other bias

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De la Torre 2020

Methods	RCT. single centre; parallel groups
Participants	100 patients: 100% women; mean age 36.8 (SD±5.6) years old. Inclusion criteria: female; age 18-45 years old; contraceptive use; MP (RDC/TMD) = three months; complete dentition (except third molar); at least 50 mm in VAS at baseline; previous treatments for MP Exclusion criteria: history of trauma in the face/neck; systematic diseases (arthritis/arthrosis); major psychiatric disorders; use of drug acting on neuromuscular junctions; hypersensitivity to botulinum toxin A; anti-tetanus vaccine 3 months before experiment. Time: n.a. Country: Brazil Clinic: TMD Clinic of Piracicaba Dental School, University of Campinas, São Paulo, Brazil
Interventions	Group A (n=20): oral appliance (OA) (instructed to use the OA during sleep) Group B (n=20): saline solution (SS) Temporal: 0.4ml Masseter: 1ml Group C (n=20): BoNT-A Low Temporal:10 U Masseter: 30 U Group D (n=20): BoNT-A-Median Temporal:20 U Masseter: 50 U Group E (n=20): BoNT-A-High Temporal:25 U Masseter: 75 U
Outcomes	Pain intensity (VAS) Pressure pain threshold Electromyography (EMG) Masticatory Performance (MP) Ultrasound Imaging (UI) Cone Beam Computed Tomography (CBCT)
Chronicity	High disability
Hints to chronicity	1. Inclusion: previous treatment for TMD 2. Tertiary care
Duration	24 weeks follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "For this allocation, computer software (Isfahan, Iran https://random-allocation-software.software.informer.com/2.0/) was operated by a technician not involved in any other procedures in the study."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Cite: "Subjects and investigators were masked to BoNT-A and SS assignments, while investigators assessing the outcomes were masked to all treatment assignments."

Blinding of outcome assessment (detection bias)	Low risk	Cite: "Subjects and investigators were masked to BoNT-A and SS assignments, while investigators assessing the outcomes were masked to all treatment assignments."
Incomplete outcome data (attrition bias)	Unclear risk	No information given
Selective reporting (reporting bias)	Low risk	Brazilian Registry of Clinical Trials (ReBEC RBR-2d4vvv) All outcomes were reported
Other bias	Unclear risk	Cite: " The authors declare no conflict of interest."

de Souza 2018

Methods	RCT. single centre; two parallel groups;
Participants	66 patients: 94% women; mean age 46.14 (SD±10.91). Inclusion criteria: myalgia DC/TMD; sufficient cognitive levels to understand procedures; follow instructions without the assistance of another person. Exclusion criteria: patients who changed their systemic medications 3 months before the beginning of the treatments; those who related the previous experience of an allergic reaction to lidocaine or do not agree to participate voluntarily in this research. Country: Brazil Clinic: "two centres of orofacial pain (one public and one private), located in a small capital of the Northeast of Brazil."
Interventions	Group A (n=33): LLLT irradiation by Diode Laser GaAlAs (780nm) with expositions twice a week during six weeks Group B (n=33): anaesthetic infiltration of lidocaine 2% without vasoconstrictor once a week for four weeks
Outcomes	Pain (VAS) Tenderness to palpation
Chronicity	High disability
Hints to chronicity	1. Fibromyalgia diagnosis criteria from the American College of Rheumatology
Duration	4-6 weeks treatment
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "The block randomization was performed in Microsoft® Excel® 2016 software after the codification of each volunteer."
Allocation concealment (selection bias)	Unclear risk	No information on how
Blinding of participants and personnel (performance bias)	Unclear risk	No information on how

Blinding of outcome assessment (detection bias)	Low risk	Cite: „accomplished by research blinded."
Incomplete outcome data (attrition bias)	Low risk	All the volunteers completed the study
Selective reporting (reporting bias)	Low risk	All outcomes reported. Study protocol given
Other bias	Unclear risk	Cite: "The authors declare that they have no conflict of interest"

DeNucci 1998

Methods	RCT. single centre; two parallel groups
Participants	20 patients: 90% women; age 20-55 years; mean age 39.2 (SD±9.7). Inclusion criteria: unilateral/bilateral pain associated with the muscles of mastication and/or the TMJ with/without an accompanying decrease in mandibular range of motion Exclusion criteria: clinical depression requiring immediate psychiatric care; having trigeminal or glossopharyngeal neuralgia/neurologic deficit; significant systemic disease; allergic to the study drug; involved in litigation related to TMD. Country: USA Clinic: not stated
Interventions	Group A (n=10): Triazolam (0.125 mg triazolam tablets) Group B (n=10): placebo (matching placebo tablets)
Outcomes	Sleep (Sleep Quality) Pain Intensity (VAS) Mandibular range of motion (mm) Pain Pressure threshold
Chronicity	Low disability
Hints to chronicity	Patients were excluded from the study with clinical depression
Duration	4 nights 2 weeks follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: "Subjects were randomized ..."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given

Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Low risk	Cite: "one patient did not report pain at any of the study appointments, including baseline on the first day of the study, or in the pain diaries; this subject's data were omitted from the rest of the analyses."
Selective reporting (reporting bias)	Low risk	Reported all the outcomes
Other bias	Unclear risk	No further inequalities

Di Rienzo Businco 2004

Methods	RCT. single centre; two parallel groups.
Participants	36 patients: 52.8% women; age 34-61 years old, median age 43 years. Inclusion criteria: Dysfunction of the TMJ Exclusion criteria: affected by inflammation of the middle ear. Country: Italy Clinic: Otorhinolaryngology Unit, S. Eugenio Hospital, Rome
Interventions	Group A (n=18): oral diclofenac sodium administered after a meal in 50 mg tablets x2/day for 14 days. Group B (n=18): 16 mg/ml topical diclofenac (diclofenac topical solution, 10 drops x4/day for 14 days) (40 drops correspond to 1 ml of topical solution and thus contain 16 mg of diclofenac sodium in a carrier containing DMSO)
Outcomes	Pain (VAS) Low disability limitation of mouth opening (VAS) Side-effects of the treatment
Chronicity	High disability
Hints to chronicity	Patients were taking painkiller when needed (paracetamol or NAIDs) and were recruited from a tertiary care.
Duration	No follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: "The patients were randomized in two age- and sex-matched groups."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	High risk	per mail: "No nobody was blinded"
Blinding of outcome assessment (detection bias)	High risk	per mail: "No nobody was blinded"

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Incomplete outcome data (attrition bias)	Low risk	per mail: "We did not have drop out."
Selective reporting (reporting bias)	Low risk	Reported all the outcomes
Other bias	Unclear risk	No further inequalities

Doğan 2014

Methods	RCT. single centre; two parallel groups.
Participants	63 patients: 85.71% women; mean age Group A 32.7 (SD±9.2); Group B 34.7 (SD±10.0). Inclusion criteria: major complaint of acute pain in the joint on at least one side. Exclusion criteria: degenerative joint diseases such as osteoarthritis, rheumatoid arthritis, and gout causing TMJ dysfunction. Country: Turkey Clinic: Department of Otolaryngology due to complaints of TMJ pain or dysfunction
Interventions	Group A (n=33): ozone therapy (3x per week for 10 min) Group B (n=30): ketoprofen 150 mg tablet x2/day (300 mg/day; +1 thiocolchicoside 8-mg capsule x2/day (16 mg/day) for 7 days
Outcomes	Pain (VAS) Interincisal mouth opening (MMO) (mm) Clicking sounds
Chronicity	High disability
Hints to chronicity	1. per mail: "Did they receive any treatment before participating in the study? Yes, for 6 months prior to the procedure, they were treated with pain relievers, anti-inflammatory drugs, and physical therapy and splinting." 2. Tertiary care
Duration	7 days follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "The sealed envelope technique was used for randomization."
Allocation concealment (selection bias)	Unclear risk	Cite: "The sealed envelope technique was used for randomization." Comment: need further information about the envelops
Blinding of participants and personnel (performance bias)	High risk	per mail: "No, it is random, but not blind, because it was necessary to prepare the product"
Blinding of outcome assessment (detection bias)	Low risk	Cite: "All measurements and recordings were performed by the same researcher (D.Ö.D.) who was

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		blinded to the groups."
Incomplete outcome data (attrition bias)	Low risk	No dropouts according to the tables
Selective reporting (reporting bias)	High risk	Comment: No information about the clicking
Other bias	Low risk	Cite: "The demographics of all patients are given in table 1, and there were no differences between the groups." "The authors have no conflicts of interest to disclose."

Ekberg 1996

Methods	RCT. single centre; two parallel groups.
Participants	32 patients: 84.38 % women; mean age 47; age range 27-82. Inclusion criteria: age more than 20 years; presence of pain localized to the TMJ for at least 6 weeks; lateral or posterior tenderness to the TMJ; not subjected to treatment of the TMJ with steroid or non-steroid anti-inflammatory drugs within the last 4 weeks before the trial; Exclusion criteria: general joint/muscle disease; symptoms that could be referred to disease in other components of the stomatognathic system; recent history of peptic ulceration. Country: Sweden Clinic: Dept. of Stomatognathic Physiology, Lund University
Interventions	Group A (n=16): diclofenac sodium (Voltaren), 50 mg two or three times a day Group B (n=16): placebo (identical appearance and with the same dosage schedule)
Outcomes	Pain (VAS) Treatment effect (frequency of joint and muscle pain) Clinical condition (tenderness to palpation, mandibular mobility) TMJ sounds (clicking and crepitation) Soft tissue swelling Maximum opening capacity<40mm Deviation >2 mm during mouth opening
Chronicity	Low disability
Hints to chronicity	1. Presence of pain localized to the TMJ for at least 6 weeks, and lateral or posterior tenderness to the TMJ 2. Patients were not subjected to treatment of the TMJ with steroid or non-steroid anti-inflammatory drugs within the last 4 weeks before the trial
Duration	2 weeks follow up
Notes	Further publications: "Treatment of TMDs of arthrogenous origin. Controlled double-blind studies of a non-steroidal anti-inflammatory drug and a stabilisation appliance." (Ekberg, 1998)

Risk of bias table

Bias	Authors'	Support for judgement

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	judgement	
Random sequence generation (selection bias)	Unclear risk	Cite: "After the first examination the patients were allocated at random to two equally sized groups of 16 individuals."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Cite: "All of the patients were examined by one and the same investigator at all visits, and both the investigator and patient were blind to the kind of treatment."
Blinding of outcome assessment (detection bias)	Low risk	Cite: "All of the patients were examined by one and the same investigator at all visits, and both the investigator and patient were blind to the kind of treatment."
Incomplete outcome data (attrition bias)	Low risk	No dropouts according to the tables
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	No further inequalities

Ernberg 2011

Methods	RCT. multi-centre; two parallel groups.
Participants	21 patients: 90.5% women; mean age 38 (SD±12). Inclusion criteria: age >18 years; diagnosis of myofascial pain (RDC/TMD) with pain that persisted despite conservative treatment for at least 6 months; average pain intensity from the craniofacial region of P30mm on a 0–100mm (VAS) during 1 week before examination. Exclusion criteria: systemic inflammatory connective tissue diseases (rheumatoid arthritis; ankylosing spondylitis; psoriatic arthritis); whiplash-associated disorder; fibromyalgia; neuropathic pain or neurological disorders; pain of dental origin; use of muscle relaxants; aminoglycoside antibiotics. Country: Sweden Clinic: treated at the orofacial pain clinics at Karolinska Institute, Eastman Institute, Malmö University, or Aarhus University, or were referred to these clinics because of persistent myofascial TMD pain.
Interventions	Group A (n=12): 50 U of BTX-A, then saline as (control) (all patients received both BTX-A and control vehicle but in different orders) Group B (n=9): isotonic saline (control)
Outcomes	Pain intensity at rest (VAS) Physical and emotional function Global improvement Side effects Clinical measures
Chronicity	Low disability
Hints to chronicity	Disability points median 1-2
Duration	3 months

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Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "Randomization was performed for all centres together by an Internet-based computer program (http://www.randomiza-tion.com) in blocks of 4 patients (block size unknown to investigators)"
Allocation concealment (selection bias)	Unclear risk	Cite: „...put in a sealed opaque envelope" Comment: no information about the numbering
Blinding of participants and personnel (performance bias)	Low risk	No information given apart from „...double-blind crossover design“. Comment: but we can assume the patients were also blinded. Cite: "The research assistant handed over the syringe with the drug to be injected to the investigator’s dental assistant to ensure that the patient, the investigator, and the dental assistant were blinded. BTX-A and saline have the same colourless appearance."
Blinding of outcome assessment (detection bias)	Unclear risk	Cite: "A randomized and double-blind crossover design was used..." Comment: "no information about the examiner..."
Incomplete outcome data (attrition bias)	Low risk	Cite: "The research assistant handed over the syringe with the drug to be injected to the investigator’s dental assistant to ensure that the patient, the investigator, and the dental assistant were blinded..."
Selective reporting (reporting bias)	Low risk	Reported all the outcomes stated
Other bias	Unclear risk	Cite: "The authors do not have any financial relationships that might lead to a conflict of interest."

Ferrante 1998

Methods	RCT. single centre; two crossover groups
Participants	23 patients: 73.9% women; mean age Group A 42.2 (SD±3.1); Group B 37.8 (SD ±2.9). Inclusion criteria: myofascial pain had been present for 6 months or longer in the head, neck, and shoulders. Exclusion criteria: fibromyalgia (as defined by the criteria of the American College of Rheumatology). Country: USA Clinic: From the Pain Medicine Centre, Hospital of the University of Pennsylvania, The University of Pennsylvania, Philadelphia, Pennsylvania
Interventions	Group A (n=13): Sphenopalatine ganglion block (SPGB) with 4% lidocaine, then TPI with 1% lidocaine, and finally SPGB with saline placebo Group B (n=10): Sphenopalatine ganglion block (SPGB) with saline

	placebo, then TPI with 1% lidocaine, and finally SPGB with 4% lidocaine
Outcomes	Intensity of pain (VAS) Pain relief score
Chronicity	High disability
Hints to chronicity	Patients received treatment and medication before and were recruited from secondary care.
Duration	4 weeks
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: "were then randomly assigned to one of two treatment protocols"
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Cite: „...contents of the pledgers were unknown to both the patient and the investigator performing the block"
Blinding of outcome assessment (detection bias)	Unclear risk	Comment: no information about the examiner
Incomplete outcome data (attrition bias)	Unclear risk	No information about dropouts
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	Cite: "There were no differences in demographic data or the distribution of trigger points and myofascial pain to specific muscles between the two treatment groups."

Gencer 2014

Methods	RCT. single centre; four parallel groups;
Participants	100 patients: 55% women; age 20-65 years; mean age 42.5 (SD±10.2). Inclusion criteria: late intermediate (IV) and late (V) stage patients. Control groups selected from early stage (I) patients (Wilke's classification). Exclusion criteria: recent operations; systemic disorders; fibromyalgia syndromes; known hypersensitivity to NSAIDs; positive history for peptic ulcer; presence of headache or earache due to other reasons. Time: April 2010-January 2013 Country: Turkey Clinic: Department of Otolaryngology of Bozok University School of Medicine
Interventions	Group A (n=25): Hyaluronic acid (HA, Hyalgan intra-articular injection,

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	Sodium hyaluronate, 10 mg/ml, 2 ml injection syringe) Group B (n=25): Betamethasone (Diprospan flacon, 7.0 mg betamethasone/1 ml) Group C (n=25): Tenoxicam (Tilcotil flacon, 20 mg tenoxicam/ml) Group D (n=25): control group (intra-articular saline injections)
Outcomes	Pain and sensation of discomfort (VAS)
Chronicity	High disability
Hints to chronicity	"Non-responders to conventional anti-inflammatory treatment for TMJ complaints."
Duration	1st and 6th weeks follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "The patients were randomly allocated according to a computer-generated randomization list"
Allocation concealment (selection bias)	Unclear risk	Not mentioned
Blinding of participants and personnel (performance bias)	Low risk	Cite: "Both the patient and the investigator were unaware of intra-articular medication used"
Blinding of outcome assessment (detection bias)	Low risk	Cite: "Both the patient and the investigator were unaware of intra-articular medication used"
Incomplete outcome data (attrition bias)	Low risk	No dropouts according to the tables
Selective reporting (reporting bias)	Low risk	Reported the outcome stated
Other bias	Low risk	Cite: "The four groups were similar in terms of demographic parameters" and "None of the authors has any conflict of interest, financial or otherwise"

Gerschman 1984

Methods	RCT. single centre; two crossover groups
Participants	32 patients: 73.33% women; mean age Group A 34.6 (SD±11.2); Group B 29.7 (SD±9.4). Inclusion criteria: pain caused by TMJPDS present for at least three months. Exclusion criteria: less than I2 years of age; unable to comprehend the study format; could not intelligently record their pain status; occupation involved driving motor vehicles; operating machinery. Country: Australia Clinic: Oro-Facial Pain Clinic, The Royal Dental Hospital of Melbourne, and

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	the Melbourne Pain Management Clinic.
Interventions	Group A (n=14): active group (Mersyndol A bottle and diazepam C bottles) Group B (n=16): placebo B bottles and diazepam D bottles
Outcomes	Pain (VAS)
Chronicity	Unclear (High disability)
Hints to chronicity	1. Orofacial Pain Clinic the Royal Dental Hospital of Melbourne, and the Melbourne Pain Management Clinic 2. Month of pain: 38.4 -53.4 3. VAS: 67.4 (±14.5)
Duration	1 week of active vs 1 week of placebo
Notes	The patients were changed to active or placebo medication after one week to obtain a crossover effect and the trial was continued for another week

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "predetermined randomization code so that the trial was conducted double blind.
Allocation concealment (selection bias)	Low risk	Cite: "Tablets were packed, labelled, coded and randomized by the medical monitor. Sealed copies of the code were held by the medical monitor and the hospital pharmacist." Comment: extern
Blinding of participants and personnel (performance bias)	Unclear risk	Cite: "a double-blind crossover trial." Comment: no further information
Blinding of outcome assessment (detection bias)	Unclear risk	see above
Incomplete outcome data (attrition bias)	Low risk	Cite: "One patient withdrew because of objection to being part of an experiment. Another patient was completely pain-free after one week and no longer wished to participate in the study."
Selective reporting (reporting bias)	Low risk	Reported the outcomes
Other bias	Unclear risk	Cite: "There were no significant differences found between the two groups according to age, sex, the duration of pain, the initial severity of pain or the sequence in which the placebo and Mersyndol were taken"

Gokçe 2019 lateral pain on palpation

Methods	RCT. single centre; three parallel groups
Participants	Cases with lateral knee pain on palpation

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	31 patients: 67.7 % women; mean age Group A 36.4 (SD±8.2); Group B 37.4 (SD±9.9); Group C 34.5 (SD±9.3). Inclusion criteria: n.a. Exclusion criteria: hematologic and neurological; inflammatory; connective tissue; malignant disease in the head and neck region; under 16 years of age; pregnant women; those who were treated for TMJ disease unrelated to TMJ osteoarthritis and cases that received craniofacial surgery. Time: April 2017-April 2018 Country: Turkey Clinic: Department of Otorhinolaryngology of our tertiary centre
Interventions	Group A (n=13): Platelet-Rich Plasma (PRP) (1 mL doses at a 1- month intervals under ultrasonographic guidance; 25 mL of autologous blood was obtained from cubital vessel, the blood sample was put into GPS III platelet separator system and was centrifuged in 2 sessions including soft spin (3000 rpm, 3 minutes) allowing separation of the blood into 3 layers; bottom-most erythrocyte layer; top-most platelet poor plasma, and the intermediate PRP layer and then hard spin (4000 rpm, 3 minutes) allowing formation of the PRP; Hyaluronic acid and triamcinolone acetate was injected into the degenerative joint of the patients in the HA and CS groups) Group B (n=12): Hyaluronic Acid (HA) Group C (n=6): Corticosteroid Injections (CS)
Outcomes	Pain (5- point pain scale) Presence of crepitation Loss of function Loss of strength
Chronicity	Unclear (high disability)
Hints to chronicity	Recruited from tertiary care
Duration	Follow up 3 months
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: "Patients who were evaluated in the study were randomly assigned to 3 different treatment groups as Group 1 (PRP), Group 2 (HA), and Group 3 (CS)."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Unclear risk	No information given

Incomplete outcome data (attrition bias)	Unclear risk	No information given
Selective reporting (reporting bias)	Low risk	All outcomes were reported
Other bias	Low risk	Cite: "There was no statistically significant difference among the treatment groups with lateral and posterior palpation pain in terms of mean age, female–male distribution, localization, and median duration of pain (P>0.05). The authors report no conflicts of interest."

Gokçe 2019 posterior pain on palpation

Methods	RCT. single centre; three parallel groups
Participants	Cases with posterior knee pain on palpation 43 patients: 53.5 % women; mean age Group A 33.7 (SD±10.4); Group B 34.7 (SD±10.1); Group C 34.6 (SD±10.0). Inclusion criteria: n.a. Exclusion criteria: hematologic and neurological; inflammatory; connective tissue; malignant disease in the head and neck region; under 16 years of age; pregnant women; those who were treated for TMJ disease unrelated to TMJ osteoarthritis and cases that received craniofacial surgery. Time: April 2017-April 2018 Country: Turkey Clinic: Department of Otorhinolaryngology of our tertiary centre
Interventions	Group A (n=12): Platelet-Rich Plasma (PRP) (1 mL doses at a 1- month intervals under ultrasonographic guidance; 25 mL of autologous blood was obtained from cubital vessel, the blood sample was put into GPS III platelet separator system; centrifuged in 2 sessions including soft spin (3000 rpm, 3 minutes) allowing separation of the blood into 3 layers [bottom-most erythrocyte layer, top-most platelet poor plasma, and the intermediate PRP layer (Buffy coat)] and then hard spin (4000 rpm, 3 minutes) allowing formation of the PRP; Hyaluronic acid; triamcinolone acetate; injected into the degenerative joint of the patients in the HA and CS groups) Group B (n=14): Hyaluronic Acid (HA) Group C (n=17): Corticosteroid Injections (CS)
Outcomes	Pain (5- point pain scale) Presence of crepitation Loss of function Loss of strength
Chronicity	Unclear (high disability)
Hints to chronicity	Recruited from tertiary care
Duration	Follow up 3 months
Notes	

Risk of bias table

Bias	Authors'	Support for judgement

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	judgement	
Random sequence generation (selection bias)	Unclear risk	Cite: "Patients who were evaluated in the study were randomly assigned to 3 different treatment groups as Group 1 (PRP), Group 2 (HA), and Group 3 (CS)."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Unclear risk	No information given
Selective reporting (reporting bias)	Low risk	All outcomes were reported
Other bias	Low risk	Cite: "There was no statistically significant difference among the treatment groups with lateral and posterior palpation pain in terms of mean age, female–male distribution, localization, and median duration of pain (P>0.05). The authors report no conflicts of interest."

Goncalves 2013 (soft splint groups)

Methods	RCT. single centre; four parallel studies;
Participants	94 patients: 100% women; mean age 34.3 (SD±8.8). Inclusion criteria: migraine with or without aura according to the second edition of the international classification of Headache Disorders (icHD-2) (first attack before the age of 50 years); from 2-14 days of headache per month; myofascial TMD with grade ii or iii of TMD chronic pain (RDC/TMD); adequate bilateral occlusal contacts between premolars and molars. Exclusion criteria: abuse of alcohol or other drugs; medication-overuse headache according to the criteria proposed by the icHD-227; use of migraine prophylaxis over the 6 months prior to the study; use of antidepressants or antipsychotics in the previous 3 months; known sensitivity to the drugs used in this study; women of childbearing potential who were not using contraceptives; women with other chronic diseases. Country: Brazil Clinic: tertiary orofacial pain centre
Interventions	Group A (n = 22): propranolol 30mg/d and SS (stabilization splint) Group B (n = 23): propranolol placebo and SS (stabilization splint) Group C (n=23): propranolol and non-occlusal splint (NOS) Group D (n=21): propranolol placebo and NOS
Outcomes	Migraine frequency and intensity of the migraine attacks (diary, VAS)) MIDAS Score Number of days of migraine

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	Mean intensity of facial pain, VAS) Pain-Pressure-Threshold (PPT, masseter) Mandibular vertical range of motion (mm) (unassisted)
Chronicity	Mixed
Hints to chronicity	GCPS: 55.3% Grade II, 44.7% Grade III
Duration	3 months treatment; 6 month follow up
Notes	During the run-in phase, participants could use ibuprofen 600 mg and metoclopramide 10 mg for the acute treatment of migraine. (These rescue medications could be used throughout the study; no other medications other than the study drugs were allowed)

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "A blocked randomization method was applied"
Allocation concealment (selection bias)	Unclear risk	Cite: "Since a final sample of 80 patients was needed, one of the authors (DAGG) prepared 25 envelopes (yielding 100 patients and anticipating a dropout rate of 20%) containing 4 numbers linked to each treatment group. Each patient removed one of these numbers until envelope completion“. Comment: Need more information about the envelops.
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies. Cite: "Since all splints partially covered the buccal and palatal surfaces of the maxillary teeth, the patients’ perception of treatment was similar, and they could not distinguish between SS and NOS" Cite: "The splints were developed by one investigator (DAGG), who did not participate in further steps of the protocol to maintain blinding of the study. Propranolol was started at a dose of 30 mg/day and the dose was increased to 30 mg two times per day in the second week and 30 mg three times per day from the third week. Placebo pills were made identical to the propranolol and were given to patients in the same regimen during the blinded phase."
Blinding of outcome assessment (detection bias)	Low risk	Cite: "a blinded investigator applied the MiDaS questionnaire at baseline, month 3, and month 6."
Incomplete outcome data (attrition bias)	Low risk	Used Intent-to-treat-Analyse. Four dropouts, equally balanced and reasons given on why they dropped out.
Selective reporting (reporting bias)	Low risk	All the outcomes reported. Study protocol available
Other bias	Unclear risk	Cite: "The randomization yielded four groups that were very similar at baseline"

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Goncalves 2013a (NOS groups)

Methods	RCT. single centre; four parallel studies;
Participants	94 patients: 100% women; mean age 34.3 (SD±8.8). Inclusion criteria: migraine with or without aura according to the second edition of the international classification of Headache Disorders (icHD-2) (first attack before the age of 50 years); from 2-14 days of headache per month; myofascial TMD with grade ii or iii of TMD chronic pain (RDC/TMD); adequate bilateral occlusal contacts between premolars and molars. Exclusion criteria: abuse of alcohol or other drugs; medication-overuse headache according to the criteria proposed by the icHD-227; use of migraine prophylaxis over the 6 months prior to the study; use of antidepressants or antipsychotics in the previous 3 months; known sensitivity to the drugs used in this study; women of childbearing potential who were not using contraceptives; women with other chronic diseases. Country: Brazil Clinic: tertiary orofacial pain centre
Interventions	Group A (n = 22): propranolol 30mg/d and SS (stabilization splint) Group B (n = 23): propranolol placebo and SS (stabilization splint) Group C (n=23): propranolol and non-occlusal splint (NOS) Group D (n=21): propranolol placebo and NOS
Outcomes	Migraine frequency and intensity of the migraine attacks (diary, VAS)) MIDAS Score Number of days of migraine Mean intensity of facial pain, VAS) Pain-Pressure-Threshold (PPT, masseter) Mandibular vertical range of motion (mm) (unassisted)
Chronicity	Mixed
Hints to chronicity	GCPS: 55.3% Grade II, 44.7% Grade III
Duration	3 months treatment; 6 month follow up
Notes	During the run-in phase, participants could use ibuprofen 600 mg and metoclopramide 10 mg for the acute treatment of migraine. (These rescue medications could be used throughout the study; no other medications other than the study drugs were allowed)

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "A blocked randomization method was applied"
Allocation concealment (selection bias)	Unclear risk	Cite: "Since a final sample of 80 patients was needed, one of the authors (DAGG) prepared 25 envelopes (yielding 100 patients and anticipating a dropout rate of 20%) containing 4 numbers linked to each treatment group. Each patient removed one of these numbers until envelope completion“. Comment: Need more information about the envelops.

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Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies. Cite: "Since all splints partially covered the buccal and palatal surfaces of the maxillary teeth, the patients' perception of treatment was similar, and they could not distinguish between SS and NOS" Cite: "The splints were developed by one investigator (DAGG), who did not´ participate in further steps of the protocol to maintain blinding of the study. Propranolol was started at a dose of 30 mg/day and the dose was increased to 30 mg two times per day in the second week and 30 mg three times per day from the third week. Placebo pills were made identical to the propranolol and were given to patients in the same regimen during the blinded phase." "
Blinding of outcome assessment (detection bias)	Low risk	Cite: "a blinded investigator applied the MiDaS questionnaire at baseline, month 3, and month 6."
Incomplete outcome data (attrition bias)	Low risk	Used Intent-to-treat-Analyse. Four dropouts, equally balanced and reasons given on why they dropped out.
Selective reporting (reporting bias)	Low risk	All the outcomes reported. Study protocol available
Other bias	Unclear risk	Cite: "The randomization yielded four groups that were very similar at baseline"

Gonzalez-Perez 2015

Methods	RCT. single centre study; two parallel groups; 70 days follow up.
Participants	48 patients: 79.17% women; age 18-65 years; mean age Group A 34.3 (SD±13.8); Group B 35.5 (SD±11.2). Inclusion criteria: patients with temporomandibular myofascial pain of more than six months' duration only or with moderate limitation of mandibular movement (interincisal opening limited to <40 mm and passive stretching required to force the opening by ≥ 5 mm, according to Group I criteria of the International RDC-TMD Consortium; with the presence of TPs in the LPM; strong pain in the anterior part of the lower belly of the LPM on palpation; deep-seated pain in the TMJ and/or region of the maxillary sinus (referred pain); significant motor dysfunction (limited jaw opening, painful protrusion of the chin against resistance, mandibular lateralization to the opposite side upon opening). Exclusion criteria: TMJ internal derangements with anterior disk displacement without reduction; degenerative joint disease; history of jaw trauma; vascular diseases; migraine and tension headaches; and history of infectious-inflammatory conditions of odontogenic origin. Country: Spain Clinic: Outpatient Clinic of the Department of Oral and Maxillofacial Surgery at the Virgen del Rocio University Hospital, Seville
Interventions	Group A(n=24): Deep dry needling (DDN) (3x applications of needling of the lateral pterygoid muscle (LPM) once per week for three weeks) Group B (n=24): Drug-treated control group (methocarbamol (380 mg + paracetamol (300 mg) combination drug therapy, 2xtablets every six hours

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	for three weeks)
Outcomes	Pain at rest and upon mastication (VAS) Range of mandibular movements (opening of the mouth, lateral movements, protrusion) (mm) TMJ affectation (100-point scale) Overall efficiency ratings (5-point scale) Tolerability to the treatment (5-point scale)
Chronicity	Low disability
Hints to chronicity	1. Exclusion criteria: migraine and tension headaches 2. Moderate limitation of mandibular movement (interincisal opening limited to <40 mm and passive stretching required to force the opening by ≥ 5 mm) 3. Local pain
Duration	3 weeks treatment; 70 days follow up.
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "Patients were assigned randomly to one of two groups (Epidat 4.0)"
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Low risk	No further information other than: "Data were collected at each visit by a same observer"
Incomplete outcome data (attrition bias)	High risk	Cite: "A third limitation is that the control group had a significant number of withdrawal study subjects (8 patients), with the main reason for dropping out being due to personal difficulties associated with patients keeping their scheduled appointments."
Selective reporting (reporting bias)	High risk	parameters to assess the effectiveness of the treatment were: 1) pain at rest and upon mastication using the (VAS 10 cm) 2) range of mandibular movements associated with opening of the mouth, lateral movements and protrusion measured with a Therabite ruler. In addition, TMJ affectation was assessed using a questionnaire consisting of a 100-point scale (0 worst state, 100 optimum state) based on pain(maximum 40 points), function (45 points) and mastication (15 points). Secondary efficacy outcomes were overall efficiency ratings

		assessed by the patient and the authors using a 5-point scale ranging from worst-0 to optimum-4. Tolerability to the treatment was evaluated by the patient and the authors using a 5-point scale (0-very bad, 1-bad, 2-acceptable, 3-good, 4-excellent). The type and frequency of adverse events were record-ed at each visit. Comment: only reported about pain and MMO at the end
Other bias	Unclear risk	The authors report no conflict of interest. This investigation was carried out without funding.

Guarda 2004

Methods	RCT. single centre; two parallel groups
Participants	27 patients: 74.07% women; mean age 53.9 (SD±11.8). Inclusion criteria: presence of unilateral or bilateral TMJ pain, especially during joint palpation; joint noise and limitation of mandibular movements. Country: Italy Clinic: Cattedra e Divisione di Chirurgia Maxillo-facciale Azienda Università di Padova
Interventions	Group A (n=19): sodium hyaluronate (2ml; 20mg/2ml; once a week for 5 weeks) Group B (n=8): Ringer's lactate solution (once a week for 3 weeks)
Outcomes	Intensity of pain (resting pain, stenosis pain, phonation pain) (VAS) Maximal mouth opening and lateral jaw movements. Chewing capacity (VAS) Low disability limitation of the joint to normal phonation and chewing activities (0- 4 scale) Judgement of treatment efficiency. Judgement of tolerability to treatment (0-4 scale)
Chronicity	Unclear
Hints to chronicity	None
Duration	6 month follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: „...were randomly allocated to receive..."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data	Unclear risk	No information given

(attrition bias)		
Selective reporting (reporting bias)	Low risk	Reported all the outcomes
Other bias	Unclear risk	Cite: „...no significant difference between the two groups was detected either at baseline or after the first and second treatment."

Guarda-Nardini 2005

Methods	RCT. single centre; three parallel groups.
Participants	60 patients: 91.67% women; mean age Group A 49.8 years, Group B 51.4 years, Group C 46.4 years. Inclusion criteria: painful TMJ; presence of unilateral or bilateral TMJ pain during palpation; joint sounds and impairment of jaw movements; osteoarthritic changes had to be diagnosed with magnetic resonance imaging; magnetic resonance imaging diagnosis of TMJ osteoarthrosis was defined by the presence of flattening, subchondral sclerosis, surface irregularities, erosion, and osteophytes according to Emshoff and co-workers. Country: Italy
Interventions	Group A (n=20): 5 injections of 1 mL SH Group B (n=20): a bite-plane treatment for at least 6 months Group C (n=20): control group who refused any treatments
Outcomes	Maximum mouth opening (mm) Pain at rest and mastication (VAS) Mastication efficiency (VAS) Low disability limitation during usual jaw movements Tolerability of the treatment Efficacy of the treatment
Chronicity	Low disability
Hints to chronicity	Local pain
Duration	6-month follow up
Notes	Further publications: "Treatment of patients with arthrosis of the temporomandibular joint by infiltration of sodium hyaluronate: a preliminary study (Guarda-Nardini, 2002)

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: "The patients were allocated in groups A or B at random." Comment: need more information
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and	Unclear risk	No information given

personnel (performance bias)		
Blinding of outcome assessment (detection bias)	Low risk	Cite: "The following parameters were assessed by the same blinded examiner (S.M.) at the time of diagnosis, at the end of the treatment and during the follow-up."
Incomplete outcome data (attrition bias)	Low risk	None of the patients of Groups A or B drop out from the study
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	No further inequalities

Guarda-Nardini 2008

Methods	RCT. Single centre, two parallel groups.
Participants	20 participants: 50% women; age 25-45 years old; Inclusion criteria: presence of bruxism diagnosed using a validated set of screening-oriented clinical diagnostic criteria (patient exhibited, at least five nights a week, grinding/bruxing sounds during sleep for the past six months, as reported by his/her bed partner, and at least one of the following adjunctive criteria: observation of tooth wear or shiny spots on restorations, report of morning masticatory muscle fatigue or pain, masseteric hypertrophy upon digital palpation); and myofascial pain according to RDC/TMD groups Ia or Ib (report of pain or ache in the jaw, temples, face, preauricular area, or inside the ear at rest or during function; pain reported by the subject in response to palpation of three or more of 20 muscle sites, at least one of the sites must be on the same side as the pain complaint) Exclusion criteria: history of any treatment for bruxism and/or TMD during six months prior to the study; the presence of neuromuscular pathologies preventing the use of botulinum toxin (e.g. myasthenia gravis); a reported hyper sensibility to clostridium botulinum type A neurotoxin. Country: Italy Clinic: Department of Maxillo-Facial Surgery, University of Padova. Padova. Italy
Interventions	Group A (n=10): Botulinum toxin (4x injections intramuscular 30 U within the masseter muscles+3x injections 20 U within the anterior temporalis muscles, total of 100 U. Group B (n=10): saline placebo injections
Outcomes	Pain at rest and at chewing (VAS) Mastication efficiency (VAS) Maximum non-assisted and assisted mouth opening, protrusive and laterotrusive movements (mm). Low disability limitation during usual jaw movements (0-4) Subjective efficacy of the treatment (0-4)
Chronicity	Low disability
Hints to chronicity	1. Exclusion criteria: a history of any treatment for bruxism and/or TMD during six months prior to the study
Duration	1 Month treatment; Follow up for 6 months
Notes	

APPENDIX VIII: Characteristics of studies

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: „...randomized clinical trial..."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Unclear risk	No information given
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	No further inequalities

Guarda-Nardini 2012a

Methods	RCT. single centre; two parallel groups.
Participants	30 patients: 73.33% women; age 23-69 years old; mean age 45.5. Inclusion criteria: diagnosis of myofascial pain, with or without limited opening (RDC/TMD) and bilateral pain lasting for at least six months. Exclusion criteria: systemic neurological/rheumatological disorders; RDC/TMD diagnoses of arthralgia/osteoarthritis. Country: Italy Clinic: TMD Clinic, Department of Maxillofacial Surgery, University of Padova, Italy
Interventions	Group A (n=15): Botulinum toxin injections (1x treatment of multiple botulin toxin injections in the temporalis + masseter muscles using a 0.7 mm 30G needle, with a total of about 150U of botulinum toxin was injected per each treated side) Group B (n=15) Fascial manipulation (three (±1) 50 min sessions of Fascial Manipulation on a weekly basis, for a total of 150 (±50) min over a two-four-week span)
Outcomes	Maximum pain level (VAS) Maximum mouth opening, protrusion, right and left laterotrusion (mm)
Chronicity	Unclear (high disability)
Hints to chronicity	1. Pain lasting for at least six months 2. were recruited at the TMD Clinic, Department of Maxillofacial Surgery, University of Padova, Italy 3. Vas at 7.3
Duration	Follow-up for 3 months
Notes	

Risk of bias table

Bias	Authors'	Support for judgement

APPENDIX VIII: Characteristics of studies

	judgement	
Random sequence generation (selection bias)	Unclear risk	Cite: "one to one randomization"
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Low risk	No dropouts
Selective reporting (reporting bias)	Unclear risk	Need more information
Other bias	Unclear risk	The duration of the intervention was not the same, which makes it difficult to compare.

Gupta 2016

Methods	RCT. single centre; two parallel groups.
Participants	74 patients: 70.27% women; mean age 44.54 (SD±15.97). Inclusion criteria for the study: presence of at least one active trigger point; age between 19 and 65 years; symptom durations for at least 3 months; patients diagnosed as group I and group II according to RDC/TMD. Exclusion criteria: fibromyalgia; identifiable TMD pathology such as history of major trauma, TMJ infection and group III TMD according to RDC/TMD; patients with major systemic disease; patients with cervical disk lesion; pregnant patients; patients having undergone neck and shoulder surgery; patients with drug allergy history, and abnormal laboratory results. Time: March 2011-June 2012 Country: India Clinic: Department of Oral and Maxillofacial Surgery, Post Graduate Institute of Dental Sciences, Rohtak
Interventions	Group A (n=37): local aesthetic injection (0.5 % bupivacaine) on trigger points Group B (n=36): combined trigger point injection therapy + 50 mg of tablet Levosulpiride orally B.I.D (initial period of 2 weeks followed by increasing the dose to a maximum of 150 mg daily for a maximum period of 6 weeks.)
Outcomes	Pain (VAS) Depression (Beck's depression inventory (BDI))
Chronicity	High disability
Hints to chronicity	Patients were suffering of depression and were recruited from a tertiary care
Duration	6 weeks treatment; 1, 4, 6 and 12 week follow up.
Notes	Further publications: "A Comparative Pilot Study to Evaluate the Adjunctive Role of Levosulpride with Trigger Point Injection Therapy in the Management of Myofascial Pain Syndrome of Orofacial Region" (Gupta, 2014)

APPENDIX VIII: Characteristics of studies

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "A total of 74 study patients who met the inclusion criteria and signed the informed consent form, were enrolled for the study and were randomly assigned to the two treatment groups i.e., group A and group B using computerized random allocation software."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Low risk	Cite: "one patient from group B dropped-out and hence could not be followed-up. The dropped case was not included in the data analysis." Comment: only one drop out, we assume does not affect the results
Selective reporting (reporting bias)	Low risk	All outcomes stated
Other bias	Unclear risk	Cite: "Both the groups A and B were similar in baseline socio-demographic and clinical characteristics"

Harkins 1991

Methods	RCT. single centre; two parallel groups
Participants	20 patients: 80% women; age 18-48 years old; mean age 31. Inclusion criteria: TMJ capsulitis on the affected side and a secondary diagnosis of associated MFP involving the muscles of mastication (e.g., temporalis and masseters); reported suffering from TMD/MFP for at least 3 months prior to seeking treatment; none of the patients had received previous orthopaedic appliances, counselling, or physical therapy prior to presenting to the clinic. Exclusion criteria: intolerable side effects; patient request for termination; pregnancy; history of liver damage; glaucoma; mental illness such as depression; sensitivity to benzodiazepines; drug abuse or dependency; who were currently taking other antidepressant medications; were of child-bearing age without satisfactory birth-control methods. Country: USA
Interventions	Group A (n=10): clonazepam orally (clonazepam and the placebo doses were self-administered by each participant at bedtime starting at 0,25mg (1/2 tablet) orally. Subsequent doses were increased weekly relief was

	achieved (to a max of 1 mg daily) or until adverse side effects precluded a dosage increase. Group B (n=10): placebo
Outcomes	Pain (VAS) Side effects was made by questionnaires that were filled out by the patient. Vertical mandibular range of motion (maximum passive interincisal opening, mm)
Chronicity	Low disability
Hints to chronicity	Cite: " none of the patients had received previous orthopaedic appliances, counselling, or physical therapy prior to presenting to the clinic."
Duration	30-day follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: "Ten patients were randomly assigned to each ..."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	High risk	Cite: "Five participants (50%) in the clonazepam group decided to drop out after 30 days because their symptoms had significantly improved, and they did not want to continue taking any medication. Seven participants (70%) in the placebo group decided to drop out after 30 days because they felt no improvement. Because of the high dropout rate after 30 days in both groups, a valid 60-day interval assessment was not possible."
Selective reporting (reporting bias)	Low risk	Reported about the outcomes
Other bias	Unclear risk	Cite: "No significant differences were noted between the placebo and experimental groups in any variable at day 0."

Hepguler 2002

Methods	RCT. single centre; two parallel groups.

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Participants	38 patients: 68.42% women; mean age Group A 31.94 (SD±12.67); Group B 31.94 (SD±12.67). Inclusion criteria: over 21 years of age who were resistant to conservative treatment for at least 2 months and who full filled the standard clinical diagnostic criteria. Exclusion criteria: pregnant or lactating; exhibited poor oral health; received previous joint injections or surgery. Country: Turkey Clinic: Department of Prosthetic Dentistry, School of Medicine, School of Dentistry, Ege University, Izmir, Turkey
Interventions	Group A (n=19): intra-articular injections of HA (0.5 mL of HA; 15 mg mL ±1) was administered into the superior joint compartment of the TMJ with the mouth opened maximally and was repeated 1 week later. Group B (n=19): intra-articular injections of placebo (physiological saline solution) were administered into the superior joint compartment of the TMJ with the mouth opened maximally and was repeated 1 week later.
Outcomes	Pain and sound intensity of the joint (VAS) Modified Helkimo's clinical dysfunction index Intensity of joint vibration during opening and closing the mouth (accelerometers)
Chronicity	High disability
Hints to chronicity	1. Who were resistant to conservative treatment for at least 2 months and who fulfilled the standard clinical diagnostic criteria were included in this study 2. Pain intensity 6.68 (1.56) 3. Tertiary care
Duration	6-months follow-up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: „...were coded and randomized by the manufacturer."
Allocation concealment (selection bias)	Low risk	Comment: extern by the manufacturer
Blinding of participants and personnel (performance bias)	Low risk	Cite: " was a randomized, double-blind, placebo-controlled study with a 6-month follow-up period..." Comment: knowing about that the treatment was masked we can assume the patients were also blinded.
Blinding of outcome assessment (detection bias)	Low risk	Cite: „...both clear colourless fluids that were not visibly distinguishable, it was still necessary to use a blind observer" and because of the differences in viscosity between the drug and placebo. Cite: "Neither was aware of the treatment."

Incomplete outcome data (attrition bias)	Low risk	Cite: "All patients in both groups completed the treatment course and 6-month follow-up"
Selective reporting (reporting bias)	Low risk	All outcomes were reported
Other bias	Unclear risk	Cite: "Baseline characteristics of the active treatment and control groups were comparable"

Herman 2002

Methods	RCT. single centre; three parallel groups;
Participants	41 patients: 80.5% women; mean age group A 26.9 (SD±10.1); mean age group B 24.0 (SD±4.8), mean age group C 30.3 (SD±8.6). Inclusion criteria: age 18-65; jaw pain upon awakening, occurring a minimum of 2 days per week; diagnosis of myofascial pain (axis 1 group I) according to RDC/TMD, concurrent diagnoses of TMJ arthralgia and disc displacement with reduction were allowed; self-report of an average jaw pain intensity in the past week of at least 4 on VAS; self-report of psychological stability (subjects taking antidepressants were considered stable if they reported no current depression, and had been on a stable regimen of psychotropic medications for 3 months. Exclusion criteria: any dental, orofacial problem or TMD not meeting the definition of myofascial pain as defined by the RDC/TMD; self-report of persistent depression or an unstable regimen of psychotropic medication of less than 3 months as indicated by their history; jaw pain of potential systemic (e.g. fibromyalgia, widespread pain); clinical or radiographic evidence of osseous, odontogenic, or TMJ pathology; report of liver dysfunction, alcoholism, glaucoma, history of seizures, impaired renal function, use of monoamine oxidase inhibitors, acute recovery phase of myocardial infarction, arrhythmia, heart block or conduction disturbances, congestive heart, arrhythmia, heart block or conduction disturbances, congestive heart failure, hyperthyroidism, pregnancy, or any other contraindications to clonazepam or cyclobenzaprine (including drug allergies). Country: USA Clinic: "Uni of Minnesota School of Dentistry TMJ/Orofacial Pain Clinic, HealthPartners Medical Centre TMD Clinic, St. Paul, MN, a private practice (ELS) and by advertisement in the University of Minnesota Daily"
Interventions	Group A (n=13): self-care program + medication (clonazepam 0.5mg/d) Group B (n=15): self-care program + placebo (lactose filler) Group C (n=13): self-care program + medication (cyclobenzaprine 10mg/d)
Outcomes	Symptom Severity Index (SSI) TMJ pain and temple pain (VAS) Pittsburgh Sleep Quality Index (PSQI)
Chronicity	Low disability
Hints to chronicity	No depression and local pain. Recruited from primary care and tertiary care
Duration	Follow-up (treatment) for 3 weeks
Notes	

APPENDIX VIII: Characteristics of studies

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: „...randomization block."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Cite: „...Neither the treating doctor nor the subject was aware of the treatment assignment until completion of the intervention."
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Low risk	No dropouts
Selective reporting (reporting bias)	Low risk	Reported all the outcomes
Other bias	Unclear risk	No further inequalities

Hosgor 2017

Methods	RCT. single centre; four parallel groups;
Participants	40 patients: 90% women; age 18-59 years old; mean age 30.35 (SD±1.97). Inclusion criteria: consisted of unilateral painful TMD; falling into group II according to the RDC/TMD: disc displacement (DD) with reduction, DD without reduction with limited opening, and DD without reduction without limited opening. The contralateral symptom-free TMJs of the patients were evaluated as the control group for the determination of effusion. Exclusion criteria: presence of a known connective tissue or autoimmune disease; prior TMJ surgery; degenerative joint disease; osteoarthritis; history of major jaw trauma; dento-facial deformity; concurrent use of steroids; muscle relaxants; narcotics. Country: Turkey Clinic: no information.
Interventions	Group A (n=10): splint therapy (advised to use the stabilization splint for two-thirds of the day for 6 months) Group B (n=10): arthrocentesis therapy. No medication (corticosteroid, hyaluronic acid, etc.) was injected into the joint after lavage with lactated Ringer's solution. Group C (n=10): non- steroidal anti-inflammatory drug (NSAID) therapy (Tenoxicam (Tilcotil 20-mg tablets) Group D (n=10): laser therapy. LLLT (500 mW output power for 180 s and 321 J/cm2 energy density) (three times a week for 4 weeks).
Outcomes	Pain (VAS) Joint noises (clicking, crepitus, or none) Maximum mouth opening (MMO, mm)

Chronicity	Low disability
Hints to chronicity	Exclusion: medication
Duration	6 month follow up
Notes	

6.1.1.1 Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Comment: one investigator did the randomization, no information given on how
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Comment: not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Unclear risk	Comment: no information about the blinding
Incomplete outcome data (attrition bias)	Low risk	Comment: no dropouts in the study
Selective reporting (reporting bias)	High risk	Comment: no results to the joint sounds
Other bias	Unclear risk	No further inequalities

Jayachandran 2017

Methods	RCT. single centre; three parallel groups.
Participants	30 patients: 56.7% women; age 40-60 years; mean age 49 years. Inclusion criteria: clinical characteristics for TMJ OA such as pain at rest or mandibular movement; crepitation; limitation of mouth opening which were described by Okeson JP; followed by radiographic investigation for evidence of osseous changes at TMJ to confirm the diagnosis. Exclusion criteria: myogenous cause of pain; ankylosis; recent history of any trauma or surgery at TMJ; history of peptic ulcer; drug allergy and pregnant women. Country: India Clinic: Department of Oral Medicine and Radiology, Tamil Nadu Government Dental College and Hospital, Chennai
Interventions	Group A (n=10): diclofenac sodium 50 mg twice daily Group B (n=10): oral enzymes (bromelain, trypsin, rutoside trihydrate) and diclofenac sodium combination Group C (n=10): oral enzymes of bromelain 90 mg, rutoside trihydrate 100 mg, trypsin 48 mg 2xdaily for 10 days
Outcomes	Pain (Numeric Rating Scale)
Chronicity	Unclear
Hints to chronicity	None

APPENDIX VIII: Characteristics of studies

Duration	10 days follow up
Notes	

´Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: „...were randomly divided into three groups for the purpose of treatment by simple random sampling."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	High risk	Cite: "Blinding was not carried out in the present study."
Blinding of outcome assessment (detection bias)	High risk	Cite: "Blinding was not carried out in the present study."
Incomplete outcome data (attrition bias)	Low risk	No dropouts
Selective reporting (reporting bias)	Low risk	Outcome reported stated
Other bias	Unclear risk	Cite: „...pre-treatment clinical scoring was showing variation within individuals and within groups and the study was of short duration with a short-term follow-up."

Kang 2018

Methods	RCT. single centre; five parallel groups.
Participants	51 patients: 47.06 % women; mean age men 29 (SD±6.3); women 28 (SD±8.5) years. Inclusion criteria: diagnosis of myalgia pain (DC/TMD) (Schiffman et al., 2014); pain upon palpation of the masseter muscle; age between 20-59 years. Exclusion criteria: diagnoses of systemic muscle pain disorders (e.g., fibromyalgia); systemic joint disease (e.g., rheumatoid arthritis); pain of dental origin; pregnancy; high blood pressure; taking antidepressant, anticonvulsant, antianxiety agents, NSAIDs, opioids, or muscle relaxants for 3 months or more. Country: Korea Clinic: Department of Orofacial Pain & Oral Medicine at the Kyung Hee University Dental Hospital
Interventions	Group A (n=11): saline masseter (six men and five women) Group B (n=13): morphine 1.5 mg masseter (eight men and five women) Group C (n=11): morphine 5 mg masseter (five men and six women) Group D (n=11): lidocaine masseter (six men and five women) Group E (n=5): morphine 5 mg trapezius (two men and three women)

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Outcomes	Pain intensity (VAS) Pressure Pain Threshold (PPT) Pressure Pain Tolerance (PPtol)
Chronicity	Low disability
Hints to chronicity	1. Patients who have been taking antidepressant, anticonvulsant, antianxiety agents, NSAIDs, opioids, or muscle relaxants for 3 months or more were excluded from the study 2. moderate Baseline (4-5)
Duration	48 hours
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: ..."randomly allocated using a computer program to generate numbers"
Allocation concealment (selection bias)	Unclear risk	Cite: "The allocation was made by one of the researchers who examined the participants."
Blinding of participants and personnel (performance bias)	Low risk	Cite: "Neither the investigator who administered test substances nor the participants were aware of the contents of the injections."
Blinding of outcome assessment (detection bias)	Unclear risk	Comment: no information about the examiner
Incomplete outcome data (attrition bias)	Low risk	No dropouts according to the tables
Selective reporting (reporting bias)	Low risk	Reported all the stated outcomes
Other bias	Unclear risk	Cite: "Mean baseline VAS scores were not significantly different amongst treatment groups. Mean baseline PPT and PPtol measures were not significantly different amongst all groups."

Khalighi 2016

Methods	RCT. single centre; two parallel groups;
Participants	40 patients: 75% women; mean age 36 (SD±12.34). Included criteria: myofascial pain with/without limited mouth opening; limited mouth opening was defined as pain-free unassisted mandibular opening of < 40 mm. Exclusion criteria: subjects who received analgesic or antidepressant medicine or underwent any other form of treatment for TMD. Country: Iran Clinic: department of oral and maxillofacial medicine, School of Dentistry,

APPENDIX VIII: Characteristics of studies

	Shahid Beheshti University of Medical Sciences
Interventions	Group A (n=20): naproxen 500 mg bid for 3 weeks as treatment modality and had placebo laser sessions. Group B (n=20): active laser (diode 810 nm CW) as treatment and placebo drug
Outcomes	Pain intensity (VAS) Maximum painless mouth opening (mm)
Chronicity	Low disability
Hints to chronicity	1. Exclusion: subjects who received analgesic or antidepressant medicine 2. Exclusion: underwent any other form of treatment for TMD
Duration	2 month follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	No information given on how
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Cite: "Neither the patient, nor the evaluator was aware of the group the participant was assigned to. So, the study was conducted in a double-blind fashion."
Blinding of outcome assessment (detection bias)	Low risk	Cite: "The data were recorded by an examiner who was unaware of the type of treatment."
Incomplete outcome data (attrition bias)	Low risk	No dropouts
Selective reporting (reporting bias)	Low risk	All outcomes reported. Study protocol stated (NCT01659372)
Other bias	Unclear risk	Cite: "There is no conflict of interest for any of the authors."

Kimos 2007

Methods	RCT. single centre study; two parallel studies.
Participants	50 patients: 100% women; mean age 33.58. Inclusion criteria: age 18-45 years old; diagnosis of masticatory muscle pain based on the diagnostic RDC/TMD (constant pain or ache in their masticatory muscles, face, and preauricular area or inside the ear at rest or during function); masticatory muscle pain for at least 6 months; chronic masticatory muscle pain not attributable to recent acute trauma, previous infection, or an active inflammatory cause; moderate to severe baseline score of 50 mm or greater VAS; pain upon palpation in at least three of the following points: Temporalis (anterior, medial and posterior bellies),

APPENDIX VIII: Characteristics of studies

	Masseter (deep belly, and the inferior and anterior portion of the superficial belly). Exclusion criteria: clinical evidence of inflammatory TMD; pregnant or nursing females; epilepsy, cardiac, renal, or hepatic disorders; history of intolerance to gabapentin or to any of the components of the formulation; dental or periodontal disease, oral pathology lesions, oral infection, or neuropathic facial pain; patients wearing an occlusal splint appliance for less than 6 months. Country: Canada Clinic: "Patients from the TMD/Orofacial Pain Clinic; dentists and physicians within the city of Edmonton and surrounding areas were contacted by mail requesting referral of patients who presented symptoms of CMM for screening at the TMD/Orofacial Pain Clinic; newspaper advertisements in Edmonton and poster advertisements at the University of Alberta Campus were also utilized to recruit subjects."
Interventions	Group A (n=25): gabapentin minimum effective dose for each patient (Patients were started on 300 mg per day and the dose was increased by 300 mg every 3 days until pain was controlled with no adverse effects. The maximum dose was 4200 mg. If the study medication had to be discontinued for any reason, dosage was gradually decreased 300 mg every 3 days) Group B (n=25): placebo
Outcomes	Pain intensity (VAS) Palpation Index (number of tender sites) Daily function (VAS) Side effects
Chronicity	High disability
Hints to chronicity	1. Cite: ‘‘Patients must present constant pain or ache in their masticatory muscles, face, and preauricular area or inside the ear at rest or during function.’’ 2. Splint use 3. Analgetic misuse 4. Tertiary care
Duration	Follow-up for 12 weeks
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "A computer-generated randomization code list was utilized to randomly allocate patients in two study groups"
Allocation concealment (selection bias)	Low risk	Cite: " For double-blinding purposes, concealed randomization and the according allocation were implemented by a research assistant."
Blinding of participants and personnel (performance	Low risk	Cite: "Neither the patients nor the main investigator was aware of the random group allocation."

bias)		
Blinding of outcome assessment (detection bias)	Unclear risk	Comment: no information about the examiner
Incomplete outcome data (attrition bias)	Low risk	Used intention-to-treat
Selective reporting (reporting bias)	Low risk	All outcomes were reported.
Other bias	Unclear risk	No further inequalities.

Kopp 1985

Methods	RCT. single centre; two parallel groups;
Participants	33 patients: 87.9% women; mean age 46 years. Inclusion criteria: pain localized to the TMJ of at least six months duration and joint tenderness to palpation; failure of previous conservative treatment (e.g., occlusal adjustment, biteplates, or physical exercises). Exclusion criteria: disease in other components of the stomatognathic system (toothache, myalgia, neuralgia); general joint- muscle disease (rheumatoid arthritis); psychological cause for the symptoms; general (diabetes mellitus, Cushing's syndrome, peptic ulcer) + local (infection) contraindications to corticosteroid treatment. Time: 1979-1981 Country: Sweden Clinic: Department of Stomatognathic Physiology at the University of Goteborg
Interventions	Group A (n=18): Hyaluronate (volume of 0.5 ml of the drug was injected twice into the superior joint compartment of the TMJ with a two-week interval between injections) Group B (n=15): Corticosteroid (volume of 0.5 ml of the drug was injected twice into the superior joint compartment of the TMJ with a two-week interval between injections)
Outcomes	Effect on subjective symptoms (VAS) Clinical signs (clinical dysfunction score) Bite force (Newtons (N))
Chronicity	High disability
Hints to chronicity	1. Department of Stomatognathic Physiology at the University of Goteborg 2. Failure of previous conservative treatment (e.g., occlusal adjustment, biteplates, or physical exercises)
Duration	4 weeks follow up; in the second publication 1 and 2 year follow up
Notes	Further publications: "Long-term effect of intra-articular injections of sodium hyaluronate and corticosteroid on temporomandibular joint arthritis" (Kopp, 1987)

Risk of bias table

Bias	Authors' judgement	Support for judgement

Random sequence generation (selection bias)	Low risk	Cite: "The two drugs were allocated to the patients in random order after grouping the patients with respect to presence of crepitation of the TMJ and severity of the clinical symptoms."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	Cite: "The patients were informed about the drugs and that they would receive one, but they were not told which one." Comment: no information about the personnel
Blinding of outcome assessment (detection bias)	Low risk	Cite: " The examiner thus had no knowledge of which drug the patient had received"
Incomplete outcome data (attrition bias)	Low risk	No drop out in the first study. Cite from "Long-term effect of intra-articular injections of sodium hyaluronate and corticosteroid on TMJ arthritis": "The number of dropouts in this long-term follow-up study was considerable, since only 67% of the hyaluronate group and 80% of the corticosteroid group attended at one year. At two years, the corresponding figures were 72% and 67%. The in- fluence of the dropouts on the results is difficult to evaluate. The reasons for the 10 dropouts were that the aetiology of the symptoms turned out to be mainly of muscular origin in three patients, there was need for surgical treatment in two patients with severe arthrosis, there was internal derangement of the disc with locking in two patients, there was malignant disease in one patient, and two more patients did not attend.
Selective reporting (reporting bias)	Low risk	Reported all the outcomes
Other bias	Unclear risk	No further inequalities

Kopp 1991

Methods	RCT. single centre; two parallel groups
Participants	33 patients: 87.88% women; mean age 46 years. Inclusion criteria: pain localized to the TMJ of at least six months duration and joint tenderness to palpation; failure of previous conservative treatment (e.g., occlusal adjustment, biteplates, or physical exercises) Exclusion criteria: whose symptoms could be referred to disease in other components of the stomatognathic system (toothache, myalgia, neuralgia); general joint muscle disease (rheumatoid arthritis); psychological cause for the symptoms; general (diabetes mellitus, Cushing's syndrome, peptic ulcer) + local (infection) contraindications to corticosteroid treatment. Country: Sweden Clinic: Department of Stomatognathic Physiology at the University of Goteborg
Interventions	Group A (n=18): intra-articular injections of sodium hyaluronate (10 mg/ml dissolved in a phosphate buffer (pH 7.0-7.5) with sodium chloride; dispensed in sterile, disposable syringes and could be injected with needles of a diameter normally used in our clinics for intra- articular injections of the

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	TMJ (0.4 mm)) Group B (n=15): intra-articular injections of corticosteroid (betamethasone) (equal amounts of its disodium-phosphate and acetate esters; suspension of 6 mg/ ml; disodium phosphate ester of the drug is readily soluble and has an immediate effect, unlike the acetate ester)
Outcomes	Effect on subjective symptoms (VAS) Clinical signs (CDS) Intra-articular Temperature Confounding Factors Influencing the Outcomes of Treatment
Chronicity	High disability
Hints to chronicity	Cite: "failure of previous conservative treatment (e.g., occlusal adjustment, biteplates, or physical exercises)"
Duration	4 weeks follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: "patients were randomly divided into three." Comment: no information on how
Allocation concealment (selection bias)	Unclear risk	Not mentioned
Blinding of participants and personnel (performance bias)	Low risk	Cite: „. but were not told which one." Comment: no information about the blinding of the investigator
Blinding of outcome assessment (detection bias)	Low risk	Cite: „. The examiner thus had no knowledge of which drug the patient had received."
Incomplete outcome data (attrition bias)	Low risk	No dropouts according to the tables
Selective reporting (reporting bias)	Unclear risk	No protocol (only mentioned that subjective and clinical symptoms, no detailed description)
Other bias	Unclear risk	Cite: "supported by Pharmacia AB and the University of Lund. The hyaluronate was provided by Pharmacia AB."

Korkmaz 2016

Methods	RCT. single centre; four parallel groups.
Participants	51 patients: 68.63 % women; 18- 48 years; mean age Group A: 32.38 (SD± 8.7); Group B 32 (SD±9.73); Group C 32.08 (SD±9.79); 28.67 (SD±10.21). Inclusion criteria: unilateral or bilateral TMJ pain; TMJ noise; impaired jaw movements for at least 6 months. Exclusion criteria: if they received previous therapy (conservative physical therapy, oral splint therapy, surgery); received joint injections; had serious systematic diseases (rheumatoid arthritis or other connective tissue

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	diseases); were edentulous. Country: Turkey Clinic: Department of Oral and Maxillofacial Surgery of Karadeniz Technical University Faculty of Dentistry (Trabzon)
Interventions	Group A: self-designated control group (not randomized) Group B: (single HA injection) underwent 1 cycle of HA injection 1 mL into the superior joint space of the affected TMJ. Group C: (double HA injection) underwent 2 cycles of HA injections 1 mL into the TMJ. One injection was administered at the beginning of the study, and the second injection was administered 1 month after the first injection. Group D: stabilization splint
Outcomes	Pain at rest and during mastication (VAS) TMJ noise Quality of life (VAS) Level of jaw movements ROM: max. mouth opening, protrusion, excursion movements
Chronicity	Low disability
Hints to chronicity	Cite: "Patients were excluded from the study if they received previous therapy (e.g., conservative physical therapy, oral splint therapy, or surgery)"
Duration	6 months splint treatment; hyaluronic acid treatments see Interventions
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "The treatment methods were numerically coded on slips of paper by a surgeon who was not associated with the study. The numbers were selected by the patient, which allowed the subjects to be randomly assigned into the 3 treatment groups."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies. Cite: "However, blinding the surgeons or participants to the treatment modality was impossible".
Blinding of outcome assessment (detection bias)	Low risk	Cite: "The clinical measurements, including pain, TMJ noise, MMO, TLMM, ALMM, and PM, were obtained by a single clinical examiner who was fully blinded to the patient group"
Incomplete outcome data (attrition bias)	Low risk	Cite: "Nine patients dropped out of the study for various reasons. The descriptive statistics of patients who dropped out of this study are listed in Table 2." Comment: no reasons given, but balanced and their values given
Selective reporting (reporting bias)	Low risk	Everything from the methods section was reported.

Other bias	Unclear risk	Cite: "For ethical reasons, patients with a diagnosis of DDR and chief complaints of TMJ pain or TMJ noise who refused any treatment for any reason were assigned to the control group (the first group). The control group was self-selected." Cite: "The baseline values of affected TMJ characteristics (duration of symptoms and involved side) did not differ among groups"

Kurtoglu 2008

Methods	RCT. single centre study; two parallel groups
Participants	24 patients: 83.3% women; age 16-53 years; mean age 26.5; Inclusion criteria: myofascial pain, with or without low disability disc displacement; who had undergone conservative TMD treatment without complete relief of symptoms. Exclusion criteria: age below 14 years; history of allergic reactions to botulinum toxin A; pregnancy; lactation. Country: Turkey Clinic: Clinics of TMDs of the Cukurova University Dental Faculty
Interventions	Group A (n=12): botulinum toxin Group B (n=12): placebo
Outcomes	EMG RDC/TMD axis II
Chronicity	High disability
Hints to chronicity	Inclusion criteria: had undergone conservative TMD treatment without complete relief of symptoms
Duration	14 days; 28 days follow-up.
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	They used shuffling envelopes
Allocation concealment (selection bias)	Unclear risk	Cite: "...envelopes containing papers marked placebo (control), were closed tightly, mixed thoroughly, and given numbers from 1 to 24" Comment: no information about being opaque
Blinding of participants and personnel (performance bias)	Low risk	Cite: "The first examiner, who dealt with randomization and blinding, also prepared the material for injection." Cite: "...both syringes were similar in appearance. Thus, the second and third examiners were unaware of the contents of syringes"
Blinding of outcome	Low risk	Cite: "The second examiner collected the EMG and

assessment (detection bias)		questionnaire data and recorded the date and each subject s name. Subjects filling out the questionnaire were alone in a quiet room" (he was unaware of the allocation, s. performance bias)
Incomplete outcome data (attrition bias)	Low risk	Comment: No dropouts Cite "...none of the subjects was recorded as lost to follow-up."
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	No further inequalities

Kütük 2019

Methods	RCT. single centre; two parallel groups
Participants	40 patients: 72.5 % women; mean age 33.8 (range: 21–54) (SD±8.1) years old. Inclusion criteria: having a diagnosis of myofascial pain syndrome; being between 18 and 60 years of age, literacy, having biochemical test results within normal limits. Exclusion criteria: cervical disc hernia; presence of radiculopathy or myelopathy; tumoral; infectious; psychiatric; systemic disease; bleeding diathesis; grade 3-4 osteo-degeneration; having diagnosis of fibromyalgia syndrome according to criteria of American College of Rheumatology; presence of kyphoscoliosis; pregnancy; previous brain or shoulder surgery; treatment for MPS within the last 6 months; having symptoms shorter than 3 months; lack of cooperation, intractable hypertension. Contraindications to dry needling include early term pregnancy, local infection; bleeding diathesis may be enumerated. Time: n.a. Country: Turkey Clinic: Physical medicine and rehabilitation clinic of a tertiary-care centre
Interventions	Group A (n=20): Abobotulinum toxin-A (flacon of Dysport (500mL) diluted with 10 cc 0.9% NaCl; trigger point on the lateral pterygoid muscle; 25 U-150 U, not exceeding 150 U in total) Group B (n=20): dry needling (38 mm long needle with a green tip; inserted into the muscle until the trigger point in the muscle band with the tip was found; same point was needled rapidly 8 to 10 times with the tip of the needle mounted to the empty syringe)
Outcomes	Pain (VAS) Crepitation (present or absent) Maximum mouth opening (mm) Low disability limitation during normal jaw movements (0-3) Strength of jaw (1-3) Palpable muscular spasms (0-4)
Chronicity	Low disability
Hints to chronicity	Exclusion: psychiatric disease
Duration	6 weeks follow up
Notes	

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Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	No information given
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Unclear risk	No information given
Selective reporting (reporting bias)	Low risk	All the outcomes reported
Other bias	Low risk	Cite: "We observed that there was no difference between 2 groups concerning average age, gender, and side of involvement. The authors report no conflicts of interest"

Li 2009

Methods	RCT. Single centre; two parallel groups.
Participants	55 end 45 patients: 71.11% women; mean age Group A 43.96 (SD±13.13), mean age group B 47.14 (SD±9.3); Inclusion criteria: diagnosis of Group I (muscle disorders) according to RDC/TMD, including both painful and nonpainful disorders; at least 1 month of daily or nearly daily joint and muscle pain; subjects with myogenic pain were included if they met inclusion and exclusion criteria since patients with TMDs are known to exhibit muscle pain secondary to their joint dysfunction Exclusion criteria: infectious arthritis; crystal-induced arthropathy; musculoskeletal disorders, pain attributable to confirmed migraine or head pain condition other than tension headache; acute infection or disease of teeth, ears, eyes, nose, or throats; untreated depressive disorder or not on stable antidepressant medication for more than 6 months; dental diseases that required ongoing treatment; subjects who are not competent in giving consents; pregnant or lactating women; sensitivity to the ingredients of Ping On ointment. Country: China Clinic: "recruited from specialist clinics and were also recruited from the public using newspaper advertising. In the latter case, all recruited subjects were referred to appropriate specialist departments for consultation if any doubt existed about the diagnosis or any pathology other than TMJ muscular pain suspected
Interventions	Group A (n=23): Ping On ointment over the painful area (5 min, 2xday) Group B (n=22): placebo cream over the painful area (5 min, 2xday)

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Outcomes	Pain diary (VAS) Mandibular function Vertical mouth opening without pain
Chronicity	Low disability
Hints to chronicity	Exclusion: depression and tension headache
Duration	Follow-up for 4 weeks
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: „...using blocked randomization into one of the two groups."
Allocation concealment (selection bias)	Low risk	Cite: " The people involved in the randomization and in preparation and distribution of study articles were independent from the investigators."
Blinding of participants and personnel (performance bias)	Low risk	Cite: „...both the investigators and subjects were blinded as to the treatment allocation. While there were differences in the texture, colour, and odour of the placebo and active ointment, the investigators did not see either ointment at any time and were instructed not to ask any questions regarding the ointment used by a subject. The ointment to be given to participants was sealed in an opaque, tightly sealed container and then a bag in which no smell could be detected."
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Low risk	Dropouts balanced across the groups
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	No further inequalities

List 2001

Methods	RCT. multicentre; three parallel groups
Participants	53 patients: 83% women; mean age Group A 49.5; Group B 40; Group C 49.5. Inclusion criteria: daily, unilaterally localized pain during jaw movements in one TMJ with 3 months or more duration; tenderness over the TMJ at palpation; clinical diagnosis of arthralgia or osteoarthritis defined by RDC/TMD; age 18 years; voluntary desire to participate in the study after receiving verbal and written information. Exclusion criteria: bilateral non-

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	specific TMJ arthritis; polyarthritis/connective tissue diseases; fibromyalgia; known infections anywhere in the body or on the skin over the selected TMJ; pregnancy or breast-feeding; ongoing treatment for TMJ arthritis; comprehensive dental restoration work. Country: Sweden Clinic: "Consecutive patients referred to three temporomandibular (TMD) specialist clinics in Sweden participated. The three centres in Linkoping. included 26, 24, and three patients, respectively."
Interventions	Group A (n=18): 1.0 mg morphine–HCl Group B (n=17): 0.1 mg morphine–HCl Group C (n=18): saline (placebo)
Outcomes	Pain at maximum mouth opening and pain at jaw rest (VAS diary) Vertical opening of the mouth (mm) Pressure pain threshold Adverse events
Chronicity	High disability
Hints to chronicity	Splint and medication were allowed, and patients were recruited from a tertiary care.
Duration	1 week after treatment follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: „...given a patient code number following a randomization list"
Allocation concealment (selection bias)	Low risk	Cite: "The randomization list was kept at the pharmacy until ‘clean file’ was declared."
Blinding of participants and personnel (performance bias)	Low risk	Cite: "Ampoules designed for injection were blinded"
Blinding of outcome assessment (detection bias)	Low risk	see above
Incomplete outcome data (attrition bias)	Low risk	No dropouts
Selective reporting (reporting bias)	Low risk	Reported all the outcomes
Other bias	Unclear risk	Cite: "In relative numbers, a larger proportion of males than females were randomized to the saline group and a lower median age was seen in the 0.1-mg morphine group"

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Lobo 2004

Methods	RCT. single centre study; two parallel studies.
Participants	52 patients: 90.38% women; age not stated. Inclusion criteria: age 18-60; report of pain in the masseter muscle either at rest or during function; pain on palpation of the masseter muscle; pain in the TMJ either at rest or during function; good general health. Exclusion criteria: face, head and/or neck trauma within the past year; lesions in the oral cavity or deeper structures; systemic disease; pain or psychotropic medication use within a one-month period; diagnosis of migraine; pregnancy. Country: USA Clinic: Craniomandibular Pain Centre at Tufts University, School of Dental Medicine
Interventions	Group A (n=26): Theraflex cream ¼ to ½ teaspoon of cream on the afflicted masseter or over the jaw joint during seven min. twice daily for 2 weeks Group B (n=26): placebo cream ¼ to ½ teaspoon of cream on the afflicted masseter or over the jaw joint during seven min. twice daily for 2 weeks
Outcomes	Pain level (NGRS) Maximum mouth opening (mm)
Chronicity	Low disability
Hints to chronicity	Exclusion criteria: Pain or psychotropic medication use within a one-month period; Diagnosis of migraine;
Duration	Follow-up for 20 days
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	They used urn randomization in the box.
Allocation concealment (selection bias)	Low risk	Cite: „...blind selection from a pool of 52 numbers and „...Numbers assigned to each subject were monitored by the employee and were not disclosed until the study was completed" Comment: extern
Blinding of participants and personnel (performance bias)	Unclear risk	Cite: " ...randomized double-blind fashion".
Blinding of outcome assessment (detection bias)	Unclear risk	Cite: " ...randomized double-blind fashion".
Incomplete outcome data (attrition bias)	Low risk	Email: no dropouts

Selective reporting (reporting bias)	Low risk	All outcomes are reported
Other bias	Unclear risk	Funded by a medical firm

Makino 2014

Methods	RCT. single centre; three parallel groups
Participants	39 patients: 69.2% women; mean age Group A 40; Group B 42; Group C 53. Inclusion criteria: pain persisting for at least 6 months; chronic craniocervical pain including arm, shoulder, and upper back pain without apparent organic abnormalities; abnormality of TMJ and jaw movement. Country: Japan Clinic: pain centre
Interventions	Group A (n=13): control group (pharmacological treatment) Group B (n=13): exercise therapy (jaw movement exercise (JME) at home) Group C (n=13): ET-PI group (continue JME at home + psychological intervention (PI))
Outcomes	Pain intensity (NRS) Jaw movement
Chronicity	High disability
Hints to chronicity	1. Pain persisting for at least 6 months 2. Chronic craniocervical pain including arm, shoulder, and upper back pain without apparent organic abnormalities 3. Pain centre 4. High pain intensity at baseline
Duration	98 days follow-up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: "The patients were randomly assigned to a control group, an ET group, or an ET-PI group."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Low risk	Cite: „... blind to which group subjects were from, evaluated the jaw movement"
Incomplete outcome data (attrition bias)	Low risk	No dropouts according to the tables
Selective reporting (reporting bias)	Low risk	All outcomes reported

Other bias	Unclear risk	Cite: "The 3 groups were comparable in terms of patients' characteristics."

Marini 2010

Methods	RCT. single centre; three parallel groups;
Participants	99 patients: 75% women; age 15-50 years old. Inclusion criteria: clinical diagnoses of TMJ DD without reduction and osteoarthritis; pain for more than 6 months of similar intensity. Exclusion criteria: patients with myogenic pain; musculoskeletal pain based on the RDC/TMJ; depressive disorder; dental diseases; pregnancy; malignancy; and other systemic rheumatologic diseases such as rheumatoid arthritis. Country: Italy Clinic: Department of Orofacial Pain of University of Bologna for specialist treatment because of TMJ pain
Interventions	Group A (n=30): super pulsed low-level laser SLLLT (10 sessions over 2 weeks) Group B (n=30): ibuprofen (800 mg twice a day for 10 days) Group C (n=30): sham laser (as placebo in 10 sessions over 2 weeks)
Outcomes	Pain intensity (VAS) Active and passive mouth openings and right and left lateral motions
Chronicity	Low disability
Hints to chronicity	Exclusion: depression
Duration	1 month follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	No information on how
Allocation concealment (selection bias)	Unclear risk	No information on how
Blinding of participants and personnel (performance bias)	Low risk	Cite: „…patients belonging to L and C groups did not know whether they received laser treatment or laser treatment simulation."
Blinding of outcome assessment (detection bias)	Low risk	Cite: „…neither the operator knew whether the laser treatment he was applying was true or simulation."
Incomplete outcome data (attrition bias)	Unclear risk	Only in the experiment group were dropouts
Selective reporting (reporting bias)	Low risk	They reported both outcomes but only MMO was reported after 1 month and not VAS, used intention to threat though

Other bias	Unclear risk	No other conspicuous features

Marini 2012

Methods	RCT. single centre; two parallel groups.
Participants	24 patients: 66.67% women; age 24-54 years old. Inclusion criteria: presence of arthralgia or OA (OA diagnosis consisted of joint pain at rest and during function, evoked pain on TMJ palpation, and crepitus; arthralgia diagnosis was based on TMJ pain at rest, during function, and on palpation) Exclusion criteria: presence of myogenic pain; musculoskeletal pain based on Axis I of the RDC/TMD, depressive disorders according to Axis II of the RDC/TMD; odontogenic pain; pregnancy; malignancy; and other systemic rheumatologic diseases such as rheumatoid arthritis. Country: Italy Clinic: University of Bologna's Department of Orthodontics
Interventions	Group A (n=12): PEA 300 mg in the morning + 600 mg in the evening for 7 days and then 300 mg x2/day for 7 more days Group B (n=12): ibuprofen 600 mg x3/day for 2 weeks.
Outcomes	Intensity of spontaneous pain (VAS) Maximum mouth opening (mm) Adverse Effect Registration
Chronicity	Low disability
Hints to chronicity	Exclusion: depression
Duration	14 days treatment; no follow up.
Notes	The present study was not sponsored.

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "using a balanced block randomization; each block was made of two subjects who were assigned to the treatments. The patients with arthralgia were randomly assigned to the groups, two in each of them."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Cite: „. the operator who administered the treatments and the patients were blinded."
Blinding of outcome assessment (detection bias)	Low risk	Cite: „...blind operator during the first visit and again after the 14th day of drug treatment." and „...orofacial pain specialist (MI) who was blind to the drug administered"
Incomplete outcome data (attrition bias)	Unclear risk	Comment: No information given

Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	Cite: "At baseline, pain intensity was not significantly different between the two groups"

Marzook 2020

Methods	RCT. single centre; two parallel groups
Participants	16 patients: % women; mean age (SD±) years old. Inclusion criteria: presence of clicking sound and painful joint. Exclusion criteria: patients treated by different conservative treatment modalities in addition to splint therapy; patients with previous invasive TMJ surgical procedures; inflammatory or connective tissue disease; neurologic disorders; history of bony or fibrous adhesion and condylar fractures; with chronic psychological problems. Time: n.a. Country: Egypt Clinic: outpatient clinic in the Oral and Maxillofacial Surgery Department, Faculty of Dentistry, Mansoura University
Interventions	Group A (n=8): conventional arthrocentesis technique (2 ml of Ringer lactate solution; procedure usually lasted for around 30 minutes) Group B (n=8): intra-articular injection of a mixture of hyaluronic acid and corticosteroid (hyaluronic acid (0.5 ml of Hyalubrix salt 30 MG/2 ML; 0.5 ml of triamcinolone acetonide (Kenacort A-40: each ml. contains Triamcinolone Acetonide 40 mg. with Sodium Chloride)
Outcomes	Pain (VAS) Maximum interincisal opening (MIO) Range of lateral mandibular excursions Clicking was recorded as present or absent
Chronicity	Low disability
Hints to chronicity	Exclusion criteria: patients treated by different conservative treatment modalities in addition to splint therapy; patients with previous invasive TMJ surgical procedures; inflammatory or connective tissue disease; neurologic disorders; history of bony or fibrous adhesion and condylar fractures; with chronic psychological problems
Duration	3 months follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "Patients were divided randomly into 2 equal groups (8 patients each)"
Allocation concealment (selection bias)	Unclear risk	No information given

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Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Unclear risk	No information given
Selective reporting (reporting bias)	Low risk	All outcomes were reported
Other bias	Unclear risk	Cite: "The authors declare that they have no competing interest."

Mejersjö 2008

Methods	RCT. single centre; two parallel studies;
Participants	29 patients: 93% women; aged 36–76 years. Inclusion criteria: self-report of TMJ pain; tenderness to palpation laterally/ posterior of the TMJ; pain in the TMJ on mandibular movements; coarse crepitus/radiological signs of erosions/sclerosis of the cortical outline; flattening of the joint surfaces/osteophyte formation; not received any previous treatment of the present disorder except perhaps analgesics. Exclusion criteria: systemic diagnosis affecting the joints; sensitivity to acetylsalicylic acid; impaired coagulation; ulcer, kidney, or liver problems. Country: Sweden Clinic: Orofacial Pain Clinic at the Department of Stomatognathic Physiology, University of Göteborg
Interventions	Group A (n =15): splint acrylic flat occlusal splint covering all the teeth of the upper jaw. Group B (n=14): medication with diclofenac (Voltaren 3x50 mg day)
Outcomes	Laterally Restricted TMJ movement Maximum opening (mm) TMJ pain on movements TMJ pain on palpation Pain intensity (VAS, NRS 0-5) HDI
Chronicity	Low disability
Hints to chronicity	Cite: "No patient had had any treatment with NSAID of their TMJ OA" Cite: "The patients had not received any previous treatment of the present disorder except perhaps analgesics."
Duration	3 months treatment; 1 year follow up.
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation	Low risk	Cite: "The mode of treatment was decided according to two computer generated tables randomly produced in advance

(selection bias)		depending on whether the duration of symptoms was acute (<6 months) or chronic (>6 months) and one or the other table was used. The degree of clinical dysfunction according to Helkimo decided which end of the tables should be entered to get the randomized type of treatment for a particular patient."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Low risk	Cite: "Blinding was achieved by letting one and the same examiner diagnose and examine the patients before and at all the clinical follow-ups without knowledge of the treatment given."
Incomplete outcome data (attrition bias)	Low risk	Cite: "Eleven patients (38%) reported some type of side effects from the treatment, six in the splint group and five in the diclofenac group (Table 4). Three of them chose to stop the treatment in advance because of the side-effects, two with splint and one with diclofenac treatment." Comment: Dropouts are equally spread, and explanation is given.
Selective reporting (reporting bias)	Low risk	All outcomes are reported
Other bias	Unclear risk	No further inequalities

Minakuchi 2001

Methods	RCT. single centre; 3 parallel groups
Participants	69 patients: 89.86% women; mean age 34 (+15.4). Country: Japan Clinic: "selected from a consecutive series of TMD patients (...) who attended the TMD clinic in the Department of Fixed Prosthodontics at Okayama University Dental School"
Interventions	Group A (n=23): self-care/NSAIDs (palliative care, NSAID (Diclofenac Sodium, Voltaren in doses of 25 mg, 3x per day + anti-gastriculcer medication (Aldioxa) in dose of 300mg 3x per day) + instructed on how to perform a self-care protocol (use of cold/hot packs, a soft food diet, and gentle mouth-opening exercises) Group B (n=25): occlusal appliance/jaw mobilization + self-care/NSAID Group C (n=21): control group
Outcomes	VAS Pain Levels at rest / during mastication Maximum comfortable / active / passive mandibular opening Daily activity limitation score (DAL)
Chronicity	Low disability
Hints to chronicity	Cite: "excluded, if they had previous or ongoing treatments for their TMD or tooth problems in other clinics (e.g., medication, intra-oral appliance therapy, or dental restorative work)." and Cite: "consecutive patients") Tertiary care

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Duration	2 months
Notes	Further publications: "improvement score", "satisfaction score", "difficulty score"): "Self-reported remission, difficulty, and satisfaction with non-surgical therapy used to treat anterior disc displacement without reduction" (Minakuchi, 2004)

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "by means of a computer-generated false-random-number method"
Allocation concealment (selection bias)	Unclear risk	Cite: "The disk displacement without reduction subjects were allocated randomly by a principal investigator (H.M.) to 1 of the 3 groups ie. the control, palliative care, or physical medicine group using a computer-generated false random-number method."
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Low risk	Cite: "these measurements were performed with the examiner blind to the subject's treatment group."
Incomplete outcome data (attrition bias)	Low risk	Cite: "During the two-month observation period, eight subjects failed to report and were dropped from the intended sample. Two additional female subjects were also dropped after the four-week follow-up point because they requested a rescue therapy. When missing data were encountered, the data from the last time point were extended to fill the missing time points. These projected data fulfilled the principles of an intent-to-treat analysis. The intent-to-treat analysis is used so that the potential benefit to all subjects enrolled in the treatment arm of the study can be calculated, regardless of whether they completed the study."
Selective reporting (reporting bias)	Low risk	All outcomes were reported
Other bias	Unclear risk	Cite: "No significant differences were seen in the listed parameters (baseline comparison)"

Nguyen 2001

Methods	RCT. single centre; two parallel groups
Participants	45 (end 34) patients: 88.24% women; mean age Group A 43 (SD±14); Group B 46 (SD±15). Inclusion criteria: complaints of pain in one or both TMJs and moderate or severe pain on lateral or dorsal palpation of the TM joints. Exclusion criteria: taking prescription or over the counter, nonsteroid anti-inflammatory drugs prior to or during the study period; acetaminophen and

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	muscle relaxants were permitted; taking drugs like the study medications prior to or during the study period; taking heparin; suffering from or having a history of deep venous thrombosis; being scheduled for surgery; being under active psychiatric care; having systemic involvement of other joints in the body. Country: USA Clinic: by other professionals or responded to a newspaper advertisement.
Interventions	Group A (n=23): dose of 1500 mg of glucosamine hydrochloride (GH)+1200 mg of chondroitin Sulphate (CS) (3xtwice daily for 3 months Group B (n=22): placebo (identical looking tablets, 3xtablets twice daily which did not contain the active ingredients)
Outcomes	Pain (McGill Pain Questionnaire, VAS) Tenderness on palpation Range of motion (mm) TMJ sounds Number of daily over-the counter medications needed Adverse effect Generally, rate any change
Chronicity	Low disability
Hints to chronicity	1. Recruited through newspaper 2. Exclusion: Medication; being in psychiatric care; having problems with other joints
Duration	3 months
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "The randomization order was obtained through a computer generated simple consecutive randomization."
Allocation concealment (selection bias)	Low risk	Cite: "A copy of the randomization code was maintained in the custody of a neutral party until completion of the clinical portion of the study and until all the data was collected." Comment: extern
Blinding of participants and personnel (performance bias)	Low risk	Cite: "Investigators and subjects were blinded to the contents of the assigned medications throughout the study."
Blinding of outcome assessment (detection bias)	Unclear risk	Comment: no information about the examiner
Incomplete outcome data (attrition bias)	High risk	Cite: "After enrolment, eleven subjects were lost for various reasons. In the placebo group, two subjects were lost to follow-up. In the active medication group, three subjects dropped out for reasons unrelated to the study, two were lost to follow-up, one

		developed stomach-ache after being on the study medication for 24 days, and the data from one subject could not be used because of incomplete records. Two additional subjects developed allergic reactions; one developed swelling of the face after taking the active medication for two days, and the other subject developed a rash after two months." Comment: A lot of dropouts and not equally balanced
Selective reporting (reporting bias)	Low risk	Reported about all the outcomes
Other bias	Unclear risk	No further inequalities

Nitecka-Buchta 2014

Methods	RCT. single centre; two parallel studies
Participants	79 patients: 73.4% women; age 22–34 years old; mean age 23 years. Inclusion criteria: temporomandibular disorder positive RDC/TMD examination for groups RDC/TMD Ia, Ib; agreement to participate in the experimental study. Exclusion criteria: bee venom allergy; hyperactivity to bee products; positive anamnesis of anaphylactic reaction after bee bites; skin wounds with skin surface discontinuation; RDC/TMD II and RDC/TMD III. Country: Poland Clinic: Department of Orthodontics and Temporomandibular Joint Dysfunction, Medical University of Silesia in Katowice, place Traugutta 2, 41-800 Zabrze
Interventions	Group A (n=37): bee venom+physio (Patients were supposed to massage their masseter muscles 3 times a day during 2 weeks before control visit) Group B (n=42): placebo (Vaseline) (Patients were supposed to massage their masseter muscles 3 times a day during 2 weeks before control visit)
Outcomes	Changes in Muscle Tonus Maximal muscle contraction (MMC) EMG (Schwamedico, Version 3.1) Pain intensity (VAS)
Chronicity	Unclear
Hints to chronicity	None
Duration	14 days
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: „...by picking up an even or odd number from the envelope"
Allocation concealment	Unclear risk	No further information about the envelops

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(selection bias)		
Blinding of participants and personnel (performance bias)	Unclear risk	No information given other than "Double Blinded Study"
Blinding of outcome assessment (detection bias)	Unclear risk	No information given other than "Double Blinded Study"
Incomplete outcome data (attrition bias)	Unclear risk	Cite: "Of these, 4 patients were excluded because of positive allergic reaction to bee venom substance (1 in experimental group and 3 in control group). Five patients did not attend control visits and two patients did not accept bee venom substance." Comment: unbalanced number of dropouts among the groups.
Selective reporting (reporting bias)	Low risk	Reported all the outcomes. Study protocol stated and everything in the main study reported. NCT02101632
Other bias	Unclear risk	The authors declare that there is no conflict of interests regarding the publication of this paper.

Oliveras-Moreno 2008

Methods	RCT. single centre; two parallel studies
Participants	41 patients: 78.1% women; age 20-65 years old; mean age Group A 25 (SD±11); Group B 33 (SD±14). Inclusion criteria: Wilkes's stage II disease of at least 2-months' duration; TMJ pain greater than 3 cm (VAS) at rest, on jaw opening, and on mastication. Exclusion criteria: Major exclusion criteria included other painful TMJ conditions, infection of the affected joint or at the site of injection, concomitant osteoarthritis of other joints of sufficient severity to interfere with the assessment of the TMJ, previous surgery of the affected joint, and injection of SH or corticosteroids into the target TMJ during the previous 6 months. Country: Spain Clinic: Department of Oral and Maxillofacial Surgery, Virgen del Rocio University Hospital, Faculty of Dentistry, University of Seville, Seville
Interventions	Group A (n=20): 1 I A infiltration of Sodium Hyaluronate (SH) with assessments at days 14, 28, 56, and 84. Group B (n=21): control group was given 2 tablets of a combination of methocarbamol 380 mg and paracetamol 300 mg every 6 hours for 4 weeks, with assessments at days 14 and 28.
Outcomes	Pain at rest, on jaw opening, and on mastication (VAS) Affected TMJ (100-point questionnaire) Global judgments of efficacy (5-point scale) Tolerability to the treatment (5-point scale) Adverse events were recorded at each visit by types and frequencies
Chronicity	Low disability
Hints to chronicity	Exclusion: treatment before
Duration	28, 84 days follow up

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Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: „... randomly assigned to 2 groups" Comment: need more detail
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	High risk	It was an open trial study
Blinding of outcome assessment (detection bias)	High risk	It was an open trial study
Incomplete outcome data (attrition bias)	Unclear risk	Cite: "All 20 patients from the SH group completed the trial, whereas in the combination drug group, 4 patients terminated the study prematurely." Comment: no information given why the four patients dropped out
Selective reporting (reporting bias)	Low risk	Reported all the outcomes
Other bias	Unclear risk	Cite: "Both groups were homogeneous for gender (80.0% women in the SH group vs 76.2% in the control group), but not for age (mean 25±11 years in the SH group vs 33±14 years in the control group) "The different baseline measures of TMJ pain were homogeneous for the 2 study groups."

Ozkan 2011

Methods	RCT. single centre; three parallel groups; 12 weeks follow up.
Participants	50 patients: 88% women; mean age 30.38; Group A 30.36 (SD±8.94) and Gruppe B: 30.4 (SD±9.22). Inclusion criteria: pain of muscular origin with or without limited opening; duration of pain at least 3 months including a complaint of pain associated with localized areas of tenderness to palpation in masticatory muscles; combined with self-assessed myofascial pain of at least 40 mm on VAS. Exclusion criteria: odontogenic reasons for the orofacial pain; evidence of bone pathology (rheumatoid arthritis, osteoarthrosis, condylar resorption) and TMJ pain; previous treatment for TMD; use of complete dentures; other causes of pain (e.g., trigeminal neuralgia, atypical facial pain). Time: Jun 2006-April 2008 Country: Turkey Clinic: Clinic of Oral and Maxillofacial Surgery

APPENDIX VIII: Characteristics of studies

Interventions	Group A (n=25): stabilization splint (splint at night for a period of three months) Group B (n=25): stabilization splint + injections into trigger points (2 sessions with solution of 0.5 ml lidocaine + 0.5 ml saline; and a third session with 0.1 ml triamcinolone acetanide. 22 injections in masseter muscle, 13 injections in temporalis, and 20 injections in lateral pterygoid muscles).
Outcomes	Pain during mandibular movements/at rest Pain intensity (VAS) Frequency of myofascial pain) Palpation: Number of trigger points in masticatory muscles Intensity of myofascial pain (VAS) Maximal incisal opening (MIO) Improvement of overall subjective symptoms
Chronicity	Low disability
Hints to chronicity	Exclusion: patients which received therapy beforehand
Duration	Treatment for 1 week/3months, follow-up for 12 weeks after completing treatment.
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: "randomly assigned" Comment: no further information on how
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Unclear risk	Cite: "The clinical examination, performed before and after treatment by the same examiner. Another specialist who was not involved in the examination at baseline and at follow-up delivered and adjusted the appliance and TrP injections were performed by pain specialist." Comment: no information about the actual blinding
Incomplete outcome data (attrition bias)	Low risk	No dropouts according to the tables
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	No further inequalities

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Patel 2017

Methods	RCT. single centre; two parallel groups
Participants	19 patients: Inclusion criteria: TMD pain assessment >3 on a 0-10 ordinal scale; Pain at least 10 days per month; TMD signs/symptoms for at least 3 months prior to initial visit; TMD symptoms refractory to conventional therapy (medications or oral devices) Exclusion criteria: Females who are pregnant; breast feeding; not practicing birth control; Treatment of other conditions with botulinum toxin; TMJ surgery within 6 months of initial visit; Patients anticipating hospitalisation or change in the current regimen of treatment for TMD pain (including change in medication or other procedures). Country: USA Clinic: recruited from a variety of dental and otolaryngology practices where patients had failed standard treatments.
Interventions	Group A (n=10): Incobotulinumtoxin A were injected under EMG control with 50 units into each masseter muscle, 25 units into each temporalis muscle, and 10 units into each external pterygoid muscle using a 27-gauge monopolar electrode injection needle. Group B (n=9): placebo received an equal volume of normal saline into each muscle injected with the same needle.
Outcomes	Pain (VAS) Muscle tenderness scores Pain medication use
Chronicity	High disability
Hints to chronicity	1. Subjects were recruited from a variety of dental and otolaryngology practices where patients had failed standard treatments 2. Tertiary care
Duration	4-16 weeks interval
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: „...randomized via random computer generated."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Unclear risk	Cite: "In those patients who did not have at least a 50% reduction in pain, an unblinded nurse reviewed which injection they had initially received." Comment: not clear if the blinding was done until the

APPENDIX VIII: Characteristics of studies

		crossover
Incomplete outcome data (attrition bias)	Low risk	Cite: "1 patient dropped out due to a family illness and moved out of state" Comment: Only one drop out
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Low risk	Cite: "The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article." Cite: "Regarding pain medication usage, no difference was noted at baseline in terms of days of pain medication usage between the 2 groups."

Pramod 2011

Methods	RCT. single centre study; two parallel studies.
Participants	35 participants: 60% women; age < 50 years old; Inclusion criteria: Daily pain in the preauricular region at least of three months duration; muscle tenderness to palpation in one or more muscle of mastication; those who were diagnosed as TMD earlier, but not treated with diazepam (patients being treated with some other medication were included provided a washout period of 15 days). Exclusion criteria: evident changes in TMJ detected on radiographic examination; pain attributable to recent facial trauma, dental surgery, or placement of a dental appliance; other local causes of pain (dental abscess, trigeminal neuralgia or migraine); presence of other disorder that required ongoing treatment with analgesics, muscle relaxants, or mood altering drugs, which would confound the evaluation of TMD pain; allergy or other contraindications to the study drugs; patients taking medication for other medical conditions during the last 15 days. Country: India Clinic: No information.
Interventions	Group A (n=10): placebo Group B (n=25): diazepam 5mg (once a day)
Outcomes	Pain intensity (VAS) Masticatory muscle tenderness (masseter, medial pterygoid, lateral pterygoid, temporalis) Maximum Mouth opening (mm)
Chronicity	High disability
Hints to chronicity	1. Patients being treated with some other medications were included provided a washout period of 15 days 2. Daily pain in the pre-auricular region at least of three months duration
Duration	3 weeks treatment; follow-up for 5 weeks
Notes	

APPENDIX VIII: Characteristics of studies

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: „...were randomly assigned..." Comment: need more information
Allocation concealment (selection bias)	Low risk	Cite: "The allocation sequence was known only to another staff in the department, who dispensed the tablets along with the detailed instructions."
Blinding of participants and personnel (performance bias)	Low risk	Cite: "Neither the doctor nor the patients were aware of the treatment given until completion of the interventions."
Blinding of outcome assessment (detection bias)	Low risk	Cite: „Neither the doctor nor the patients were aware of the treatment given until completion of the interventions."
Incomplete outcome data (attrition bias)	Unclear risk	No information given
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	No further inequalities

Ramakrishnan 2019

Methods	RCT. single centre; two parallel groups
Participants	50 patients: n.a. % women; mean age n.a. Inclusion criteria: chronic TMJ pain not relieved by analgesics Exclusion criteria: allergy to aceclofenac gel; pregnancy; epilepsy; bleeding disorders; liver; kidney damage; skin disorders like psoriasis and skin abrasions; on steroid therapy. Time: n.a. Country: India Clinic: Department of Oral Medicine and Radiology, Sree Balaji Dental College and Hospital, Bharath University, Chennai, Tamil Nadu, India
Interventions	Group A (n=25): plain ultrasound Acoustic gel containing no pharmacological agent was applied in the ultrasound group Group B (n=25): phonophoresis (gel containing aceclofenac was applied in the phonophoresis group)
Outcomes	Pain (VAS) C-reactive protein values (CRP) (immunoturbidometric)
Chronicity	High disability
Hints to chronicity	Patients not relieved by analgesics were included and recruited from a tertiary care.
Duration	three times a week for 2 weeks treatment
Notes	

APPENDIX VIII: Characteristics of studies

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: "Fifty patients diagnosed clinically, and radiographically as temporomandibular disorder were randomly assigned into either of the two groups"
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Unclear risk	All outcomes were reported
Selective reporting (reporting bias)	Unclear risk	(Ref: SBDCECM105/13/33) All outcomes reported
Other bias	Unclear risk	Cite: "Conflicts of interest. There are no conflicts of interest."

Schiffman 2007

Methods	RCT. single centre; four parallel studies;
Participants	106 patients: women: A 90%, B 100%, C 85%, D 96%; mean age group A 33.7 (SD±1.8), B 30.0 (SD±1.7), C 31.8 (SD±1.7), D 31.4 (SD±1.9). Inclusion criteria: age 18 to 65 yrs.; daily pain in affected joints aggravated by jaw movement and function; duplication of pain when the affected joint was examined; MRI diagnosis of stage III or IV closed lock (Wilkes, 1989); limited mouth opening; and at least two years' availability. Exclusion criteria: systemic rheumatic disease; generalized joint pain or swelling; pregnancy; concurrent use of steroids, anti-inflammatories, muscle relaxants /narcotics; major psychiatric disease; any medical contraindication; drinking more than 3 alcoholic drinks daily; unwillingness to accept study treatments; prior TMJ surgery. Country: USA Clinic: University of Minnesota "Participants were recruited from the University's TMJ and Orofacial Pain Clinic, HealthPartners TMJ Clinics, and the authors' private practices."
Interventions	Group A (n=29): medical management (education, with optimistic counselling, a self-help program, a six-day regimen of oral methylprednisolone followed by NSAIDs for 3-6 weeks (muscle relaxants analgesics used as needed)) Group B (n=25): non-surgical rehabilitation (treatment from a dentist, physical therapist, health psychologist (medical management (above) + splint, physical therapy (joint mobilization, physical therapy modalities, and a home exercise program), cognitive- behavioural therapy (oral habits,

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	maladaptive habits, and psychopathology, and two follow-up sessions focused on education, habit reversal, and improvement of compliance and self-efficacy) Group C (n=26): arthroscopic surgery Group D (n=26): arthroplasty
Outcomes	Craniomandibular Index (CMI) Symptom Severity Index (SSI) for jaw function and TMJ pain respectively (Intensity and frequency of TMJ pain) Depression (only at Baseline; SCL-90-R) Somatization (only at Baseline; SCL-90-R) Mandibular range of motion (mm) TMJ sounds (clicking, crepitus) Impairment of chewing
Chronicity	Low disability
Hints to chronicity	Exclusion criteria: concurrent use of steroids, anti-inflammatories, muscle relaxants /narcotics; major psychiatric disease. No significant somatization or depression scores (SCL-90-R) at baseline. Primary and tertiary care
Duration	60 month follow up
Notes	Further publications: "Effects of four treatment strategies for temporomandibular joint closed lock" (Schiffman, 2014)

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite (Schiffman 2014): "The treatment strategy randomization also employed unequal blocks to increase the number of patients assigned to ‘medical management’ because we anticipated a priori that such requests would be greatest in this group."
Allocation concealment (selection bias)	Unclear risk	Cite: "Treatment assignment was concealed from participants and care provider(s) in sealed envelopes until the enrolment procedure was completed." Cite: "The study coordinator then opened the envelope and informed the participant of the group assignment." Comment: the envelopes need to be more detail description
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Low risk	Cite: "A single examiner blinded to treatment assignment, performed all clinical measures" Cite: "The examiner had no contact with participants except during planned clinical evaluations. When participants presented for evaluation, a research coordinator administered questionnaires, instructed them not to discuss treatment with the examiner, and placed a thin tape over both pre-auricular areas to conceal the surgical scar's absence or presence. Given these measures,

		further evaluation of the blind was deemed unnecessary"
Incomplete outcome data (attrition bias)	Low risk	Cite: "The primary analyses were by intention-to-treat; individuals receiving a second treatment modality during follow-up were analysed according to their original treatment assignments. Ten participants withdrew after randomization, but before receiving therapy (Appendix Fig.). Eight were examined 5 yearrs later; the five-year analyses include them. To assess their influence, we included, in a secondary five-year analysis, only participants receiving treatment."
Selective reporting (reporting bias)	Low risk	All outcomes reported.
Other bias	Unclear risk	Cite: "Comparison of treatment groups at baseline showed no differences"

Shanavas 2014

Methods	RCT. single centre; two parallel groups
Participants	40 patients: 60% women; age 20-55 years old. Exclusion criteria: history of maxillofacial trauma; orofacial infections; developmental anomalies of the maxillofacial region. general contraindications of the TENS therapy: cardiac pacemaker, serious/unstable heart condition, epilepsy or allergy to adhesive tape or electrodes of the TENS machine. Country: India Clinic: Department of Oral Medicine and Radiology, Yenepoya Dental College and Hospital, Mangalore
Interventions	Group A (n=20): combination: analgesics + muscle relaxants (ultrazox tablet-chlorzoxazone 250 mg, diclofenac potassium 50 mg, paracetamol 325 mg; 3xdaily, for five days) (control) Group B (n=20): TENS therapy in combination with medication (two sessions of 30 minutes each, separated five days apart, along with the above medication)
Outcomes	Intensity of pain (VAS)
Chronicity	Unclear (high disability)
Hints to chronicity	Tertiary care
Duration	5 days treatment
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: "The selected patients were randomly allocated into two equal groups." Comment: need more information.

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Allocation concealment (selection bias)	Unclear risk	Not addressed
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Low risk	No dropouts according to the tables
Selective reporting (reporting bias)	Low risk	Reported the outcome
Other bias	Unclear risk	Cite: "Conflict of Interest: None declared"

Sharav 1987

Methods	RCT. single centre; three parallel crossover groups
Participants	28 patients: 78.6% women; age 41.5 years old. Inclusion criteria: chronic pain in the orofacial area of at least 6 months duration; pain occurring daily or almost daily of continuous nature and non-throbbing quality; 18 years of age or older. Exclusion criteria: pain due to trigeminal neuralgia; to periodic migraines neuralgia or pain attributable to a local; well defined cause such as dental abscess; malignancy or TMJ arthritis; high risk for suicide; intolerance to amitriptyline due to pre-existing cardiac conduction defects; allergy; glaucoma. Country: Israel Clinic: not stated
Interventions	Group A (n=8): low dose amitriptyline versus placebo (two 5-mg tablets taken at bedtime on the first and second evenings rising in 5-mg increments on each subsequent night to a minimum of 30 mg daily) Group B (n=11): high dose amitriptyline versus placebo (two 25mg tablets initially rising in 25-mg increments to a maximum of 150 mg) Group C (n=9): high dose versus low dose
Outcomes	Pain (VAS, McGill Pain Questionnaire (MPQ)) Pain relief (VAS) Depression (Hamilton Depression Inventory)
Chronicity	High disability
Hints to chronicity	Cite: "All patients were previously treated for their pain with a variety of treatment modalities including medications (e.g., analgesics, tranquilizers), physiotherapy and intraoral bite appliances."
Duration	2x 4 weeks
Notes	Treatments were allocated such that half the subjects in each of the 3 groups received one treatment for the initial 4 weeks and the alternative treatment for the second 4 weeks while the other half received the treatments in a reverse order.

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Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: „...were then randomly allocated to 1 of 3 groups"
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Low risk	Cite: "Alterations in dose were performed by an associate investigator (ES) blind to the treatments and the maximum dose level was limited by patients' tolerance to anticholinergic side effects and drowsiness."
Incomplete outcome data (attrition bias)	Low risk	Cite: "1 dropped out, after 1 week, 1 failed to comply with the drug regimen, and 2 ingested large quantities of narcotics, benzodiazepines and alcohol intermittently during the study."
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	No further inequalities

Shin 1997

Methods	RCT. single centre; two parallel groups
Participants	20 patients: 75 % women; mean age Group A 18.70 (SD±4.64); Group B 26.20 (SD±13.48) Inclusion criteria: subjects had to have TMJ pain as a chief complaint and tenderness on palpation of TMJ. Exclusion criteria: polyarthritis or rheumatoid arthritis Time: Country: Korea Clinic: Department of Oral Medicine, Kyungpook National University Hospital
Interventions	Group A (n=10): ultrasound massage (1.0 MHz, 0.8 to 1.5 W/cm2 continuous output) for 15 minutes to the painful TMJ + placebo cream for the control group respectively Group B (n=10): ultrasound massage (1.0 MHz, 0.8 to 1.5 W/cm2 continuous output) for 15 minutes to the painful TMJ + 1% indomethacin cream was used for the experimental group
Outcomes	Pain (VAS) Pressure pain threshold (PPT)
Chronicity	Unclear (high disability)
Hints to chronicity	Tertiary care
Duration	Second day follow up

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Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: " Clinical examination of each subject for TMJ pain was performed and the subjects were randomly assigned to the control group or the indomethacin group." Comment: No further information given
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Low risk	Cite: "Post-treatment VAS and PPT were recorded on the second day of treatment by a person who had no knowledge as to which group the subject bad been assigned."
Incomplete outcome data (attrition bias)	Unclear risk	No information given
Selective reporting (reporting bias)	Low risk	Reported about the two outcomes
Other bias	Unclear risk	Important information missing

Singer 1997

Methods	RCT. single centre; four parallel groups
Participants	39 patients: 89.74 % women; mean age 36.1. Inclusion criteria: daily or near-daily pain in the orofacial region as assessed by baseline pain diaries; pain of at least 3 months' duration; muscle tenderness to palpation in the muscles of mastication. Exclusion criteria: clinical/radiography evidence of primary TMJ pathology (crepitus, tenderness on palpation through the external auditory meatus, erosion of the condyle); pain attributable to recent facial trauma, dental surgery, placement of a dental appliance; other local causes of pain; muscle pain associated with a systemic illness; presence of another disorder that required on going treatment with analgesics, muscle relaxants, mood-altering drugs, which would confound the evaluation of orofacial pain; allergy/other contraindications to the study drugs. Country: USA Clinic: National Institute of Dental Research Pain Research Clinic by local dentists and physicians
Interventions	Group A: placebo Ibuprofen Group B: Diazepam Group C: Ibuprofen (600 mg 4xtimes daily (total 2400 mg) Group D: Diazepam and Ibuprofen (600 mg 4xtimes daily; 2.5 mg 4xtimes diazepam was for 1 week, then 5 mg 4xtimes daily for the remaining 3

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	weeks if not limited by side effects (total daily dose up to 20 mg)
Outcomes	Pain intensity (VAS) Muscle tenderness Maximal interincisal opening Plasma levels of ß-endorphin Mood Changes (Zung Depression Scale, Depression Adjective Checklist, Anxiety state)
Chronicity	High disability
Hints to chronicity	1. Minnesota Multiphasic Personality Inventory and Beck Depression Inventory were administered as part of a general psychologic screening program 2. Daily or near-daily orofacial pain of at least 3 months 3. Subjects reported a mean of 2.7 previous medications (most commonly an analgesic) 4. Mean of 1.6 previous treatments (most commonly an intraoral appliance)
Duration	four weeks follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: „...randomly allocated."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	Cite: "Ibuprofen and its placebo were identically appearing tablets supplied by the manufacturer, Diazepam and its placebo were administered as identically appearing capsules." Comment: we can assume the patients were blinded but no information about the staff
Blinding of outcome assessment (detection bias)	Low risk	Cite: "another independently assessed the patients' pre-treatment and posttreatment." Comment: see above, we can assume the examiner was blinded
Incomplete outcome data (attrition bias)	Low risk	Cite: "10 did not complete the study for a variety of reasons: failure to return for appointments (5); insufficient pain relief at three days (1); spontaneous remission (1); delayed menses (1); rash (1); and inter current illness (1)"
Selective reporting (reporting bias)	Unclear risk	Didn’t report about the "Maximal interincisal opening" and "muscles tenderness“. Comment: very short detail about the outcomes
Other bias	Unclear risk	No further inequalities

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Sousa 2020

Methods	RCT. single centre; parallel groups
Participants	80 patients: 80 % women; mean age 43.1 (SD±17.7) years old. Inclusion criteria: clinical history of over 6 months of TMJP that modifies with mandibular movement in function or parafunction; pain present in a clinical examination at opening, laterality, or palpation; and no previous treatment. Exclusion criteria: had received previous treatment for TMJ dysfunction; patients suffering from any rheumatic pathology such as rheumatoid arthritis or psoriatic arthritis (including juvenile arthritis); hypnosis patients; pregnant or breastfeeding women; and those who were under 18 years old. Time: Country: Portugal Clinic: Course of Occlusal Rehabilitation at the University of Coimbra, organized by the School of Medicine
Interventions	Group A (n=20): bite splint only Group B (n=20): betamethasone in addition to using the bite splint Group C (n=20): sodium hyaluronate in addition to using the bite splint Group D (n=20): platelet-rich plasma in addition to using the bite splint
Outcomes	Pain intensity (VAS) Maximum pain-free mouth opening (mm)
Chronicity	Low disability
Hints to chronicity	no previous treatment
Duration	Six months follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "Treatment for each patient was assigned by a randomization list automatically generated prior to the start of the study in which the treatment approach was determined."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Unclear risk	No information given
Selective reporting (reporting bias)	Low risk	All outcomes reported. (IRB 06-2017-096)

Other bias	Low risk	Cite: "Sex distribution and age in the treatment groups yielded no significant differences. There were no differences in pain intensity among the groups at the beginning of the study. At the beginning of the treatment, there were no significant. Conflicts of Interest: The authors declare no conflict of interest."

Ta 2004

Methods	RCT. single centre; three parallel groups
Participants	78 patients: 67.65% women; age 18–65 years old. Inclusion criteria: aged 18–65 years; clinical diagnoses of TMJ DD with reduction and arthralgia or painful disc-displacement of the TMJ; myogenic pain was included if they met inclusion and exclusion criteria since patients with TMJ DD are known to exhibit muscle pain secondary to their joint dysfunction. Exclusion criteria: infectious arthritis; crystal induced arthropathies; musculoskeletal disorders; subjects with a primary diagnosis of myofascial pain based on the RDC; kidney or liver dysfunctions; GI tract; hematologic; unstable cardiovascular disorders or malignancy; untreated depressive disorder; not on stable antidepressant medication for more than 6 months; dental diseases that required ongoing treatment; hypersensitivity to celecoxib; naproxen; allergy to sulphonamides; demonstrated allergic-type reactions after taking aspirin or other NSAIDs; pregnant; lactating; not following an effective birth control regimen. Time: January 2000 to April 2003 Country: USA Clinic: Clinical Centre of the National Institute of Dental and Craniofacial Research (NIDCR) "by newspaper advertisement and through recruitment letter sent to local dentists"
Interventions	Group A (n=24): celecoxib 100 mg 2xday Group B (n=22): naproxen, 500 mg 2xday Group C (n=22): placebo for 6 weeks
Outcomes	Pain intensity (VAS) Maximal comfortable mandibular opening Quality of life (SF-36)
Chronicity	Low disability
Hints to chronicity	Exclusion: depression
Duration	6 weeks
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "Treatment randomization was stratified using a block size of 9 or 6 by National Institutes of Health Pharmaceutical Development Service."

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Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Unclear risk	Cite: "Of the 10 subjects who did not complete the study, four were non-compliant, three withdrew from study due to time constraint, and three failed to return for follow-up."
Selective reporting (reporting bias)	Low risk	Reported all the outcomes
Other bias	Unclear risk	Cite: "No significant differences between the three treatments groups were detected with respect to demographic characteristics or measures of TMD disease activity at baseline"

Tchivileva 2020

Methods	RCT. multi-centre study; two parallel groups
Participants	199 patients: 77.5% women; mean age Group A 33.9 (SD±12.19); Group B 34.2 (SD±13.29) Inclusion criteria: women and men; 18-65 years old; TMD myalgia (DC/TMD); facial pain for at least 3 months; at least 10 days with facial pain in the 30 days prior to the examination; had to report a pain rating of ≥30 on at least 3 days, or their weekly average rating was ≥30 Exclusion criteria: congestive heart failure; clinically significant abnormal 12-lead electrocardiogram (ECG); sinus bradycardia; uncontrolled hypertension or hypotension; bronchial asthma; nonallergic bronchospasm; renal failure or dialysis; diabetes mellitus; hyperthyroidism; fibromyalgia; uncontrolled seizures; used opoid's; beta-blocker or medications that could interact with propranolol; had facial trauma or orofacial surgery within 6 weeks prior to a screening visit; had major psychiatric disorders requiring hospitalizations within the last 6 months prior to a screening visit; had treatment for drug or alcohol abuse within the last year; were pregnant or nursing. Time: Country: USA Clinic: The University of North Carolina at Chapel Hill (UNC), Chapel Hill, North Carolina; the University of Florida (UF), Gainesville, Florida; and the University at Buffalo (UB), Buffallo, New York
Interventions	Group A (n=100): active treatment: propranolol hydrochloride extended release (ER) 60 mg 2xday (BID) Group B (n=100): 20mg of placebo 2xday
Outcomes	Pain (facial pain index, (FPI = facial pain intensity multiplied by facial pain duration, divided by 100)) Physical functioning (Short Form-12 Health Survey version 2, SF-12 v2) Sleep (Sleep Quality Index, PSQI) Headache (Headache Impact Test, HIT-6) Alcohol Use Disorders Identification Test (AUDIT)

APPENDIX VIII: Characteristics of studies

	Emotional functioning (Hospital Anxiety and Depression Scale, HADS) Somatization (Symptom Checklist 90-Revised, SCL-90R) Stress (Perceived Stress Scale, PSS) Coping (Coping Strategies Questionnaire Revised, CSQ-R) Participant ratings of improvement (global improvement) Symptoms and adverse events Participant disposition Quantitative sensory testing (QST) Pressure Pain Thresholds (PPTs)
Chronicity	Mixed
Hints to chronicity	41.7% of them had TMD GCPS grades from IIb to IV
Duration	1 week follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: „. electronic web response."
Allocation concealment (selection bias)	Low risk	The allocation concealment was kept from extern
Blinding of participants and personnel (performance bias)	Low risk	Cite: „. Site staff, investigators, participants, monitors, and a statistician analysing a primary endpoint were blinded to the allocation. The blinding was tested by asking participants to report their perceived group allocation at weeks 5 and 9 of treatment."
Blinding of outcome assessment (detection bias)	Low risk	Cite: „...Site staff, investigators, participants, monitors, and a statistician analysing a primary endpoint were blinded to the allocation. The blinding was tested by asking participants to report their perceived group allocation at weeks 5 and 9 of treatment."
Incomplete outcome data (attrition bias)	Low risk	Used intention-to-treat (ITT)
Selective reporting (reporting bias)	Low risk	All outcomes were reported
Other bias	Low risk	Cite: "The participant baseline demographic and clinical characteristics in the ITT sample were similar among treatment groups." and authors declare no conflict of interest

Thie 2001

Methods	RCT. single centre; two parallel groups

APPENDIX VIII: Characteristics of studies

Participants	45 patients: 89 % women; mean age 37.5 yrs. Inclusion criteria: baseline pain intensity ≥ 3/10 VAS; women or men ≥ 18 years of age and willing to give informed consent Women neither pregnant nor nursing; degenerative joint disease not as a result of acute trauma, previous infection, or general joint/muscle disease (e.g. rheumatoid arthritis); no history of intraarticular joint injections (e.g., steroids or hyaluronic acid); no previous use of glucosamine and/or chondroitin sulphate; no history of congestive heart failure, renal disease, hepatic disease; no history of hypersensitivity to NSAID; no history of peptic ulceration or GI bleeding no history of coagulation disorders; no active dental disease, periodontal disease, oral infection or pathology If using an antidepressant or anxiolytic medication it must have been for at least 6 months; if using an occlusal splint it must have been for at least 3 months Willing to take oral medication; willing to undergo a one week washout period; able to understand English Time: August 1998-November 1999 Country: Clinic: "Orofacial Pain Clinic at the University of Alberta or were recruited via mail to dentists in the Edmonton area or through local newspaper advertisement."
Interventions	Group A (n=21): Glucosamine Sulphate (500 mg tid) Group B (n=18): Ibuprofen (400 mg tid) Acetaminophen (500 mg) dispensed for breakthrough pain was counted every 30 days to Day 120.
Outcomes	TMJ pain with function (CAS) Pain-free (CAS) Voluntary maximum mouth opening (mm) Brief Pain Inventory (BPI) questionnaire Masticatory muscle tenderness
Chronicity	Low disability
Hints to chronicity	1. Low pain VAS-scores 2. Duration time of pain (15.09-16.61 months) 3. recruited through local newsletter
Duration	Follow up Day 90
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: " block randomized into one of the 2 treatment groups, GS (500 mg) and ibuprofen (400 mg). Block randomization ensures that the number of participants is equally distributed among the treatment groups over the course of the study. Our statistician (NGP) generated the randomization sequence."
Allocation concealment	Low risk	Cite: „. medications were prepared and coded as identical clear capsules by a pharmacist from batches that came with certificate of

(selection bias)		analysis of ingredients to ensure uniformity throughout. JamiesonTM (Windsor, Ontario, Canada) and Apotex Co. (Toronto, Ontario, Canada) kindly donated GS and ibuprofen, respectively. There was no drug crossover since carryover effects have been reported for GS."
Blinding of participants and personnel (performance bias)	Low risk	Cite: "Neither patients nor investigators knew which of the 2 medications was administered until the end of the study."
Blinding of outcome assessment (detection bias)	Low risk	Cite: "Neither patients nor investigators knew which of the 2 medications was administered until the end of the study."
Incomplete outcome data (attrition bias)	Low risk	Cite: "Four patients (8.8% of 45) taking ibuprofen and 2 (4.4% of 45) taking GS discontinued due to side effects. Three of 4 dropouts in the ibuprofen group discontinued due to stomach upset (dropout at Day 7 for 2 of these, Day 57 for the other), the other due to inadequate pain control (dropout at Day 64). One dropout in the GS group was due to dizziness (dropout Day 43), the other due to stomach upset (dropout Day 34)." Comment: Reported about the dropouts with reasons why
Selective reporting (reporting bias)	Low risk	Reported all the outcomes
Other bias	Unclear risk	There were no significant differences between treatment groups in terms of demographic characteristics or measured variables at the start of the study

Turner 2011

Methods	RCT. single centre; three parallel groups;
Participants	191 patients: 100% women, mean age group A 29.1 (SD±7.4), mean age group B 25.4 (SD±5.7), mean age group C 28.6 (SD±6.9). Inclusion criteria: female gender; age 18 45 years; (RDC/TMD) Axis I TMD pain diagnosis; premenopausal; characteristic pain intensity 3 or higher; local language skills. Exclusion criteria: lacking a menstrual cycle; pregnant, lactating, or planning to become pregnant in the next 7 months; unwilling to take a continuous OC; need for further diagnostic evaluation of facial pain; major medical or psychiatric conditions that would interfere with ability to participate. Additionally, study participants randomized to the COCT group underwent a gynaecological examination and were withdrawn from the study if they had a medical contraindication for COCT (history of or active thromboembolic disease; cerebrovascular or coronary artery disease; undiagnosed genital bleeding; oestrogen-dependent cancer; acute liver disease; benign or malignant liver tumours; severe headaches or headaches with atypical neurological changes); smoked cigarettes and were 35 years or older; had used medication within the last 3 months that interfered with oestrogen or progestin metabolism; had an abnormal pelvic examination, abnormal cytology (Pap smear), or undiagnosed uterine bleeding; or had no current mammogram and were 40 years or older. Country: USA

APPENDIX VIII: Characteristics of studies

	Clinic: U.W. Orofacial Pain Clinic and by advertising
Interventions	Group A (n=60): self-management training Group B (n=57): targeted self-management training (2.5 hr. interpersonal sessions+ 615 min. telephone session) Group C (n=74): continuous oral contraceptive therapy (2.5 hr. interpersonal session + 615 min. telephone session) Cointerventions: every study participant received a personalized list of recommended TMD self-care strategies
Outcomes	Pain intensity (CPI) Pain interference Subjective Pain (McGill Pain Questionnaire) Depression (BDI) Treatment helpfulness Pain beliefs: Disability, Harm, and Control (SOPA) Self-efficacy (SES) Catastrophizing (CSQ Catastrophizing scale) Perceived effectiveness of pain coping strategies
Chronicity	Low disability
Hints to chronicity	Exclusion: major medical or psychiatric conditions
Duration	Follow-up for twelve months
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "S-PLUS statistical software""
Allocation concealment (selection bias)	Low risk	Cite: "Treatment assignments were recorded on cards numbered consecutively within each stratum, and a study assistant not involved in the screening and randomization put the randomization assignments in sealed envelopes sequentially numbered by stratum. Randomization assignments were concealed to all study personnel with study participant contact until envelopes were opened by research staff at the time of randomization."
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Low risk	Used intention-to-treat
Selective reporting	Low risk	Reported all the outcomes

(reporting bias)		
Other bias	Unclear risk	No further inequalities

Vidor 2013

Methods	RCT. single centre; two parallel groups.
Participants	32 patients: 100% women; age 20-40 years old; mean age Group A 29.47 (SD±5.01); Group B 32.27 (SD±4.65). Inclusion criteria: SRQ-20, Clinical examination (RDC/TMD) (Group I-muscle disorders), VAS (7 days) if mean pain score >3 cm. Exclusion criteria: active dental caries lesions; pulpal lesions; emergency treatment for TMD; osteoarthritis of the TMJ; rheumatoid arthritis; fibromyalgia; neurologic deficits; history of psychiatric disorder; and/or language difficulties; history of steroid or anticonvulsant; one or more of the following group diagnoses according to RDC/ TMD guidelines2 also were excluded: disc displacement (Group II), and arthralgia, osteoarthritis, and osteoarthrosis (Group III). Country: USA Clinic: pain clinic
Interventions	Group A (n=16): placebo Group B (n=16): melatonin (5 mg)
Outcomes	Pain (pain score dairy) Pain intensity (VAS) Number of analgesics used Pressure pain threshold (PPT) Sleep (Pittsburgh Sleep Quality Index) (VASQS) Depression (Beck Depression Inventory)
Chronicity	Low disability
Hints to chronicity	1. Exclusion: history of psychiatric disorder
Duration	4 weeks follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: „...using computer-generated numbers. A fixed block size of six was used to ensure that equal numbers of participants were randomized into the two treatment groups."
Allocation concealment (selection bias)	Unclear risk	Cite: "sealed envelopes containing the allocated treatment were prepared and numbered sequentially." "The envelopes were opened sequentially by the pharmacy technician who provided the medications after the subject signed the consent form." Comment: opaque?

APPENDIX VIII: Characteristics of studies

Blinding of participants and personnel (performance bias)	Unclear risk	Cite: "The tablets were manufactured in such a way that the placebo and active treatment were identical." Comment: no information about the staff
Blinding of outcome assessment (detection bias)	Low risk	Cite: "Other individuals involved in patient care were unaware of the treatment group to which each patient belonged." "Two independent medical examiners who were blinded to the group assignments were trained to apply the pain scales and conduct psychological tests."
Incomplete outcome data (attrition bias)	Low risk	Cite: "one patient was subsequently withdrawn trial discontinuation for this patient (in the placebo group) was her dissatisfaction with the treatment effect." Used ITT
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Low risk	"The baseline characteristics were similar across the groups of patients assigned to melatonin and placebo groups" and "The authors declare that there are no financial or other relationships that might lead to conflicts of interest."

von Lindern 2003

Methods	RCT. single centre; two parallel groups
Participants	90 patients: gender not given; age not given. Inclusion criteria: chronic facial pain caused by hyperactivity of the masticatory muscles; para-low disability movement and hypermobility disorders; previous experience of non-successful conservative treatment. Exclusion criteria: other causes of pain, particularly arthropathy, were reliably ruled out clinically and by imaging diagnostics; undefined pain syndromes with unclear patterns of radiation and no reference muscle. Country: Germany
Interventions	Group A (n=60): botulinum toxin injections (35 MU Botox liquidated in 0.7 mL NaCl saline, 77% of the injections were administered intraorally) Group B (n=30): placebo (0.7 mL NaCl pure saline)
Outcomes	Subjective pain (VAS)
Chronicity	High disability
Hints to chronicity	Cite: "All patients had previously received appropriate conservative treatment (3 months to a maximum of 34 months) ... None of these methods had led to a decisive improvement in the symptoms up to that point."
Duration	4-weeks treatment, 1-3 months follow-up
Notes	

Risk of bias table

Bias	Authors'	Support for judgement

APPENDIX VIII: Characteristics of studies

	judgement	
Random sequence generation (selection bias)	Unclear risk	Cite: „. single blinded, randomized placebo-controlled study."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Unclear risk	No information given
Selective reporting (reporting bias)	Low risk	Reported about the outcomes stated
Other bias	Unclear risk	A lot of important information missing

Winocur 2000

Methods	RCT. single centre; two parallel groups
Participants	30 patients: 80% women; mean age Group A: 35.6 (SD±14.2); Group B 37.5 (SD±16.7). Inclusion criteria: history of TMJ pain for at least 3 months in a well-localized area; pain in the joint area associated with function; presence of TMJ tenderness to palpation on the; informed consent and agreement to participants. Exclusion criteria: presence of general neurologic disturbances (sensory or reflex changes, weakness, etc) according to the medical history; uncontrolled hormonal disease (diabetes, thyroid, or parathyroid disease, etc); presence of neoplasm; known psychiatric problems. Country: Israel Clinic: Clinic for Craniomandibular Disorders at the School of Dental Medicine, Tel Aviv University
Interventions	Group A (n=17): application of 0.025% capsaicin cream or its vehicle to the painful TMJ area 4 times daily for 4 weeks Group B (n=13): placebo
Outcomes	Pain (present pain, most severe pain, effect of pain on daily activities, and pain relief) (VAS) Muscle and joint sensitivity to palpation on the painful and contralateral joints Maximal mouth opening (assisted/passive and non-assisted/active)
Chronicity	Low disability
Hints to chronicity	per Mail: "Did they receive any treatment before participating into the study? No" 2. History of TMJ pain for at least 3 months in a well-localized area
Duration	4 weeks
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement

Random sequence generation (selection bias)	Unclear risk	No information given
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Cite: "The questionnaire was answered and placed in a closed envelope by the patient to maintain the double-blind experiment." "All tubes were prepared by RAFA Laboratories and appeared completely identical." "Neither the patient not the examiner was aware of the tube contents."
Blinding of outcome assessment (detection bias)	Low risk	see above
Incomplete outcome data (attrition bias)	Unclear risk	per Mail: "...there were no drops outs"
Selective reporting (reporting bias)	Low risk	Cite: "All clinical and anamnestic variables except PRS (improvement of pain) were evaluated 5 times as follows"
Other bias	Unclear risk	Cite: "A comparison of treatment groups at baseline for all collected clinical and self- report variables revealed no significant differences between groups"

Yang 2018

Methods	RCT. single centre; two parallel groups
Participants	144 patients: 83.33% women; 16-70 years old. Inclusion criteria: TMJ OA include bony changes, such as irregular and possibly thickened cortical outlines, erosions, osteophyte formation, and subchondral ‘cyst’ formation, and other changes include narrowing of the joint space and other signs of osseous remodelling, such as flattening of the articular surfaces and subchondral sclerosis. Exclusion criteria: allergic to several drugs; had hypersensitivity disease; severe dysfunction of the heart, liver, kidney, or blood system; infection in the TMJ area; or previous jaw fracture, previous TMJ surgery, or other TMJ pathology. Time: January 2010-February 2012 Country: China Clinic: Temporomandibular Joint Disease Clinic of the Department of Oral and Maxillofacial Surgery at the West China Hospital of Stomatology of Sichuan University (Chengdu, China)
Interventions	Group A (n=72): 4 hyaluronate sodium injections and oral glucosamine hydrochloride (1.44 g/day) Group B (n=72):4 hyaluronate sodium injections and oral placebo Diclofenac sodium (50 mg) was administered to the 2 groups as rescue analgesics; participants were asked to use this drug when the post injection pain could not be tolerated.
Outcomes	Pain during TMJ movement (VAS) Maximum interincisal mouth opening (MMO) Adverse events

APPENDIX VIII: Characteristics of studies

	Deviation of the jaw from the midline when opening (DO) Deviation of the jaw from the midline during protrusion (DP) Quality of life (OHIP-14) Percentages of drugs
Chronicity	Unclear
Hints to chronicity	No hints
Duration	3 months treatment; 1 year follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "For randomization and allocation, staff at the Chinese Cochrane Centre used specialized software to generate the randomized sequence."
Allocation concealment (selection bias)	Low risk	Cite: " The sequence was kept in the hospital pharmacy and the Good Clinical Procedure (GCP) Centre, and the pharmacist allocated the intervention pills and placebo into sequentially numbered medicine bottles (all bottles were identical except for the patients' sequence numbers on the bottom). One hundred forty-four sealed opaque envelopes containing the sequence number of each participant on the surface and the intervention the participant received inside were prepared and stored in the GCP Centre of the hospital and none of the examiners, investigators, or any participants were aware of the information."
Blinding of participants and personnel (performance bias)	Low risk	Cite: "Blinding the placebo was performed using the same production procedure as for glucosamine hydrochloride without adding the active agents and the 2 drugs looked, smelled, and tasted the same. The patients, examiners, and investigators were not informed about the drugs for each patient."
Blinding of outcome assessment (detection bias)	Low risk	Cite: "Blinding the placebo was performed using the same production procedure as for glucosamine hydrochloride without adding the active agents and the 2 drugs looked, smelled, and tasted the same. The patients, examiners, and investigators were not informed about the drugs for each patient."
Incomplete outcome data (attrition bias)	Low risk	Cite: "Eighteen participants were lost to follow-up. One patient received orthodontic treatment and received only the first injection, 1 patient reported acute stomach-ache and stopped taking the pills from the first week and did not return for the other injections, 8 participants did not want to continue treatment during weeks 1, 2, or 3, and 8 other participants could not return for all the follow-ups." Used An intention-to-treat (ITT) analysis
Selective reporting (reporting bias)	Low risk	Study protocol given (registration number ChiCTR-TRC-09000592) All outcomes reported
Other bias	Unclear risk	No further inequalities

APPENDIX VIII: Characteristics of studies

Yilmaz 2019: disc displacement with reduction

Methods	RCT. single centre; three parallel groups
Participants	45 patients: 86.67% women; mean age 33.9 years old; 15-82 years. Inclusion criteria: Patients with unilateral or bilateral TMJ pain, TMJ sounds, and impaired jaw function for at least 6 months; diagnosis of DDwR and DDwoR according to symptoms; clinical signs; radiographic findings (Hepguler et al., 2002) Exclusion criteria: prior history of TMJ treatment (e.g., conservative therapy or surgery); congenital or inflammatory joint disease; serious systematic diseases; edentulous. Time: 2015 and 2016 Country: Turkey Clinic: Department of Oral and Maxillofacial Surgery of Karadeniz Technical University Faculty of Dentistry (Trabzon, Turkey)
Interventions	Group A (n=18): Ia (arthrocentesis plus HA; Articaine with epinephrine (1:100,000 ratio) was administered for local anesthesia (Ultracain D-S Forte, Aventis, Istanbul, Turkey). The patients' mouths were opened wider for better definition of the glenoid fossa, and a 22-mm gauge needle was inserted into the superior joint space using the anatomical landmarks. While the mouth was open, 2 mL of high molecular weight HA solution was injected into the superior joint space of the TMJ. Group B (n=18): group Ib (single HA) Group C (n=9): group Ic (control)
Outcomes	Maximum pain on chewing Maximum pain at rest Maximum non-assisted and assisted mouth opening Chewing efficiency TMJ sounds Quality of life Treatment tolerability Treatment effectiveness
Chronicity	Low disability
Hints to chronicity	Patients were excluded if they have received treatment before
Duration	6-month follow- up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "Treatment methods were numerically coded on slips of a paper by an impartial observer who was not associated with the study. The numbers were chosen by the patients. This allowed random assignment of the subjects into the two groups."
Allocation concealment	Low risk	Cite: "Treatment methods were numerically coded on slips of a paper by an impartial observer who was not associated with the

(selection bias)		study. The numbers were chosen by the patients. This allowed random assignment of the subjects into the two groups."
Blinding of participants and personnel (performance bias)	Unclear risk	Cite: " To minimize bias related to the patients' knowledge of their joint."
Blinding of outcome assessment (detection bias)	Low risk	Cite: "The outcome parameters were recorded by the same clinician fully blinded to patient groups."
Incomplete outcome data (attrition bias)	Unclear risk	No information given
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	Cite: "The mean age, gender distribution, and affected TMJ characteristics (duration of symptoms and involved side) of participants were not significantly different between the groups ($p > 0.05$)."

Yilmaz 2019: disc displacement without reduction

Methods	RCT. single centre; three parallel groups
Participants	45 patients: 86.67% women; mean age 33.9 years old; 15-82 years. Inclusion criteria: Patients with unilateral or bilateral TMJ pain, TMJ sounds, and impaired jaw function for at least 6 months; diagnosis of DDwR and DDwoR according to symptoms; clinical signs; radiographic findings (Hepguler et al., 2002) Exclusion criteria: prior history of TMJ treatment (e.g., conservative therapy or surgery); congenital or inflammatory joint disease; serious systematic diseases; edentulous. Time: 2015 and 2016 Country: Turkey Clinic: Department of Oral and Maxillofacial Surgery of Karadeniz Technical University Faculty of Dentistry (Trabzon, Turkey)
Interventions	Group A (n=19): group IIa (arthrocentesis plus HA), Group B (n=18): group IIb (single HA) Group C (n= 8): group IIc (control)
Outcomes	Maximum pain on chewing Maximum pain at rest Maximum non-assisted and assisted mouth opening Chewing efficiency TMJ sounds Quality of life Treatment tolerability Treatment effectiveness
Chronicity	Low disability
Hints to chronicity	Patients were excluded if they have received treatment before
Duration	6-month follow- up
Notes	

APPENDIX VIII: Characteristics of studies

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "Treatment methods were numerically coded on slips of a paper by an impartial observer who was not associated with the study. The numbers were chosen by the patients. This allowed random assignment of the subjects into the two groups."
Allocation concealment (selection bias)	Low risk	Cite: "Treatment methods were numerically coded on slips of a paper by an impartial observer who was not associated with the study. The numbers were chosen by the patients. This allowed random assignment of the subjects into the two groups."
Blinding of participants and personnel (performance bias)	Unclear risk	Cite: " To minimize bias related to the patients' knowledge of their joint."
Blinding of outcome assessment (detection bias)	Low risk	Cite: "The outcome parameters were recorded by the same clinician fully blinded to patient groups."
Incomplete outcome data (attrition bias)	Unclear risk	No information given
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	Cite: "The mean age, gender distribution, and affected TMJ characteristics (duration of symptoms and involved side) of participants were not significantly different between the groups ($p > 0.05$)."

Yuasa 2001

Methods	RCT. single centre; two parallel groups
Participants	60 patients: 80% women; age 16-69 years old; mean age of 28 years. Inclusion criteria: unilaterally moderate or severe TMJ dysfunction lasting 2 weeks or more and MRI showing disk displacement without reduction and without osseous changes. Exclusion criteria: pain other than in the TMJ region; myofascial pain dysfunction; had undergone other treatment for the 4 weeks immediately before enrolment; unable to take NSAIDs. Country: Japan Clinic: not stated
Interventions	Group A (n=30): NSAID and physical therapy (Ampiroxicam, 27 mg orally once a day + instructed to perform a range of motion exercises 4 times per day (3 times after each meal and once before bedtime)) Group B (n=30): non treated control group
Outcomes	Pain (VAS) Maximum mouth opening (mm)
Chronicity	Low disability
Hints to chronicity	1. Patients who had undergone other treatment for the 4 weeks immediately

APPENDIX VIII: Characteristics of studies

	before enrolment in this study were excluded
Duration	2 weeks and, for those patients who did not show any improvement, again at 4 weeks.
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: „. we randomly divided" and „. by random permuted blocks within strata"
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Low risk	Cite: "There were no dropouts or cases of adverse reaction to the medication during the entire period of the study"
Selective reporting (reporting bias)	Low risk	Reported all the outcomes.
Other bias	Unclear risk	Cite: "There was no statistically significant difference regarding age, sex, or period of closed lock when the treatment and control groups were compared (Table II)."

Yurttutan 2019

Methods	RCT. single centre; three parallel groups
Participants	73 patients: 61.6 % women; mean age Group A 31 (SD±7.33); Group B 30.5 (SD±9.95); Group C 30.2 (SD±8.63) Inclusion criteria: older than 18 years with chronic myofascial pain for more than 6 months diagnosed using the RDC/TMD guidelines. Exclusion criteria: intracapsular TMD (disc displacement with or without reduction); history of any treatment of bruxism; use of aminoglycosides, penicillamine, quinine, or calcium blockers; pregnancy or lactation; the presence of a neuromuscular disorder (e.g., orofacial tardive dyskinesia, Lambert-Eaton syndrome, myasthenia gravis), rheumatoid arthritis, or TMJ osteoarthrosis with radiographic signs; previous joint surgery; previous BTX treatment; an allergy to BTX-A. Time: April-August 2018 Country: Turkey Clinic: Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, Ankara University
Interventions	Group A (n=32): occlusal splint

APPENDIX VIII: Characteristics of studies

	Group B (n=31): botulinum toxin injections (100-U of freeze-dried BTX-A with 1.0 mL of sodium chloride, for a dose of 1.0 U/0.1 mL. 30-gauge needle) Group C (n=31): occlusal splint and botulinum toxin injections
Outcomes	Pain (VAS) TMD Pain Screener GCPS Oral Behaviour Checklist (OBC) Jaw Function Limitation Scale (JFLS)
Chronicity	Mixed
Hints to chronicity	GCPS given
Duration	6 months follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "using a computer-generated randomization code, with block randomization."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Low risk	Cite: "Those patients who did not use the splint regularly (5 in group A and 6 in group C) and those who had not participated in the follow-up process (2 in group A, 7 in group B, and 1 in group C) were excluded from the analysis."
Selective reporting (reporting bias)	Low risk	NCT03891121 All outcomes reported
Other bias	Unclear risk	Cite: "No significant difference was present in age (P = .949) or the gender distribution (P = .915) among the 3 groups."

Ziegler 2010

Methods	RCT. single centre; four parallel studies
Participants	48 patients: both gender; age 21-79 years old. Inclusion criteria: sufficient pain level of at least grade 6 (VAS). Exclusion criteria: mainly myogenic complaints or signs of acute inflammation; children; those with a restricted legal capacity; those addicted

APPENDIX VIII: Characteristics of studies

	to medication and drugs; those with a known restriction or intolerance to opioids and local aesthetics. Country: Germany Clinic: Department of Cranio-Maxillofacial Surgery, University of Heidelberg
Interventions	Group A (n=12): morphine in a concentration of 5 mg Group B (n=12): 10 mg morphine Sulphate Group C (n=12): bupivacaine 0.5% as a local anaesthetic Group D (n=12): received the same volume of isotonic saline solution as a placebo
Outcomes	Pain relief (Pain relief scale + VAS) Pain with jaw movement and at rest using a VAS and pain intensity scale Potential need for accessory peripheral analgesics (paracetamol) Interincisal distance under active mouth opening and registration of the laterotrusion and protrusion. Quality of life
Chronicity	Low disability
Hints to chronicity	Exclusion: analgetic misuse
Duration	48 and 96 hours and 1 week
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: „. using a random sampling number"
Allocation concealment (selection bias)	Unclear risk	Cite: "The coordinator had ordered for each patient a sealed envelope containing 3 syringes containing the same medication from Mundipharma, who placed the test samples with the 4 different medications at our disposal." "The envelopes were labelled only with the patient number and the initials of the study." Cite: "A list relating the patient number to the different medications was deposited with the department but was not opened before completion of the final examination."
Blinding of participants and personnel (performance bias)	Low risk	Cite: "The same investigator performed all injections. The investigator received for each injection an optically identical syringe of 2 mL volume from a coordinator."
Blinding of outcome assessment (detection bias)	Low risk	Cite: "During the trial, the investigator, coordinator, and patients were not informed of which of the 4 substances was used."
Incomplete outcome data (attrition bias)	Low risk	Cite: "No patients had to be excluded from the trial, and all follow-up visits and documentation were completed."
Selective reporting (reporting bias)	Unclear risk	Comment: Pain was fully described other outcomes were not fully described

		Cite: "Quality of life and Pain with jaw movement and at rest were also not fully reported."
Other bias	Unclear risk	Cite: "The analysis also showed no statistically significant differences regarding gender or age." Cite: "This study was supported by Mundipharma (Limburg, Germany), who placed the test samples at our disposal and financed the insurance for the probands/patients who were treated in this study."

Characteristics of excluded studies: Medication

Aktas 2010

Reason for exclusion	Arthrocentesis

Amanat 2013

Reason for exclusion	All patients received medication

Bouloux 2016

Reason for exclusion	Further publications to Bouloux et al. 2017

Bouloux 2017

Reason for exclusion	Further publications to Bouloux et al. 2017

Bryant 1999

Reason for exclusion	Used arthrocentesis

Ceylan 2004

Reason for exclusion	No TMD

Drewes 1993

Reason for exclusion	No TMD

Ekberg 1998

Reason for exclusion	Further publication to Ekberg et al. 1996

Emara 2013

Reason for exclusion	Not randomized and the patients were painless

APPENDIX VIII: Characteristics of studies

Fernandez-Ferro 2017

Reason for exclusion	Used arthroscopy

Ferrando 2012

Reason for exclusion	No TMD

Fietzek 2009

Reason for exclusion	Sample size too small

Forssell 2004

Reason for exclusion	Atypical pain

Furst 2001

Reason for exclusion	Pat. received arthroscopy

Giraddi 2012

Reason for exclusion	Used arthrocentesis and sample size too small

Giraddi 2015

Reason for exclusion	Sample size too small

Gorrela 2017

Reason for exclusion	Used arthrocentesis

Guarda-Nardini 2015

Reason for exclusion	Only used lavage

Gupta 2014

Reason for exclusion	Further publication

Hirota 1998

Reason for exclusion	Irrelevant outcomes

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Huang 2009

Reason for exclusion	Semi-randomized

Ivask 2016

Reason for exclusion	Not randomized

Ivkovic 2008

Reason for exclusion	Not randomized

Jadhao 2017

Reason for exclusion	Only bruxism

Jang 2003

Reason for exclusion	Sample size too small

Jiang 2016

Reason for exclusion	Drug is a co-intervention

Kopp 1987

Reason for exclusion	Secondary report to Kopp et al. (1985)

Krusz 2010

Reason for exclusion	Not randomized

Li 2015

Reason for exclusion	No control trial

Light 2009

Reason for exclusion	No TMD

Litt 2013

Reason for exclusion	Drug is a co-intervention

APPENDIX VIII: Characteristics of studies

Liu 2015

Reason for exclusion	All patients received the injection

Long 2009

Reason for exclusion	Same medication

Lu 2014

Reason for exclusion	Disc perforation

Mader 1988

Reason for exclusion	No relevant outcomes

Majumdar 2012

Reason for exclusion	Letter

Manfredini 2012

Reason for exclusion	Used arthrocentesis

Mathisen 1995

Reason for exclusion	Orofacial pain after oral surgery

McCain 1989

Reason for exclusion	Used arthrocentesis

Medeiros 2016

Reason for exclusion	No TMD

Meral 2019

Reason for exclusion	Not randomized

Minakuchi 2004

Reason for exclusion	Secondary report to Minakuchi et al. 2001

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Mongini 1993

Reason for exclusion	Not all patients were suffering of TMD (two out of 20 patients)

Morey-Mas 2010

Reason for exclusion	Used arthrocentesis

Moystad 2008

Reason for exclusion	Outcome: CT evaluation

Nct 2016a

Reason for exclusion	Poster

Nixdorf 2002

Reason for exclusion	Sample size too small

Okumus 2013

Reason for exclusion	Abstract only

Ozdamar 2017

Reason for exclusion	Used arthrocentesis

Ozdemir 2016

Reason for exclusion	Abstract only

Patel 1998

Reason for exclusion	Abstract only

Patel 2016

Reason for exclusion	Used arthrocentesis

Pihut 2017

Reason for exclusion	Sample size too small

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Prager 2007

Reason for exclusion	Used arthrocentesis

Rizzatti-Barbosa 2003

Reason for exclusion	Not randomized

Rizzatti-Barbosa 2003a

Reason for exclusion	Sample size too small

Sanders 2020

Reason for exclusion	Not randomized

Schiffman 2014

Reason for exclusion	Secondary report to Schiffman et al. 2007

Sharma 2013

Reason for exclusion	Used arthrocentesis

Shi 2002

Reason for exclusion	Important information missing, Chinese trial

Sidebottom 2013

Reason for exclusion	Not randomized

Sipahi 2015

Reason for exclusion	Used arthrocentesis

Sivri 2016

Reason for exclusion	Used arthrocentesis

Slade 2020

Reason for exclusion	Further publication to Thichivera

APPENDIX VIII: Characteristics of studies

Su 2014

Reason for exclusion	Used arthrocentesis

Sudhakar 2018

Reason for exclusion	Pain after surgery

Tang 2010

Reason for exclusion	No relevant outcomes

Tatli 2017

Reason for exclusion	Used arthrocentesis

Tchivileva 2010

Reason for exclusion	No TMD, trial included only patients with generic deformations

Truelove 2006

Reason for exclusion	Pharmacotherapy is a co-intervention in the study

Varoli 2015

Reason for exclusion	Sample size too small (n=6 per group)

Venancio 2008

Reason for exclusion	Not all patients had TMD

Venancio 2009

Reason for exclusion	No TMD

Wu 2007

Reason for exclusion	Missing information. RCT in Chinese

Yapici-Yavuz 2018

Reason for exclusion	Used arthrocentesis

APPENDIX VIII: Characteristics of studies

Zhang 2016

Reason for exclusion	No relevant outcomes

Zoppi 1990

Reason for exclusion	Abstract only

Zuniga 2007

Reason for exclusion	Pain post operation

APPENDIX VIII: Characteristics of studies

Characteristics of included studies: Psychosocial interventions

Abrahamsen 2009

Methods	RCT. single centre; two parallel groups;
Participants	43 patients: 100% women; mean age 38 (SD±10.8). Inclusion criteria: myofascial TMD pain according to the RDC/TMD, type Ia or Ib, and additionally type III ab; daily pain intensity >3 on a NRS with a duration of 6 months or longer. Exclusion criteria: previous experience with hypnosis wasn't acceptable but experience with relaxation was allowed. Country: Denmark Clinic: Department of Clinical Oral Physiology at the School of Dentistry, Aarhus University
Interventions	Group A (n=20): hypnosis (4x1hr session of hypnotic intervention) Group B (n=20): relaxation only (4x1hr session of relaxation) Cointervention: previous splint or drug therapies were allowed to continue
Outcomes	Pain diary (NRS) McGill Pain Questionnaire Coping (Coping Strategies Questionnaire Muscle Pain Index (20 sites) Jaw opening without pain, Maximum unassisted jaw opening, Maximum assisted jaw opening Protrusion and laterotrusion Jaw Disability Index Characteristic Pain Pain Interference Somatization (SCL-90-R) Obsessive/compulsive symptoms (SCL-90-R) Coping (SCL-90-R) Depression (SCL-90-R) Anxiety (SCL-90-R) Sleep quality (Pittsburgh Sleep Quality Index) Self-medication Hypnotic susceptibility (Harvard Group Scale of Hypnotic Susceptibility)
Chronicity	Unclear (High disability)
Hints for Chronicity	1. Tertiary care 2. Daily pain intensity >3 on a NRS with a duration of 6 months or longer 3. Mean duration of pain: 11.9 (9.9) years Comment: Hints not significant
Duration	Baseline data and after treatment data
Notes	Further publications: "Hypnosis in the management of persistent idiopathic orofacial pain-clinical and psychosocial findings" (2008, Abrahamsen), "Effect of hypnosis on pain and blink reflexes in patients with painful TMDs" (2011, Abrahamsen)

APPENDIX VIII: Characteristics of studies

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: „... by drawing lots"
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Low risk	Cite: "The clinicians performing the final RDC TMD examinations were blinded to the hypotheses and group assignment."
Incomplete outcome data (attrition bias)	Low risk	Comment: Reported about the dropouts and gave reasons why Cite: “3 drop-outs from right after inclusion were not analysed while others who provided data were included. ‘Further- more, in the control group three patients withdrew (one after one session and two after three sessions) because they did not feel any benefit of the treatment. These patients completed questionnaires after their last session of treatment and were therefore included in the analysis.”
Selective reporting (reporting bias)	Low risk	Reported all the outcomes
Other bias	Unclear risk	There were significant differences in baseline characteristics (use of the pain coping strategy of self-statements. The hypnosis group had higher scores than control group.

Bartleya

Methods	RCT. single centre; two parallel studies;
Participants	29 out of 33 patients: 41% women; age group A 38.1 (SD±14.3); mean age group B 39.7 (SD±14.0). Inclusion criteria: moderate orofacial pain (3/10) during the preceding 3 months, occurring on at least 15 days during the past month; report pain in at least one TMJ or one orofacial muscle in response to standardized jaw movements or facial palpation. Exclusion criteria: age 18-65; use of narcotic analgesics; use of nonsteroidal anti-inflammatory medications 24 hours before pain testing sessions; current cardiovascular, neuroendocrine, neurological disorders; or cognitive impairment. Time: September 2014-January 2016 Country: USA Clinic: "Individuals with TMD were recruited from the community through flyers and radio advertisement"

APPENDIX VIII: Characteristics of studies

Interventions	Group A (n=15): hope 3-session intervention intended to increase hope Group B (n=14): EDC involving education about pain and stress
Outcomes	Pain/disability (GCPS) Dispositional hope (Adult Dispositional Hope Scale) Daily facial pain Adult State Hope Scale Numerical pain rating scale (NRS) Heat pain Temporal summation of heat pain Mechanical pressure pain Punctate pain Cold pain Psychological measures: Positive and Negative Affect Schedule Centre for Epidemiological Studies–Depression Scale Chronic Pain Acceptance Questionnaire Pain Self-Efficacy Questionnaire Pain Catastrophizing Scale
Chronicity	Mixed
Hints for Chronicity	per mail: "Grade I: 11, Grade II: 12, Grade III: 4, Grade IV: 2"
Duration	3 weeks treatment
Notes	A $200 honorarium was provided after study completion

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: "Participants were seen once weekly for 3 sessions and were randomly assigned by the PI following simple randomization procedures (accounting for equal distribution of men and women across groups)." Comment: no real randomization technique.
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	Not addressed
Blinding of outcome assessment (detection bias)	Low risk	Cite: "Research assistants who conducted the sensory pain testing sessions were blinded to group assignment, and participants were instructed to refrain from discussing the content of their intervention sessions with examiners."
Incomplete outcome data (attrition bias)	Low risk	Cite: "One person failed to complete their postintervention diary; however, the remaining 28 participants completed 100% of their daily recordings."
Selective reporting (reporting bias)	Low risk	All outcomes reported, study report given.
Other bias	Low risk	"There were no group differences in any of the demographic or

		clinical variables, and session duration was comparable between the 2 groups" and Cite: "The authors have no conflicts of interest to declare."

Brandão 2020

Methods	RCT. single centre; two parallel studies;
Participants	23 patients: 100 % women; age group A 38.1 (SD±14.3); mean age group B 39.7 (SD±14.0). Inclusion criteria: aged 18-60 years; TMD diagnosis IA and IB myofascial pain and myofascial pain with aperture limitation, respectively; and diagnosis in the IIA group, which includes volunteers with disc displacement with reduction. Exclusion criteria: self-reported diagnosis of TMD, such as disc displacement without reduction, arthralgia, osteoarthritis, and osteoarthrosis; psychiatric; neurological disorders. Time: January-December 2017 Country: Brazil Clinic: "Posters placed in the university and dental centres in the city were used to find volunteers for the trial. Moreover, electronic media, such as social networks, were used."
Interventions	Group A (n=12): Isotonic exercises and relaxing techniques Group B (n=11): self-care to control not opening the mouth widely, avoiding hard food, and oral parafunctions
Outcomes	Pain severity Data related to the limitations experienced on a day-to-day basis (19 of the RDC) Pain intensity and depression (GCPS, RDC)
Chronicity	Mixed
Hints for Chronicity	GCPS
Duration	30 days follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "A randomization list was created using the website randomization.com, and the volunteers were allocated to two intervention groups: experimental or control."
Allocation concealment (selection bias)	Unclear risk	per mail: "They were randomized, I made the randomization list in a site and the research who were not blinded had access to this list."
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies

Blinding of outcome assessment (detection bias)	Unclear risk	Cite: „...was video recorded with the patients' consent and, while respecting blinding, analysed later by a myofunctional therapist with 10 years' experience in the area."
Incomplete outcome data (attrition bias)	Low risk	Cite: „...1 volunteer from the experimental group and 3 from the control group dropped out for personal reasons, leaving 8 volunteers in the control group and 11 in the experimental group." Comment: informed about the dropouts
Selective reporting (reporting bias)	Low risk	Study protocol stated Clinical Trials Registry (ReBec), register number: RBR-7v6r3t. All outcomes reported
Other bias	Unclear risk	No other conspicuities

Calderon 2011

Methods	RCT. single centre; four parallel studies;
Participants	47 patients: gender not given; age 17-52 years old; mean age 35.6 years. Inclusion criteria: history of orofacial pain for more than 6 months; pain occurring daily or almost daily for at least the month preceding enrolment; pain of at least moderate severity (i.e., at least 40 mm on a VAS) age ranging from 17-55. Exclusion criteria: major neurological or psychiatric disorders; glaucoma; history of intolerance to amitriptyline; pain secondary to trigeminal neuralgia; pain attributable to other local, well-defined condition. Country: Brazil Clinic: University-based orofacial pain clinic at Bauru Dental School, USP, Brazil
Interventions	Group A (n=11): amitriptyline 25 mg Group B (n=12): amitriptyline 25 mg + CBT Group C (n=11): placebo+ CBT Group D (n=13): placebo only
Outcomes	Pain intensity (VAS) Depression (BDI) Quality of life (Oral Health Impact Profile (OHIP) Sleep quality (Pittsburgh PSQI)
Chronicity	Low disability
Hints for Chronicity	1. Tertiary Care 2. Exclusion: major neurological or psychiatric disorders
Duration	7 weeks of treatment; 4 weeks of follow-up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence	Low risk	Cite: „...using the web site www.randomization.com "

generation (selection bias)		
Allocation concealment (selection bias)	Low risk	Cite: „...a different person was designated to allocate the patients in their groups, for the medicine distribution and to lead the patients to the CBT"
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Unclear risk	The researcher was blinded
Incomplete outcome data (attrition bias)	Low risk	Reported about the dropouts and they were balanced among the groups
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	Cite: „...no statistically significant differences among the four groups for any of these measures." CAPES - Brazil for the financial support

Conti 2014

Methods	RCT. single centre; two parallel groups
Participants	15 patients: 80 % women; mean age Group A 37.3 (SD±8.9); Group B 31.9 (SD±12.3). Inclusion criteria: to be aware of tooth grinding activity and had to fulfil the following criteria in accordance with the American Academy of Sleep Medicine: self-report or report by a bed partner of sound associated with tooth grinding or tooth clenching and one of the following: tooth wear or shiny spots on dental restorations; frequent reports of stiffness, fatigue, or discomfort in the jaw muscles upon awakening; masseter muscle hypertrophy on voluntary contraction. Exclusion criteria: history of neurologic or psychiatric disorders; previous diagnosis or signs and symptoms of other sleep disorders (e.g., snoring, sleep apnoea, and periodic limb movement); use of prescription medicine or other drugs with possible sleep effects or alterations of motor behaviour; smoking, alcohol abuse, and consumption of more than 3 cups of coffee per day; electrode gel allergy; being currently under medical or dental treatment; use of a pacemaker or implanted defibrillator; and some dental characteristics, such as loss of more than 2 posterior teeth except third molars and wearing of removable partial or full dentures. Country: Brazil Clinic: Cite: "recruited from patients referred to the Orofacial Pain Clinic, Bauru School of Dentistry, University of São Paulo, Bauru, São Paulo"
Interventions	Group A (n=7): biofeedback treatment using a CES paradigm (active group) Group B (n=8): inactive device (control group)
Outcomes	Pain intensity (VAS) Pressure Pain Hold (PPT)
Chronicity	Low disability

APPENDIX VIII: Characteristics of studies

Hints for Chronicity	Exclusion criteria: no medication, no treatment before
Duration	Phase 1 (days 7 ± 2days), Phase 2 (day 21 ± 2days), Phase 3 (day 28 ± 2days)
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "The group allocation was done according to a randomized list made with Microsoft Excel software."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Cite: "Patients in the control group were not aware of the inactivity of the device."
Blinding of outcome assessment (detection bias)	Unclear risk	No information given but we might assume that the researcher wasn't blinded, only single blinded.
Incomplete outcome data (attrition bias)	Unclear risk	Cite: "A total of 39 individuals were initially evaluated, and 16 were excluded for not meeting the inclusion criteria. Accordingly, 23 subjects were eligible and agreed to start treatment. After 1 week, 6 patients withdrew from the study because of difficulties in wearing the device, and 2 withdrew for missing appointments and records. After that, 15 individuals, 3 men and 12 women, composed the final study sample." Comment: a lot of dropouts
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	No other conspicuities

Crockett 1986

Methods	RCT. single centre; three parallel groups;
Participants	21 patients: 100% women; older than 19 years old. Inclusion criteria: complaint of pain with chronicity of at least 6 months; tenderness to palpation of masticatory muscles; limitation or deviation of jaw mobility; absence of radio graphic evidence of pathology of the joint as would result from disease or trauma; subjects had to be over 19 years of age to provide consent and had to be able to read English. Exclusion criteria: principal complaint or associated with an organic condition (Joint tenderness or joint sounds); clicking or crepitus in the temporomandibular (TM) joint, which was considered to result from displacement of the articular disc.

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	Country: Canada Clinic: Oral Medicine Clinic of the University of British Columbia
Interventions	Group A (n=7): dental splint and physiotherapy program (weekly physiotherapy sessions oriented to the masticatory system with hot/cold applications, postural corrections, the avoidance of chewy foods, jaw exercises 30 minutes daily between treatment sessions) Group B (n=7): relaxation program utilizing progressive muscle relaxation, biofeedback, stress management technique (BER). Group C (n=7): Transcutaneous Electrica Nerve Stimulation (TENS) (weekly application)
Outcomes	Pain to palpation (Likert-Skala 0-4) Interincisal opening (mm) Pain intensity (worst pain; average pain) Weekly average number of days of pain EMG (electromyographic activity)
Chronicity	Mixed
Hints for Chronicity	Cite: "More BER subjects (85.7%) had received previous treatment than had either the DPT or TENS subjects (42.9%)" Cite: "The BER subjects also were more likely to use analgesics (71.4%) than were either the DPT or TENS subjects (42.9O/o each)"
Duration	8 weeks, no follow up
Notes	BER-patients would fall under dysfunction and the patients of DPT- TENS-Group would be low disability

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: "randomly"
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Unclear risk	Cite: "Twenty-eight consented to participate in this research, of which 21 provided complete data for this study. Of the seven subjects not completing the study, the principal reason was related to time constraint."
Selective reporting (reporting bias)	Low risk	All the outcomes were reported
Other bias	Unclear risk	Small group numbers: no detail on which groups had dropouts

APPENDIX VIII: Characteristics of studies

Dalen 1986

Methods	RCT. single centre; two parallel groups;
Participants	19 patients: 94.7% women; mean age Group A 29.6 (SD±12.82); Group B 25.9 (SD±8.14) Inclusion criteria: One or more of the four cardinal symptoms: pain, tenderness, clicking, limitation of movement; other pathological signs in the TMJ should be absent, as judged both clinically and radio graphically. Exclusion criteria: depressed patients (Snaith Depression Scale) Country: Norway Clinic: Department of Oral Surgery and Oral Medicine. University of Bergen, Bergen
Interventions	Group A (n=10): 8x biofeedback training sessions (twice a week, for 4 weeks) Group B (n=9): received no feedback training but went through the same post-line evaluations as the experimental group.
Outcomes	Frontalis EMG levels and masseter EMG levels Pain intensity (10-point scale) Muscle pain duration (hours)
Chronicity	Low disability
Hints for Chronicity	Exclusion: depressed patients
Duration	4 weeks treatment; 6 month follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: "A total of 19 subjects, 18 female and 1 male, participated and were randomly assigned to." Comment: need further information
Allocation concealment (selection bias)	Unclear risk	Not addressed
Blinding of participants and personnel (performance bias)	Unclear risk	Not addressed
Blinding of outcome assessment (detection bias)	Unclear risk	Not addressed
Incomplete outcome data (attrition bias)	Unclear risk	No information about dropouts
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	Cite: "Analysis of EMG-rms levels during baseline screening did not yield statistically significant differences between

		groups, but there was a tendency for the control group to show lower masseter EMG levels"

DeVocht 2013

Methods	RCT. single centre; four parallel groups;
Participants	80 patients: 80% women; age >21 years old; mean age Group A 36.9 (SD13.5); Group B 38.0 (SD12.7); Group C 31.7 (SD7.9); Group D 33.1 (SD11.4). Inclusion criteria: >21 years of age; having had TMD symptoms for at least six months; the presence of more than seven teeth per dental arch; average self- reported TMD pain over the previous week of at least a 3 on an 11-point (NRS); RDC-TMD Axis I diagnosis of myofascial pain; no changes in prescription medicine for pain in the preceding six months. Exclusion criteria: current or pending litigation for a personal injury case; worker's compensation or disability; unstable periodontitis; untreated dental-related disease or both; Angle Class II malocclusion; the need for advanced diagnostic procedures to rule out pathology; systemic rheumatoid arthritis or similar autoimmune conditions; complete dentures; major psychological disorders; any treatment for TMD during the previous month (except non-prescription medication or a stable prescription medication regimen); inability to understand English; unwillingness to be enrolled in any of the four intervention groups; unwillingness to postpone other forms of treatment for TMD during the six-month active care phase; the intention to move away from the area during the next six months; or previous AMCT treatment for TMD at any time. Country: USA Clinic: Cite: "We recruited participants from the eastern Iowa region. Potential participants responding to recruitment efforts were screened (by L.T.) via an initial telephone call and two baseline clinical visits."
Interventions	Group A (n=20): "self-care" and "RIST" (reversible interocclusal splint therapy; acrylic resin; worn during night-time and 2h per day for 2 month) Group B (n=20): "self-care" and "Chiropractic AMCT" (Activator Method Chiropractic Technique): max. 12 treatment sessions for 2 months. Group C (n=20): "self-care" and sham AMCT Group D (n=20): "self-care" only
Outcomes	TMD-related pain (NRS) Oral health–related quality of life (OHIP-14) Bothersomeness Index (Likert-Skala; 1-5) Satisfaction with care (NRS)
Chronicity	Mixed
Hints for Chronicity	24 of the 80 patients (30%) had gotten treatment before.
Duration	6 months (incl. 2-month treatment)
Notes	

Risk of bias table

Bias	Authors'	Support for judgement

APPENDIX VIII: Characteristics of studies

	judgement	
Random sequence generation (selection bias)	Low risk	Cite: "We allocated participants via a randomization algorithm stored in the Web based system, with future allocations concealed."
Allocation concealment (selection bias)	Unclear risk	Cite: "with future allocations concealed." Comment: need more information
Blinding of participants and personnel (performance bias)	Low risk	Cite: "Participants were masked to the nature of the sham intervention." All together not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Low risk	Cite: "After two months, they received an RDC-TMD assessment by a clinician masked to the treatment group."
Incomplete outcome data (attrition bias)	Low risk	Cite: "Second, a considerable number of participants were lost to follow-up, yet these numbers were fairly consistent across the four groups (five to nine per group). Investigators in future studies should use more aggressive efforts at retention such as sending e-mail reminders before treatment and assessment appointments, as well as making prompt and repeated efforts to contact those who miss appointments." Comment: the dropouts were pretty much equal in each group.
Selective reporting (reporting bias)	Low risk	All outcomes were reported
Other bias	Unclear risk	No further inequalities

Dohrmann 1978

Methods	RCT. single centre; two parallel groups;
Participants	24 patients: 84% women; age 20-71 years old; mean age group a 38, mean age group b 36; group c mean age 32. Country: USA Clinic: TMJ and Facial Pain Research Centre
Interventions	Group A (n=16): fully familiarized with the theory of EMG feedback training and how it could lead to the remission of their symptoms as well as leave them with a tool to prevent future episodes of MPD syndrome and acquainted with the biofeedback monitor and how it would be used to teach them to control the level of tension in their muscles of mastication. Group B (n=8): not informed about EMG biofeedback (told how electrical currents have been used in medicine, for instance, as a defibrillator and to relax muscles. They were told that the jaw muscles involved would be exposed to a low-grade electrical current that would block the muscles' activity and thereby cause relaxation. The patients were assured that the current was of such a low intensity that they would not feel anything.) Group C (n=7): mean masseter EMG levels of a group of normal subjects also was determined.
Outcomes	Pain value Maximum opening

APPENDIX VIII: Characteristics of studies

	Muscle tenderness Presence of joint sounds on opening or closing Overall treatment in terms of how successful
Chronicity	Unclear (high disability)
Hints for Chronicity	TMJ and Facial Pain Research Centre
Duration	6 weeks treatment; 12 month follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: "The patients were randomly assigned to an experimental group or a control group." Comment: need more information
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Unclear risk	No information on the dropouts on why they dropped out
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	No further inequalities

Dworkin 1994 low disability

Methods	RCT. multi centre; two parallel groups;
Participants	185 patients: 85% women; age 18-65 years old; mean age 37 (SD±10.3) years. Inclusion criteria: referral for treatment of TMD with a self-report of facial ache or pain in the muscles of mastication, the TMJ, the region in front of the ear or inside the ear, other than infection. Exclusion criteria: pain attributable to confirmed migraine or head pain condition other than tension headache; acute infection or other significant disease of the teeth, ear, eye, nose, or throat; or history of significant or debilitating chronic physical or mental illness; requiring emergency TMD treatment. Country: USA Clinic: TMJ Clinic of Group Health Cooperative of Puget Sound (GHC) or Orofacial Pain and Dysfunction Clinic at the University of Washington School of Dentistry (VW)
Interventions	Group A (n=66): 2 sessions CBT in small group format (mode=4, range 2-7) (education, bio-behavioural management of TMD, self-monitor TMD signs

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	and symptoms, stress coping, introduction to CBT, progressive relaxation method, jaw muscles) preceding usual treatment. Group B (n=73): usual treatment (conservative treatment, splint, NSAIDs, passive and active jaw motion exercises, modification of para low disability and/or dietary habits, and regular use of cold and heat packs)
Outcomes	Characteristic pain Intensity (CPI) Graded Chronic Pain Scale (GCPS) Pain interference score (0-10) Somatization (SCL-90-R) Depression (SCL-90-R) Helpfulness of treatment (0-10) Unassisted jaw opening without pain (mm) Maximum assisted opening (mm)
Chronicity	Mixed and separable
Hints for Chronicity	Diagram of low disability and high disability patients (Korff)
Duration	12 month follow up
Notes	Further publications: "Do changes in patient beliefs and coping strategies predict temporomandibular disorder treatment outcomes?" (Turner, 1995)

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: "Using a block randomization schedule" Comment: not enough detail
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Low risk	Cite: "All clinical and self-report data were gathered at baseline and at 3- and 12-month follow-up by dental hygienist examiners blind to the subject's original random assignment to the CB or UT study conditions."
Incomplete outcome data (attrition bias)	Low risk	Cite: "Of those randomized. 148 (80%: CB = 69 and UT = 79) completed the 3month follow-up. Outcome data for this report come from the sample of 139 patients (75%; CB = 66 and UT=73) who completed the entire study through 12-month follow up." Cite: "All subjects who dropped out from the study prior to completion of the 12-month follow-up were asked to complete an abbreviated questionnaire inquiring into the status of their pain and jaw function in order to allow intent to treat analyses of all subjects"

Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	Cite: "Analyses of baseline clinical and demographic data revealed no significant differences."

Dworkin 1994 high disability

Methods	RCT. multi centre; two parallel groups;
Participants	185 patients: 85% women; age 18-65 years old; mean age 37 (SD±10.3) years. Inclusion criteria: referral for treatment of TMD with a self-report of facial ache or pain in the muscles of mastication, the TMJ, the region in front of the ear or inside the ear, other than infection. Exclusion criteria: pain attributable to confirmed migraine or head pain condition other than tension headache; acute infection or other significant disease of the teeth, ear, eye, nose, or throat; or history of significant or debilitating chronic physical or mental illness; requiring emergency TMD treatment. Country: USA Clinic: TMJ Clinic of Group Health Cooperative of Puget Sound (GHC) or Orofacial Pain and Dysfunction Clinic at the University of Washington School of Dentistry (VW)
Interventions	Group A (n=66): 2 sessions CBT in small group format (mode=4, range 2-7) (education, bio-behavioural management of TMD, self-monitor TMD signs and symptoms, stress coping, introduction to CBT, progressive relaxation method, jaw muscles) preceding usual treatment. Group B (n=73): usual treatment (conservative treatment, splint, NSAIDs, passive and active jaw motion exercises, modification of para low disability and/or dietary habits, and regular use of cold and heat packs)
Outcomes	Characteristic pain Intensity (CPI) Graded Chronic Pain Scale (GCPS) Pain interference score (0-10) Somatization (SCL-90-R) Depression (SCL-90-R) Helpfulness of treatment (0-10) Unassisted jaw opening without pain (mm) Maximum assisted opening (mm)
Chronicity	Mixed and separable
Hints for Chronicity	Diagram of low disability and high disability patients (Korff)
Duration	12 month follow up
Notes	Further publications: "Do changes in patient beliefs and coping strategies predict temporomandibular disorder treatment outcomes?" (Turner, 1995)

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence	Unclear risk	Cite: "Using a block randomization schedule"

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generation (selection bias)		Comment: not enough detail
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Low risk	Cite: "All clinical and self-report data were gathered at baseline and at 3- and 12-month follow-up by dental hygienist examiners blind to the subject's original random assignment to the CB or UT study conditions."
Incomplete outcome data (attrition bias)	Low risk	Cite: "Of those randomized. 148 (80%: CB = 69 and UT = 79) completed the 3month follow-up. Outcome data for this report come from the sample of 139 patients (75%; CB = 66 and UT=73) who completed the entire study through 12-month follow up." Cite: "All subjects who dropped out from the study prior to completion of the 12-month follow-up were asked to complete an abbreviated questionnaire inquiring into the status of their pain and jaw function in order to allow intent to treat analyses of all subjects"
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	Cite: "Analyses of baseline clinical and demographic data revealed no significant differences."

Dworkin 2002

Methods	RCT. multi-centre study; two parallel studies;
Participants	124 patients: 84.7% women; mean age 37.5 (SD±1.09). Inclusion criteria: age 18-70 years; self-report of pain in the masticatory muscles, TMJ, region in front of the ear or inside the ear, or report of stiffness or other symptoms of discomfort in the same orofacial region; RDC/TMD Axis II GCP score of 0, I or II-Low; Exclusion criteria: pain attributable to confirmed migraine or head pain condition other than tension headache; acute infection or other significant disease of the teeth, ears, eyes, nose, or throat; presence of significant or debilitating chronic physical or mental illness; necessity for emergency TMD treatment. Country: USA Clinic: TMJ Clinic of Group Health Cooperative of Puget Sound (GHC) or Orofacial Pain and Dysfunction Clinic at the University of Washington School of Dentistry (VW)
Interventions	Group A (n=61): self-care intervention (manual-based individual 3 session of self-care including cognitive-behavioural methods). Group B (n=63): usual treatment (at discretion of the attending dentist: physiotherapy, medications, occlusal appliance, and patient education including some components of self-care).

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Outcomes	Characteristic pain Intensity (CPI) Graded Chronic Pain Scale (GCPS) Somatization (SCL-90-R) Depression (SCL-90-R) Helpfulness of treatment (0-10) Satisfaction with treatment (0-5) Unassisted jaw opening without pain (mm) Unassisted jaw opening with pain (mm) Maximum assisted opening (mm) Number of muscle sites tender to palpation (0-16) Increase of knowledge (0-10)
Chronicity	Low disability
Hints for Chronicity	GCPS 0-IIa
Duration	2.5 months treatment after that 12 month follow up
Notes	Parallel study to Dworkin 2002a

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Per Mail: "block randomization" Per Mail: "Blocking was done by sequence generation"
Allocation concealment (selection bias)	Low risk	Per Mail: "We used sealed, opaque numbered envelopes for allocation concealment security."
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Low risk	Comment: it was nothing reported in this study but in the parallel study they mentioned the exact blinding. Therefore, we assume it was done for both studies. While emailing with the author, it was always subject about both studies.
Incomplete outcome data (attrition bias)	Low risk	Cite: "Intent-to-treat analyses were conducted to examine differences between the SC and UT groups on the outcome measures."
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	Cite: "There were no statistically significant differences between SC and UT groups at baseline in age, gender, ethnicity, pain intensity, pain duration, RDC/TMD Axis I clinical physical variables, and Axis II measures. However, the SC and UT groups did differ significantly (P <.001) in highest level of education attained, with 91.8% of SC compared to 67.7% of UT reporting post-high school education."

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Dworkin 2002a

Methods	RCT. multi-centre study; two parallel groups;
Participants	117 patients: 81.4- 84.5% women, age 18-70 years old; mean age 38.8 (SD±10). Inclusion criteria: age 18-70 yrs.; facial pain in the masticatory muscles, TMJ, region in front of the ear or inside the ear; RDC/TMD Axis II GCP score of II High, III, or IV. Exclusion criteria: pain attributable to confirmed migraine or head pain condition other than tension headache; acute infection or other significant disease of the teeth, ears, eyes, nose, or throat; debilitating physical or mental illness; necessity for emergency TMD treatment; no local language skills. Country: USA Clinic: Cite: "recruited from patients referred to the Orofacial Pain Clinics in the Department of Oral Medicine, University of Washington (UW) School of Dentistry, for assessment of pain and related symptoms of TMD"
Interventions	Group A (n=59): comprehensive care (usual treatment + cognitive behavioural therapy (CBT) and methods employed in multidisciplinary management of chronic pain including exercises for jaw stretching and jaw muscle relaxation). Group B (n=58): usual treatment (at the discretion of the attending dentist: intraoral occlusal appliance + physiotherapy + medication + patient education including self-care behaviours).
Outcomes	Characteristic pain Intensity (CPI) Pain interference score (0-10) Ability to control pain (0-6) Somatization (SCL-90-R) Depression (SCL-90-R) Helpfulness of treatment Satisfaction with treatment Unassisted jaw opening without pain (mm) Unassisted jaw opening with pain (mm) Maximum assisted opening (mm) Number of muscle sites tender to palpation (16 extraoral +4 intraoral sites)
Chronicity	High disability
Hints for Chronicity	GCPS IIb - IV tertiary care
Duration	4 months treatment, 12 months follow-up
Notes	Parallel study: "A randomized clinical trial using RDC/TMD-axis II to target clinic cases for a tailored self-care TMD treatment program" (Dworkin, 2002)

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Per Mail: "block randomization" Per Mail: "Blocking was done by sequence generation"

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Allocation concealment (selection bias)	Low risk	Per Mail: "We used sealed, opaque numbered envelopes for allocation concealment security."
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Low risk	Cite: "All clinical baseline and follow-up study data collection were performed by calibrated and reliable clinical examiners not participating in the RCT and blinded to the study group to which patients were assigned."
Incomplete outcome data (attrition bias)	Low risk	Cite: "All patients who dropped out from the study prior to completion of the 12-month follow-up were asked to provide minimal data about pain and pain-related interference to allow intent-to-treat analyses. Hence for all other outcomes, only the results of intent-to-treat analyses are reported."
Selective reporting (reporting bias)	Low risk	All outcomes were reported
Other bias	Unclear risk	Cite: "There were no statistically significant differences between CC and UT patients at baseline in age, gender, level of education, pain intensity, RDC/TMD Axis I clinical physical variables, or distribution of Axis I diagnoses or Axis II measures."

Ferrando 2012

Methods	RCT. single centre; two parallel groups;
Participants	72 patients: 87% women; average age of 39 years. Inclusion criteria: TMD muscular subgroup diagnosis (group 1 axis I diagnosis) following (RDC/TMD); Intellectual ability to follow the evaluation process and psychologic intervention. To assess this, the patient's fluency, and ability to understand during the interaction with the doctor together with the diagnosis of a mental disability was considered. Exclusion criteria: abnormalities (facial deformity, tumoral pathology, lesions of the oral mucosa (erosive lichen planus, pemphigus, pemphigoids, large aphthae)). Evidence in medical records of schizophrenia or other psychotic disorders according to the Diagnostic and Statistical Manual of Mental Disorders. Country: Spain Clinic: Stomatology Department at the Valencia University General Hospital
Interventions	Group A (n=41): receiving the 6-session CBT program cognitive-behavioural Group B (n =31): for TMD All the subjects in both conditions were prescribed the same standard conservative therapy, consisting of splint use recommendations, jaw exercises (home-based masticatory exercises and neck stretches), non-steroidal anti-inflammatory drugs (ibuprofen/neurofen) and/or muscle relaxants (tetrazepam/myolastan) medication to cope with acute pain.
Outcomes	Number of painful points on pressure (RDC/TMD) Pain frequency (painful days in past 2 mo) Self-medication frequency (days with self-medication use in past 2 mo) Pain intensity (von Korff, 1979)

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	Subjective pain index (McGill Pain Questionnaire and MPQ, 1975) Pain interference (Multidimensional Pain Inventory, 1985) Pain severity (Multidimensional Pain Inventory, 1985) Emotional distress (including subdimensions anxiety, somatization, and depression)
Chronicity	Low disability
Hints for Chronicity	1. Exclusion criteria: Evidence in medical records of schizophrenia or other psychotic disorders according to the Diagnostic and Statistical Manual of Mental Disorders
Duration	9 month follow up
Notes	Further publications: "Confirming the mechanisms behind cognitive-behavioural therapy effectiveness in chronic pain using structural equation modelling in a sample of patients with TMDs" (Durá-Ferrandis, 2017)

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "A simple randomization method was used to ensure that each element from the initial sample had an equal probability of being assigned to the experimental or the control group."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Low risk	Cite: "They were all blind to the experimental conditions of the assessed subjects, because that has been highly recommended to increase."
Incomplete outcome data (attrition bias)	Unclear risk	Reported about the dropouts but the drop out were unbalanced among the groups
Selective reporting (reporting bias)	Low risk	Reported about all the outcomes
Other bias	Unclear risk	No further suspicions

Funch 1984

Methods	RCT. single centre; two parallel groups;
Participants	57 patients: 89.5% women; age Group A 35.6 (SD±12.7), Group b 43.0 (SD±15.0). Country: USA Clinic: State University of New York at Buffalo
Interventions	Group A (n=30): biofeedback therapy Group B (n=27): relaxation therapy (tape-recorded relaxation once a week)

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Outcomes	Pain ratings were based on a 6- point scale. Wallston's Health Locus of Control Scale Taylor Manifest Anxiety Inventory Involvement in therapy (5-point scale)
Chronicity	High disability
Hints for Chronicity	Cite: "The patients had a median of 2.7 prior treatments; 91% of the patients had received medication; 53% received equilibration, and 53% had worn mouth splints."
Duration	12 weeks treatment; 2 years follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: "All patients entering the study were randomly assigned to therapy groups and given an extensive pre-treatment assessment examination."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Low risk	Cite: "All ratings were done without information about the patient's therapy or status"
Incomplete outcome data (attrition bias)	Unclear risk	No information about the dropouts
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	A lot of important information missing

Gardea 2001

Methods	RCT. single centre; four parallel groups;
Participants	108 patients: 83% women, mean age group A 35.1 (SD±9.49), mean age group B 37.4 (SD±10.8), mean age group C 35.1 (SD±8.56), mean age group D 36.5 (SD±11.4). Inclusion criteria: range age 18-65; TMD diagnose according to RDC/TMD Exclusion criteria: other significant physical condition (i.e., fibromyalgia, cancer, low back pain); ≥ 6 score DSM-IV Axis I diagnose; psychosis or active suicidal ideation; not meet RDC/TMD. Country: USA Clinic: Cite: "Subjects were referred by dentists and oral surgeons practicing in the Dallas/Fort Worth area, and at Baylor College of Dentistry. Advertisements were also placed in local newspapers and flyers."

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Interventions	Group A (n=24): Cognitive-behavioural skills training (CBST) Group B (n=27): Biofeedback Group C (n=29): Combined treatment (CBST+Biofeedback) Group D (n=28): no treatment
Outcomes	CPI GCPS from RDC/TMD Axis I Limitations related to mandibular functioning Profile of mood states (POMS)
Chronicity	Low disability
Hints for Chronicity	1. Subjects were referred by dentists and oral surgeons practicing in the Dallas/Fort Worth area, and at Baylor College of Dentistry. 2. Advertisements were also placed in local newspapers and flyers 3. Figure 2 GCPS (0-II)
Duration	Treatment for 12 weeks; follow-up for 12 months
Notes	Further publications: "The relative efficacy of three cognitive-behavioural treatment approaches to TMDs" (Mishra, 2000)

Risk of bias table

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Low risk	Cite: "...using the urn method of random assignment ..."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Low risk	Used intention-to-treat and only 6 of these subjects did not return at the 1-year evaluation
Selective reporting (reporting bias)	High risk	Incomplete outcomes
Other bias	Unclear risk	A lot of information missing, tests of these demographic characteristics found no significant differences among the four groups

Gatchel 2006

Methods	RCT. single centre; two parallel studies;
Participants	101 patients: 80.2% women; mean age 37.76, mean age group A 36.7 (SD±11.47), mean age group B 39.08 (SD±11.17). Inclusion criteria: age range 18-70; acute jaw or facial pain that had been present for less than six months; group 1a RDC/TMD diagnose (myofascial pain). Exclusion criteria: comorbid pain-exacerbating physical condition; previous

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	history of jaw pain. Country: USA Clinic: "Dentists and oral surgeons in a major urban metropolitan area referred patients to a TMD clinical research program at a large, university-based medical centre. In addition, we distributed fliers at local universities and placed advertisements in newspapers to recruit subjects."
Interventions	Group A (n=56): Cognitive-behavioural therapy + biofeedback (EI) Group B (n=45): no treatment (continued to receive the care they might normally obtain from their providers, but they did not receive the additional intervention given to the EI group)
Outcomes	RDC/TMD Axis I: Pain (CPI) Median particle size (MPS) Back depression inventory mean (BDI) Ways of coping mean (WOC) Mood and personality (SCID I and SCID II)
Chronicity	Low disability
Hints for Chronicity	1. Symptoms of for less than six months 2. Cite: "We excluded potential subjects if they had a comorbid pain-exacerbating physical condition (such as cancer or fibromyalgia) or a history of jaw pain before the most recent episode." 3. Medium pain intensity at baseline
Duration	12 month follow up
Notes	Further publications: "Cost-effectiveness of treatments for TMDs: biopsychosocial intervention versus treatment as usual" (Stowell, 2007); "Patients with Acute Painful TMD at High Risk for Developing a Chronic Condition Report Less Pain, Emotional Distress, and Health Care Use after a Psychological Intervention Using Cognitive-Behavioural Skills Training and Biofeedback" (Glaros, 2007).

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	No information given on how.
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Low risk	Cite: "An additional limitation of our study was that the follow-up contacts were conducted by one counsellor who had seen some of the subjects in the EI group at intake, thus allowing for potential interviewer bias. Of course, it is not always possible to keep evaluators completely blind to subjects' treatment group, even in drug trials in which there may be specific side effects associated

		with different drugs."
Incomplete outcome data (attrition bias)	Low risk	Used intention-to-treat
Selective reporting (reporting bias)	Low risk	Reported all the outcomes
Other bias	Unclear risk	No further inequalities

Giro 2016

Methods	RCT. single centre; three parallel groups
Participants	52 patients: 100% women; 36.4 (SD±8.8). Inclusion criteria: 18-50 years of age; had a diagnosis of muscle and joint TMD as defined by the RDC-TMD criteria of axis I consisting of groups Ib and II, where group Ib consisted of individuals with a maximal active mouth opening of less than 40 mm; presence of recurrent or constant pain for more than 3 months; had self-reported average jaw pain intensity based on assessment of no less than 3 on a VAS (ranging from 0, no pain, to 10, worst pain imaginable); had grade II or III chronic pain according to RDC-TMD axis II; had received no treatment or insufficient treatment for this painful condition and had not started any treatment for other painful conditions; and manifested presence of natural dentition or fixed prostheses with posterior occlusal stability. Exclusion criteria: severe malocclusions, debilitating systemic diseases, presence of a cardiac pacemaker (to avoid possible interference with the kinesiograph). Time: 2012-2014 Country: Brazil Clinic: TMD/Occlusion Clinic of the Araraquara Dental School
Interventions	Group A (n=16): 1st visit no treatment; 2nd visit Education and self-care instructions; 3rd visit Review of education and self-care instructions. Group B (n=18): 1st visit education instructions; 2nd visit Education and self-care instructions; 3rd visit Review of education and self-care instructions. Group C (n=18): 1st visit Education and self-care instructions; 2nd visit Review of education and self-care instructions; 3rd visit Review of education and self-care instructions.
Outcomes	Mandibular movements during maximum mouth opening and mastication (Kinesiographic measurement) (mm)
Chronicity	Mixed
Hints for Chronicity	Had grade II or III chronic pain according to RDC-TMD axis II
Duration	60 days follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement

Random sequence generation (selection bias)	Low risk	Cite: „. were assigned to 1 of 3 independent groups by means of block randomization." and "One researcher (V.B.P.) was responsible for randomising the sample by using computer-generated numbers (BioEstat v5.0 software; Federal University of Pará)"
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Cite: "The women were not informed about the type of treatments evaluated in the study or about the existence of different groups."
Blinding of outcome assessment (detection bias)	Low risk	Cite: „. conducted by the same researcher (G.G.), who was blinded to group assignment."
Incomplete outcome data (attrition bias)	Low risk	Cite: "During follow-up, 17 participants dropped out of the study. Ten participants (3 from the control group, 2 from the EG, and 5 from the ESG group) dropped out after the first evaluation (T0), and 7 participants (4 from the control group and 3 from the EG) dropped out after the second evaluation (T1). Hence, 52 participants were evaluated at baseline (T0), 42 were evaluated after 30 days of follow-up (T1), and 35 were evaluated after 60 days of follow-up (T2). Reasons for dropout included lack of time because of job or family conflicts, illness, and improvement of symptoms."
Selective reporting (reporting bias)	Low risk	Reported all the outcomes
Other bias	Unclear risk	No further inequalities

Goldthorpe 2017

Methods	RCT. multi-centre group; two parallel groups;
Participants	37 patients: 86,49% women; mean age group A 52 (22-73 years old); mean age group B 47 (21-66 years old). Inclusion criteria: Adults aged 18 and over; suffering from persistent pain in their face or mouth for 3 months or longer; sufficient level of English to complete questionnaires and take part in the guided self-help therapy. Exclusion criteria: current treatment with a psychological therapy for oral or facial pain; current suicidal ideation (assessed at baseline by PHQ-9 questionnaire); began a prescribed dose of anti-depressants less than 3 months prior to recruitment date. Country: UK Clinic: TMD and oral medicine clinics of the University of Manchester dental hospital (located in inner city Manchester) and the maxillofacial outpatient clinic at North Manchester General hospital and Salford Royal NHS Foundation Trust (located in suburbs of Manchester).
Interventions	Group A (n=19): self-help manual “Managing Chronic Orofacial Pain” supported and guided by a facilitator Group B (n=18): treatment as usual

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Outcomes	Physical and mental functioning (SF36) Anxiety and depression (Hospital Anxiety and Depression Scale (HADS) Pain intensity and interference with life (Brief Pain Inventory) Disability (Manchester Orofacial Pain Disability Scale and illness behaviour (Illness Perceptions Questionnaire) Bootstrap confidence intervals were computed for the treatment effect (ES)
Chronicity	Unclear (high disability)
Hints for Chronicity	1. Tertiary care 2. Chronic orofacial pain and with no underlying medical pathology were recruited into the study 3. Suffering from persistent pain in their face or mouth for 3 months or longer and exclusion (current treatment)
Duration	2 weeks treatment; 3 months follow up
Notes	Further publications: Goldthorpe J, Peters S, Lovell K, McGowan L, Aggarwal V. 'I just wanted someone to tell me it was not all in my mind and do something for me': Qualitative exploration of acceptability of a CBT based intervention to manage chronic orofacial pain. Br Dent J 2016; 220:459–463.

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "Randomization was undertaken independently by the Christie's Hospital Clinical Trials Unit. Minimization was applied to reduce the risk of a particular group containing more patients with characteristics that may influence outcomes and was undertaken for age, gender, and referral clinic." per Mail: "We use a randomisation service that randomised electronically (computer generated)".
Allocation concealment (selection bias)	Low risk	The Christie's Hospital Clinical Trials Unit provided the allocation service by using stochastic minimization.
Blinding of participants and personnel (performance bias)	Low risk	Not possible: Cite: "Participants were entered into the trial before the treatment allocation was divulged, as previously recommended. It was not possible to blind participants due to the nature of the treatment"
Blinding of outcome assessment (detection bias)	Low risk	Cite: "however, a researcher who was blind to allocation collected follow-up data."
Incomplete outcome data (attrition bias)	Low risk	Used ITT: "Two further participants withdrew from the intervention but chose to remain in the study and completed follow-up data and interviews. This enabled continued gathering of follow-up data (important for an intention-to-treat analysis) and completion of acceptability interviews"
Selective reporting (reporting bias)	Low risk	All outcomes reported

Other bias	Unclear risk	No further inequalities

Göller 2017

Methods	RCT. single centre; two parallel groups;
Participants	44 (32 end) patients: 78% women; age range 20-60 years old; mean age Group A 26.21 (SD±6.87); Group B 28.33 (SD±11.2). Inclusion criteria: symptomatic symptoms of myopathy with pressing, crunching, tongue, or cheek impressions + pressure pain in the masticatory muscles; no psychosomatic disease; >18 years old. Exclusion criteria: low disability bite splint was present; any psychosomatic illness (HADS-D-Wert>11); predominantly arthogenic symptoms; no muscle relaxants; addiction to alcohol, drugs, or painkillers; suffered from malignant diseases; acute events (e.g., trauma or inflammation); rheumatic diseases (e.g., fibromyalgia, polymyalgia rheumatica) or intellectual disabilities; pregnancy. Country: Germany Clinic: Kiefergelenkambulanz des Zentrums der Zahn-, Mund- und Kieferheilkunde der Johann Wolfgang-Goethe-Universität Frankfurt am Main
Interventions	Group A (n=26): Biofeedback-therapy Group B (n=26): Splint + Physiotherapy
Outcomes	GCPS OHIP
Chronicity	High disability
Hints for Chronicity	All participants had treatment before
Duration	12 months
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: „...the classification was based on a randomisation list, stratified according to gender"
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Low risk	The examiner was blinded
Incomplete outcome data (attrition bias)	Unclear risk	Comment: A lot of dropouts Cite: "12 patients prematurely discontinued the study during the therapy phase. Two of the 32 patients, one from the test

		group and one from the control group, were not reached for the last follow-up"
Selective reporting (reporting bias)	Low risk	Reported all the outcomes
Other bias	Unclear risk	No other conspicuities

Harrison 1997

Methods	RCT. single centre; four parallel studies;
Participants	178 patients: 84% women; 38.8 years (SD12.2). Inclusion criteria: pain >3 month, attributable to a diagnosis of chronic facial pain; age 16-65 years; good written and spoken command of English; patients were permitted the use of proprietary analgesia; routine medication for control of medical conditions as prescribed by their general medical practitioner or hospital consultant, and contraception. Exclusion criteria: specific medical or dental cause for their pain; any pathology detected on the radiographs of the TMJ; history of epilepsy or heart disease; substance abusers (narcotics, alcohol); pregnant women, nursing mothers; history of psychosis; severe depression or anxiety. Country: UK Clinic: University College London
Interventions	Group A (n=45): placebo alone Group B (n=44): drug alone (fluoxetine, a selective serotonin reuptake inhibitor) Group C (n=46): cognitive-behavioural therapy plus placebo Group D (n=43): cognitive behavioural therapy plus fluoxetine
Outcomes	Multidimensional Pain Inventory (MPI) Qualitative aspects and intensity of the patient's pain (MPQ) Depression (BDI) Anxiety (Spiegelberger State-Trait Anxiety Inventory)
Chronicity	Low disability
Hints for Chronicity	Severe psychological problems
Duration	3 months treatment; 13 weeks follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: "patients were randomized to one of the..." Comment: No more information.
Allocation concealment (selection bias)	Unclear risk	Not addressed
Blinding of participants and personnel	Unclear risk	Cite: "Identical green capsules containing either 20mg fluoxetine or placebo." and "Patients were withdrawn from

(performance bias)		the study if they requested unblinding to the drug/placebo group placement" Comment: no information about the staff
Blinding of outcome assessment (detection bias)	Low risk	Cite: "All principal investigators and research staff were blind to drug/placebo allocation. "
Incomplete outcome data (attrition bias)	Unclear risk	Comment: Very high dropout rate, with no explanation why
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	Cite: "There were no significant differences in the demographic characteristics among groups."

Hasanoglu 2017

Methods	RCT. single centre; two parallel groups
Participants	40 patients: 82.5% women; age group A: 24.6 (SD±9.2); group B: 32.25 (SD±11.97) Inclusion criteria: pain or ache in the jaw, temples, face, preauricular area or inside the ear at rest or during function; pain in response to palpation of ≥3 of the specified 20 muscle sites; at least one site must be ipsilateral to the site of pain complaint. Exclusion criteria: patients aged <18 years; currently undergoing TMD therapy or using drugs for pain relief; recent history of trauma. Time: January-June 2014 Country: Turkey Clinic: Department of Oral Surgery, Faculty of Dentistry, Gazi University
Interventions	Group A (n=20): guidance only, assurance, counselling, and behavioural changes Group B (n=20): guidance, assurance, counselling, and behavioural changes; an NTI-tss device was integrated to this protocol in the second group
Outcomes	Pain intensity (VAS) Limitation in jaw functions (VAS)
Chronicity	Low disability
Hints for Chronicity	per Mail: "Our patients have not received any treatment beforehand." patients taking pain killers for pain control were excluded from the study. tertiary care
Duration	6 weeks treatment
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence	Low risk	Cite: "Randomization of groups was determined by a computer

generation (selection bias)		program (Microsoft Office Excel Software 2007, Redmond, WA, USA) generating random numbers and allowed patients to receive one of these treatments."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Low risk	Cite: "Follow-up evaluations and data collection were performed by another clinician who was unaware of patients' group."
Incomplete outcome data (attrition bias)	Unclear risk	No information given
Selective reporting (reporting bias)	Low risk	Reported all the outcomes stated
Other bias	Unclear risk	"The authors have stated explicitly that there is no conflict of interests in connection with this article. These authors have no support or funding to report"

Herman 2002

Methods	RCT. single centre; three parallel groups;
Participants	41 patients: 80.5% women; mean age group A 26.9 (SD±10.1); mean age group B 24.0 (SD±4.8), mean age group C 30.3 (SD±8.6). Inclusion criteria: age 18-65; jaw pain upon awakening, occurring a minimum of 2 days per week; diagnosis of myofascial pain (axis 1 group I) according to RDC/TMD, concurrent diagnoses of TMJ arthralgia and disc displacement with reduction were allowed; self-report of an average jaw pain intensity in the past week of at least 4 on VAS; self-report of psychological stability (subjects taking antidepressants were considered stable if they reported no current depression, and had been on a stable regimen of psychotropic medications for 3 months. Exclusion criteria: any dental, orofacial problem or TMD not meeting the definition of myofascial pain as defined by the RDC/TMD; self-report of persistent depression or an unstable regimen of psychotropic medication of less than 3 months as indicated by their history; jaw pain of potential systemic (e.g. fibromyalgia, widespread pain); clinical or radiographic evidence of osseous, odontogenic, or TMJ pathology; report of liver dysfunction, alcoholism, glaucoma, history of seizures, impaired renal function, use of monoamine oxidase inhibitors, acute recovery phase of myocardial infarction, arrhythmia, heart block or conduction disturbances, congestive heart, failure, hyperthyroidism, pregnancy, or any other contraindications to clonazepam or cyclobenzaprine (including drug allergies). Country: USA Clinic: "Uni of Minnesota School of Dentistry TMJ/Orofacial Pain Clinic, HealthPartners Medical Centre TMD Clinic, St. Paul, MN, a private practice (ELS) and by advertisement in the University of Minnesota Daily"
Interventions	Group A (n=13): self-care program + medication (clonazepam 0.5mg/d) Group B (n=15): self-care program + placebo (lactose filler) Group C (n=13): self-care program + medication (cyclobenzaprine 10mg/d)

APPENDIX VIII: Characteristics of studies

Outcomes	Symptom Severity Index (SSI) TMJ pain and temple pain (VAS) Pittsburgh Sleep Quality Index (PSQI)
Chronicity	Low disability
Hints for Chronicity	per Mail: " ...as part of the study participants were not provided treatment prior to participating, however participants were not excluded if they had prior treatment." Exclusion: self-report of persistent depression or an unstable regimen of psychotropic medication
Duration	Follow-up (treatment) for 3 weeks
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: „...randomization block..."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Cite: „...Neither the treating doctor nor the subject was aware of the treatment assignment until completion of the intervention."
Blinding of outcome assessment (detection bias)	Low risk	Email: "This was a double-blind study. Examiner and participant were blinded."
Incomplete outcome data (attrition bias)	Low risk	No dropouts
Selective reporting (reporting bias)	Low risk	Reported all the outcomes
Other bias	Unclear risk	No further inequalities

Kalamir 2012

Methods	RCT. single centre; three parallel groups;
Participants	93 patients: 53.76% women; mean age Group A 35 (SD±6.7), mean age Group B 34 (SD±6.1), mean age Group C 35 (SD±5). Inclusion criteria: age range 18-50 years; daily history of periauricular pain with or without joint sounds for at least 3 months; voluntary participation, and a willingness to contribute long-term follow-up data; myogenous TMD sufferers (RDC/TMD); minimum baseline GCPS scores of 3/10 on each of the three symptom outcome measures. Exclusion criteria: previous attendance at the practitioner's clinic, edentulous; history of malignancy in the last 5 years; other physical contraindications such as active inflammatory arthritis, fractures, dislocations, or known instability of the jaws or neck; metabolic diseases; connective tissue and rheumatic disorders; haematological disorders;

APPENDIX VIII: Characteristics of studies

	severe depression or somatization according to axis II RDC/TMD. Country: Australia Clinic: private practice in Edensor Park, NSW
Interventions	Group A (n=31): IMT consisting of 2 treatment interventions per week for 5 weeks Group B (n=31): IMT plus education and “self-care” exercises (IMTESC) Group C (n=31): wait-list control
Outcomes	Resting pain (11-point GPCS) Pain at maximum opening (VAS) Pain during clenching Interincisal opening range (mm)
Chronicity	Low disability
Hints for Chronicity	Primary care Exclusion: severe depression or somatization according to axis II RDC/TCM
Duration	6 month follow up
Notes	Further publications: "Intra-oral myofascial therapy for chronic myogenous TMDs: A randomized, controlled pilot study" (Kalamir, 2010); "Intra-oral myofascial therapy versus education and self-care in the treatment of chronic, myogenous temporomandibular disorder: a randomised, clinical trial"(Kalamir, 2013)

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "The study assistant generated a randomization schedule using a Web-based number generator (http://www.randomizer.org) and consecutively allocated each numbered participant file into 1 of 3 groups according to the randomization schedule."
Allocation concealment (selection bias)	Low risk	Cite: "consecutively allocated each numbered participant file into 1of 3 groups according to the randomization schedule. The assistant was blinded to all assessments." Comment: independent assistant
Blinding of participants and personnel (performance bias)	Low risk	Cite: "The practitioner was blinded to the randomization schedule and assessment outcomes until the conclusion of the study"
Blinding of outcome assessment (detection bias)	Low risk	Cite: "assistant was blinded to all assessments"
Incomplete outcome data (attrition bias)	Low risk	Used "intention to threat"
Selective reporting (reporting bias)	Low risk	Reported all outcomes. Study protocol stated
Other bias	Low risk	Cite: "No funding sources or conflicts of interest were reported for this study." and "At baseline, there were no significant differences

		between groups except for opening range, with no plausible reason for this finding besides a chance effect."

Komiyama 1999

Methods	RCT. single centre; three parallel studies;
Participants	60 patients: 81.5% women; mean age 25.68 years old. Inclusion criteria: pain of muscle origin, including a complaint of pain as well as pain associated with localized areas of tenderness to palpation in muscle; report of pain or ache in the jaw, temples, face, preauricular area, or inside the ear at rest or during function; pain reported by the subject in response to palpation of 3 or more of the following 20 muscle sites (right side and left side count as separate sites for each muscle): posterior temporalis, middle temporalis, anterior temporalis, origin of masseter, body of masseter, insertion of masseter, posterior mandibular region, submandibular region, lateral pterygoid area, tendon of the temporalis. At least one of the complaints of pain; pain-free unassisted mandibular opening of less than 40 mm; max. assisted opening (passive stretch) of 5 mm or greater than, pain-free, unassisted opening. Exclusion criteria: been treated at other clinics for TMD; occlusal interference or prostheses of broad area; history of orthodontic treatment; metabolic disease (e.g. diabetes, hyperthyroidism); neurological disorders (e.g. dyskinesia, trigeminal neuralgia); vascular disease (e.g. migraine, hypertensions); neoplasia; history of drug abuse; recent facial or cervical trauma (e.g. whiplash); assigned to categories III and IV or answered 'yes' to the questionnaire under psychiatric disorders on the Cornell Medical Index; medication or other treatment that could not be interrupted for the study. Country: Japan Clinic:
Interventions	Group A (n=20): Control group Group B (n=20): cognitive behavioural treatment intervention group Group C (n=20): cognitive behavioural treatment intervention with posture correction group
Outcomes	Pain-free unassisted mouth opening (mm) Pain intensity (VAS)
Chronicity	Low disability
Hints for Chronicity	Exclusion criteria: Patients who have already been treated at other clinics for TMD
Duration	12 months follow up
Notes	Cite: "There was no difference between groups in age, gender, level of education, or pain-related and clinical variables"

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence	Unclear risk	Cite: "They were then randomly assigned to one of three

generation (selection bias)		equal groups." Comment: No more information on it
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Unclear risk	Reported about the drop out (most n=7 control group) Cite: "Even when excluding drop-out subjects, there was still no significant difference between the value characteristics of the groups with the remaining subjects."
Selective reporting (reporting bias)	Low risk	Reported all the outcomes
Other bias	Unclear risk	Cite: "At the baseline at the onset of the study, no significant difference was observed in the values for the characteristics between the group..."

Lam 2020

Methods	RCT. single centre; two parallel studies;
Participants	43 patients: 79 % women; age 23-37 years; mean age 27. Inclusion criteria: age between 18 and 75 years; at least one TMD pain diagnosis such myalgia, myofascial pain with referral, headache attributed to TMD, or arthralgia according to the (DC/TMD); chronic (≥3 months) TMD pain, experienced once a week or more often, with an intensity of ≥3 (on a scale from 0 to 10); access to a computer with an Internet connection and a mobile phone; sufficient computer literacy; Swedish language fluency. Exclusion criteria: chronic inflammatory systemic diseases; all psychiatric disorders except depression and anxiety due to high comorbidity; occlusal splint therapy in the past 12 months; ongoing extensive dental treatment; conditions precluding MRI examination. Time: April 2016-December 2018 Country: Sweden Clinic: "Participants were recruited from a general dental care clinic (Fäladstorget, Lund) within the National Dental Care in Skåne, Sweden."
Interventions	Group A (n=20): Internet-based multimodal pain program with 7 modules based on cognitive behaviour therapy and self-management principles Group B (n=23): conventional occlusal splint therapy
Outcomes	Characteristic pain intensity Pain-related disability Jaw low disability limitation Depression Anxiety, catastrophic and stress
Chronicity	Mixed
Hints for Chronicity	GCPS given

APPENDIX VIII: Characteristics of studies

Duration	Follow up 3 and 6 months
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "Permuted block randomization with a fixed block size of 10 was used."
Allocation concealment (selection bias)	Low risk	Cite: "At the moment of assignment, the local research coordinator blindly picked a piece of paper from an envelope with allocated treatment. Before the study start, 6 sets of opaque envelopes with 10 allocation notes each, 5 with “Internet-based multimodal pain program” and 5 with “occlusal splint,” were prepared. All 10 notes in one envelope had to be used before the next envelope was opened."
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to different therapies
Blinding of outcome assessment (detection bias)	Unclear risk	Cite: "All data management and statistical analyses were performed unblinded using StataSE (version 15.1; StataCorp LLC). A probability level of P<.05 was considered significant."
Incomplete outcome data (attrition bias)	Low risk	Cite: "The dropout analysis showed no difference between completers and dropouts on the internet-based multimodal pain program group regarding demographic factors, clinical or psychosocial characteristics (Multimedia Appendix 3). In the occlusal splint group, the dropouts were significantly younger (P=.02), had a lower proportion of married or de facto (P=.01), a lower proportion of participants with full time employment (P<.01), and a higher number of unspecific physical symptoms compared to completers (P=.03; Multimedia Appendix 3)."
Selective reporting (reporting bias)	Low risk	Reported all the outcomes stated. Study protocol NCT04363762
Other bias	Unclear risk	Cite: "Comparisons of baseline demographic, clinical, and psychosocial characteristics showed no statistical difference between treatment groups except that the occlusal splint group had a significantly greater number of jaw muscles with pain on palpation."

Litt 2010

Methods	RCT. single centre; two parallel groups;
Participants	101 patients: 84,2% women; age 18-65 years old, mean age 39.4 (SD±12.1). Inclusion criteria: pain in TM area for at least 3 months; positive axis I

APPENDIX VIII: Characteristics of studies

	diagnosis on RDC/TMD. Exclusion criteria: contraindication to TMD treatment; history of TMJ surgery; extensive anatomical destruction or deterioration of the TMJ; rheumatoid disease; neuropathic or odontogenic pain; psychosis; current use of antidepressants, anxiolytics, or opioid pain medication; pregnancy; no local language skills. Time: October 2003-July 2007 Country: USA Clinic: Cite: "dental clinics in our university-based school of dental medicine (10%), from other dental referrers (<5%), and from the greater Hartford metropolitan area via newspaper and web-based advertisements offering free short-term treatment. None were referred from specialized facial pain clinics."
Interventions	Group A (n=49): standard treatment group (STD) (splint 4 weeks continuously and later only a night guard +soft diet+ naproxen sodium 550mg po BID for 5 weeks, alternatively extra strength acetaminophen in case of gastric ulcer disease) Group B (n=52): STD+ cognitive-behavioural treatment (rationale for treatment + relaxation training and self-efficacy enhancement + masseter EMG biofeedback assisted relaxation + habit modification + combating negative thoughts and catastrophizing + stress management)
Outcomes	Intensity of Pain (Multidimensional pain inventory, MPI) Characteristic pain intensity, CPI) Pain interference score (MPI) Pain stages of change questionnaire, PSOCQ) Depression (CES-D) Somatization (SCL-90-R) Pain-related self-statements scale (PRSS) Chronic pain self-efficacy scale (CPSS) Miller behavioural style scale (MBSS) Influencing factors (mediators, moderators)
Chronicity	Mixed and separable
Hints for Chronicity	GCPS <III and from III
Duration	6 weeks of treatment, 12 months follow-up
Notes	Further publications: "Momentary pain and coping in temporomandibular disorder pain: exploring mechanisms of cognitive behavioural treatment for chronic pain" (List, 2009); "Determinants of pain treatment response and nonresponse: identification of TMD patient subgroups" (List, 2013)

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "using a computerized urn randomization procedure. The Project Coordinator entered the urn data during the intake session and informed the participants of their treatment assignments. The first treatment appointment was then scheduled for one to two weeks later, coinciding with the delivery of the splint."

APPENDIX VIII: Characteristics of studies

Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies. Cite: "A trained M.A.-level research associate, who was not blinded to treatment condition, conducted the pre-treatment and follow-up research assessments." Cite: "Individuals meeting all inclusion/exclusion criteria at this point were told of all procedures" Cite: "informed the participants of their treatment assignments. The first treatment appointment was then scheduled for one to two weeks later, coinciding with the delivery of the splint."
Blinding of outcome assessment (detection bias)	Low risk	Per Mail: "Investigators were blinded."
Incomplete outcome data (attrition bias)	Low risk	Used intention-to-treat
Selective reporting (reporting bias)	Low risk	All outcomes reported. All outcomes reported from the clinical trial protocol
Other bias	Unclear risk	No further inequalities

Makino 2014

Methods	RCT. single centre; three parallel groups
Participants	39 patients: 69.2% women; mean age Group A 40; Group B 42; Group C 53. Inclusion criteria: pain persisting for at least 6 months; chronic craniocervical pain including arm, shoulder, and upper back pain without apparent organic abnormalities; abnormality of TMJ and jaw movement. Country: Japan Clinic: pain centre
Interventions	Group A (n=13): control group (pharmacological treatment) Group B (n=13): exercise therapy (jaw movement exercise (JME) at home) Group C (n=13): ET-PI group (continue JME at home and psychological intervention (PI))
Outcomes	Pain intensity (NRS) Jaw movement
Chronicity	High disability
Hints for Chronicity	1. Pain persisting for at least 6 months 2. Chronic craniocervical pain including arm, shoulder, and upper back pain without apparent organic abnormalities 3. Pain centre 4. High pain intensity at baseline
Duration	98 days follow-up
Notes	

APPENDIX VIII: Characteristics of studies

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: "The patients were randomly assigned to a control group, an ET group, or an ET-PI group..."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Unclear risk	Cite: „... blind to which group subjects were from, evaluated the jaw movement" Comment: unclear if the examiner was blinded to pain evaluations.
Incomplete outcome data (attrition bias)	Low risk	No dropouts according to the tables
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	Cite: "The 3 groups were comparable in terms of patients' characteristics."

Manfredini 2018

Methods	RCT. Single centre; three parallel groups
Participants	30 patients: 100 % women; mean age 35.3± 9.4 years. Inclusion criteria: female patients with a DC/TMD diagnosis of myofascial pain; low pain-related impairment based on the GCPS (i.e., GCPS grade I or II – low) Exclusion criteria: systemic diseases and/or history of trauma. Country: Italy Clinic: no information given
Interventions	Group A (n=10): laser therapy (nine laser applications, three-week period; emissions of 808 and 905 nm wavelength. The 808 nm source emits in continuous or frequented mode (power 1.1 W), while the 905 nm source is pulsed, with a 25 W peak optical power and frequency ranging from 1 to 2000 Hz) Group B (n=10): oral appliance therapy (OA) Group C (n=10): counselling (advice on the symptoms and how to try self-managing them, with one reinforcement session per week over three weeks)
Outcomes	Pain intensity (VAS) pain levels Muscular Index (MI) of the Craniomandibular Index
Chronicity	Low disability
Hints for Chronicity	1. Low pain-related impairment based on the GCPS (i.e., GCPS grade I or II – low)
Duration	6 month follow up
Notes	

APPENDIX VIII: Characteristics of studies

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "…according to a block randomization sequence…""
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Low risk	Cite: "A third TMD practitioner, blind to the patients' group assignment, assessed outcome variables at baseline and during follow up appointments."
Incomplete outcome data (attrition bias)	Low risk	Cite: "Only one patient belonging to the OA group dropped out of the study, due to family problems."
Selective reporting (reporting bias)	Low risk	Cite: „...study hypothesis that all three treatments are effective in reducing pain levels and muscular impairment in patients with myofascial pain of jaw muscles with low psychosocial impairment." All outcomes were reported.
Other bias	Unclear risk	Cite: "The other authors declare they do not have any conflicts of interest"

Melo 2020

Methods	RCT. single centre; four parallel studies;
Participants	89 patients: 82.1% women; mean age 28 (SD±9.34). Inclusion criteria: diagnosis of TMD according to the RDC/TMD axis I; not received any treatment for TMD in the last 3 months; had a report of pain in the orofacial region in the last 3 months; 18 and 65 years of age. Exclusion criteria: impairment of cognitive ability; unable to understand the questions in the questionnaires; a history of head trauma that is related to the aetiology of orofacial pain; patients with intracranial disorders or headache; use of medications in the last 3 months that could interfere with the effect of tested therapies, such as muscle relaxants, anti-inflammatory medication, anticonvulsants, antidepressants and anxiolytics; use of medication to treat TMD or muscle pain during the research period; other causes of orofacial pain such as caries, periodontal diseases, or neuropathies and fibromyalgia. Time: March 2016- July 2017 Country: Brazil Clinic: CIADE (Integrated Centre for Attention to Patients with Stomatognathic Apparatus Dysfunction), an extension project developed by the TMD and Occlusion sector of the Department of Dentistry (DOD) of the Federal University of Rio Grande do Norte (UFRN)
Interventions	Group A (n=25): OSCS

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	Group B (n=24): OS Group C (n=21): MT (thermal agents (heat and cryotherapy)+therapeutic exercises; therapeutic regimen: 40-min sessions, performed 2/week for 4 weeks; instructed to repeat at home, on a daily basis; therapeutic exercises used were masseter and temporal massage and stretching exercises for the jaw muscles) Group D (n=19): CS (investigation into habits and other factors that might be responsible for the aetiology of the patient's dysfunction, and then a series of orientated guidelines for each case were developed that individualize treatment according to personal needs) All treated patients, regardless of their diagnoses, were instructed to apply a gel packet at temperatures between 40 °C and 50 °C for 20 min, three times a day during the 4 weeks of treatment. The compresses were applied in the masseter, temporal and TMJ regions.
Outcomes	Pain (VAS) HADS BAI State-Trait Anxiety Inventory (STAI)
Chronicity	Low disability
Hints for Chronicity	1. Not received any treatment for TMD 2. Excluded headache, use of medication in the last three months
Duration	1 month follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "The randomised trial was performed in blocks, each block had four treatment options, a draw allocated a type of therapy to four patients until all the patients were assigned."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Low risk	Cite: "A blinded randomised clinical trial was conducted in which the evaluating investigator was not aware of the therapy to which the patient was submitted."
Incomplete outcome data (attrition bias)	Unclear risk	Cite: "Initially, 300 patients were screened, but 188 patients were excluded because they did not have the inclusion criteria necessary for the present study and 23 patients withdrew. Comment: no information on why, balanced among the groups though
Selective reporting (reporting bias)	Low risk	All outcomes were reported. No study protocol

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Other bias	Unclear risk	Cite: "This study has no conflict of interest."

Michelotti 2004

Methods	RCT. single centre; two parallel studies;
Participants	70 patients: 88.6% women; mean age Group A 31.8 (SD±13.0), mean age Group B 28.2 (SD±8.8). Inclusion criteria: myogenous TMD; pain recurrent or constant for more than 3 months; spontaneous pain in the last week >30 on VAS. Exclusion criteria: objective evidence of TMJ pathology or dysfunction; RDC/TMD diagnosis group II or III; other orofacial pain conditions; other TMD treatments within the last 3 months; neurologic or psychiatric disorders; pain medication abuse. Country: Italy Clinic: TMD Centre, University of Naples
Interventions	Group A (n=34): education only Group B (n=36): education + self-supportive exercise program (self-relaxation exercises with diaphragmatic breathing, self-massage of the masticatory muscles, application of moist heat pads, stretching and coordination exercises)
Outcomes	Treatment contrast (normalized mean of pain intensity and low disability limitation scores) Pressure Pain Threshold (PPT)(kPa) for masseter, temporalis, and Achilles tendon Pain intensity (VAS) Pain on chewing (VAS) Pain-free maximal jaw opening (mm) Headache (VAS)
Chronicity	Low disability
Hints for Chronicity	Exclusion criteria: other TMD treatments within the last 3 months; neurologic or psychiatric disorders; history of pain medication abuse or current abuse"
Duration	3 month follow up
Notes	Further publications: "Muscular physiotherapy in patients with TMDs. Controlled clinical trial" (Michelotti, 2000)

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: „...block randomization."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Low risk	The examiner was blinded

Incomplete outcome data (attrition bias)	Low risk	Reported about the dropouts
Selective reporting (reporting bias)	Low risk	Reported about all the outcomes stated
Other bias	Unclear risk	No further inequalities

Michelotti 2012

Methods	RCT. single centre; two parallel groups;
Participants	44 patients: 88.6% women; mean age 31.2 (SD±11.8). Inclusion criteria: Myofascial pain Diagnosis (RDC/TMD); absence of objective evidence of joint pathology or dysfunction. Muscle pain greater than 30mm VAS. Exclusion criteria: Disc displacement with or without reduction; arthrogenous TMD with pain or RX alterations in TMJ; other orofacial conditions; other TMD treatments performed in the last 3 months; neurological or psychiatric disorders, or both; history of abuse of medication; use of splint in the preceding year. Country: Italy Clinic: Clinic for TMDs and Orofacial Pain of the University of Naples Federico II
Interventions	Group A (n=23): Education only (self-care, home exercise group focused on habit-reversal techniques, education about TMD) Group B (n=18): stabilization Splint only (worn at night-time)
Outcomes	Pain intensity (VAS) Unassisted jaw opening without pain (mm) Headache (VAS) Pain during chewing (VAS)
Chronicity	Low disability
Hints for Chronicity	per Mail: "The patients selected did not receive other treatment prior to the study."
Duration	3 months therapy
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "balanced block randomization"
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome	Low risk	Cite: "A second examiner (G.I.) who was masked as to the

assessment (detection bias)		patient's treatment performed the baseline assessment and, three months after the start of treatment, collected data again (still masked as to each participant's treatment)"
Incomplete outcome data (attrition bias)	Low risk	Cite: "Three participants (one male, two female) (6.8 percent), all from the occlusal splint group, dropped out of the study." Cite: „...their reason for dropping out was the splint's cost."
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	No further inequalities

Roknic 2010

Methods	RCT. single centre; three parallel groups
Participants	36 patients: 75% women; age range 14-79 years old. Inclusion criteria: symptomatic symptoms of myopathy (clenching, bruxism, tongue and cheek impressions, myalgia / pressure tolerances in the craniofacial system); min. age 14 years; willingness to consent to therapy after oral information about the study content; therapeutic benefits as well as possible side effects and complications; signatures the treatment and for the study. Exclusion criteria: somatically otherwise definable (occlusogenic) genesis of TMD; Predominantly arthrogenic symptomatology, somatoform symptom bend; metabolic/hormonal dysfunction in need of therapy; neurological disease; insufficient dental prosthesis (this had to be corrected before inclusion in the study); impossibility of follow-up examination according to protocol; immunosuppressive therapy; coagulation disorder/anticoagulant therapy; pregnancy; nicotine >40 cigarettes per day. Country: Germany Clinic: Spezialambulanz für Kiefergelenkerkrankungen der Klinik und Poliklinik für Mund-, Kiefer- und Gesichtschirurgie der Technischen Universität München
Interventions	Group A (n=12): splint treatment (conventional splint, Michigan-splint) Group B (n=12): splint + neurofeedback Group C (n=12): splint + biofeedback
Outcomes	Total myogenic score (RDC TMD) Mouth opening, low disability range (mm) Muscle pain (maximum opening, active and passive in each case) Joint noises (opening, closing, moving) Pain at palpation (lateral pterygoid muscle and the muscle attachments of the temporalis muscle on intraoral palpation (as indicators of painful bruxism)
Chronicity	High disability
Hints for Chronicity	> 3 months of unsuccessful conservative treatment
Duration	6 weeks follow up
Notes	

APPENDIX VIII: Characteristics of studies

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: „...a randomisation list with a block randomisation of 6..."
Allocation concealment (selection bias)	Low risk	Cite: "The randomisation number and the therapy arm were noted on the documentation forms. The randomisation number was added to the encryption list. Only the encryption list contained personal data of the patient."
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Low risk	No dropouts mentioned
Selective reporting (reporting bias)	Low risk	Reported all the outcomes
Other bias	Unclear risk	No other conspicuities

Shedden 2013

Methods	RCT. Single centre; two parallel groups;
Participants	58 patients: 86.2% and 70.4% women; age 18-70 years old. Inclusion criteria: painful axis I TMD diagnosis (RDC/TMD, group I or III or both); patients could also have a group II diagnosis, but a painless group II diagnosis was not sufficient for study inclusion; pain present for at least 3 months; age between 18-70. Exclusion criteria: presence of an OS already matching to our standards; need for further diagnostic investigation or need for dental/maxillofacial treatment, as judged by a specialized dentist; other major chronic pain conditions predominant in disability (chronic low back pain or headache); major medical or psychiatric conditions that would interfere with the ability to participate. Country: Germany Clinic: Department of Prosthetic Dentistry and the Department of Oral and Maxillofacial Surgery. In addition, dental clinics in Marburg were informed about the study and referred eligible patients to the Department of Prosthetic Dentistry.
Interventions	Group A (n=29): BFB-CBT (weekly therapy for 50 minutes for eight weeks) Group B (n=29): splint (worn at night-time for 8 weeks)
Outcomes	Pain and Disability (CPI) Pain Disability (PDI) Jaw use limitations (JDL) Emotional Functioning: Depression (CES-D); Anxiety (GAD-7)

APPENDIX VIII: Characteristics of studies

	Pain Coping (FESV) Screening for Somatoform Symptoms (SOMS-7) TMD-related symptoms by Screening for Somatoform Symptoms (SOMS-7) Patient Global Impression of Change scale (PGIC)
Chronicity	High disability / mixed
Hints for Chronicity	From the author per mail: - most of the patients received therapy before Exclusions criteria: - Cite: "if presence of an OS already matching to our standards, for example an OS as described below (patients could be included if they currently used a splint that did not meet our standards, such as a non-OS)" - Cite: "if other major chronic pain conditions predominant in disability, for example chronic low back pain or headache, as assessed in the diagnostic interview" - Cite: "if major medical or psychiatric conditions that would interfere with the ability to participate."
Duration	6 months follow up.
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "Random assignment to conditions was generated by a researcher not involved in the study with the use of randomization software (GraphPad Software Inc., La Jolla, CA)"
Allocation concealment (selection bias)	Low risk	Cite: "assignment was concealed in closed envelopes." By mail: "the envelopes were sealed, opaque and numbered."
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Low risk	Cite: "They were asked to complete questionnaires, to record NMMA, and underwent examination according to RDC/TMD by another trained and calibrated dentist/maxillofacial surgeon blind to subject status."
Incomplete outcome data (attrition bias)	Low risk	Cite: "Intent-to-treat approach"
Selective reporting (reporting bias)	Low risk	All outcomes reported. Study protocol given
Other bias	Unclear risk	Cite: "At baseline, no significant differences were found in NMMA in terms of mean number and mean duration of EMG bursts." Cite: "No conflict of interest"

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Stam 1984

Methods	RCT. single centre; three parallel studies;
Participants	61 (41 end) patients: 84% women; age 15-41 years old; mean age 25.7 (SD±7). Inclusion criteria: lack of changes or organic disease of either TMJ as determined by radiographs; lack of tenderness of the condyles on physical examination; the presence of at least one of the following symptoms: pain and tenderness of the muscles of mastication; sounds during condylar movements, mainly clicking; and limitations of mandibular movements. Country: USA Clinic: Orofacial pain clinic in the Department of Oral Medicine at the University of Western Ontario
Interventions	Group A (n=12): hypnosis + cognitive coping skills. (The two treatments were identical with the exception that in the hypnosis group treatment was denned as hypnosis and each session was begun with a standard hypnotic induction procedure) Group B (n=15): relaxation + cognitive coping skills (relaxation group, on the other hand, treatment was defined as relaxation; those subjects received standard progressive relaxation instructions at the outset of each session). Group C (n=14): no-treatment control group
Outcomes	Daily pain log (VAS) Intensity of pain Frequency of sounds Extent of limitations (if any) in opening their mouths on three 140-mm VASs (mm)
Chronicity	Unclear (high disability)
Hints for Chronicity	Orofacial pain clinic in the Department of Oral Medicine at the University of Western Ontario
Duration	4 weeks treatment
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: "patients were randomly assigned to one of three treatments" Comment: no information on how
Allocation concealment (selection bias)	Unclear risk	Not addressed
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Low risk	Cite: "The therapist was blind to patients' hypnotic susceptibility scores" and "by the dental surgeon who had made the original diagnosis and who was blind to the

APPENDIX VIII: Characteristics of studies

		patients' treatment status"
Incomplete outcome data (attrition bias)	Unclear risk	Many dropouts (20 dropouts) but information given on why and they were balanced among the groups
Selective reporting (reporting bias)	High risk	Mouth opening not fully described no baseline data
Other bias	Unclear risk	No further inequalities

Townsen 2001

Methods	RCT. single centre; two parallel groups;
Participants	20 patients: 100% women mean age group A 35.4 (SD±9.5); group B 38.9 (SD±8.2) Inclusion criteria: a report of pain in the TM joint or surrounding musculature in the past year; one of the following conditions (a) locked jaw; (b) mandibular joint sounds; (c) stiffness, tenderness, or tightness in the jaw; (d) pain in the ears, temple, or cheek, or (e) uncomfortable bite. Exclusion criteria: having had head or facial surgery; diagnosis of degenerative joint disorder; currently taking psychotropic medication; pregnancy. Country: USA Clinic: through an advertisement in a local paper that offered free treatment for women between the ages of 18 and 55 who suffered from chronic facial pain.
Interventions	Group A (n=10): habit reversal treatment (home-based minimal therapist contact (MTC)) Group B (n=10): wait-list control
Outcomes	Pain (6-point Likert-type scale) Oral habits measure (OHQ) Psychological adjustment measures (MPI) Facial pain treatment rating form
Chronicity	High disability
Hints for Chronicity	1. None of the participants was currently receiving any non-pharmacologic medical treatment 2. All participants reported a history of medical and/or dental interventions in the past for their TMD pain; the most common was the use of an intraoral appliance (80% of the sample) 3. Female participants were recruited through an advertisement in a local paper that offered free treatment for women between the ages of 18 and 55 who suffered from chronic facial pain
Duration	Follow up range 8-24 months
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement

Random sequence generation (selection bias)	Low risk	Cite: "Participants were randomly assigned to condition via blocked randomization utilizing blocks of two..." But: "four participants assigned to the treatment condition withdrew during the baseline assessment or initial phases of treatment; as such, the next individual entering the study was assigned to the condition from which the person withdrew. This was done to ensure equal groups given the small projected sample size."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	Cite: "The therapist was naive to group assignment until after the treatment orientation, at which time the therapist referred to the random assignment list and assigned the participant to the next available position"
Blinding of outcome assessment (detection bias)	Unclear risk	Not addressed
Incomplete outcome data (attrition bias)	Unclear risk	Couldn't use ITT. Cite: "the fact that information is only available for those who completed the study", "No follow-up data were available for participants in the wait-list control condition as each received treatment following the specified waiting period." Cite: "four participants assigned to the treatment condition withdrew during the baseline assessment or initial phases of treatment; as such, the next individual entering the study was assigned to the condition from which the person with drew. This was done to ensure equal groups given the small projected sample size. None of the participants in the wait-list control condition dropped out during the waiting period.
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	Baseline characteristics similar

Turk 1993

Methods	RCT. single centre; three parallel groups;
Participants	80 patients: 82 % women; age 34.1 (SD +/-8.4), age range 18-55. Inclusion criteria: pain and tenderness of the muscles of mastication and TMJ region and limited mandibular movements of 2 months duration or longer; no evidence of serious psychopathology; no history of TMJ-related surgery; at least 18 years of age. Country: USA Clinic: outpatient TMD clinic at the University of Pittsburgh
Interventions	Group A (n=30): intraoral appliance, worn all the time except during eating and brushing the teeth. Group B (n=30): combination of biofeedback and stress management (once a week for 60 min for 6 weeks) Group C (n=20): wait list control (got the same treatment as Group A and B just later)

APPENDIX VIII: Characteristics of studies

Outcomes	Pain (Pain Severity Scale (PSS)) Muscle palpation pain index (PPD) Depression (depression scale from the Profile of Mood state) Credibility ratings
Chronicity	Low disability
Hints for Chronicity	No depression at baseline (CES-D, ADS) Tertiary care
Duration	6 weeks treatment; 6 month follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: "unclear assigned"
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different treatments
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Unclear risk	One dropped out from each group. No information on why.
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	Cite: "Chi-square and analysis of variance (ANOVA) analyses indicated no significant differences among the three groups in years of age" Cite: "Similarly, there were no significant differences between the groups in the gender composition"

Turner 2005

Methods	RCT. single centre; two parallel studies;
Participants	158 patients: 88.1 % women; age group A 39.3 (SD±11.1); mean age group B 35.4 (SD±10.5). Inclusion criteria: age 18 years or older; (RDC/TMD) Axis I TMD diagnosis; residence within a 2-h drive of the TMD clinic; facial pain for at least 3 months; facial pain-related disability, as defined by a Chronic Pain Grade (Von Korff et al., 1992) of II high (high pain, low disability), III (moderate disability), or IV (severe disability); ability to communicate in English. Exclusion criteria: diagnostic evaluation, pending litigation or disability compensation for pain; current or previous CBT for pain; major medical or psychiatric conditions that would interfere with ability to participate (e.g.,

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	psychosis, indications for surgical treatment, major medical illness, active suicidal ideation, current alcohol or other substance dependence or abuse). Time: Country: USA Clinic: University of Washington (UW) Orofacial Pain Clinic
Interventions	Group A (n=61): CB pain management training (PMT) Group B (n=65): SCM education/attention [self-care management (SCM)]
Outcomes	Pain intensity (VAS) Pain-related activity interference Jaw use limitations Mood circumplex model
Chronicity	High disability
Hints for Chronicity	Inclusion criteria: facial pain-related disability, as defined by a Chronic Pain Grade (Von Korff et al., 1992) of II high (high pain, low disability), III (moderate disability), or IV (severe disability).
Duration	4 weeks treatment
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: "Randomization was stratified by participant chronic pain grade (Von Korff et al., 1992) and gender."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Low risk	Cite: "All four treatment sessions were completed by 55 (90%) PMT participants and 55 (85%) SCM participants. Among the other participants, one (2%) in the PMT group and nine (14%) in the SCM group had a combined session three and four due to scheduling constraints. Five percent of PMT participants and no SCM participants completed only the first three sessions, 2% each of PMT and SCM participants completed only two sessions, and 2% of PMT participants and no SCM participants completed only one session."
Selective reporting (reporting bias)	Low risk	All outcomes were reported

Other bias	Unclear risk	Cite: "The two study groups did not differ significantly in gender, race, education, marital status, pain duration, or the baseline questionnaire characteristic pain intensity and activity interference measures."

Turner 2011

Methods	RCT. single centre; three parallel groups;
Participants	191 patients: 100% women, mean age group A 29.1(SD±7.4), mean age group B 25.4 (SD±5.7), mean age group C 28.6 (SD±6.9). Inclusion criteria: female gender; age 18 45 years; (RDC/TMD) Axis I TMD pain diagnosis; premenopausal; characteristic pain intensity 3 or higher; local language skills. Exclusion criteria: lacking a menstrual cycle; pregnant, lactating, or planning to become pregnant in the next 7 months; unwilling to take a continuous OC; need for further diagnostic evaluation of facial pain; major medical or psychiatric conditions that would interfere with ability to participate. Additionally, study participants randomized to the COCT group underwent a gynecological examination and were withdrawn from the study if they had a medical contraindication for COCT (e.g., history of or active thromboembolic disease; cerebrovascular or coronary artery disease; undiagnosed genital bleeding; oestrogen-dependent cancer; acute liver disease; benign or malignant liver tumours; severe headaches or headaches with atypical neurological changes); smoked cigarettes and were 35 years or older; had used medication within the last 3 months that interfered with oestrogen or progestin metabolism; had an abnormal pelvic examination, abnormal cytology (Pap smear), or undiagnosed uterine bleeding; or had no current mammogram and were 40 years or older. Country: USA Clinic: U.W. Orofacial Pain Clinic and by advertising
Interventions	Group A (n=60): self-management training Group B (n=57): targeted self-management training (2.5 hr. inter person sessions+ 615 min. telephone session) Group C (n=74): continuous oral contraceptive therapy (2.5 hr. inter person session + 615 min. telephone session) Cointerventions: every study participant received a personalized list of recommended TMD self-care strategies
Outcomes	Pain intensity (CPI) Pain interference Subjective Pain (McGill Pain Questionnaire) Depression (BDI) Treatment helpfulness Pain beliefs: Disability, Harm, and Control (SOPA) Self-efficacy (SES) Catastrophizing (CSQ Catastrophizing scale) Perceived effectiveness of pain coping strategies
Chronicity	High disability
Hints for Chronicity	1. U.W. Orofacial Pain Clinic and by advertising 2. most participants (77%) reported that pain interfered with activities
Duration	12 month follow up
Notes	

APPENDIX VIII: Characteristics of studies

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "S-PLUS statistical software""
Allocation concealment (selection bias)	Unclear risk	Cite: "Treatment assignments were recorded on cards numbered consecutively within each stratum, and a study assistant not involved in the screening and randomization put the randomization assignments in sealed envelopes sequentially numbered by stratum. Randomization assignments were concealed to all study personnel with study participant contact until envelopes were opened by research staff at the time of randomization." Comment: „...no information about opaque.”
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Low risk	Used intention-to-treat
Selective reporting (reporting bias)	Low risk	Reported all the outcomes
Other bias	Unclear risk	No further inequalities

Vallon 1991

Methods	RCT. single centre; two parallel groups;
Participants	50 patients: 88% women; age 15-55 years old (MV 28.5). Time: August 1985-October 1988 Country: Sweden Clinic: Department of Stomatognathic Physiology at the Faculty of Odontology in Malmo
Interventions	Group A (n=25): occlusal adjustment (simultaneous bilateral contacts on guided hinge closure into RCP; removal of lateral slide between the RCP and IP; no balancing-side interferences within lateral movements < 3mm; canine guidance alone or in group function with premolars and molars on the working side during lateral movements; and no predominant posterior contacts during protrusive movements.) Group B (n=25): have been comforted ("reassurance of occlusion")
Outcomes	Frequency of headaches Frequency of facial pain Muscle tenderness to palpation Overall changes in severity of their subjective symptoms; Likert-Skala 0-5;

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	VAS Range of mandibular mobility Deviation from the midline of more than 2mm on mouth opening Joint sounds Pain on mandibular function Number of tender muscles HDI
Chronicity	Unclear
Hints for Chronicity	No hints
Duration	1 month
Notes	Further publications: "Occlusal adjustment in patients with craniomandibular disorders including headaches. A 3- and 6-month follow-up" (Vallon, 1995), "A longitudinal follow-up of the effect of occlusal adjustment in patients with craniomandibular disorders" (Vallon, 1997), "Treatment outcome in patients with craniomandibular disorders of muscular origin: a 7-year follow-up" (Vallon, 1998)

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: "randomly assigned"
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies.
Blinding of outcome assessment (detection bias)	Low risk	Cite: "All clinical examinations were performed by investigator A, who was not involved in the occlusal adjustment and had no knowledge about to which group the patients belonged"
Incomplete outcome data (attrition bias)	Unclear risk	No information given
Selective reporting (reporting bias)	High risk	Incomplete reporting of the outcomes (HDI) Some outcomes were reported only at baseline but no follow up: joint sounds, mouth opening
Other bias	Unclear risk	Cite: "There were no significant differences in headaches and facial pain between the groups."

Wahlund 2003

Methods	RCT. single centre; three parallel studies;
Participants	122 patients: 76.2% women; age 12±18 years; mean age 15.3 years. Inclusion criteria: reported pain once a week or more in the face, jaws,

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	TMJs, or temples for a period of at least 3 months; had received a TMD pain diagnosis according to (RDC/TMD); wanted treatment. Exclusion criteria: juvenile rheumatoid arthritis; migraine; current treatment with orthodontic appliances that could interfere with occlusal appliance treatment. Time: 1996-2000 Country: Sweden Clinic: TMD clinic in LinkoÈping
Interventions	Group A (n=41): brief information + occlusal appliance (BI+OA) Group B (n=42): brief information + relaxation therapy (BI + RT) Group C (n=39): brief information (BI)
Outcomes	Pain intensity (VAS) Analgesic consumption Jaw opening Muscle and TMJ tenderness scores School absence Bruxism Pressure pain threshold Motivation and credibility
Chronicity	Unclear (high disability)
Hints for Chronicity	TMD clinic in LinkoÈping
Duration	6-month follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	No information given
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Low risk	Cite: "At each evaluation, all subjects filled out a self-administered questionnaire and were clinically examined by a `blinded', calibrated clinician (KW)"
Incomplete outcome data (attrition bias)	Low risk	Cite: "Seven patients (17%) in the BI + RT group and 5 (12%) in the BI + OA group dropped out during the treatment period and were therefore not included in the statistical analysis. The reasons for dropping out were as follows: one patient had moved to another city and 11 reported that they did not have time or were not interested in continuing their participation in the study. There were

		no significant differences between dropouts and completers in the treatment groups according to sex and age. Although subjects who dropped out had lower pain scores and less motivation to participate in treatment, these differences were non-significant, except for one motivation item `How much time are you willing to put into this treatment?', where the dropouts had significantly lower scores than the completers (M = 6.1 vs M = 7.5); t (117) = 2,16; P < 0.05). The analysis of assessment before treatment included all randomized patients, but only treatment completers were included in the outcome analyses below."
Selective reporting (reporting bias)	Low risk	All outcomes stated
Other bias	Unclear risk	Cite: "No significant differences in regard to number of patients, sex, age, dropouts, and distribution of diagnoses were found between the three groups."

Wright 1995

Methods	RCT. single centre; three parallel groups
Participants	30 patients: no information about the gender; age 19-51 years old; Group A 34 years, Group B 36 years; Group C 31 years. Country: USA Clinic: from the TMJ and Craniofacial Pain Clinic at the University of Minnesota, Minneapolis, MN were enrolled
Interventions	Gruppe A (n=10): soft splint (worn 24h a day, except while eating) Gruppe B (n=10): palliative treatment: Instructions for self-help for muscle pain (cold / heat treatments, soft food, awareness, and control of habits, lowering caffeine intake, sleeping position modifications, over-the-counter medications if necessary) Gruppe C (n=10): no treatment
Outcomes	Mod-SSI (Modified Symptom Severity Index) Maximum pain-free opening (mm) Pain threshold (pressure algometer score; psi; M. temporalis und M. masseter) Occlusal contacts (contact changes)
Chronicity	Unclear
Hints for Chronicity	No hints
Duration	6 weeks treatment
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: „...block randomization"
Allocation concealment (selection bias)	Unclear risk	No information given

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Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Low risk	Cite: "blinded examiner"
Incomplete outcome data (attrition bias)	Low risk	They reported about the examiner
Selective reporting (reporting bias)	Low risk	Reported about all the outcomes
Other bias	Unclear risk	No further inequalities

Yu 2016

Methods	RCT. single centre; four parallel
Participants	168 patients: 88.69% women; mean age 35.79 (SD±8.91) years. Inclusion criteria: according to RCD/TMD diagnostic criteria for irreversible displacement of the articular disc; natural teeth and the dentition is intact; had not received temporomandibular treatment in the past 3 month. Exclusion criteria: diagnosed as other according to RCD/TMD diagnostic classification criterion types of jaw joint disease; there are other physical illness; trauma to the maxillofacial region; degree of opening is severely affected restricted; the element method is completed to make the occlusal cushion impression; dental abrasion the straight height is significantly reduced; mental disorders. Time: February 2013-March 2015 Country: China Clinic: Department of Prosthodontics of Shangai Ninth People's Hospital
Interventions	Group A (n=42): Michigan Splint (wearing for at least 20 hours a day, excluding mealtimes) Group B (n=42): combination of manipulative and physical therapies group Group C (n=42): stabilization splint combination of manipulative and physical therapies Group D (n=42): control group (consulting only)
Outcomes	Spontaneous masticatory muscle pain (VAS) Palpation pain (VAS) Chewing pain (VAS) Pain-free maximum active mouth opening (mm)
Chronicity	Low disability
Hints for Chronicity	Cite: "who visited the Department of Prosthodontics of Shanghai Ninth People's Hospital affiliated to Shanghai Jiao Tong University School of Medicine" per mail: "Only 3 patients had the previous history of TMD treatment and the most recent one was 1 year prior to this study. Severe psychological disease was one of the exclusive criteria of the study, whereas Axis II of the RDC/TMD was not applied in clinical diagnosis because the whole research was done in dental clinic without the assistance of psychiatric specialist." per mail: "No participant showed any spreading pain in other body regions."
Duration	3 months treatment
Notes	

APPENDIX VIII: Characteristics of studies

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	per Mail: "The research was a prospective, single-blinded randomized study. Stratified randomization by gender was occupied due to the gender predominance of TMDs as women are affected more often than men."
Allocation concealment (selection bias)	Unclear risk	per Mail: "We provide the opaque envelopes for allocation concealment." per Mail: "3. The envelopes were done by GCP office in my hospital and kept by PI."
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Low risk	per Mail: "The outcome assessor was blinded to the interventions."
Incomplete outcome data (attrition bias)	Low risk	per Mail: "11 participants dropped out during the trail." per Mail: "1. In 11 participants who dropped out, six of them didn't finish the whole follow-up visit due to the personal reasons, two of them lost contact (couldn't get in touch by changing their contact information) and remaining three got some systemic disease which led to quit the study. 2. Two participants belong to Group 1, three participants belong to Group 2, one participant belongs to Group 3 and remaining five participants belong to Group 4." Comment: relatively balanced dropouts, although unfortunately most dropouts were found in the control group. No statistically significant influence on the result and no fraudulent intentions of the author are suspected.
Selective reporting (reporting bias)	Low risk	Reported all the outcomes
Other bias	Unclear risk	No other complicities

Characteristics of excluded studies: Psychosocial interventions

Abrahamsen 2008

Reason for exclusion	Not all patients were suffering of TMD

Abrahamsen 2011

Reason for exclusion	Secondary report to (Abrahamsen, 2009)

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Baad-Hansen 2013

Reason for exclusion	No TMD, persistent idiopathic orofacial pain

Burdette 1988

Reason for exclusion	Not randomized

Carlson 1991

Reason for exclusion	No relevant outcomes

Carlson 2001

Reason for exclusion	No psychosocial intervention treatment

Conti 2012

Reason for exclusion	All groups received counselling

Conti 2015

Reason for exclusion	All groups received counselling

Costa 2015

Reason for exclusion	All groups received counselling

Costa 2015a

Reason for exclusion	All groups received counselling

Dahlstrom 1982

Reason for exclusion	No relevant outcomes

Dahlstrom 1984

Reason for exclusion	No relevant outcomes

Dahlström 1984

Reason for exclusion	No relevant outcomes

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Durá-Ferrandis 2017

Reason for exclusion	Secondary report to "Enhancing the efficacy of treatment for temporomandibular patients with muscular diagnosis through cognitive-behavioural intervention, including hypnosis: a randomized study" (Ferrando, 2012)

Elder 2012

Reason for exclusion	Not randomized

Erlandson 1989

Reason for exclusion	Wrong intervention

Gauer 2015

Reason for exclusion	Not randomized

Giannakopoulos 2013

Reason for exclusion	Wrong intervention

Giannakopoulos 2016

Reason for exclusion	All received counselling

Glaros 2007

Reason for exclusion	Follow up to Gatchel 2006 (included study)

Grace 2002

Reason for exclusion	Wrong intervention

Henien 2017

Reason for exclusion	Not randomized

Jerjes 2007

Reason for exclusion	Not randomized

Katyayan 2014

Reason for exclusion	Combination of therapies

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Kokkola 2018

Reason for exclusion	Secondary report Quintus, 2015 (included study)

Laat 2003

Reason for exclusion	All patients received counselling

Litt 2009

Reason for exclusion	Further publication to Litt 2010

Litt 2013

Reason for exclusion	Further publication to Litt 2010

Minakuchi 2001

Reason for exclusion	Combination of therapies

Mishra 2000

Reason for exclusion	Secondary report of RCT Gardea 2001 (included study)

Mulet 2007

Reason for exclusion	Both groups received self-care therapy

Nagata 2015

Reason for exclusion	Combination of therapies

Nagata 2018

Reason for exclusion	All received CBT

Nct 2014

Reason for exclusion	Not randomized

Nicolakis 2000

Reason for exclusion	Not randomized

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Nicolakis 2001

Reason for exclusion	Not randomized

Nicolakis 2002

Reason for exclusion	Not randomized

Niemelä 2012

Reason for exclusion	No all received counselling

Oakley 1994

Reason for exclusion	No all received counselling

Okeson 1983

Reason for exclusion	Wrong intervention

Qvintus 2015

Reason for exclusion	All received self-care

Raustia 1986

Reason for exclusion	Not fully randomized

Rill 2008

Reason for exclusion	Wrong intervention

Sanches 2015

Reason for exclusion	Not randomized

Sanders 2016

Reason for exclusion	Follow up

Schiffman 2007

Reason for exclusion	Combination of therapies

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Shedden 2010

Reason for exclusion	Secondary report

Shedden 2012

Reason for exclusion	Secondary report

Sherman 1997

Reason for exclusion	No wrong intervention

Stenn 1979

Reason for exclusion	No wrong intervention

Stowell 2007

Reason for exclusion	Secondary report of RCT Gatchel 2006 (included study)

Sundqvist 2007

Reason for exclusion	No not randomized

Takeuchi-Sato 2020

Reason for exclusion	All received CBT only the reminding method was different

Truelove 2006

Reason for exclusion	All received psychosocial interventions

Tsolka 1992

Reason for exclusion	Splint intervention, all received counselling

Tsolka 1993

Reason for exclusion	No wrong intervention

Turk 1996

Reason for exclusion	Other intervention. Both evaluated groups received EMG-Biofeedback, thus to the "usual treatment" intervention was added EMG-biofeedback resulting in a different intervention.

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Turner 1995

Reason for exclusion	Secondary Report to Dworkin 1994

Turner 2005

Reason for exclusion	Secondary report of RCT Turner 2006

Turner 2006

Reason for exclusion	All received psychosocial intervention

Turner 2007

Reason for exclusion	Secondary report of RCT Turner 2006

Vallon 1995

Reason for exclusion	Secondary report of RCT Vallon 1991

Vallon 1997

Reason for exclusion	Secondary report of RCT Vallon 1991

Vallon 1998

Reason for exclusion	Secondary report of RCT Vallon 1991

van der Glas 2000

Reason for exclusion	No wrong intervention

Watanabe 2011

Reason for exclusion	RCT evaluated clenching habits in bruxism patients

Weber 2012

Reason for exclusion	Secondary report of RCT Shedden 2013 (included study)

Wieselmann-Penkner 2001

Reason for exclusion	No relevant outcomes

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Winocur 2002

Reason for exclusion	Not randomized

Wright 2000

Reason for exclusion	Combination of therapies

Yoda 2003

Reason for exclusion	No painful TMD

Zaki 1996

Reason for exclusion	Only randomly sampled from…

Zander 1982

Reason for exclusion	N too small

APPENDIX VIII: Characteristics of studies

Characteristics of included studies Physiotherapy

Barbosa 2019

Methods	RCT. single centre; two parallel studies;
Participants	46 patients: 100 % women; age 18-45 years old. Inclusion criteria: only those with chronic TMD (more than 6 months of complaints); minimum of 28 permanent teeth; age between 18-45 years old; no periodontal issues. Exclusion criteria: history of trauma on the face and on the TMJ; systemic diseases such as arthritis; pain attributable to confirmed migraine; head; neck pain condition; chronic use (more than 6 months) of any analgesic; anti-inflammatory or psychiatric drugs; acute infection or other significant disease of the teeth, ears, eyes, nose, or throat, and to present neurological or cognitive deficit. Time: n.a. Country: Brazil Clinic: "public invitation through folders and personal contacts; the authors assume that this could represent a selection bias."
Interventions	Group A (n=23): biting endurance exercises, controlled by biofeedback and intervention Group B (n=23): placebo (simulated laser therapy)
Outcomes	Pain (VAS) Pressure pain thresholds (PPT) Bite force (surface electromyography of masticatory muscles, bilaterally)
Chronicity	Low disability
Hints for chronicity	Exclusion: migraine and drug abuse
Duration	8 weeks follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "The randomization was carried out by an independent rather considering the 1:1 allocation ratio. Before the study begins, a random allocation sequence was automatically generated using the Research Randomizer website (www.randomizer.org), by using 1 set of numbers, with a total of 46 numbers per set, and the established number range as 1-2, representing the placebo and the intervention group, respectively."
Allocation concealment (selection bias)	Low risk	Cite: "The random sequence was delivered by the Research Randomizer, and the independent examiner kept the sequence. The sequence order was continuously given to the examiner who performed the assessments when a new participant was allocated for treatment. The examiner who performed the randomization was blinded to the statistical analysis."

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		Comment: independent external examiner
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Low risk	Cite: "The random allocation list was not accessible to the recruiting staff or to the physiotherapists who implemented the treatment at any time. The group allocation and the allocation concealment were preserved." Comment: we can assume the examiner was blinded
Incomplete outcome data (attrition bias)	Low risk	Cite: "Personal reasons (travel during more than a week and lack of time for treatment) lead six subjects from each group to discontinue the protocol. Thirty-four were analysed at 8-week assessments."
Selective reporting (reporting bias)	Low risk	All outcomes were reported
Other bias	Unclear risk	Cite: "public invitation through folders and personal contacts; the authors assume that this could represent a selection bias. Further studies comparing combinations among other successful therapies are needed to provide the best care for TMD subjects. The present study also focused on women at limited range of age. Those presenting other levels of low disability limitations and other age groups may show distinct patterns, as their male counterpart. The placebo procedure may also influence pain results, as inferred from the results of this study. The sample were not subjects seeking treatment, and this could represent a selection bias. The pain was provoked by palpation without report of familiar or spontaneous pain. Psychosocial assessments may influence the group split. Despite sample size calculation, the number of subjects who met the eligibility criteria was relatively restricted."

Benli 2020

Methods	RCT. single centre; three parallel groups
Participants	91 patients: 82.22 % women; age group A 39.1 (SD±3.4); mean age group B 39.2 (SD±3.3); Group C 39.1 (SD±4). Inclusion criteria: diagnosis of myogenous TMD and pain according to the DC/TMD; age between 18 and 65 years; minimum pain intensity of 50 mm on a 100 mm (VAS); natural posterior occlusion; no history of sensitivity or allergy to herbal ingredients; no history of asthma; no olfactory impairment. Exclusion criteria: history of TMJ surgery or injection; any type of physiotherapeutic treatment of the masticatory system; previous TMD treatment more recently than a year. Time: November 2018-June 2019 Country: Turkey Clinic: Özel Maltepe Hospital, Department of Oral and Dental Health, Istanbul, Turkey
Interventions	Group A (n=30): aromatherapy massage therapy with lavender oil Group B (n=30): massage therapy with sweet almond oil Group C (n=31): without massage therapy

APPENDIX VIII: Characteristics of studies

Outcomes	Pain (VAS) Maximal mouth opening (MMO)
Chronicity	Low disability
Hints for chronicity	Exclusion: previous treatment; major psychological problems; having other types of musculoskeletal pain; medication use for orofacial pain. Disease for more than 37 months Tertiary care
Duration	2 months follow-up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "The random sampling method was performed by using a Web-based number generator."
Allocation concealment (selection bias)	Unclear risk	Cite: "Each patient's file was numbered, and these files were consecutively assigned into 1 to 3 groups. Patients were then randomly allocated to one of the following groups". Comment: No information about the opaqueness of the envelops.
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to different therapies
Blinding of outcome assessment (detection bias)	Low risk	Cite: "Data collection was conducted by face-to-face interviews with all participants by a single researcher who was blinded to the group allocation."
Incomplete outcome data (attrition bias)	Low risk	Cite: "Only one participant from the control group dropped out."
Selective reporting (reporting bias)	Low risk	All outcomes were reported. Protocol number 2018/59; Clinical Trials Identifier: NCT04132726
Other bias	Unclear risk	„...there was no significant difference for the duration of the disease between groups, as all groups had this disease for more than 37 months (p=0.936). Disclosure of interest the authors report no conflict of interest. Comment: "Significant difference at pain levels though"

Berguer 2008

Methods	RCT. single centre; two parallel groups
Participants	56 (51) patients: 94.12% women; age 18-45 years. Inclusion criteria: age 18-45 years; diagnosis and course of treatment for MF/TMJP at the maxillofacial department of the participating hospital; constant pain for 3 months or longer in spite of conservative treatment

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	(including all conservative measures prescribed in that department for each patient); inability to achieve a mouth opening of 35 mm or more; voluntary participation; neither the patients nor physicians involved in this study received any form of economic incentive or compensation for participating. Exclusion criteria: systemic rheumatic diseases; drug addiction (except tobacco use), data suggesting uncontrolled metabolic disorders (except obesity); systemic infections; neurologic degenerative disorders, malignancies, severe cardiovascular/pulmonary diseases; dermatologic conditions that prevented NRT; depression/treatment with psychoactive drugs and data suggesting the existence of major depression or anxiety. Country: Spain Clinic: Maxillofacial Department of the Hospital Clínico Universitario, a teaching hospital
Interventions	Group A (n=27): Neuro-Reflexotherapy Group B (n=24): Sham interventions in the control group
Outcomes	Level of pain severity during jaw movements at the last assessment Level of pain (VAS)
Chronicity	High disability
Hints for chronicity	1. At least 3 months of pain despite conservative treatment 2. Tertiary care 3. Inclusion: adult subjects undergoing treatment for MF/TMJP syndrome Cite: "Patients with MF/TMJP for more than 3 months in spite of conservative treatment, and with no evidence of major structural damage in the joint, were recruited at the Maxillofacial Department of the Hospital Clínico Universitario, a teaching hospital in Madrid, Spain."
Duration	90 days
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "Randomization was masked and carried out according to a table of random permutations."
Allocation concealment (selection bias)	Low risk	Cite: "Sealed, opaque envelopes were prepared by an administrative assistant who was not otherwise involved in the study and who was located in a different city from that where the study took place" Cite: "Three-digit correlative Arabic numbers, from 001 to 103, were written in the front of each envelope, and on a paper placed within it. Assignment to either the intervention or control group was based on the numbers which was in the table of random permutations, in the position corresponding to the number shown in the front of each envelope."
Blinding of participants and personnel	Unclear risk	No information given about the blinding

(performance bias)		
Blinding of outcome assessment (detection bias)	Low risk	Cite: " Only the administrative assistant performing the randomization and the physicians in charge of performing the intervention knew the code allowing for the identification of assignment. None of these personnel had access to the patients' medical records, data obtained throughout the trial, or information which was introduced in the database."
Incomplete outcome data (attrition bias)	Low risk	Cite: "1 patient from the intervention group was excluded because of a facial fracture because of a fall, and 1 from the control group because she had to undergo bowel surgery (not related to the TMJ)" Comment: reasons given und balanced
Selective reporting (reporting bias)	Low risk	Reported all the outcomes
Other bias	Unclear risk	No further inequalities

Brandão 2020

Methods	RCT. single centre; two parallel studies;
Participants	23 patients: 100 % women; age group A 38.1 (SD±14.3); mean age group B 39.7 (SD±14.0). Inclusion criteria: aged 18-60 years; TMD diagnosis IA and IB myofascial pain and myofascial pain with aperture limitation, respectively; and diagnosis in the IIA group, which includes volunteers with disc displacement with reduction. Exclusion criteria: self-reported diagnosis of TMD, such as disc displacement without reduction, arthralgia, osteoarthritis, and osteoarthrosis; psychiatric; neurological disorders. Time: January-December 2017 Country: Brazil Clinic: "Posters placed in the university and dental centres in the city were used to find volunteers for the trial. Moreover, electronic media, such as social networks, were used."
Interventions	Group A (n=12): Isotonic exercises and relaxing techniques Group B (n=11): self-care to control not opening the mouth widely, avoiding hard food, and oral parafunctions
Outcomes	Pain severity Data related to the limitations experienced on a day-to-day basis (19 of the RDC) Pain intensity and depression (GCPS, RDC)
Chronicity	Mixed
Hints for chronicity	GCPS
Duration	30 days follow up
Notes	

APPENDIX VIII: Characteristics of studies

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "A randomization list was created using the website randomization.com, and the volunteers were allocated to two intervention groups: experimental or control."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Unclear risk	Cite: „...was video recorded with the patients' consent and, while respecting blinding, analysed later by a myofunctional therapist with 10 years' experience in the area."
Incomplete outcome data (attrition bias)	Low risk	Cite: "…1 volunteer from the experimental group and 3 from the control group dropped out for personal reasons, leaving 8 volunteers in the control group and 11 in the experimental group." Comment: informed about the dropouts
Selective reporting (reporting bias)	Low risk	Study protocol stated Clinical Trials Registry (ReBec), register number: RBR-7v6r3t. All outcomes reported
Other bias	Unclear risk	No other conspicuities

Brochado 2018

Methods	RCT. single centre; three parallel groups;
Participants	51(41) patients: 95.12% women; 44.5 (SD±17.1). Inclusion criteria: 21 years or older; be diagnosed with myogenic and arthrogenic TMD based on RDC/TMD Axis I analysis; present pain in TMJ and limited mouth opening. Exclusion criteria: current dental therapies that could affect TMJ; rheumatic diseases; use of anti-inflammatory drugs and muscle relaxants. Time: May 2016-November 2016 Country: Brazil Clinic: Universiade Federal do Rio Grande do Sul, School of Dentistry, Department of Oral Pathology, Porto Alegre, RS, Brazil.
Interventions	Group A (n=18): photo biomodulation (PBM) with 808 nm, 100 mW, 13.3 J/cm2, and 4 J per point Group B (n=16): MT for 21 minutes each session on masticatory muscles and TMJ. Group C (n=17): combined therapy group (CT) applied during twelve sessions.
Outcomes	Pain intensity (VAS) Mandibular movements (mm) Psychosocial aspects (RDC/TMD Axis I Axis II) Anxiety symptoms (Beck anxiety inventory (BAI))

APPENDIX VIII: Characteristics of studies

Chronicity	Mixed (separately)
Hints for chronicity	GCPs given
Duration	8 weeks follow-up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "Randomization was performed by the same professional who applied the therapies, using a card system that maintains complete randomness of the assignment of a subject to a particular group."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Cite: "The patient was aware of the treatment." Comment: not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Low risk	Cite: "A blinded researcher performed all the evaluations (LHJ)" "Evaluations were performed by a single calibrated professional who was blinded to the allocation of the participants to the different treatment groups"
Incomplete outcome data (attrition bias)	Low risk	All dropouts were reported
Selective reporting (reporting bias)	Low risk	All outcomes were reported. Study protocol given 52651416.1.0000.5347
Other bias	Unclear risk	Cite: "The authors certify that they have no commercial or associative interest that represents a conflict of interest in connection with the manuscript."

Burgess 1988

Methods	RCT. single centre; three parallel groups
Participants	29 patients: 74% women; mean age 34. Country: USA Clinic: Oral Medicine Pain Centre at the University of Washington
Interventions	Group A (n=10): intervention consisting of masticatory (temporal and masseter) and neck (trapezius and sternocleidomastoid) muscle chilling with ethyl chloride followed by stretch Group B (n=11): reflexive inhibition (each subject was asked to put one hand behind the head for support, make the other hand into a fist, and place it under the chin with the elbow held into the stomach, and to open the mouth as wide as possible 15 times against the resistance that this provided) Group C (n=8): non-intervention control group (NIC, set of generalized

	instructions emphasizing painless jaw use during normal activity and restriction of some specific jaw activities such as extreme opening or chewing hard foods)
Outcomes	Subjective pain (PRI section of the McGill pain questionnaire (MPQ)) EMG values Palpation tenderness Non- painful mandibular opening (mm)
Chronicity	High disability
Hints for chronicity	1. 42% of the subjects their pain had persisted longer than 6 months and ranged in self-report of intensity from mild to severe. 2. Secondary care: Oral Medicine Pain Centre at the University of Washington 3. Multilocal pain
Duration	3 weeks
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: „...were randomly assigned to one of three therapeutic intervention groups..."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Low risk	No dropouts according to the tables
Selective reporting (reporting bias)	Low risk	Reported all the outcomes
Other bias	Unclear risk	Cite: "None of these variables were found to be significantly different between groups at the initial baseline session."

Calixtre 2019

Methods	RCT. single centre; two parallel groups
Participants	61 patients: 100% women; mean age Group A 26.3 (SD±4.6); Group B 26.1 (SD±5.7). Inclusion criteria: female; aged between 18 and 40 years old; orofacial pain for at least 3 months (considered as chronic pain, according to the IASP); baseline pain score ≥3 on a ten-point Numerical Pain Rating Scale (NPRS); and diagnosis of orofacial myalgia (Ia and Ib) or mixed TMD of Ia/Ib and groups IIa/IIb/IIIc (disc displacements) and IIIa (TMJ arthralgia) according to

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	the RCD; presence and intensity of neck pain according to a NPRS. Exclusion criteria: pregnancy; diagnosis of fibromyalgia or rheumatic or neurologic issues; history of neck or jaw fracture; dental loss (except for third molars, when extracted more than 6 months ago); previous orofacial treatment; occlusal splints or regular medication for more than 6 months. Time: August 2015-July 2016 Country: Brazil Clinic: Department of Physical Therapy, Federal University of São Carlos (UFSCar), São Carlos "announcements in local and social media"
Interventions	Group A (n=30): upper cervical mobilizations and neck motor control and stabilization exercises for 5 weeks Group B (n=31): no treatment
Outcomes	Pain intensity (VAS) Pressure pain threshold Headache impact (Headache Impact Test (HIT-6)) Mandibular function impairment questionnaire (MFIQ)
Chronicity	Low disability
Hints for chronicity	1. Announcements in local and social media 2. Baseline pain score ≥3 on a ten-point Numerical Pain Rating Scale (NPRS) 3. Exclusion: previous orofacial treatment (such as orthodontics or physio-therapy in the previous 6 months)
Duration	5 weeks
Notes	Further publications: "Minimum important difference of the Headache Impact test Questionnaire (HIT-6) in subjects with TMDs and concomitant headache" (Calixtre, 2017), "What is the minimal important difference of pain intensity, mandibular function, and headache impact in patients with temporomandibular disorders? Clinical significance analysis of a randomized controlled trial" (Calixtre, 2020)

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: ...randomised controlled trial..." Comment: need more information
Allocation concealment (selection bias)	Low risk	Cite: "allocation, opaque envelopes (sealed and numbered) were prepared by one of the researchers not involved in the recruitment or the assessment of the subjects."
Blinding of participants and personnel (performance bias)	Low risk	Cite: " single-blind randomized controlled trial" Not possible
Blinding of outcome assessment (detection bias)	Low risk	Cite: "All outcomes were collected by a second physiotherapist (PT2), who was blinded to the allocation"
Incomplete outcome data	Low risk	Used ITT; reported about the dropouts

(attrition bias)		
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	Cite: "No conflict of interest to be declared."

Capan 2017

Methods	RCT. single centre; two parallel groups
Participants	40 patients: 96.77% women; mean age Group A 31.0 (SD±5.9); Group B 32.2 (SD±6.0). Inclusion criteria: Clinical diagnosis of temporomandibular DDw/oR; history of reduction in mandibular opening >6 months; unassisted mandibular opening <35 mm; TMJ pain (VAS >5 cm); deflection of the mandibular opening pathway to the ipsilateral side; restrictions in lateral movements of the ipsilateral side; no longer present joint sounds; MRI diagnosis of DDw/or; despite all conventional conservative treatment methods, have not received an adequate response; no previous TMJ surgery. Exclusion criteria: presence of other disorders involving the TMJ (e.g., degenerative joint disease or collagen vascular disease); history of major jaw trauma; dento-facial deformity; psychiatric illness; chronic headache; inflammatory disorders; bleeding disorders; neurological disorders. Country: Turkey Clinic: Department of Physical Medicine and Rehabilitation of Istanbul University Istanbul Faculty of Medicine, Turkey.
Interventions	Group A (n=20): supervised exercise program was applied after surgery in the outpatient clinic by a physiotherapist (30min session 3 days per week for 8 weeks); the patients completed the program at home in a 30min session each day. Group B (n=20): home-based exercise program (reviewed every 2 weeks; 30min session each day for 8 weeks)
Outcomes	Maximum mouth opening (MMO) Protrusion, and right and left lateral movements Pain (VAS) Pressure–pain thresholds QOL
Chronicity	High disability
Hints for chronicity	"Per mail: 1. We included the patients who have pain despite all conventional conservative treatment methods and have not received an adequate response -Do you have any data on localized or widespread pain of the participants? Particularly they have more localized joint pain. But The pressure–pain thresholds at trigger points were also determined using algometric measurements for the masseter and temporal muscles for both group before and after intervention. Over the 2 months, pain at rest and activity (VAS), as well as the algometry values, decreased significantly in both groups (P < 0.05). -How long did the patients suffer from orofacial pain at baseline? Longer than 6 month"
Duration	8 weeks treatment

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Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "using computer-generated random numbers."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	Cite: "All patients were informed of the type and purpose of the diagnostic procedures and had given their written consent for participation and the execution of the study."
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Low risk	Reported about the dropouts. Drop out numbers were balanced
Selective reporting (reporting bias)	Low risk	Reported all the outcomes
Other bias	Low risk	Cite: "no significant difference between the two groups in the baseline assessments of all outcome measures (age, low disability parameters, VAS for pain during activity, VAS for pain at rest, algometry measurements, and QOL)." and "No competing interests to declare"

Carlson 2001

Methods	RCT. single centre; two parallel groups
Participants	44 patients: 77.3% women; mean age 34.6 years. Inclusion criteria: primary diagnosis of myofascial pain in the masticatory muscles that was based on guidelines from the RDC for Type 1a and Type 1b disorders; included a chief complaint originating from the masticatory muscles; pain complaint that had been present for longer than 1 month; and report of pain in response to palpation of 3 or more standard muscle sites. All participants were maintained on medications that they were taking prior to the initial evaluation, and initial medication usage was not altered by the treating dentists during the study. Country: USA Clinic: "conducted in the outpatient Orofacial Pain Service, Department of Oral and Maxillofacial Surgery, National Naval Medical Centre (NNMC), Bethesda, Maryland"
Interventions	Group A (n=23): Physical self-regulation training Group B (n=21): flat-plane intraoral appliance and self- care instructions

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Outcomes	Pain intensity (Pain diary 3x/d VAS) Life interference (MPI) Life control (MPI) Maximum interincisal opening with/without pain (mm) Muscle palpation Awareness of tooth contact Depression scale (SCL-90-R) Somatization scale (SCL-90-R) Anxiety scale (SCL-90-R) Obsessive-compulsive scale (SCL-90-R) Affective distress (MPI) Self-assessment: fatigue; Sleep dysfunction
Chronicity	High disability
Hints for chronicity	Inconspicuous psychological status (SCL-90-R) 21 of 44 patients reported taking medication at the first visit and maintained on medication
Duration	8 weeks treatment, 5-month follow-up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: „...use of a table of random numbers"
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Low risk	Cite: "A board-certified dentist with postdoctoral training in orofacial pain who was not aware of the treatment protocol to which each participant was assigned performed all initial dental evaluations and administered the self-report measures after the dental evaluations."
Incomplete outcome data (attrition bias)	Low risk	Cite: "Twelve other patients who did complete the 2-week baseline period were unable to finish the study, and complete follow-up data were not collected from them, so that an intention-to-treat analysis could not be performed. Three of these individuals became pregnant. Two others had worsening symptoms that required additional treatment beyond the guidelines of the protocols. One required a tooth extraction, and another was discovered to have a tear of the teres minor muscle. Four participants in the standard dental care (SDC) protocol and 3 participants in the physical self-regulation (PSR) protocol withdrew from the study for personal

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		reasons (e.g., transportation difficulties, changes in residence) prior to outcomes assessment. Subsequent data analyses of the initial physical and psychologic characteristics of those who dropped out of the study versus those who completed the study did not reveal any significant differences between the 2 groups on measured variables obtained at the beginning of the study" completed the 2-week baseline period but were unable to finish the study and complete follow-up data were not collected from them, so that an Intention-to-treat-analysis could not be performed"
Selective reporting (reporting bias)	Low risk	All outcomes stated
Other bias	Unclear risk	No further inequalities

Carmeli 2001

Methods	RCT. single centre; two parallel groups
Participants	36 patients: 72.22% women; 19-43 years; mean age 30.3 (SD±5.5). Country: Tel Aviv Clinic: University, Sackler Faculty of Medicine, School of Health Professions
Interventions	Group A (n=18): soft flat plane occlusal repositioning splint (24 hours a day for five weeks) Group B (n=18): manual mobilization and active exercises
Outcomes	Active range of motion for maximum mouth opening (mm) Pain levels (PPI)
Chronicity	Unclear
Hints for chronicity	None
Duration	5 weeks treatment
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: "They were randomly divided into two groups (A and B) of 18 individuals each." Cite: "Group B was non-randomly divided into two subgroups of nine individuals' pair-matched based on pain and mobility. Subgroup B1 displayed pain (> 3/5) as its dominant characteristic, where decrease in ROM was insignificant, and subgroup B2 displayed decreased ROM of mouth opening (low disability range < 36 mm) as its main characteristic where complaint of pain was insignificant."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of	Low risk	Not possible due to the different therapies

participants and personnel (performance bias)		
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Low risk	No dropouts according to the tables
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	No further inequalities

Coskun 2016

Methods	RCT. single centre; two parallel groups
Participants	33 (28) patients: 83.33% women; mean age Group A 31.6 (SD±11.5); Group B 31.1 (SD±10.1). Inclusion criteria: diagnosed with myofascial pain, arthralgia, and/or disc displacement with reduction according to the RDC/TMD by a dentist. Exclusion criteria: history of any surgical procedures of the TMJ including arthrosynthesis and arthroscopy; presence of any inflammatory joint disease such as ankylosing spondylitis and rheumatoid arthritis; history of trauma to the jaw; being older than 55 years of age; any known tape allergy; any reason of orofacial pain other than TMD. Country: Turkey Clinic: Department of Physical Medicine and Rehabilitation, Faculty of Medicine
Interventions	Group A (n=17(14)): KT (Kinesio Taping) in combination with counselling and jaw exercise Group B (n=16(14)): regimen of counselling and exercise alone
Outcomes	Active mouth opening (mm) and laterotrusions (mm) TMJ pain at rest (cm, VAS) TMJ, masseter muscle and temporal muscle pain on palpation (cm, VAS) Masticatory efficiency (Five-point Likert scale (0–4)) Low disability limitation during usual jaw movements (Five-point Likert scale (0–4)) RDC/TMD Axis II Biobehavioural Questionnaire (Pain-related disability, pain intensity, depression level) Subjective efficacy of the treatment (Five-point Likert scale (0–4))
Chronicity	Low disability
Hints for chronicity	1. Baseline pain intensity medium 2. Function limitation 2.9 out of 4 in experiment group
Duration	6 weeks; 6 months follow up
Notes	

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Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "The participants were randomized into “experimental” and “control” groups by an envelope method."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Low risk	Cite: „...an assessor who is blinded to the group allocation" per mail: "The study was a single-blinded one. The accessor was blinded to the groups, but not the patients."
Incomplete outcome data (attrition bias)	Low risk	Reported about the dropouts and gave reasons why
Selective reporting (reporting bias)	Low risk	Reported all the outcomes
Other bias	Unclear risk	Cite: "Control and experimental groups were similar to each other in terms of the baseline characteristics including demographic data, determinants of the Biobehavioural Questionnaire and pain intensities, with the exception of self-reported low disability limitation, which was significantly worse in the experimental group than controls (p = 0.024)."

Craane 2012a

Methods	RCT. single centre; two parallel groups
Participants	53 patients: 73.58 % women; mean age 36.6 (SD±15.5); 42.9 (SD±15.1). Inclusion criteria: strictly satisfied the RDC-TMD, Axis I groups Ia and Ib; present pain of first examination had to be >35 mm on the VAS of 100 mm; able and willing to receive PT treatment by one of four selected physical therapists participating. Exclusion criteria: signs or symptoms of disc disorders; arthrosis or arthritis of the TMJ (according to the RDC-TMD); previous trauma (contusion, fracture); systemic disorders (rheumatoid arthritis, fibromyalgia); cervical disorders; neurologic disorders (trigeminal neuralgia, migraine, or tension type headache); drug or alcohol abuse; use of antidepressant or hormonal medication or having had therapy for their symptoms within the last 2 months. Time: June 2003–April 2009 Country: Belgium Clinic: TMD/orofacial pain clinic of the Department of Oral and Maxillofacial Surgery, University Hospitals, Catholic University of Leuven
Interventions	Group A (n=26): physical therapy (education, muscle stretching, exercises,

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	and homework for nine treatments in 6 weeks) Group B (n=27): education on the evaluation days only
Outcomes	Pain (VAS) McGill Pain Questionnaire Pressure pain thresholds Mandibular function impairment questionnaire Active and passive maximal mouth opening
Chronicity	Low disability
Hints for chronicity	1. Exclusion criteria: use of antidepressant or hormonal medication or having had therapy for their symptoms within the last 2 months 2. Present pain at the moment of first examination had to be over 35 mm on the VAS of 100 mm 3. Exclusion: In case patients complained of pain coming from the neck region or complained of pain with patterns like those coming from the neck region or pain during movement of the head, simple movements of the cervical spine were investigated and if provoking pain, the patients were excluded
Duration	1 year follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: „...randomly permuted blocks (block size:2) generated the allocation sequence (http://www.randomization.com)."
Allocation concealment (selection bias)	Low risk	Cite: "allocation list was kept in a closed envelope" per Mail: "The procedure for treatment allocation was done by the same examiner". Comment: need more information
Blinding of participants and personnel (performance bias)	Unclear risk	Cite: "Patients were instructed not to discuss treatment allocation with the examiner (BC)."
Blinding of outcome assessment (detection bias)	Low risk	Cite: "At all time points, the evaluations were carried out by one observer (BC) who was blinded to group assignment."
Incomplete outcome data (attrition bias)	Low risk	Reported about the dropouts with reasons. But: "During the study, two patients changed from control to treatment group."
Selective reporting (reporting bias)	Low risk	Reported all the outcomes
Other bias	Low risk	Cite: "Baseline characteristics did not differ between treatment and control groups for age, gender, duration of pain, VAS, PRI total, NWC total, MMO active, MMO passive and MFIQ." Cite: "No conflicts of interest exist for any of the authors."

APPENDIX VIII: Characteristics of studies

Cuccia 2010

Methods	RCT. single centre; two parallel groups
Participants	50 patients: 56% women; mean age Group A 40.6 (SD±11.03); Group B 38.4 (SD±15.33). Inclusion criteria: temporomandibular index (TMI) reference value of >0.08±0.10; minimum pain intensity of 40 mm VAS. Exclusion criteria: history of adverse effects with osteopathic treatment; being under orthodontic treatment or under treatment for TMD; previous treatment for TMD; making regular use of analgesic or anti-inflammatory drugs; use of dental prosthesis; presence of any other oro-facial pain condition; neurological or psychiatric disorders and systemic inflammatory disorder. Time: September 2008-February 2009 Country: Italy Clinic: Department of Oral Sciences, University of Palermo, Via del Vespro 129, 90128 Palermo
Interventions	Group A (n=25): osteopathic MT Group B (n=25): conventional conservative therapy (oral appliance, physical therapy (gentle muscle stretching and relaxing exercises), therapies such as hot or cold packs (or both), transcutaneous electrical nerve stimulation)
Outcomes	Pain intensity (VAS) Temporomandibular index Range of maximal mouth opening (mm) Lateral movement of the head around its axis
Chronicity	Low disability
Hints for chronicity	1. Minimum pain intensity of 40 mm VAS 2. Exclusion criteria: previous treatment for TMD, neurological or psychiatric disorders and systemic inflammatory disorders
Duration	6-month treatment, 2 month follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: „...The subjects were randomly assigned to the OMT group"
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Low risk	Cite: " the patients were assessed by an evaluator who was blinded to the treatment assignments."
Incomplete outcome data (attrition bias)	Low risk	No dropouts according to the tables

APPENDIX VIII: Characteristics of studies

Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	No further inequalities

Cunali 2011

Methods	RCT. single centre; two parallel groups;
Participants	32 patients: 55.55% women; mean age Group A 53 (SD±9); Group B 44 (SD±12). Inclusion criteria: adopted for the following indication of MAD described in the literature; age between 18-60 years; apnoea– hypopnea index (AHI) over 5 and under 30; body mass index (BMI) less than or equal to 30 kg/m; both genders. Exclusion criteria: presented fewer than 10 teeth per arch; active periodontal disease; need of overall dental treatment; mandible protrusion less than 5 mm; limited mouth opening; use of alcohol, drugs, or hypnotic substances; sleep disturbances other than OSAS with or without previous treatment for OSAS. Country: Brazil Clinic: Universiade Federal de Sao Paulo (UNIFESP)
Interventions	Group A (n=16): mandibular exercises with mandibular advancement device therapy Group B (n=16): placebo therapy
Outcomes	Sleep evaluation (polysomnography; Flecher and Luckett questionnaire) Sleepiness (Epworth sleepiness scale, ESS) Quality of life (quality of life inventory, SF-36) Intensity of pain Compliance to the treatment Diary of MAD usage Research diagnostic criteria for TMD Apnoea–hypopnea index (AHI) Minimum oxygen saturation (MinSatO2) Low disability capacity (FC) Limit by physical aspects (LPhA) General state of health (GSH) Social aspect (SA) Limit by emotional aspects (LEA) Mental health (M)
Chronicity	High disability
Hints for chronicity	Exclusion: without previous treatment
Duration	120 days follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement

Random sequence generation (selection bias)	Unclear risk	Cite: "a second investigator did the randomization and was responsible for explaining the exercises to the patients." Comment: need more information
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Cite: "To ensure patients were blinded to the study, both therapies were explained to the patients as being effective therapies."
Blinding of outcome assessment (detection bias)	Low risk	Cite: "The investigator who was blinded to the randomization has only applied all study instruments of evaluation such as the RDC, while a second investigator did the randomization and was responsible for explaining the exercises to the patients." Cite: "These data were also collected by the second investigator blind while the principal investigator (PAC)."
Incomplete outcome data (attrition bias)	Low risk	Reported about the dropouts and were balanced among the groups
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	Cite: "There was no statistical significance between these groups with regard to age (44.5 ± 10.7 × 49.7 ± 9.8 years), BMI (25.2±3.8× 25.9±4.1 kg/m2) or AHI (13.7 5.25 × 16.5 4.1)"

Dalen 1986

Methods	RCT. single centre; two parallel groups;
Participants	19 patients: 94.7% women; mean age Group A 29.6 (SD±12.82); Group B 25.9 (SD±8.14). Inclusion criteria: One or more of the four cardinal symptoms: pain, tenderness, clicking, limitation of movement; other pathological signs in the TMJ should be absent, as judged both clinically and radio graphically. Exclusion criteria: depressed patients (Snaith Depression Scale) Country: Norway Clinic: Department of Oral Surgery and Oral Medicine, University of Bergen, Bergen
Interventions	Group A (n=10): 8x biofeedback training sessions (twice a week, for 4 weeks) Group B (n=9): received no feedback training but went through the same post line evaluations as the experimental group.
Outcomes	Frontalis EMG levels and masseter EMG levels Pain intensity (10-point scale) Muscle pain duration (hours)
Chronicity	Low disability
Hints for chronicity	Mean duration 7.3 years of pain, depression score. Exclusion: depressed patients
Duration	4 weeks treatment; 6 months follow up
Notes	

APPENDIX VIII: Characteristics of studies

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: "A total of 19 subjects, 18 female and 1 male, participated and were randomly assigned to..." Comment: need further information
Allocation concealment (selection bias)	Unclear risk	Not addressed
Blinding of participants and personnel (performance bias)	Unclear risk	Not addressed
Blinding of outcome assessment (detection bias)	Unclear risk	Not addressed
Incomplete outcome data (attrition bias)	Unclear risk	No information about dropouts
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	Cite: "Analysis of EMG-rms levels during baseline screening did not yield statistically significant differences between groups, but there was a tendency for the control group to show lower masseter EMG levels"

De Felicio 2008

Methods	RCT. single centre; three parallel groups;
Participants	28 patients: 100 % women; mean age 31.46. Inclusion criteria: articular TMD (based on RDC/TMD); inclusion criterion for the control group: absence of TMD based on the same RDC/TMD criteria. Exclusion criteria: associated neurological or cognitive deficit; previous or current tumours or traumas in the head and neck region; orthodontic treatment. Country: Brazil Clinic: "on the university waiting list for orofacial pain and TMD treatment"
Interventions	Group A (n=10): orofacial myofunctional therapy (OMT Group) (minimum of nine and a maximum of 13 sessions of OMT (mean=11.8 sessions), 45 minutes each, with a weekly frequency during the first 30 days and every two weeks after this period, with no other additional therapeutic conduct) Group B (n=10): waiting list for treatment (group CTMD) Group C (n=8): asymptomatic subjects
Outcomes	Clinical examination: Tenderness to palpation, identification of joint noises Self-assessment of TMD severity signs and symptoms Asymmetry index between muscle pairs based on EMG analyses
Chronicity	Unclear
Hints for chronicity	None

APPENDIX VIII: Characteristics of studies

Duration	Follow up 135 days
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: "The patients with articular TMD, were randomly distributed into two groups: Ten patients for treatment with orofacial myofunctional therapy (OMT Group) and ten controls with TMD (Group CTMD)."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Unclear risk	No information given
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	No further inequalities

de Felicio 2010

Methods	RCT. single centre; three parallel group
Participants	30 patients (randomized) + 10 healthy subjects (not randomized): 100% women aged 13-68 years old; mean age group A 31; group B 29; group C 34; group D 27. Inclusion criteria: long-lasting associated articular and muscular TMD based on the RDC/TMD; For control group: absence of TMD. Exclusion criteria: associated neurological/cognitive deficit; previous/current tumour/ traumas in the head and neck region; orthodontic treatment. Country: Brazil Clinic: "The TMD subjects were selected from a group of 100 patients on the university waiting list for orofacial pain and TMD treatment in the following semester, and the asymptomatic subjects from a group of 20 volunteers invited to participate in the study"
Interventions	Group A (n=10): oral myo-low disability therapy (OMT) (weekly session for 30 days, after that every two weeks; incl. home exercise) Group B (n=10): occlusal splint (15 days all days; after that worn at night-time all together 45 days) Group C (n=10): symptomatic control (no treatment) Group D (n=14): asymptomatic control (not randomized)

APPENDIX VIII: Characteristics of studies

Outcomes	Mandibular range motion TMJ function Muscle and TMJ tenderness to palpation Pain during movements, muscular pain, TMJ pain, cervical pain Otalgia, tinnitus, tooth sensitivity, difficulty swallowing Perception regarding the disorder (Helkimo's Anamnestic Dysfunction Index and Pro TMD Multi-Protocol) Orofacial Myofunctional evaluation with scores (OMES Protocol) Appearance / posture (AMIOFE) TMJ noise
Chronicity	Low disability
Hints for chronicity	Per mail: -Did they receive any treatment before? No -Did they have any kind of depression? No reported -Did they take pain killers or any other medication? No -Did they have localized pain or widespread pain? Yes
Duration	6 months
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "using the GraphPad software"
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	High risk	The examiner was not blinded
Incomplete outcome data (attrition bias)	Unclear risk	No information given
Selective reporting (reporting bias)	Low risk	Reported all the outcomes stated
Other bias	Unclear risk	No further inequalities

De Paula 2014

Methods	RCT. single centre; three parallel groups
Participants	28 patients+14 asymptomatic patients: 71.43% women; 18-40 years; mean age Group A 30.10 (SD±5.80); Group B 29.70 (SD±3.10); Group C 30.87 (SD±6.20). Exclusion criteria: occurrence of missing teeth (except third molars); current use of orthodontic appliance; history of neuromuscular disease; current use of analgesic, anti-inflammatory agent, or muscle relaxant; currently undergoing physical therapy for TMD. Time: June 2011-December 2012 Country: Brazil

APPENDIX VIII: Characteristics of studies

	Clinic: University community of the city of Sao Paulo, Brazil, through notices placed on information boards located in general areas of the university and the Internet between
Interventions	Group A (n=14): massage group (3 weekly 30-minture sessions of massage of the masticatory muscles for 4 consecutive weeks) Group B (n=14): occlusal splint (4 weeks) Group C (n=14): asymptomatic comparison group (not randomized)
Outcomes	Maximum active mouth opening, and right and left lateral excursion
Chronicity	Unclear
Hints for chronicity	per Mail: "1. These patients sought care at the time. They were part of a waiting list for patients with facial pain. 2. All these patients were on a waiting list at a university clinic. All were over 1 year looking for care."
Duration	4 weeks
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "(randomization ratio, 1:1). Block randomization was used."
Allocation concealment (selection bias)	Unclear risk	Cite: "opaque envelopes were used to conceal the allocation."
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Low risk	Cite: " blinded examiner on 2 occasions (before and after treatment) using a digital calliper (Mitutoyo, Suzano, Brazil)"
Incomplete outcome data (attrition bias)	Low risk	No dropouts according to the tables
Selective reporting (reporting bias)	Low risk	Stated the outcome; study protocol stated ClinicalTrials.gov (NCT01874041)
Other bias	Unclear risk	Cite: "No funding sources or conflicts of interest were reported for this study."

de Resende 2019

Methods	RCT. single centre; parallel studies;
Participants	89 patients: 80.9 % women; mean age 28 (SD±9.34) Inclusion criteria: TMD diagnosis according to RDC/TMD; 18–65 years of age; and report of untreated orofacial pain in the last 3 months. Exclusion criteria: impairment of cognitive ability; history of head trauma; intracranial disorders; no TMD headaches; use of medications in the last 3 months for TMD, muscle pain or that interferes with sleep quality; other

APPENDIX VIII: Characteristics of studies

	causes of orofacial pain, such as caries, periodontal diseases, neuropathies, and fibromyalgia. Time: March 2016 to July 2017 Country: Brazil Clinic: n.a.
Interventions	Group A (n=24): occlusal splints (instructed to wear the occlusal splint only while sleeping, returned after 15 days for control and adjustment, if necessary; occlusal splints associated with counselling was performed as the two previous groups). Group B (n=21): MT ((each session lasted 40 m, twice a week for 4 weeks; advised to perform the exercises at home and apply warm compresses (40o to 50o) for 20 minutes, 3 times a day during 4 weeks in the masseter, temporalis, and TMJ and 10 minutes of masseter and temporalis massage with slightly greater pressure than the initial pain sensation; some exercises were also performed 3 times a day, in a series of 10 repetitions for specific types of TMD, stretching exercises (myofascial pain with opening limitation), and coordination and resisted exercises (anterior disc displacement with or without reduction)) Group C (n=19): counselling therapy (explaining the etiologic of TMD and possible harmful and para low disability habits, such as biting a pen, nails, mouth corners; chewing gum; conscious teeth tightening; and wide opening of the mouth for eating and yawning; importance of physical exercises, avoiding caffeinated drinks at night, body posture, and a good quality of sleep was also advised; personalized counselling was done in 30 m sessions initially and reinforced after 15 days) Group D (n=25): OS associated with C
Outcomes	Pain (VAS) Sleep quality (PSQI) Impact of oral health on quality of life (OHIP-14) Quality of life (WHOQOL)
Chronicity	Low disability
Hints for chronicity	Untreated Orofacial pain Exclusion: TMD headache; use of medications
Duration	1 month follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "The sample was selected for convenience, and the patients were allocated to each group through systematic block randomization, where the blocks were composed of the 4 therapeutic possibilities."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of	Low risk	Not possible due to different therapies

participants and personnel (performance bias)		
Blinding of outcome assessment (detection bias)	Low risk	Cite: "A blind randomized controlled clinical trial was performed, in which the evaluator was unaware of which therapy the patient underwent. Patients were evaluated in two steps: baseline and 30 days after completion of each therapy by a single examiner."
Incomplete outcome data (attrition bias)	Unclear risk	No information given
Selective reporting (reporting bias)	Low risk	All outcomes were reported
Other bias	Unclear risk	Cite: "The authors report no conflict of interest."

Delgado 2020

Methods	RCT. single centre; two parallel studies;
Participants	61 patients: 59 % women; mean age Group A 44.0 (SD±10.5); Group B 42.5 (SD±12.0). Inclusion criteria: age 18–65 years; diagnosis of tinnitus attributed to TMD; that is, they had to report self-reported tinnitus symptoms and have a diagnosis of TMD according to the RDC/TMD. Exclusion criteria: diagnosis of ear, nose, and throat medical pathology underlying the tinnitus; neurological problems that could potentially cause the tinnitus; inability to read, understand, and complete the questionnaires or understand and follow commands (e.g., illiteracy, dementia, or blindness); comorbid fibromyalgia syndrome; had received physiotherapy or other treatment in the head/neck in the last 12 months; any contraindication to physical therapy as noted in the patient's Medical Screening Questionnaire (tumour, fracture, rheumatoid arthritis, osteoporosis, prolonged history of steroid use) Time: January-December 2017 Country: Spain Clinic: "one of three private physiotherapy clinics"
Interventions	Group A (n=31): physiotherapy and MT group (six sessions of physiotherapy treatment including cranio-cervical and TMJ exercises, self-massage, and patient education for a period of one month) Group B (n=30): physiotherapy alone group
Outcomes	Pain intensity Tinnitus severity Tinnitus-related handicap (Tinnitus Handicap Inventory [THI]), TMD-related disability (Craniofacial Pain and Disability Inventory [CF-PDI]) Self-rated quality of life (12-item Short Form Health Survey) Depressive symptoms (Beck Depression Inventory [BDI-II]) Pressure pain thresholds (PPTs) Mandibular range of motion
Chronicity	Low disability
Hints for chronicity	No treatment before
Duration	1 month treatment; 6 months follow up

APPENDIX VIII: Characteristics of studies

Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: „...using a computer-generated randomized table of numbers created for each participating site before the beginning of the study.
Allocation concealment (selection bias)	Low risk	Cite: "Concealed allocation was performed by an external researcher not involved in subject recruitment..." The group assignment was recorded on an index card. This card was folded in half, such that the label with the patient's group assignment was on the inside of the fold. The folded index card was then placed inside the envelope, and the envelope was sealed. A second therapist blinded to the baseline examination findings opened the envelope and proceeded with treatment according to the group assignment."
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Low risk	Cite: "Patients were assessed at baseline, one week, three months, and six months after intervention by a blinded assessor."
Incomplete outcome data (attrition bias)	Low risk	Cite: "Data were analysed using the SPSS, version 22.0 (SPSS Inc, Chicago, IL, USA), program and were conducted according to the intention-to-treat analysis." Comment: All information about dropouts given
Selective reporting (reporting bias)	Low risk	All outcomes were reported. ClinicalTrials.gov: NCT02850055
Other bias	Unclear risk	Cite: "Disclosure and conflicts of interest: Financial disclosure statements have been obtained, and no conflicts of interest have been reported by the authors or by any individuals in control of the content of this article. No conflicts of interest are declared."

DeVocht 2013

Methods	RCT. single centre; four parallel groups;
Participants	80 patients: 80% women; age >21 years old; mean age Group A 36.9 (SD±13.5); Group B 38.0 (SD±12.7); Group C 31.7 (SD±7.9); Group D 33.1 (SD±11.4). Inclusion criteria: >21 years of age; having had TMD symptoms for at least six months; the presence of more than seven teeth per dental arch; average self- reported TMD pain over the previous week of at least a 3 on an 11-point (NRS); RDC-TMD Axis I diagnosis of myofascial pain; no changes in prescription medicine for pain in the preceding six months. Exclusion criteria: current or pending litigation for a personal injury case; worker's compensation or disability; unstable periodontitis; untreated dental-

APPENDIX VIII: Characteristics of studies

	related disease or both; Angle Class II malocclusion; the need for advanced diagnostic procedures to rule out pathology; systemic rheumatoid arthritis or similar autoimmune conditions; complete dentures; major psychological disorders; any treatment for TMD during the previous month (except non-prescription medication or a stable prescription medication regimen); inability to understand English; unwillingness to be enrolled in any of the four intervention groups; unwillingness to postpone other forms of treatment for TMD during the six-month active care phase; the intention to move away from the area during the next six months; or previous AMCT treatment for TMD at any time. Country: USA Clinic: Cite: "We recruited participants from the eastern Iowa region. Potential participants responding to recruitment efforts were screened (by L.T.) via an initial telephone call and two baseline clinical visits."
Interventions	Group A (n=20): "self-care" and "RIST" (reversible interocclusal splint therapy; acrylic resin; worn during night-time and 2h per day for 2 month) Group B (n=20): "self-care" and "Chiropractic AMCT" (Activator Method Chiropractic Technique): max. 12 treatment sessions for 2 months. Group C (n=20): "self-care" and sham AMCT Group D (n=20): "self-care" only
Outcomes	TMD-related pain (NRS) Oral health–related quality of life (OHIP-14) Bothersomeness Index (Likert-Skala; 1-5) Satisfaction with care (NRS)
Chronicity	Mixed
Hints for chronicity	24 of the 80 patients (30%) had gotten treatment before.
Duration	6 months (incl. 2-months treatment)
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "We allocated participants via a randomizations algorithm stored in the Web based system, with future allocations concealed."
Allocation concealment (selection bias)	Unclear risk	Cite: "with future allocations concealed." Comment: need more information
Blinding of participants and personnel (performance bias)	Low risk	Cite: "Participants were masked to the nature of the sham intervention." All together not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Low risk	Cite: "After two months, they received an RDC-TMD assessment by a clinician masked to the treatment group."
Incomplete	Low risk	Cite: "Second, a considerable number of participants were lost to

outcome data (attrition bias)		follow-up, yet these numbers were fairly consistent across the four groups (five to nine per group). Investigators in future studies should use more aggressive efforts at retention such as sending e-mail reminders before treatment and assessment appointments, as well as making prompt and repeated efforts to contact those who miss appointments." Comment: the dropouts were pretty much equal in each group
Selective reporting (reporting bias)	Low risk	All outcomes were reported
Other bias	Unclear risk	No further inequalities

Espejo-Antúnez 2016

Methods	RCT. single centre; two parallel groups
Participants	42 patients: 66.7 % women; mean age 21.2 (SD±1.6). Inclusion criteria: 18 years of age and older; with regular sport practice (5h per week), without previous hamstrings injury; less than 80 in the right-straight leg raise test; clinical diagnosis of TMD (Wozniak et al., 2015); presence of myofascial pain in the TMJ with or without limited opening; for at least 6 months; according to the RCD/TMD (Dworkin and LeResche, 1992). Exclusion criteria: participation in a hamstrings muscle stretching program; acute low back pain/musculoskeletal pain in the lower limbs/recent spinal or abdominal surgery; previous cervical whiplash, having received physical therapy within eight weeks of data collection, consumption of analgesics or anti-inflammatory drugs. Country: Spain Clinic: Recruitment occurred in a private physiotherapy clinic
Interventions	Group A (n=21): stretching technique Group B (n=21): stretching + ischemic compression
Outcomes	Hamstring's extensibility Active mouth opening (mm) Pressure pain thresholds Pain intensity (VAS)
Chronicity	Low disability
Hints for chronicity	1. Primary care (private physiotherapy clinic) 2. Participants were excluded according to the following criteria: participation in a hamstrings muscle stretching program, acute low back pain or musculoskeletal pain in the lower limbs and/or recent spinal or abdominal surgery, a previous cervical whiplash, having received physical therapy within eight weeks of data collection, consumption of analgesics or anti-inflammatory drugs.
Duration	No follow up
Notes	

APPENDIX VIII: Characteristics of studies

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "Participants were randomly (block randomization, 1:1) allocated to 1 of 2 groups. The randomization was performed by allowing the participant to pick up a number out of a hat."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Low risk	Cite: "The measurements were carried out just before and immediately after each intervention by two physiotherapists who were blind to group assignment"
Incomplete outcome data (attrition bias)	Low risk	No dropouts according to the tables
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Low risk	Cite: "The groups were statistically similar regarding age, weight, height, body mass index, orthodontics braces history, and hours of sport practice per week" Cite: "No conflict of interest"

Espí-López 2020

Methods	RCT. single centre; two parallel studies;
Participants	16 patients: 81 % women; mean age 29.9 (SD±12.4). Inclusion criteria: aged 18-65; diagnosed with at least mild TMD signs and symptoms according to Helkimo Index; diagnosed with pain disorders according to DC/TMD: myalgia and myofascial pain (with history of pain in masticatory structure, and/or modified by jaw movement function or para function; confirmation of pain in masticatory muscles with palpation) Exclusion criteria: systemic, rheumatic, or central nervous system diseases; surgical history in TMD area; previous physical therapy treatments (last 3 months); diagnosed with other orofacial or TMJ disk disorders; vertebral artery compromise test; cerebrovascular disorders; use of analgesics or muscle relaxants at least 24h before assessments and during the treatment period; use of splint 1 month before the start of the study. Time: May-August 2018 Country: on the university waiting list for orofacial pain and TMD treatment Clinic: Brazil
Interventions	Group A (n=8): MT plus ST-Experimental Group Group B (n=8): ST alone—Control
Outcomes	Pain perception Pain pressure threshold (PPT)

APPENDIX VIII: Characteristics of studies

	TMD dysfunction Perception of change after treatment
Chronicity	Low disability
Hints for chronicity	1. Participants were EXCLUDED if they had previous physical therapy treatments (last 3 months) 2. Participants were EXCLUDED if they used of analgesics or muscle
Duration	135 days follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "Patients were randomly assigned to the EG or control group by an assistant who did not participate in the trial. Sequentially numbered envelopes were prepared with random assignment."
Allocation concealment (selection bias)	Low risk	Cite: "The assessment files were placed in sealed opaque envelopes. Another assistant from outside the study proceeded with the assignment of the treatment. Coding, analysis, and interpretation of results was done by an external assistant."
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Low risk	Cite: "Two participants voluntarily abandoned the study for personal reasons. Figure 1 shows the process of participant recruitment and dropouts. No participants had adverse effects."
Selective reporting (reporting bias)	Low risk	All outcomes were reported. Study report NCT03555201
Other bias	Low risk	Cite: "Conflicts of Interest: The authors declare no conflict of interest. They did not significantly differ (p>0.05) in morphometric and pain variables, except for Body Mass Index and Head Pain Location."

Garrigos-Pedron 2018

Methods	RCT. single centre; two parallel groups
Participants	52 (end 45) patients: 86.67% women; mean age Group A 48.2 (SD±11.3); Group B 46.0 (SD±9.1). Inclusion criteria: diagnosis of chronic migraine by a neurologist specialized in headaches and based on the criteria of the International Classification Headache Disorders-III of the International Headache Society; age between 18-65 years; presence of myofascial TMD (RDC/TMD).

APPENDIX VIII: Characteristics of studies

	Exclusion criteria: TMD due to disc displacement; osteoarthritis; inflammatory arthritis of the TMJ; other chronic diseases (respiratory, cardiovascular, and musculoskeletal disorders such as chronic polyarthritis, rheumatic muscular inflammation, osteoporosis, and osteoarthritis); other headaches, neurologic diseases/dental problems; cognitive, emotional/psychological disturbances; previous surgery/trauma in the orofacial region; orthodontic/physical therapy treatment in the last 6 months. Time: July 2015-March 2016 Country: Spain Clinic: Neurology Department of the Hospital Universitario Miguel Servet (HUMS)
Interventions	Group A (n=26(22)): control group received treatment only in the cervical region (6 x sessions, 30 minutes) Group B (n=26(23)): COG received treatment in both the cervical and orofacial regions (6 x sessions, 30 minutes)
Outcomes	Craniofacial Pain and Disability Inventory (CF-PDI) Headache Impact Test (HIT-6) Tampa Scale for Kinesiophobia (TSK-11) Pain intensity (VAS) Pressure pain thresholds (PPTs, temporal, masseter 2 points, M1 and M2, extra trigeminal wrist regions) Maximal mouth opening (MMO)
Chronicity	Low disability
Hints for chronicity	Treatment before
Duration	3-6 weeks treatment; 12 weeks follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: „...participants were randomized using a randomized computer program (randomization.com) ..."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Low risk	Cite: "The assessor was blinded to the subject's group assignments, and the participants were asked not to make any comments about their treatment." Cite: „...blinded investigator performed four assessments of all measurements, which included baseline (pre-treatment), posttreatment, 6 weeks after the final treatment (follow-up 1),

		and 12 weeks after the final treatment (follow-up 2)."
Incomplete outcome data (attrition bias)	Low risk	Cite: „.7 participants were lost to the study for different reasons." Cite: „...due to death in the family and non-adherence to treatment." Comment: gave reasons why and dropouts were balanced out
Selective reporting (reporting bias)	Low risk	All outcomes reported. Study protocol stated: ClinicalTrials.gov with the identifier: NCT02627014
Other bias	Low risk	Cite: " The authors report no conflicts of interest." Cite: "Sociodemographic data of the samples did not present statistically significant differences (P>.05) between groups for age, weight, height, duration of pain, pain intensity, educational level, and employment status."

Gavish 2006

Methods	RCT. single centre; two parallel groups
Participants	20 patients: 100% women; mean age Group A 27.1 (SD±10.1); Group B 27.3 (±5.9); Inclusion criteria: women; age 20-45; dolichocephalism face configuration; diagnosis myofascial pain (group Ia RDC/TMD), pain at least 6 months; sensitivity to palpation of muscle masseter (grade 2 or 3); masseter muscles that did not significantly increase in volume in maximal clench; natural dentition with no more than one missing tooth per quadrant, without dental diseases; and increased pain during a chewing test ≥ 15/100 VAS. Exclusion criteria: TMJ disease or disorder; systemic chronic disease or continuous use of medication; history of trauma to the facial or cervical regions; previous treatment for MFP during the last 6 months. Country: Israel Clinic: TMD Clinic Tel-Aviv University
Interventions	Group A (n=10): exercise chewing group Group B (n=10): control (only support and encouragement)
Outcomes	Present Pain (VAS) Pain intensity (CPI) Pain relief scale (PRS)(VAS) Mean muscle sensitivity to palpation (MMS) (0-4 scale at four sites of masticatory muscles) Disability score EMG during maximal voluntary clench Pain level at end of chewing phase of the chewing test (VAS)
Chronicity	Low disability
Hints for chronicity	1. Exclusion criteria: TMJ disease or disorder; systemic chronic disease or continuous use of medication; history of trauma to the facial or cervical regions; previous treatment for MFP during the last 6 months
Duration	8 weeks follow up
Notes	

APPENDIX VIII: Characteristics of studies

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: "Patients were randomly divided into two age-matched groups"
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Low risk	Cite: "Examiners were blinded to the patient group affiliation."
Incomplete outcome data (attrition bias)	Low risk	Cite: "All participating patients appeared for follow-up appointments."
Selective reporting (reporting bias)	Low risk	Reported all the outcomes stated
Other bias	Unclear risk	No further inequalities

Giannakopoulos 2018

Methods	RCT. single centre; two parallel groups;
Participants	45 patients 100% women; 18-45 years old; mean age Group A 28.2 (SD±6.4); Group B 24.7 (SD±3.4). Inclusion criteria: adult female patients aged between 18-45 years in need of treatment for non-chronic (ie. non-high disability) myofascial TMD pain diagnosed; pain of myogenous origin (diagnoses Ia, Ib). Exclusion criteria: chronic (high disability) facial pain (GCPS value 3/4); facial pain of dental; systemic (rheumatoid arthritis), traumatic (facial trauma or surgery)/neuropathic origin; need of dental treatment; insufficient fluency in German; pregnancy; regular use of sedative drugs; drug/alcohol abuse; previous active treatment for painful TMD within the last month; except for use of over the counter (OTC) analgesics. Country: Germany Clinic: "consecutive patients seeking treatment for non-odontogenic oro-facial pain at the Department of Prosthodontics of the Heinrich Heine University Düsseldorf"
Interventions	Group A (n=23): sensorimotor training: ready-made device with fluid filled elastic patches (RehaBite): use three times a day Group B (n=22): split (worn at night)
Outcomes	EMG CPI (GCPS) Ease-of-use
Chronicity	Low disability
Hints for chronicity	only GCPS I and II
Duration	3 months treatment
Notes	

APPENDIX VIII: Characteristics of studies

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	per email: "After checking for suitability for the study, Mrs. Rauer (the investigator) informed me (as an independent person not involved in the study) that patients are suitable for the study. Based on a random list (with A and B as variables and blocks of 20 each) I then assigned the therapy form A or B."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	by e-mail: "A practitioner-related blinding could not be made possible due to resource constraints." Comment: this domain was not rated
Blinding of outcome assessment (detection bias)	Unclear risk	Cite: "The complexity of the investigation did not, however, enable evaluation of the effects of treatment by a blinded examiner, which is a limitation of the study" Cite: "Characteristic pain intensity was calculated based on NRS values for mean, worst and current pain (mean pain + worst pain + current pain/3) × 10, by a person unaware of the treatment groups. Ease-of-use and self-estimated effects of treatment were also analysed blind ..."
Incomplete outcome data (attrition bias)	High risk	Cite: "Three of the patients, all from group A, did not complete the study. One patient decided to stop after the first follow-up for personal reasons and 2 patients did not adhere to the training protocol, rejecting the active treatment option because the training protocol seemed too much effort for them." Comment: Dropouts not equally balanced and the reasons are directly related to the treatment
Selective reporting (reporting bias)	Low risk	Reported all the outcomes stated and study protocol stated
Other bias	Unclear risk	Cite: "The authors have stated explicitly that there is no conflict of interests in connection with this article"

Guarda-Nardini 2012

Methods	RCT. single centre; two parallel groups.
Participants	30 patients: 73.33% women; age 23-69 years old; mean age 45.5. Inclusion criteria: diagnosis of myofascial pain, with or without limited opening (RDC/TMD) and bilateral pain lasting for at least six months. Exclusion criteria: systemic neurological/rheumatological disorders; RDC/TMD diagnoses of arthralgia/osteoarthritis. Country: Italy Clinic: TMD Clinic, Department of Maxillofacial Surgery, University of Padova, Italy
Interventions	Group A (n=15): Botulinum toxin injections (1x treatment of multiple botulin

	toxin injections in the temporalis + masseter muscles using a 0.7 mm 30G needle, with a total of about 150U of botulinum toxin was injected per each treated side) Group B (n=15) Fascial manipulation (three (±1) 50 min sessions of Fascial Manipulation on a weekly basis, for a total of 150 (±50) min over a two-four-week span)
Outcomes	Maximum pain level (VAS) Maximum mouth opening, protrusion, right and left laterotrusion (mm)
Chronicity	Unclear (high disability)
Hints for chronicity	Tertiary care
Duration	Follow-up for 3 months
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: "one to one randomisation"
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	High risk	Cite: „...trial blindness of patients and operators could not be guaranteed."
Incomplete outcome data (attrition bias)	Low risk	No dropouts
Selective reporting (reporting bias)	Low risk	Pain and MMO reported
Other bias	Unclear risk	The duration of the intervention was not the same, which makes it difficult to compare. Baseline value in the outcome variables were not significantly different

Haketa 2010

Methods	RCT. single centre; two parallel groups
Participants	52 patients: 88.56% women; 18 years and older; mean age 37.6 (SD±14.9). Inclusion criteria: male or female over 18 yrs. old; mouth-opening pain on the TMJ- affected side; over 2 weeks after the onset of ADDwoR; maximum mouth opening of less than 40 mm; MRI-confirmed ADD woR. Exclusion criteria: unwilling or unable to receive splint and/or exercise therapy; presence of systemic bone or joint disease; the taking of regular medication such as analgesics, anti-anxiety drugs, antidepressants, and psychotropics; missing teeth and/or having a removable denture, but having a fixed partial denture restoration over 1 yr.

APPENDIX VIII: Characteristics of studies

	Country: Japan Clinic: TMJ Clinic of the Tokyo Medical and Dental University
Interventions	Group A (n=28): Stabilization Splint (worn at night) Group B (n=24): Mobilization training for the jaw joint
Outcomes	Mouth opening with / without pain (maximum mouth-opening range without and with pain) Current maximum daily pain intensity (VAS) Pain-related limitations of daily functions
Chronicity	Unclear (low disability)
Hints for chronicity	No analgetic misuse
Duration	8 weeks
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "After each participant's eligibility for the study was obtained, a clinician drew a sealed envelope from a series of envelopes, each containing a card indicating either of two treatments for that individual: an occlusal splint, or joint mobilization self-exercise. The assignment was made by a table of random sampling numbers. One examiner who was completely independent of the treatment of participants prepared this procedure."
Allocation concealment (selection bias)	Unclear risk	Cite: "a clinician drew a sealed envelope from a series of envelopes" Comment: envelopes not described in sufficient detail
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Low risk	Cite: "Two dentists who were certified as clinical instructors of TMD management by the Japanese Society for TMJ measured these parameters. They were blinded to the participants' treatment status."
Incomplete outcome data (attrition bias)	Low risk	Cite: "At the four-week follow-up assessment, three and five participants in the splint and exercise groups, respectively, failed to visit the Clinic. These eight individuals were therefore excluded from the analyses. Furthermore, two and four participants in each group dropped out after the four-week follow-up, respectively. Accordingly, 23 and 15 individuals in each group completed the eight-week treatment protocol. Based on the intent-to-treat concept, the four-week follow-up data for the six individuals who dropped out after 4 weeks were extended to fill the missing eight-week time-point." Comment: used Intent-to-treat

Selective reporting (reporting bias)	Low risk	Reported all the outcomes stated
Other bias	Unclear risk	Cite: "There was no significant difference in all demographic and outcome variables at baseline between the two groups"

Ibanez 2008

Methods	RCT. single centre; three parallel groups
Participants	57 patients: 29.8% women; age 18-50 years old; mean age 30.14 (SD±10.08). Inclusion criteria: subjects of both sexes between 18 and 65 years old; who at palpation in one or both masseters had PGLM; who had signed the informed consent form. Exclusion criteria: diagnosed or are being treated for TMJ disorder; suffered from craniomandibular trauma in the last 12 months; had or are undergoing infectious or neoplastic processes in the TMJ; psychiatric disease leading to attention disorders; neurological disease leading to affection of the muscles of the face. Country: Spain Clinic: Universidad de Salamanca
Interventions	Group A (n=19): control group, placebo technique Group B (n=17): neuromuscular technique Group C (n=21): Jones group; strain/counterstain technique All of them performed 3 sessions with a frequency of 1 session per week, evaluating before and after each intervention
Outcomes	Pressure pain threshold Pain (VAS) Active mouth opening
Chronicity	Low disability
Hints for chronicity	1. Exclusion criteria: diagnosed or are being treated for TMJ disorder; suffered from craniomandibular trauma in the last 12 months; had or are undergoing infectious or neoplastic processes in the TMJ; psychiatric disease leading to attention disorders; neurological disease leading to affection of the muscles of the face.
Duration	3 weeks
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: "divided into three groups by simple randomisation" and „...coin method"
Allocation concealment (selection bias)	Unclear risk	No information given

APPENDIX VIII: Characteristics of studies

Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Low risk	Cite: "All evaluations were performed by a researcher who did not know the study group of each subject."
Incomplete outcome data (attrition bias)	Low risk	No dropouts reported
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	Cite: "The comparison of the general data with respect to the variations: age (p = 0.98), sex (p=0.83) and masseter affected (p=0.78) between the three groups after the application of the χ2 and ANOVA labels showed no significant differences, and it was noted that the groups were comparable and homogeneous."

Ismail 2007

Methods	RCT. single centre. two parallel groups
Participants	26 patients: 88.46% women; mean age Group A 44.5 (SD±14.1); Group B 41.7 (SD±16.5). Inclusion criteria: acute symptoms (duration<6 months) of a TMD; arthrogenic TMD with a limited (<38 mm); painful jaw opening. Exclusion criteria: presence of systemic diseases; especially rheumatic diseases; other types of treatment of TMD (prior operative or medical therapy); therapeutic co-interventions during treatment; signs of psychosomatic illness; insufficient compliance of patients. Time: 2002-2006 Country: Germany Clinic: Department of Prosthetic Dentistry of the Hannover Medical School
Interventions	Group A (n=13): Michigan splint therapy (instructed to wear 24h a day, excluding mealtimes) Group B (n=13): physical treatment in addition to the splint (45 min 2xweek, total 90 min)
Outcomes	Maximum jaw opening (active, passive, protrusive) (mm) Total pain intensity (during mandibular movement, without mandibular movement, after mandibular loading) (VAS)
Chronicity	Low disability
Hints for chronicity	1. Painfully restricted jaw opening, acute symptoms (duration <6 months) 2. Exclusion criteria: therapeutic co-interventions during treatment; signs of psychosomatic illness;
Duration	1, 4, 8 and 12 weeks follow up
Notes	

APPENDIX VIII: Characteristics of studies

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite. " ...block randomisation with block sizes of four"
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Low risk	Cite: "All data was analysed by one blinded researcher"
Incomplete outcome data (attrition bias)	Low risk	Cite: "In both groups no dropouts were recorded"
Selective reporting (reporting bias)	Low risk	All outcomes were reported
Other bias	Unclear risk	Cite: "Comparison of baseline characteristics revealed no significant differences between groups"

Kalamir 2012

Methods	RCT. single centre; three parallel groups;
Participants	93 patients: 53.76% women; mean age Group A 35 (SD±6.7); mean age Group B 34 (SD±6.1); mean age Group C 35 (SD±5). Inclusion criteria: age range 18-50 years; daily history of periauricular pain with or without joint sounds for at least 3 months; voluntary participation, and a willingness to contribute long-term follow-up data; myogenous TMD sufferers (RDC/TMD); minimum baseline GCPS scores of 3/10 on each of the three symptom outcome measures. Exclusion criteria: previous attendance at the practitioner's clinic, edentulous; history of malignancy in the last 5 yrs.; other physical contraindications such as active inflammatory arthritide, fractures, dislocations, or known instability of the jaws or neck; metabolic diseases; connective tissue and rheumatic disorders; haematological disorders; severe depression or somatization according to axis II RDC/TMD. Country: Australia Clinic: private practice in Edensor Park, NSW
Interventions	Group A (n=31): IMT consisting of 2 treatment interventions per week for 5 weeks Group B (n=31): IMT plus education and "self-care" exercises (IMTESC) Group C (n=31): wait-list control
Outcomes	Resting pain (11-point GCPS) Pain at maximum opening (VAS) Pain during clenching Interincisal opening range (mm)
Chronicity	Low disability

APPENDIX VIII: Characteristics of studies

Hints for chronicity	Primary care Baseline GCPS scores of 3/10 on each of the three symptom outcome measures Exclusion: severe depression or somatization according to axis II RDC/TCM
Duration	6 month follow up
Notes	Further publications: "Intra-oral myofascial therapy for chronic myogenous temporomandibular disorders: A randomised, controlled pilot study" (Kalamir, 2010); "Intra-oral myofascial therapy versus education and self-care in the treatment of chronic, myogenous temporomandibular disorder: a randomised, clinical trial"(Kalamir, 2013)

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "The study assistant generated a randomisation schedule using a Web- based number generator (http://www.randomizer.org) and consecutively allocated each numbered participant file into 1 of 3 groups according to the randomisation schedule."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Cite: "The practitioner was blinded to the randomisation schedule and assessment outcomes until the conclusion of the study"
Blinding of outcome assessment (detection bias)	Low risk	Cite: "assistant was blinded to all assessments"
Incomplete outcome data (attrition bias)	Low risk	Used "intention to threat"
Selective reporting (reporting bias)	Low risk	Reported all outcomes. Study protocol stated.
Other bias	Unclear risk	Cite: "At baseline, there were no significant differences between groups except for opening range, with no plausible reason for this finding besides a chance effect."

Kalamir 2013

Methods	RCT. single centre; two parallel studies;
Participants	46 patients: 63 % women; 18-50 years old. Inclusion criteria: n.a. Exclusion criteria: n.a. Time: August 2010-February 2011 Country: Australia Clinic: jaw pain and chiropractic clinic in Sydney, Australia

APPENDIX VIII: Characteristics of studies

Interventions	Group A (n=23): intra-oral myofascial therapy education (2 sessions/ week (for five weeks) of either IMT or short talks on the anatomy, physiology, and biomechanics of the jaw plus instruction and supervision of self-care exercises) Group B (n=23): self-care and exercise
Outcomes	Pain at rest, upon opening and clenching (11-point scale) Maximum voluntary opening range (mm)
Chronicity	Low disability
Hints for chronicity	Exclusion: depression or somatization Low pain scale
Duration	5 weeks treatment; follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: „...blocked design randomisation schedule, which was web-generated (www. randomizer.org) and kept off-premises by the assistant."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Low risk	Cite: "All baseline and outcome data were collected on-premises by the assessor, who was blinded to the group allocation of participants. The first author was also blinded to the assessment outcomes until the end of the entire data collection."
Incomplete outcome data (attrition bias)	Low risk	Cite: "One participant dropped out of the ESC group before the second assessment citing work-related travel prohibiting their continued treatment."
Selective reporting (reporting bias)	Low risk	All outcomes were reported
Other bias	Unclear risk	Cite: "The authors declare that they have no competing interests."

Klobas 2006

Methods	RCT. single centre; two parallel groups
Participants	94 (55 end) patients: 71% women; mean age Group A 38.5; Group B 36.2. Time: January 2001-April 2002 Country: Sweden Clinic: specific residential WAD rehabilitation program at Mälargarden

APPENDIX VIII: Characteristics of studies

	Rehabilitation Centre, Sigtuna
Interventions	Group A (n=25): jaw exercise group (therapeutic jaw exercise and following the WAD rehabilitation program) Group B (n=30): controlled group (WAD rehabilitation program)
Outcomes	Maximum active mouth-opening capacity, mean value (mm) Maximum active mouth-opening capacity <40 mm (%) Pain on mandibular movement (%) Masticatory muscle score mean value Neck muscle score (0-3) value TMJ palpation (%) Clicking (%) Crepitation (%) Helkimo index
Chronicity	Unclear
Hints for chronicity	The inclusion criteria for the study were the diagnosis chronic WAD and TMD
Duration	6 months
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "The randomisation was performed in blocks of 4, repeated 3 times."
Allocation concealment (selection bias)	Low risk	Cite: „...independent secretary at the centre."
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Low risk	Cite: "The examiner of the stomatognathic system was blinded to group assignment"
Incomplete outcome data (attrition bias)	Unclear risk	Cite: "The drop-out was 20% of the JEG and 13% of the control group. The baseline data of these patients did not differ numerically from the patients that could be followed for 6 months. It is unlikely that the dropouts have had any major influence on the results." Comment: no reasons why
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	No further inequalities

APPENDIX VIII: Characteristics of studies

Komiyama 1999

Methods	RCT. single centre; three parallel studies;
Participants	60 patients: 81.5% women; mean age 25.68 years old. Inclusion criteria: pain of muscle origin, including a complaint of pain as well as pain associated with localized areas of tenderness to palpation in muscle; report of pain or ache in the jaw, temples, face, preauricular area, or inside the ear at rest or during function; pain reported by the subject in response to palpation of 3 or more of the following 20 muscle sites (right side and left side count as separate sites for each muscle): posterior temporalis, middle temporalis, anterior temporalis, origin of masseter, body of masseter, insertion of masseter, posterior mandibular region, submandibular region, lateral pterygoid area, tendon of the temporalis. At least one of the complaints of pain; pain-free unassisted mandibular opening of less than 40 mm; max. assisted opening (passive stretch) of 5 mm or greater than, pain-free, unassisted opening. Exclusion criteria: been treated at other clinics for TMD; occlusal interference or prostheses of broad area; history of orthodontic treatment; metabolic disease (e.g. diabetes, hyperthyroidism); neurological disorders (e.g. dyskinesia, trigeminal neuralgia); vascular disease (e.g. migraine, hypertensions); neoplasia; history of drug abuse; recent facial or cervical trauma (e.g. whiplash); assigned to categories III and IV or answered 'yes' to the questionnaire under psychiatric disorders on the Cornell Medical Index; medication or other treatment that could not be interrupted for the study. Country: Japan Clinic: n.a.
Interventions	Group A (n=20): Control group Group B (n=20): cognitive behavioural treatment intervention group Group C (n=20): cognitive behavioural treatment intervention with posture correction group
Outcomes	Pain-free unassisted mouth opening (mm) Pain intensity (VAS)
Chronicity	Low disability
Hints for chronicity	Exclusion criteria: Patients who have already been treated at other clinics for TMD
Duration	12 month follow up
Notes	Cite: "There was no difference between groups in age, gender, level of education, or pain-related and clinical variables"

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: "They were then randomly assigned to one of three equal groups." Comment: No more information on it
Allocation concealment	Unclear risk	No information given

(selection bias)		
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Unclear risk	Reported about the drop out (most n=7 control group) Cite: "Even when excluding drop-out subjects, there was still no significant difference between the value characteristics of the groups with the remaining subjects."
Selective reporting (reporting bias)	Low risk	Reported all the outcomes
Other bias	Unclear risk	Cite: "At the baseline at the onset of the study, no significant difference was observed in the values for the characteristics between the group."

Kraaijenga 2014

Methods	RCT. single centre; two parallel groups
Participants	96 (79) patients: 86.46% women; age 17–73 years old; mean age 38 years. Exclusion criteria: physical disability (e.g., problems manually using the standard exercises or the device), and subjects with non-myogenic underlying causes of limited mouth opening. Time: January 2008–December 2011 Country: Netherlands Clinic: Department of Maxillofacial Surgery of the Kennemer Gasthuis (Haarlem)
Interventions	Group A (n=46(38)): TheraBite (TB) device Group B (n=50(41)): standard physical therapy (PT)
Outcomes	Pain (VAS) Mandibular function impairment questionnaire (MFIQ) Maximum inter incisor (mouth) opening (MIO)
Chronicity	Unclear
Hints for chronicity	1. Moderate pain level: 4.960.4 2. Acute myogenic temporomandibular disorder
Duration	6 weeks follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: „...were randomised for the use of the TB device or for standard" Comment: no further information

APPENDIX VIII: Characteristics of studies

Allocation concealment (selection bias)	Unclear risk	No given information
Blinding of participants and personnel (performance bias)	Unclear risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Low risk	Cite: "An independent research assistant who had no knowledge of the specific treatment modality carried out all assessments."
Incomplete outcome data (attrition bias)	Unclear risk	Comment: a lot of dropouts but balanced among the groups and reasons given. Cite: "Fortunately, the distribution of dropouts over both treatment groups was very similar, causing no significant differences between both randomisation groups."
Selective reporting (reporting bias)	Low risk	Reported all the outcomes
Other bias	Low risk	Cite: "There were no significant differences with respect to gender, mean age, or baseline measurements between both groups, neither in the original 96 patients, nor in the 79 patients who actually started treatment." Cite: "Conflicts of interest: None."

La Touche 2013

Methods	RCT. single centre; two parallel groups
Participants	32 patients: 65.63% women; mean age Group A 33.19 (SD±9.49); Group B 34.56 (SD±7.84). Inclusion criteria: primary diagnosis of myofascial pain as defined by axis I, category Ia and Ib of the RCD/TMD; bilateral pain involving the masseter, temporalis, upper trapezius, and suboccipital muscles; duration of pain of at least 3 months; pain intensity corresponding to a weekly average of at least 30 mm on VAS; neck and/or shoulder pain with symptoms provoked by neck postures or neck movement; Neck Disability Index (NDI) >15 points; presence of bilateral trigger points (TrPs) in masseter, temporalis, upper trapezius, and suboccipital muscles. Exclusion criteria: intra-articular temporomandibular disk displacement, osteoarthrosis, or arthritis of the TMJ, according to categories II and III of RCD/TMD; history of traumatic injuries (e.g. contusion, fracture, or whiplash injury); systemic diseases such as fibromyalgia, systemic erythematous lupus, or psoriatic arthritis; neurological disorders (e.g., trigeminal neuralgia); concomitant medical diagnosis of any primary headache (tension type or migraine); unilateral neck pain; cervical spine surgery; clinical diagnosis of cervical radiculopathy or myelopathy; history of previous physical therapy intervention for the cervical region. Time: January 2009-May 2010 Country: Spain Clinic: "referred from 2 private dental clinics and 3 universities in Madrid"
Interventions	Group A (n=16): mobilization of the upper cervical spine (3 sessions over 2 weeks) Group B (n=16): sham therapy (3 sessions over 2 weeks)

APPENDIX VIII: Characteristics of studies

Outcomes	Depression (Beck Depression Inventory, BDI) Anxiety (State Trait Anxiety Inventory, STAI) Neck disability (NDI) Pain intensity (VAS) Pressure Pain Threshold Changes in the sympathetic nervous system (SNS) (SC, HR, BR, and ST)
Chronicity	Unclear (high disability)
Hints for chronicity	widespread pain: bilateral pain involving the masseter, temporalis, upper trapezius, and suboccipital muscles
Duration	8 months
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "Randomization was performed by a computer generated random-sequence table created with GraphPad software (GraphPad Software Inc.) before the beginning of the study. The randomisation sequence used a balanced block design in which randomisation occurred in blocks of 2."
Allocation concealment (selection bias)	Unclear risk	No further information
Blinding of participants and personnel (performance bias)	Low risk	Cite: "Patients were blind to which intervention they received, and an independent assessor, blind to intervention assignment made the measurements and registered the data."
Blinding of outcome assessment (detection bias)	Low risk	Cite: "double-blind placebo-controlled study was performed." Comment: we can assume that the examiner was also blinded
Incomplete outcome data (attrition bias)	Low risk	Cite: "No patients dropped out during the study, and no adverse events occurred with the APUCM."
Selective reporting (reporting bias)	Low risk	Reported all the outcomes
Other bias	Low risk	Cite: "The t test did not reveal any significant differences between groups regarding demographic details and clinical data (P > 0.05)" and "The authors declare no conflict of interest."

Machado 2016

Methods	RCT. single centre; five parallel groups;
Participants	82 patients + 20 healthy patients: 92.69 % women; no age given. Inclusion criteria: permanent dentition; no dental pain or periodontal problems; neurological or cognitive deficit; previous or current tumour or trauma in the head and neck region; current or prior orthodontic; orofacial

APPENDIX VIII: Characteristics of studies

	myofunctional or TMD treatment; or current use of analgesic, anti-inflammatory, psychiatric drugs. Exclusion criteria: pregnant. Country: Brazil Clinic: Department of Ophtalmology, Otorhinolaryngology, and Head and Neck Surgery, School of Medicine, University of São Paulo, Av. dos Bandeirantes 3900, Ribeirão Preto, São Paulo 14049-900
Interventions	Group A (n=20): healthy control group Group B (n=21): low-level laser therapy + oral-motor exercises Group C (n=22): orofacial myo-low disability therapy (OMT) which contains pain relief strategies and OM-exercises Group D (n=21): LLLT placebo + OM- exercises
Outcomes	Muscle and joint tenderness to palpation TMD severity Orofacial myo-low disability status
Chronicity	Low disability
Hints for chronicity	per Mail: "No treatment before participating into the study"
Duration	3 month follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "...using GraphPad software (GraphPad Software, Inc)"
Allocation concealment (selection bias)	Unclear risk	No information
Blinding of participants and personnel (performance bias)	Unclear risk	Cite: "The study was blinded, with the subjects not knowing which tip was active until the analysis of the data." Comment: no information about the staff
Blinding of outcome assessment (detection bias)	Low risk	Cite: "A randomly selected percentage of the subjects (n = 20) was re-evaluated by examiner (E1) and by a second blinded examiner (E2)"
Incomplete outcome data (attrition bias)	Low risk	Reported about all the dropouts
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	Cite: "The authors declare they have no conflicts of interest."

Magnusson 1999

Methods	RCT. single centre; two parallel groups

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Participants	26 patients: gender not stated; mean age Group A 37; Group B 32. Inclusion criteria: myogenous TMD patients; patients referred to specialist clinic where the main subjective symptom was tension-type headache and/or orofacial pain of non-neurogenic or non-dental origin; history of pain of at least one year. Exclusion criteria: previous TMD treatment; general disease affecting the masticatory system; obvious morphological or low disability malocclusion. Country: Sweden Clinic: Cite: "referred to the Department from medical doctors, two (8.7 %) from other specialist dentists and the remaining (43.5 %) from general dental practitioners"
Interventions	Group A(n=12): Jaw exercises Group B (n=14): Michigan splint (worn at night) later Group C (n=5) "control group" or combined group: jaw exercises and splint (self-selected in case of insufficient improvement)
Outcomes	Maximal jaw opening capacity Impaired mandibular mobility; impaired TMJ function) Tenderness to palpation of the TMJs or masticatory muscles; none/mild/severe) Pain on movement of the jaw Clinical dysfunction index (Di, Helkimo) Joint sounds
Chronicity	Low disability (+5 subjects with probably high disability pain in combined treatment group)
Hints for chronicity	Cite: "No experience of previous TMD treatment." "Referred to the Department from medical doctors, two (8.7 %) from other specialist dentists and the remaining (43.5 %) from general dental practitioners." Cite: "Six patients in IG, six in and all five in control group took analgesics frequently because of their symptoms."
Duration	6 months
Notes	83.3% recurrent headache Cite: "Those patients who still had significant symptoms after three months of treatment were all offered complementary treatment with the other treatment modality, the group who received this combined treatment is henceforth called control group (n=5)

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	per Mail: "We had written down “splint” or “exercises” on 15+15 folded papers that we put in envelopes (our first intention was to have 30 patients, but we gave up). When a patient fulfilled the inclusion criteria, we opened an envelope and checked what treatment the patient was to receive."
Allocation concealment (selection bias)	Unclear risk	No information given

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Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Low risk	Cite: "Of the original twenty-six patients, one was excluded due to poor motivation/ cooperation, one interrupted the treatment and one moved from the region. Of the remaining twenty-three patients, five received 'Complementary treatment due to persistent symptoms after three months." Cite: "Three of the five patients in the control group had initially been treated with an interocclusal appliance, and two with therapeutic jaw exercises." Comment: is balanced
Selective reporting (reporting bias)	Low risk	Reported all the outcomes stated
Other bias	Unclear risk	No further inequalities

Maloney 2002

Methods	RCT. Single centre; three parallel groups.
Participants	43 patients: Inclusion criteria: presenting with maximum inter incisal openings (MO) of less than 35 mm were chosen initially. Exclusion criteria: Patients who exhibited a change in their maximal inter incisal opening to a measurement greater than 35 mm were excluded from the study after 4 weeks splint therapy. Country: USA Clinic: Gelb Orofacial Pain Centre, Tufts University School of Dental Medicine
Interventions	Group A (n=10): passive jaw motion device therapy (Therabite) Group B (n=7): wooden tongue depressors therapy (WTD) Group C (n=7): control group Manual manipulation of the mandible combined with flat bite plane therapy was provided as a first step for all patients for four weeks
Outcomes	Mandibular range of motion (maximum opening (MO), right, left lateral (Rt. Lateral, Lt. Lateral), protrusive (Pr) movements) (mm) Pain level (NRS)
Chronicity	High disability
Hints for chronicity	1. Who did not improve after manual manipulation of the mandible and flat bite plane therapy 2. Secondary care: Gelb Orofacial Pain Centre, Tufts University School of Dental Medicine
Duration	4 weeks follow up
Notes	

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Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: " The patients included in the study, 19 extracapsular and 24 intracapsular, were allocated randomly to three treatment groups."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	High risk	Not fully reported, not quite clear
Selective reporting (reporting bias)	Unclear risk	Not fully reported
Other bias	High risk	Cite: "Therabite Corporation supported by a grant this study"

Maluf 2010

Methods	RCT. single centre; two parallel groups.
Participants	28 patients: 100% women; mean age Group A 30.0 (SD±4.3); 30.08 (SD±7.07); Inclusion criteria: chronic pain (duration N3 months); Helkimo index III; myogenic TMD; presence of para low disability habits, such as bruxism; teeth clenching; mouth breathing; lip biting. Exclusion criteria: surgery or trauma in the orofacial region; systemic or degenerative diseases in spine and upper limbs; and undergoing odontologic, psychologic, or physical therapy treatments. Country: Brazil Clinic: Faculty of the Department of Surgery, Prothesis, and Maxillofacial Trauma of the School of Odontology, University of São Paulo.
Interventions	Group A (n=14): Global posture re-education (8 sessions 30min. global stretching with 2 postures for 15 min. each) Group B (n=14): Static stretching (8 sessions 30min. static stretching treatment with stretching positions for 30sec. and slow breathing) Cointervention: 10 min. MT manoeuvres associated to breathing exercises, to stretch the fasciae that recover the shoulders, as well as the cervical spine muscles
Outcomes	Severity symptoms for TMJ pain, headache, cervicalgia, teeth clenching, ear symptoms, restricted sleep, and restricted mastication (VAS) Pain thresholds (PPT) measured in the masseter, anterior temporalis, sternocleidomastoid, upper trapezius muscles EMG activity in the masseter, anterior temporalis, sternocleidomastoid, and upper trapezius muscles

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Chronicity	Unclear (high disability)
Hints for chronicity	1. Participants were selected according to the following criteria: chronic pain (duration N3 months), Helkimo index III, myogenic TMD, and presence of parafunctional habits, such as bruxism, teeth clenching, mouth breathing, and lip biting 2. -Do you have any information on pain intensity at baseline? - Yes 8.47 for RPG group and 7.20 for Control group 3. How long did the patients suffer from orofacial pain at baseline? - about 6 years
Duration	8 weeks follow-up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: " ...were randomised, by means of opaque envelopes, into 2 treatment groups"
Allocation concealment (selection bias)	Unclear risk	Cite: „... randomised by means of opaque envelopes." Comment: need more information about the envelops
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Low risk	Cite: "All evaluations and interventions were made by an experienced investigator previously trained and blinded."
Incomplete outcome data (attrition bias)	Low risk	Cite: „...4 subjects abandoned treatment for work-related reasons Balanced attrition between groups, for similar reasons."
Selective reporting (reporting bias)	Low risk	Reported all the outcomes stated
Other bias	Low risk	Cite: "No significant between-group differences were seen for age (P= .97) and mandibular depression (P= .44)." "No funding sources or conflicts of interest were reported for this study."

Melo 2020

Methods	RCT. single centre; four parallel studies;
Participants	89 patients: 82.1% women; mean age 28 (SD±9.34); Inclusion criteria: diagnosis of TMD according to the RDC/TMD axis I; not received any treatment for TMD in the last 3 months; had a report of pain in the orofacial region in the last 3 months; 18 and 65 years of age. Exclusion criteria: impairment of cognitive ability; unable to understand the questions in the questionnaires; a history of head trauma that is related to the aetiology of orofacial pain; patients with intracranial disorders or headache; use of medications in the last 3 months that could interfere with the effect of tested therapies, such as muscle relaxants, anti-inflammatory

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	medication, anticonvulsants, antidepressants and anxiolytics; use of medication to treat TMD or muscle pain during the research period; other causes of orofacial pain such as caries, periodontal diseases, or neuropathies and fibromyalgia. Time: March 2016- July 2017 Country: Brazil Clinic: CIADE (Integrated Centre for Attention to Patients with Stomatognathic Apparatus Dysfunction), an extension project developed by the TMD and Occlusion sector of the Department of Dentistry (DOD) of the Federal University of Rio Grande do Norte (UFRN)
Interventions	Group A (n=25): OSCS Group B (n=24): OS Group C (n=21): MT (thermal agents (heat and cryotherapy)+therapeutic exercises; therapeutic regimen: 40-min sessions, performed 2/week for 4 weeks; instructed to repeat at home, on a daily basis; therapeutic exercises used were masseter and temporal massage and stretching exercises for the jaw muscles) Group D (n=19): CS (investigation into habits and other factors that might be responsible for the aetiology of the patient's dysfunction, and then a series of orientated guidelines for each case were developed that individualize treatment according to personal needs) All treated patients, regardless of their diagnoses, were instructed to apply a gel packet at temperatures between 40 °C and 50 °C for 20 min, three times a day during the 4 weeks of treatment. The compresses were applied in the masseter, temporal and TMJ regions.
Outcomes	Pain (VAS) HADS BAI State-Trait Anxiety Inventory (STAI)
Chronicity	Low disability
Hints for chronicity	No analgetic misuse
Duration	1 month follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "The randomised trial was performed in blocks, each block had four treatment options, a draw allocated a type of therapy to four patients until all the patients were assigned."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome	Low risk	Cite: "A blinded randomised clinical trial was conducted in

assessment (detection bias)		which the evaluating investigator was not aware of the therapy to which the patient was submitted."
Incomplete outcome data (attrition bias)	Unclear risk	Cite: "Initially, 300 patients were screened, but 188 patients were excluded because they did not have the inclusion criteria necessary for the present study and 23 patients withdrew. Comment: no information on why, balanced among the groups though
Selective reporting (reporting bias)	Low risk	All outcomes were reported. No study protocol
Other bias	Unclear risk	Cite: "This study has no conflict of interest."

Michelotti 2004

Methods	RCT. single centre; two parallel studies;
Participants	70 patients: 88.6% women; mean age group A 31.8 (SD±13.0), mean age group B 28.2 (SD±8.8); Inclusion criteria: myogenous TMD; pain recurrent or constant for more than 3 months; spontaneous pain in the last week >30 on VAS. Exclusion criteria: objective evidence of TMJ pathology or dysfunction; RDC/TMD diagnosis group II or III; other orofacial pain conditions; other TMD treatments within the last 3 months; neurologic or psychiatric disorders; pain medication abuse. Country: Italy Clinic: TMD Centre, University of Naples
Interventions	Group A (n=34): education only Group B (n=36): education + self-supportive exercise program (self-relaxation exercises with diaphragmatic breathing, self-massage of the masticatory muscles, application of moist heat pads, stretching and coordination exercises)
Outcomes	Treatment contrast (normalized mean of pain intensity and low disability limitation scores) Pressure Pain Threshold (PPT)(kPa) for masseter, temporalis, and Achilles' tendon Pain intensity (VAS) Pain on chewing (VAS) Pain-free maximal jaw opening (mm) Headache (VAS)
Chronicity	Low disability
Hints for chronicity	1. Exclusion criteria: Other TMD treatments within the last 3 months; neurologic or psychiatric disorders; history of pain medication abuse or current abuse"
Duration	3 month follow up
Notes	Further publications: "Muscular physiotherapy in patients with temporomandibular disorders. Controlled clinical trial" (Michelotti, 2000)

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Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: „...block randomisation."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Low risk	The examiner was blinded
Incomplete outcome data (attrition bias)	Unclear risk	Reported about the dropouts but need more information about the dropouts.
Selective reporting (reporting bias)	Low risk	Reported about all the outcomes stated
Other bias	Unclear risk	Cite: "At baseline, no significant differences were found between the 2 groups, with the exception of headache scores, which were significantly higher in the education + home PT group"

Mulet 2007

Methods	RCT. single centre; two parallel groups;
Participants	45 patients: 95.24% women; mean age 24 years old; group A 23.4 (SD±2.1), mean age group B 25.1 (SD±2.3). Inclusion criteria: age 18-65; RDC/TMD diagnosis of myofascial pain; duplicated pain by palpation of the masticatory muscles; pain ≥ 4 on a 11-point scale during the previous month; persistent pain for at least 6 months with pain frequency ≥ 3 days per week; forward head posture; if active mouth opening was limited, passive inter incisal opening had to be at least 40mm. Exclusion criteria: systemic rheumatic diseases; fibromyalgia; other orofacial pain; dental pathology; TMJ disc displacement without reduction or osteoarthritis; cervical structural pathology; current intake of over-the counter analgesics more than 3 days per week; current use of narcotics, hypnotic drugs, sedatives, or muscle relaxants; major psychiatric disease; unwillingness to accept allocation to the treatment group. Country: USA Clinic: Cite: " recruited through advertisements in the University of Minnesota daily newspaper (n=24) and flyers posted at the University of Minnesota (n = 19) and from patients presenting for treatment at the University of Minnesota TMJ and Orofacial Pain Clinic (n=2)."
Interventions	Group A (n=20): self-care (optimistic counselling, patient education, encouragement to rest the masticatory muscles, application of heat and ice,

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	control of maladaptive behaviours, pain-free diet) Group B (n=22): self-care + 6x6 exercises (6 exercises 6 times a day and repeated 6 times each: rest position of the tongue, shoulder posture, stabilized head flexion, axial extension of the neck, control of TMJ rotation, rhythmic stabilization technique)
Outcomes	Self-report pain intensity in masticatory muscles (NGRS) Pain intensity in masticatory and neck muscles (5-point VRS) Pain intensity in cervical muscles (NGRS) Postural measures (distance shoulder-ear, neck angle, cranial angle) Overall change in symptoms at the end of treatment (5-point scale)
Chronicity	Low disability
Hints for chronicity	1. Through advertisement in the University of Minnesota daily newspaper (n=24) and flyers posted at the University of Minnesota (n=19) and from patients presenting for treatment at the University of Minnesota TMJ and Orofacial Pain Clinic (n=2) 2. Exclusion: Orofacial pain disorders; Current intake of over-the-counter analgesics more than 3 days per week; Current use of narcotics, hypnotic drugs, sedatives, or muscle relaxants
Duration	1 month follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite:" A stratified randomisation scheme using randomisation tables matched treatment groups for gender distribution and medication use"
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to different therapies
Blinding of outcome assessment (detection bias)	Low risk	Cite: "The primary investigator, who was blinded to the treatments received, collected these data."
Incomplete outcome data (attrition bias)	Unclear risk	No details about the dropouts
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	No further inequalities

Nagata 2018

Methods	RCT. single centre; two parallel groups;
Participants	61 patients: 81.97% women; mean age 49.6 (SD±25); Inclusion criteria: myalgia or arthralgia or mixed, triggered by jaw opening or

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	palpation; all exhibited mouth-opening limitation, where the maximum self-opening distance (with pain) between upper and lower middle incisors was 35mm (“disc displacement without reduction, with limited opening”) Exclusion criteria: inability to visit our clinic during a specific 2-to-4- week period; patients wanted to have a particular treatment (e.g., drug or occlusal treatment); any mental or physical disorders that might disturb treatment. Time: May 2014-June 2017 Country: Japan Clinic: TMD and Bruxism Clinic, Niigata Hospital, The Nippon Dental University
Interventions	Group A (n=30): conventional treatment (cognitive behavioural therapy for bruxism and education) Group B (n=31): conventional treatment + manipulation
Outcomes	Mouth-opening limitation (mm) Orofacial pain (NRS) TMJ sounds
Chronicity	Low disability
Hints for chronicity	1. Exclusion: any mental or physical disorders that might disturb treatment 2. Pain score at baseline quite high (ca. 5-6)
Duration	8 weeks treatment; 10 weeks follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "...block randomisation to equalize the numbers of participants in the two groups"
Allocation concealment (selection bias)	Low risk	Cite: "The assignment of blocks was performed based on the random number table of a computer owned only by the administrator, to ensure concealment."
Blinding of participants and personnel (performance bias)	Low risk	Cite: "The study was designed as a single-blind RCT, in which participants in each group received detailed explanations of their individual treatment, but further information was not provided to them to avoid education bias."
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Low risk	Reported about the dropouts, the numbers were balanced among the groups. Used intention-to-treat concept
Selective reporting (reporting bias)	Low risk	Reported about all three outcomes
Other bias	Unclear risk	Free of further inequalities

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Nambi 2020

Methods	RCT. single centre; parallel studies;
Participants	30 patients: 100 % women; age 18-40 years. Inclusion criteria: females in the age group of 18-40 years; six months after CF burns; total body surface area (TBSA) 11-25% involvement; bilateral cervicofacial area involvement; partial to full thickness burn with the cause of flame or scald; pain intensity in VAS between 4-8; mouth opening as measured by interincisal range of 5mm; participants underwent split-thickness skin graft and full thickness skin graft. Exclusion criteria: intraoral signs of masticatory dysfunction; facial asymmetry, retrognathism, prognathism, systemic diseases, degenerative, inflammatory, or infective TMJ arthritis and dislocation of TMJ. Time: Country: Saudi Arabia Clinic: Department of physical therapy and health rehabilitation, Prince Sattam Bin Abdulaziz University, Al-Kharj, Saudi Arabia
Interventions	Group A (n=15): Maitland joint mobilization group (3 sessions (each session 10 repetitions) of distraction, anterior, medial, and lateral glide mobilization at grades I and II were applied to TM joint. In second phase grade III and grade IV mobilization for 3 sessions/10 repetitions) Group B (n=15): home based training group (set of exercises at home such as; keeping both hands on lateral aspect of both mandibular ramus and actively apply medial and lateral force for 30s, keep the anterior part of tongue on upper part of mouth just behind the incisor teeth and make small circles for 30s for 4 weeks) All the participants in two groups were underwent ultrasound therapy with a frequency of 3MHz and power of 1.5W/cm2 in pulsed form for five minutes for 5 days in a week for 4 weeks
Outcomes	Pain (NPRS) Maximal mouth opening (MMO) Temporomandibular disability index (TDI) Tampa Scale of Kinesiophobia (TSK-17) Sleep quality questionnaire (SSQ) Global Rating of Change (GRC)
Chronicity	Unclear
Hints for chronicity	None
Duration	4 weeks treatment; 3 months follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "Simple block randomization method"

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Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Cite: "The participant and the therapist who was assessing the outcomes at baseline, after four weeks and three months were blinded. Hence, the treating and assessing therapists were different persons and the assessing therapist remains blinded to the participants' Participants were instructed not to disclose their study procedures and treatment protocol with fellow participants and the assessing therapist."
Blinding of outcome assessment (detection bias)	Low risk	Cite: "The participant and the therapist who was assessing the outcomes at baseline, after four weeks and three months were blinded. Hence, the treating and assessing therapists were different persons and the assessing therapist remains blinded to the participants' Participants were instructed not to disclose their study procedures and treatment protocol with fellow participants and the assessing therapist."
Incomplete outcome data (attrition bias)	Low risk	Cite: "All the 30 participants participated in this study completed the treatment program with treatment compliance of 100%." Comment: No dropouts according to the tables
Selective reporting (reporting bias)	Low risk	All outcomes were reported
Other bias	Low risk	Cite: "The basic demographic variables such as age, height, weight and BMI did not show any significance difference between the groups (p0.05) at baseline." Cite: "Conflicts of interest. No conflict of interest."

Nascimento 2013

Methods	RCT. single centre; two parallel groups
Participants	20 patients: 100% women; age 25-56 years old; mean age 41.5 (SD±10.1); Inclusion criteria: both sexes above 18 years of age; patients with disc displacement and arthralgia (group II, IIIa RDC/TMD) and with scores from 3-9 of VAS for pain assessment. Exclusion criteria: pharmacotherapy; previous use of occlusal appliances; symptoms related to disease in other parts of the stomatognathic system (e.g., toothache, neuralgia); pain due to systemic disease (e.g. rheumatoid arthritis); fibromyalgia; history of psychiatric disorders. Time: March-December 2008 Country: Brazil Clinic: Centre of Clinical Research in Oral-Maxillofacial Surgery at the School of Dentistry of Pernambuco
Interventions	Group A (n=10): 8xcycle of anaesthetic blockages of auriculotemporal nerve with injections (1 per week) of 1 ml of bupivacaine 0.5% without vasoconstrictor for 8 weeks Group B (n=10): anaesthetic blockage and physical therapy (massage + muscular stretching exercises)
Outcomes	Maximal mouth opening and jaw protrusion (mm) Pain (VAS)

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Chronicity	Low disability
Hints for chronicity	1. Exclusion criteria were previous treatment with pharmacotherapy, previous use of occlusal appliances
Duration	2 months
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: „...patients were randomised in two groups for treatment. Ten patients"
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	Not possible du to different therapies
Blinding of outcome assessment (detection bias)	Low risk	Cite: "Both examiners were blinded to group assignment."
Incomplete outcome data (attrition bias)	Low risk	No dropouts described no dropouts according to the tables
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	No further inequalities

Packer 2014

Methods	RCT. single centre; two parallel groups
Participants	32 patients: 100% women; age 18-40 years old; mean age 24.78 (SD±5.41). Inclusion criteria: myofascial pain (Ia) or myofascial pain with limited mouth opening (Ib) (RDC/TMD); simultaneous diagnoses of disk displacement with reduction (IIa), disk displacement without reduction with limited opening (IIb), disk displacement without reduction without limited opening (IIc), and arthralgia (IIIa); masticatory muscle pain and/or fatigue during low disability activities for at least the previous 6 months, at least mild neck disability diagnosed using the Neck Disability Index, BMI <25; average baseline pain rating for the masticatory muscles greater than 3 cm on VAS. Exclusion criteria: missing teeth (except for third molars); use of total or partial dentures; systemic neuromuscular disease; current use of orthodontic/pharmaceutical treatment; red flags such as malignant tumour/inflammatory/infectious diseases that contraindicate the use of MT; previous history of whiplash injury; cervical surgery; fibromyalgia; having undergone manipulation in the previous month; and osteoarthritis (IIIb)/osteoarthrosis (IIIc) according to the RDC/TMD. Time: March 2011-November 2012 Country: Brazil Clinic: Methodist University of Piracicaba (São Paulo)
Interventions	Group A (n=16): upper thoracic manipulation

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	Group B (n=16): sham manipulation (placebo)
Outcomes	Activity of masticatory muscles (Electromyography) Vertical mouth opening (mm) Pain (VAS, Algometer)
Chronicity	Low disability
Hints for chronicity	per mail: "haven't received any treatment before", only localized pain
Duration	4 days follow up
Notes	Further publications: "Effect of upper thoracic manipulation on mouth opening and electromyographic activity of masticatory muscles in women with temporomandibular disorder: randomised clinical trial" (Packer, 2015)

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: „...randomization ratio of 1:1. The volunteers were randomly allocated to 2 groups (experimental and placebo) using block randomization"
Allocation concealment (selection bias)	Unclear risk	Cite: "opaque envelopes to conceal the allocation."
Blinding of participants and personnel (performance bias)	Low risk	Cite from Packer 2014: "The volunteers were blinded to the procedure to which they were submitted (manipulation or placebo)." Comment: the personnel was not possible to be blinded
Blinding of outcome assessment (detection bias)	Low risk	Cite: "The evaluator responsible for the EMG and VMO readings before and after manipulation or placebo and the researcher responsible for the data analysis were blinded to the allocation of each subject." Cite: "Moreover, the researcher in charge of the pre intervention and postintervention algometric readings and distribution of the visual analogue scale (VAS) for pain and the researcher in charge of the data analysis were unaware of the allocation of each participant."
Incomplete outcome data (attrition bias)	Low risk	No dropouts according to the tables
Selective reporting (reporting bias)	Low risk	Reported all the outcomes and stated the study protocol: Brazilian Clinical Trials Registry (RBR-7vxnmv)
Other bias	Unclear risk	Cite: "No conflicts of interest were reported for this study."

Patil 2017

Methods	RCT. single centre; two parallel groups
Participants	36 patients: 63.89% women; mean age Group A 32.91 (SD±12.57); Group B 34 (SD±7.4); Inclusion criteria:

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	Exclusion criteria: previous history of trauma to maxillofacial region; other orofacial pain conditions; orofacial infections; developmental anomalies of the maxillofacial region; disc displacement; arthralgia; osteoarthritis; cardiac pacemaker; any serious cardiac diseases; epileptic disorders; allergy to adhesive tape or electrodes of the TENS machine. Time: December 2016-October 2017 Country: Kingdom of Saudi Arabia Clinic: College of Dentistry, Aljouf University, Kingdom of Saudi Arabia
Interventions	Group A (n=18): TENS therapy (20 W, with a maximum frequency of 60 Hz, 1-10 μA, each therapeutic session 30 minutes, 1xweek for 4 weeks. Group B (n=18): HE therapies (home exercise program consisting of active and passive mouth opening and closing exercises, isometric mouth exercises, mouth stretching exercises and resistive mouth exercises, exercise for 6 seconds. with repetitions for 10 times. These exercises were implemented twice a day for 4xweeks)
Outcomes	Muscle pain (VAS) Joint tenderness (VAS) Maximum mouth opening (mm)
Chronicity	Unclear
Hints for chronicity	None
Duration	4 weeks
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "The randomisation was carried out by casting lots, by an individual not participating in this study to allocate the subjects to either group."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Unclear risk	No information given
Selective reporting (reporting bias)	Low risk	Reported all the outcomes
Other bias	Unclear risk	Cite: "Financial support: This study was funded by the Aljouf University, Kingdom of Saudi Arabia - Research project No. (407/37)"

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Reynolds 2019

Methods	RCT. single centre; two parallel groups
Participants	50 patients: 86% women; mean age Group A 32.2 (SD±11.3); Group B (SD38.8±14.8); Inclusion criteria: Numeric Pain Rating Scale (NPRS) score ≥ 2 in jaw at baseline; pain-free mouth opening ≤ 50 mm; age 18-65; primary complaint of TMD pain; TMD pain confirmed by screen listed above; proficiency in the English language; availability to attend 4 appointments in 4 weeks. Exclusion criteria: traumatic onset of symptoms in the last year; history of whiplash in the last 6 weeks; prior neck surgery; temporomandibular locking in the last month; medical red flags suggestive of non-musculoskeletal origin of pain, systemic or neurological disease a; two or more signs of cervical nerve root compression (major muscle weakness, diminished upper extremity reflexes, diminished or absent pinprick sensation in a dermatomal pattern); evidence of central nervous system involvement (hyperreflexia, gait disturbance, nystagmus, impaired facial sensation, change in taste, loss of visual acuity, positive pathological reflexes (Hoffman, Babinski, Inverted supinator, clonus)); unremitting night pain or non-mechanical pain; contraindications to TJM: active cancer, history of prolonged corticosteroid use, acute fracture or tumour in the area to be treated, osteoporosis, joint ankyloses, dislocation, cervical ligament ruptures, acute active inflammatory or infectious disease, rheumatoid arthritis, vertebral artery abnormalities, connective tissue disease (Muscular dysplasia, Marfan syndrome, Down syndrome, Ehlers Danlos syndrome), prolonged anticoagulant therapy, signs of cranial nerve involvement, drop attacks, dysarthria, dysphagia, nystagmus, new or recent onset of dizziness, new or recent onset of neck pain or headache “unlike any other”, previous cerebrovascular accident or transient ischemic attack, or uncontrolled hypertension, diabetes, or hyperlipidemia; previous cervical spine TJM intervention in the last 3 months; worker’s compensation or any pending litigation regarding their pain or injury. Time: 10/18/17-10/4/18 Country: USA Clinic: four locations: Rock Valley Physical Therapy (RVPT) in Washington, IL (n=1), RVPT in Peoria, IL (n=8), Bradley University in Peoria, IL (n=33), and UNLV in Las Vegas, NV (n=8)
Interventions	Group A (n=25): Cervical Thrust Joint Manipulation plus education and exercise Group B (n=25): Sham Manipulation plus education and exercise
Outcomes	Jaw range of motion (ROM) Numeric Pain Rating Scale (NPRS) TMD Disability Index Jaw Low disability Limitation Scale (JFLS) Tampa Scale of Kinesiophobia (TSK-TMD) Pressure Pain threshold (PPT) Global Rating of Change (GROC) Patient Acceptable Symptom State (PASS)
Chronicity	Low disability
Hints for chronicity	1. Numeric Pain Rating Scale (NPRS) score ≥ 2 in jaw at baseline 2. Through flyer

	3. Exclusion: medication
Duration	4 weeks treatment
Notes	Further publications: "Effectiveness of Cervical Spine High-Velocity, Low-Amplitude Thrust Added to Behavioural Education, Soft Tissue Mobilization, and Exercise for People with Temporomandibular Disorder with Myalgia: A Randomized Clinical Trial (Reynolds, 2020)"

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "A research assistant not involved in subject recruitment or intervention created a computer-generated randomization list with equal numbers of participants in each group for a total of 42 participants."
Allocation concealment (selection bias)	Low risk	Cite: „...was placed in a concealed opaque envelope"
Blinding of participants and personnel (performance bias)	Low risk	Cite: „... however, patients and assessors used to measure objective data for analysis were blinded to treatment group."
Blinding of outcome assessment (detection bias)	Low risk	Cite: „... (with a blinded assessor) were taken at baseline, immediately after baseline treatment, 1-week, and 4-weeks."
Incomplete outcome data (attrition bias)	Low risk	Cite: „...no participants dropped out of the study"
Selective reporting (reporting bias)	Low risk	Reported all the outcomes
Other bias	Unclear risk	Cite: "Groups were similar at baseline in all characteristics excluding left lateral deviation of the jaw (p=.023); the thrust manipulation group had more left lateral deviation than the sham group. "

Rodriguez-Blanco 2015

Methods	RCT. single centre; two parallel groups
Participants	60 patients: 68.33% women; mean age 35 (SD±11.22). Inclusion criteria: diagnosis of having myofascial pain in the TMJ, with or without limited opening and bilateral pain, for at least 6 months; a positive response to the anamnestic index for TMD; age between 18 and 50 years; presence of local and referred pain after manual 30 pressure of tense bands in the masseter muscles; restricted mobility in the anterior–posterior condylar mobility; restricted mobility of the first cervical vertebrae (C1) in the cervical flexion-rotation test. Exclusion criteria: previous cervical whiplash; severe traumatisms, surgery, and/or fractures in the mandibular condyle, TMJ, craniofacial region, and/or any spinal level; degenerative, systemic, rheumatic, or tumoral disorders; being under psychiatric treatment; having received MT within eight weeks

APPENDIX VIII: Characteristics of studies

	before data collection; being under orthodontic treatment; consumption of analgesics or anti-inflammatory drugs within 48 hours before the study. Clinic: Spain Country: University-based physical therapy research clinic
Interventions	Group A (n=30): suboccipital muscle inhibition technique Group B (n=30): neuromuscular technique over the masseter muscles and passive hamstring muscle stretching
Outcomes	Vertical mouth opening Pressure pain threshold of the masseter muscles Pressure algometry (trigeminal nerve) Suboccipital range of motion Lumbar spine mobility (SAR) test) Lumbar forward bending
Chronicity	Low disability
Hints for chronicity	1. Exclusion criteria: being under psychiatric treatment; having received MT within eight weeks before data collection 2. Presence of local and referred pain after manual 30 pressure of tense bands in the masseter muscles 3. Exclusion: being under psychiatric treatment; having received MT within eight weeks before data collection; consumption of analgesics or anti-inflammatory drugs within 48 hours before the study.
Duration	baseline and 5 minutes after intervention
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: " Randomization was made using a randomized number table designed by an online company."
Allocation concealment (selection bias)	Unclear risk	Cite: "An outside co-worker safeguarded the sequence for those participating in the study."
Blinding of participants and personnel (performance bias)	Low risk	Cite: "Participants and evaluators who collected data were unaware of the treatment allocation group and the aims of the study to ensure participant blinding and outcome assessor blinding."
Blinding of outcome assessment (detection bias)	Low risk	Cite: "Participants and evaluators who collected data were unaware of the treatment allocation group and the aims of the study to ensure participant blinding and outcome assessor blinding."
Incomplete outcome data (attrition bias)	Low risk	No dropouts according to the tables
Selective reporting (reporting bias)	Low risk	Reported all the outcomes
Other bias	Unclear risk	Cite: "No competing financial interests exist."

APPENDIX VIII: Characteristics of studies

Sherman 1997

Methods	RCT. single centre; two parallel studies;
Participants	21 patients: 85.7% women; group A mean age 30 (SD±8.4), group B mean age 36 (SD±14.4) Inclusion criteria: no experience with relaxation training. Exclusion criteria: inflammation of the mouth or body; infections, tumour, or degenerative joint disease; history of alcohol or other substance abuse; recent dental surgery, invasive dental work, or open sores in the mouth; treatment with medications likely to have important immune or psychologic effects, such as antibiotics, corticosteroids, antidepressants, and hormonal agents. Country: USA Clinic: Orofacial Pain Centre at the University of Kentucky Dental School
Interventions	Group A (n=10): relaxation training Group B (n=10): rested for an equivalent time
Outcomes	Salivary immunoglobulin A (radial immunodiffusion method) Mood (Emotion Assessment Scale (EAS)) Pain (MPQ-SF) Tension levels (Tension Mannequin Scale (TMS))
Chronicity	Unclear (low disability)
Hints for chronicity	Exclusion: treatment with medications likely to have important immune or psychological effects.
Duration	No follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Participants were randomly assigned to one of two groups
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Low risk	Cite: "One participant was unable to expectorate at time 2, so her S-IgA data were not included in the analyses."
Selective reporting (reporting bias)	Low risk	All outcomes reported
Other bias	Unclear risk	Cite: "No statistically significant differences were found between groups for any of the measured variables at baseline"

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Tavera 2012

Methods	RCT. single centre, three parallel groups.
Participants	175 patients: 80% women; mean age Group A 37.3 (SD±10.6); Group B 38.0 (SD±11.0); Group C 36.3 (SD±13.0). Inclusion criteria: jaw pain or dysfunction; completed informed consent process; RDC/TMD diagnosis (at least one of the following: myofascial pain, arthralgia, disc displacement with reduction); presence of one or more of the following findings associated with pain as demonstrated with a VAS score of >4: increased (>60 mm) or decreased (<40 mm) range of inter incisal jaw opening, pain upon any jaw movement, pain on digital palpation (1 lb pressure) of the periauricular area or external auditory meatal areas, pain on digital palpation (1 lb pressure) in two or more muscles of mastication, or joint sound with pain. Exclusion criteria: diagnosis of rheumatoid arthritis; osteoarthritis; osteoarthrosis or another connective tissue disorder; a history of direct trauma to the jaw; use of an occlusal appliance to treat a TMD within the previous six months; prior TMJ or ear surgery; physical/behavioural disorder, which, in the opinion of the principal investigator, would interfere with the use of the device or compliance with the study protocol; unsuitable ear canal anatomy not allowing for fit of the study device; use of a narcotic pain medication in the last 7 days, or aspirin or a nonsteroidal anti-inflammatory agent in the last 24 hours; history of ear pain unrelated to TMJ; history of ear drainage in the past two years; active ear drainage, swelling, redness as observed on targeted physical exam; not an appropriate candidate for an intraoral splint due to missing or poor quality dentition or untreated pain of dental origin. Country: Mexico Clinic: Mexican Institute for Clinical Research (IMIC) after being evaluated and approved by both the Clinical Investigation Bioethics Committee and the Ministry of Health
Interventions	Group A (n=67(60)): TMDes (ear system) device (all day wearing) Group B (n=71(64)): stabilization splint Group C (n=37(28)): jaw exercise + heat application for 10 min
Outcomes	Craniomandibular Index (CMI) Pain (VAS) Subjective pain (Symptom Severity Index, SSI) TMJ Scale
Chronicity	Low disability
Hints for chronicity	No treatment before Recruitment via advertising
Duration	3 months
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence	Unclear risk	Cite: „...were randomly assigned“.

generation (selection bias)		
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	High risk	The examiner wasn't blinded "unblinded clinical trial"
Incomplete outcome data (attrition bias)	High risk	No information about the dropouts on why. Comment: 175 subjects were randomized according to the flow chart. However, the authors write of 152 "enrolled subjects".
Selective reporting (reporting bias)	Low risk	Reported about all the outcomes stated, but pain was only reported in the form of changes
Other bias	Unclear risk	Cite: "There were no statistically significant differences in demographic or clinical characteristics between the three groups."

Taylor 1994

Methods	RCT. single centre; two parallel studies;
Participants	15 patients: 93.33 % women; age n.a. Inclusion criteria: aged between 20-35 years; suffered symptoms including pain in the region of the TMJs and masticatory and associated muscles and limited mandibular movement for at least six months; with a complete dentition to provide stable and repeatable base points for jaw measurements; decreased mandibular opening (<40mm interincisal distance); palpable tenderness in the masseter muscles. Exclusion criteria: history of severe head trauma or surgery; known cervical pathology; were not fluent in the English language; taking any medication except for occasional analgesics. Time: n.a. Country: Australia Clinic: "clinics at the Royal Dental Hospital, Melbourne"
Interventions	Group A (n=8): sham treatment Group B (n=7): mobilisation
Outcomes	Changes in mandibular movement capacity Masseter muscle EMG activity
Chronicity	Low disability
Hints for chronicity	Exclusion: medications Primary care
Duration	n.a.
Notes	

Risk of bias table

Bias	Authors'	Support for judgement

APPENDIX VIII: Characteristics of studies

	judgement	
Random sequence generation (selection bias)	Unclear risk	Cite: „...The subjects were randomly assigned to one of the two groups."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Unclear risk	No information given
Selective reporting (reporting bias)	Low risk	All outcomes were reported
Other bias	Unclear risk	No further inequalities

Tegelberg 1988

Methods	RCT. single centre; two parallel groups
Participants	60 (28 rheumatoid arthritis (RA)+32 ankylosing spondylitis (AS)) patients: 85% women. mean age Group E 48; Group C 49. Country: Sweden Clinic: Rheumatism Hospital in Strängnäs
Interventions	Group E (n=28): physical training program of the stomatognathic system for 3 weeks Group C (n=32): comparison
Outcomes	Mean clinical dysfunction score (CDS) of Helkimo Mean maximum voluntary mouth opening (mm)
Chronicity	Unclear
Hints for chronicity	None
Duration	3 weeks follow up; 3 years
Notes	Further publications: "A 3-year follow-up of temporomandibular disorders in rheumatoid arthritis and ankylosing spondylitis."(Tegelberg, 1996)

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Cite: „... were randomly allocated into two groups, E (experimental/treatment group) and C (comparison/non-treatment group)." Comment: not fully random due to the different group division
Allocation concealment (selection bias)	Unclear risk	No information given

Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Unclear risk	Cite: "All clinical examinations were performed by one examiner." but no information given
Incomplete outcome data (attrition bias)	Low risk	Comment: "28 and 32 each before and after treatment"
Selective reporting (reporting bias)	Low risk	Reported the two outcomes
Other bias	Unclear risk	No further inequalities

Tuncer 2013

Methods	RCT. single centre; two parallel groups
Participants	40 patients: 77.5% women; age 18-72 years old; mean age Group A 34.8 (SD±12.4); Group B 37.0 (SD±14.6). Inclusion criteria: diagnosis of myogenous TMD (Ia,Ib) of the RDC/TMD; presence of pain on palpation of at least three of 12 muscular points bilaterally was required; diagnosis of anterior disc displacement with reduction according (IIa); painful clicking, crepitation or pain on opening and loaded closing with reproducibility in at least two of three consecutive trials, elimination of a clicking sound on opening and closing movements from a protruded jaw test; pain that was not related to acute trauma, active inflammation or infection in the masticatory muscles/TMJ for at least 3 months. Exclusion criteria: disc displacement without reduction, arthritis or TMJ arthritis according (IIb, III); a history of chronic TMJ pain, clinical pathology, or previous surgery related to the masticatory system or cervical spine; history of TMD treatment within the previous 3 months; neurological/ psychiatric disorders that could interfere with the procedure and intake of any medication that affects the musculoskeletal system. Country: Turkey Clinic: Hacettepe University, Faculty of Dentistry
Interventions	Group A (n=20): HPT (Home physical therapy) Group B (n=20): MT in conjunction with home physical therapy (MTeHPT)
Outcomes	Pain intensity at rest, at stress (VAS) Pain-free maximum mouth opening (mm)
Chronicity	Low disability
Hints for chronicity	Cite: "Exclusion criteria: ... a history of chronic TMJ pain, clinical pathology, or previous surgery related to the masticatory system or cervical spine; history of TMD treatment within the previous 3 months; neurological/ psychiatric disorders that could interfere with the procedure and intake of any medication that affects the musculoskeletal system."
Duration	4 weeks treatment; no follow up
Notes	Further publications: "Temporomandibular disorders treatment: comparison of home exercise and MT" (Tuncer, 2013)

APPENDIX VIII: Characteristics of studies

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "computer-generated randomization list, each subject was allocated to one of the treatment groups."
Allocation concealment (selection bias)	Unclear risk	Cite: „...numbers to conceal their names and designated groups.
Blinding of participants and personnel (performance bias)	Unclear risk	Cite: "All subjects were informed about the treatments; however, the control treatment was not disclosed. In addition, subjects were instructed not to mention their group and treatment during clinical evaluation." Comment: not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Low risk	Cite: „...was blinded to the subjects' groups. After four weeks of treatment, the patients' final assessments were recorded by the same physical therapist."
Incomplete outcome data (attrition bias)	Low risk	Cite: "All subjects completed the four-week intervention with no adverse effects."
Selective reporting (reporting bias)	Low risk	Reported all the outcomes stated
Other bias	Unclear risk	No further inequalities. "There were no statistically significant differences between the two groups in age, height, weight, complaint duration, diagnosis, affected side, VAS at rest, VAS with stress and pain-free MMO ($p > 0.05$) at baseline."

Wright 2000

Methods	RCT. single centre; parallel studies;
Participants	60 patients: 85 % women; age 18-56 years mean age group A 32.7; mean age group B 30.8. Inclusion criteria: TMD pain for at least six months; rated the pain as at least moderate in severity; must live within a 90-minute drive from the clinic; not have been receiving any treatment for TMD at the onset of the study (for example, an occlusal splint, prescription medication); TMD pain must have been of masticatory muscle origin." Exclusion criteria: excluded 43 patients from consideration because their pain had been present for less than six months or they rated it as less than moderate in severity.
Interventions	Group A (n=30): posture training TMD self-management instructions Group B (n=30): TMD self-management instructions only
Outcomes	Modified SSI Maximum pain-free opening Muscle pain threshold (pressure algometer)
Chronicity	Low disability
Hints for chronicity	No treatment for TMD before

APPENDIX VIII: Characteristics of studies

Duration	4 weeks follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	No information given
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Low risk	Cite: "The examiner (E.W.) was blinded to the assigned groups and the subjects in the treatment group were referred to a physical therapist (M.D.), who also was blinded to the previously collected data."
Incomplete outcome data (attrition bias)	High risk	Cite: "Sixty-one patients agreed to participate in the study (one later withdrew)" Comment: no information is given about the belonging of the drop out
Selective reporting (reporting bias)	Low risk	All outcomes were reported
Other bias	Unclear risk	No further inequalities

Wänman 2020

Methods	RCT. single centre; three parallel studies;
Participants	90 patients: 70 % women; mean age 39.2 (SD±15.2); Inclusion criteria: age between 18-70 years; accommodation in Umea Municipality's proximity; able to understand Swedish, orally and written; no major psychiatric diagnosis; no ongoing dental; medical or physiotherapeutic treatments related to the patient's symptom that may interfere with the study, no active rheumatologic disease, and no malignant disease. Exclusion criteria: history of severe head trauma or surgery; known cervical pathology; if they were not fluent in the English language and/or if they were taking any medication except for occasional analgesics; chronic TMJ and associated muscle symptoms and signs. Time: n.a. Country: Sweden Clinic: Clinical Oral Physiology department in Umea
Interventions	Group A (n=30): bite splint Group B (n=30): home exercise Group C (n=30): supervised exercise program

Outcomes	Jaw function limitation scale-20 (JFLS-20) Neck disability Index (NDI) TMJ clicking sounds % Locking of the jaw % Pain in jaw TMJ, temples % Pain in jaw, TMJ, temples during jaw movements % Severity of TMJ sounds (0-50) Severity of TMJ locking (0-50) Severity of jaw pain (0-50) NDI mean Depression sum mean Somatisation sum mean JFLS-20 Jaw opening (mm); Laterotrusion right (mm); Laterotrusion left (mm); Protrusion (mm)
Chronicity	Low disability
Hints for chronicity	GCPS given (97.2% Group 0-II)
Duration	3 months follow up
Notes	

6.1.1.2 Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: "SPSS 20 (randomised numbers)"
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Low risk	Cite: "The examiner was always blinded to the participant's intervention"
Incomplete outcome data (attrition bias)	Low risk	Cite: "Used intention-to-treat and described about the dropouts in detail."
Selective reporting (reporting bias)	Low risk	All outcomes were reported
Other bias	Unclear risk	Cite: "No significant difference between treatment groups."

Yoshida 2011

Methods	RCT. single centre; two parallel groups
Participants	148 patients: 100% women; age 19-75 years; mean age Group A 41; Group B 39.

APPENDIX VIII: Characteristics of studies

	Inclusion criteria: previous clicking of the TMJ; limitation of mouth-opening immediately after the joint had stopped clicking, with or without slight translation of the condyle; limitation of lateral movement away from the affected side; and deviation of the mandible to the affected side on opening the mouth. Exclusion criteria: inability to understand the proposed exercise; age less than 18 years old; current orthodontic treatment; bilateral closed lock; history of drug misuse; history of psychoses; presence of edentulous sites; dental infection or other local dental disease in need of urgent treatment; clear maxillo-mandibular developmental abnormality such as hypertrophy of the facial muscles; unilateral maxillo-mandibular hyperplasia; hypoplasia. Time: April 2006-March 2008 Country: Japan Clinic: First Department of Oral and Maxillofacial Surgery, Osaka Dental University, 1-5-17 Otemae, Chuoku, Osaka 540-0008
Interventions	Group A (n=74): experimental group was treated with exercises of the mandibular condyle Group B (n=74): control group
Outcomes	Maximum mouth-opening (mm) Protrusion, and lateral excursive movements (mm)
Chronicity	Low disability
Hints for chronicity	1. The mean duration of symptoms before the initial consultation was 50 days (range 1–360). The mean duration of symptoms before the initial consultation in the experimental group was 47 days (range 1 day–9 months), and in the control cases 52 days (range 2 days–11 months). 2. Exclusion: history of drug misuse or psychoses
Duration	No follow up
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Cite: „...truncated binomial design."
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information given
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Low risk	No dropouts according to the tables
Selective reporting (reporting bias)	Low risk	Reported about all the outcomes
Other bias	Unclear risk	No further inequalities

APPENDIX VIII: Characteristics of studies

Yu 2016

Methods	RCT. single centre; four parallel
Participants	168 patients: 88.69% women; mean age 35.79 (SD±8.91) years. Inclusion criteria: according to RCD/TMD diagnostic criteria for irreversible displacement of the articular disc; natural teeth and the dentition is intact; had not received temporomandibular treatment in the past 3 month. Exclusion criteria: diagnosed as other according to RCD/TMD diagnostic classification criterion types of jaw joint disease; there are other physical illness; trauma to the maxillofacial region; degree of opening is severely affected restricted; the element method is completed to make the occlusal cushion impression; dental abrasion the straight height is significantly reduced; mental disorders. Time: February 2013-March 2015 Country: China Clinic: Department of Prosthodontics of Shangai Ninth People's Hospital
Interventions	Group A (n=42): Michigan Splint (wearing for at least 20 hours a day, excluding mealtimes) Group B (n=42): combination of manipulative and physical therapies group Group C (n=42): stabilization splint combination of manipulative and physical therapies Group D (n=42): control group (consulting only)
Outcomes	Spontaneous masticatory muscle pain (VAS) Palpation pain (VAS) Chewing pain (VAS) Pain-free maximum active mouth opening (mm)
Chronicity	Low disability
Hints for chronicity	Cite: "who visited the Department of Prosthodontics of Shanghai Ninth People's Hospital affiliated to Shanghai Jiao Tong University School of Medicine" per mail: "Only 3 patients had the previous history of TMD treatment and the most recent one was 1 year prior to this study. Severe psychological disease was one of the exclusive criteria of the study, whereas Axis II of the RDC/TMD was not applied in clinical diagnosis because the whole research was done in dental clinic without the assistance of psychiatric specialist." per mail: "No participant showed any spreading pain in other body regions."
Duration	3 months treatment
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	per Mail: "The research was a prospective, single-blinded randomized study. Stratified randomization by gender was occupied due to the gender predominance of TMDs as women

APPENDIX VIII: Characteristics of studies

		are affected more often than men."
Allocation concealment (selection bias)	Unclear risk	per Mail: "We provide the opaque envelopes for allocation concealment." per Mail: "3. The envelopes were done by GCP office in my hospital and kept by PI."
Blinding of participants and personnel (performance bias)	Low risk	Not possible due to the different therapies
Blinding of outcome assessment (detection bias)	Low risk	per Mail: "The outcome assessor was blinded to the interventions."
Incomplete outcome data (attrition bias)	Low risk	per Mail: "11 participants dropped out during the trail." per Mail: "1. In 11 participants who dropped out, six of them didn't finish the whole follow-up visit due to the personal reasons, two of them lost contact (couldn't get in touch by changing their contact information) and remaining three got some systemic disease which led to quit the study. 2. Two participants belong to Group 1, three participants belong to Group 2, one participant belongs to Group 3 and remaining five participants belong to Group 4." Comment: relatively balanced dropouts, although unfortunately most dropouts were found in the control group. No statistically significant influence on the result and no fraudulent intentions of the author are suspected.
Selective reporting (reporting bias)	Low risk	Reported all the outcomes
Other bias	Unclear risk	No other complicities

Characteristics of excluded studies physiotherapy

Aksu 2019

Reason for exclusion	All intervention received the same intervention

Alajbeg 2015

Reason for exclusion	N too small (n=6) per group

Amorim 2014

Reason for exclusion	Patients were suffering of bruxism

Ardic 2002

Reason for exclusion	All received trapezius-stretching exercises

APPENDIX VIII: Characteristics of studies

Bakke 2008

Reason for exclusion	study group too small

Biasotto-Gonzalez 2013

Reason for exclusion	Abstract

Bu 2011

Reason for exclusion	No relevant outcomes

Calixtre 2017

Reason for exclusion	Further publication to Calixtre 2019

Cavalcanti 2016

Reason for exclusion	Laser treatment

Comino 2018

Reason for exclusion	Abstract only

Craane 2012

Reason for exclusion	Outcomes not comparable as the results were from an acute phase

Da Costa 2016

Reason for exclusion	Back pain, no TMD

De Laat 2003

Reason for exclusion	This study compares the same intervention with different durations

DeVocht 2012

Reason for exclusion	Poster

Dohrmann 1978

Reason for exclusion	Cannot compare the two interventions

APPENDIX VIII: Characteristics of studies

El Hage 2013

Reason for exclusion	Study protocol

Elgohary 2018

Reason for exclusion	Head and neck cancer

Ficnar 2013

Reason for exclusion	No combination of treatment

Furto 2006

Reason for exclusion	Not randomized

Goldstein 1985

Reason for exclusion	Study group too small

Gomes 2014

Reason for exclusion	No relevant outcomes

Grace 2002

Reason for exclusion	Non-random approach reported: "Systematic randomization" according to patient's admission

Hülse 2019

Reason for exclusion	Not randomized

Jadidi 2008

Reason for exclusion	Study group too small

Kalamir 2010

Reason for exclusion	Further publications to Kalamir et al.

Katyayan 2014

Reason for exclusion	Wrong intervention

APPENDIX VIII: Characteristics of studies

Kise 2006

Reason for exclusion	Study population too small

Kokkola 2018

Reason for exclusion	Combination of therapy

Lucas 2018

Reason for exclusion	Study protocol

Makino 2014

Reason for exclusion	Intractable Persistent Dentoalveolar Pain Disorder

Melchior 2019

Reason for exclusion	Not randomized

Michelotti 2000

Reason for exclusion	Further publication Michelotti 2004

Minakuchi 2001

Reason for exclusion	Combination of therapy and not splitable

Monaco 2008

Reason for exclusion	Used children

Nagata 2015

Reason for exclusion	Combination of therapies and not splitable

Nct 2017

Reason for exclusion	Combination of therapies and not splitable

Niemelä 2012

Reason for exclusion	All received physiotherapy

APPENDIX VIII: Characteristics of studies

Nitecka-Buchta 2014

Reason for exclusion	Wrong intervention

Oh 2013

Reason for exclusion	Sample size too small

Okada-Ogawa 2019

Reason for exclusion	Outcomes were not relevant

Okumus 2013

Reason for exclusion	Abstract only

Oliveira 2015

Reason for exclusion	All received physiotherapy

Oliveira-Campelo 2010

Reason for exclusion	No symptoms were present in these subjects

Packer 2015

Reason for exclusion	Further publication to Packer et al. 2014

Plaza-Manzano 2020

Reason for exclusion	No, further publication to Delagado de la Serna

Qvintus 2015

Reason for exclusion	Combination of therapies

Salom-Moreno 2016

Reason for exclusion	Further publications to Touche et al. 2009

Shepherd 2009

Reason for exclusion	Study protocol

APPENDIX VIII: Characteristics of studies

Shin 1997

Reason for exclusion	Wrong intervention

Tegelberg 1996

Reason for exclusion	Further publication to Tegelberg et al.1988

Thorp 2020

Reason for exclusion	Not randomized

Treacy 1999

Reason for exclusion	No TMD

Truelove 2006

Reason for exclusion	Wrong intervention

Tuncer 2013

Reason for exclusion	Further publication to Tuncer et al. 2013

Turk 1993

Reason for exclusion	No physiotherapy

Ucar 2014

Reason for exclusion	Both groups received physiotherapy

von Piekartz 2013

Reason for exclusion	TMD was not the main dysfunction

Vos 2013

Reason for exclusion	Abstract only

Watanabe 2011

Reason for exclusion	No relevant outcomes

APPENDIX VIII: Characteristics of studies

Wieselmann-Penkner 2001

Reason for exclusion	No relevant outcomes

Xue 2007

Reason for exclusion	No relevant outcomes

Yang 2018

Reason for exclusion	No control group

Yoda 2003

Reason for exclusion	No painful TMD

Yuasa 2001

Reason for exclusion	Combination of medication and physiotherapy, not comparable

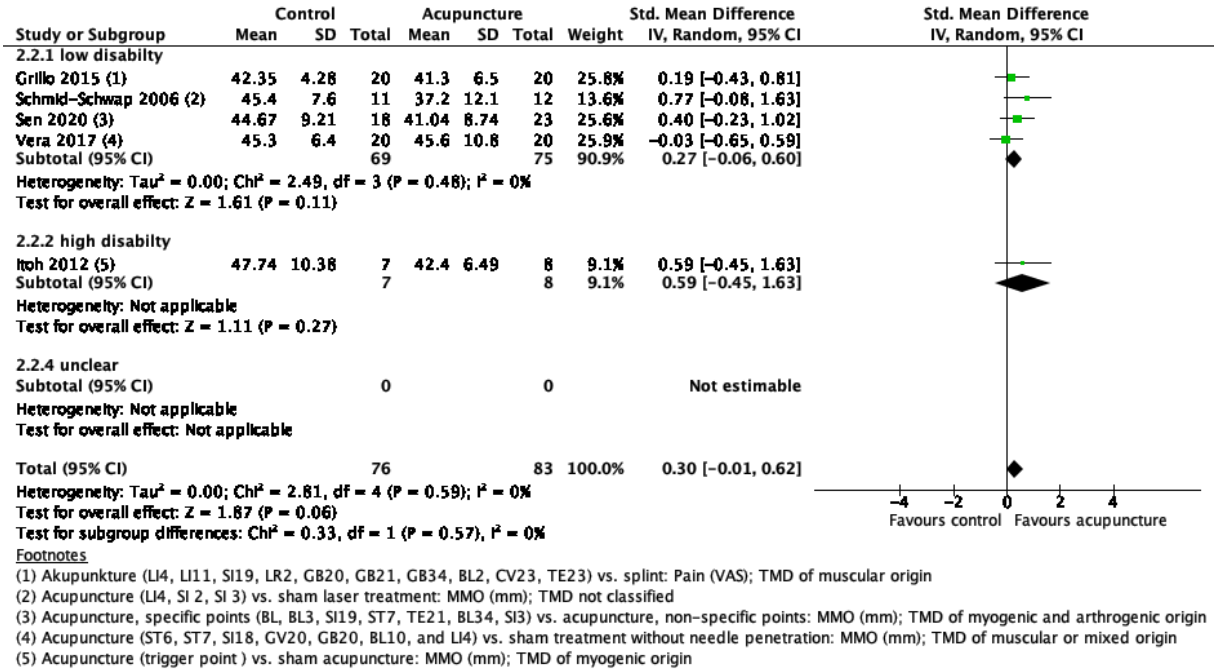
Öhrnell 2019

Reason for exclusion	Used conventional therapy

APPENDIX IX: Forest plots

The forest plots attached here show further results of the present research work. To focus on the results with statistical significance, the results without statistical significance were not explained in the main text and are included here for the sake of completeness.

Acupuncture

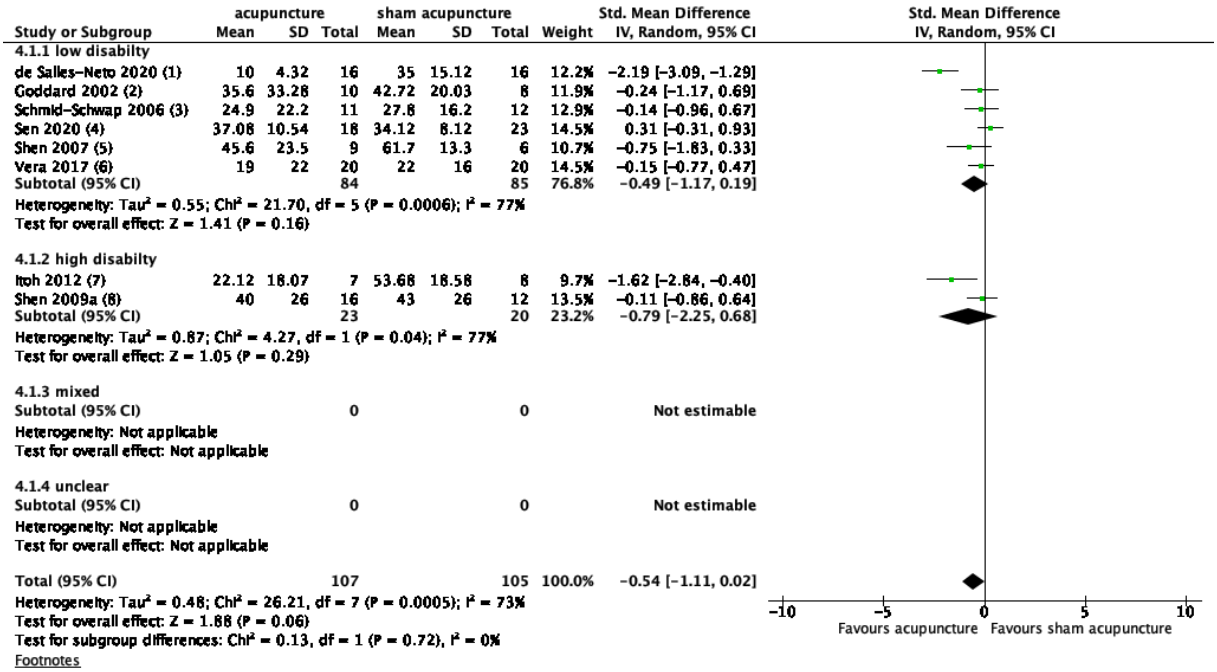


Footnotes

(1) Akupunkture (LI4, LI11, SI19, LR2, GB20, GB21, GB34, BL2, CV23, TE23) vs. splint: Pain (VAS); TMD of muscular origin
(2) Acupuncture (LI4, SI 2, SI 3) vs. sham laser treatment: MMO (mm); TMD not classified
(3) Acupuncture, specific points (BL, BL3, SI19, ST7, TE21, BL34, SI3) vs. acupuncture, non−specific points: MMO (mm); TMD of myogenic and arthrogenic origin
(4) Acupuncture (ST6, ST7, SI18, GV20, GB20, BL10, and LI4) vs. sham treatment without needle penetration: MMO (mm); TMD of muscular or mixed origin
(5) Acupuncture (trigger point) vs. sham acupuncture: MMO (mm); TMD of myogenic origin

Figure 71: Acupuncture vs. control (outcome: maximum mouth opening; timeframe: less than six months) low disability= acute pain; high disability = chronic pain; mixed = acute and chronic pain; unclear = pain not identified

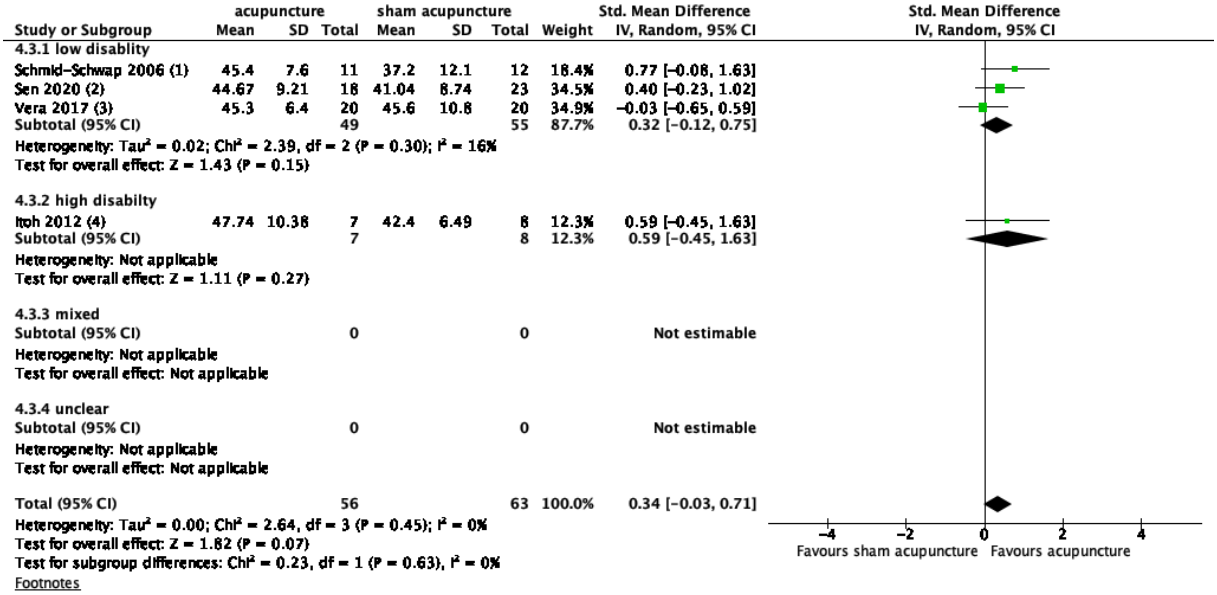
APPENDIX IX: Forest plots



Footnotes

(1) Acu. (4-Hegu, 34-Yanglingquan, 18-Quanliao, 19-Tinggong, 6-Jiache, 7-Xiaguam, 20-Fengchi) vs. placebo acu.: Pain (VAS); TMD of myogenic origin
(2) Acupuncture (LI4, ST6) vs. sham acupuncture: Pain (VAS); TMD of myogenic origin
(3) Acupuncture (LI4, SI 2, SI 3) vs. sham laser treatment: Pain (VAS); TMD not classified
(4) Acupuncture, specific points (BL, BL3, SI19, ST7, TE21, BL34, SI3) vs. acupuncture, non-specific points: Pain (CPI); TMD of myogenic and arthrogenic origin
(5) Acupuncture (Li4) vs. sham acupuncture: Pain (VAS); TMD of myogenic origin
(6) Acupuncture (ST6, ST7, SI18, GV20, GB20, BL10, and LI4) vs. sham treatment without needle penetration: Pain (NVAS); TMD of muscular or mixed origin
(7) Acupuncture (trigger point) vs. sham acupuncture: Pain (VAS); TMD of myogenic origin
(8) Acupuncture (LI4) vs. sham acupuncture: Pain (VAS); TMD of myogenic origin

Figure 72: Acupuncture vs. sham acupuncture (outcome: change in pain intensity; timeframe less than six months) low disability = acute pain; high disability = chronic pain; mixed = acute and chronic pain; unclear = pain not identified



Footnotes

(1) Acupuncture (LI4, SI 2, SI 3) vs. sham laser treatment: MMO (mm); TMD not classified
(2) Acupuncture, specific points (BL, BL3, SI19, ST7, TE21, BL34, SI3) vs. acupuncture, non-specific points: MMO (mm); TMD of myogenic and arthrogenic origin
(3) Acupuncture (ST6, ST7, SI18, GV20, GB20, BL10, and LI4) vs. sham treatment without needle penetration: MMO (mm); TMD of muscular or mixed origin
(4) Acupuncture (trigger point) vs. sham acupuncture: MMO (mm); TMD of myogenic origin

Figure 73: Acupuncture vs. sham acupuncture (outcome: maximum mouth opening; timeframe: less than six months) low disability= acute pain; high disability = chronic pain; mixed = acute and chronic pain; unclear = pain not identified

APPENDIX IX: Forest plots

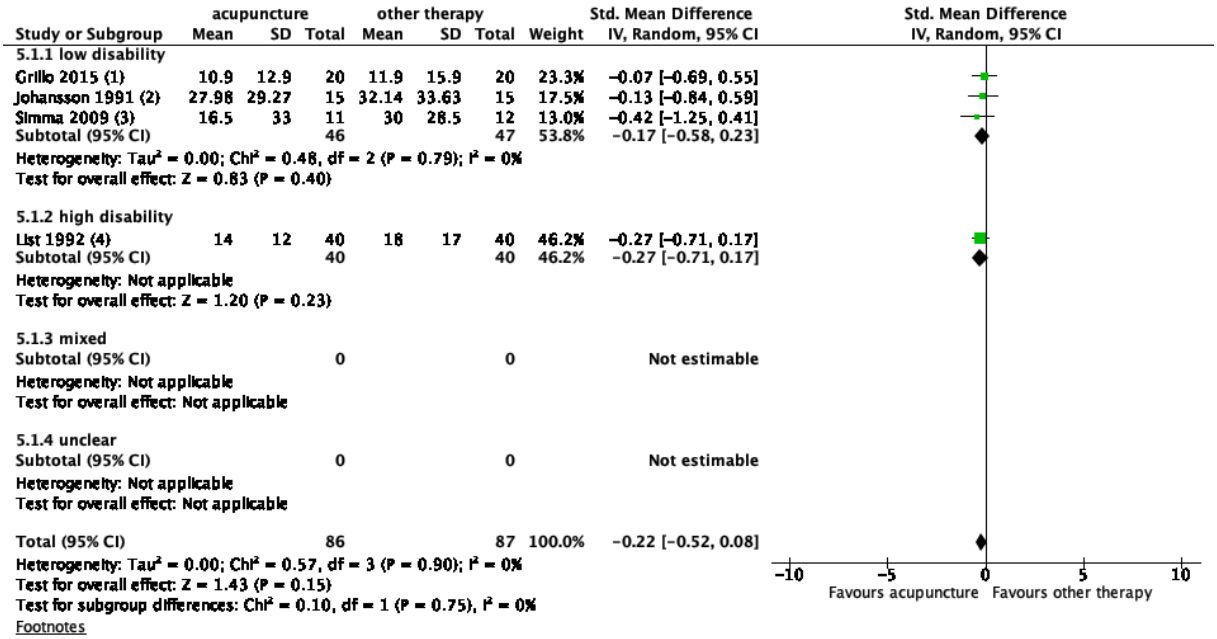


Figure 74: Acupuncture vs. other treatment (outcome: change in pain intensity; timeframe: less than six months) low disability= acute pain; high disability = chronic pain; mixed = acute and chronic pain; unclear = pain not identified

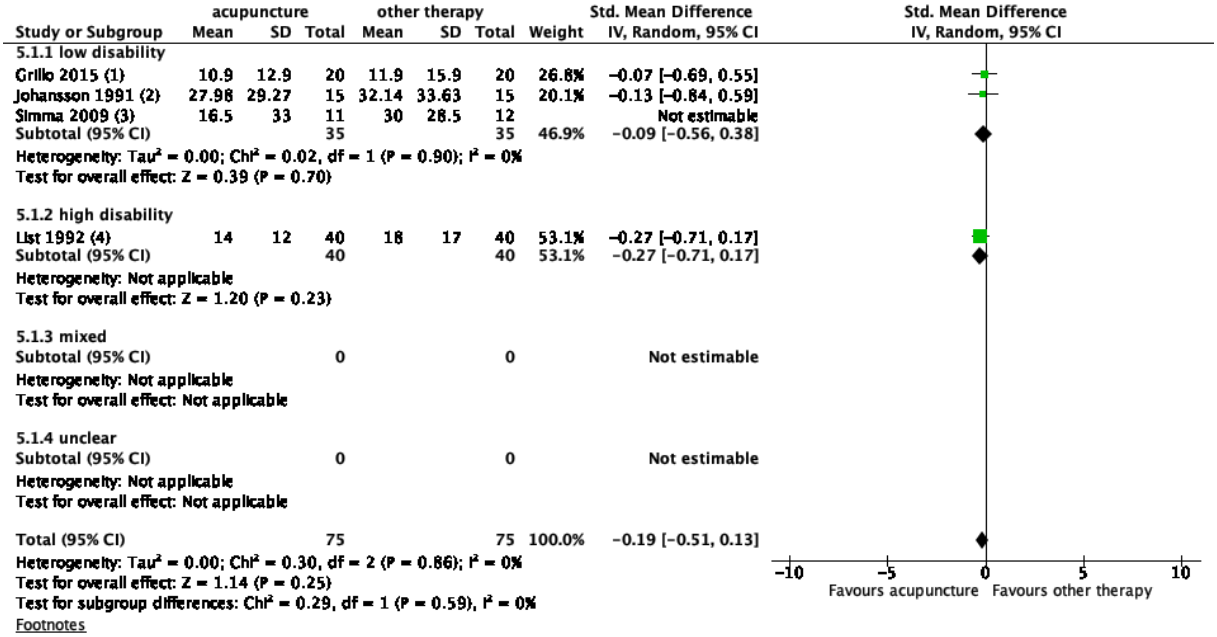
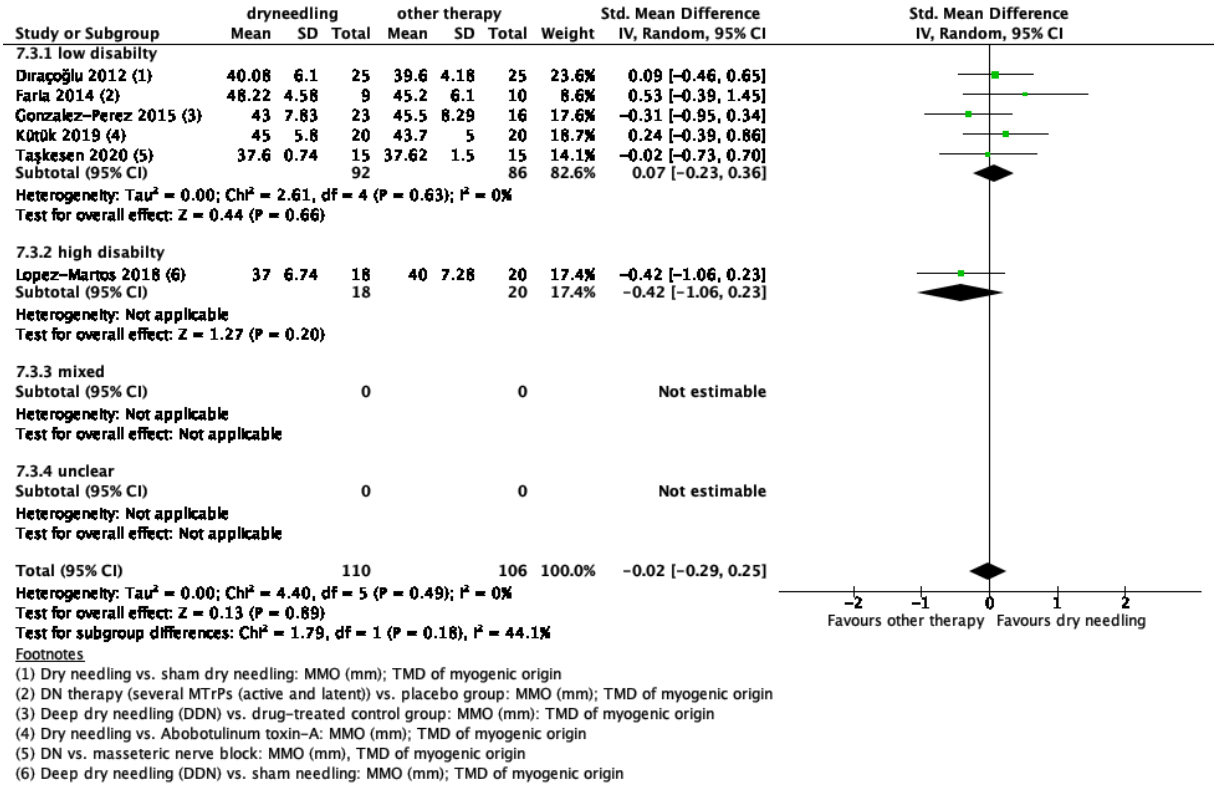


Figure 75: Acupuncture vs. other treatment (outcome: change in pain intensity; timeframe: less than six months) low disability= acute pain; high disability = chronic pain; mixed = acute and chronic pain; unclear = pain not identified; sensitivity analysis: splint control only

APPENDIX IX: Forest plots



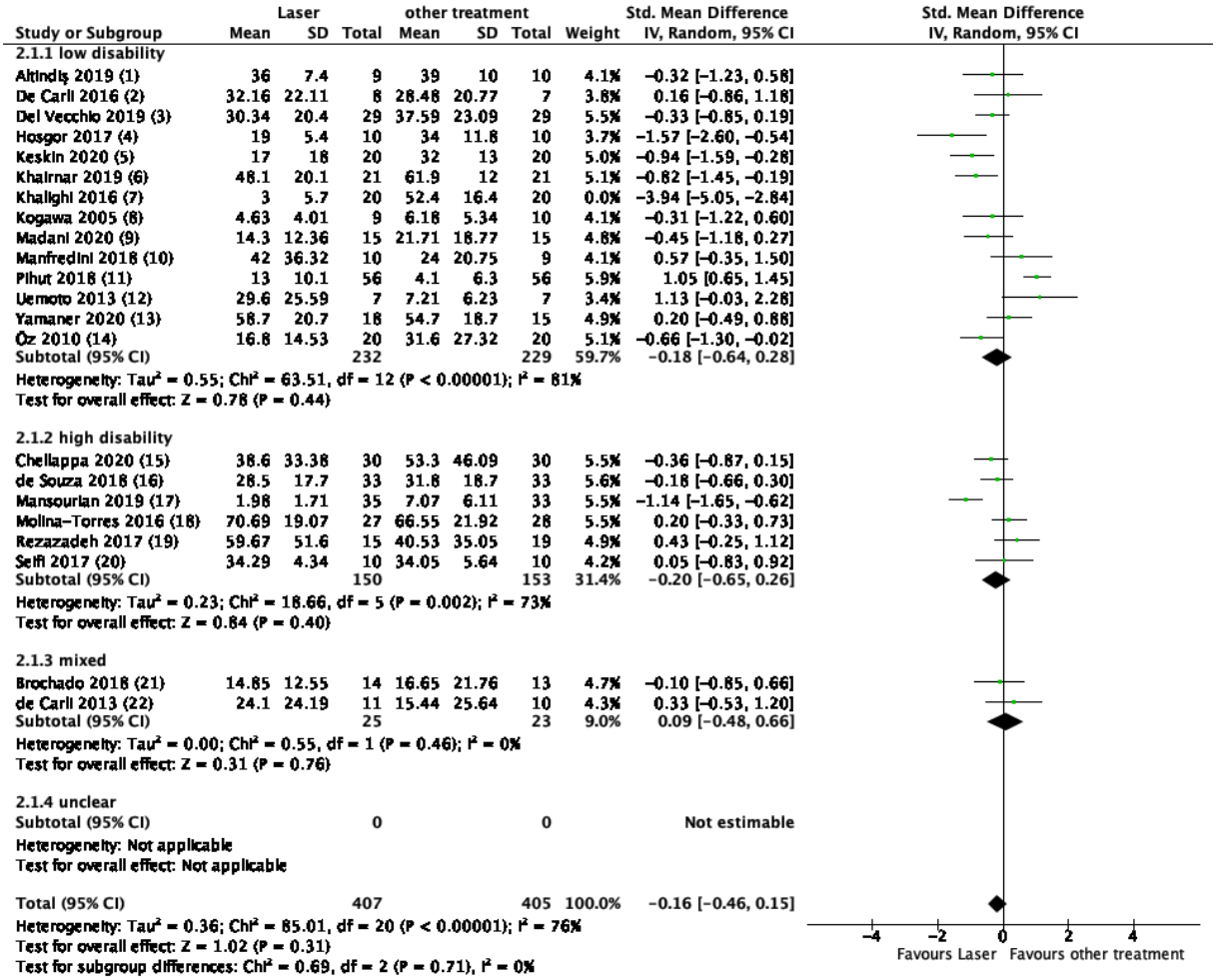
Footnotes

(1) Dry needling vs. sham dry needling: MMO (mm); TMD of myogenic origin
(2) DN therapy (several MTrPs (active and latent)) vs. placebo group: MMO (mm); TMD of myogenic origin
(3) Deep dry needling (DDN) vs. drug−treated control group: MMO (mm): TMD of myogenic origin
(4) Dry needling vs. Abobotulinum toxin−A: MMO (mm); TMD of myogenic origin
(5) DN vs. masseteric nerve block: MMO (mm), TMD of myogenic origin
(6) Deep dry needling (DDN) vs. sham needling: MMO (mm); TMD of myogenic origin

Figure 76: Dry needling vs. other treatment (outcome: change in maximum mouth opening; timeframe: less than six months) low disability= acute pain; high disability = chronic pain; mixed = acute and chronic pain; unclear = pain not identified

APPENDIX IX: Forest plots

Laser

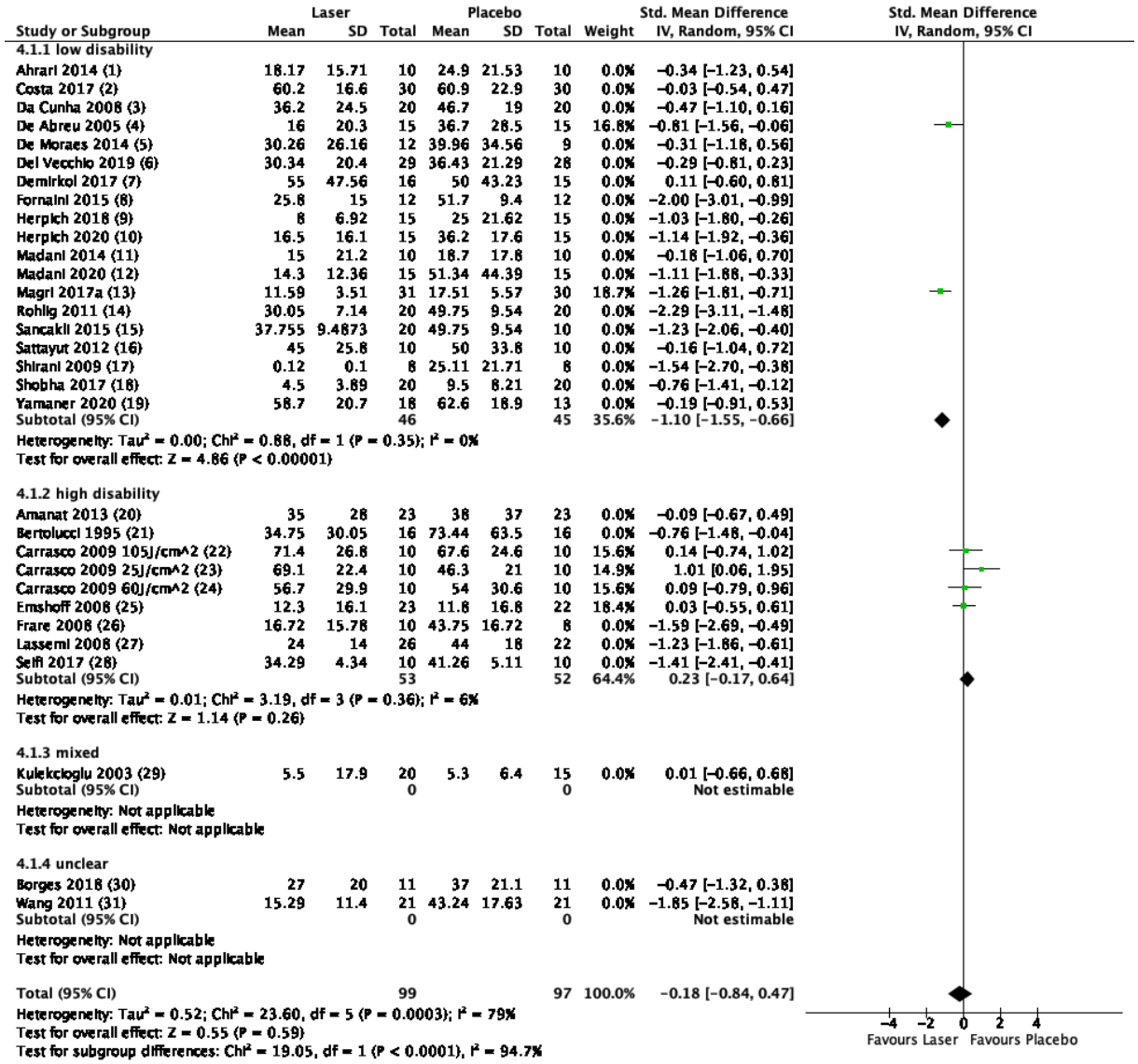


Footnotes

(1) Diode laser vs splint: Pain (11−points NS); TMD of muscular origin
(2) GaAlAs laser vs. botulinum toxin: Pain (VAS); TMD of muscular origin
(3) Laser vs conventional drugs: Pain (VAS); TMD of muscular and articular origin
(4) Nd:YAG laser vs Splint: Pain (VAS); TMD of muscular and articular origin
(5) Diode laser vs NSAID therapy and occlusal splint therapy: Pain (VAS); disc displacement with reduction
(6) Type Class III B and Class 2M laser machine LLLT vs ultrasound therapy: Pain (VAS); TMD of articular origin
(7) GaAlA laser vs Naproxen: Pain (VAS); TMD of muscular origin
(8) GaAlA laser vs MENS: Pain (VAS); TMD of muscular and articular origin
(9) GaAlAs LLLT vs laser acupuncture therapy: Pain (VAS); TMD of muscular and articular origin
(10) Mphi Device Laser vs OA: Pain (VAS); TMD of muscular origin
(11) Biostimulation laser va OA: Pain (VNRS); TMD of muscular and articular origin
(12) Infrared laser vs needling group: Pain (VAS); TMD of muscular origin
(13) Infra red laser vs Ozone Group: Pain (VAS); disc displacement with reduction
(14) Diode laser vs OA: Pain (VAS); TMD of muscular origin
(15) Diode LLLT vs TENS: Pain (VAS); TMD of muscular and articular origin
(16) GaAlAs laser vs anaesthetic infiltration: Pain (VAS); TMD of muscular origin
(17) GAAlAr LLLT vs TENS: Pain (VAS); TMD of muscular origin
(18) Laser vs OA: Pain (VAS); TMD of muscular and articular origin
(19) GaAlAs laser vs TENS : Pain (VAS); TMD of muscular origin
(20) GaAlAs laser vs TENS: Pain (VAS); TMD of muscular and articular origin
(21) Biostimulation laser vs manual therapy: Pain (VAS); TMD of muscular and articular origin
(22) GaAlAs laser vs placebo laser + piroxicam: Pain (VAS); TMD of muscular origin

Figure 77: Laser vs. other treatment (outcome: change in pain intensity, timeframe: less than six months) low disability= acute pain; high disability = chronic pain; unclear = pain not identified; sensitivity analysis: excluding the outlier Khaligli et al. 2016

APPENDIX IX: Forest plots

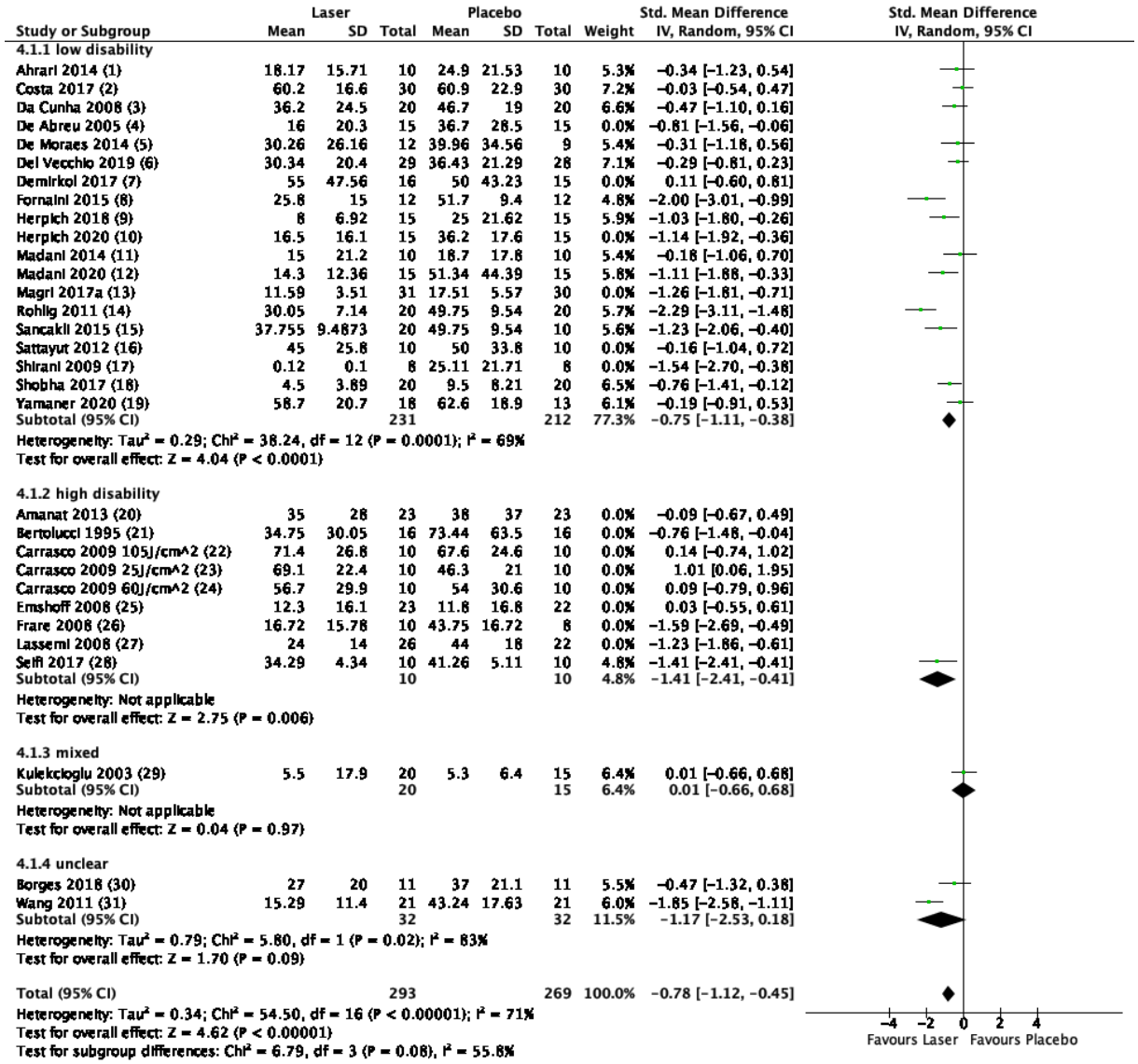


Footnotes

(1) GaAlAs laser vs placebo: Pain (VAS); TMD of muscular origin
(2) Biostimulation laser vs placebo: Pain (VAS); TMD of muscular and articular origin
(3) GaAlAs laser vs placebo: Pain (VAS); TMD of muscular origin
(4) GaAlAs laser vs placebo; Pain (VAS); TMD of muscular and articular origin
(5) GaAlAs laser vs placebo: Pain (VAS); TMD of muscular and articular origin
(6) Laser vs placebo: Pain (VAS); TMD of muscular and articular origin
(7) Nd:YAG laser vs placebo: Pain (VAS); TMD of muscular origin
(8) GaAlAs laser vs placebo: Pain (VAS); TMD of articular origin
(9) Laser superpulsed vs placebo: Pain (VAS); TMD of muscular origin
(10) Laser superpulsed vs placebo: Pain (VAS); TMD of muscular and articular origin
(11) Mustang 2000z, Moscow, Russia Laser vs placebo: Pain (VAS); TMD of muscular and articular origin
(12) GaAlAs LLLT vs placebo: Pain (VAS); TMD of muscular and articular origin
(13) GaAlAs laser vs placebo: Pain (VAS); TMD of muscular and articular origin
(14) GaAs laser vs placebo: Pain (VAS); TMD of muscular origin
(15) GaAs laser vs placebo: Pain (VAS); TMD of muscular origin
(16) GaAlAs laser vs placebo: Symptom severity index (SSI); TMD of muscular and articular origin
(17) GaAs laser vs placebo: Pain (VAS); TMD of muscular origin
(18) GaAlAs laser vs placebo: Pain (VAS) pain; TMD of muscular and articular origin
(19) Infra red laser LLLT vs Sham Laser: Pain (VAS); diagnosed with disc displacement with reduction
(20) GaAs laser vs placebo: Pain (VAS); TMD of muscular origin
(21) Infra red laser vs placebo: Pain Index (VAS); TMD of articular origin
(22) GaAlAs laser vs placebo: Pain (VAS); TMD of muscular and articular origin
(23) GaAlAs laser vs placebo: Pain (VAS); TMD of muscular and articular origin
(24) GaAlAs laser vs placebo: Pain (VAS); TMD of muscular and articular origin
(25) HeNe laser versus placebo: Pain (VAS); TMD of muscular and articular origin
(26) GaAs laser vs placebo: Pain (VAS); TMD of muscular and articular origin
(27) GaAs laser vs placebo: Pain (VAS); TMD of muscular origin
(28) GaAlAs laser vs sham laser: Pain (VAS); TMD of muscular and articular origin
(29) GaAs laser vs placebo: Pain (VAS), TMD of muscular and articular origin
(30) GaAlAs laser vs placebo: Pain (VAS); TMD of muscular and articular origin
(31) GaAlAs laser vs placebo: Pain (VAS); TMD of muscular and articular origin

Figure 78: Laser vs. placebo (Outcome: change in pain intensity, timeframe: less than six months) low disability= acute pain; high disability = chronic pain; unclear = pain not identified. Sensitivity analysis wavelength 780nm-799nm only

APPENDIX IX: Forest plots

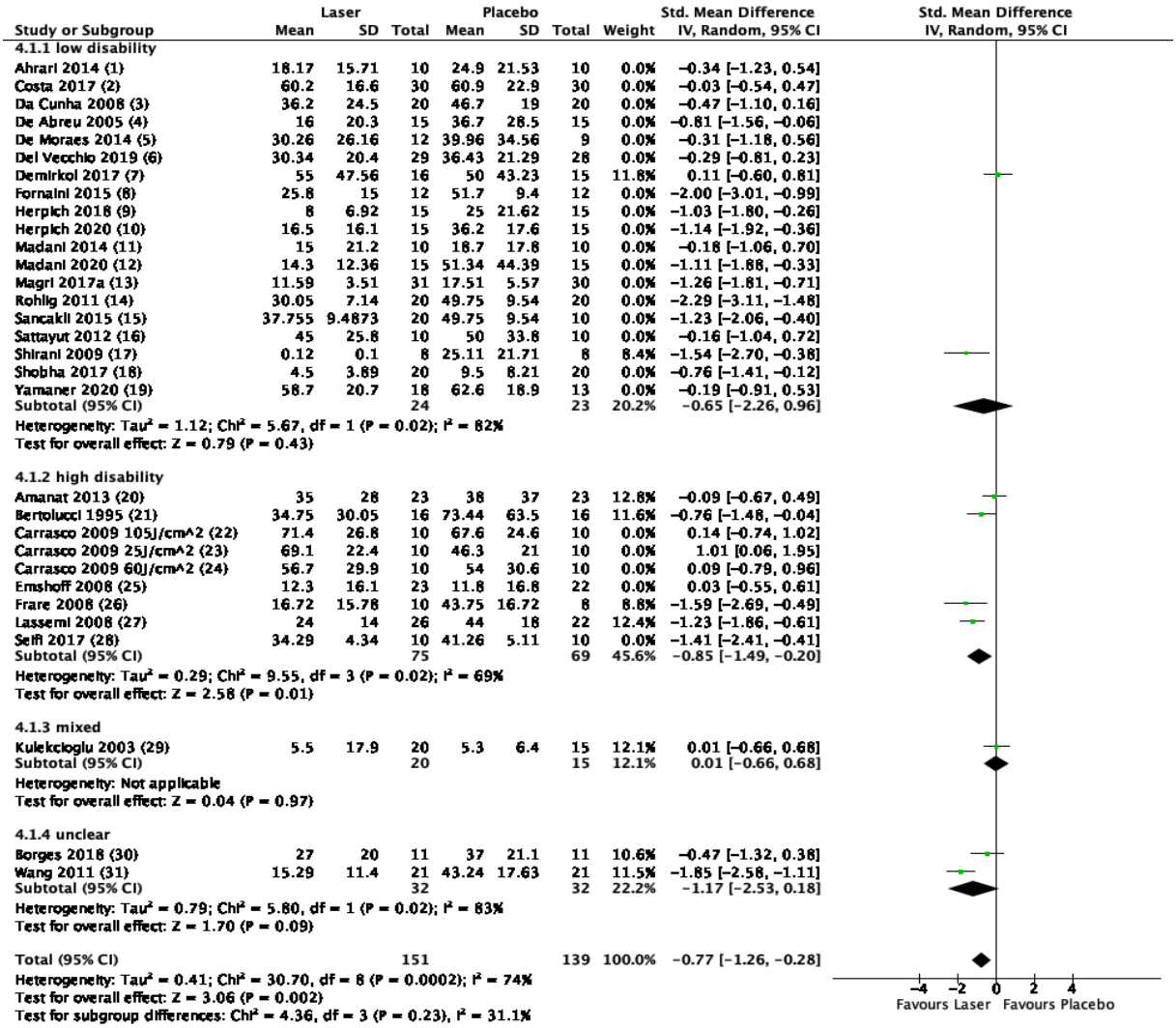


Footnotes

(1) GaAlAs laser vs placebo: Pain (VAS); TMD of muscular origin
(2) Biostimulation laser vs placebo: Pain (VAS); TMD of muscular and articular origin
(3) GaAlAs laser vs placebo: Pain (VAS); TMD of muscular origin
(4) GaAlAs laser vs placebo; Pain (VAS); TMD of muscular and articular origin
(5) GaAlAs laser vs placebo: Pain (VAS); TMD of muscular and articular origin
(6) Laser vs placebo: Pain (VAS); TMD of muscular and articular origin
(7) Nd:YAG laser vs placebo: Pain (VAS); TMD of muscular origin
(8) GaAlAs laser vs placebo: Pain (VAS); TMD of articular origin
(9) Laser superpulsed vs placebo: Pain (VAS); TMD of muscular origin
(10) Laser superpulsed vs placebo: Pain (VAS); TMD of muscular and articular origin
(11) Mustang 2000z, Moscow, Russia Laser vs placebo: Pain (VAS); TMD of muscular and articular origin
(12) GaAlAs LLLT vs placebo: Pain (VAS); TMD of muscular and articular origin
(13) GaAlAs laser vs placebo: Pain (VAS); TMD of muscular and articular origin
(14) GaAs laser vs placebo: Pain (VAS); TMD of muscular origin
(15) GaAs laser vs placebo: Pain (VAS); TMD of muscular origin
(16) GaAlAs laser vs placebo: Symptom severity index (SSI); TMD of muscular and articular origin
(17) GaAs laser vs placebo: Pain (VAS); TMD of muscular origin
(18) GaAlAs laser vs placebo: Pain (VAS) pain; TMD of muscular and articular origin
(19) Infra red laser LLLT vs Sham Laser: Pain (VAS); diagnosed with disc displacement with reduction
(20) GaAs laser vs placebo: Pain (VAS); TMD of muscular origin
(21) Infra red laser vs placebo: Pain Index (VAS); TMD of articular origin
(22) GaAlAs laser vs placebo: Pain (VAS); TMD of muscular and articular origin
(23) GaAlAs laser vs placebo: Pain (VAS); TMD of muscular and articular origin
(24) GaAlAs laser vs placebo: Pain (VAS); TMD of muscular and articular origin
(25) HeNe laser versus placebo: Pain (VAS); TMD of muscular and articular origin
(26) GaAs laser vs placebo: Pain (VAS); TMD of muscular and articular origin
(27) GaAs laser vs placebo: Pain (VAS); TMD of muscular origin
(28) GaAlAs laser vs sham laser: Pain (VAS); TMD of muscular and articular origin
(29) GaAs laser vs placebo: Pain (VAS), TMD of muscular and articular origin
(30) GaAlAs laser vs placebo: Pain (VAS); TMD of muscular and articular origin
(31) GaAlAs laser vs placebo: Pain (VAS); TMD of muscular and articular origin

Figure 79: Laser vs. placebo (Outcome: change in pain intensity, timeframe: less than six months) low disability= acute pain; high disability = chronic pain; unclear = pain not identified. Sensitivity analysis wavelength 800nm-830nm only

APPENDIX IX: Forest plots



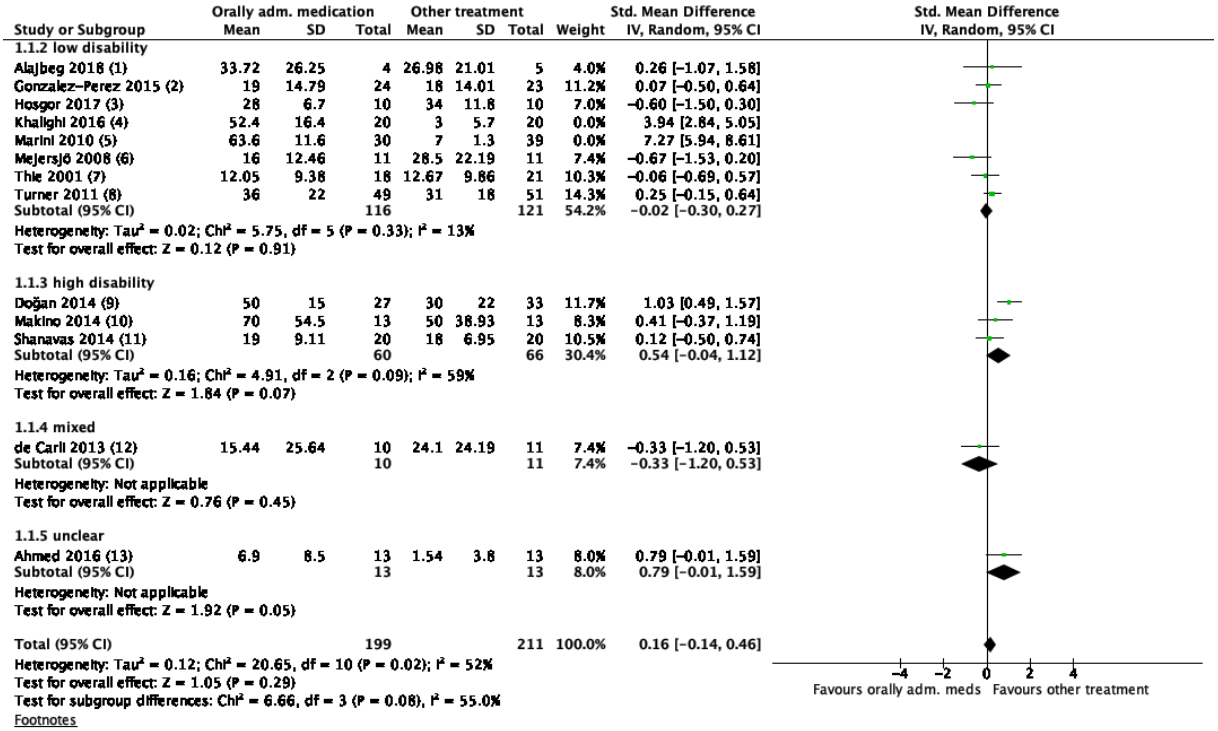
Footnotes

(1) GaAlAs laser vs placebo: Pain (VAS); TMD of muscular origin
(2) Biostimulation laser vs placebo: Pain (VAS); TMD of muscular and articular origin
(3) GaAlAs laser vs placebo: Pain (VAS); TMD of muscular origin
(4) GaAlAs laser vs placebo; Pain (VAS); TMD of muscular and articular origin
(5) GaAlAs laser vs placebo: Pain (VAS); TMD of muscular and articular origin
(6) Laser vs placebo: Pain (VAS); TMD of muscular and articular origin
(7) Nd:YAG laser vs placebo: Pain (VAS); TMD of muscular origin
(8) GaAlAs laser vs placebo: Pain (VAS); TMD of articular origin
(9) Laser superpulsed vs placebo: Pain (VAS); TMD of muscular origin
(10) Laser superpulsed vs placebo: Pain (VAS); TMD of muscular and articular origin
(11) Mustang 2000z, Moscow, Russia Laser vs placebo: Pain (VAS); TMD of muscular and articular origin
(12) GaAlAs LLLT vs placebo: Pain (VAS); TMD of muscular and articular origin
(13) GaAlAs laser vs placebo: Pain (VAS); TMD of muscular and articular origin
(14) GaAs laser vs placebo: Pain (VAS); TMD of muscular origin
(15) GaAs laser vs placebo: Pain (VAS); TMD of muscular origin
(16) GaAlAs laser vs placebo: Symptom severity index (SSI); TMD of muscular and articular origin
(17) GaAs laser vs placebo: Pain (VAS); TMD of muscular origin
(18) GaAlAs laser vs placebo: Pain (VAS) pain; TMD of muscular and articular origin
(19) Infra red laser LLLT vs Sham Laser: Pain (VAS); diagnosed with disc displacement with reduction
(20) GaAs laser vs placebo: Pain (VAS); TMD of muscular origin
(21) Infra red laser vs placebo: Pain Index (VAS); TMD of articular origin
(22) GaAlAs laser vs placebo: Pain (VAS); TMD of muscular and articular origin
(23) GaAlAs laser vs placebo: Pain (VAS); TMD of muscular and articular origin
(24) GaAlAs laser vs placebo: Pain (VAS); TMD of muscular and articular origin
(25) HeNe laser versus placebo: Pain (VAS); TMD of muscular and articular origin
(26) GaAs laser vs placebo: Pain (VAS); TMD of muscular and articular origin
(27) GaAs laser vs placebo: Pain (VAS); TMD of muscular origin
(28) GaAlAs laser vs sham laser: Pain (VAS); TMD of muscular and articular origin
(29) GaAs laser vs placebo: Pain (VAS), TMD of muscular and articular origin
(30) GaAlAs laser vs placebo: Pain (VAS); TMD of muscular and articular origin
(31) GaAlAs laser vs placebo: Pain (VAS); TMD of muscular and articular origin

Figure 80: Laser vs. placebo (Outcome: change in pain intensity, timeframe: less than six months) low disability= acute pain; high disability = chronic pain; unclear = pain not identified. Sensitivity analysis wavelength >831 nm only

APPENDIX IX: Forest plots

Medication

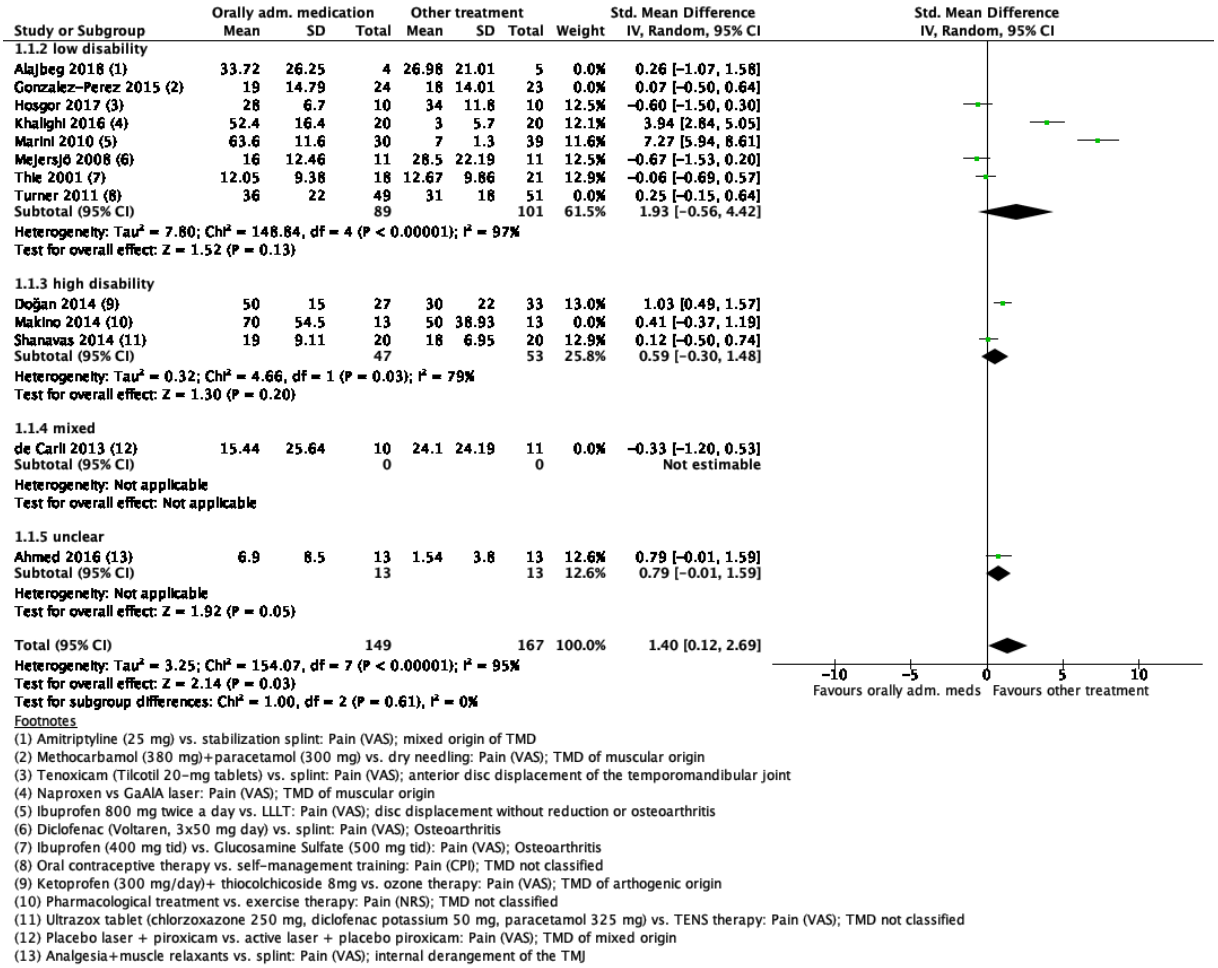


Footnotes

(1) Amitriptyline (25 mg) vs. stabilization splint: Pain (VAS); mixed origin of TMD
(2) Methocarbamol (380 mg)+paracetamol (300 mg) vs. dry needling: Pain (VAS); TMD of muscular origin
(3) Tenoxicam (Tilcotil 20-mg tablets) vs. splint: Pain (VAS); anterior disc displacement of the temporomandibular joint
(4) Naproxen vs GaAlA laser: Pain (VAS); TMD of muscular origin
(5) Ibuprofen 800 mg twice a day vs. LLLT: Pain (VAS); disc displacement without reduction or osteoarthritis
(6) Diclofenac (Voltaren, 3x50 mg day) vs. splint: Pain (VAS); Osteoarthritis
(7) Ibuprofen (400 mg tid) vs. Glucosamine Sulfate (500 mg tid): Pain (VAS); Osteoarthritis
(8) Oral contraceptive therapy vs. self-management training: Pain (CPI); TMD not classified
(9) Ketoprofen (300 mg/day)+ thiocolchicoside 8mg vs. ozone therapy: Pain (VAS); TMD of arthogenic origin
(10) Pharmacological treatment vs. exercise therapy: Pain (NRS); TMD not classified
(11) Ultrazox tablet (chlorzoxazone 250 mg, diclofenac potassium 50 mg, paracetamol 325 mg) vs. TENS therapy: Pain (VAS); TMD not classified
(12) Placebo laser + piroxicam vs. active laser + placebo piroxicam: Pain (VAS); TMD of mixed origin
(13) Analgesia+muscle relaxants vs. splint: Pain (VAS); internal derangement of the TMJ

Figure 81: Orally administered medication versus other treatment (outcome: change in pain intensity, timeframe: less than six months) low disability= acute pain; high disability = chronic pain; unclear = pain not identified, excl. the outliers (Khalighli et al. 2016 and Marini et al. 2010)

APPENDIX IX: Forest plots

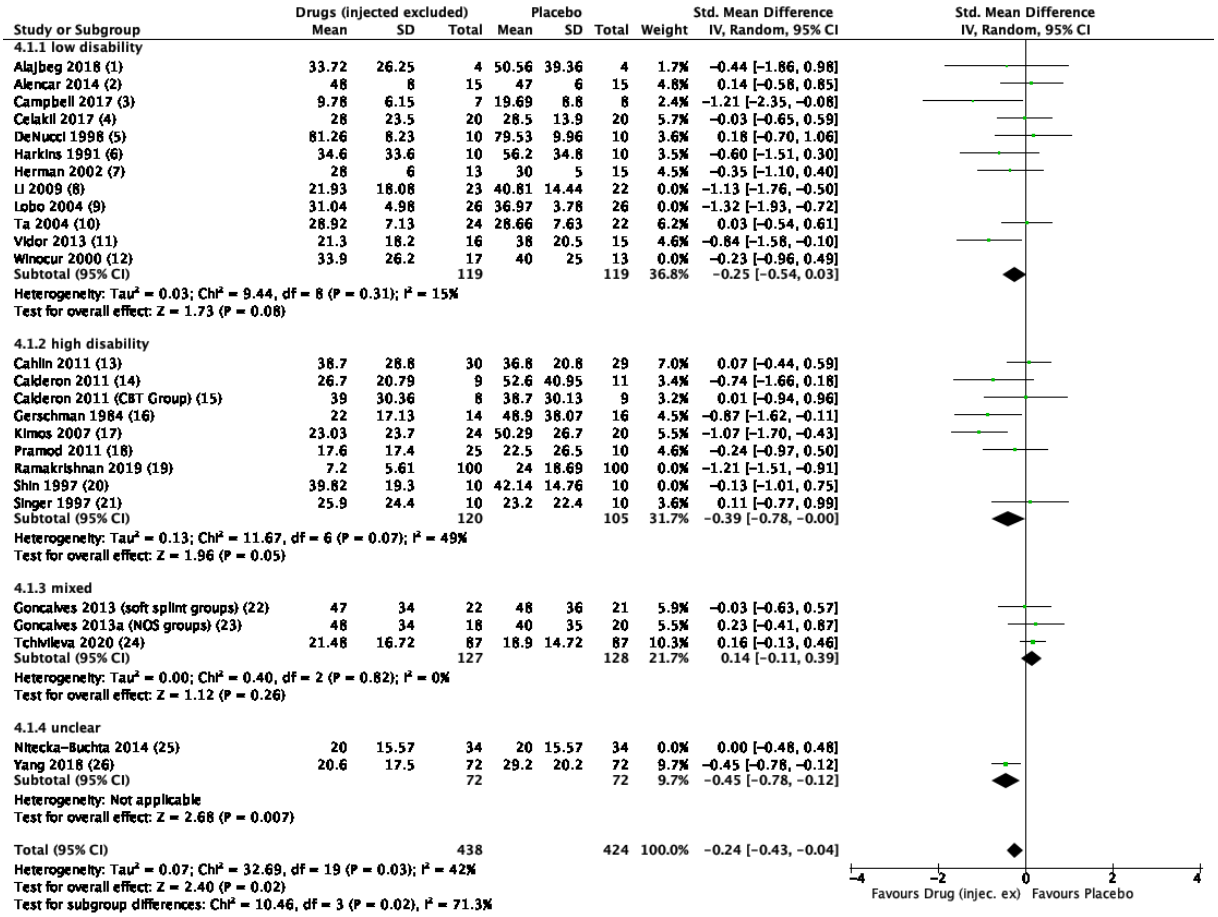


Footnotes

(1) Amitriptyline (25 mg) vs. stabilization splint: Pain (VAS); mixed origin of TMD
(2) Methocarbamol (380 mg)+paracetamol (300 mg) vs. dry needling: Pain (VAS); TMD of muscular origin
(3) Tenoxicam (Tilcotil 20-mg tablets) vs. splint: Pain (VAS); anterior disc displacement of the temporomandibular joint
(4) Naproxen vs GaAlA laser: Pain (VAS); TMD of muscular origin
(5) Ibuprofen 800 mg twice a day vs. LLLT: Pain (VAS); disc displacement without reduction or osteoarthritis
(6) Diclofenac (Voltaren, 3x50 mg day) vs. splint: Pain (VAS); Osteoarthritis
(7) Ibuprofen (400 mg tid) vs. Glucosamine Sulfate (500 mg tid): Pain (VAS); Osteoarthritis
(8) Oral contraceptive therapy vs. self-management training: Pain (CPI); TMD not classified
(9) Ketoprofen (300 mg/day)+ thiocolchicoside 8mg vs. ozone therapy: Pain (VAS); TMD of arthogenic origin
(10) Pharmacological treatment vs. exercise therapy: Pain (NRS); TMD not classified
(11) Ultrazox tablet (chlorzoxazone 250 mg, diclofenac potassium 50 mg, paracetamol 325 mg) vs. TENS therapy: Pain (VAS); TMD not classified
(12) Placebo laser + piroxicam vs. active laser + placebo piroxicam: Pain (VAS); TMD of mixed origin
(13) Analgesia+muscle relaxants vs. splint: Pain (VAS); internal derangement of the TMJ

Figure 82: Orally administered medication versus other treatment (outcome: change in pain intensity, timeframe: less than six months) low disability= acute pain; high disability = chronic pain; unclear = pain not identified, sensitivity analysis: analgesics vs. other treatment

APPENDIX IX: Forest plots

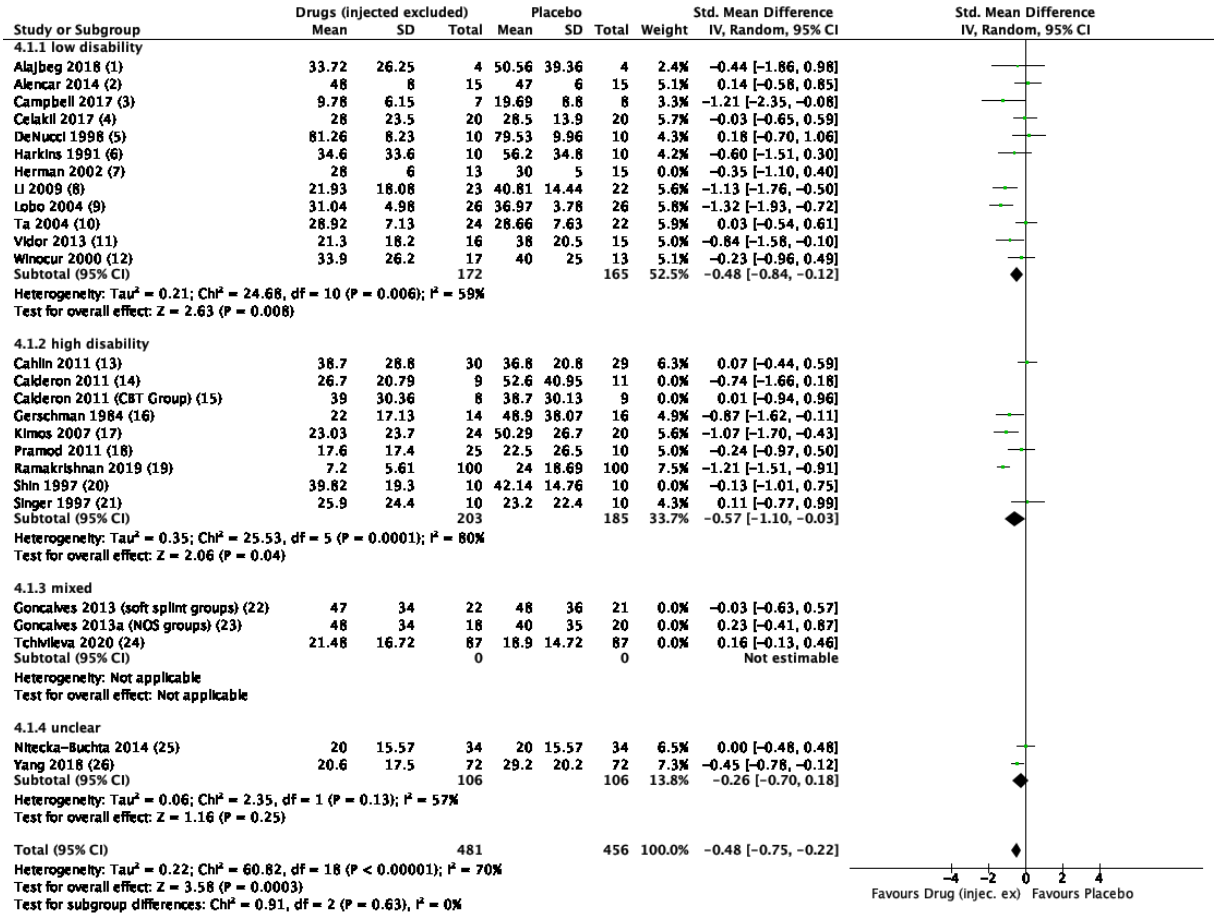


Footnotes

(1) Amitriptyline (25 mg) vs placebo pill: Pain (VAS); mixed origin of TMD
(2) Tizanidine (4 mg, 1xcapsule/day) vs. lactose filler (1xcapsule/day): Pain (VAS); TMD of muscular origin
(3) Capsaicin vs. placebo: Pain (VAS); Arthralgia
(4) Ozone therapy vs. sham ozone therapy: Pain (VAS); TMD of muscular origin
(5) Triazolam (0.125 mg triazolam tablets) vs. placebo: Pain (VAS); TMD of mixed origin
(6) Clonazepam orally vs. placebo: Pain (VAS); TMD of muscular origin
(7) Self-care+clonazepam (0.5mg/d) vs. self-care+ placebo(lactose filler): Pain (SSI); TMD of muscular origin
(8) Ping On ointment (2/day) vs. placebo cream: Pain diary (VAS); TMD of mixed origin
(9) Theraflex cream (1⁄4-1⁄2 teaspoon, masseter) vs. placebo cream: Pain (VAS); TMD of mixed origin
(10) Celecoxib 100 mg/2xday vs. placebo: Pain (VAS); DD with reduction + arthralgia /painful DD
(11) Melatonin (5 mg) vs. placebo: Pain (VAS); TMD of muscular origin
(12) Capsaicin cream (0.025%) vs. placebo: Pain (VAS); TMD not classified
(13) Oral glucosamine sulfate (1200 mg/day) vs. placebo: Pain (VAS); Osteoarthritis
(14) Amitriptyline (25 mg) vs. placebo: Pain (VAS); TMD of muscular and arthogenic origin
(15) Amitriptyline (25 mg)+CBT vs. placebo+CBT: Pain (VAS); TMD of muscular and arthogenic origin
(16) Mersyndol+diazepam vs. placebo+diazepam: Pain (VAS); TMD not classified
(17) Gabapentin (max. dose 4200mg) vs. placebo: Pain (VAS); TMD of muscular origin
(18) Diazepam (5mg) vs. placebo: Pain (VAS); TMD of muscular origin
(19) Gel containing aceclofenac vs. placebo (no pharmacological agent): Pain (VAS); TMD not classified
(20) Ultrasound massage+1% indomethacin cream vs. ultrasound massage+placebo cream: Pain (VAS); TMD not classified
(21) Ibuprofen (600mgx4/day) vs. placebo Ibupofen: Pain (VAS); TMD of muscular origin
(22) Propranolol 30mg/d+stabilization splint (SS) vs. placebo+SS: Pain (VAS); Migraine+TMD
(23) Propranolol 30mg/d+non-occlusal splint (NOS) vs. placebo+NOS: Pain (VAS); Migraine+TMD
(24) Propranolol hydrochloride (60 mg 2xday) vs. 20mg of placebo: Pain (FPI); Chronic TMD myalgia and arthralgia
(25) Bee venom vs. placebo (vaseline): Pain (VAS); TMD of muscular origin
(26) Oral glucosamine hydrochloride+hyaluronate sodium vs. hyaluronate sodium injections+oral placebo: Pain (VAS); Osteoarthritis

Figure 83: Medication (injected excluded) vs. placebo (outcome: change in pain intensity, timeframe: 0 till six months); low disability= acute pain; high disability = chronic pain; mixed = acute and chronic pain; unclear = pain not identified; sensitivity analysis: orally administered medication only, creams excluded.

APPENDIX IX: Forest plots

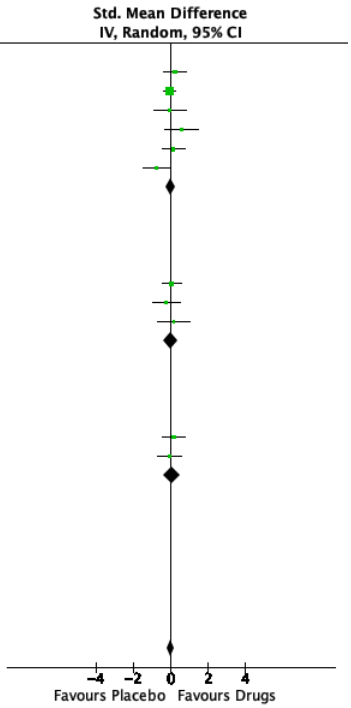


Footnotes

(1) Amitriptyline (25 mg) vs placebo pill: Pain (VAS); mixed origin of TMD
(2) Tizanidine (4 mg, 1xcapsule/day) vs. lactose filler (1xcapsule/day): Pain (VAS); TMD of muscular origin
(3) Capsaicin vs. placebo: Pain (VAS); Arthralgia
(4) Ozone therapy vs. sham ozone therapy: Pain (VAS); TMD of muscular origin
(5) Triazolam (0.125 mg triazolam tablets) vs. placebo: Pain (VAS); TMD of mixed origin
(6) Clonazepam orally vs. placebo: Pain (VAS); TMD of muscular origin
(7) Self-care+clonazepam (0.5mg/d) vs. self-care+ placebo(lactose filler): Pain (SSI); TMD of muscular origin
(8) Ping On ointment (2/day) vs. placebo cream: Pain diary (VAS); TMD of mixed origin
(9) Theraflex cream (1⁄4-1⁄2 teaspoon, masseter) vs. placebo cream: Pain (VAS); TMD of mixed origin
(10) Celecoxib 100 mg/2xday vs. placebo: Pain (VAS); DD with reduction + arthralgia /painful DD
(11) Melatonin (5 mg) vs. placebo: Pain (VAS); TMD of muscular origin
(12) Capsaicin cream (0.025%) vs. placebo: Pain (VAS); TMD not classified
(13) Oral glucosamine sulfate (1200 mg/day) vs. placebo: Pain (VAS); Osteoarthritis
(14) Amitriptyline (25 mg) vs. placebo: Pain (VAS); TMD of muscular and arthogenic origin
(15) Amitriptyline (25 mg)+CBT vs. placebo+CBT: Pain (VAS); TMD of muscular and arthogenic origin
(16) Mersyndol+diazepam vs. placebo+diazepam: Pain (VAS); TMD not classified
(17) Gabapentin (max. dose 4200mg) vs. placebo: Pain (VAS); TMD of muscular origin
(18) Diazepam (5mg) vs. placebo: Pain (VAS); TMD of muscular origin
(19) Gel containing aceclofenac vs. placebo (no pharmacological agent): Pain (VAS); TMD not classified
(20) Ultrasound massage+1% indomethacin cream vs. ultrasound massage+placebo cream: Pain (VAS); TMD not classified
(21) Ibuprofen (600mgx4/day) vs. placebo Ibupofen: Pain (VAS); TMD of muscular origin
(22) Propranolol 30mg/d+stabilization splint (SS) vs. placebo+SS: Pain (VAS); Migraine+TMD
(23) Propranolol 30mg/d+non-occlusal splint (NOS) vs. placebo+NOS: Pain (VAS); Migraine+TMD
(24) Propranolol hydrochloride (60 mg 2xday) vs. 20mg of placebo: Pain (FPI); Chronic TMD myalgia and arthralgia
(25) Bee venom vs. placebo (vaseline): Pain (VAS); TMD of muscular origin
(26) Oral glucosamine hydrochloride+hyaluronate sodium vs. hyaluronate sodium injections+oral placebo: Pain (VAS); Osteoarthritis

Figure 84: Medication (injectable excluded) vs. placebo (outcome: change in pain intensity, timeframe: 0 till six months); low disability= acute pain; high disability = chronic pain; mixed = acute and chronic pain; unclear = pain not identified; sensitivity analysis: only medication as a single intervention

APPENDIX IX: Forest plots



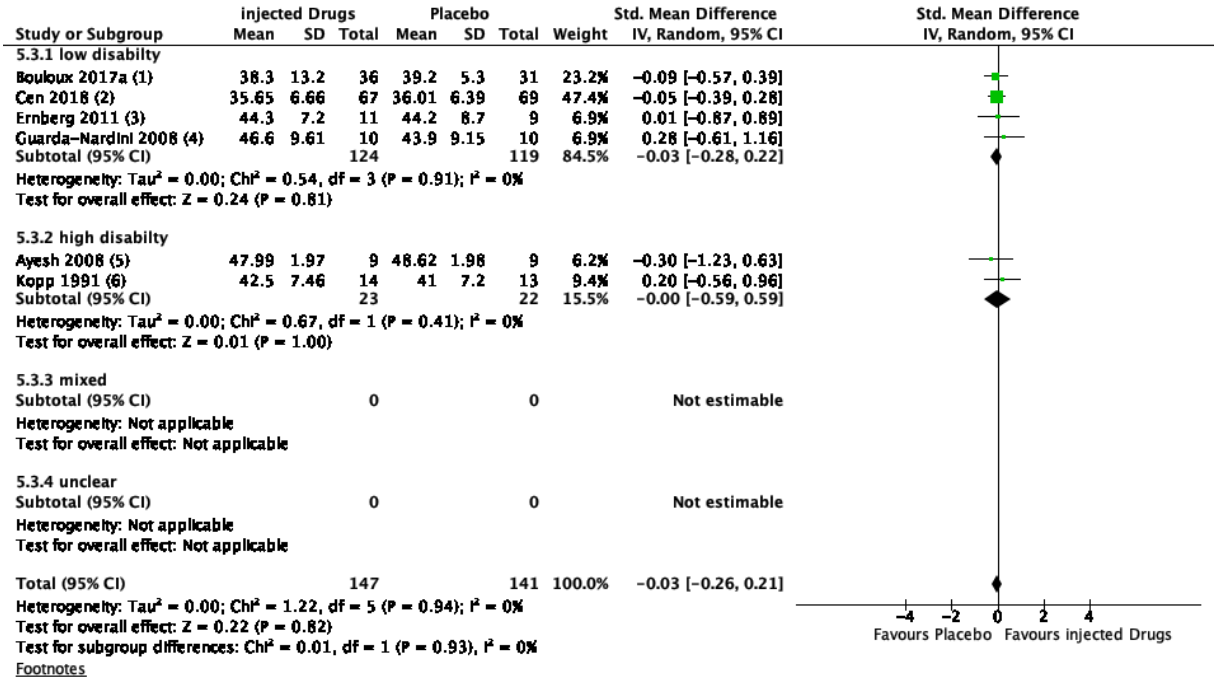
Study or Subgroup	Drugs Mean	Drugs SD	Drugs Total	Placebo Mean	Placebo SD	Placebo Total	Weight	Std. Mean Difference IV, Random, 95% CI
4.3.1 low disabilty								
Celakil 2017 (1)	45	7.17	20	43.4	6.06	20	8.4%	0.24 [−0.39, 0.86]
Cen 2018 (2)	35.65	6.66	67	36.01	6.39	69	28.6%	−0.05 [−0.39, 0.28]
DeNucci 1998 (3)	45.3	6.9	10	45.6	7.2	10	4.2%	−0.04 [−0.92, 0.84]
Harkins 1991 (4)	43.7	5.2	10	40.9	4	10	4.0%	0.58 [−0.32, 1.48]
Li 2009 (5)	35.91	11.45	23	34	12.07	22	9.4%	0.16 [−0.43, 0.75]
Winocur 2000 (6)	39.2	8.5	17	46.2	10.4	13	5.8%	−0.73 [−1.48, 0.02]
Subtotal (95% CI)			147			144	60.4%	0.01 [−0.27, 0.28]
Heterogeneity: $Tau^2 = 0.02$; $Chi^2 = 6.17$, df = 5 (P = 0.29); $I^2 = 19\%$								
Test for overall effect: Z = 0.04 (P = 0.97)								
4.3.2 high disabilty								
Cahlin 2011 (7)	42.5	6.8	30	42.2	6.2	29	12.4%	0.05 [−0.47, 0.56]
Pramod 2011 (8)	36.4	7.4	25	38.1	7.2	10	6.0%	−0.23 [−0.96, 0.51]
Singer 1997 (9)	45.1	6	10	43.8	8	10	4.2%	0.18 [−0.70, 1.05]
Subtotal (95% CI)			65			49	22.6%	−0.00 [−0.38, 0.38]
Heterogeneity: $Tau^2 = 0.00$; $Chi^2 = 0.55$, df = 2 (P = 0.76); $I^2 = 0\%$								
Test for overall effect: Z = 0.01 (P = 0.99)								
4.3.3 mixed								
Goncalves 2013 (soft splint groups) (10)	42.1	8.7	22	40.8	5.8	21	9.0%	0.17 [−0.43, 0.77]
Goncalves 2013a (NOS groups) (11)	42.1	6.1	18	42.5	6.1	20	8.0%	−0.06 [−0.70, 0.57]
Subtotal (95% CI)			40			41	17.0%	0.06 [−0.38, 0.50]
Heterogeneity: $Tau^2 = 0.00$; $Chi^2 = 0.28$, df = 1 (P = 0.60); $I^2 = 0\%$								
Test for overall effect: Z = 0.27 (P = 0.78)								
4.3.4 unclear								
Subtotal (95% CI)			0			0		Not estimable
Heterogeneity: Not applicable								
Test for overall effect: Not applicable								
Total (95% CI)			252			234	100.0%	0.01 [−0.17, 0.19]
Heterogeneity: $Tau^2 = 0.00$; $Chi^2 = 7.06$, df = 10 (P = 0.72); $I^2 = 0\%$								
Test for overall effect: Z = 0.09 (P = 0.93)								
Test for subgroup differences: $Chi^2 = 0.06$, df = 2 (P = 0.97), $I^2 = 0\%$								

Footnotes

(1) Ozone therapy vs. sham ozone therapy: MMO (mm); TMD of muscular origin
(2) Oral Glucosamine + HA injection vs. oral placebo + HA injection: MMO (mm); Osteoarthritis
(3) Triazolam (0.125 mg triazolam tablets) vs. placebo: MMO (mm); TMD of mixed origin
(4) Clonazepam orally vs. placebo: MMO (mm); TMD of muscular origin
(5) Ping On ointment (2/day) vs. placebo cream: MMO (mm); TMD of mixed origin
(6) Capsaicin cream (0.025%) vs. placebo: MMO (mm); TMD not classified
(7) Oral glucosamine sulfate (1200 mg/day) vs. placebo: MMO (mm); Osteoarthritis
(8) Diazepam (5mg) vs. placebo: MMO (mm); TMD of muscular origin
(9) Ibuprofen (600mgx4/day) vs. placebo Ibupofen: MMO (mm); TMD of muscular origin
(10) Propranolol 30mg/d+stabilization splint (SS) vs. placebo+SS: MMO (mm); Migraine+TMD
(11) Propranolol 30mg/d+non-occlusal splint (NOS) vs. placebo+NOS: MMO (mm); Migraine+TMD

Figure 85: Medication (injections excluded) vs. placebo (outcome: change in MMO, timeframe: less than six months); low disability= acute pain; high disability = chronic pain; mixed = acute and chronic pain; unclear = pain not identified

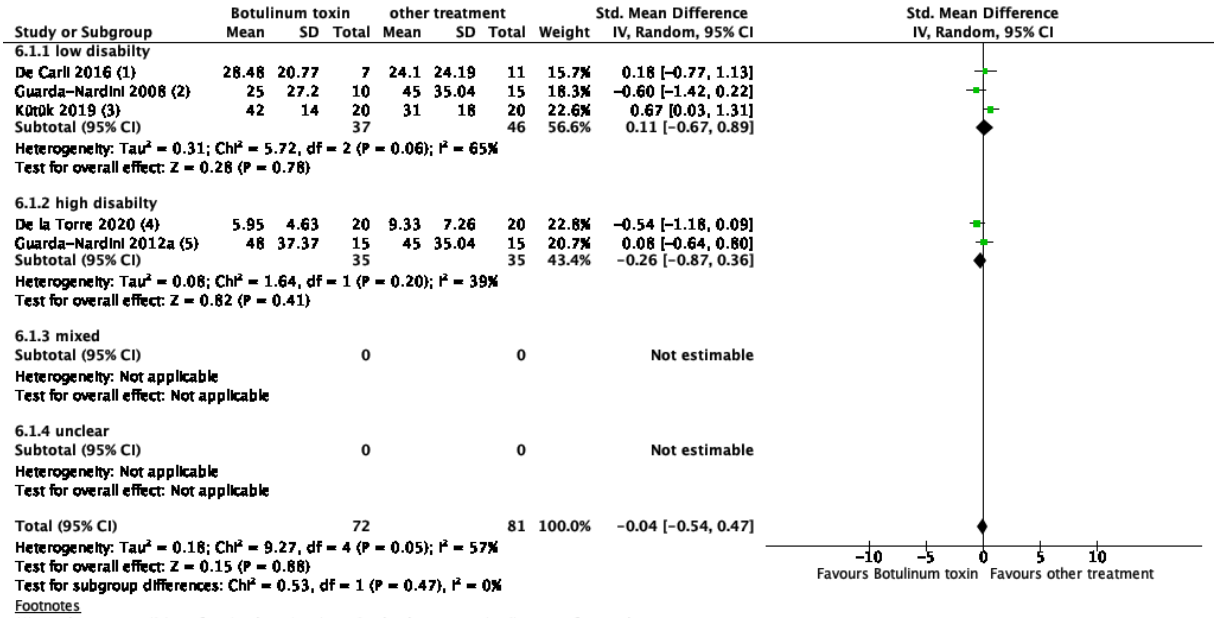
APPENDIX IX: Forest plots



Footnotes

(1) Hyaluronic Acid (10 mg/mL) vs. Lactated Ringer Solution (1 mL): MMO (mm); arthralgia, internal derangement, or degenerative joint disease
(2) Oral Glucosamine + HA injection vs. oral placebo + HA injection: MMO (mm); Osteoarthritis
(3) BTX-A (50 U) vs. isotonic saline: MMO (mm); TMD of muscular origin
(4) Botulinum toxin vs. saline placebo injections: MMO (mm); TMD of muscular origin
(5) Ketamine injection (0.2 mL,10 mM=0.55 mg) vs. saline: MMO (mm); Arthralgia
(6) Sodium hyaluronate (10 mg/ml) vs. saline: Pain (VAS); rheumatoid arthritis of TMJ

Figure 86: Medication (injections only) vs. placebo (outcome: change in MMO, timeframe: less than six months); low disability= acute pain; high disability = chronic pain; mixed = acute and chronic pain; unclear = pain not identified



Footnotes

(1) Botulinum toxin (30 U after 15 days 15 U) vs. GaAlAs laser: Pain (VAS); TMD of muscular origin
(2) Botulinum toxin (total 100 U) vs. saline placebo injections: Pain (VAS); TMD of muscular origin
(3) Abobotulinum toxin-A (total 150 U) vs. dry needling: Pain (VAS); TMD of muscular origin
(4) BoNT-A-Median (temporal:20 U;masseter:50 U) vs. oral appliance (OA): Pain (VAS); TMD of mixed origin
(5) Botulinum toxin injections (total 150 U) vs. Fascial manipulation: Pain (VAS)

Figure 87: Botulinum toxin vs. other treatment (outcome: change in pain intensity, timeframe: less than six months); low disability= acute pain; high disability = chronic pain; mixed = acute and chronic pain; unclear = pain not identified

APPENDIX IX: Forest plots

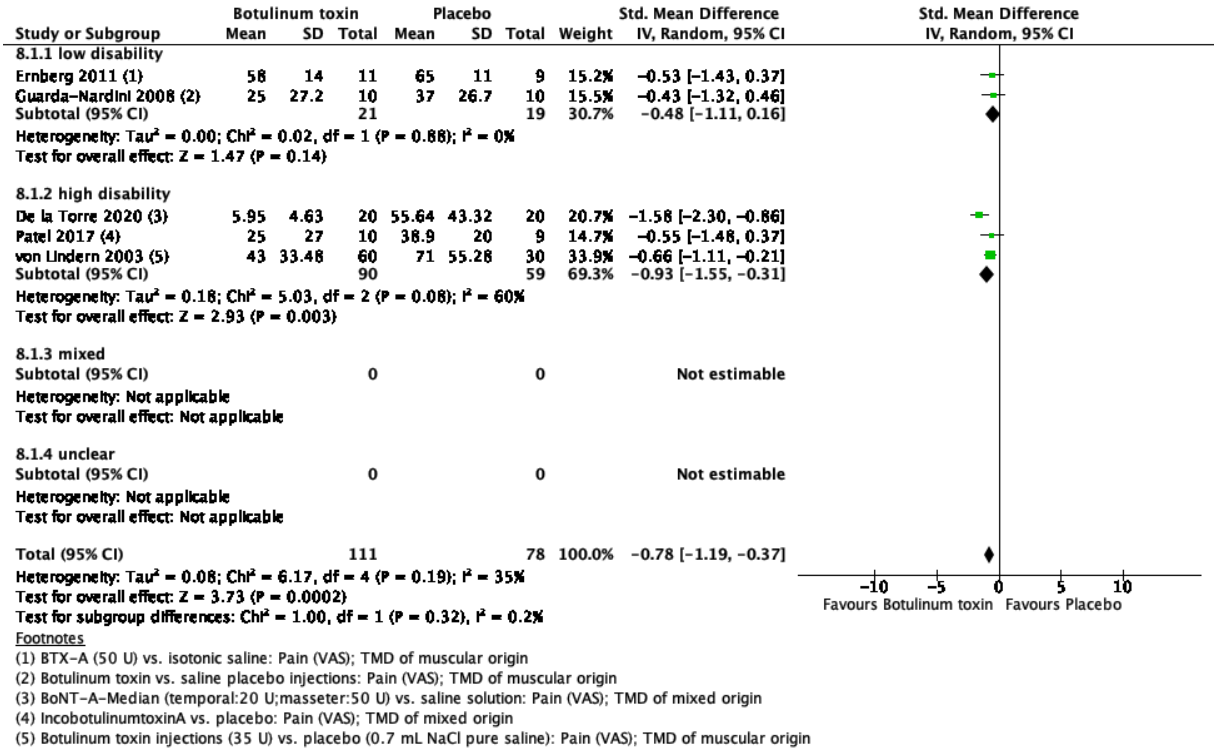


Figure 88: Botulinum toxin vs. placebo (outcome: change in pain intensity, timeframe: less than six months); low disability= acute pain; high disability = chronic pain; mixed = acute and chronic pain; unclear = pain not identified

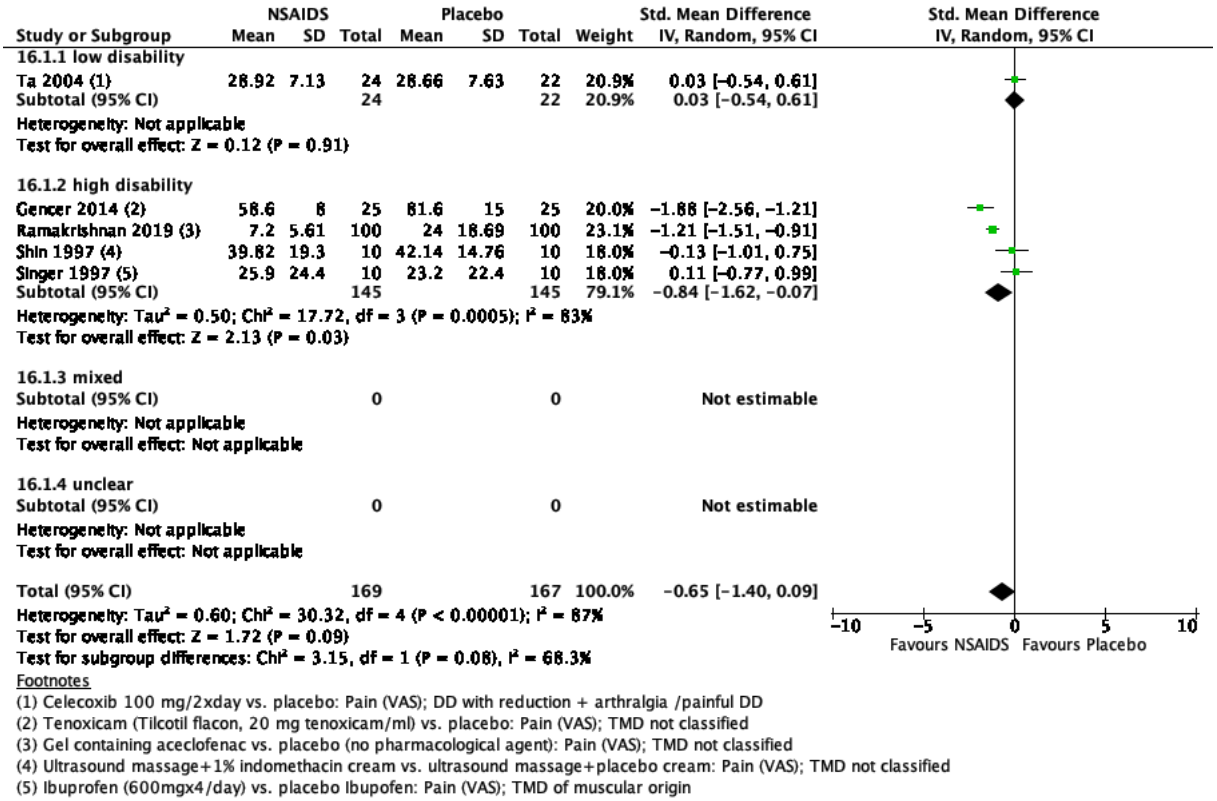
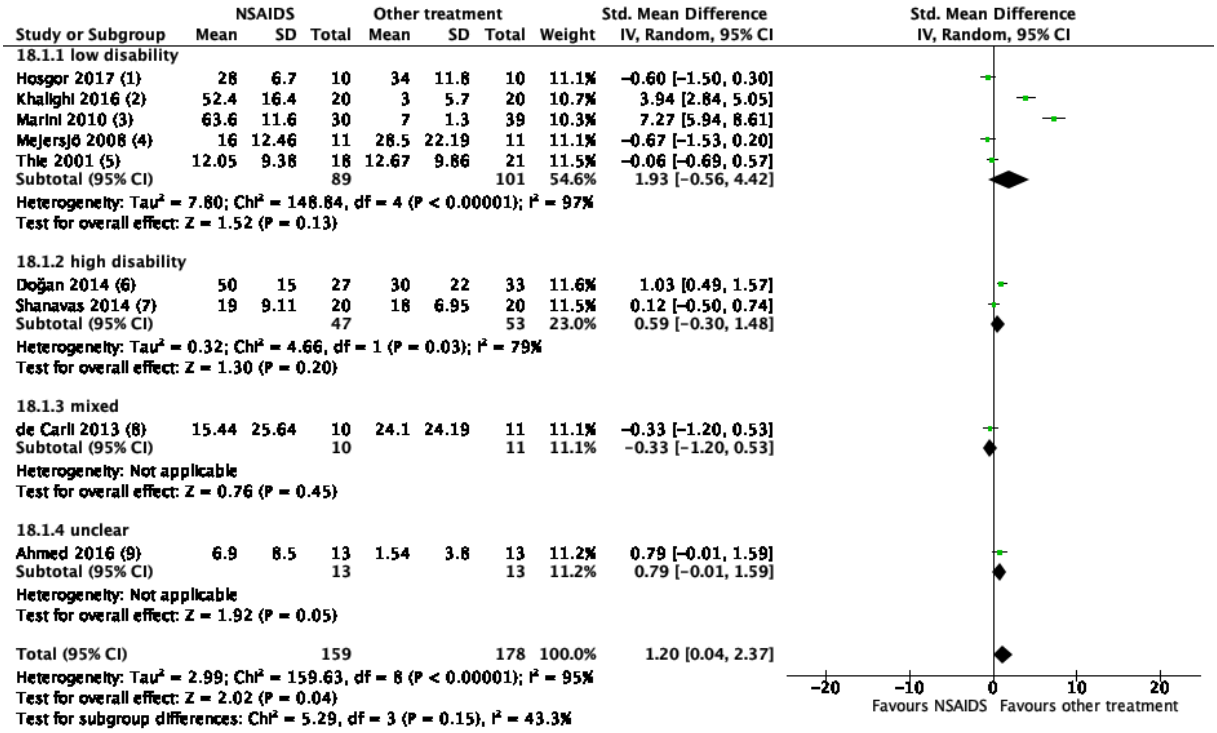


Figure 89: NSAIDS vs. placebo (outcome: change in pain intensity, timeframe: less than six months); low disability= acute pain; high disability = chronic pain; mixed = acute and chronic pain; unclear = pain not identified

APPENDIX IX: Forest plots

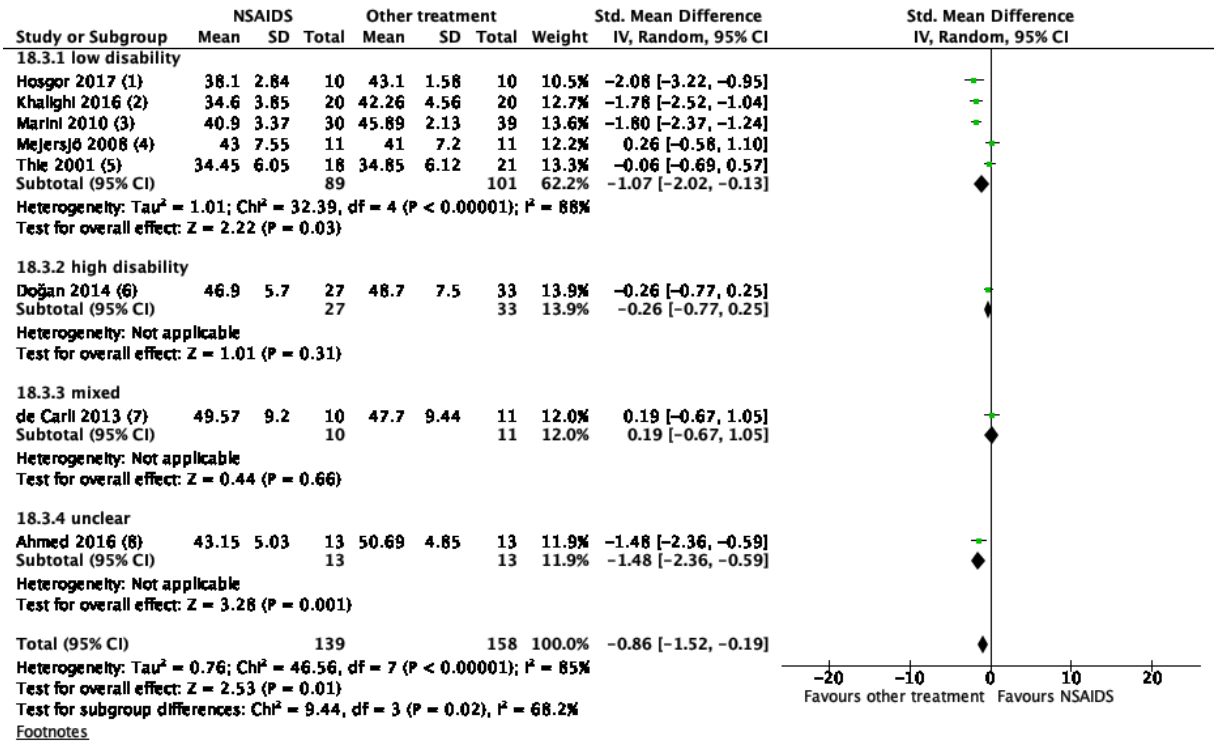


Footnotes

(1) Tenoxicam (Tilcotil 20−mg tablets) vs. splint: Pain (VAS); anterior disc displacement of the temporomandibular joint
(2) Naproxen vs GaAlA laser: Pain (VAS); TMD of muscular origin
(3) ibuprofen 800 mg twice a day vs. LLLT: Pain (VAS); disc displacement without reduction or osteoarthritis
(4) Diclofenac (Voltaren, 3x50 mg day) vs. splint: Pain (VAS); Osteoarthritis
(5) Ibuprofen (400 mg tid) vs. Glucosamine Sulfate (500 mg tid): Pain (VAS); Osteoarthritis
(6) ketoprofen (300 mg/day)+ thiocolchicoside 8mg vs. ozone therapy: Pain (VAS); TMD of arthogenic origin
(7) Ultrazox tablet (chlorzoxazone 250 mg, diclofenac potassium 50 mg, paracetamol 325 mg vs. TENS therapy: Pain (VAS); TMD not classified
(8) Placebo laser + piroxicam vs. active laser + placebo piroxicam: Pain (VAS); TMD of mixed origin
(9) Medications (analgesia and muscle relaxants) vs. splint: Pain (VAS); internal derangement

Figure 90: NSAIDs versus other treatment (outcome: change in pain intensity, timeframe: less than six months) low disability= acute pain; high disability = chronic pain; unclear = pain not identified

APPENDIX IX: Forest plots

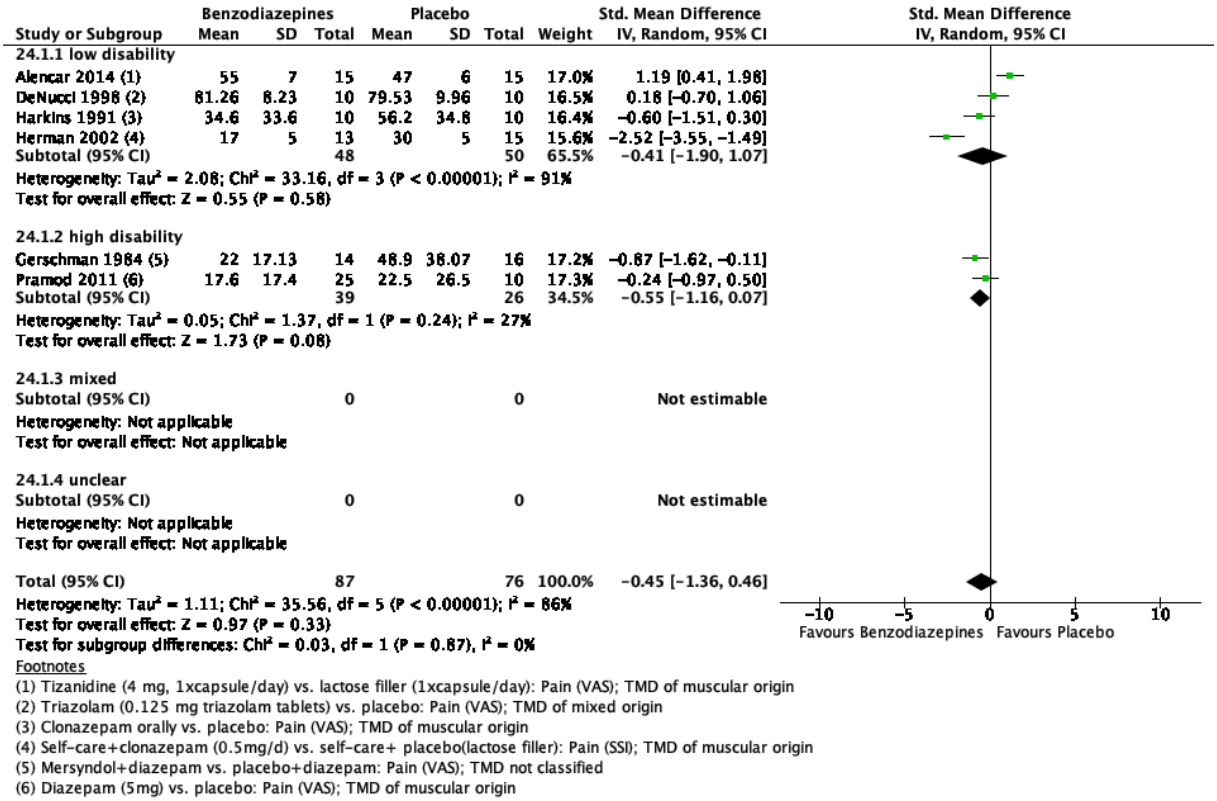


Footnotes

(1) Tenoxicam (Tilcotil 20−mg tablets) vs. splint: MMO (mm); anterior disc displacement of the temporomandibular joint
(2) Naproxen vs GaAlA laser: MMO (mm); TMD of muscular origin
(3) ibuprofen 800 mg twice a day vs. LLLT: MMO (mm); disc displacement without reduction or osteoarthritis
(4) Diclofenac (Voltaren, 3x50 mg day) vs. splint: MMO (mm); Osteoarthritis
(5) Ibuprofen (400 mg tid) vs. Glucosamine Sulfate (500 mg tid): MMO (mm); Osteoarthritis
(6) ketoprofen (300 mg/day)+ thiocolchicoside 8mg vs. ozone therapy: MMO (mm); TMD of arthogenic origin
(7) Placebo laser + piroxicam vs. active laser + placebo piroxicam: MMO (mm); TMD of mixed origin
(8) Medications (analgesia and muscle relaxants) vs. splint: MMO (mm); internal derangement

Figure 91: NSAIDs versus other treatment (outcome: change in MMO, timeframe: less than six months) low disability= acute pain; high disability = chronic pain; unclear = pain not identified

APPENDIX IX: Forest plots



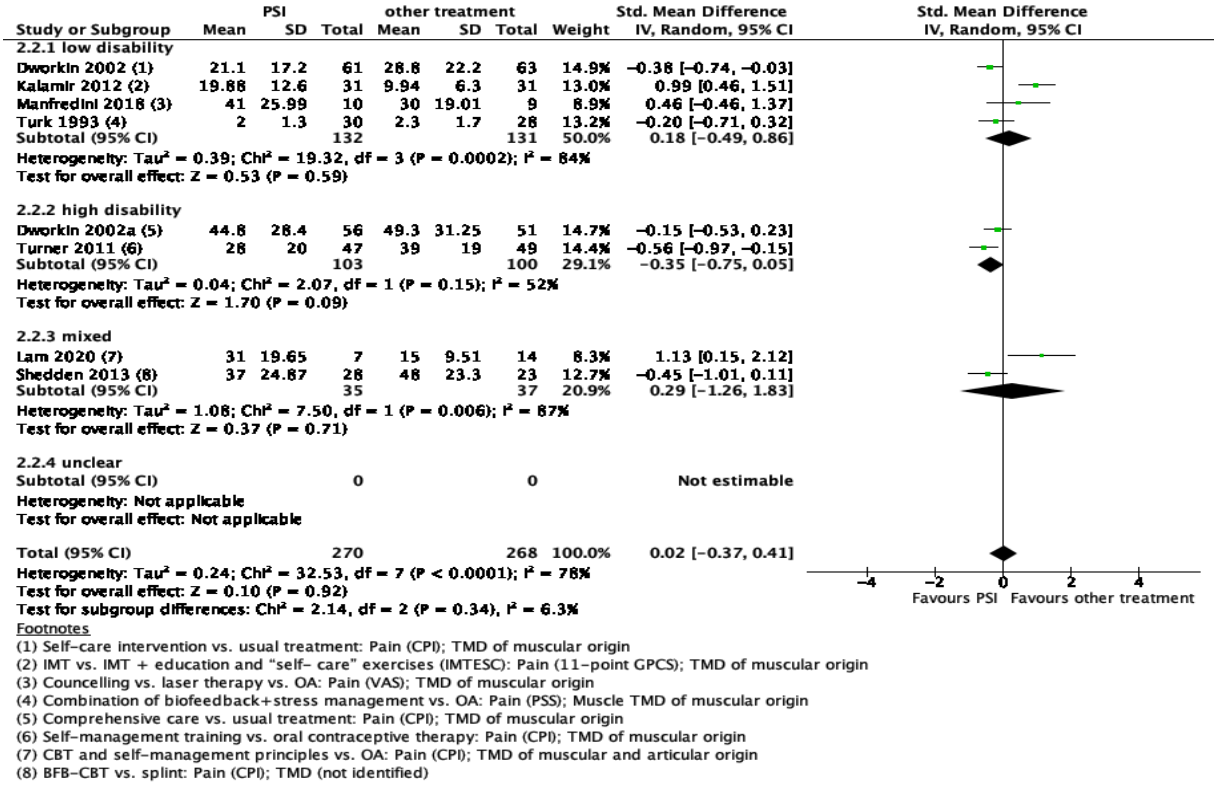
Footnotes

(1) Tizanidine (4 mg, 1xcapsule/day) vs. lactose filler (1xcapsule/day): Pain (VAS); TMD of muscular origin
(2) Triazolam (0.125 mg triazolam tablets) vs. placebo: Pain (VAS); TMD of mixed origin
(3) Clonazepam orally vs. placebo: Pain (VAS); TMD of muscular origin
(4) Self-care+clonazepam (0.5mg/d) vs. self-care+ placebo(lactose filler): Pain (SSI); TMD of muscular origin
(5) Mersyndol+diazepam vs. placebo+diazepam: Pain (VAS); TMD not classified
(6) Diazepam (5mg) vs. placebo: Pain (VAS); TMD of muscular origin

Figure 92: Benzodiazepines versus placebo (outcome: change in pain intensity, timeframe: less than six months) low disability= acute pain; high disability = chronic pain; unclear = pain not identified

APPENDIX IX: Forest plots

Psychosocial interventions



Footnotes

(1) Self−care intervention vs. usual treatment: Pain (CPI); TMD of muscular origin
(2) IMT vs. IMT + education and "self− care" exercises (IMTESC): Pain (11−point GPCS); TMD of muscular origin
(3) Councelling vs. laser therapy vs. OA: Pain (VAS); TMD of muscular origin
(4) Combination of biofeedback+stress management vs. OA: Pain (PSS); Muscle TMD of muscular origin
(5) Comprehensive care vs. usual treatment: Pain (CPI); TMD of muscular origin
(6) Self−management training vs. oral contraceptive therapy: Pain (CPI); TMD of muscular origin
(7) CBT and self−management principles vs. OA: Pain (CPI); TMD of muscular and articular origin
(8) BFB−CBT vs. splint: Pain (CPI); TMD (not identified)

Figure 93: Psychosocial interventions versus other treatment (outcome: change in pain intensity, timeframe: six till twelve) low disability= acute pain; high disability = chronic pain; unclear = pain not identified

APPENDIX IX: Forest plots

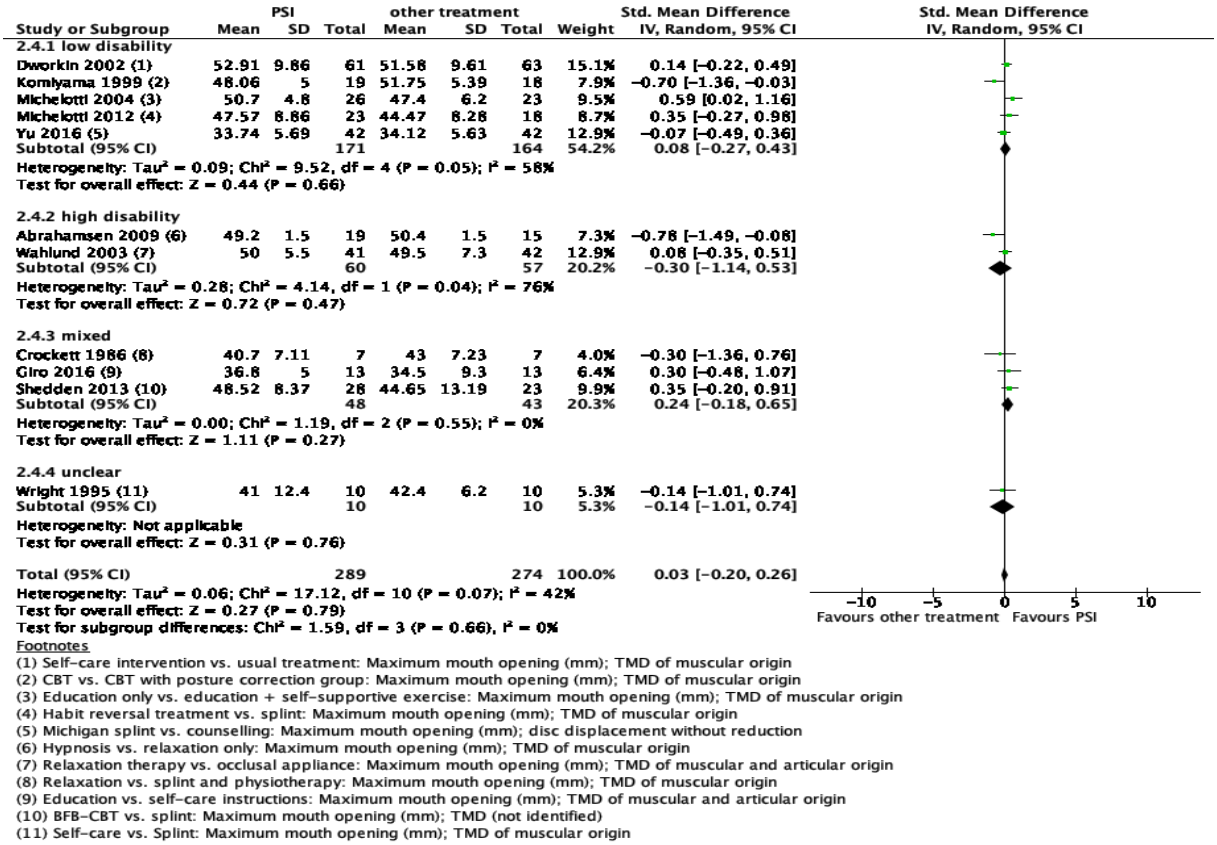
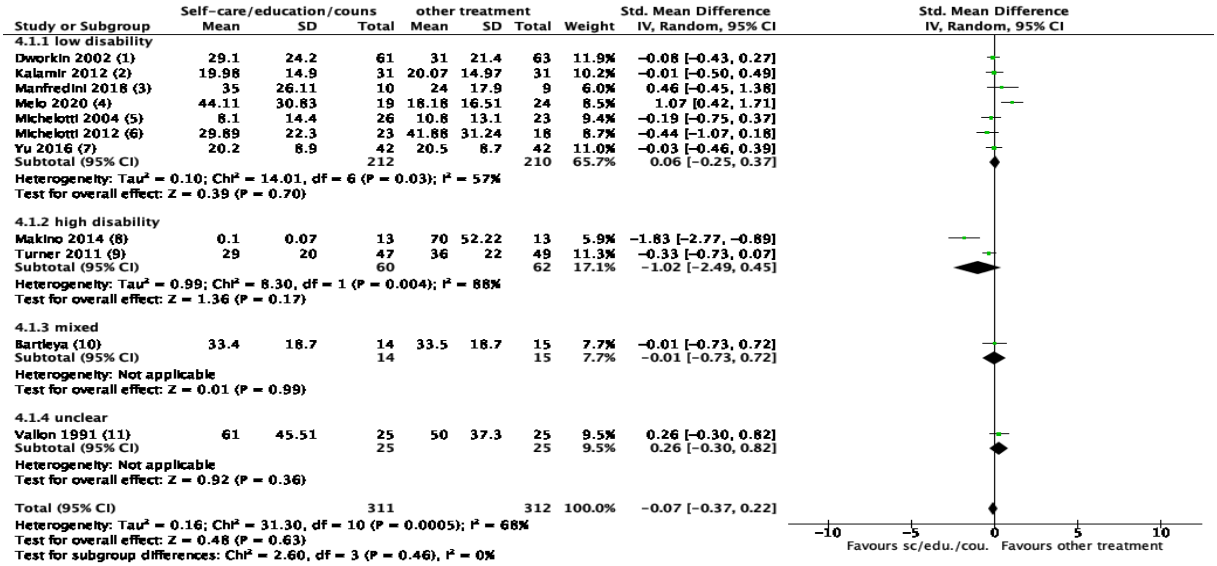


Figure 94: Psychosocial interventions versus other treatment (outcome: change in MMO, timeframe: less than six months) low disability= acute pain; high disability = chronic pain; unclear = pain not identified

APPENDIX IX: Forest plots



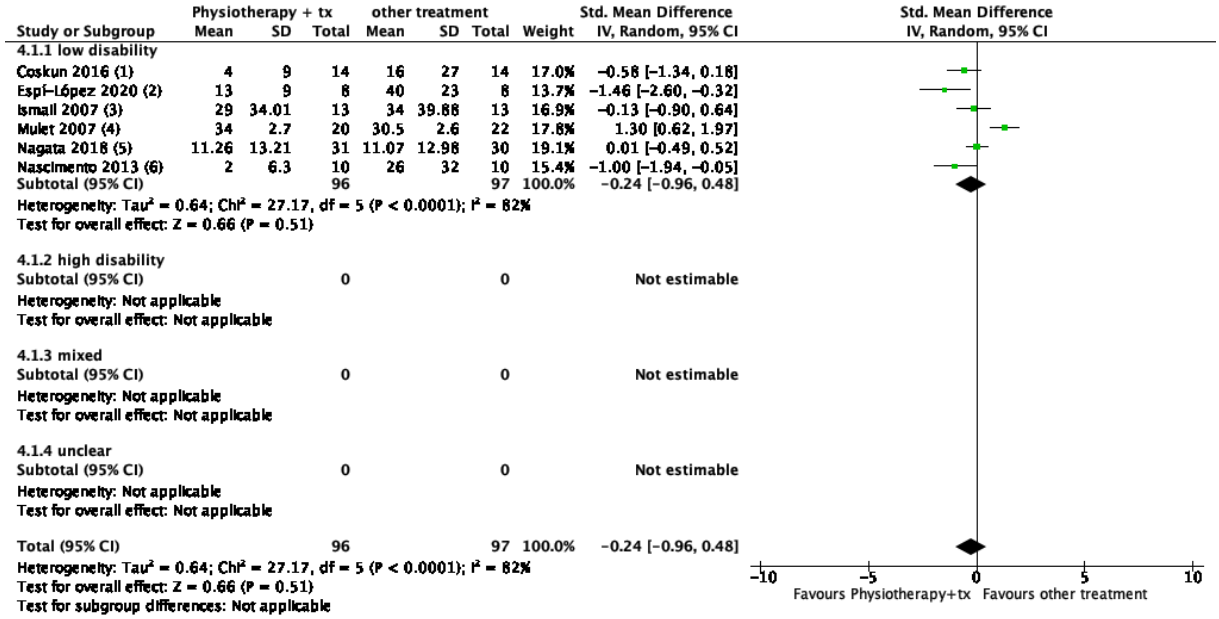
Footnotes

(1) Self−care intervention vs. usual treatment: Pain (CPI); TMD of muscular origin
(2) IMT vs. IMT + education and "self− care" exercises (IMTESC): Pain (11−point GPCS); TMD of muscular origin
(3) Counseling vs. laser therapy vs. OA: Pain (VAS); TMD of muscular origin
(4) Counselling (CS) vs. splint: Pain (VAS); TMD of muscular and articular origin
(5) Education only vs. education + self−supportive exercise: Pain (VAS); TMD of muscular origin
(6) Habit reversal treatment vs. Splint: Pain (VAS): TMD of muscular orgin
(7) Michigan Splint vs. counselling: Pain (VAS); disc displacement without reduction
(8) Home+psychological intervention vs. pharmacological: Pain (NRS); craniocervical chronic pain
(9) Self−management training vs. oral contraceptive therapy: Pain (CPI); TMD of muscular origin
(10) Hope session vs. EDC involving education about pain and stress: Pain (NRS); TMD (not identified)
(11) Comforted ("reassurence of occlusion") vs. occlusal adjustment: Pain (VAS); craniomandibular disorders and a history of headache

Figure 95: Self-care, counselling, and education versus other treatment (outcome: change in pain intensity, timeframe: less than six months) low disability= acute pain; high disability = chronic pain; unclear = pain not identified

APPENDIX IX: Forest plots

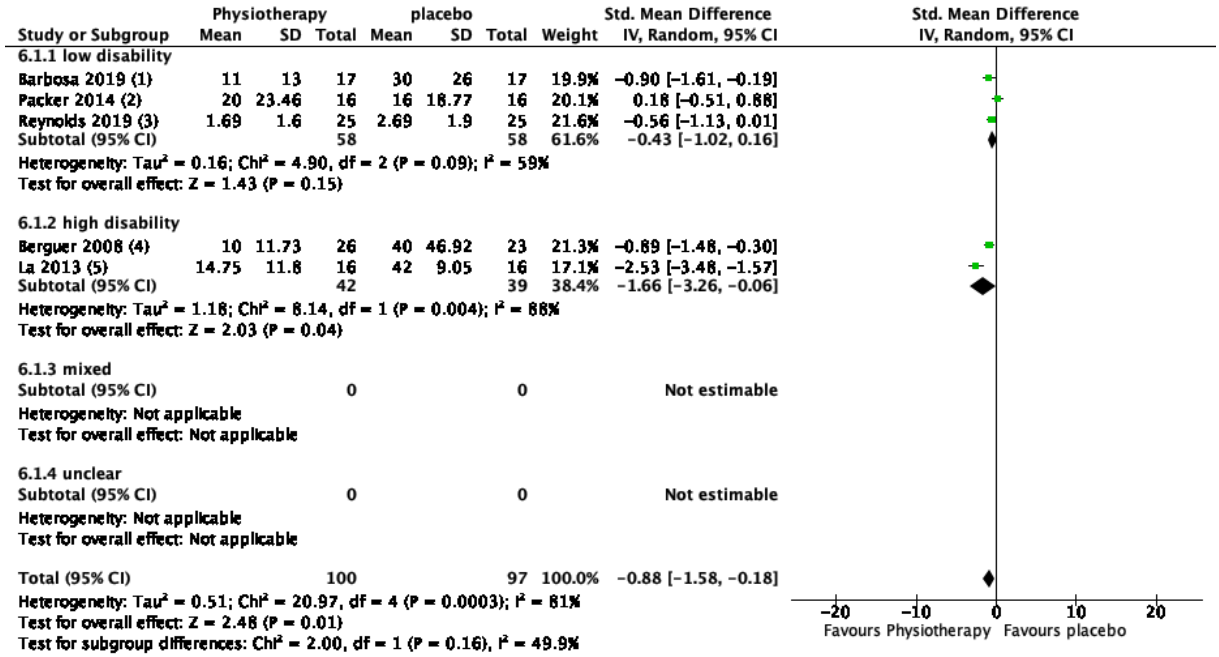
Physiotherapy



Footnotes

(1) Kinesio Taping with counselling and jaw exercise vs. counselling and exercise alone: Pain (VAS); TMD of mixed origin
(2) Manual therapy + splint vs. splint: Pain (VAS); TMD of muscular origin
(3) Physical treatment+splint vs. splint vs. : Pain (VAS); TMD of arthogenic origin
(4) 6x6 exercises + self-care vs. self-care: Pain (NGRS); TMD of muscular origin
(5) Conventional treatment+manipulation technique vs. conventional treatment: Pain (NRS); TMD of muscular and articular origin
(6) Physical therapy + anaesthetic blockage vs. 8 x cycle of anaesthetic blockages: Pain (VAS); TMD of arthogenic origin

Figure 96: Physiotherapy + tx vs. other treatment (outcome: change in pain intensity, timeframe: less than six months); low disability= acute pain; high disability = chronic pain; mixed = acute and chronic pain; unclear = pain not identified

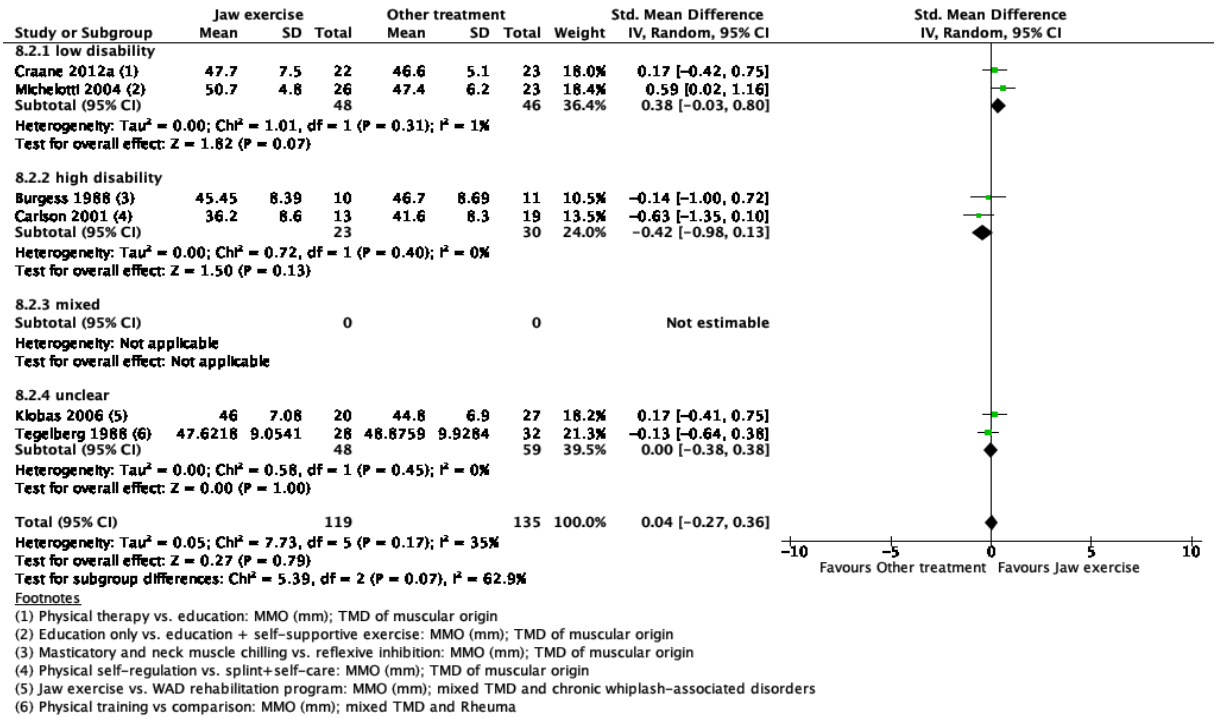


Footnotes

(1) Biting endurance exercises vs. placebo: Pain (VAS); TMD of muscular origin
(2) Upper thoracic manipulation vs. placebo: Pain (VAS); TMD of mixed origin
(3) Cervical thrust joint manipulation+education+exercise vs. sham manipulation: Pain (NPRS); TMD of mixed origin
(4) Neuro-Reflexotherapy vs. sham interventions: Pain (VAS); TMD of muscular origin
(5) Mobilization (upper cervical spine) vs. sham therapy: Pain (VAS); TMD of muscular origin

Figure 97: Physiotherapy vs. placebo (outcome: change in pain intensity, timeframe: less than six months); low disability= acute pain; high disability = chronic pain; mixed = acute and chronic pain; unclear = pain not identified

APPENDIX IX: Forest plots

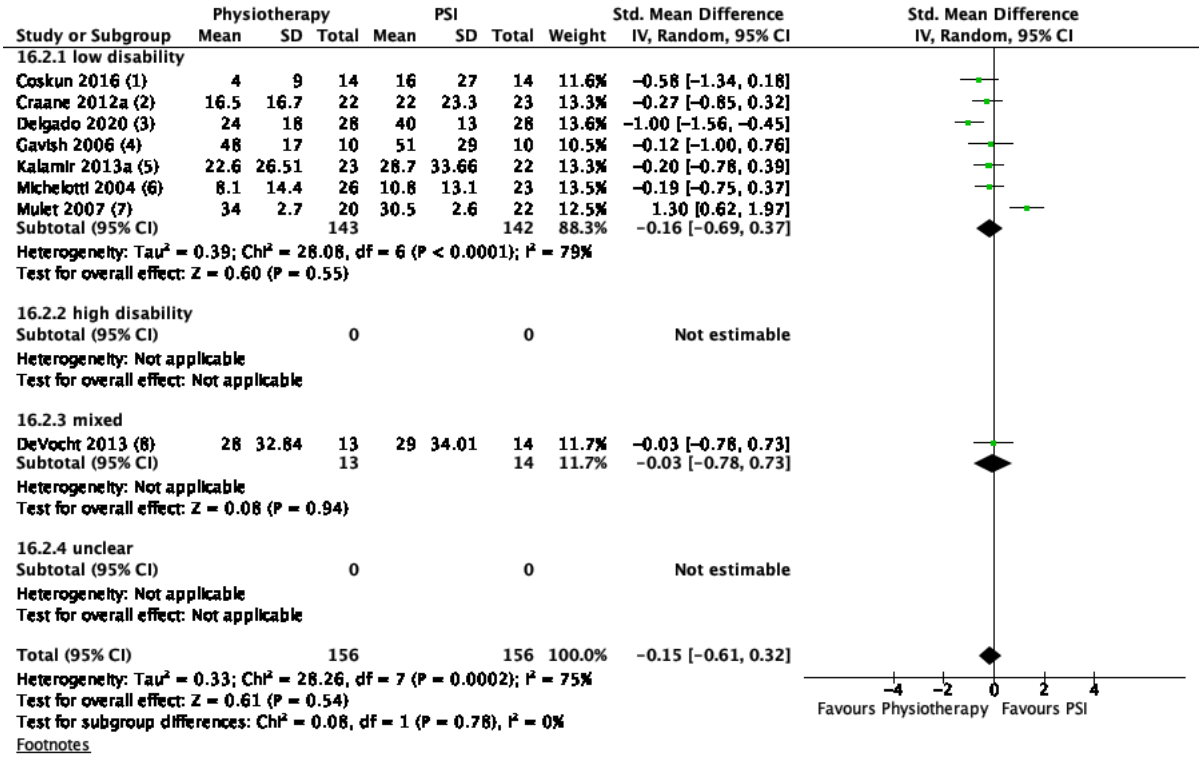


Footnotes

(1) Physical therapy vs. education: MMO (mm); TMD of muscular origin
(2) Education only vs. education + self-supportive exercise: MMO (mm); TMD of muscular origin
(3) Masticatory and neck muscle chilling vs. reflexive inhibition: MMO (mm); TMD of muscular origin
(4) Physical self-regulation vs. splint+self-care: MMO (mm); TMD of muscular origin
(5) Jaw exercise vs. WAD rehabilitation program: MMO (mm); mixed TMD and chronic whiplash-associated disorders
(6) Physical training vs comparison: MMO (mm); mixed TMD and Rheuma

Figure 98: Jaw exercise vs. other treatment (outcome: change in MMO, timeframe: less than six months); low disability= acute pain; high disability = chronic pain; mixed = acute and chronic pain; unclear = pain not identified

APPENDIX IX: Forest plots



Footnotes

(1) Kinesio Taping with counseling and jaw exercise vs. counselling and exercise alone: Pain (VAS); TMD of mixed origin
(2) Physical therapy vs. education: Pain (VAS); TMD of muscular origin
(3) Physiotherapy and manual therapy vs. physiotherapy alone: Pain (NPRS); TMD of mixed origin with tinnitus concomitant
(4) Exercise chewing group vs. Control (only support and encouragement): Pain (CPI); TMD of muscular origin
(5) Intra-oral myofascial therapy education vs. self-care and exercise: Pain (11-point scale); TMD of muscular origin
(6) Education only vs. education + self-supportive exercise: Pain (VAS); TMD of muscular origin
(7) Self-care vs. self-care + 6x6 exercises: Pain (NGRS); TMD of muscular origin
(8) "Self-care" vs. "Chiropractic AMCT": Pain (NRS); TMD of muscular origin

Figure 99: Physiotherapy versus psychosocial interventions (outcome: change pain intensity, timeframe: less than six months) low disability= acute pain; high disability = chronic pain; unclear = pain not identified

APPENDIX X: Funnel plots

Acupuncture

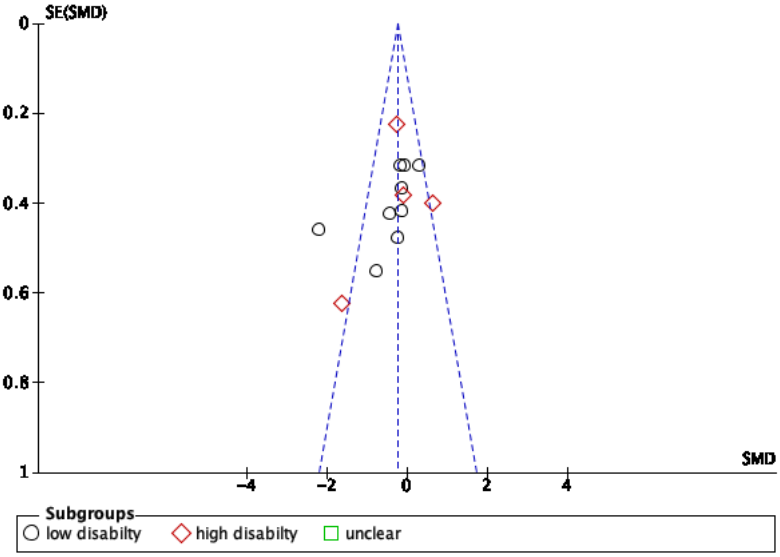


Figure 100: Funnel plot of the comparison: Acupuncture vs. Control, outcome: Pain < 6 months

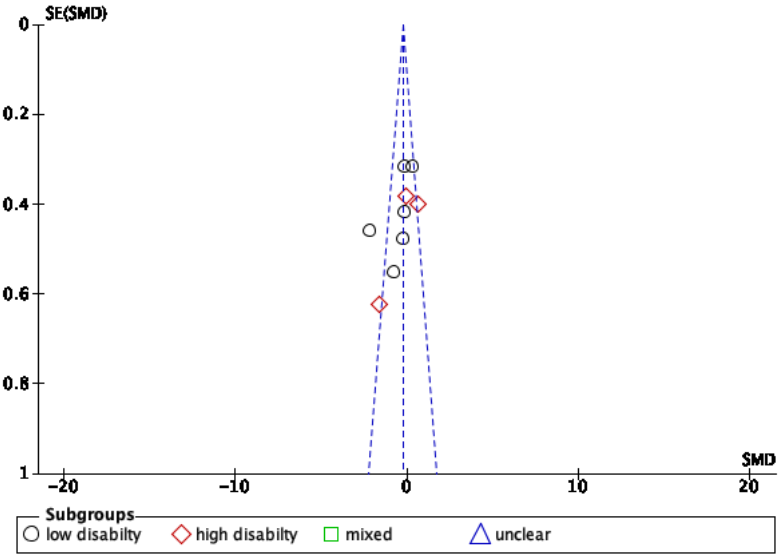


Figure 101: Funnel plot of the comparison: Acupuncture vs. sham acupuncture, outcome: Pain < 6 months

APPENDIX X: Funnel plots

Laser

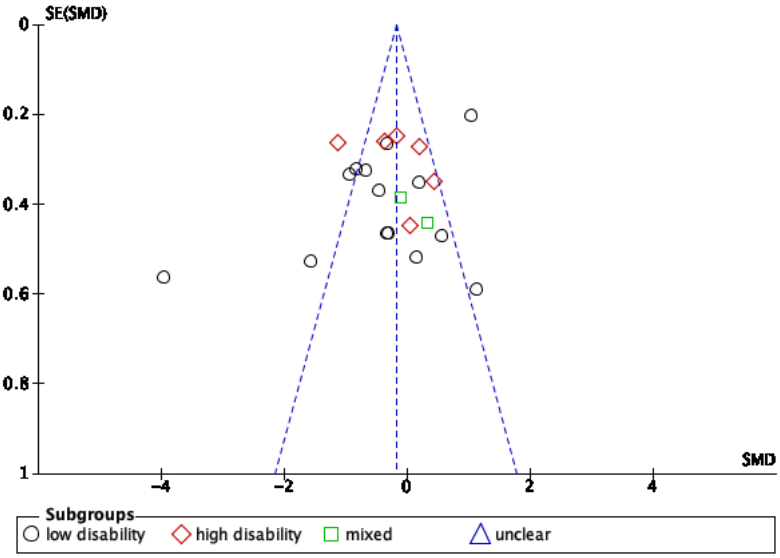


Figure 102: Funnel plot of the comparison: Laser vs. Other treatment, outcome: Pain < 6 months

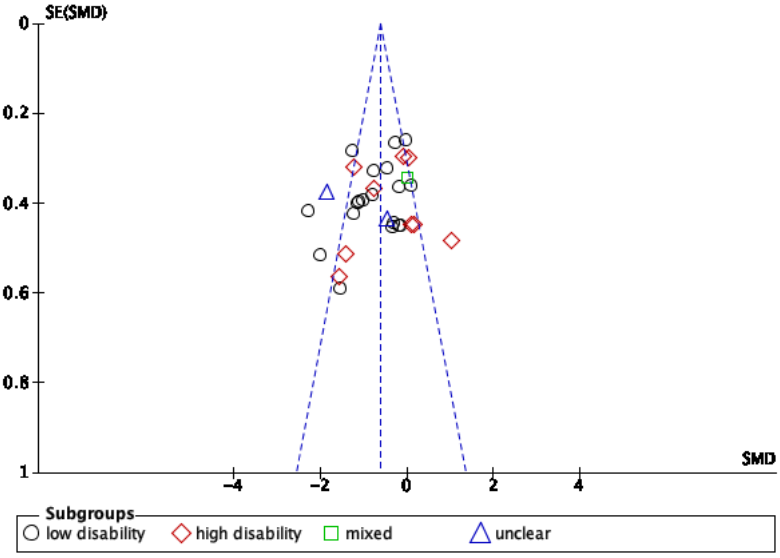


Figure 103: Funnel plot of the comparison: Laser vs. Placebo, outcome: Pain < 6 months

APPENDIX X: Funnel plots

Medication

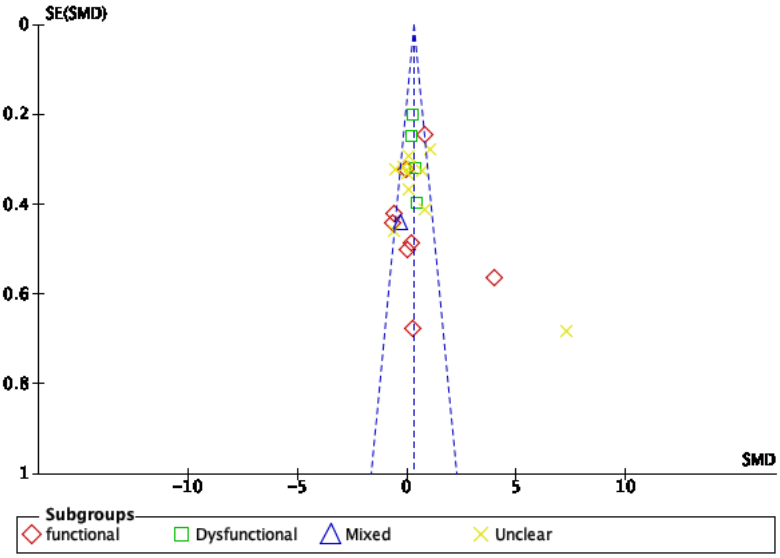


Figure 104: Funnel plot of the comparison: Medication vs. Other treatment, outcome: Pain < 6 months

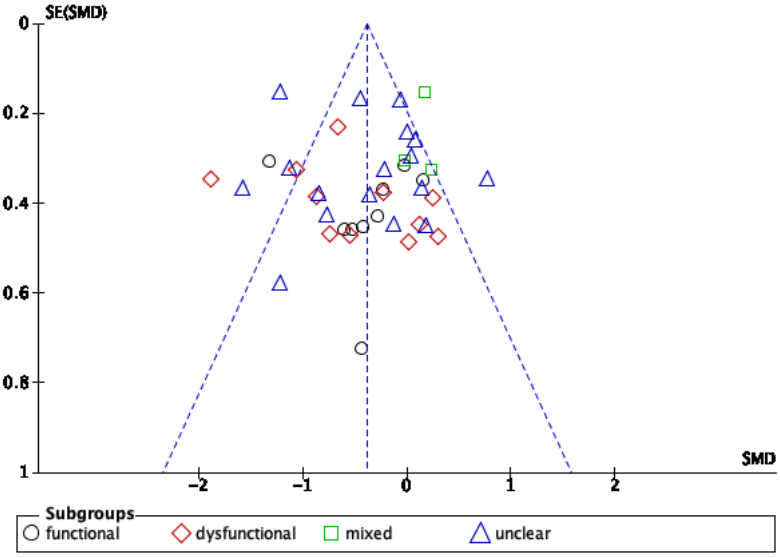


Figure 105: Funnel plot of the comparison: Medication vs. Placebo, outcome: Pain < 6 months

APPENDIX X: Funnel plots

Psychosocial interventions

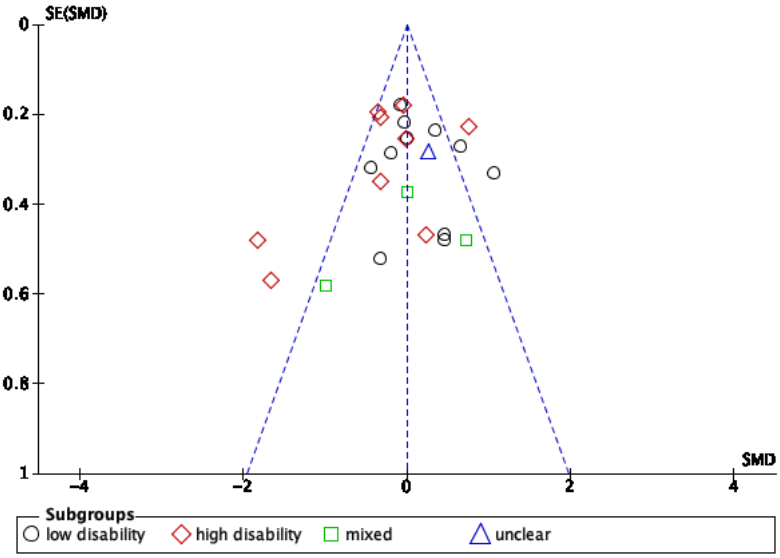


Figure 106: Funnel plot of the comparison: Psychosocial interventions vs. control, outcome: Pain < 6 months

Physiotherapy

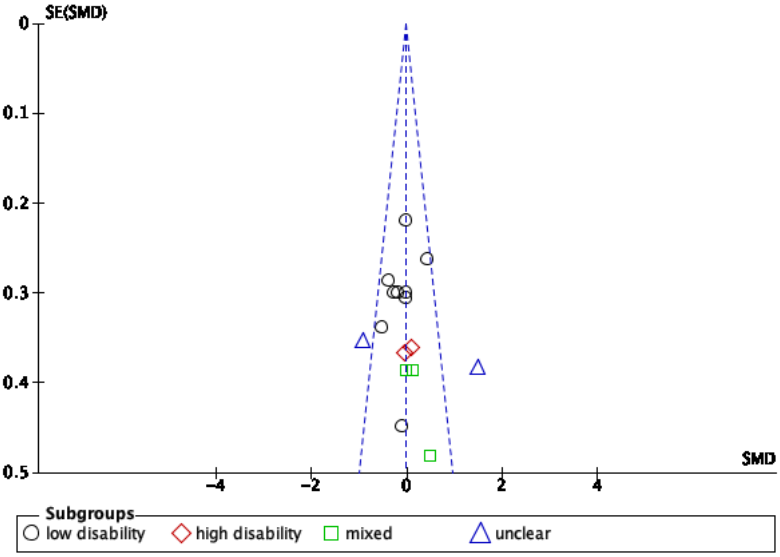


Figure 107: Funnel plot of comparison: physiotherapy vs. other treatment, outcome: pain < 6 months