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temporomandibular disorders

Troubles temporo-mandibulaires : évaluation de l'acupuncture

1. Systematic Reviews and Meta-Analysis

1.1. Generic Acupuncture

1.1.1. Ning 2026

Ning Z, Ning Z, Chen W, Li W, Wang H, Li S, Yu X. Efficacy of Acupuncture in the Treatment of Temporomandibular Disorders: A Meta-Analysis of Randomised Controlled Trials. J Stomatol Oral Maxillofac Surg. 2026:102881. https://doi.org/10.1016/j.jormas.2026.102881

Objective	To systematically evaluate the efficacy of acupuncture in alleviating pain and improving mandibular function in patients with temporomandibular disorders (TMDs).
Methods	PubMed, Web of Science, Cochrane Library and Embase were searched from inception to 10 January 2026 for randomized controlled trials comparing acupuncture with control interventions in patients with TMDs. A random-effects model was used to pool standardized mean differences (SMDs) with 95% confidence intervals (CIs) for changes from baseline in pain intensity measured by the visual analogue scale (VAS) and maximum mouth opening (MMO).
Results	**Nineteen randomized controlled trials involving 708 patients** were included. Meta-analysis demonstrated that acupuncture was significantly superior to control interventions for reducing pain [standardized mean difference (SMD)=-0.65, 95% CI: -0.83 to -0.48] and improving maximum mouth opening (SMD=0.57, 95% CI: 0.38-0.77). Subgroup analyses indicated similar efficacy for needle acupuncture and laser acupuncture. A treatment frequency of at least two sessions per week was associated with more favorable outcomes than one session per week.
Conclusions	Current evidence suggests that acupuncture significantly reduces pain and improves mouth opening in patients with temporomandibular disorders. A treatment frequency of at least two sessions per week may provide greater benefit. Further high-quality randomized controlled trials with long-term follow-up are needed to establish the optimal treatment regimen.

1.1.2. Zhang 2026

Zhang L, Liu M, Li X, Zhao C. Comparative effectiveness of nonpharmacological therapies for adult myogenic temporomandibular disorders: a network meta-analysis of randomized trials. BMC Oral Health. 2026. https://doi.org/10.1186/s12903-026-09044-5

Background	This network meta-analysis aimed to compare the effectiveness of nonpharmacological therapies for pain relief and mandibular function in adults with myogenic temporomandibular disorders (TMD).
Methods	MEDLINE (via PubMed), Embase, Cochrane CENTRAL, Web of Science, and Google Scholar were searched from inception to October 31, 2025. Randomized controlled trials enrolling adults with myogenic TMD were included if they compared predefined nonpharmacological interventions, including photobiomodulation therapy (PBMT), manual therapy (MT), exercise therapy, occlusal splints, acupuncture, electrotherapy, combined therapy, cognitive behavioral therapy, central neuromodulation, or extracorporeal shock wave therapy. Primary outcomes were pain and maximum mouth opening. A frequentist random-effects network meta-analysis was performed, with treatment ranking based on SUCRA. Risk of bias was assessed using the Cochrane RoB 2.0 tool.
Results	Forty-one randomized controlled trials involving 2,021 participants were included. For pain, photobiomodulation therapy ranked highest (SUCRA=88.9%) and was significantly superior to cognitive behavioral therapy [SMD=-2.00, 95% CI: -2.99 to -1.00], electrotherapy [SMD=-1.64, 95% CI: -2.55 to -0.73], conventional care [SMD=-1.49, 95% CI: -2.07 to -0.91], occlusal splint therapy [SMD=-1.43, 95% CI: -2.29 to -0.56], and **acupuncture** [SMD=-1.07, 95% CI: -1.93 to -0.21]. Manual therapy (SUCRA=79.9%) and combined therapy (SUCRA=72.5%) also demonstrated significant analgesic benefits. For maximum mouth opening (31 trials; 1,463 participants), manual therapy ranked highest (SUCRA=92.9%) and significantly outperformed conventional care [SMD=2.79, 95% CI: 1.33-4.26], photobiomodulation therapy [SMD=2.23, 95% CI: 0.19-4.28], **acupuncture** [SMD=2.01, 95% CI: 0.12-3.90], and exercise therapy [SMD=1.85, 95% CI: 0.05-3.64]. Inconsistency was detected only for the comparison between electrotherapy and manual therapy for pain.
Conclusions	Among nonpharmacological interventions for adult myogenic temporomandibular disorders, photobiomodulation therapy showed the greatest short-term efficacy for pain relief, whereas manual therapy ranked highest for improving mandibular opening. **Acupuncture** demonstrated significant benefits but was less effective than the highest-ranked interventions. These findings support tailoring treatment according to the predominant clinical objective.

1.1.3. Chen 2025

Chen QY, Miao Q, Fu FY, Lin Y, Zeng CX, Peng PY, Zhang YX, Liu L, Li B. Non-pharmacological interventions for temporomandibular disorders: A systematic review and meta-analysis. World J Acupunct Moxibustion. 2025 Jul;35(3):182-196. https://doi.org/10.1016/j.wjam.2025.05.002

Background	Temporomandibular disorders (TMDs) are musculoskeletal and neuromuscular conditions affecting the temporomandibular joint, masticatory muscles, and associated tissues. Non-pharmacological interventions are considered potential therapies for TMDs, but high-quality systematic reviews and meta-analyses evaluating their clinical efficacy are lacking.
Objective	To evaluate the clinical efficacy of non-pharmacological interventions for TMDs, focusing on pain relief, jaw mobility, and functional improvement, and to compare the effectiveness of acupuncture, exercise, occlusal splinting, and laser therapy.
Methods	Comprehensive searches for randomized controlled trials were conducted in PubMed, Web of Science, Scopus, Embase, Cochrane Central, CNKI, SinoMed, VIP, and Wanfang databases. Primary outcome: VAS score. Secondary outcomes: pain-free mouth opening, maximum assisted/unassisted mouth opening, and adverse events. Risk of bias was assessed using the Cochrane tool; evidence quality with GRADE. Meta-analysis was performed using RevMan 5.4.

Results	Twenty-two RCTs (n=717) were included. Non-pharmacological interventions significantly reduced VAS scores (MD = –1.86, 95 % CI –2.40 to –1.31; P < 0.05) and improved pain-free mouth opening (MD = 6.92 mm, 95 % CI 4.91–8.94; P < 0.05) and maximum unassisted mouth opening (MD = 4.05 mm, 95 % CI 2.08–6.02; P < 0.05), but not maximum assisted mouth opening. Only one RCT reported adverse events. Subgroup analysis showed that acupuncture, exercise, occlusal splinting, and laser therapy each significantly reduced VAS scores. Acupuncture, occlusal splinting, and laser therapy improved pain-free mouth opening; exercise and occlusal splinting enhanced maximum unassisted mouth opening.
Conclusion	Non-pharmacological interventions, including **acupuncture**, exercise, occlusal splinting, and laser therapy, effectively relieve pain and improve mandibular mobility in TMDs. Occlusal splints had the broadest impact, while acupuncture and laser therapy mainly improved pain-free mouth opening, and exercise enhanced unassisted mouth opening. These results support their integration into conservative management guidelines for TMDs.

1.1.4. Miao 2025

Miao Q, Chen QY, Li SX, Wang WY, Nie LM, Li ST, Lin Y, Liu YH, Liu L, Li B. Acupuncture for the treatment of temporomandibular disorders: A systematic review and meta-analysis. World J Acupunct Moxibustion. 2025;35(4):320-330. https://doi.org/10.1016/j.wjam.2025.09.002

Background	Temporomandibular disorders (TMD) are the leading cause of chronic orofacial pain, which significantly affects patients' quality of life. However, the efficacy of acupuncture in the management of TMD remains unclear.
Objective	This systematic review aimed to conduct a PRISMA-compliant review to critically assess the therapeutic efficacy of acupuncture as an intervention for patients with TMD.
Methods	We searched nine electronic databases for randomized controlled trials on acupuncture for TMD published up to February 4, 2025. Eligible studies included adults diagnosed with TMD and compared acupuncture (manual, electroacupuncture, warm, auricular, thread-embedding, or laser) with conservative treatment (positive control) or sham acupuncture (negative control). Outcomes included pain intensity, mouth opening, pressure pain threshold, and adverse events. Risk of bias was assessed using ROB 2, and certainty of evidence was evaluated using GRADE. All outcome data were analyzed using RevMan 5.4 software. Low heterogeneity was defined as $I^2 \leq 50\%$ and $P \geq 0.1$, in which case a fixed-effects model was applied. High heterogeneity ($I^2 > 50\%$ or $P < 0.1$) prompted further analysis to identify its source. After excluding the influence of evident heterogeneity, a random-effects model was used for the meta-analysis.
Results	Of the 2664 screened records, **14 randomized controlled trials involving 476 participants** met the inclusion criteria. Acupuncture significantly reduced pain intensity compared with that of negative controls (MD = −1.75, 95% confidence interval [CI] −2.47 to −1.03; P < 0.00001; I^2 = 60%) but showed no difference compared with that of positive controls (MD = −0.06, 95% CI −0.62 to 0.50; P = 0.83; I^2 = 0%). No significant differences were observed in pain-free jaw opening, whereas acupuncture improved maximum mouth opening relative to negative controls (MD = 1.80, 95% CI 1.62 to 1.97; P < 0.00001; I^2 = 0%). For pressure pain threshold, two small studies suggested greater increases with acupuncture. Safety data were limited, with only one trial reporting mild adverse events in the acupuncture group.
Conclusion	Based on limited evidence, acupuncture appears superior to negative controls in relieving pain associated with TMD but shows no significant advantage over positive controls. The certainty of the evidence for all outcomes, as assessed by GRADE, was low or very low. Therefore, these findings should be interpreted with caution. Future high-quality randomized controlled trials are warranted to further evaluate the role of acupuncture in the management of patients with TMD.

1.1.5. Di Francesco 2024

Di Francesco F, Minervini G, Siurkel Y, Cicciù M, Lanza A. Efficacy of acupuncture and laser acupuncture in temporomandibular disorders: a systematic review and meta-analysis of randomized controlled trials. BMC Oral Health. 2024 Feb 3;24(1):174. https://doi.org/10.1186/s12903-023-03806-1

Objective	The aim of this study is to perform a qualitative and quantitative analysis of the scientific literature regarding the use of acupuncture and laser acupuncture in the treatment of pain associated with temporomandibular disorders (TMDs). The aim of this article was to assess the clinical evidence for acupuncture and laser acupuncture therapies as treatment for temporomandibular joint disorder (TMD).
Materials and methods	This systematic review includes randomized clinical trials (RCTs) of acupuncture and laser acupuncture as a treatment for TMD compared to other treatments. Systematic searches were conducted in 3 electronic databases up to July 2023; PubMed, EMBASE, and SCOPUS databases. All RCTs of acupuncture for TMD were searched without language restrictions. Studies in which no clinical data and complex interventions were excluded. The Cochrane risk of bias tool (RoB 2) tool was employed to analyze randomized controlled trials. A Meta-analysis was performed in order to investigate a quantitative analysis comparing acupuncture and laser acupuncture to placebo.
Results	A total of **11 RCTs** met our inclusion criteria. The findings show that acupuncture is short-term helpful for reducing the severity of TMD pain with muscle origin. Meta-analysis revealed that the Acupuncture group and Laser Acupuncture group had a higher efficacy rate than the Placebo control group, showing a high efficacy of Acupuncture and Laser Acupuncture group in the treatment of temporomandibular.
Conclusions	In conclusion, our systematic review demonstrate that the evidence for acupuncture as a symptomatic treatment of TMD is limited. Further rigorous studies are, however, required to establish beyond doubt whether acupuncture has therapeutic value for this indication. However high efficacy of Laser Acupuncture in the treatment of temporomandibular disorders was reported.

1.1.6. Tardelli 2024

Tardelli JDC, Gubitoso B, Botelho AL, Valente MLDC, Reis ACD. Efficacy of acupuncture on craniomandibular myofascial pain in temporomandibular disorder patients: A systematic review. Heliyon. 2024 May 31;10(13):e32075. https://doi.org/10.1016/j.heliyon.2024.e32075

Backgound	This systematic review aimed to answer the question, “What is the efficacy of acupuncture treatment in patients with temporomandibular disorder (TMD) with myofascial pain?”.
Data sources and study selection	This study followed PRISMA guidelines and was registered in PROSPERO. The electronic search strategy was applied to the Scopus, PubMed, Embase, and Science Direct databases. As inclusion criteria, were selected randomized clinical articles that evaluated patients with myofascial pain symptoms treated by acupuncture without the restriction of time and language.
Results	The search in the databases resulted in 286 articles, after removing the duplicates 251 were analyzed by title and abstract. Twenty were selected for full reading and **10 were included** in the systematic review. The studies evaluated acupuncture treatments by puncture and laser, auriculotherapy by puncture and laser, and an occlusal device for treating myofascial TMD.

Conclusions	Comparing acupuncture with placebo acupuncture, it was observed that it is effective for subjective pain relief and palpation of orofacial structures with immediate results; it should be noted that there is still no specific protocol and that the duration of treatment must be personalized. When comparing it with the occlusal device, the associated treatment has enhanced the results. Future studies are suggested by the current literature gap that prevents the determination of clinical guidelines for effective acupuncture treatment in TMD patients with myofascial pain.
Practical implications	Laser and needle puncture acupuncture treatment and laser and needle puncture auriculotherapy have shown favorable results in short-term myofascial pain relief. The need for long-term studies to assess benefits and reduce possible biases is highlighted.

1.1.7. Al-Moraissi 2023 Ø

Al-Moraissi EA, Goddard G, Christidis N. Are acupuncture and dry needling effective in the management of masticatory muscle pain: A network meta-analysis of randomised clinical trials. J Oral Rehabil. 2023 Jan;50(1):87-97. https://doi.org/10.1111/joor.13382. Epub 2022 Nov 3.

Background	Several studies have shown that both acupuncture and dry needling are effective in the treatment of musculoskeletal pains. Therefore, the aim of this network meta-analysis (NMA) was to investigate the treatment outcome of acupuncture and dry-needling for masticatory muscle pain(TMD-M) and to compare with active and inactive placebo.
Material and method	An electronic search was performed to identify randomised controlled trials (RCTs) published until September 2019, comparing dry-needling, acupuncture, and inactive as well as active placebo in patients with TMD-M. Outcome variables were post-treatment pain intensity, pressure pain threshold (PPT), and maximum mouth opening (MMO). The quality of evidence was rated according to Cochrane's tool for assessing the risk of bias. Mean difference was used to analyse via frequentist NMA using STATA-software.
Results	Both NMA and direct pairwise meta-analysis have shown that there was no difference between active treatment with either acupuncture or dry-needling when compared to active and inactive placebo in patients with TMD-M with respect to pain intensity, and PPT ($p > .05$). However, there was a significant increase in MMO following dry-needling when compared to the placebo (very low-quality evidence).
Conclusion	Despite the short-term positive effect of MMO by dry-needling, this NMA could not show any pain-reducing effect in patients with TMD-M by acupuncture or dry-needling when compared to an active or inactive placebo. Taken together, this NMA indicates that it is the placebo effect that accounts for the majority of the treatment effect of TMD-M, rather than a real therapeutic effect of acupuncture/dry-needling.

1.1.8. Orzeszek 2023

Orzeszek S, Waliszewska-Prosol M, Ettlin D, Seweryn P, Straburzynski M, Martelletti P, Jenca A Jr, Wieckiewicz M. Efficiency of occlusal splint therapy on orofacial muscle pain reduction: a systematic review. BMC Oral Health. 2023 Mar 28;23(1):180. https://doi.org/10.1186/s12903-023-02897-0

Background	This systematic review aims to examine the existing original studies to determine the effectiveness of occlusal splints (OSs) in the management of orofacial myalgia and myofascial pain (MP) in comparison with no treatment or other interventions.

Materials and Methods	Based on the inclusion and exclusion criteria of this systematic review, randomized controlled trials were qualified, in which the effectiveness of occlusal splint therapy in the management of muscle pain was examined in comparison with no treatment or other interventions. This systematic review was conducted according to the guidelines of Preferred Reporting Items for Systematic Reviews and Meta-Analysis 2020. The authors searched three databases (PubMed, CINAHL (The Cumulative Index to Nursing and Allied Health Literature) and Scopus) for English publications published between January 1, 2010, and June 1, 2022. The last database search was carried out on June 4, 2022. Data were extracted from the included studies and assessed for risk of bias using the revised Cochrane risk-of-bias tool for randomized trials.
Results	Thirteen studies were identified for inclusion in this review. In total, 589 patients were diagnosed with orofacial muscle pain who underwent education and various forms of therapy including different types of OSs, light emitting diode therapy, **acupuncture**, low-level laser therapy, device-supported sensorimotor training, Kinesio Taping, myofunctional therapy, and physical therapy. All studies included demonstrated a high risk of bias.
Conclusions	There is insufficient evidence regarding whether OS therapy in the treatment of orofacial myalgia and MP offers an advantage over other forms of interventions or no treatment. Further reliable clinical studies in this area are needed to improve the quality of research, which should be performed with larger groups of blinded respondents and controls.
Clinical relevance	Due to the large-scale nature of orofacial muscle pain, it is assumed that each dental clinician will meet patients with orofacial muscle pain repeatedly in daily practice; hence, the review of the effectiveness of OSs in the management of orofacial myalgia and MP is necessary.

1.1.9. Park 2023 ★

Park EY, Cho JH, Lee SH, Kim KW, Ha IH, Lee YJ. Is acupuncture an effective treatment for temporomandibular disorder?: A systematic review and meta-analysis of randomized controlled trials. Medicine (Baltimore). 2023 Sep 22;102(38):e34950. https://doi.org/10.1097/MD.0000000000034950

Background	Acupuncture is used for treating various disorders, but its effects on temporomandibular disorder (TMD) remain unclear. This study aimed to assess the effectiveness and safety of acupuncture for TMD via a systematic review of randomized clinical trials.
Methods	A total of 11 Korean and worldwide databases were searched to identify acupuncture studies in adults with TMD. A Cochrane risk of bias assessment was performed on all articles; a meta-analysis, which involved the categorization according to the type of control used (inactive control, active control, or add-on), was subsequently performed. The quality of evidence was assessed using the Grading of Recommendations, Assessment, Development and Evaluation methodology.
Results	The qualitative analysis of randomized clinical trials with acupuncture as the intervention included **32 articles, 22 of which were included in the quantitative analysis (471 participants)**. Acupuncture significantly improved outcomes (effect rate, relative risk [RR]: 7.00, 95% confidence interval [CI]: 1.91, 25, 62; visual analog scale, standardized mean difference: 0.49, 95% CI: 0.24, 0.73) versus active controls (effect rate, RR: 1.19; 95% CI: 1.12, 1.27). In the analysis of add-ons, acupuncture significantly improved the effect rate and pain intensity (effect rate, RR: 1.36; 95% CI: 1.04, 1.77; visual analog scale, mean difference: -1.23; 95% CI -1.79, -0.67). However, the quality of evidence was determined to range from low to very low.

Conclusion	Acupuncture in TMD significantly improved outcomes versus active controls and when add-on treatments were applied. However, as the quality of evidence was determined to be low, well-designed clinical trials should be conducted in the future.

1.1.10. Peixoto 2023 ★

Peixoto KO, Abrantes PS, De Carvalho IHG, De Almeida EO, Barbosa GAS. Temporomandibular disorders and the use of traditional and laser acupuncture: a systematic review. Cranio. 2023 Nov;41(6):501-507. https://doi.org/10.1080/08869634.2021.1873605

Objective	To evaluate current studies to establish and compare the efficacy of traditional and laser acupuncture in reducing the signs and symptoms of temporomandibular disorders (TMD).
Methods	PubMed, Cochrane, Scopus, and Web of Science databases were searched. Clinical, controlled, and randomized trials written in English and having used traditional or laser acupuncture as therapy for TMD and RDC/TMD or DC/TMD as a diagnostic criterion for TMD were included.
Results	**Six studies** that evaluated the intensity of pain and the level of mouth opening of the patients submitted to acupuncture were selected, and all showed improvement. However, similar results were also observed in the groups treated with occlusal splint and placebo acupuncture. Only one study evaluated laser acupuncture and showed a higher proportion of patients with remission of symptoms in the experimental group.
Conclusion	The traditional acupuncture seems to relieve the signs and symptoms of TMD, as well as laser acupuncture when associated with occlusal splint. However, more rigorous and high-quality clinical trials are needed.

1.1.11. Yao 2023 ★

Yao L, Sadeghirad B, Li M, Li J, Wang Q, Crandon HN, Martin G, Morgan R, Florez ID, Hunskaar BS, Wells J, Moradi S, Zhu Y, Ahmed MM, Gao Y, Cao L, Yang K, Tian J, Li J, Zhong L, Couban RJ, Guyatt GH, Agoritsas T, Busse JW. Management of chronic pain secondary to temporomandibular disorders: a systematic review and network meta-analysis of randomised trials. BMJ. 2023 Dec 15;383:e076226. https://doi.org/10.1136/bmj-2023-076226. PMID: 38101924.

Objective	We explored the comparative effectiveness of available therapies for chronic pain associated with temporomandibular disorders (TMD).
Design	Systematic review and network meta-analysis of randomised clinical trials (RCTs).
Method	Data sources: MEDLINE, EMBASE, CINAHL, CENTRAL, and SCOPUS were searched to May 2021, and again in January 2023. Study selection: Interventional RCTs that enrolled patients presenting with chronic pain associated with TMD. Data extraction and synthesis: Pairs of reviewers independently identified eligible studies, extracted data, and assessed risk of bias. We captured all reported patient-important outcomes, including pain relief, physical functioning, emotional functioning, role functioning, social functioning, sleep quality, and adverse events. We conducted frequentist network meta-analyses to summarise the evidence and used the GRADE approach to rate the certainty of evidence and categorise interventions from most to least beneficial.

Results	233 trials proved eligible for review, of which 153-enrolling 8713 participants and exploring 59 interventions or combinations of interventions-were included in network meta-analyses. All subsequent effects refer to comparisons with placebo or sham procedures. Effects on pain for eight interventions were supported by high to moderate certainty evidence. The three therapies probably most effective for pain relief were cognitive behavioural therapy (CBT) augmented with biofeedback or relaxation therapy (risk difference (RD) for achieving the minimally important difference (MID) in pain relief of 1 cm on a 10 cm visual analogue scale: 36% (95% CI 33 to 39)), therapist-assisted jaw mobilisation (RD 36% (95% CI 31 to 40)), and **manual trigger point therapy** (RD 32% (29 to 34)). Five interventions were less effective, yet more effective than placebo, showing RDs ranging between 23% and 30%: CBT, supervised postural exercise, supervised jaw exercise and stretching, supervised jaw exercise and stretching with manual trigger point therapy, and usual care (such as home exercises, self stretching, reassurance).Moderate certainty evidence showed four interventions probably improved physical functioning: supervised jaw exercise and stretching (RD for achieving the MID of 5 points on the short form-36 physical component summary score: 43% (95% CI 33 to 51)), manipulation (RD 43% (25 to 56)), **acupuncture** (RD 42% (33 to 50)), and supervised jaw exercise and mobilisation (RD 36% (19 to 51)). The evidence for pain relief or physical functioning among other interventions, and all evidence for adverse events, was low or very low certainty.
Conclusion	When restricted to moderate or high certainty evidence, interventions that promote coping and encourage movement and activity were found to be most effective for reducing chronic TMD pain.

1.1.12. Al-Moraissi 2020 (network meta-analysis)

Al-Moraissi EA, Alradom J, Aladashi O, Goddard G, Christidis N. Needling therapies in the management of myofascial pain of the masticatory muscles: A network meta-analysis of randomised clinical trials. J Oral Rehabil. 2020;47(7):910-922. [210293]. doi

Objective	A network meta-analysis (NMA) of randomised clinical trials (RCTs) was performed aiming to compare the treatment outcome of dry needling, acupuncture or wet needling using different substances in managing myofascial pain of the masticatory muscles (TMD-M).
Method	An electronic search was undertaken to identify RCTs published until September 2019, comparing dry needling, acupuncture or wet needling using local anaesthesia (LA), botulinum toxin-A (BTX-A), granisetron, platelet-rich plasma (PRP) or passive placebo versus real active placebo in patients with TMD-M. RCTs meeting the inclusion criteria were stratified according to the follow-up time: immediate post-treatment to 3 weeks, and 1 to 6 months post-treatment. Outcome variables were post-treatment pain intensity, increased mouth opening (MMO) and pressure threshold pain (PPT). The quality of evidence was rated according to Cochrane's tool for assessing risk of bias. Mean difference (MD) was used to analysed via frequentist NMA using Stata software.
Results	**Twenty-one RCTs involving 959 patients were included**. The quality of evidence of the included studies was low or very low. There was significant pain decrease after PRP when compared to an active/passive placebo and acupuncture. There was a significant improvement of MMO after LA (MD = 3.65; CI: 1.18-6.1) and dry needling therapy (MD = 2.37; CI: 0.66-4) versus placebo. The three highest ranked treatments for short-term post-treatment pain reduction in TMD-M (1-20 days) were PRP (95.8%), followed by LA (62.5%) and dry needling (57.1%), whereas the three highest ranked treatments at intermediate-term follow-up (1-6 months) were LA (90.2%), dry needling (66.1%) and BTX-A (52.1%) (all very low-quality evidence). LA (96.4%) was the most effective treatment regarding the increase in MMO followed by dry needling (72.4%).

Conclusion	Based on this NMA, one can conclude that the effectiveness of needling therapy did not depend on needling type (dry or wet) or needling substance. The outcome of this NMA suggests that LA, BTX-A, granisetron and PRP hold some promise as injection therapies, but no definite conclusions can be drawn due to the low quality of evidence of the included studies. This NMA did not provide enough support for any of the needling therapies for TMD-M.

1.1.13. Fernandes 2017 ☆☆

Fernandes AC, Duarte Moura DM, Da Silva LGD, De Almeida EO, Barbosa GAS. Acupuncture in Temporomandibular Disorder Myofascial Pain Treatment: A Systematic Review. J Oral Facial Pain Headache. 2017;31(3):225-232. [195631].

Aims	To carry out a systematic review of clinical trials published up to 2015 to determine the effectiveness of acupuncture in treating myofascial pain in temporomandibular disorder (TMD) patients.
Methods	The databases used were the Cochrane Library, PubMed, Scopus, and Web of Science; the dates of the articles surveyed ranged from 1990 to May 2015. The inclusion criteria were: (1) publications in English, Portuguese, or Spanish; (2) controlled clinical trials; (3) patients with TMD of muscular origin; and (4) studies that used acupuncture or laser acupuncture only for treatment. Reference lists of the included articles were hand searched.
Results	A total of four randomized clinical trials using acupuncture (traditional, trigger point, and laser) for TMD treatment met the eligibility criteria and were included. Although the studies featured small sample sizes and short-term follow-up periods, acupuncture yielded results similar to those observed in groups treated with occlusal splints and were significantly superior than those obtained from placebo acupuncture-treated groups.
Conclusion	Despite the weak scientific evidence supporting its efficacy, acupuncture treatment appears to relieve the signs and symptoms of pain in myofascial TMD. More controlled and randomized clinical trials with larger sample sizes are needed in this field of research to verify these initial findings.

1.1.14. Wu 2017 ☆☆

Wu JY, Zhang C, Xu YP, Yu YY, Peng L, Leng WD, Niu YM, Deng MH.. Acupuncture therapy in the management of the clinical outcomes for temporomandibular disorders: A PRISMA-compliant meta-analysis. Medicine (Baltimore). 2017;96(9):e6064.. [169980].

Purpose	The purpose of this study was to evaluate conventional acupuncture therapy in the management of clinical outcomes for temporomandibular disorders (TMD) in adults.
Methods	The electronic databases PubMed, EMBASE, Cochrane Central Register of Controlled Trials, and Clinical Trails.gov were searched for reports published until March 31, 2016.

Results	**Nine eligible studies** from 8 publications involving **231 patients** were included in the meta-analysis. A comparison of the main outcome of visual analog scale (VAS) values of pain between the acupuncture group and control group showed a significant decrease (MD = -0.98, 95% CI [-1.62, -0.34], I=54%, P=0.003) in the VAS following acupuncture treatment. However, subgroup analysis according to the type of sham control group indicated that there were significant differences in the results when sham acupuncture was used as the control group (MD = -1.54, 95% CI [-2.63, -0.45], I=58%, P=0.006) as well as when sham laser treatment was used as the control group (MD = -1.29, 95% CI [-2.32, -0.27], I = 0%, P = 0.01). However, there was no significant difference when the splint treatment group was used as the control group (MD = -0.09, 95% CI [-0.69, 0.50], I = 0%, P=0.76). Subgroup analyses of VAS for pain by the classification of diseases indicated that the myogenous TMD subgroup demonstrated a significant difference (MD = -1.49, 95% CI [-2.45, -0.53], I = 47%, P=0.002), and TMD showed no statistically significant difference (MD = -0.42, 95% CI [-1.14, 0.30], I = 46%, P=0.25). Subgroup **analysis according to whether the subgroup penetrated the skin showed that nonpenetrating sham acupuncture as the control group showed a significant difference (MD = -1.56, 95% CI [-2.70, -0.41], I = 58%, P=0.008) compared with the conventional acupuncture as the treatment modality, while penetrating sham acupuncture as the control group showed no significant difference (MD = -1.29, 95% CI [-3.40, 0.82], I = not applicable, P=0.23)**. No publication bias was observed considering the symmetry of the funnel plots.
Conclusion	Our results indicate that conventional acupuncture therapy is effective in reducing the degree of pain in patients with TMD, especially those with myofascial pain symptoms.

1.1.15. Li 2015 ☆☆

Li Hui-Ping, Zhang Shan-Yong. [Meta-analysis of the efficacy of acupuncture treatment of temporomandibular joint disorder]. Journal of Taishan Medical College. 2015;1:10-13. [187016].

Objective	To make Meta-analysis of the effectiveness of acupuncture method of systematic review methods in the treatment of temporomandibular joint disorder.
Methods	We searched the Cochrane Library and other databases, and build a database about the acupuncture treatment of temporomandibular joint disorder cases reported in the literature in June2014, while having the recourse to incorporate literature references. According to the Cochrane Collaboration by researchers GRADE system approach, the quality of the included studies was rigorously evaluated and data was extracted to meet the quality standards of the Meta-analysis of RCT. Rev Man-5. 0. 25 software and GRAD Eprofiler3. 3. 2 were used for statistical analysis.
Results	**Six were included in the final study of literature**. Meta-analysis of the results showed that the therapeutic effect of acupuncture and conventional methods of treatment of temporomandibular joint disorders had significant statistical significance {WMD = 3. 61, 95% CI (2. 47, 5. 28), P = 0. 005}, The ending of the GRADE system was recommended for middle grade rating.
Conclusion	**Acupuncture can improve the temporomandibular joint disorder** patients' pain, mouth snapping, movement disorders and other symptoms.

1.1.16. Jung 2011 ☆

Jung A, Shin BC, Lee MS, Sim H, Ernst E. Acupuncture for treating temporomandibular joint disorders: a systematic review and meta-analysis of randomized, sham-controlled trials. J Dent. 2011. 24. [156145].

Objective	The aim of this article was to assess the clinical evidence for or against acupuncture and acupuncture-like therapies as treatments for temporomandibular joint disorder (TMD).
Methods	Data: This systematic review includes randomized clinical trials (RCTs) of acupuncture as a treatment for TMD compared to sham acupuncture. The search terms were selected according to medical subject heading (MeSH). Sources: Systematic searches were conducted in 13 electronic databases up to July 2010; Medline, PubMed, The Cochrane Library 2010 (Issue 7), CINAHL, EMBASE, seven Korean Medical Databases and a Chinese Medical Database. Study selection: All parallel and cross-over RCTs of acupuncture for TMD were searched without language restrictions. Studies in which no clinical data and complex interventions were excluded.
Results	Finally, total of **7 RCTs met our inclusion criteria**.
Conclusions	In conclusion, our systematic review and meta-analysis demonstrate that **the evidence for acupuncture as a symptomatic treatment of TMD is limited**. Further rigorous studies are, however, required to establish beyond doubt whether acupuncture has therapeutic value for this indication.

1.1.17. Cho 2010 ☆

Cho SH, Whang WW. Acupuncture for temporomandibular disorders: a systematic review. J Orofac Pain. 2010. 24(2):152-62. [155392].

Aims	To assess the effectiveness of acupuncture for the symptomatic treatment of temporomandibular disorders (TMD) from a review of studies using randomized controlled trials (RCTs).
Methods	Electronic databases were systematically searched for articles reporting RCTs investigating acupuncture for TMD. The methodological qualities of eligible studies were assessed using the criteria described in the Cochrane Handbook.
Results	**Nineteen reports were systematically reviewed**. There was moderate evidence that classical acupuncture had a positive influence beyond those of placebo (three trials, 65 participants); had positive effects similar to those of occlusal splint therapy (three trials, 160 participants); and was more effective for TMD symptoms than physical therapy (four trials, 397 participants), indomethacin plus vitamin B1 (two trials, 85 participants), and a wait-list control (three trials, 138 participants). Only two RCTs addressed adverse events and reported no serious adverse events.
Conclusion	**This systematic review noted moderate evidence that acupuncture is an effective intervention to reduce symptoms associated with TMD.** There is a need for acupuncture trials with adequate sample sizes that address the long-term efficacy or effectiveness of acupuncture.

1.1.18. La Touche 2010 ☆

La Touche R, Goddard G, De-La-Hoz JL, Wang K, Paris-Alemany A, Angulo-Díaz-Parreño S, Mesa J, Hernández M. Acupuncture in the treatment of pain in temporomandibular disorders: a systematic review and meta-analysis of randomized controlled trials. Clin J Pain. 2010. 26(6):541-50. [155583].

Objectives	The aim of this study is to perform a qualitative and quantitative analysis of the scientific literature regarding the use of acupuncture in the treatment of pain associated with temporomandibular disorders (TMDs).

Methods	By using electronic databases, the goal was to search and evaluate all the randomized controlled trials (RCTs) in which acupuncture was used in the management of pain attributed to these clinical entities. For the meta-analysis, an adequate description of the results' statistical data was required along with a comparison of the treatment with a control group using a placebo or sham. Two independent reviewers evaluated the quality of the studies using the Jadad scale.
Results	A total of **8 RCTs** were selected, and the quality of only 4 was considered acceptable. These 4 studies showed positive results such as reducing pain, improving masticatory function, and increasing maximum interincisal opening. By combining the studies (n=96) and analyzing the results, it was concluded that acupuncture is more effective than placebo in reducing pain intensity in TMD (standardized mean difference 0.83; 95% confidence interval, 0.41-1.25; P=0.00012).
Discussion	The results of this meta-analysis suggest that **acupuncture is a reasonable adjunctive treatment for producing a short-term analgesic effect in patients with painful TMD symptoms**. Although the results described are positive, the relevance of these results was limited by the fact that substantial bias was present. These findings must be confirmed by future RCTs that improve the methodologic deficiencies of the studies evaluated in this meta-analysis.

1.1.19. La Touche 2010

La Touche R, Angulo-Díaz-Parreño S, De-La-Hoz JL, Fernández-Carnero J, Ge Hy, Linares Mt, Mesa J, Sánchez-Gutiérrez J. Effectiveness of acupuncture in the treatment of temporomandibular disorders of muscular origin: a systematic review of the last decade. J Altern Complement Med. 2010. 16(1):107-12. [160283].

Objective	
Methods	The information was gathered using the MEDLINE, EMBASE, CINAHL, and CISCOM databases. The inclusion criteria for selecting the studies were the following: (1) only randomized controlled trials (RCTs) were selected; (2) studies had to be carried out on patients with TMD of muscular origin; (3) studies had to use acupuncture treatment; and (4) studies had to be published in scientific journals between 1997 and 2008. Two (2) independent reviewers analyzed the methodological quality of the studies using the Delphi list.
Results	A total of **four RCTs** were chosen once the methodological quality was judged as being acceptable. All of the studies included in the review compared the acupuncture treatment with a placebo treatment. All of them described results that were statistically significant in relation to short-term improvement of TMD signs and symptoms of a muscular origin, except one of the analyzed studies that found no significant difference between acupuncture and sham acupuncture.
Conclusions	In the authors' opinion, research into the long-term effects of acupuncture in the treatment of TMD is needed. We also recommend larger samples sizes for future studies, so the results will be more reliable.

1.1.20. Mcneely 2006

Mcneely ML, Armijo Olivo S, Magee DJ. A systematic review of the effectiveness of physical therapy interventions for temporomandibular disorders. Phys Ther. 2006. 86(5):710-25. [141243].

Objective	The purpose of this qualitative systematic review was to assess the evidence concerning the effectiveness of physical therapy interventions in the management of temporomandibular disorders.

Methods	A literature search of published and unpublished articles resulted in the retrieval of 36 potential articles.
Results	Twelve studies met all selection criteria for inclusion in the review: 4 studies addressed the use of therapeutic exercise interventions, **2 studies examined the use of acupuncture,** and 6 studies examined electrophysical modalities. Two studies provided evidence in support of postural exercises to reduce pain and to improve function and oral opening. One study provided evidence for the use of manual therapy in combination with active exercises to reduce pain and to improve oral opening. One study provided evidence in support of acupuncture to reduce pain when compared with no treatment; however, in another study no significant differences in pain outcomes were found between acupuncture and sham acupuncture. Significant improvements in oral opening were found with muscular awareness relaxation therapy, biofeedback training, and low-level laser therapy treatment.
Conclusion	Most of the studies included in this review were of very poor methodological quality; therefore, the findings should be interpreted with caution.

1.1.21. Fink 2006 ☆

Fink M, Rosted P, Bernateck M, Stiesch-Scholz M, Karst M. Acupuncture in the treatment of painful dysfunction of the temporomandibular joint – a review of the literature. Forsch Komplementarmed . 2006. 13(2):109-15. [119182].

Objective	The aim of the present study was to analyze the results of randomized clinical trials on the efficacy of acupuncture in the treatment of painful dysfunction of the temporomandibular joint.
Methods	A literature search of 3 electronic databases was performed, and only randomized studies comparing acupuncture-treated patients with either untreated or conservatively treated control groups were included. For this purpose, results were compared in narrative and tabular form.
Results	To date, only 8 publications representing **6 randomized clinical trials** have looked into the efficacy of acupuncture in the treatment of craniomandibular dysfunction. With the exception of one, all studies were published in Sweden, between 1985 and 1992. A more recent US study was the only one to apply sham acupuncture to test the efficacy of acupuncture. All studies share methodological shortcomings, including a lack of detailed descriptions of the randomization procedures, point selection, possible dropouts and undesirable events as well as attempts to identify a possible placebo effect of the acupuncture. Only 1 study investigated long-term results. Although based on the improvement of subjective and objective criteria, all studies consider acupuncture as an effective treatment for painful dysfunction of the temporomandibular joint, the good results achieved must be interpreted with caution because of the methodological shortcomings identified.
Conclusion	**Acupuncture appears to be a suitable complementary treatment method in the management of craniomandibular dysfunction**. However, its significance has to be further evaluated in future studies.

1.1.22. Jedel 2003

Jedel E, Carlsson J. Biofeedback, acupuncture and transcutaneous electric nerve stimulation in the management of temporomandibular disorders: a systematic review. Phys Ther Rev. 2003;8:217-23. [199707].

The aim of this systematic review was to assess the efficacy of biofeedback, acupuncture and transcutaneous

electric nerve stimulation in the management of temporomandibular disorders. Articles evaluating the efficacy of biofeedback, acupuncture and transcutaneous electric nerve stimulation in temporomandibular disorders were obtained from the databases Medline, Cinahl, Embase, PsycINFO and Cochrane Controlled Trials register up to May 2002. Seven controlled clinical trials met the criteria for inclusion. The patients included in the studies ranged from 19–100. Three studies assessed the efficacy of biofeedback, three studies assessed the efficacy of acupuncture and one study assessed the efficacy of transcutaneous electric nerve stimulation. A criteria list was used to assess the internal validity of these studies. The studies were considered to be of high quality if at least five of the ten criteria were fulfilled and otherwise were considered to be low quality. The results of the studies were considered positive, negative or indifferent based on the statistical significance of between-group differences. None of the seven studies were of high quality. An analysis of the degree of evidence of the results revealed no evidence for the efficacy of biofeedback, acupuncture or transcutaneous electric nerve stimulation in the management of temporomandibular disorders.

1.1.23. Ernst 1999 ☆

Ernst E et al. Acupuncture as a treatment for temporomandibular joint dysfunction: a systematic review of randomized trials. Arch Otolaryngol Head Neck Surg. 1999. 125(3):269-72. [59060].

Objective	To summarize the data from randomized controlled trials of acupuncture for temporomandibular joint dysfunction.
Methods	Four independent computerized literature searches were performed. Only randomized trials were admitted in which acupuncture was tested vs sham acupuncture, standard therapy, or no treatment at all. Data were extracted in a predefined, standardized fashion.
Results	**Six reports met the inclusion and exclusion criteria, representing 3 distinct trials**. Overall, their results suggest that acupuncture might be an effective therapy for temporomandibular joint dysfunction. However, none of the studies was designed to control for a placebo effect.
Conclusion	Even though all studies are in accordance with the notion that acupuncture is effective for temporomandibular joint dysfunction, this hypothesis requires confirmation through more rigorous investigations.

1.2. Special Acupuncture Techniques

1.2.1. Comparison of Acupuncture techniques

1.2.1.1. Ding 2025

Ding X, Liao S, Li T, Qu W, Nie M. Comparative Efficacy of Needling and Non-Needling Therapies for Temporomandibular Disorders: A Bayesian Network Meta-Analysis. J Pain Res. 2025;18:xxxx-xxxx. https://doi.org/10.2147/JPR.S557353

Objective	To compare the efficacy of dry needling therapy (DNT), traditional acupuncture (TAT), acupuncture-based combined therapy (ACT), and other interventions for temporomandibular disorders (TMD), focusing on pain relief, functional improvement, and treatment efficacy.

Methods	Following the PICOS framework, we systematically searched PubMed, Embase, Cochrane Library, Web of Science, and CNKI up to July 2025 for randomized controlled trials (RCTs) enrolling adults with TMD. Interventions included seven conservative treatments-TAT, DNT, ACT, cognitive behavioral therapy (CBT), comprehensive physiotherapy (CPT), pharmacologic injection therapy (PIT), and control interventions (CTRL). Primary outcomes were pain intensity (VAS) and functional indices, and secondary outcomes included maximal mouth opening (MMO) and effective rate. Bayesian network meta-analysis was used to estimate comparative efficacy, and risk of bias was assessed using RoB 2.0.
Results	This network meta-analysis included 37 randomized controlled trials with a total of 2581 participants. DNT exhibited the strongest analgesic effect (MD vs control: -1.61, 95% CI: -2.81 to -0.4), outperforming TAT (MD: -1.56) and pharmacological injection (MD: -1.41). ACT showed superior multimodal efficacy: significant reductions in PI (MD vs TAT: -0.13) and CMI, plus the highest treatment efficacy rate (RR: 1.8 vs control). For DI, ACT demonstrated marginal improvement over TAT (MD: -0.065, CI near zero). No intervention significantly improved MMO. Importantly, the pain reduction achieved by DNT and ACT met the minimal clinically important difference (MCID) threshold for TMD (VAS 0-1.9), indicating clinically meaningful benefit. Cumulative ranking (SUCRA) confirmed DNT and ACT as top-tier for pain and function, respectively.
Conclusion	DNT and ACT appear to be the most effective interventions for TMD, offering complementary benefits in pain relief and functional recovery. These findings support their potential inclusion in multimodal management strategies, though interpretation should remain cautious given the predominance of Chinese studies and limited long-term and safety data.

1.2.1.2. Yan 2025

Yan Q, Bu H, Xu G, Jia M, Li D. Comparison of the effects of acupuncture methods on the temporomandibular disorder: A network meta-analysis. Oral Dis. 2025 Jan;31(1):12-31. https://doi.org/10.1111/odi.15131

Objective	A network meta-analysis was applied to compare the therapeutic effects of different acupuncture methods on temporomandibular disorder (TMD).
Methods	Comprehensive searches were conducted in Cochrane, PubMed, Embase, Web of Science, CNKI, Wanfang, and VIP databases for randomized controlled trials on acupuncture for TMD up to January 21, 2024. Data were analyzed using R software with Bayesian methods. The primary outcome was pain score, and the secondary outcome was mouth opening.
Results	**Thirty-five studies involving 1,937 TMD patients** were included. The network meta-analysis indicated that DN-PT (dry needling combined with physical therapy) showed the best effect in relieving pain and improving mouth opening.
Conclusion	Based on available evidence, DN-PT appears most effective for relieving TMD pain and enhancing mouth opening. However, limited reporting of certain acupuncture modalities may increase result variability and reduce reliability.

1.2.1.3. Ha 2024

Ha S, Kang SW, Lee S. Comparative effectiveness of traditional East Asian medicine treatments for temporomandibular joint disorders: A systematic review and network meta-analysis. Integr Med Res. 2025 Mar;14(1):101114. https://doi.org/10.1016/j.imr.2024.101114

Background	Temporomandibular joint disorders (TMDs) cause pain and functional restrictions in the temporomandibular joint that interfere with daily activities. This study aimed to evaluate and compare the effectiveness and safety of various traditional East Asian medicine treatments, including acupuncture, electroacupuncture, moxibustion, and herbal medicine, in the management of TMD.
Methods	Searches were conducted in MEDLINE, CENTRAL, EMBASE, AMED, CINAHL, OASIS, KISS, RISS, KMbase, KCI, CNKI, and CiNii from inception to November 12, 2023, for randomized controlled trials of traditional East Asian medicine treatments in patients with TMD. A network meta-analysis was performed using frequentist methods, and the Confidence In Network Meta-Analysis methodology was employed to assess evidence quality.
Results	Forty-five studies with 2,211 participants were included. Acupotomy (MD = –5.07, 95 % CI –7.37 to –2.78) and acupuncture (MD = –1.18, 95 % CI –2.28 to –0.09) showed significant superiority in reducing pain compared to sham treatment. According to SUCRA rankings, acupotomy was the most effective, followed by electroacupuncture, acupuncture, manipulation, laser therapy, and occlusal splint. Twelve studies reported adverse events, none of which were serious.
Conclusion	Acupotomy and acupuncture may be more effective than sham treatment in relieving TMD pain and might offer advantages over occlusal splint. Further rigorous and well-designed trials are needed to confirm these findings.

1.2.2. Warm Needle

1.2.2.1. Liu 2021

Liu GF, Gao Z, Liu ZN, Yang M, Zhang S, Tan TP. Effects of Warm Needle Acupuncture on Temporomandibular Joint Disorders: A Systematic Review and Meta-Analysis of Randomized Controlled Trials. Evid Based Complement Alternat Med. 2021. https://doi.org/10.1155/2021/6868625

Background	Temporomandibular joint disorders (TMDs) are a common and prevalent disease with main symptoms of pain, joint sounds, and mandibular movement disorders, which seriously affects the mental health and quality of life of the sufferers. In recent years, there have been an increasing number of studies utilizing warm needle acupuncture (WNA) for the treatment of TMD, and the quality of the studies has gradually improved. However, evidence from evidence-based medicine is lacking. This study aims to use a systematic review and meta-analysis method to understand the efficacy of WNA for the treatment of TMD. Methods and Analysis. We searched randomized controlled trials (RCTs) of WNA for the treatment of TMD from 9 electronic databases, including 5 English databases (PubMed, EMBASE, Cochrane Library, Web of Science, and MEDLINE) and 4 Chinese databases (Chinese National Knowledge Infrastructure (CNKI), Chinese VIP Information, Wanfang Database, and Chinese Biomedical Literature Database (CBM)) from their inception to May 2021. The included RCTs compared WNA with acupuncture, electroacupuncture, pharmacological therapy, or other therapies. And outcome indicators such as total effective rate and cure rate were assessed. All analyses were conducted using RevMan software V5.3 and Stata16. Measurement count data used the relative risk (RR) as the efficacy statistic, and each effect size was given its point estimate value and 95% confidence interval (CI).
Results	The meta-analysis included **10 studies with a total of 670 patients**, which included 340 patients in the experimental group and 330 patients in the control group. The data in this review showed that WNA is superior to treatments such as acupuncture alone, acupuncture therapy combined with TDP, drug therapy, and ultrasonic therapy in terms of effective rate (RR = 1.20; 95% CI, 1.06 to 1.35; and P = 0.003) and cure rate (RR = 1.82; 95% CI, 1.46 to 2.28; and P < 0.00001) for the treatment of TMD.

Conclusions	This systematic review and meta-analysis provides new evidence for the effectiveness of WNA for the treatment of TMD. However, the above conclusions need to be further verified by multicenter prospective studies of larger samples and higher-quality RCTs. Protocol registration number: INPLASY202160030.

1.2.3. Electroacupuncture

1.2.3.1. Sung 2021

Sung SH, Kim D, Park M, Hwang SI, Yoon YJ, Park JK, Sung HK. Electroacupuncture for Temporomandibular Disorders: A Systematic Review of Randomized Controlled Trials. Healthcare (Basel). 2021 Nov 2;9(11):1497. https://doi.org/10.3390/healthcare9111497

Objective	Although electroacupuncture (EA) is an effective treatment for pain relief, there has been no systematic review of EA treatment for temporomandibular disorder TMD. This systematic review aimed to evaluate the efficacy and safety of EA in TMD management.
Methods	We searched 14 databases until April 2021 for randomized controlled trials (RCTs) evaluating the effects of EA on TMDs.
Results	**Eleven RCTs with 667 patients** that used three acupuncture points (ST6, ST7, and LI4) were included. Two RCTs reported significant effects of EA plus microwave treatment compared with EA treatment alone on the total effectiveness rate (TER) for TMD. Further, two studies reported that compared with ultrashort wave alone, EA plus ultrashort wave had a significant effect on the TER for TMD and visual analog scale. All RCTs did not report adverse events.
Conclusions	Our findings demonstrated the positive potential of EA in TMD management. However, there was weak evidence regarding EA use for TMD management given the poor quality and small sample sizes of the included studies. In the future, well-designed RCTs are required. It is necessary to investigate clinical trials and systematic reviews to compare the effectiveness and safety of EA and acupuncture for TMD

1.2.4. Dry needling

1.2.4.1. Vier 2019 ☆

Vier C, Almeida MB, Neves ML, Santos ARSD, Bracht MA. The effectiveness of dry needling for patients with orofacial pain associated with temporomandibular dysfunction: a systematic review and meta-analysis. Braz J Phys Ther. 2019;23(1):3-11. [199912].

Background	Orofacial pain of myofascial origin is often associated with temporomandibular joint dysfunction, affects chewing muscles and may lead to functional limitations. Dry needling is an intervention commonly used for inactivating myofascial pain trigger points.
Objective	To systematically review the effects of dry needling on orofacial pain of myofascial origin in patients with temporomandibular joint dysfunction.
Methods	This systematic review has pain intensity as primary outcome. Searches were conducted on April 13th, 2018 in eight databases, without publication date restrictions. We selected randomized controlled trials published in English, Portuguese, or Spanish, with no restrictions regarding subject ethnicity, age or sex.

Results	**Seven trials** were considered eligible. There was discrepancy among dry needling treatment protocols. Meta-analysis showed that dry needling is better than other interventions for pain intensity as well as than sham therapy on pressure pain threshold, but there is very low-quality evidence and a small effect size. There were no statistically significant differences in other outcomes.
Conclusion	Clinicians can use dry needling for the treatment of temporomandibular joint dysfunction, nevertheless, due the low quality of evidence and high risk of bias of some included studies, larger and low risk of bias trials are needed to assess the effects of dry needling on orofacial pain associated with temporomandibular joint dysfunction.

1.2.4.2. Machado 2018

Machado E, Machado P, Wandscher VF, Marchionatti AME, Zanatta FB, Kaizer OB. A systematic review of different substance injection and dry needling for treatment of temporomandibular myofascial pain. Int J Oral Maxillofac Surg. 2018;47(11):1420-32. [201958].

Objectives and methods	Temporomandibular myofascial pain presents a major challenge in the diagnosis of temporomandibular disorders (TMD). Due to the characteristics of this condition, intramuscular injection procedures are often needed for adequate control of symptoms and treatment. Thus, the aim of this systematic review was to evaluate the effectiveness of dry needling and injection with different substances in temporomandibular myofascial pain. Electronic databases PubMed, EMBASE, CENTRAL/Cochrane, Lilacs, Scopus, Web of Science and CAPES Catalog of Dissertations and Theses were searched for randomized clinical trials until January 2018. Manual search was performed in relevant journals and in the references/citations of the included studies. The selection of studies was carried out by two independent reviewers according to eligibility criteria. From 7128 eligible studies, 137 were selected for full-text analysis and 18 were included.
Results	Due to the heterogeneity of the primary studies it was not possible to perform a meta-analysis. The narrative analysis of the results showed that most of the studies had methodological limitations and biases that compromised the quality of the findings.
Conclusions	Dry needling and local anaesthesic injections seem promising, but there is a need to conduct further randomized clinical trials, with larger samples and longer follow-up times, to evaluate the real effectiveness of the technique and evaluated substances.

1.2.5. Laser acupuncture

1.2.5.1. Da Silva 2024

da Silva Mira PC, Biagini ACSCF, Gomes MG, Galo R, Corona SAM, Borsatto MC. Laser acupuncture to reduce temporomandibular disorder (TMD) symptoms: systematic review and meta-analysis. Lasers Med Sci. 2024 Feb 20;39(1):66. https://doi.org/10.1007/s10103-024-03999-z

Backgound	The application of low-level laser therapy (LLLT) to acupuncture points may produce effects similar to that of needle stimulation in patients with temporomandibular disorders (TMD).

Methods	This systematic review was conducted according to the Cochrane Collaboration guidelines and aimed to address clinical questions using the following strategy: Patient/Problem, Intervention, Comparison, and Outcome (PICO). A comprehensive literature search was performed upto April 26, 2023, across nine electronic databases (BVS, PubMed, Scopus, Embase, Web of Science, ScienceDirect, Cochrane Library, Latin American and Caribbean Health Sciences Literature (LILACS), and Google Scholar) supplemented with gray literature. The risk of bias in randomized and nonrandomized clinical trials was assessed using two tools: risk-of-bias (RoB) 2 and Risk Of Bias In Non-randomised Studies-of Interventions (ROBINS-I). Meta-analysis involved the extraction of mean and standard deviation values for spontaneous pain and mouth opening levels.
Results	**Seven studies** were included in this review, all of which used LLLT. The applied wavelengths ranged from 690 to 810 nm without significant variations in light emission patterns. LLLT demonstrated a significant reduction in instantaneous pain levels (standard mean difference [SMD] = 3.85; 95% confidence interval [CI] = 2.09, 5.62; $p < 0.003$) and an improvement in instantaneous mouth opening ability (mean difference [SMD] = -7.15; 95% CI = -11.73, -2.58; $p < 0.002$), with low certainty of evidence. LLLT may alleviate symptoms in patients with TMD; however, caution should be exercised when interpreting the results because of protocol variations among studies and the limited number of studies included in the meta-analysis.

1.2.5.2. Mota 2024

Mota MML, Aguiar IHAE, de Lima AS, de Oliveira Neto OB, da Silva PLP, Moretti EC, Lemos GA. Effectiveness of Laser Acupuncture for Reducing Pain and Increasing Mouth Opening Range in Individuals with Temporomandibular Disorder: A Systematic Review and Network Meta-Analysis. Curr Pain Headache Rep. 2024 Jul;28(7):723-742. https://doi.org/10.1007/s11916-024-01251-5

Purpose of review	Laser acupuncture (LA) demonstrates promising results in the treatment of musculoskeletal disorders. However, its effects on temporomandibular disorder (TMD) are not yet fully understood. Thus, the aim of this systematic review and network meta-analysis was to assess the effectiveness of LA on pain intensity and maximum mouth opening range (MMO) related to TMD. A search was carried out in 11 electronic databases and references of included studies to locate randomized clinical trials (RCTs) that evaluated LA as a primary treatment for TMD. The risk of bias was assessed using the RoB 2 tool. Network meta-analysis was conducted on the MetaInsight platform, considering the pain intensity and counseling (C) as the outcome of reference. The GRADE system was used to assess the certainty of the evidence.
Recent findings	**Five studies** evaluated pain intensity, four with a high risk of bias and one with a low risk. Two studies evaluated pain intensity on palpation (one with high and one with low risk of bias), and one study with high risk of bias evaluated MMO. Laser parameters were: 690-810 nm, 40-150 mW, and 7.5-112.5 J/cm2. Occlusal splint (OS) [- 2.47; CI 95% - 3.64, - 1.30] and Physiotherapy (PT) [-2.64; CI 95% - 3.94, - 1.34] reduced pain intensity compared to C. The ranking of treatments in order of effectiveness was PT > OS > LA > C > CR (craniopuncture). The certainty of the evidence was very low or low. The data do not support the indication of LA for the treatment of TMDs and new placebo-controlled RCTs must be conducted to demonstrate its effectiveness more precisely.

1.3. Specific outcome

1.3.1. Porporatti 2019 (placebo and nocebo response)

Porporatti AL, Costa YM, Réus JC, Stuginski-Barbosa J, Conti PCR, Velly AM, De Luca Canto G. Placebo

and nocebo response magnitude on temporomandibular disorder-related pain: A systematic review and meta-analysis. J Oral Rehabil. 2019;46(9):862-882. [203597]. DOI

Objectives	The aim of this systematic review (SR) was to answer the following question: “In adult patients with temporomandibular disorder (TMD)-related pain, what is the placebo or nocebo effect of different therapies?”
Methods	A SR was performed with randomised clinical placebo-controlled trials on diagnosed painful TMD studies from five main databases and from three grey literature. Studies included must have sample older than 18 years, with painful TMD, which diagnosis was done by Research Diagnostic Criteria (RDC/TMD) or Diagnostic Criteria (DC/TMD).
Results	Out of 770 articles obtained, 42 met the inclusion criteria for qualitative and 26 for quantitative analysis. Meta-analysis indicated mean variation on pain intensity for placebo therapy was higher on laser acupuncture with 45.5 mm point reduction, followed by avocado soya bean extract with 36 mm and amitriptyline 25 mg with 25.2 mm. Laser showed a 29% of placebo effect, as well medicine with 19% and other therapies with 26%. Possible nocebo effect of 8% pain increase was found for intra-articular injection of Ultracain.
Conclusions	Based on the available data, the placebo response could play a major effect on TMD pain management and may be responsible from 10% to 75% of pain relief. Laser acupuncture, avocado soya bean and amitriptyline promoted the higher placebo effect. Possible nocebo effect was found only for Ultracain injection with 8%.
Clinical relevance	Clinicians could apply such evidence to optimise pain management and judgement about treatment efficacy, and researches may find it useful when designing their investigations.

2. Overviews of Systematic Reviews

2.1. List 2010 ☆

List T, Axelsson S. Management of TMD: evidence from systematic reviews and meta-analyses. J Oral Rehabil. 2010. 20. [155462].

Objective	This systematic review (SR) synthesises recent evidence and assesses the methodological quality of published SRs in the management of temporomandibular disorders (TMD).
Methods	A systematic literature search was conducted in the PubMed, Cochrane Library, and Bandolier databases for 1987 to September 2009. Two investigators evaluated the methodological quality of each identified SR using two measurement tools: the assessment of multiple systematic reviews (AMSTAR) and level of research design scoring.
Results	Thirty-eight SRs met inclusion criteria and 30 were analysed: 23 qualitative SRs and seven meta-analyses. Ten SRs were related to occlusal appliances, occlusal adjustment or bruxism; eight to physical therapy; seven to pharmacologic treatment; four to TMJ and maxillofacial surgery; and six to behavioural therapy and multimodal treatment. The median AMSTAR score was 6 (range 2-11). Eighteen of the SRs were based on randomised clinical trials (RCTs), three were based on case-control studies, and nine were a mix of RCTs and case series. Most SRs had pain and clinical measures as primary outcome variables, while few SRs reported psychological status, daily activities, or quality of life.

Conclusions	**There is some evidence that the following can be effective in alleviating TMD pain**: occlusal appliances, **acupuncture**, behavioural therapy, jaw exercises, postural training, and some pharmacological treatments. Evidence for the effect of electrophysical modalities and surgery is insufficient, and occlusal adjustment seems to have no effect. One limitation of most of the reviewed SRs was that the considerable variation in methodology between the primary studies made definitive conclusions impossible.

3. Clinical Practice Guidelines

⊕ positive recommendation (regardless of the level of evidence reported)
Ø negative recommendation (or lack of evidence)

3.1. International guideline [MAGIC] 2023 ⊕

Busse JW, Casassus R, Carrasco-Labra A, Durham J, Mock D, Zakrzewska JM, Palmer C, Samer CF, Coen M, Guevremont B, Hoppe T, Guyatt GH, Crandon HN, Yao L, Sadeghirad B, Vandvik PO, Siemieniuk RAC, Lytvyn L, Hunskaar BS, Agoritsas T. Management of chronic pain associated with temporomandibular disorders: a clinical practice guideline. BMJ. 2023 Dec 15;383:e076227. https://doi.org/10.1136/bmj-2023-076227

Strong recommendations in favour: Trigger point therapy. *Conditional recommendations in favour*: Acupuncture

3.2. Royal College of Surgeons, Association of British Academic Oral and Maxillofacial Surgeons (ABAOMS) et al (England) 2023 ⊕

Beecroft E, Palmer J, Penlington C, Avery L, Aggarwal V, Chase M, Davies S, Gerber B, Jagger R, Harrison S, Horton M, Jones L, Kalantzis A, Lie S, McKenna G, McMillan R, Morton M, Murphy E, Renton T, Thayer T, Weden A, Durham J (2023). Management of painful Temporomandibular disorder in adults. NHS England Getting It Right First Time (GIRFT) and Royal College of Surgeons' Faculty of Dental Surgery. Available from: https://www.rcseng.ac.uk/dentalfaculties/fds/publications-guidelines/clinical-guidelines/

- Acupuncture/ electroacupuncture/ dry needling/ laser acupuncture : Evidence suggests acupuncture as an adjunctive treatment for individuals with muscular TMD is likely to have a positive effect on pain symptoms. STRONG RECOMMENDATION MODERATE EVIDENCE
- Referral for acupuncture either through NHS referral if available locally or privately by acupuncturist trained for orofacial pain management should be encouraged for those with muscular TMD. MODERATE RECOMMENDATION BASED ON EXPERT.

OPINION

3.3. Korean Medicine Clinical Practice Guideline (KMCPG, Korea) 2023 ⊕

Kim H, Shim JW, Shin WC, Lee YJ, Ha IH, Kim KW, Cho JH. Korean Medicine Clinical Practice Guideline Update for Temporomandibular Disorders: An Evidence-Based Approach. Healthcare (Basel). 2023 Aug 21;11(16):2364. https://doi.org/10.3390/healthcare11162364

Acupuncture		
R1	Acupuncture treatment is recommended for clinical practice of TMD patients.	A/High
R1-1	Remote or neighboring acupuncture points should be considered according to the judgment of KMDs in consideration of the clinical condition of the patient in the clinical practice of TMD patients.	B/Moderate
R2	Acupuncture treatment should be considered in clinical practice for TMD patients.	B/Moderate
R3	Concurrent treatment with acupuncture should be considered in clinical practice for symptom improvement in TMD patients undergoing the usual conservative treatment.	B/Moderate
Laser acupuncture		
R4	Laser acupuncture treatment may be considered in the clinical practice of TMD patients for the improvement of symptoms.	C/Low
Pharmacopuncture		
R5	Consideration of pharmacopuncture treatment is recommended in the clinical practice of TMD patients for the improvement of symptoms.	A/Moderate

3.4. Finnish Dental Society, Duodecim EBM Guidelines (Finland) 2021 ⊕

Temporomandibular pain and disorders. The working group established by Duodecim of the Finnish Dental Association and the Finnish Dental Association Apollonia. 2022.
https://www.kaypahoito.fi/hoi50057

Acupuncture apparently relieves pain and triggers muscle tension and reduces the symptoms and findings of adult patients due to dysfunction of the masticatory system in the short term B. In the treatment of TMD patients, acupuncture has the greatest effect on lower jaw movement capacity and movement pain and muscle pain. Acupuncture may be an alternative or used in conjunction with conventional TMD treatment, particularly in patients with muscular TMD.

Réferences cited:

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2. List T, Helkimo M, Andersson S et al. Acupuncture and occlusal splint therapy in the treatment of craniomandibular disorders. Part I. A comparative study. Swed Dent J 1992;16:125-41
3. List T, Helkimo M. Acupuncture and occlusal splint therapy in the treatment of craniomandibular disorders. II. A 1-year follow-up study. Acta Odontol Scand 1992;50:375-85
4. La Touche R, Goddard G, De-la-Hoz JL et al. Acupuncture in the treatment of pain in temporomandibular disorders: a systematic review and meta-analysis of randomized controlled trials. Clin J Pain 2010;26:541-50
5. Cho SH, Whang WW. Acupuncture for temporomandibular disorders: a systematic review. J Orophac Pain 2010;24:152-62Fernandes AC, Duarte Moura DM, Da Silva LGD et al. Acupuncture in Temporomandibular Disorder Myofascial Pain Treatment: A Systematic Review. J Oral Facial Pain Headache 2017;31:225-232
6. Wu JY, Zhang C, Xu YP et al. Acupuncture therapy in the management of the clinical outcomes for temporomandibular disorders: A PRISMA-compliant meta-analysis. Medicine (Baltimore) 2017;96:e6064

3.5. Canadian Agency for Drugs and Technologies in Health (CADTH, Canada)

2018 ⊕

Interventions for Temporomandibular Joint Disorder: An Overview of Systematic Reviews. Canadian Agency for Drugs and Technologies in Health (CADTH). 2018:108p. [196831].

Overall, low-quality evidence showed potentially favourable results for long-term cognitive behaviour therapy, low level laser therapy, **acupuncture**, manual therapy, cyclobenzaprine hydrochloride, Botulinum toxin, Ping-On ointment, inferior or double spaces injections of hyaluronate or prednisolone, open surgery, and arthroscopy.

3.6. Royal College of Dental Surgeons of Ontario (RCDSO, Canada) 2018 ⊕

Guidelines. Diagnosis and Management of Temporomandibular Disorders. Royal College of Dental Surgeons of Ontario. 2018:12p. [174623].

Therapy by a dentist or other registered health professional, experienced in the management of TMDs, including : - jaw exercises (e.g. relaxation, rotation, stretching, isometrics and postural) − application of superficial heat or cold − massage − manual mobilization − ultrasound − low-intensity laser − TENS (transcutaneous electrical nerve stimulation) − **acupuncture**

3.7. National Institute for Health and Clinical Excellence (NICE, UK) 2016 ⊕

National Collaborating Centre for Nursing and Supportive Care. Temporomandibular disorders (TMDs) :Managment, London (UK): National Institute for Health and Care Excellence (NICE). 2016;:. [196912].

In addition, acupuncture (if available) may reduce myofascial pain intensity and masseteric tenderness by treating muscle trigger points [Durham et al, 2013;Durham et al, 2015 ; Gauer and Semidey, 2015); Ghurye and McMillan, 2015 , but it may have limited long-term benefits [Zakrzewska, 2013)

3.8. Finnish Medical Society and Finnish Dental Society, Duodecim EBM Guidelines (Finland) 2013 ⊕

Le Bell Y, Ahlberg J, Kemppainen P, Kuttila S, Könönen M, Närhi M, Pöllänen M, Raustia A, Remes-Lyly T. [Update on current care guideline: temporomandibular disorders (TMD)]. Duodecim. 2013;129(24):2685-6. [170120].

Temporomandibular disorders (TMD) are common. Usual symptoms are joint noises and pain, pain in masticatory muscles, difficulties in jaw movements and headache. Treatment of TMD includes information on the background and good response to treatment of these disorders. The patient is advised on self-care routines, including relaxing the lower jaw, massaging the masticatory muscles and hot or cold packs on painful sites. Pharmacotherapy consists of paracetamol or anti-inflammatory analgesics. Occlusal appliances, physiotherapy, cognitive therapies and **acupuncture** are recommended. Complicated cases not responding to treatment are referred to specialized care.

3.9. Royal College of Surgeons of England, UK Specialist Interest Group in Orofacial Pain and TMDs (USOT, England) 2013 ⊕

Durham J, Aggarwal V, Davies S et al. Temporomandibular Disorders (TMDs): an update and

management guidance for primary care from the UK Specialist Interest Group in Orofacial Pain and TMDs (USOT).Royal College of Surgeons of England. Royal College of Surgeons of England, UK Specialist Interest Group in Orofacial Pain and TMDs (USOT). 2013;:22P. [196914].

There is some supportive evidence for acupuncture in treatment of myogenous TMDs 55 . This evidence is based on the treatment of trigger points in the musculature, and suggests that acupuncture iay be as effective as other reversible, non-invasive, interventions. As with otler reversible, non-invasive therapies it may help establish control over symptoms breaking tle cycle of continuous symptoms and allow self-management an opportunity to take effect. General dental practitioners can access acupuncture and or physiotherapy through discussion with the I)atient's general medical practitioner.

3.10. The Swedish Council on Technology Assessment in Health Care, Statens beredning för medicinsk utvärdering (SBU, Sweden) 2006 ⊕

Axelsson S, Boivie J, Eckerlund I, Gerdle B, Johansson E, Kristiansson M, List T, Lundberg B, Mannheimer C et al. Metoder för behandling av långvarig smärta [Methods of treating chronic pain]. SBU. Statens beredning för medicinsk utvärdering. The Swedish Council on Technology Assessment in Health Care; Stockholm. 2006;:508. [199760].

Temporomandibular Dysfunction (TMD). Acupuncture. Evidence Force 3 - Limited scientific evidence

4. Randomized Controlled Trials

4.1. Sources incluses

1. **Acudoc2**: base de données du Centre de Documentation du GERA (ECR non inclus dans les revues systématiques sources).
2. **Miao 2025**: Miao Q, Chen QY, Li SX, Wang WY, Nie LM, Li ST, Lin Y, Liu YH, Liu L, Li B. Acupuncture for the treatment of temporomandibular disorders: A systematic review and meta-analysis. World J Acupunct Moxibustion. 2025;35(4):320-330. https://doi.org/10.1016/j.wjam.2025.09.002 (n=14)
3. **Yao 2023**: Yao L, Sadeghirad B, Li M, Li J, Wang Q, Crandon HN, Martin G, Morgan R, Florez ID, Hunskaar BS, Wells J, Moradi S, Zhu Y, Ahmed MM, Gao Y, Cao L, Yang K, Tian J, Li J, Zhong L, Couban RJ, Guyatt GH, Agoritsas T, Busse JW. Management of chronic pain secondary to temporomandibular disorders: a systematic review and network meta-analysis of randomised trials. BMJ. 2023 Dec 15;383:e076226. https://doi.org/10.1136/bmj-2023-076226 (n=10)
4. **Sung 2021**: Sung SH, Kim D, Park M, Hwang SI, Yoon YJ, Park JK, Sung HK. Electroacupuncture for Temporomandibular Disorders: A Systematic Review of Randomized Controlled Trials. Healthcare (Basel). 2021 Nov 2;9(11):1497. https://doi.org/10.3390/healthcare9111497 (n=11)
5. **Vier 2019** : Vier C, Almeida MB, Neves ML, Santos ARSD, Bracht MA. The effectiveness of dry needling for patients with orofacial pain associated with temporomandibular dysfunction: a systematic review and meta-analysis. Braz J Phys Ther. 2019;23(1):3-11. [199912].
6. **Machado 2018**: Machado E, Machado P, Wandscher VF, Marchionatti AME, Zanatta FB, Kaizer OB. A systematic review of different substance injection and dry needling for treatment of temporomandibular myofascial pain. Int J Oral Maxillofac Surg. 2018;47(11):1420-32. [201958].
7. **Fernande 2017** : Fernandes AC, Duarte Moura DM, Da Silva LGD, De Almeida EO, Barbosa GAS. Acupuncture in Temporomandibular Disorder Myofascial Pain Treatment: A Systematic Review. J Oral Facial Pain Headache. 2017;31(3):225-232. [195631].

8. **Wu 2017** : Wu JY, Zhang C, Xu YP, Yu YY, Peng L, Leng WD, Niu YM, Deng MH.. Acupuncture therapy in the management of the clinical outcomes for temporomandibular disorders: A PRISMA-compliant meta-analysis. Medicine (Baltimore). 2017;96(9):e6064.. [169980].
9. **Li 2015**: Li Hui-Ping, Zhang Shan-Yong. [Meta-analysis of the efficacy of acupuncture treatment of temporomandibular joint disorder]. Journal of Taishan Medical College. 2015;1:10-13. [187016].
10. **Jung 2011**: Jung A, Shin BC, Lee MS, Sim H, Ernst E. Acupuncture for treating temporomandibular joint disorders: a systematic review and meta-analysis of randomized, sham-controlled trials. J Dent. 2011. 24. [156145].
11. **Cho 2010**: Cho SH, Whang WW. Acupuncture for temporomandibular disorders: a systematic review. J Orofac Pain. 2010. 24(2):152-62. [155392].
12. **La Touche 2010a**: La Touche R, Goddard G, De-La-Hoz JL, Wang K, Paris-Alemany A, Angulo-Díaz-Parreño S, Mesa J, Hernández M. Acupuncture in the treatment of pain in temporomandibular disorders: a systematic review and meta-analysis of randomized controlled trials. Clin J Pain. 2010. 26(6):541-50. [155583].
13. **La Touche 2010b**: La Touche R, Angulo-Díaz-Parreño S, De-La-Hoz JL, Fernández-Carnero J, Ge Hy, Linares Mt, Mesa J, Sánchez-Gutiérrez J. Effectiveness of acupuncture in the treatment of temporomandibular disorders of muscular origin: a systematic review of the last decade. J Altern Complement Med. 2010. 16(1):107-12. [160283].
14. **Finck 2006**: Fink M, Rosted P, Bernateck M, Stiesch-Scholz M, Karst M. Acupuncture in the treatment of painful dysfunction of the temporomandibular joint – a review of the literature. Forsch Komplementarmed . 2006. 13(2):109-15. [119182].
15. **Mcneely 2006**: Mcneely ML, Armijo Olivo S, Magee DJ. A systematic review of the effectiveness of physical therapy interventions for temporomandibular disorders. Phys Ther. 2006. 86(5):710-25. [141243].
16. **Jedel 2003***: Jedel E, Carlsson J. Biofeedback, acupuncture and transcutaneous electric nerve stimulation in the management of temporomandibular disorders: a systematic review. Phys Ther Rev. 2003;8:217-23. [199707].
17. **Ernst 1999**: Ernst E et al. Acupuncture as a treatment for temporomandibular joint dysfunction: a systematic review of randomized trials. Arch Otolaryngol Head Neck Surg. 1999. 125(3):269-72. [59060].

4.2. Liste des ECR

Année	Référence	Comparateur	Source
2024	Liu L, Chen Q, Lyu T, Zhao L, Miao Q, Liu Y, Nie L, Fu F, Li S, Zeng C, Zhang Y, Peng P, Wang W, Lin Y, Li B. Effect of acupuncture for temporomandibular disorders: a randomized clinical trial. QJM. 2024;117(9):647-656. https://doi.org/10.1093/qjmed/hcae094	Sham	Miao 2025
2021	Peixoto KO, da Silva Bezerra A, Melo RA, de Resende CMBM, de Almeida EO, Barbosa GAS. Short-Term Effect of Scalp Acupuncture on Pain, Sleep Disorders, and Quality of Life in Patients with Temporomandibular Disorders: A Randomized Clinical Trial. Pain Med. 2021;22(4):905-914. https://doi.org/10.1093/pm/pnab048	-	Miao 2025, Yao 2023

Année	Référence	Comparateur	Source
2020	Madani A, Ahrari F, Fallahrastegar A, Daghestani N. A randomized clinical trial comparing the efficacy of low-level laser therapy (LLLT) and laser acupuncture therapy (LAT) in patients with temporomandibular disorders. Lasers Med Sci. 2020;35(1):181-192. https://doi.org/10.1007/s10103-019-02837-x		Miao 2025
	de Salles-Neto FT, de Paula JS, Romero JGAJ, Almeida-Leite CM. Acupuncture for pain, mandibular function and oral health-related quality of life in patients with masticatory myofascial pain: a randomised controlled trial. J Oral Rehabil. 2020;47(10):1193-1201. https://doi.org/10.1111/joor.13055		Yao 2023
	Şen S, Orhan G, Sertel S, Schmitter M, Schindler HJ, Lux CJ, Giannakopoulos NN. Comparison of acupuncture on specific and non-specific points for the treatment of painful temporomandibular disorders: A randomised controlled trial. J Oral Rehabil. 2020;47(7):783-795. https://doi.org/10.1111/joor.12952	Sham	Miao 2025
2019	Aksu Ö, Doğan YP, Çağlar NS, Şener BM. Comparison of the efficacy of dry needling and trigger point injections with exercise in temporomandibular myofascial pain treatment. Turk J Phys Med Rehabil. 2019;65(3):228-235. https://doi.org/10.5606/tftrd.2019.1802		Yao 2023
	Boscaine EF, Pontes ERJC, Castillo DB, Suliano LSC, Oshiro Filho NT. Acupuncture in the treatment of temporomandibular muscle dysfunction. BrJP. 2019;2(4):348-355. https://doi.org/10.5935/2595-0118.20190064		Miao 2025
	Kütük SG, Özkan Y, Kütük M, Özdaş T. Comparison of the efficacies of dry needling and Botox methods in the treatment of myofascial pain syndrome affecting the temporomandibular joint. J Craniofac Surg. 2019;30(5):1556-1559. https://doi.org/10.1097/SCS.0000000000005473		Yao 2023
	Rodrigues MDF, Rodrigues ML, Bueno KS, Aroca JP, Camilotti V, Busato MCA, Mendonça MJ. Effects of low-power laser auriculotherapy on the physical and emotional aspects in patients with temporomandibular disorders: A blind, randomized, controlled clinical trial. Complement Ther Med. 2019;42:340-346. https://doi.org/10.1016/j.ctim.2018.12.010		Miao 2025
	Ye H. [Effect of ultrashort wave combined with electric needle in the treatment of temporomandibular joint disorder]. J Clin Med. 2019;6:76-78.		Sung 2021
2018	Han PJ, Guo KF, Sun L, Gao Y. [Effect of electroacupuncture combined with external shock wave in the treatment of temporomandibular joint disorder syndrome]. Chin Manip Rehabil Med. 2018;9:26-28.		Sung 2021
	Hu Y. [Treatment of temporomandibular joint disorders by electro-needle combined with ultrashort wave]. Tradit Chin Med Res. 2018;31:47-49.		Sung 2021

Année	Référence	Comparateur	Source
	Lopez-Martos R, Gonzalez-Perez LM, Ruiz-Canela-Mendez P, Urresti-Lopez FJ, Gutierrez-Perez JL, Infante-Cossio P. Randomized, double-blind study comparing percutaneous electrolysis and dry needling for the management of temporomandibular myofascial pain. Med Oral Patol Oral Cir Bucal. 2018;23(4). [193448].	-	Yao 2023
2017	Huang Zhi-Hua, Xu Kai-Sheng, Zheng Jin-Qing, He Yu-Qi, Wu Feng. [Bamboo-circled Salt-partitioned Moxibustion for Arthritis of Temporomandibular Joint: A Randomized Controlled Clinical Trial] Shanghai Journal of Acupuncture and Moxibustion. 2017;36(2):180-183. [170784].	-	Acudoc2
	Zotelli VL, Grillo CM, Gil ML, Wada RS, Sato JE, da Luz Rosário de Sousa M. Acupuncture Effect on Pain, Mouth - Opening Limitation and on the Energy -Meridians in Patients with Temporomandibular Dysfunction: A Randomized Controlled Trial. Journal of Acupuncture and Meridian Studies. 2017;10(5):351-359. https://doi.org/10.1016/j.jams.2017.08.005	sham	Miao 2025, Yao 2023
2016	Gong Xu-fang. Clinical observation of tuina plus heat-sensitive moxibustion for temporomandibular disorders Journal of Acupuncture and Tuina Science. 2016;14(5):361. [192022].	-	Acudoc2
	He Cai-Yun, Peng Yu-Lin. [Clinical Observation of Acupoint Thread Embedding for Temporomandibular Joint Dysfunction Syndrome]. Shanghai Journal of Acupuncture and Moxibustion. 2016;35(2):184-185. [191233].	-	Acudoc2
2015	Ferreira LA, Grossmann E, Januzzi E, Gonçalves RT , Mares FA, De Paula MV, Carvalho AC. Ear acupuncture therapy for masticatory myofascial and temporomandibular pain: a controlled clinical trial. Evid Based Complement Alternat Med. 2015. [183355]	-	Acudoc2, Exclu Fernandes 2017 : “Another treatment associated with acupuncture”.
	Gonzalez-Perez L, Infante-Cossio P, Granados-Nunez M, Urresti-Lopez F, Lopez-Martos R, Ruiz-Canela-Mendez P. Deep dryneedling of trigger points located in the lateral pterygoid muscle: efficacy and safety of treatment for management of myofascial pain and temporomandibular dysfunction. Med Oral Patol Oral y Cir Bucal. 2015;(January):e326—e333,	-	Yao 2023, Vier 2019
	Grillo CM, Canales Gde L, Wada RS, Alves MC, Barbosa CM, Berzin F, de Sousa Mda L. Could Acupuncture Be Useful in the Treatment of Temporomandibular Dysfunction? Journal of Acupuncture and Meridian Studies. 2015;8(4):192-9. [178824].	-	Yao 2023, Miao 2025
	Liu Min-Juan, Mu Jing-Ping, Cheng Jian-Ming. [Therapeutic Observation of Electroacupuncture plus Herbal-partitioned Moxibustion for Temporomandibular Joint Disorder]. Shanghai Journal of Acupuncture and Moxibustion. 2015;34(4):345. [187315]	-	Acudoc2
	Wang Jian, Xiang Yong-Mei, Ha Chang-Hong, Hou Zhi-Peng. [Therapeutic Observation of Superficial Needling for Temporomandibular Joint Disorder]. Shanghai Journal of Acupuncture and Moxibustion. 2015;34(3):246. [187258].	-	Acudoc2

Année	Référence	Comparateur	Source
2014	Liu Min-juan, Mu Jing-ping. Warm Needling Combined with Iontophoresis of Chinese Medicine for Temporomandibular Joint Disorder. Journal of Acupuncture and Tuina Science. 2014;12(5):316. [187211].	-	Acudoc2
	Shen Zhi-Fang, Shen Qing-He, ,Jin Yue-Gin, et al. [Observations on the efficacy of warm needling plus qi-concentrated single-finger pushing in treating temporomandibular joint disorder]. Shanghai Journal of Acupuncture and Moxibustion. 2014;33(4):335. [184637].	-	Acudoc2
	Zhang D, Yu X. [Treatment of temporomandibular joint dysfunction syndrome by electroacupuncture]. Hebei J TCM. 2014;36:399-400.		Sung 2021
2013	Ferreira LA, De Oliveira RG, Guimarães JP, Carvalho AC, De Paula MV. Laser acupuncture in patients with temporomandibular dysfunction: a randomized controlled trial. Lasers Med Sci. 2013;28(6):1549-58. [171063].	sham	Miao 2025
	Uemoto L, Nascimento DE Azevedo R, Almeida Alfaya T, Nunes Jardim Reis R, Depes DE Gouvêa CV, Cavalcanti Garcia MA. Myofascial trigger point therapy: laser therapy and dry needling. Curr Pain Headache Rep. 2013;17(9):357. [170474].	-	Vier 2019, Machado 2018
2012	Chen CY. [Treatment of 32 cases of temporomandibular joint disorder with electric needle combined with microwave]. Chin Community Dr. 2012;14:211-212.		Sung 2021
	Dıraçoğlu D, Vural M, Karan A, Aksoy C. Effectiveness of dry needling for the treatment of temporomandibular myofascial pain: a double-blind, randomized, placebo controlled study. J Back Musculoskelet Rehabil. 2012;25(4):285-90. [168972].	-	Vier 2019, Machado 2018, Wu 2017
	Itoh K, Asai S, Ohyabu H, Imai K, Kitakoji H. Effects of trigger point acupuncture treatment on temporomandibular disorders: a preliminary randomized clinical trial. Journal of Acupuncture and Meridian Studies. 2012;5(2):57-62. [164868].	-	Vier 2019, Fernandes 2017,
	Kang KW, Kim WY, Kim TH, Shin BC, Jung SY, Kim AR, Choi SM. Adjacent, distal, or combination of point-selective effects of acupuncture on temporomandibular joint disorders: A randomized, single-blind, assessor-blind controlled trial. Integr Med Res. 2012;1(1):36-40. [180752].	-	Acudoc2
	Silva ROF, Conti PCR, Araújo CRP, Silva RS. Evaluation of dry needling and 0.5% lidocaine injection therapies in myofascial pain trigger points in masticatory muscles. Dental Press J Orthod. 2012;17(2):113-8. [200882].	-	Vier 2019, Machado 2018
	Vicente-Barrero M, Yu-Lu SL, Zhang B, Bocanegra-Pérez S, Durán-Moreno D, López-Márquez A, Knezevic M, Castellano-Navarro JM, Limiñana-Cañal JM. The efficacy of acupuncture and decompression splints in the treatment of temporomandibular joint pain-dysfunction syndrome. Med Oral Patol Oral Cir Bucal. 2012;17(6):e1018-33. [168928].	-	Acudoc2, exclu Fernandes 2017 : Inclusion criteria: “Patients with limitation or syndrome deviation of audible movement”

Année	Référence	Comparateur	Source
2011	Bu LX, Chen T, Chen X, Jing H, Li NY. [Clinical observation of acupuncture and massage therapy for temporomandibular joint disorders]. Shanghai Kou Qiang Yi Xue. 2011;20:292-295.		Sung 2021
	Dong Yanru, Chen Huisheng. [Acupuncture treatment of temporomandibular joint disorder syndrome]. Journal of Medical Theory and Practice. 2011;24(17):2081-2081. [202039].		Li 2015
	Li Y, Ho YL. [Analysis on the effect of closed treatment for the function disorder of temporomandibular joints]. China Foreign Med Treat. 2011;31:91.		Sung 2021
	Zhu Jun-Ping, Yang Xiao-Hong, Yang Yi. [Different acupuncture methods for temporomandibular joint disorder]. Shanghai Journal of Acupuncture and Moxibustion. 2011;30(5):307. [176276].	-	Acudoc2
2010	Asai Sayo, Itho Kazunori, Asai Fukutarou, Imai Kenji, Kitakoji Hiroshi. [Effect of acupuncture treatment on temporomandibular disorders questionnaire and acupuncture treatment for university students]. Journal of the Japan Society of Acupuncture and Moxibustion. 2010;60(4):728. [169309].	-	Acudoc2
	Fernández-Carnero J, La Touche R, Ortega-Santiago R, Galan-Del-Rio F, Pesquera J, Ge HY, Fernández-DE-Las-Peñas C. Short-term effects of dry needling of active myofascial trigger points in the masseter muscle in patients with temporomandibular disorders. J Orofac Pain. 2010;24(1):106-12. [155344].	-	Vier 2019, Machado 2018
	Jia N. Twenty-one patients with jaw joint disorder were treated by electric needle combined with microwave. J Tradit Chin Med. 2010;42:49-50.		Sung 2021
	Katsoulis J, Ausfeld-Hafter B, Windecker-Gétaz I, Katsoulis K, Blagojevic N, Mericske-Stern R. Laser acupuncture for myofascial pain of the masticatory muscles. Schweiz Monatsschr Zahnmed. 2010;120(3):213-9. [155282].	sham	Fernandes 2017, Jung 2011
	Liu, Y.; Guan, Y.; Zhang, L. [Twenty-six patients with temporal and maxillary joint disorders treated by combined audio super short wave TDP]. Aerosp. Med. 2010, 21, 933		Sung 2021
	Simma-Kletschka I, Gleditsch J, Simma L, Piehslinger E. [Microsystems acupuncture in craniomandibular pain syndromes-A randomised controlled trial], Revista Internacional de Acupuntura. 2010;4(1):6-11. [202158].		Acudoc2. Exclu Fernandes 2017: Inclusion criteria: “Pain in the craniomandibular system”.
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Année	Référence	Comparateur	Source
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