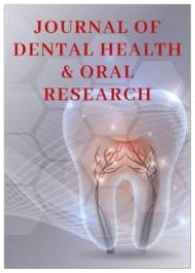

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Review Article

Acupuncture in Bruxism Management: A Systematic Review of Clinical Efficacy and Safety

Gabrielly Santos Pereira[1*], João Eduardo de Araújo[2], Marcelo Lourenço da Silva[1]

[1]Laboratory of Neuroscience, Neuromodulation and Study of Pain (LANNED), Federal University of Alfenas (UNIFAL-MG), Alfenas, Brazil

[2]Neuropsychobiology and Motor Control Laboratory, Department of Health Sciences, Ribeirão Preto Medical School, University of São Paulo, Ribeirão Preto, São Paulo, Brazil

***Correspondence author:** Gabrielly Santos Pereira, LANNED, Av. Jovino Fernandes Sales 2600, Prédio M, Sala 205A, Santa Clara, Alfenas, Minas Gerais (MG), CEP: 37133-840, Brazil; E-mail: gabrielly.pereira@sou.unifal-mg.edu.br

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Abstract

Background: Bruxism, whether during sleep or wakefulness, is associated with orofacial pain, muscle hyperactivity, dental wear and reduced quality of life. Conventional treatments often provide limited relief. Acupuncture may modulate nociception and muscle activity, but its clinical efficacy remains unclear. Objective: To assess the effectiveness and safety of acupuncture for reducing bruxism severity and related symptoms. Methods: A systematic review was conducted following PRISMA 2020 (PROSPERO CRD420251151488). Searches in PubMed, Embase, Scopus, LILACS and MEDLINE (2015-2025) identified Randomized Controlled Trials (RCTs) evaluating manual, auricular, intraoral, electro- or laser acupuncture versus sham, placebo or standard care. Primary outcomes were bruxism severity and pain intensity; secondary outcomes included muscle tenderness, jaw function and adverse events. Results: Of 14,021 records, three RCTs (n=103) met the inclusion criteria. Interventions included intraoral acupuncture, auricular electroacupuncture with occlusal splint and laser acupuncture at masticatory points. All trials reported improvement in at least one primary outcome. Laser acupuncture reduced pain and EMG activity ($p<0.01$), intraoral acupuncture decreased pain and tenderness ($p<0.05$) and auricular acupuncture with splint therapy produced earlier pain relief than splint alone ($p<0.05$). No serious adverse events were reported. Risk of bias was low in one study and moderate in two. Conclusions: Acupuncture, particularly laser and auricular techniques, appears effective and safe for reducing pain and muscle hyperactivity in bruxism. However, small samples, short follow-up and protocol heterogeneity limit confidence. Larger standardized trials are needed to confirm these findings.

Keywords: Acupuncture; Bruxism; Auricular Acupuncture; Laser Acupuncture

Introduction

Bruxism is defined as a parafunctional activity of the stomatognathic system characterized by repetitive movements of the jaw muscles that involve clenching, grinding, holding or thrusting the mandible involuntarily. It can occur either during sleep (sleep bruxism) or while awake (awake bruxism) and is considered a multifactorial disorder involving neurological, psychological and peripheral mechanisms [1,2]. Clinically, bruxism manifests as orofacial pain, temporomandibular disorders, muscle fatigue, dental wear, headaches and impaired sleep quality, all of which may substantially affect daily function and overall quality of life [3,4].

Global prevalence estimates suggest that approximately 22% of the population is affected about 21% with sleep bruxism and 23% with awake bruxism. Evidence indicates that one in four adults may experience awake bruxism, with higher rates reported among women and that age may influence the manifestation of sleep bruxism in females [5]. A recent systematic review focusing specifically on awake bruxism reported an overall prevalence of 15.4% in adults (99% CI: 10.8-20.7%) across 17 studies, with no significant differences between sexes or sampling methods [6]. These data underscore the clinical relevance of bruxism as a widespread health concern.

The pathophysiology of bruxism is complex and involves the interaction of several central mechanisms. Among these, alterations in motor control and dopaminergic modulation within the basal ganglia play a central role. These structures regulate voluntary and involuntary movements transmitted from the cerebral cortex. Dopamine maintains the balance between excitatory and inhibitory pathways, ensuring proper activation and relaxation of the masticatory muscles. In bruxism, dopaminergic dysfunction disrupts this control, producing involuntary and repetitive jaw contractions during both sleep and wakefulness [1,2,7]. During sleep, the imbalance becomes more pronounced due to reduced cortical inhibition and enhanced excitatory signaling, predisposing individuals to episodes of clenching or grinding [2].

Other neurotransmitter systems also contribute to this dysregulation. Impairment of serotonergic and GABAergic pathway which normally suppress excessive muscle activation can diminish inhibitory control over mandibular musculature [8,9]. As a result, jaw muscles may contract excessively or inappropriately, contributing to bruxism episodes. These findings suggest that bruxism arises from a neurochemical and functional imbalance involving multiple levels of motor control [7,2]. Peripheral and psychological factors further influence the onset and persistence of bruxism. Stress, anxiety and hyperactivity of the autonomic nervous system have been strongly linked to increased frequency and intensity of bruxism episodes [10,11]. Conventional management strategies typically include occlusal splints, behavioral therapy, physiotherapy and pharmacological approaches. However, these methods often provide only partial or temporary relief, driving interest in complementary and integrative therapies. Within this context, acupuncture has emerged as a promising alternative, with potential benefits for muscle relaxation, pain modulation and improved sleep and well-being [2,10,11].

The physiological mechanisms of acupuncture involve a complex interaction between peripheral and central systems. Needle insertion at specific acupoints activates afferent nerve endings primarily Aδ and C fibers which transmit signals to the central nervous system. This stimulation triggers the release of neurotransmitters and neuromodulators such as endorphins, enkephalins, serotonin, norepinephrine and dopamine, modulating pain perception through descending inhibitory pathways [12-14]. Moreover, acupuncture has been shown to influence cortical excitability, regulate limbic system activity and restore autonomic balance by enhancing parasympathetic activity and reducing sympathetic hyperactivity [15-17]. Collectively, these processes contribute to analgesia, muscle relaxation and functional recovery, supporting acupuncture's role as an adjunctive treatment in various conditions, including orofacial pain and bruxism-related dysfunctions.

Although individual trials have reported favorable effects of acupuncture in patients with bruxism, the literature remains heterogeneous, with wide variability in intervention protocols, control groups and outcome measures. Therefore, a systematic synthesis of the available evidence is necessary to comprehensively assess the efficacy and safety of acupuncture in bruxism management.

This systematic review aims to evaluate the effects of acupuncture in adults with bruxism, focusing on both primary outcomes (frequency and intensity of bruxism episodes, pain and muscle function) and secondary outcomes (sleep quality, quality of life and adverse events). By consolidating and critically analyzing current evidence, this work seeks to provide insights that may inform clinical practice and guide future research in this field.

Methodology

Study Design

This systematic review evaluated the effectiveness and safety of acupuncture for reducing bruxism severity and associated symptoms in adults. The review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 guidelines and was registered prospectively in PROSPERO (CRD420251151488).

Eligibility Criteria

The eligibility criteria were defined using the PICO framework:

Population: Adults (≥18 years) diagnosed with sleep or awake bruxism, confirmed through clinical assessment, self-reported symptoms or Electromyographic (EMG) activity. Studies involving pediatric or adolescent populations, healthy volunteers or participants with coexisting neurological or psychiatric disorders were excluded.

Intervention: Trials employing acupuncture based therapies-including traditional body acupuncture, auricular acupuncture, intraoral acupuncture or electroacupuncture with the therapeutic intent to reduce bruxism frequency, intensity or related pain. Interventions were required to describe treatment parameters, including acupuncture type, points used, session duration, frequency and total number of sessions.

Comparison: Sham or placebo acupuncture (e.g., non-penetrating needles, inactive points), no intervention, conventional care (e.g., occlusal splints, pharmacological therapy, behavioral approaches) or alternative acupuncture protocols.

Outcomes: The primary outcome was a reduction in bruxism severity, quantified by validated measures such as EMG activity, frequency or duration of bruxism episodes or clinical indices of muscle hyperactivity. Secondary outcomes included reductions in pain intensity (e.g., Visual Analog Scale [VAS]), muscle tenderness, mandibular function (e.g., mouth opening, jaw movement) and quality of life.

Study Design: Only Randomized Controlled Trials (RCTs) published in peer-reviewed journals were included. Non-randomized studies, observational designs, case reports, reviews, editorials and conference abstracts were excluded from the analysis.

Information Sources

Searches were conducted in the following electronic databases: PubMed, Embase, Scopus, LILACS and MEDLINE via BVS. The search covered publications from September 1, 2015 to September 1, 2025 and included articles in English. Additional studies were identified through manual search of reference lists and consultation with field expert.

Search Strategy

The search strategy was constructed using a combination of MeSH terms and free-text keywords related to acupuncture and bruxism. Boolean operators AND and OR were applied as follows:

(“Acupuncture” OR “Auricular Acupuncture” OR “Electroacupuncture” OR “Traditional Chinese Acupuncture” OR “Manual Acupuncture”)

AND (“Bruxism” OR “Sleep Bruxism” OR “Awake Bruxism” OR “Teeth Grinding” OR “Temporomandibular Disorders”)

AND (“Randomized Controlled Trial” OR “Controlled Clinical Trial” OR “Sham Acupuncture” OR “Placebo” OR “Clinical Trial”)

Full search strategies for each database (PubMed, Scopus, Web of Science and ScienceDirect) are available in the PROSPERO registration record.

Study Selection

All retrieved records were imported into Rayyan for duplicate removal and screening. Two independent reviewers (GSP and MLS) screened titles and abstracts, followed by full-text eligibility assessment. Discrepancies were resolved by consensus or a third reviewer (JEA). The selection process is summarized in the PRISMA flow diagram (Fig. 1).

Data Extraction

Data were extracted using a standardized form, including:

Study Characteristics: Author, year, country, design, sample size.

Participants: Diagnosis, age, sex, inclusion/exclusion criteria.

Intervention Details: Ttype of acupuncture, points used, frequency, duration, total sessions.

Comparator: Sham, no treatment or conventional care.

Outcomes: Bruxism severity (frequency/intensity/duration), muscle hypertonicity, pain, tenderness, functional measures and adverse events.

Statistical Results: Effect size, p-values and clinical relevance.

Risk of Bias Assessment

The RoB 2.0 tool (Cochrane Collaboration) was used to assess risk of bias in RCTs across five domains: randomization process, deviations from intended interventions, missing outcome data, measurement of outcomes and selection of the reported result. Each domain was rated as "low risk," "some concerns," or "high risk".

Data Synthesis

A narrative synthesis was conducted for all included studies, structured to compare population characteristics, acupuncture intervention protocols (including technique, point selection, stimulation method, session frequency and total treatment duration), comparator groups and reported outcomes. The synthesis focused primarily on bruxism-related outcomes, such as reductions in Electromyographic (EMG) muscle activity, frequency or intensity of bruxism episodes and clinical indices of muscle hyperactivity. Secondary outcomes included pain intensity (measured by Visual Analog Scale (VAS) or Numeric Rating Scale (NRS), muscle tenderness, mandibular function (e.g., mouth opening, jaw movement) and safety outcomes such as adverse events and dropouts. Studies were grouped according to acupuncture modality (e.g., auricular acupuncture, intraoral acupuncture or electroacupuncture) and comparator type (e.g., sham, placebo or conventional care) to enable protocol-specific comparisons. Patterns were identified regarding acupuncture points, stimulation techniques (manual vs. electrical) and session frequency, as well as their effects on bruxism severity, pain relief and functional recovery. Particular attention was given to whether outcomes were measured immediately post-treatment or at follow-up and to the clinical relevance and persistence of observed effects. Due to substantial heterogeneity in intervention protocols, diagnostic criteria and outcome measures, a quantitative meta-analysis was not feasible. Instead, results were synthesized descriptively to identify consistent trends, protocol-specific effects and remaining gaps in the literature particularly the need for standardized diagnostic criteria, detailed reporting of acupuncture parameters and long-term follow-up assessments.

Results

Study Selection and Characteristics

A systematic search in PubMed, Web of Science, ScienceDirect and Scopus databases yielded 14,021 records. After removing 5,871 duplicates, 8,150 articles were screened for potential eligibility. Following title and abstract screening, the majority of records were excluded for not meeting the inclusion criteria. A total of 432 full-text articles were assessed for eligibility, of which 429 were excluded due to reasons such as inadequate study design, ineligible population or insufficient intervention details. Ultimately, three randomized controlled trials met all inclusion criteria and were included in this systematic review. The PRISMA flow diagram summarizing this selection process is presented in Fig. 1, Table 1.

Study	Design	Population	Intervention Protocol	Comparison Group	Primary Outcomes	Effect and Significance
Rashed, et al., [18]	Randomized controlled trial, parallel group	60 children with sleep bruxism (6-12 years)	Laser acupuncture on selected acupoints (ST6, ST7, GB4, GB5 and GB6), 3 sessions/week for 8 weeks	Conventional physiotherapy (jaw relaxation and stretching exercises)	Pain intensity (VAS), jaw movement, masseter EMG activity	Significant reduction in VAS pain scores ($p < 0.001$), improved jaw opening ($p = 0.005$) and decreased masseter EMG amplitude ($p < 0.01$) compared to control
Schmid-Schwab, et al., [19]	Randomized controlled trial, parallel group	23 females, 17-68 years, with chronic bruxism	Oral acupuncture (intra/extraoral "very-point" technique with local anesthetic), single session	Sham laser (placebo)	Pain (VAS), muscle tenderness, mouth opening, jaw movement	Mean pain reduction 19.1 ± 11.9 vs 6.2 ± 14.8 ($p = 0.03$); muscle tenderness improved ($p < 0.05$); no significant change in jaw movement ($p > 0.1$)
Ferreira, et al., [20]	Randomized controlled trial, parallel group	20 females with chronic bruxism ≥ 6 months	Ear acupuncture (microsystem, weekly × 5 weeks, with electrostimulation) + occlusal splint	Occlusal splint alone	Pain (VAS), muscle/joint tenderness	Greater and earlier pain reduction from week 2 ($p < 0.05$); significant improvement in tenderness vs control

Table 1: Study selection and characteristics.

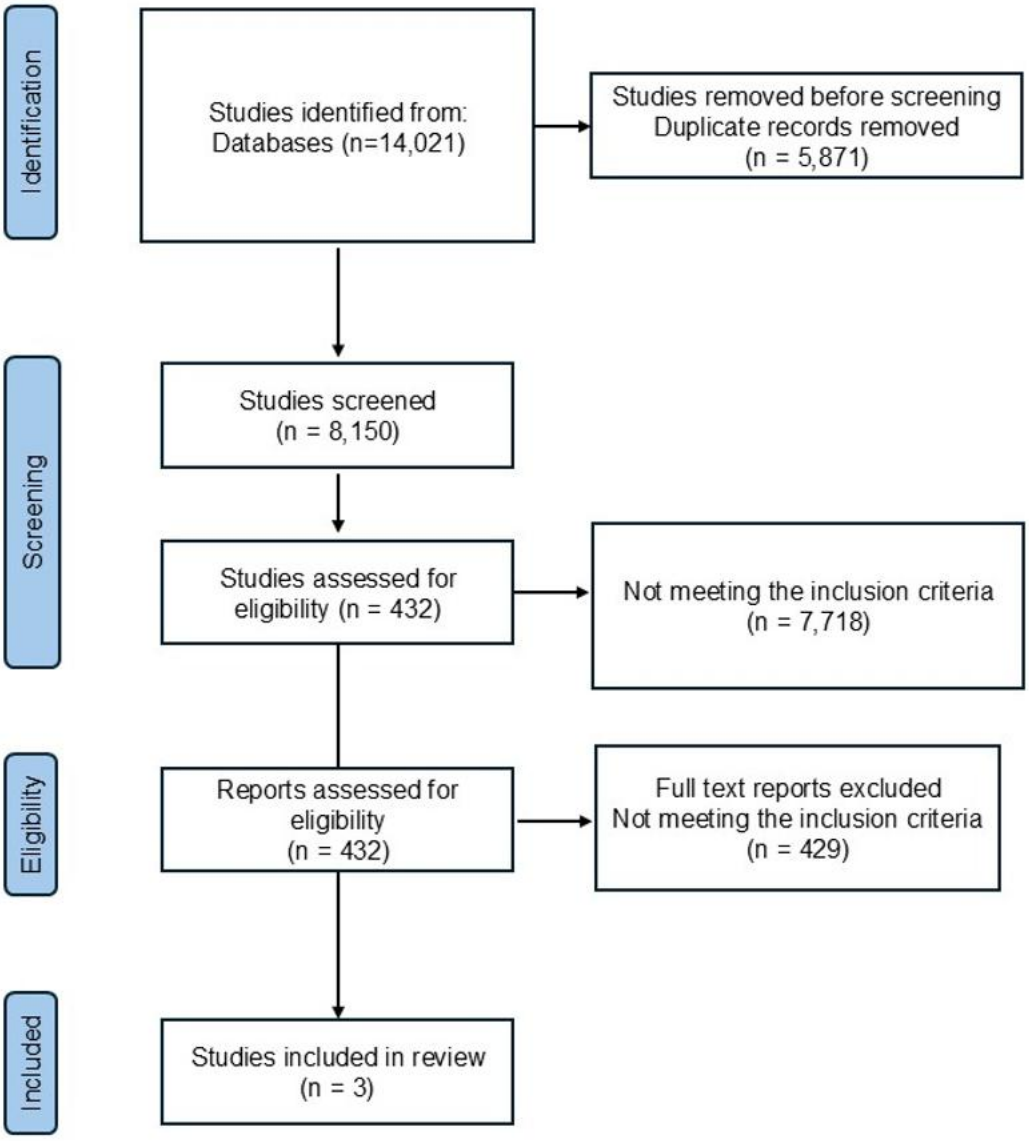

Figure 1: PRISMA flow.

Study Selection and Characteristics

From an initial pool of 14,021 articles, three studies met the eligibility criteria and were included in this review. The included Randomized Controlled Trials (RCTs) encompassed participants diagnosed with sleep or awake bruxism, confirmed through clinical examination or Electromyographic (EMG) activity. Two studies included only female participants [19, 20], while one study involved children aged 6-12 years [18].

Interventions varied according to the type of acupuncture and application protocol. Protocols included laser acupuncture at standardized acupoints, intraoral/extraoral acupuncture using the very-point technique and auricular microsystem acupuncture with electrostimulation combined with occlusal splint therapy [18-20]. Treatment schedules ranged from a single session to weekly applications over five to eight weeks, with session durations varying between 10 seconds and 30 minutes.

Comparators included sham acupuncture (needle contact without skin penetration), placebo laser stimulation and standard care (occlusal splint alone). All interventions were administered by qualified practitioners following standardized anatomical and hygienic protocols.

Across the included studies, a range of clinical outcomes was assessed, including Electromyographic (EMG) muscle activity, pain intensity (measured by the Visual Analog Scale [VAS]), muscle tenderness and jaw function (e.g., mouth opening, mandibular movement). Despite methodological diversity, all three trials demonstrated improvements in at least one primary outcome related to bruxism severity, muscle activity or pain reduction.

Primary Outcomes: Bruxism Severity and Pain Intensity

Bruxism severity and pain intensity were consistently assessed as primary outcomes across all included studies, using validated instruments such as Electromyography (EMG) to measure muscle hyperactivity, the Visual Analog Scale (VAS) for pain intensity and standardized clinical indices for muscle tenderness and hypertonicity.

Rashed, et al., demonstrated that auricular acupuncture significantly reduced muscle hypertonicity in comparison with both needle-contact control and no treatment, with statistically significant decreases in EMG activity of the right temporalis and left digastric muscles ($p = 0.000$) [18].

Schmid-Schwab, et al., reported significant reductions in pain intensity (mean difference = 19.1 ± 11.9 vs. 6.2 ± 14.8; $p = 0.03$) and muscle tenderness ($p < 0.05$) following intraoral acupuncture using the "very-point" technique, although no significant improvement was observed in jaw movement ($p > 0.1$) [19].

Ferreira, et al., found that ear acupuncture combined with occlusal splint therapy led to greater and earlier reductions in pain intensity compared to splint therapy alone, with improvements evident from the second week of treatment ($p < 0.05$) and sustained throughout the five-week intervention [20].

Collectively, these results indicate that acupuncture, particularly when combined with standard therapy or involving auricular stimulation, significantly reduces both muscle activity and pain intensity in adults with bruxism.

Secondary Outcomes: Functional and Muscular Parameters

Secondary outcomes included measures of muscle tenderness, mandibular mobility and jaw function.

Rashed, et al., reported significant improvements in jaw opening ($p = 0.005$) and muscle relaxation, consistent with reductions in EMG amplitude, suggesting enhanced neuromuscular coordination and functional recovery following laser acupuncture compared with physiotherapy alone [18].

Schmid-Schwab, et al., observed significant improvements in muscle tenderness after intraoral acupuncture ($p < 0.05$), although changes in mandibular range of motion were not statistically significant ($p > 0.1$) [19].

Ferreira, et al., found reductions in both masticatory muscle and temporomandibular joint tenderness, indicating improved muscle balance and decreased hyperactivity when ear acupuncture was combined with occlusal splint therapy [20].

No study specifically evaluated quality of life, sleep parameters or psychological variables such as anxiety or stress, highlighting an important gap in the current evidence base for acupuncture-based bruxism interventions.

Safety and Adverse Events

All three included trials reported an excellent safety profile. None documented adverse events, treatment-related complications or participant withdrawals due to discomfort. The absence of reported side effects supports the view that both manual and laser acupuncture are safe, well-tolerated and feasible therapeutic options for patients with bruxism.

Limitations

All included trials had small sample sizes and short intervention or follow-up durations, with the longest lasting eight weeks. The risk of bias was rated as moderate to high in most domains due to incomplete reporting of randomization procedures, allocation concealment and blinding of participants or assessors.

In addition, diagnostic criteria for bruxism and acupuncture protocols varied considerably across studies. Differences were observed in acupuncture modality (manual, auricular or laser-based), session frequency and duration of stimulation, making direct comparisons and quantitative pooling unfeasible.

Another key limitation was the lack of standardized outcome measures while some studies used Electromyography (EMG) to quantify muscle activity, others relied solely on subjective pain scales or clinical palpation. Furthermore, none of the included trials assessed long-term outcomes, sleep quality or psychological correlates such as anxiety and stress, which are highly relevant to the multifactorial nature of bruxism.

Overall, these methodological inconsistencies and limited follow-up periods reduce the generalizability of findings and underscore the need for larger, rigorously designed and standardized RCTs to clarify the clinical efficacy of acupuncture and laser acupuncture in bruxism management.

Risk of Bias

As illustrated in Fig. 2, one study [18] was judged to have an overall low risk of bias, while the other two studies were rated as having some concerns. None of the included RCTs presented a high risk of bias across all domains [19,20]. The domain randomization process was clearly described and adequately implemented in Rashed, et al., which reported allocation concealment and single-blind assessment. However, Schmid-Schwab, et al., and Ferreira, et al., did not specify random sequence generation procedures, resulting in "some concerns" [18-20]. Regarding deviations from intended interventions, all studies maintained protocol fidelity; however, due to the impossibility of blinding participants and therapists in acupuncture trials, minor risks were identified. For missing outcome data, all three studies reported full follow-up with no attrition or withdrawals, supporting a low risk in this domain. In the measurement of the outcome domain, all studies used validated and objective measures (VAS for pain, EMG for muscle activity and standardized clinical assessments) and outcome assessors were blinded in Rashed, et al., yielding a low risk of bias [18]. Finally, selection of reported results was adequate in all trials, with outcomes consistent with prespecified protocols and no evidence of selective reporting. Overall, the risk of bias assessment indicates that while all three RCTs demonstrated acceptable methodological rigor, Schmid-Schwab, et al., and Ferreira, et al., would benefit from greater transparency in randomization and blinding reporting to enhance internal validity in future studies on acupuncture for bruxism [19,20].

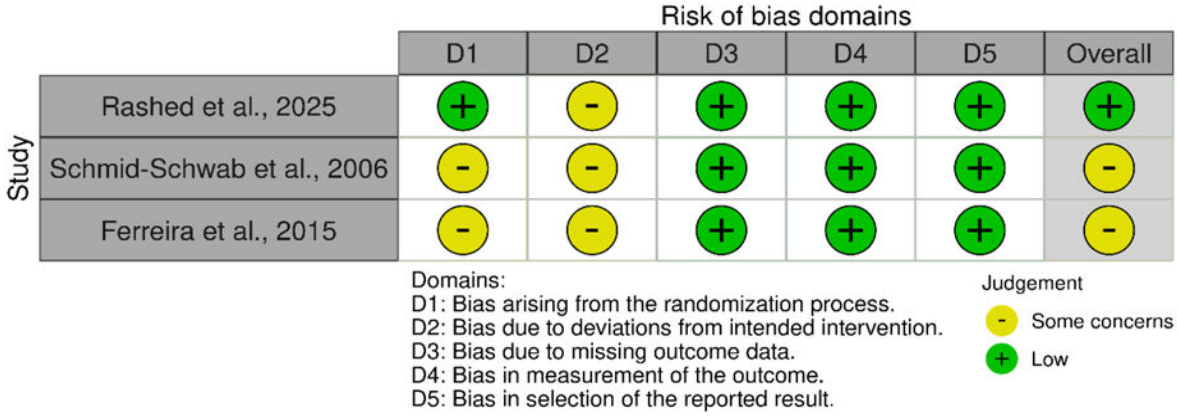

Figure 2: RoBVis.

Discussion

The present systematic review synthesized evidence from three randomized controlled trials investigating the efficacy of acupuncture-based interventions for bruxism [18-20]. Despite methodological heterogeneity, all studies demonstrated significant improvements in at least one primary outcome, including pain reduction, decreased Electromyographic (EMG) muscle activity and improved mandibular function. These findings suggest that acupuncture, whether applied via laser, auricular or intraoral stimulation, may modulate both nociceptive and neuromuscular components of bruxism, supporting its potential role as an adjunctive therapy in clinical management.

The analgesic and myorelaxant effects observed across trials are consistent with the neurophysiological mechanisms proposed for acupuncture. Needle or photonic stimulation of acupoints activates afferent Aδ and C fibers, promoting the release of endogenous opioids (endorphins, enkephalins), serotonin, norepinephrine and dopamine in central pathways [21-23]. These mediators act within descending inhibitory systems to reduce nociceptive transmission and normalize muscle tone. Such

mechanisms align with the pathophysiology of bruxism, which involves dopaminergic dysfunction and altered cortical-basal ganglia loops leading to excessive and repetitive masticatory activation [1,2,9]. Therefore, acupuncture's neuromodulatory properties may restore inhibitory control and rebalance excitatory-inhibitory circuits, mitigating muscle hyperactivity.

Laser acupuncture, as tested by Rashed, et al., was particularly effective in reducing pain scores and EMG activity of the masseter muscle, while improving jaw opening compared with physiotherapy [18]. Photonic stimulation at standardized acupoints (ST6, ST7, GB4-GB6) likely activated both local and systemic pathways. Low-level laser irradiation at these points is known to modulate mitochondrial cytochrome-c oxidase, increase ATP synthesis and reduce oxidative stress, thereby enhancing neuromuscular recovery [24]. Moreover, laser acupuncture offers the advantage of non-invasiveness and precise dose control, making it a promising option for pediatric or needle-averse populations.

Intraoral and extraoral acupuncture using the "very-point" technique, as employed by Schmid-Schwab, et al., produced significant decreases in orofacial pain and muscle tenderness but no change in mandibular mobility [19]. This localized approach targets myofascial trigger points and periarticular regions, facilitating relaxation of hyperactive fibers and improving microcirculation. The analgesic outcomes mirror those reported in other orofacial pain conditions, such as Temporomandibular Disorders (TMD), where acupuncture consistently reduces muscle tension and pain intensity [11,12]. The absence of mobility gains may relate to the single-session design or to persistent central sensitization mechanisms not fully addressed by localized stimulation.

Auricular acupuncture combined with occlusal splint therapy, as described by Ferreira, et al., yielded earlier and greater reductions in pain and tenderness compared with splint therapy alone [20]. The auricular microsystem is densely innervated by the auriculotemporal and vagus nerves, which connect to the nucleus tractus solitarius and limbic structures involved in autonomic and affective regulation [25,26]. This integration may explain the accelerated symptom relief observed when auricular stimulation complements conventional mechanical stabilization. Importantly, such combined approaches reflect a biopsychosocial model of bruxism treatment, targeting both peripheral muscle tension and central stress-related mechanisms [10].

Across all trials, the safety profile of acupuncture was excellent. No serious adverse events or treatment-related withdrawals were reported, confirming previous findings that acupuncture is a low-risk intervention when performed by trained practitioners [24]. Minor, transient discomfort was the only potential side effect observed in similar clinical contexts. This contrasts favorably with pharmacological options such as benzodiazepines or muscle relaxants, which may cause sedation or dependency [8]. Therefore, acupuncture represents a viable and safe complementary therapy for patients seeking non-pharmacological alternatives.

Despite encouraging findings, the methodological limitations of the included studies must be acknowledged. Sample sizes were small, ranging from 20 to 60 participants and follow-up durations were short (up to eight weeks). Randomization procedures, allocation concealment and blinding of participants or assessors were often insufficiently reported, raising the risk of bias in two of the three trials. These issues are common in acupuncture research due to the practical difficulty of maintaining effective blinding and standardized sham controls [26]. Additionally, diagnostic criteria for bruxism varied among studies, limiting comparability and external validity.

Heterogeneity in acupuncture protocols further complicates synthesis. Interventions differed in point selection, stimulation mode (manual vs. laser vs. electrical) and treatment frequency. Such variability reflects both individualized approaches inherent to traditional Chinese medicine and the lack of standardized reporting guidelines in this field. The absence of core outcome measures such as EMG-verified bruxism frequency, validated pain scales and quality-of-life indices hindered quantitative pooling. Standardization efforts, similar to those proposed for TMD trials should be adopted in future bruxism research [2].

Another notable limitation is the scarcity of data on psychological and sleep-related outcomes. Bruxism is closely associated with stress, anxiety and altered autonomic balance yet none of the included RCTs assessed anxiety levels, sleep architecture or nocturnal episode frequency objectively [9,10]. Integrating polysomnography, actigraphy and validated psychometric

instruments would clarify the extent to which acupuncture affects the central regulatory mechanisms underlying sleep and awake bruxism.

Finally, the small number of trials precluded meta-analytic comparison and limits confidence in the overall conclusions. Future research should prioritize adequately powered, multicenter RCTs with rigorous randomization, assessor blinding, standardized diagnostic criteria and longer follow-up periods. Studies should also explore dose response relationships, combining clinical outcomes (pain, EMG, mandibular mobility) with mechanistic biomarkers such as cortical excitability and heart-rate variability, to elucidate how acupuncture modulates both central and peripheral pathways in bruxism.

Conclusion

In summary, current evidence supports acupuncture as a safe and potentially effective adjunct in bruxism management. The consistent reduction in pain and muscle hyperactivity observed across trials aligns with established neurophysiological models of acupuncture and the pathophysiology of bruxism. Nevertheless, the limited quantity and quality of available data underscore the need for more robust evidence before acupuncture can be integrated into standardized clinical guidelines. Large-scale, well-designed RCTs remain essential to confirm these preliminary benefits and define optimal treatment parameters for both adult and pediatric populations.

Conflict of Interest

The authors declare no conflict of interest.

Financial Disclosure

None.

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