J. Maxillofac. Oral Surg. (July–Sept 2023) 22(3):579–589
https://doi.org/10.1007/s12663-023-01939-y

CLINICAL PAPER

Recommendations on the Use of Oral Orthotic Occlusal Appliance Therapy for Temporomandibular Joint Disorders: Current Evidence and Clinical Practice

Darpan Bhargava[1,2,3] · Camilo Chávez Farías[1,4] · Ignacio Ardizone García[4] · Louis G. Mercuri[5,6,7] · Suzie Bergman[1,8] · M. Anthony Pogrel[9] · Andrew J. Sidebottom[10] · Samer Srouji[11] · Mehmet Fatih Şentürk[12] · P. Elavenil[13] · Kishore Moturi[1,14] · P. Anantanarayanan[15] · Preeti G. Bhargava[1,16] · Vankudoth Dal Singh[1,17]

Received: 27 September 2022 / Accepted: 20 May 2023 / Published online: 27 June 2023

Abstract

Background 'Temporomandibular joint disorders (TMDs)' denote an umbrella term that includes arthritic, musculoskeletal and neuromuscular conditions involving the temporomandibular joint, the masticatory muscles, and the associated tissues. Occlusal devices are one of the common treatment modalities utilized in the conservative management of TMDs. The indications for the available 'oral splints' or 'oral orthotic occlusal devices' remain ambiguous.

Methods A joint international consortium was formulated involving the subject experts at TMJ Foundation, to resolve the current ambiguity regarding the use of oral orthotic occlusal appliance therapy for the temporomandibular joint disorders based on the current scientific and clinical evidence.

Results The recommendations and the conclusion of the clinical experts of the joint international consort has been summarized for understanding the indications of the various available oral orthotic occlusal appliances and to aid in the future research on oral occlusal orthotics.

Conclusion The use of the oral orthotic occlusal appliances should be based on the current available scientific evidence, rather than the archaic protocols.

✉ Darpan Bhargava
emaildarpan@gmail.com

1 Joint International Consortium on Oral Orthotic Occlusal Appliance Therapy for Temporomandibular Joint Disorders, TMJ Foundation, TMJ Consultancy Services, Bhopal, Madhya Pradesh, India

2 Oral and Maxillofacial Surgery, People's University, Bhopal, Madhya Pradesh, India

3 DAMER India, Bhopal, India

4 Department of Temporomandibular Joint Disorders, Orofacial Pain and Dental Sleep Medicine, Complutense University of Madrid, Madrid, Spain

5 Department of Orthopaedic Surgery, Rush University Medical Center, Chicago, USA

6 Department of Bioengineering, University of Illinois, Chicago, USA

7 Stryker/TMJ Concepts, Ventura, CA, USA

8 Division for Temporomandibular Joint Disorders and Orthodontics, Dentistry On Officers Row, McGann Postgraduate School of Dentistry, Progressive Orthodontic Seminars, Vancouver, WA, USA

9 Department of Oral and Maxillofacial Surgery, UCSF School of Dentistry, UCSF Dental Center, San Francisco, CA, USA

10 Oral and Maxillofacial Surgery & Temporomandibular Joint Related Surgery, Nottingham, UK

11 Department of Oral and Maxillofacial Surgery, Galilee College of Dental Sciences, Naharia, Israel

12 Department of Oral and Maxillofacial Surgery, Dentistry Faculty, Ankara Yıldırım Beyazıt University, Ankara, Turkey

13 Department of Oral & Maxillofacial Surgery, SRM Dental College, Ramapuram, Chennai, India

14 Department of Oral and Maxillofacial Surgery, Vishnu Dental College, Bhimavaram, India

15 Department of Oral and Maxillofacial Surgery, Meenakshi Ammal Dental College and Hospital, Chennai, Tamil Nadu, India

16 Department of Oral & Maxillofacial Surgery, TMJ Consultancy Services, Bhopal, Madhya Pradesh, India

17 Department of Oral and Maxillofacial Surgery, Lenora Institute of Dental Sciences, Rajahmundry, India

Keywords Joint diseases · Temporomandibular · Disorder · TMJ · Disk · Temporomandibular joint · Splint · Occlusal · Dental · Maxillofacial surgery · Oral · Orthotic device · Orthosis · Orthotic · Orthopedic · Night guard

Introduction

'Temporomandibular joint disorders (TMDs)' denote an umbrella term that includes arthritic, musculoskeletal and neuromuscular conditions that involve the temporomandibular joints (TMJs), the masticatory muscles, and the associated tissues [1]. Numerous consensus have been proposed worldwide to classify these cluster of conditions, to enlist a few: the diagnostic criteria such as the "Research Diagnostic Criteria for Temporomandibular Disorders" (RDC/TMD) that has evolved to the "Diagnostic Criteria for Temporomandibular Disorders" (DC/TMD) [2], the International Classification for Orofacial Pain (ICOP) [3] and the American Academy of Orofacial Pain (AAOP) diagnostic criteria [1].

The etiological factors and management of TMDs have been under constant debate and controversy [4, 5]. Currently, according to the OPPERA study, evidence points to a complex multifactorial pathophysiology involving phenotypic and genotypic traits that must be taken into account during the diagnosis and treatment of TMDs [6].

Most patients suffering from TMDs improve with conservative and multimodal therapies, such as self-management, cognitive behaviour therapy [7], physiotherapy [8], needling techniques [9], pharmacotherapy [10], occlusal devices [11] and minimally invasive procedures such as arthrocentesis, and intraarticular injections. In case of advanced TMJ pathological conditions where an intra-articular pathology is implicated or ones that are refractory to conservative treatment, diagnostic/therapeutic arthroscopy or an open joint surgery is indicated [12].

Occlusal devices are one of the common treatment modalities utilized in the management of TMDs. An occlusal device is defined by the glossary of prosthodontic terms (GPT) as "any removable artificial occlusal surface affecting the relationship of the mandible to the maxilla, used for diagnosis or therapy." Occlusal 'splint' is a widespread term used for different kind of occlusal devices such as hard stabilization splint (i.e., Michigan, flat, relaxing splint), anterior repositioning splint, anterior/posterior bite plane, pivoting appliance and soft resilient appliance [13]. However, the use of the term "occlusal splint" may not be as accurate as "occlusal orthosis or orthotic device" due to the semantic origin of those words. According to the American Academy of Orthopaedic Surgeons (AAOP), an orthosis is an orthopaedic appliance used to support or improve function of moveable parts of the body [1]. As per the definition from the AAOP, orthopaedic surgery is the branch of surgery concerned with conditions involving the musculoskeletal system. In general, orthopaedic surgeons use both surgical and nonsurgical means to treat musculoskeletal trauma, degenerative diseases, infections, tumours, and congenital disorders. Maxillofacial surgeons or a TMD specialist treat these same conditions when they affect the temporomandibular joint in a very similar manner, along with the additional consideration of the dentate components of the jaw. Therefore, it should be emphasized that TMJ related musculoskeletal disorders must be considered as 'orthopaedic pathologic entities' among dental practitioners akin to our orthopaedic colleagues. Failure to do so only exacerbates the problems associated with TMD in general not only for patients but also for the clinicians and third-party insurers, etc., as they do not consider TMJ pathology as orthopaedic pathology, rather entirely dental in nature (considered as a secondary effect of occlusion/dentition) [1, 70]. An established joint disorder, irrespective of its initiating factor(s), should have a holistic multidisciplinary treatment approach in accordance to the sound principles of orthopaedic science.

One way to become more "orthopaedic" when dealing with TMJ musculoskeletal disorders would be to eliminate the term "splint" when referring to an oral appliance. The Merriam-Webster Dictionary defines the word "splint" as "a material or a device used to protect and immobilize a body part: to support and immobilize (as a broken bone) with a splint." Whereas the Oxford Concise Medical Dictionary defines "orthotic" as "a surgical appliance that exerts external forces on part of the body to support joints or correct deformity." Therefore, the term "splint" should be relegated to the oral appliance used to facilitate positioning of the maxillary and mandibular components in orthognathic surgery and trauma, while the orthopaedic term "orthotic" should be used to designate the oral appliance used in the management of musculoskeletal TMJ disorders [14]. Nevertheless, these two terms are used and defined indistinctly in the GPT and in research studies related to temporomandibular joint disorders.

Material and Methods

Methodology included a review of the online literature via systematic search to evaluate scientific evidence support and also, gathering clinical data from the expert international consortium formulated to generate a substantial evidence-based clinical support. A literature review search was performed in terms of the effectiveness of different types of occlusal orthotics in the management of temporomandibular disorders according to international protocols of diagnostic criteria such as RDC/TMD, DC/TMD and any clear

diagnosis of myogenous pain, and TMJ pain, disorders, and diseases.

PubMed, Embase and Scopus databases were searched. Search terms used according to a combination of medical subject headings (MeSH) terms are as follow: ((((“Temporomandibular Joint Disorders”[Mesh]) OR “Craniomandibular Disorders”[Mesh]) OR “Facial Pain”[Mesh]) OR “Osteoarthritis”[Mesh]) AND “Occlusal Splints”[Mesh]. Metanalysis (MA), clinical trials (CT), observational studies, systematic, and literature reviews were selected to support the indications of different orthotic devices for TMDs to draw the final conclusions and consort recommendations.

Data from Review and Recommendations

Stabilization Orthotic Occlusal Appliance (SA)

This device is also known by the following terms; flat plane splint, stabilization splint, centric relation splint, and Michigan splint. It was described by Ramfjord and Ash [15] in the 50’s and it has become one of the most popular therapy for treating TMD even though its mechanism of action remains less understood. Myogenous indications for its use include local muscle soreness, centrally mediated myalgia, and bruxism. It is not recommended for protective co-contraction, myofascial pain or myospasm [15, 16, 71].

It is a full coverage appliance commonly made of hard acrylic like polymethyl methacrylate (PMMA) and can either be used in the lower or upper arch, as no significant difference in symptom reduction has been found in studies while wearing the appliance either in the maxilla or mandible [16]. However, it is recommended to use it in the less stable arch or where there are more edentulous zones. Its occlusal surface must be flat and smooth except for the zone of canine and/or incisal guidance. Thickness must be the minimum possible (2–3 mm in molar zones) to allow further occlusal adjustments in order to achieve bilateral and symmetrical contacts to allow redistribution of forces between joint surfaces [15, 17, 18]. Increasing vertical occlusal dimension (VOD) more than 3 mm does not show major benefits in terms of reduction of the electrical muscle activity and also there is no evidence of adverse effect when VOD is increased to < 5 mm [19, 20]. A single study by Hegeb et al. in 2018 correlated MRI based effects by the various thickness of appliance with clinical outcomes and recommended a splint thickness of 4 mm for disc displacement with reduction and 6 mm for disc displacement without reduction, with a treatment duration of 1 year [72, 73]. The appliance must be stable and retentive. When the patient is in the upright position, posterior teeth should contact bolted than anterior teeth, in a musculoskeletally stable position. If the appliance is not fabricated according to these criteria, an iatrogenic malocclusion may result [71]. A dual laminated splint which has a hard outer layer and a soft inner layer is also described, which in essence functions as a hard splint [74]. Recent advances in orthotic appliance fabrications include CAD-CAM polycarbonate-based occlusal appliance which exhibit higher fracture toughness as well as lower water sorption and solubility than polymethyl methacrylate-based appliances. They also minimised human errors in fabrication such as fit, dimensional stability and has less fabrication time. In terms of flexural strength, surface microhardness, water sorption, and water solubility, they were superior to auto-polymerising materials but not significantly superior to heat-polymerised appliances [75].

Possible mechanisms involved in improving symptoms of TMD with the use of a SA are reduction in joint loading, changes in proprioception, regression to the mean, placebo effect and the Howthorne phenomenon. In a healthy individual, intraarticular pressure may depend on several factors and can vary during joint activity [21]. During rest, pressure is normally negative and increases notably during maximal clenching or lateral movements and decrease during maximal mouth opening allowing perfusion of nutrients from the capillaries [22, 23]. In the presence of intracapsular inflammation this pressure markedly rises resulting in changes of synovial fluid, contributing to TMD [24]. Only a few studies have researched this phenomena and have revealed that the use of SA can decrease intracapsular pressure by 31–81% in patients with TMD [22, 23], probably helping to reduce oxidative stress. However, a recent RCT revealed no difference in the synovial fluid levels of IL-6, MDA and 8-OHdG in joints treated with and without SA after arthrocentesis, even though splint therapy was found to be successful in eliminating clinical symptoms related to TMD [25].

SA treatment is also hypothesized to incite changes in proprioception that increase brain modulation of muscle activity for 2–6 weeks. This putative phenomenon is commonly described by “the cognitive awareness theory” and directs towards opening a window for the implementation of other treatments like exercises, physiotherapy and habit modification [26]. A reduction of electromyographic activity in the masticatory muscles, while the orthotic is worn has been extensively demonstrated. It has been further speculated that this is due to the occurrence of a reflexive response to the presence of a “foreign body” between the teeth, leading to “avoidance” behaviour [27]. Hence, it seems reasonable to suppose that this increased awareness would influence the patients’ learning to modify their behaviour, subsequently contributing to the success of the intervention. But this concept still needs evidence [28].

Another mechanism is “regression to the mean” which is a phenomenon where levels of pain in TMD patients, tend to decrease with or without therapy over time to about 50% of the peak levels. Similarly, if someone is experiencing the

lowest level of pain in their pain cycle, then an increase in pain could be expected. These mechanisms are based on studies about chronic pain cycles [29].

The "placebo effect", which is well-known in pain management, could be explained in TMDs, as the treatment necessitates patient contact for patient education, counselling, and other doctor- patient interactions. These could also play a positive role in improvement of symptoms and induce a sense of reassurance that there is no sinister pathology [17, 26]. However, patients with emotional distress and maladaptive cognitive appraisals of pain may benefit less from placebo effects [30]. Finally, the Hawthorne phenomenon wherein patients change their behaviour or perspectives to treatment, secondary to their awareness of being monitored, has also been attributed to successful outcomes with orthotic appliance [76].

SA are widely used for manging symptoms of myogenous as well as arthrogenous TMD and literature demonstrates positive outcomes with few negative effects. Results obtained in systematic reviews up to the beginning of 2000, were not able to draw conclusions in favour or against the use of SA in improving signs and symptoms of TMD, [31, 32] and it was difficult to execute MA due to the scarcity of well-designed RCTs. More recently larger numbers of studies, including MA, have demonstrated that SA have significant positive long-term effects in reduction of masticatory muscle pain (71.8%) and improvement of mouth opening at early follow up (61.9%). This has positioned the SA as one of the most efficient occlusal orthotic appliance therapies with a moderate quality of evidence [11, 16, 33–35], even though some of the SR and MA document no significant outcome differences of SA when compared to other modalities [36, 37].

When comorbidities such as widespread/referred pain is present, and Axis II is affected (psychological/psychiatric disorders), the efficacy of SA in pain management could be jeopardised. Comprehensive assessment of patient factors, including psychosocial factors, are indispensable when selecting the optimal treatment for myogenous pain [38, 39].

The differences in pain reduction effect of SA with and without counselling in arthralgia has also been proven [11, 33]. But the outcomes seem to be lower when compared to the concomitant use of other modalities such as ARA [11] and minimally invasive procedures, that may include arthrocentesis, intra articular injections and arthroscopy [12].

Side effects of SA related to altered occlusion or discomfort are uncommon when the orthotic appliance is frequently and correctly adjusted and when it is worn for short period of time [40]. On the other hand, development of apnoea events or an increase when already present, is described with the use of SA in healthy and obstructive sleep apnoea (OSA) patients [41–43]. Although these findings are still controversial [44, 45], it is recommended to perform OSA screening prior to use of a SA for TMD or sleep bruxism.

Anterior Repositioning Orthotic Occlusal Appliance (ARA)

This appliance described by Farrar in the 1970's, has similar characteristics to the SA apart from a ramp in the anterior aspect that temporarily guides the mandible to a protruded position. According to different authors, the therapeutic position can be (i) edge-to-edge, (ii) 2 mm of mandibular protrusion or (iii) minimum protrusive position where the disc can be clinically reduced [46]. The clinical indications include painful disc displacement with reduction (DDwR) with or without intermittent locking and in cases of retrodiscitis where SA has not achieved optimal results [47].

The mechanism of action involves removal of the disc–condyle mechanical disturbance form below the disc's posterior band and transferring the condylar loading forces from the retro-discal tissue to the intermediate zone, thereby decreasing inflammation and pain [48]. It is important to mention that recapture of the disc has major success probabilities when this orthotic device is appropriately fabricated within a few days or weeks from the first episode of a DDwoR or DDwR with intermittent locking [46].

Some researchers and clinicians recommend that ARA should be worn 24 h a day, mainly to get the double contour of the condyle with cortical layering in cases of osteoarthritis [46]. However, it has frequently been associated with posterior open bite, occlusal alterations and muscle contracture of the lateral pterygoid, on long term patient follow up [49]. Alternatively, wearing it during sleep (bedtime) seems to be enough for pain improvement, not significantly changing the occlusal contacts or causing skeletal problems [26, 50]. Literature reviews show that the treatment duration could vary between four weeks and one year, with a mean duration of 3–6 months depending on the diagnosis [46]. If the aim is to reduce pain, just a few weeks of use should suffice, on the other hand, if the aim is to recapture the disc, more than 6 months of wear may be necessary.

Numerous studies using magnetic resonance imaging indicate that ARA is more effective in recapturing the disc than SA [48, 51]. However, the reduction of TMJ pain with the use of ARA, is not necessarily associated with recapture of the disc, but is due to pseudo disc formation and repair of retro-discal tissues [48, 52]. In the management of osteoarthritis, it has been shown that at 12 months follow up, ARA may aid in condylar repair and regeneration [53].

In comparison to SA, NTI-tss and soft full coverage appliances, ARA is significantly superior in reducing joint pain (low level of evidence) and clicking sound (moderate level of evidence) demonstrating 86.5% and 98.33% success

respectively, while the appliance is being used for disc-condyle conflict conditions [11, 54].

Anterior Bite Appliance and Nociceptive Trigeminal Inhibition Tension Suppression System (NTI-tss) Appliance

The NTI-tss is a prefabricated anterior bite appliance that was approved by the U.S. Food and Drug Administration (FDA) in 1998 and according to the manufacturer, is indicated for the prevention and treatment of bruxism, TMDs (exact diagnosis or condition not specified), occlusal trauma, tension-type headaches and/or migraine [55]. It engages 2–4 maxillary incisors and is made of hard acrylic. Although the positive effects reported by clinicians and press articles were widespread, there is a paucity of high-quality studies comparing this appliance with other treatment modalities.

RCTs reveal that the NTI-tss appliance had an important inhibitory effect in masseter muscle electromyographic activity during sleep compared to SA [56, 57]. However, this was not directly related to the intensity of pain, palpation tenderness or improvement of mouth opening [56] at 2 weeks. Another RCT demonstrated improvements in myofascial pain at 6 weeks, which was not superior to the control group [58] nor to SA at 3 months follow up [59]. Nonetheless, in a recent MA, the performance of NTI-tss in myogenous pain reduction was one of the most favored indication when compared to other orthotic devices (very low level of evidence), demonstrating 80% improvement (low level of evidence) [11].

The NTI-tss appliance may be found effective in arthrogenous pain management (very low level of evidence), but is not definitely better than SA or ARA [11]. However, it is not generally recommended for TMJ disorders because it has been demonstrated that joint sounds and joint loading could increase in patients with disc displacement with reduction (DDwR), with the use of this device [50]. In context to its beneficial effects on headaches, evidence is limited and contradictory. An independent RCT demonstrated no effect in improvement of migraine when compared to amitriptyline and a sham splint [60]. On the contrary, single RCT (financed by the distributor of the NTI-tss devices) demonstrated a reduction of 77% in episodes of chronic migraines in patients that probably had jaw clenching as a contributing factor to their headaches [61].

NTI-tss bite stop may have be successfully used for the management of TMDs and bruxism in the short term and is described as easy and quick to. However, occlusal changes and tooth mobility were reported in studies after 3–6 months of usage. Five cases were published in the FDA medical device reporting website, reporting ruptures, increased clenching episodes, and mobility of teeth [55]. To avoid unfavourable outcomes, this appliance is not generally recommended, but if chosen, it should only be used for masticatory muscle pathology in the absence of intracapsular problems. Patients non compliant to follow-up are not good candidates for this appliance [62]. General Dental Council (GDC), UK recommends NTI-tss use only for a short duration to avoid device related complications.

Soft Full Coverage Orthotic Occlusal Appliance

The soft orthotic appliance is made from a 2–4 mm resilient polyvinyl sheet material adapted to the maxillary or mandibular arch, which is usually worn only at night and generally produces symptomatic relief within weeks [63]. Also known as nightguard, it is a simple to make, easy to adjust and user-friendly appliance. Common indications include masticatory muscle pain, bruxism and as an adjunct appliance therapy following arthrocentesis.

According to a recent MA, it is very useful in managing myogenous pain better than SA, with a success rate of 61.9% (very low quality evidence) but not superior for arthrogenous pain management [11]. A comparative study revealed that both soft and hard splints are capable of reducing electromyographic activity during clenching, especially in the anterior temporalis muscle. However, the soft splint demonstrate poor outcome in terms of muscle activity reduction, probably due to the resilience of the material and superior comfort, that could incite patients to clench with more confidence (clenching or working on the soft splint material) [64].

Unfortunately, most MA and SRs include all the orthotic appliances under the same umbrella (irrespective of the type and indication) which makes differentiation and evaluation of the patient centric outcomes between individual appliances impossible [34, 35, 55].

Simultaneous Use of Oral Orthotic Occlusal Appliance with Minimally Invasive Treatment Interventions

Arthrogenous and myogenous temporomandibular disorders should be clinically distinguished. In cases with complex situations resulting in symptoms related to mixed problems, a thorough and systematic history will direct towards the initiating factor(s) (arthrogenous and/or myogenous origin) and will be beneficial in deciding on an appropriate intervention, as well as the type of orthotic occlusal appliance therapy that may be indicated. Symptomatic (painful) intra-articular derangement with loss of synchrony in the disc movement, or a displaced disc without reduction, should be managed early with minimally invasive procedures (arthrocentesis or arthroscopy), with or without intra-articular injection of an adjuvant pharmacological agent(s), in an attempt to recaptulate the disc. This should include simultaneous or post-intervention orthotic occlusal appliance

Table 1 Conclusion and consort recommendations based on available meta-analysis and clinical evidence

Orthotic device	Indication	Recommended thickness	Wear hours per day	Total duration of wear (months)	Additional comments	Literature evidence support	Evidence based clinical support
Stabilization (flat plane) orthotic occlusal appliance	Myalgia [11, 33–35, 37]	2 mm in the molar zones	Nocturnal use (sleep)/ better 24 h/day [33]	< 3 months [33] < 12 months [11]	Significatively better than control/placebo [11, 33–35] Not significatively better than control/ placebo [65]	Mixed evidence	Moderate evidence favouring its use
	Arthralgia [11, 33] (due to OA, DDwR, etc.)	2 mm in the molar zones	Better 24 h/day [33]	< 3 months [33] < 12 months [11]	Significatively Better than control/placebo [11, 33] Not Significatively better than control/ placebo [12, 66]	Mixed evidence	Weak evidence favouring its use
	TMJ clicking [11]	2 mm in the molar zones		< 12 months [11]	Significatively not better than control/ placebo [11, 66]	Substantial evidence	Strong evidence against its use
	Movement disorders (MA do not test this indication)	2 mm in the molar zones				Limited evidence	Weak evidence favouring its use
Anterior repositioning orthotic occlusal appliance	DDwR with intermittent locking (MA do not assess this indication)	2 mm in the molar zones	During the night when sleeping			Limited evidence	Weak evidence favouring its use
	Arthralgia [11, 66]	2 mm in the molar zones	24 h/day or only when sleeping		Significatively better than control/ placebo [11, 66]	Moderate evidence	Moderate evidence favouring its use
	TMJ clicking [11, 66]	2 mm in the molar zones	24 h/day or only when sleeping		Significatively better than control/ placebo [11, 66]	Substantial evidence	Moderate evidence favouring its use
Nociceptive trigeminal inhibition tension suppression system (NTI-tss) based orthotic occlusal appliance	Myalgia [11, 34]		During the night when sleeping		Significatively Better than control/placebo [11, 34]	Substantial evidence	Moderate evidence favouring its use

Table 1 (continued)

Orthotic device	Indication	Recommended thickness	Wear hours per day	Total duration of wear (months)	Additional comments	Literature evidence support	Evidence based clinical support
Soft full coverage orthotic occlusal appliance	Myalgia [11, 34]				Significatively better than control/placebo [11, 34] Not Significatively better than control/placebo [65]	Mixed evidence	Moderate evidence favouring its use
	Arthralgia [11]				Not Significatively better than control/placebo [11]	Substantial evidence	Strong evidence against its use
	Post-intervention following arthrocentesis/arthroscopy (for internal derangement; DDwoR, painful DDwR) [67–69]	2 mm full coverage (vacuum-formed soft occlusal appliance constructed with 2-mm-thick elastic rubber sheets)	Better 24 h/day	≤3 months	Improvement in post operative quality of life scores (QoL)	Mixed evidence	Strong evidence favouring its use
Pivotal appliance					Lack of MA data for this occlusal orthotic appliance	Weak evidence	Weak evidence favouring its use

therapy. Early intervention with intra-articular injection and orthotic occlusal appliance therapy is significantly more effective than conservative treatment for pain reduction and improvement in interincisal opening, as observed through a meta-analysis of randomized clinical trials at both short (≤5 months) and intermediate term (6 months–4 years) follow up periods [11, 12, 17, 67]. Meta-analysis by Li et al. suggests that arthrocentesis performed within 3 months of conservative treatment would produce beneficial results in a joint with persistent symptomatic derangement condition, rather than delaying the intervention.

Results

Conclusion and consort recommendations for the use of oral orthotic occlusal appliance therapy for temporomandibular joint disorders based on available meta-analysis and current scientific clinical evidence are summarized in Table 1.

Key recommendations and conclusion

1. An established temporomandibular joint disorder, irrespective of its initiating factor, should have a holistic multidisciplinary treatment approach with interventions involving sound principles of orthopaedic science.
2. Guidelines regarding duration of treatment using specific orthotic occlusal appliances are necessary, and the concept of long term or indefinite use is outdated.
3. Over-the-counter orthotic appliances, commonly referred to as night guards may not be appropriate for all situations. Additionally, appliances that do not fulfill fabrication criteria for a specific indication may cause undesirable sequelae.
4. The term occlusal splint (MeSH, National Library of Medicine, NIH: Rigid or flexible appliances that are used to maintain a displaced or movable part in position, or to maintain the position of and protect an injured part) should be considered to be replaced with oral orthotic occlusal appliance (MeSH, National Library of Medicine, NIH: Apparatus used to support, align, or augment the functioning of parts of the body/joint).
5. The arthrogenous and myogenous temporomandibular disorders should be clinically distinguished. In cases with complex situations resulting in symptoms related to mixed arthrogenous and myogenous problems, a thorough and systematic history will direct towards the initiating factor (arthrogenous or myogenous origin) and will be beneficial, to decide on an appropriate intervention and the type of orthotic occlusal appliance therapy.
6. For the symptomatic (painful) intra-articular derangement with loss of synchrony in disc movement or a displaced disc without reduction, simultaneous or post-intervention orthotic occlusal appliance therapy should be combined with early minimally invasive procedures (arthrocentesis or arthroscopy), and adjuvant pharmacological therapy.
7. Oral appliances (orthotics) can be a part of a non-invasive management plan for NOT ALL but certain patients with musculoskeletal TMJ disorders, with specific indications.
8. The mechanisms of action underlying the clinical effects of an occlusal orthotic appliance in the management of musculoskeletal temporomandibular joint disorders are not completely understood.
9. Using an oral orthotic occlusal appliance to produce permanent changes in occlusion or mandibular position is not supported by current evidence.
10. Clinicians must select the appropriate orthotic appliance for the specific condition they are treating as per the current available scientific evidence, and patient compliance remains the mainstay for the success with oral orthotic occlusal appliances.

Author Contributions All authors contributed to the study conception and design. Initial study conception, material preparation, data collection and analysis were performed by LGM, DB, CCF and AJS. The first draft of the manuscript was written by IAG, CCF and DB. LGM, SB, MAP, AJS, SS, MFŞ, KM, PA, PG, VDS and PE contributed to provide data on regional and institutional practices on the subject. All authors read and approved the final manuscript.

Funding This work was academically supported by TMJ Foundation, TMJ Consultancy, Bhopal, Madhya Pradesh, India. The authors declare that no funds, grants, or other support were received during the preparation of this manuscript.

Declarations

Conflict of interest None. The authors have no relevant financial or non-financial interests to disclose.

Ethics Approval This is an observational and review study. The TMJC Research Ethics Committee has confirmed that no ethical approval is required.

Consent to Participate Written informed consent was not applicable for this review.

Consent to Publish Patient related consent is not applicable for this review. Members of the Joint International Consortium on Oral

Orthotic Occlusal Appliance Therapy for Temporomandibular Joint Disorders, TMJ Foundation, have reviewed and approved the final manuscript draft.

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