RCDSO | Royal College of Dental Surgeons of Ontario

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STANDARD OF PRACTICE

Members are reminded that dentists are obligated at all times to maintain the standards of practice of the profession including those published by the College. A member who fails to comply with a standard published by the College or the generally accepted standards of practice of the profession may be acting in a manner that could result in allegations of professional misconduct.

Diagnosis and Management of Temporomandibular Disorders

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EXECUTIVE SUMMARY

This Standard of Practice articulates requirements for education and clinical practice related to the diagnosis and management of temporomandibular disorders (TMDs).

This standard is not an exhaustive treatise on diagnostic and treatment strategies for all forms of orofacial pain; the focus is on the diagnosis and management of TMDs. Every patient is unique and, therefore, requires individualized management.

Contravention of this or any Standard of the RCDSO may be considered professional misconduct.

STANDARD OF PRACTICE

Introduction

Temporomandibular disorders (TMDs) is a general term for a variety of conditions involving pain or dysfunction in the joints and other structures of the jaw. Most of these disorders are poorly understood, and they can be difficult to diagnose and treat because of the complex factors that may be involved.

Like all chronic pain conditions, TMDs (especially those of myofascial origin) may be associated with

psychological, social, and behavioural components. Symptoms may include anxiety, depression, frustration, anger, as well as behaviours like bruxism (excessive teeth grinding or jaw clenching), poor posture, lack of exercise, poor dietary and sleep habits, drug dependencies, and other tension-related habits.

Each of these symptoms or behaviours may complicate the clinical picture. There may be many factors that create pain and cause it to reoccur.

Patients have a critically important role to play. While dentists and other oral health care practitioners may recommend and provide long-term care plans, patients must be informed of their part in their own care.

TMDs are not always progressive. Considerable evidence shows that in many cases clinical remission occurs without treatment. The need for treatment and the nature of the treatment must be considered carefully. A decision to treat and how to treat must be based on a detailed and relevant clinical history, a careful clinical examination, and preference given to conservative, reversible therapies.

TMD symptoms may mimic other pain conditions and vice versa. The practitioner must have appropriate education and training to evaluate the signs and symptoms of TMDs, as well as an understanding of other causes of orofacial pain, in order to diagnose and treat TMDs successfully.

The guiding principle of any treatment must be "primum non nocere" or, "above all, do no harm." Failure to respond to conservative treatment does not mean irreversible or invasive therapies are inevitable. There must be clear indications for a specific invasive or irreversible treatment approach. The risks and benefits of the treatment versus the untreated symptoms must be carefully weighted.

The dentist must consider collaborating with other health care professionals, including the patient's physician or appropriate medical or dental specialists, particularly when the dentist lacks experience or the management of the patient's condition begins to exceed their competence to manage independently.

Dentists must obtain valid consent prior to initiating any treatment, and this discussion should emphasize the risk of permanently altering the dentition or jaw relationships. Re-evaluation during the course of treatment is equally important to ensure that the diagnosis is correct and the course appropriate.

EDUCATIONAL REQUIREMENTS

The majority of patients presenting in the dental office with signs and symptoms of a TMD can be assessed and treated appropriately by any properly trained general dentist. Appropriate education and training (undergraduate or continuing education programs) should:

- Promote the concept of diagnosis-based treatment with conservative, reversible treatment modalities
- Emphasize the multifactorial, biological, and functional basis of TMD
- Foster an understanding of the anatomy, physiology, and pathology of the temporomandibular joints, associated musculature, and related structures
- Foster an understanding of the behavioural and psychosocial aspects of TMDs and related chronic pain disorders
- Expose the student or practitioner to the various options in conservative patient management
- Include a discussion of the potential adverse effects of the various treatment modalities
- Instil in students and practitioners the importance of cooperating and collaborating, where appropriate, with other health practitioners who have been trained to diagnose and render rational treatment of TMDs. These include other dentists, dental specialists, physiotherapists, psychologists, physicians, and various medical specialists
- Allow the student or practitioner to determine when treatment is warranted and discourage therapy that is unnecessary, impractical, or potentially detrimental to the patient

- Teach the student or practitioner to critically evaluate the literature and research on new concepts, treatment methods, and diagnostic aids, equipping them to reject concepts, treatment modalities, or devices that lack scientific validation

- Result in the student or practitioner having an understanding of the other painful disorders and diseases that afflict the craniofacial complex, equip them with the knowledge and capability to differentiate these from TMDs, and treat or refer the patient accordingly

Continuing education training that promotes one method of treatment, one product, or that focuses on specific diagnostic tools is usually inadequate. Practitioners who have taken one or many short courses must recognize that these do not impart specialty status.

An oral and maxillofacial surgeon who has successfully completed a residency in an accredited program may have had an adequate opportunity to assess and operate on patients with TMDs. Additional training might be necessary where the training program did not provide adequate exposure to all diagnostic and therapeutic modalities.

Continuing education in the diagnosis and management of TMD is widely available and must represent a part of the clinician's continuing dental education activities if they are to remain competent in the management of patients with this complex of disorders. Acceptable courses must be evidence-based and conform to the practice parameters and standards set out in this document.

PROFESSIONAL RESPONSIBILITIES

PATIENT HISTORY

As with all dental treatment, a careful medical and dental history must be obtained before any treatment is contemplated. TMD investigation and treatment must only be initiated after any specific odontogenic basis for the patient's complaint has been ruled out.

Overlapping conditions need to be considered and addressed. For those patients with a history of TMDs, the following checklist can be used to ensure that the necessary information has been obtained and recorded.

Medical history

1. Past medical history
2. Present and ongoing medical/dental diagnoses and therapy
3. Past and current medications

Pain

1. Localized facial/jaw pain
   - Nature of pain, constant or episodic
   - Site, radiation pattern
   - Precipitating or aggravating factors
   - Relieving factors, conditions, treatment
   - Severity

2. Earaches
   - Bilateral or unilateral
   - Association with other symptoms

3. Headaches
   - Site
   - Constant or episodic
   - Relationship to other symptoms
   - Duration and frequency
   - Precipitating factor(s)
   - Other related symptoms (for example, photophobia, phonophobia, nausea)
   - Relationship to jaw or temporomandibular joint-related symptoms
   - Relieving factors, conditions, treatment

4. Neck, shoulder, and back pain
   - Constant or episodic
   - Relationship to other symptoms
   - Precipitating factor(s)
   - Relationship to jaw or temporomandibular joint-related symptoms
   - Relieving factors, conditions, treatment
   - Severity

Limitation of mandibular movement

- Constant or episodic
- Precipitating and aggravating factors
- Relieving factors, conditions, treatment
- History of open or closed locks

Joint noises
- Nature (clicking, popping, grinding)
- Side (left, right, both)
- Constant, episodic
- Association with jaw function

Altered Sensation
- Site(s)
- Nature (for example, tingling, numbness, hyperesthesia)
- Constant or episodic
- Precipitating factors
- Relationship to other symptoms

Tinnitus
- Bilateral or unilateral
- Association with other symptoms

Perceived hearing loss
- Bilateral or unilateral
- Association with other symptoms

Related cognitive, emotional, or mood changes
- For example, loss of energy, appetite, memory, concentration, feelings or appearance of depression/sadness

Sleep disturbance
- Difficulty falling asleep, staying asleep, nightmares
- Quality of sleep

Duration of each of the symptoms

Relationship of onset to specific events
- For example, trauma, other injuries, stress, treatment, general anesthesia

Parafunctional habits
- Night-time bruxism (sleep bruxism)
- Clenching, nail-biting, chewing gum (daytime, nocturnal, frequency)
- Onset

Previous treatment for the patient's complaints and its effectiveness

CLINICAL EXAMINATION

In order to exclude other causes for the patient's symptoms and to determine the TMD type and the extent of any related disability, dentists must conduct a thorough clinical examination and record all findings. This is critical to making a correct diagnosis and to developing a treatment plan for the particular patient. It is inappropriate for the dentist's physical examination to extend beyond the head, neck, and shoulder region.

Consider this checklist:

General extra-oral
- Observation of the patient's general appearance, demeanor, gait
- Facial swelling or significant asymmetry
- Palpable lymph nodes

Temporomandibular apparatus
- Palpation of:
  - The temporomandibular joints both facially and via the external auditory meatus
  - The muscles of mastication and facial musculature both extra- and intra-orally
- Limitation of mandibular movement
  - Inter-incisal opening (measured, assisted, and unassisted)
  - Path of mandibular movement during opening or closing (deviation or deflection)
  - Condylar movements
  - Lateral movement of the mandible, symmetrical
  - Protrusive movement of the mandible, symmetrical
  - Presence or absence of pain on opening, protrusive or lateral movement of the mandible
- Joint noise
  - Audible or palpable
  - Nature (clicking, popping, grinding)
  - Bilateral or unilateral
  - On opening, closing or both
  - Early or late

Intra-Oral
- Dentition
  - Missing teeth
  - State of repair of dentition
  - Dentures (full or partial, adequate or inadequate)

- Presence or absence of dental or periodontal disease
- Wear facets
- Percussion sensitivity
- Thermal sensitivity, where indicated

- Occlusion
  - Note the status of the patient's occlusion and any changes such as open bite
  - Whether occlusal relationships are functional

Other

- Trigger points for pain
- Altered sensitivity (for example, pin-prick, light touch)
- Oral mucosal lesions or disorders

SPECIAL INVESTIGATION

Additional investigative procedures will be dictated by the results of the history and clinical examination. In most cases, minimal or no further investigation is indicated in order to initiate treatment. Additional investigation may be indicated if the patient is unresponsive to initial conservative therapy.

Radiographic Investigation

A radiographic investigation may be indicated if the clinical evaluation or the medical or dental history suggest:

1. An abnormality of the osseous components of the jaws or joints

Investigations may include panoramic radiography (to rule out significant osseous or dental disease in the mandible or maxilla or severe condylar changes) or more detailed investigation using cone beam computed tomography, computerized tomography, or nuclear bone scans.

2. A disc displacement of the joints

Magnetic resonance imaging (MRI) is the optimal modality to assess positional, functional, and morphologic abnormality of the articular disc. Although non-invasive, it may require referral to a primary care provider. MRI studies must only be considered when the results would affect the course of treatment. Since disc displacements have been documented in asymptomatic individuals, imaging of the disc is only justified when the displacement is likely to be clinically significant or the patient has failed to respond to conservative treatment.

3. An extra-articular disorder

Radiographs of the dentition or other structures anatomically related to the temporomandibular joints, such as the salivary glands, sinuses, cranium or neck, may be indicated to rule out other dental or craniofacial diseases. Other imaging techniques might be indicated depending on the clinical diagnosis (for example, ultrasound imaging for soft tissue lesions).

Dentists must consult a radiologist or similarly qualified specialist when a radiographic investigation not normally performed in a dental office is indicated. They can recommend procedures with optimal safety and economy that would yield the most useful information.

Laboratory Investigation

Laboratory investigation is only necessary if previous investigation (history/physical examination) has suggested an infectious, metabolic, or autoimmune disorder.

Other Consultations

In selected cases, a consultation with other healthcare professionals (family physician, neurologist, otolaryngologist, physiatrist, rheumatologist, psychologist, or psychiatrist) may be indicated.

The clinical value of a number of diagnostic aids currently in use has not been demonstrated in well-controlled and scientifically based studies; these include jaw-tracking devices, EMG recording, and sonography (Doppler). These aids may have some use for research purposes but may not necessarily facilitate diagnosis or patient treatment.

The concept of "neuromuscular occlusion" is based on the diagnostic value of electromyography for TMDs. Treatment is based on the use of electrical stimulation of the muscles of mastication to establish appropriate occlusal positioning. Controlled studies suggest that there is a wide range of results and inconsistent findings related to using electromyography. The findings minimize the usefulness of electromyography as a diagnostic test for TMDs. Specifically, differences between TMD patients and healthy controls were not consistent. There is not enough evidence to support the clinical efficacy of TMD treatment of electrical stimulation of the mastication muscles – the placebo effect cannot be ruled out.

Dentists must exercise reasonable clinical; judgment and carefully weigh the risks and benefits of any treatment versus the untreated signs and symptoms.

DIAGNOSIS

Treatment must always be diagnosis-based. The treatment must be directed at the factors apparently causing the symptoms or dysfunction. The mere presence of a disorder is not always justification for treatment as many are self-limiting or asymptomatic. Although there is no one uniformly accepted classification for TMD, diagnoses can include:

- **Masticatory muscle disorders** – myospasm, myofascial pain, pain as a component of systemic disorders such as fibromyalgia, chronic fatigue syndrome
- **Disc displacement** – with or without reduction, intermittent/continuous limited opening
- **Joint hypermobility** – subluxation, luxation
- **Arthritides** – osteoarthritis, rheumatoid arthritis, psoriatic arthritis, septic arthritis, gout, pseudogout, lupus erythematosis, capsular inflammation
- **Congenital/developmental abnormalities** – condylar hyperplasia, condylar hypoplasia/aplasia, coronoid hyperplasia

The differential diagnosis, however, must also include the following:

- **Direct traumatic injuries**, such as:
  - Fractures of the condyle, condylar neck, coronoid process, or temporal bone
  - Joint dislocation, subluxation, or ligamentous/ capsular disorders
- **Post-traumatic stress disorders and centrally mediated complex pain syndromes**, such as:
  - Fibromyalgia
  - Complex regional pain syndrome
  - Centrally mediated neuropathic pain
- **Neoplasms** (of the components of the temporomandibular joints or related structures or metastatic)
- **Idiopathic pain and dysfunctions**

Other causes of facial pain not originating from the temporomandibular apparatus may need to be considered, including, but not limited to, neuralgias (for example, trigeminal neuralgia, atypical facial pain), demyelinating diseases, CNS tumours, vascular headaches, muscle contraction-type (tension-type) headaches, dentoalveolar disease, sinus disease, ear disease, salivary gland disease, and psychogenic disorders.

The final diagnosis may be a combination of more than one of the above.

NON-SURGICAL MANAGEMENT

In most cases, initial management will be directed towards the relief of symptoms. There is no demonstrated value for the treatment of asymptomatic joint noises.

The concept of routine irreversible alteration of the patient's temporomandibular joints, jaws, occlusion, or dentition is not supported by sound scientific studies.

Failure to manage a patient's symptoms with a conservative method does not necessarily imply nor guarantee the success of another more invasive technique.

Most TMDs are managed rather than definitively treated. Available modalities include:

- Reassurance and patient education

- Consideration of appropriate patient lifestyle modifications to support the management of symptoms, such as:
  - Commitment to daily exercise
  - Adopting a healthier diet and sleep patterns
  - Moderating the use of drugs and other chemicals
  - Developing realistic expectations and self-sufficiency
  - Making use of the social support of family, friends, and colleagues

- Medication:
  - Analgesics
  - Muscle relaxants
  - Anti-inflammatory drugs (NSAIDs)
  - Tricyclic amines (antidepressants) (TCAs)
  - Anticonvulsants (gabapentin)
  - Compounded topical ointments

Some drugs may be contraindicated in selected cases (for example, NSAIDs in patients with gastrointestinal disorders, NSAID-sensitive asthma, and TCAs in patients with cardiac conduction disorders). The practitioner must be familiar with the potential drug interactions and side effects (long- and short-term use) of any medication prescribed and be prepared to deal with adverse reactions. The dentist must consider collaborating with other health care professionals, particularly when appropriate pharmacotherapy involves the use of drugs with which the dentist lacks experience or complications begin to exceed their competence to manage independently. For more information, see the Guidelines on The Role of Opioids in the Management of Acute and Chronic Pain in Dental Practice.

- Therapy by a dentist or other registered health professional experienced in the management of TMDs, including:
  - Jaw exercises (for example, 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

  *There is some evidence that some of these can reduce the patient's symptoms facilitating mobilization and reducing pain thus allowing jaw exercises to proceed.

- Psychological, psychotherapeutic or psychiatric treatment by appropriately qualified practitioners, including behavioural modification therapy, cognitive behavioural therapy, and mindfulness

- Stabilization type of occlusal appliances (intra-oral appliances designed to provide even and balanced occlusal contact without either forcefully altering the mandibular rest position or permanently altering the dental occlusion)

Long-term, constant, or permanent anterior repositioning of the mandible, such as with orthodontics or fixed/removable prosthodontics, is not validated by well-controlled, well-designed scientific research. Additionally, partial occlusal coverage appliances with limited interarch contacts must be used with caution to avoid the risk of permanent occlusal changes or aspiration.

Oral appliances may be used to maintain the tongue or jaw in a position to relieve or improve snoring and sleep-disordered breathing (SDB). However, in some cases, these appliances may cause or worsen temporomandibular joint pain, joint noise development, pain in the muscles of mastication, and permanent changes in occlusion.

The use of oral appliances in the management of snoring and SDB requires a team approach, involving dentists and physicians who are trained and competent in this field. The main roles of the dentist are to screen for SDB, but not to diagnose it, and to provide therapy in appropriate cases. The patient must be referred to a sleep physician or family physician to review their overall medical history and assess for the presence of obstructive sleep apnea.

The dentist must perform a clinical assessment of the patient, including general and oral health, and the prognosis for soft and hard tissues to be affected by the use of an oral appliance. The patient must be fully informed of the potential and probable risks of using an oral appliance. Dentists must assess for and manage side effects of oral appliance therapy as they develop.

- Trigger/tender point injections, where indicated, for the muscles of mastication
  - Local anaesthetics (without vasoconstrictor in muscles)
    Note: These may also be considered as part of the examination when used in a selective manner to aid in isolation of a possible source of pain and therefore might be administered into other anatomical sites (for example, as a nerve block)
  - Corticosteroids
  - Botulinum toxin – there is some evidence that it is of value for myalgia, particularly that related to myospasm or muscle hyperactivity when traditional methods fail

Ontario dentists who wish to use botulinum toxin may do so but only for procedures that are within the scope of practice of dentistry. Ontario dentists must be appropriately trained and competent to inject botulinum toxin intra-orally for either therapeutic or cosmetic purposes, or extra-orally for therapeutic purposes.

Ontario dentists who wish to use botulinum toxin must successfully complete a course of instruction that includes pharmacological and physiological characteristics of this neurotoxin, as well as possible adverse reactions and their management. In addition, Ontario dentists who wish to use botulinum toxin extra-orally for therapeutic purposes, such as for the management of certain TMDs and other oral-facial conditions, are expected to pursue more extensive training.

It is not within the scope of practice of dentistry and Ontario dentists are NOT authorized to inject botulinum toxin extra-orally for cosmetic purposes.

If treatment such as that described above successfully reduces the patient's symptoms, restoration to function of a non-functional (unstable) occlusion may be warranted. There is inadequate research demonstrating any value to occlusal adjustment or alteration, except where the patient's occlusion is non-functional (for example, cannot chew adequately). Dental treatment may be indicated to correct previous restorative or prosthetic treatment that has resulted in an iatrogenic malocclusion.

Treatment modalities for which there are no generally accepted scientific or empirical basis must not be employed.

TMD and Headache

Headache has long been accepted as a symptom of TMDs. In most cases, the headache is secondary to the facial muscular pain. More recently, the presentation of certain types of headaches and TMD as comorbid conditions has been recognized. It has been demonstrated that tension-type headache (muscle contraction type headache) and TMD are potentially comorbid painful muscular disorders. In addition, the possible comorbidity of migraine headaches and TMD has also been elucidated as a result of central sensitization.

Comorbid presentations must be considered differently from headache as a secondary outcome of a TMD. When comorbidity exists, both diagnoses must be firmly established by appropriate healthcare practitioners using standardized diagnostic criteria, followed by treatment of both conditions with appropriate evidence-based modalities. Generally, the diagnosis and treatment of the TMD is best managed by a dentist or dental specialist, and the primary headache by a physician or medical specialist who can use various tools to confirm the nature of the headache. **It is imperative to rule out a central neurological disorder or lesion where the headache is primary**.

The approach to treatment must first involve the identification of any causative, predisposing, or perpetuating factor, and their elimination or reduction. Treatment of the TMD must follow the same principles, regardless of a comorbid headache. Similarly, management of the headache must be based on accepted principles, including patient education, pharmacotherapy, and behavioral approaches.

A collaborative/cooperative approach between the dentist and physician is best; however, it must be recognized that the diagnosis and treatment of headache is not within the scope of practice of dentistry. While a co-morbid headache may resolve with treatment of the TMD, it is not part of the dentist's therapeutic plan. At times, the "cause and effect" relationship between tension-type headache and TMD can be unclear. Comorbidity of TMD and migraine has been demonstrated in some cases; however, in such cases, the dentist must collaborate with the patient's physician.

SURGICAL INTERVENTION

In some cases, surgical intervention may be indicated. In all cases, the surgical procedures described below must only be performed by those dentists who have completed a formal post-graduate program in oral and maxillofacial surgery that is suitable for certification in the Province of Ontario.

Before considering surgical intervention, a diagnosis must have been made that is based on a thorough history, physical examination, and the results of any necessary adjunctive diagnostic tests. In the majority of cases, appropriate conservative treatment modalities must have been prescribed or attempted over a suitable period of time. However, in certain cases, such as traumatic injuries and fractures, surgical intervention may be considered the primary course of treatment.

Where conservative therapy has failed to modify the patient's TMD, it does not necessarily follow that surgical intervention will result in a positive therapeutic effect. Surgical intervention is generally part of a process of management, rather than a cure, with some notable exceptions such as closed lock of the mandible.

Where there is no obvious causal relationship between the patient's complaints and the anatomical, clinical, or pathological abnormality of TMD, surgery cannot, with reasonable certainty, be expected to be helpful and, indeed, could be harmful. Similarly, if the patient presents with chronic pain, assessment and management of the psychosocial effects of the chronic pain disorder and understanding of the effectiveness of chronic pain management strategies are appropriate prior to considering a surgical procedure. This may require the assistance of other healthcare professionals, such as the patient's family physician.

Pain or other dysfunctions of the temporomandibular joint and surrounding regions may be the result of disorders unrelated to TMD. The surgeon must be satisfied that consideration has been given to rule out other causes or factors. Therefore, other healthcare providers may be consulted when signs and symptoms or the diagnosis warrants such consultation. These may include a patient's physician, a neurologist, an otolaryngologist, a rheumatologist, physiatrist, or psychiatrist.

The following surgical procedures are generally accepted by experienced temporomandibular joint surgeons and by the American Society of Temporomandibular Joint Surgeons for patients with surgically manageable disorders, such as disc displacement or osteoarthritis of the temporomandibular joint(s). The experienced surgeon, skilled in TMD surgery, further enhances the validity and outcome of such procedures.

1. Intra-articular injections
2. Arthrocentesis
3. Arthroscopic procedures
4. Arthrotomy/Arthroplasty
5. Disc surgery
6. Coronoidotomy/Coronoidectomy
7. Condylotomy
8. Reduction of recurrent or chronic dislocation
9. Joint replacement may be indicated in selected patients with joint destruction or ankylosis - this may include prosthetic devices or autogenous grafts

Once a surgical procedure is suggested, the appropriate risks, sequelae, and possible complications must be explained to the patient as part of obtaining valid consent, including possible outcomes of no surgical treatment. Risks and benefits must be explained.

The patient must be advised that signs and symptoms of a TMD may be the result of a combination of several problems. Accordingly, surgical management may control some signs and symptoms, but not all.

Finally, the patient must be informed that post-operative management is an integral and important part of the overall treatment strategy. This may include physiotherapy, medical, psychological, dental, and pharmacological support. Post-operative management may continue for several years. Where the patient has a pre-existing chronic pain disorder, arrangements for ongoing pain management must be in place prior to surgical intervention. While the surgeon will assist in pain management in the initial postoperative period, long-term pain management is best managed by the patient's physician or other healthcare providers.

Long-term post-operative care and follow-up is imperative to ensure an optimal surgical outcome. Initially, this may include wound care, application of heat/cold, dietary control, medication, and physiotherapy either professionally or self-administered focusing on mobilization amongst other desired functional outcomes. Later, this may include periodic functional subjective and objective assessments as required.

There is no scientifically validated evidence in support of surgery to treat "simple" otherwise asymptomatic clicking as the only presenting symptom without associated locking or pain. Equally, there is little evidence in support of the suggestion that surgical or orthodontic correction of a malocclusion will predictably alter the course of an intra-articular disorder. Patients with a significant TMD, a concurrent severe malocclusion (in particular an open bite deformity or a severe class II malocclusion with a deep overbite), and where the malocclusion may be a predisposing exacerbating factor in their disorder, might benefit from surgical (orthognathic surgery) or orthodontic correction of the malocclusion as part of an overall management strategy. **Correction of a malocclusion is best considered on its own merits and must not be considered as the primary treatment with respect to management of a TMD**.

BIBLIOGRAPHY

1. Ehsani, S., Alsulaimani, M., and Thie, N. Why do dentists need to know about myofascial pain? Point of Care. J Can DentAssoc. 2009;75:109-112.
2. Ouanounou A, Goldberg MB, Haas DA. Pharmacotherapy in temporomandibular disorders: A Review. J Can Dent Assoc 2017;83:h7
3. Fricton, J.R. Temporomandibular muscle and joint disorders. Pain: Clinical Updates XII, No. 2, International Association for the Study of Pain 2004.
4. Parameters of Care: AAOMS Clinical Practice Guidelines for Oral and Maxillofacial Surgery (AAOMS ParCare) Sixth Edition 2017. J Oral Maxillofac Surg. 75:e195-e223, 2017, Suppl. 1.
5. Klasser, G.D. and Greene, C.S. Oral appliances in the management of temporomandibular disorders. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2009;107:212-223.
6. Schiffman E., et al. Diagnostic Criteria for Temporomandibular Disorders (DC/TMD) for clinical and research applications: Recommendations of the International RDC/TMD Consortium Network and Orofacial Pain Special Interest Group. J Oral Facial Pain and Headache. 2014;28:6-27.
7. Fricton J., Myofascial Pain: Mechanisms to Management. Oral Maxillofacial Surg Clin N Am. 2016;28:289-311.
8. de Leeuw R., Klasser G.D., (Ed.) Orofacial Pain: Guidelines for Assessment, Diagnosis and Management, 5th Edition. American Academy of Orofacial Pain, 2013, Quintessence Publishing.
9. Wright E.F., North S.L., Management and Treatment of Temporomandibular Disorders: A Clinical Perspective. J Man Manip Ther. 2009;17(4):247-254.
10. Sessle BJ., et al (Ed). Orofacial Pain: From Basic Science to Clinical Management. Second Edition. 2009; Quintessence Publishing
11. Travell, J., Simons, D.G. Myofascial Pain and Dysfunction: The Trigger Point Manual. Baltimore, Williams & Wilkins, 1998.
12. Tauben D., Chronic Pain Management: Measurement-Based Step Care Solutions. Pain: Clinical Updates, 2012;20: Vol. 8
13. Shankland WE. Nociceptive trigeminal inhibition-tension suppression system: a method of preventing migraine and tension headaches. Compend. Contin. Educ. Dent. 2002;23(2):105-108, 110, 112-113.
14. Graff-Radford SB, Abbott JJ. Temporomandibular Disorders and Headache. Oral Maxillofacial Surg Clin N Am 2016:28;335-349.
15. Ramar K, Dort L, Katz SG, Lettieri CJ, Harrod CG, Thomas SM, Chervin RD. Clinical Practice Guideline for the Treatment of Obstructive Sleep Apnea and Snoring with Oral Appliance Therapy: An Update for 2015. J Clin Sleep Med 2015:11(7);773-827.
16. Chen H, Lowe AA, de Almeida FR, Fleetham JA, Wang B. Three-dimensional computer-assisted study model analysis of long-term oral-appliance wear. Part 2. Side effects of oral appliances in obstructive sleep apnea patients. Am J Orthod Dentofacial Orthop 2008:134:408-417.
17. Otsuka R, de Almeida FR, Lowe AA. The effects of oral appliance therapy on occlusal function in patients with obstructive sleep apnea: A short-term prospective study. Am J Orthod Dentofacial Orthop 2007:131;176-183.
18. Stapelmann H., Turp JC., The NTI-tss device for the therapy of bruxism, temporomandibular disorders, and headache – Where do we stand? A qualitative systematic review of the literature. BMC Oral Health 2008;8:22 doi:10.1186/1472-6831-8-22.
19. Canadian Agency for Drugs and Technologies in Health. Rapid Response Report: Summary with Critical Appraisal. Neuromuscular Occlusion for Diagnosis and Treatment of Temporomandibular Joint Disorders: A Review of the Clinical Evidence. January 11, 2013.
20. Gauthier L, Almeida F, Arcache P, et al. Position paper by Canadian dental sleep medicine professionals regarding the role of different health care professionals in managing obstructive sleep apnea and snoring with oral appliances. Can Respir J 2012;19(5):307-309.
21. Canadian Agency for Drugs and Technologies in Health. Rapid Response Report: Systematic Review. Interventions for Temporomandibular Joint Disorder: An Overview of Systematic Reviews. September 28, 2018.