

Subject: AADR Policy Statement Regarding TMDs: Implications for Orofacial Myologists

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Colleagues:

The American Association for Dental Research has recently (March 3, 2010) revised its policy statement regarding temporomandibular disorders. A new standard of care for TMDs has been approved. This policy statement regarding TMDs has implications for orofacial myologists who may wish to participate in treatment protocols for TMDs. The policy statement is provided here, followed by information, guidelines and recommendations.

UPDATED POLICY STATEMENT BY THE AMERICAN ASSOCIATION FOR DENTAL RESEARCH REGARDING TEMPOROMANDIBULAR DISORDERS (TMD)

The AADR recognizes that temporomandibular disorders (TMDs) encompass a group of musculoskeletal and neuromuscular conditions that involve the temporomandibular joints (TMJs), the masticatory muscles, and all associated tissues. The signs and symptoms associated with these disorders are diverse, and may include difficulties with chewing, speaking, and other orofacial functions. They also are frequently associated with acute or persistent pain, and the patients often suffer from other painful disorders (comorbidities). The chronic forms of TMD pain may lead to absence from or impairment of work or social interactions, resulting in an overall reduction in the quality of life.

Based on the evidence from clinical trials as well as experimental and epidemiologic studies:

1. It is recommended that the differential diagnosis of TMDs or related orofacial pain conditions should be based primarily on information obtained from the patient's history, clinical examination, and when indicated TMJ radiology or other imaging procedures. The choice of adjunctive diagnostic procedures should be based upon published, peer-reviewed data showing diagnostic efficacy and safety. However, the consensus of recent scientific literature about currently available technological diagnostic devices for TMDs is that except for various imaging modalities, none of them shows the sensitivity and specificity required to separate normal subjects from TMD patients or to distinguish among TMD subgroups. Currently, standard medical diagnostic or laboratory tests that are used for evaluating similar orthopedic, rheumatological and neurological disorders may also be utilized when indicated with TMD patients. In addition, various standardized and validated psychometric tests may be used to assess the psychosocial dimensions of each patient's TMD problem.

2. It is strongly recommended that, unless there are specific and justifiable indications to the contrary, treatment of TMD patients initially should be based on the use of conservative, reversible and evidence-based therapeutic modalities. Studies of the natural history of many TMDs suggest that they tend to improve or resolve over time. While no specific therapies have been proven to be uniformly effective, many of the conservative modalities have proven to be at least as effective in providing symptomatic relief as most forms of invasive treatment. Because those modalities do not produce irreversible changes, they present much less risk of producing harm. Professional treatment should be augmented with a home care program, in which patients are taught about their disorder and how to manage their symptoms

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DISCUSSION OF THE AADR POLICY STATEMENT.

This statement presents an admonition to dentists who treat TMDs to utilize conservative, reversible, evidence-based therapies in providing symptomatic relief for TMD complaints. Dental providers are discouraged from engaging in invasive, irreversible treatment modalities. Treatments should be augmented by home care instructions in managing patient symptoms.

The conservative emphases expressed in this policy statement have broad implications for orofacial myologists who may be asked to participate in treatment strategies to eliminate or reduce patient symptoms associated with TMDs. Orofacial myologists are urged to carefully and cautiously consider any treatment participation that they may wish to provide with TMD patients. The call for dentists to use conservative, reversible, evidence-based treatment procedures with TMDs should also apply to those orofacial myologists who may participate in treatment protocols for TMDs. Due to the multidisciplinary nature of treatment strategies for patients with TMDs, there is a need for orofacial myologists to fully understand the risks and possible benefits that strategies used by referral resources may entail. The protection of patients from unwarranted therapies that may further exacerbate problems of pain and discomfort is a paramount responsibility of orofacial myologists who may participate in interdisciplinary treatment protocols for TMDs and provide specific therapies.

In an attempt to help orofacial myologists determine whether their participation with TMD patients may be warranted, the following considerations, cautions and recommendations are offered:

TEMPOROMANDIBULAR DYSFUNCTIONS: GENERAL CONSIDERATIONS. The diagnosis and treatment of disorders of the temporomandibular joint apparatus (TMJ/TMD) are medically/dentally related problems that require diagnosis and treatment planning within these disciplines. Diagnosing and treating TMJ problems in isolation is not within the purview of orofacial myofunctional therapists (OMTs), especially since any TMD symptoms may be linked to factors other than the joints.

As a minimum diagnostic requirement, and in spite of current limitations, radiographic studies of the joints would be needed. One exception to this is the use of a niteguard appliance prescribed by a dentist as a *diagnostic appliance* prior to referral of the patient to an oral surgeon for a more definitive evaluation using the variety of imaging techniques available in hospital settings. In such diagnostic therapies, orofacial myologists may be asked to provide orofacial myofunctional therapy where there are retained noxious habit patterns that need to be eliminated, or to establish and maintain an appropriate vertical rest position of the mandible (freeway space) using the diagnostic therapy appliance as a guide.

THE IMPLICATIONS OF CENTRIC RELATION AND CENTRIC OCCLUSION. Since the mandibular muscles determine all of the complicated movements and positions of the jaw, and since all functional masticatory and deglutitory movements of the mandible are distal and retrusive (back and up) in direction, it is important to understand the two terms and concepts used in dentistry to describe the rest positions of the mandible. The term **centric relation (CR)** refers to the most retruded, posterior and superior position of the mandibular condyle in the temporal (glenoid) fossa, while **centric occlusion (CO)** refers to cuspal contacts of teeth in complete interdigitation. There continues to be a lack of full agreement in dentistry as to whether centric relation and centric occlusion should coincide. Some dentists consider these terms to be synonymous, while others make definite distinctions in describing the relationships and positions of the mandibular condyles within the glenoid fossae. In most individuals, the mandible can be retruded from the centric occlusion position by 0.5 to 1 mm (Sicher and DuBrul, 1970). In many patients, CR and CO may differ by several millimeters.

The concept of **centric relation** is best understood when it is interpreted physiologically as a jaw-to-jaw relationship (rather than a tooth to tooth relationship). It can be defined as the most posterior relation of the mandible to the maxilla at an established vertical dimension. With the condyles in the most posterior position in the glenoid fossa, unstrained lateral movements can be made.

The rest position of the mandible is completely *independent* of the presence or absence of teeth. Instead, the rest position is determined and maintained by the resting tonus of the mandibular musculature and gravity. The residual tension of a muscle at rest, termed *resting tonus*, is maintained by the intermittent reflex contractions of a certain percentage of the fibers of a given muscle. As some fibers fatigue, others take

up the tension to maintain the constancy of the total tonus in spite of fatigue that naturally occurs in striated muscles. The significance of the residual resting tension of mandibular muscles is that they maintain a constant and close contact with articulating TMJ surfaces. Since no muscle is ever totally relaxed except in deep general anesthesia or unconsciousness, the proper relations of all components of the TMJ apparatus are maintained by muscle tone. During sleep, tonus is considerably lower, but even then it is not lost. Obviously, as muscle tonus remains constant under constant conditions, so does the rest position of the mandible. In aberrant conditions, however, these relationships may change (Sicher and DuBrul, 1970).

The need to determine centric relation in *edentulous* patients is especially important and relevant to dentists since they need to know where to construct the denture base and how to establish centric occlusion. The determination of the appropriate vertical dimension is also critical to denture construction since it specifies the crucial limits to any bite raising prosthetic procedures. If the bite is opened (raised) as far as the rest position (meaning that the teeth touch in this position), the mandibular musculature becomes severely stressed. Constant contact of the teeth, however light, results in the neural end organs in the periodontium signaling this contact to the motor nucleus of the fifth nerve in the brainstem. This feedback disrupts the normal, long established, neural firing pattern and the disrupted pattern then deprives the muscle fibers of their normal resting (tonus) sequences. The obvious consequences are muscle spasm, trauma to teeth, supporting structures and joint structures, and pain. (Sicher and DuBrul, 1970).

A centric relation in the *natural* dentition should not be confused with the position of teeth, or tooth to tooth relationships, or even be considered as a precise relationship of condyles to fossae as in centric occlusion. Rather, centric relation should be thought of as a learned, neuromuscular pattern; a position of the mandible in relationship to the maxilla where the most posterior, unstrained, hinge-like movement of the mandible is affected. Centric relation is a clinically variable phenomenon in that the location of the head of the condyle can be modified by the existing tonus of the muscles of mastication and the vertical dimension at which the positional relationship is established.

Centric occlusion is a term applied to the cuspal contacts of teeth when the mandible is closed. A centric relation of a patient needs to be established before centric occlusion is determined. Many clinicians consider centric occlusion to represent the "best neuromuscular bite". When the habitual, voluntary mandibular closure pattern coincides with centric relation, and if the contacts of teeth are optimal, there is a blend of harmonious tooth integration with jaw movement. In the act of swallowing, the need for a harmonious balance of the muscles of mastication represents the only true instance with orofacial functions where the concept of "muscle balance" is appropriately discussed and can actually be achieved.

Parafunctional tooth contacts are believed to provide the initial impetus for occlusal trauma. The consensus among clinical investigators is that local tooth interferences play an important role in the initiation of destructive habit patterns. The most important occlusal discrepancies to correct are those that interfere with reflex jaw closures seen in both conscious and preconscious swallowing. In dental therapy it is essential to control the abnormal parafunctional mandibular movements involved with bruxing and grinding habit patterns. Dentists are also concerned if a patient clenches in an incorrect occlusal position. In order to overcome the effects of an incorrect isometric contraction of the muscles of mastication associated with noxious habit patterns, there must be an optimum distribution of this biting force in a direction that is most favorable to the supporting structures.

An occlusal adjustment (or equilibration) for the purpose of establishing a correct and positive centric occlusion will tend to minimize or even eliminate the triggering action of occlusal interferences. This is indispensable to the clinical control of the destructive effects of parafunction. However, an aggressive occlusal adjustment can result in modifying the vertical dimension to the extent that the freeway space is over closed, leading to occlusal trauma and pain. An equilibration may also influence the horizontal dimension by changing the centric occlusion and the position of the condyles in the glenoid fossae.

TEMPOROMANDIBULAR DISORDERS: RECOMMENDATIONS FOR OROFACIAL MYOLOGISTS. Many orofacial myologists participate in the treatment of temporomandibular joint and associated disorders. Due to ASHA mandates for its members who practice orofacial myology, the discussion of recommendations will be discussed separately for SLPs and RDHs. **SPEECH-LANGUAGE PATHOLOGISTS.** SLPs who are members of ASHA, are subject to following the ASHA guideline published in the document **Orofacial Myofunctional Disorders: Knowledge and Skills** (ASHA, 1993): **(9.b.1)** "the practice of orofacial myology *does not include*: Treatment of parafunctional problems related to temporomandibular joint disorders and myofascial pain dysfunction". This ASHA mandate means that SLPs should not treat TMJ patients. In addition, ASHA states that "...the practice of orofacial myology does not *include*: (9.b.3) cranosacral manipulation or practices within the scope of physical therapy" (ASHA, 1993).

DENTAL HYGIENISTS. It is recommended that the second ASHA guideline for speech-language pathologists should also be followed by dental hygienists. The risks of further exacerbating the TMD, rupturing the meniscus, or contributing to the worsening of pain and functions by manual manipulations of the mandible, should remind dental hygienists of the legal obligation to only treat TMJ problems under the direction and supervision of a dentist or physician. Specifically stated: *Those orofacial myologists who are dental hygienists should refrain from evaluating and providing orofacial myofunctional therapy without the approval and supervision from the dentists or physicians involved in the care of such patients. Dental hygienists who provide therapy for TMJ problems are discouraged from physically manipulating the mandible during therapy. Any procedure to reposition the mandible or guide the mandible to a centric relation or centric occlusion should be*

accomplished by a dentist. Muscle therapy to modify a centric occlusion position should be avoided. Since TMJ treatment is not physical therapy, the role of the dental hygienist should be limited to the elimination of noxious habits that may be involved, such as bruxism, while also normalizing the interocclusal (freeway) space.

A discussion of the concepts of **centric relation** and **centric occlusion** should remind orofacial myologists of the complex nature of the temporomandibular joint apparatus. Treatment strategies for TMDs present special challenges for dental clinicians; some of which can create additional problems if not properly evaluated and dispensed. *RDHs who wish to participate in treatment protocols for TMDs should have a clear understanding of the dental and orofacial myofunctional therapy procedures that could help, or possibly damage, the TMJ apparatus.*

In some selected instances, dental hygienists may appropriately participate in the treatment of a patient with a TMD at the request of and under the direction of a dentist or physician. Such participations may involve helping the patient to adapt to an appropriate freeway space dimension where splint therapy may be involved. Other appropriate collaborative therapy for TMD patients may involve the elimination of clenching or grinding habits.

Clearly established goals should be generated and approved by the referring dentist or physician. As mentioned above, dental hygienists should heed the warning that a TMJ may deteriorate during treatment through a perforation of a disc or damage to the connective tissues supporting the joint apparatus. If such a situation occurs, the OMT is at risk to be implicated in any legal recourse that may follow. Since most OMDs, including TMDs, involve the vertical dimension, a general focus of therapy activities in the vertical plane would tend to protect the TMJs from damage whereas manipulations of the mandible in the horizontal plane have a greater potential to harm the TMJ apparatus. Treatment objectives of orofacial myologists that are designed to provide adjunctive support for any splint therapies initiated by dentists may aid in establishing and maintaining a freeway space that is compatible with a normal, appropriate vertical rest position of the mandible.

RDHs are reminded of a challenge they face in collaborating with dentists and physicians in the care of patients with TMDs. While there are a myriad of dental and medical practitioners whose claim of expertise in the area of TMD treatment may be well earned, in many other instances, individual theories and treatment protocols may be embraced and employed that are not backed up by facts or appropriate documentation. RDHs who participate in treatment protocols are advised to carefully select those dental and medical resources with whom to collaborate. Caution is advised in agreeing to participate in the treatment of TMDs.

THE NEED FOR DATA-SUPPORTED TREATMENT PROTOCOLS FOR TMDs BY OROFACIAL MYOLOGISTS. Orofacial myologists who provide services to patients with TMDs have a responsibility similar to that of dentists to develop treatment procedures that are conservative, reversible and evidence-based, and to carefully document their therapy. To date, there are few if any data to support currently-used TMD therapy techniques by orofacial myologists. Unanswered questions remain regarding the theory and value of therapy procedures. A case in point is resistance-type exercises for strengthening and "balancing" the masticatory muscles. Do resistance exercises claimed to balance particular muscles of mastication actually do so? Do muscle strengthening exercises result in eliminating or lessening the TMD complaints of patients? Are there patient reports of problems associated with such exercises? Current therapies used by orofacial myologists with TMDs cannot be recommended as appropriate until sufficient supporting documentation becomes available. As in medicine and dentistry, the responsibility for documentation belongs to those orofacial myologists who benefit financially from the therapies provided.

As with other aspects of orofacial myology, there is a critical need for well controlled, documented studies of the efficacy of therapy. Where pain and discomfort are involved, and where possible damage to the supporting apparatus of the TMJ is a possibility, the need for well documented treatment protocols is a most pressing responsibility of clinicians who participate in such interdisciplinary therapies.

TONGUE POSTURE AND TMDs. A final caution regarding patients who have TMDs: a forward, interdental tongue rest posture may represent the last cushion for the TMJ problem that is available to the patient. *Orofacial myologists providing therapy for patients with TMDs need to make sure that they are not making matters worse by changing tongue rest postures.*

SUMMARY. This memorandum provides a report to orofacial myologists of the updated policy statement by the AADR regarding TMDs. The implications of this policy have been described. Some selected functional aspects and potential problems related to TMDs have been reviewed. The complicated, multi-faceted, multidimensional nature of the TMJ apparatus has been discussed. Cautionary recommendations have been offered to those orofacial myologists who may desire to participate in treatment strategies for TMD patients. Conservative therapies are recommended that do not have the potential to further exacerbate the TMDs. The need for research documentation of clinical procedures used by orofacial myologists with TMDs has been identified.

The overall intent of this memo is to provide information and recommendations that can shield orofacial myologists from any negative consequences that may follow from orofacial myofunctional therapy with TMDs. As well, patients need to be protected from treatment strategies that may cause them further harm.

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