

Revision of the American Association of Dental Research's Science Information Statement about Temporomandibular Disorders

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Despite continuing research, which is providing an increasing evidence base, the dental profession still does not have a standard of care for diagnosing or managing temporomandibular disorders (TMDs). Although guidelines have been published by organizations including the American Academy of Orofacial Pain¹ and the American Academy of Oral Medicine, which has published a handbook² for managing various orofacial conditions causing pain, these are not officially recognized as authoritative documents by national associations. The Canadian Dental Association and American Dental Association have not established clinical guidelines for this segment of dental practice. To our knowledge, the only North American dental organization that has published TMD guidelines—in 1999, revised in 2009—is the Royal College of Dental Surgeons of Ontario.³

In 1996, the American Association of Dental Research (AADR) published a science information statement on TMDs, based on recommendations submitted by its Neuroscience Group.⁴ This document, which was based on evidence at that time, provided guidelines for the diagnosis and management of TMDs. In 2010, the statement was revised in light of continuing research and the strengthened evidence base.⁵ After a broad literature review by the AADR's Neuroscience Group and a lengthy process of administrative review and revision, the updated official AADR TMD statement was approved in March 2010 (**Fig. 1**).

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.

Note: See website for supporting references at www.aadronline.org/i4a/pages/index.cfm?pageid=3465.

Figure 1: American Association of Dental Research. Policy Statement on Temporomandibular Disorders Revision (adopted 2010).⁵

The main question regarding the diagnosis of TMDs was related to the use of electronic diagnostic devices, such as electromyography, jaw movement trackers and sound recorders. Although various imaging modalities have been developed and validated for their use in diagnostic assessment of the temporomandibular joint, their value is mainly limited to the discovery of intracapsular pathologic conditions.^{1,6} Most technological devices proposed for TMD diagnosis have failed to meet standards of reliability and validity: they do not satisfy the sensitivity and specificity requirements or produce the positive and negative predictive values required for individual diagnosis in a clinical setting.^{7,8}

In terms of management of TMDs, controversy has been primarily related to structural and mechanistic issues, such as occlusal relationships, condylar positions, neuromuscular balance and similar mechanistic concepts. Based on various concepts of “ideal,” many dentists believed these variations to be essential etiologic factors in the development of TMDs. These beliefs and opinions have resulted in the delivery of extensive and invasive treatment plans to manage TMDs.

The current literature has clearly shown that the use of adjunctive diagnostic devices (except for various imaging procedures) does not contribute to the ability to correctly diagnose orofacial pain problems (including TMDs) beyond that arising from a thorough history and comprehensive examination.^{1,6,9,10} Instead, their use poses a relatively high risk of false-positive findings, which may lead the provider to mechanistic therapies. In addition, patients with non-TMD orofacial pain may be wrongly classified as TMD patients, and their real diagnosis may be obscured by subsequent management for TMDs.

Management of TMDs by conservative and reversible interventions has been shown to be both appropriate and successful.¹¹ Controlled studies have revealed little or no evidence of a need to change occlusal relationships or condylar positions permanently.¹²⁻¹⁴ In addition, internal derangements of the temporomandibular joint usually do not need to be “corrected”; instead, most symptomatic patients with internal derangements will respond well to pain management and physical medicine approaches.

Furthermore, the importance of biopsychosocial variables, which tend to be minimized when focusing on mechanistic approaches, has been emphasized throughout the medical pain management literature. Because TMDs are similar to other musculoskeletal pain conditions (e.g., low back pain, knee problems), it is obvious that dentists should incorporate this perspective into patient care. This is especially true when pain becomes chronic, because of the increasing recognition of the impact of psychosocial factors on persisting pain, and vice versa.

The 1996 AADR statement was updated based on the evidence-based scientific findings of the past 14 years, and the revised version includes a number of new elements. The concept of comorbid pain disorders has been added, reflecting current knowledge about pain susceptibility, neuroplasticity and psychosocial consequences of pain. Recognition of these phenomena has changed the field of pain management in general and has affected our understanding of TMDs.¹⁵⁻¹⁸

The original language regarding the use of adjunctive tests and devices has been modified, based on data from continuing research.^{8,19,20} TMDs are now recognized as a subset of orthopedic and rheumatologic musculoskeletal disorders and, therefore, require similar approaches in diagnostic testing as is conducted in other similar medical disciplines.^{14,21} In addition, the biopsychosocial perspective about TMDs and many other chronic pain disorders has become widely accepted, which means that assessing the psychosocial issues as they relate to TMD patients must be part of the diagnostic process.²²⁻²⁴

Modifications regarding TMD management approaches are included in the new statement, with emphasis on the need for conservative and reversible strategies as supported by recent treatment literature.^{1,11,25,26} In-clinic cognitive behavioural therapy and structured home-care programs, in which patients learn to understand their condition and engage in self-management strategies, are an important part of that approach.²⁷⁻³⁰

The 2010 AADR statement reflects current best knowledge, but undoubtedly it will be reviewed over time and adapted to conform to new evidence as this is developed. Within the scientific community, the new statement reflects widely accepted concepts and is essentially noncontroversial; however, the practitioner community may have mixed reactions to it. We urge all clinicians to read the statement carefully and look at the supporting references to benefit both patients and professionals in the diagnosis and management of problems causing orofacial pain.

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