

## Reliability and Validity of the DC/TMD Axis I

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There are two main purposes for the development of diagnostic criteria: research and clinical management. The original Research Diagnostic Criteria for Temporomandibular Disorders (RDC/TMD)<sup>1</sup> provided an initial structure to assist in confirming that research studies were being carried out in similar, standardized diagnostic groups, and although these diagnostic categories were only broadly defined, they did provide some consistency for studying similar diagnostic populations. However, the original RDC/TMD did not provide any assistance in management. The newer Diagnostic Criteria for TMD (DC/TMD)<sup>2</sup> attempted to refine research and clinical criteria for the study of TMD; however, because TMD symptoms are common findings in many head and neck complaints, rigid, all-inclusive criteria are difficult to establish. Drs Steenks, Türp, and de Wijer should be commended for their efforts in their Focus Article, since they have more specifically addressed some of the shortcomings of the more recent DC/TMD. This Focus Article has critically evaluated the DC/TMD, commenting on the advantages and disadvantages of these suggested guidelines. Steenks et al state both their support and concerns regarding these new criteria. I comment below on some of their statements.

### Familiar Pain

Steenks et al generally feel that the concept of familiar pain is a positive addition to the criteria. The idea of connecting the patient's pain report to the examination procedure is both logical and likely helpful in directing treatment to the specific condition that brings the patient to the clinic. They also suggest linking the familiar pain not only to palpation but also to function. I believe this suggestion has merit. Since TMD is a musculoskeletal disorder, it is logical that asking the patient to use or load the painful structures would increase the chief complaint (ie, familiar pain). Combining palpation with functional activities, such as biting on a tongue blade, clenching the teeth, or asking the patient to chew gum or wax, would further confirm that the masticatory structures are the likely source of the

pain. This increase in pain may not identify the precise reason why the patient is reporting to the office or palpation and/or functional activities may increase a different pain complaint than the one that motivated the patient to seek care; therefore, asking the patient if this is their familiar pain is very appropriate. When these activities do not increase the familiar pain, or if the pain is described by the patient as another pain, further investigation is indicated to better understand the familiar pain.

### TMD Categories

Steenks et al seem to support the addition of several new diagnostic categories, although they question the validity of the examination procedures. These diagnostic categories add some reasonable and simple clinical criteria that should help differentiate between them, making potential research categories more consistent. However, Steenks et al express concern about how the groups of patients were derived and the validity of the populations used, which may have some merit.

The additional category of local myalgia is very appropriate. The fact that there is no significant increased resting electromyographic activity in painful muscles suggests that myospasm is an inappropriate term, and, in my opinion, the term myofascial pain was inappropriately used in the original RDC/TMD: It was used as a term for all muscle pain, with no mention of trigger points and pain referral, as characterized by an earlier description.<sup>4</sup> The DC/TMD includes pain spreading and referral, which is more aligned with earlier work. Local myalgia is likely the most common presentation of acute muscle pain, and the addition of this category should assist in research documentation. However, this category does not address the concept that local myalgia can be produced by central mechanisms (ie, secondary hyperalgesia).<sup>5</sup> The question that remains is whether the local muscle pain is secondary to local overuse and fatigue or more centrally induced; for example, by an upregulation of the autonomic nervous system.

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The treatment considerations for these two origins are different and therefore need to be appreciated by the clinician. Local myalgia related to overuse and fatigue is managed simply by rest and perhaps mild pain control. However, local myalgia that has its origin in central mechanisms is far more difficult to identify and manage. Identifying these conditions may need the support of RDC/TMD Axis II assessments.

Steenks et al correctly recognize that the DC/TMD categories are not a complete diagnostic classification for TMD. They, as well as Schiffman et al,<sup>2</sup> acknowledge that the DC/TMD categories are merely the more common presentations of TMD and those that need to be better researched. There are many other less common TMD that also need to be researched. As we advance in the field, new criteria will need to be developed for each of these conditions to improve research and treatment options.

## Palpation

Steenks et al are in agreement with the reduction of the number of muscles to be palpated in the DC/TMD compared to the RDC/TMD. It seems appropriate that the temporalis and masseter muscles be palpated, since these muscles can be easily accessed and are logical sites for TMD pain. The DC/TMD does not recommend palpating other muscles, even though some others are commonly included in the diagnostic examination for TMD. However, these other muscles are not very accessible and may introduce greater risk of false data. Nonetheless, it may be appropriate to assess other muscles in order to determine a diagnosis outside the main DC/TMD classification (ie, functional manipulation of the inferior or lateral pterygoid muscle).

The Focus Article suggests that the muscles that are to be palpated should be assessed not only for pain but also for tissue firmness, such as induration. Although this may have some merit, there will likely be significant variations in firmness, as demonstrated by the inconsistency of locating myofascial trigger points. Therefore, it may be very difficult to reliably reproduce clinical results between clinicians without significant training and standardization.

Steenks et al also question the rationale for choosing 2 and 5 seconds of palpation to determine pain spreading or referral. I would agree that this time frame has not been well documented. Perhaps if there is a spreading of pain, there may be central nervous system factors involved, suggesting additional treatment considerations. This may be especially true if the pain is referred outside of the palpated muscle. The real question posed is: Are these muscle pain conditions managed differently? The literature cer-

tainly suggests that local treatments to the muscles, such as heat, massage, and even injections, can be useful. However, if pain referral suggests a more central component to the pain condition, other strategies may need to be considered, such as stress management, breathing entrainment, and cognitive behavioral changes. An additional research consideration is whether pain spreading and referral are truly reflections of central factors. If this is true, then studies need to separate these conditions from peripheral local myalgia to make the groups more homogenous.

The Focus Article correctly points out that there can be a significant overlap of articular and muscular structures (eg, the deep portion of the masseter muscle with the anterior part of the joint capsule), making the differentiation between muscle pain and joint pain difficult. The clinician needs to appreciate this anatomy so as to minimize incorrect diagnoses.

## Diagnoses

Steenks et al point out the great difficulty in establishing comprehensive criteria for all TMD. This is certainly true, and the DC/TMD has helped move the profession closer to standardized groups of patients with similar disorders so that research can better focus on etiologies and treatment strategies. However, it is easy to inappropriately link pain and dysfunction, especially with intracapsular disorders. Often, signs of intracapsular dysfunction (ie, clicking) present without pain, and there may be no indications for treatment. Although most experienced clinicians know this, others may use dysfunction as an inappropriate indicator for need of treatment.

## The TMD Pain Screener

Often with chronic pain conditions, a simple screening questionnaire is developed to quickly rule in or out disorders.<sup>6</sup> Although a few simple questions cannot replace a thorough examination, it can serve to direct the clinician to the possible presence of the disorder. The TMD pain screener is an attempt to serve as such a tool. This is certainly reasonable to consider, but Steenks et al point out some important considerations. Dentists need to rule out odontogenic pain first, since it is the most common pain condition seen in the dental office. This type of deep pain is often associated with a secondary muscle response that may reveal positive findings on the TMD screener. These false positive findings may mislead the clinician to initiate traditional TMD treatments, which will likely fail. If another source of pain (dental, periodontal, neuropathic, etc) is causing a muscular

response, the clinician must be able to rule out these sources before a TMD diagnosis is assumed.

## Test Population Characteristics

The Focus Article points out several shortcomings related to the use of study populations to validate the DC/TMD. Although some compelling arguments are made, one must consider the complexity of this issue and offer some positive encouragement for the original attempt to develop reasonable validation and reliability. Further efforts to validate the DC/TMD by using more refined populations are always encouraged.

## Utility of Additional Subgroups

I agree with the Focus Article that the additional term “subluxation” should be removed from the DC/TMD. Subluxation is certainly a frequent finding in the general population, but this condition is not regularly associated with painful TMD symptoms. Therefore, although subluxation certainly needs to be included in the larger group of intracapsular disorders, adding this subgroup to the DC/TMD may not prove to be useful. Similarly, fibrous ankylosis is another condition of the temporomandibular joint (TMJ) that causes restriction of function, but is not common and falls outside the research and clinical purposes of the DC/TMD. Steenks et al suggest that the DC/TMD be restricted to the most common masticatory muscle pain disorders and TMJ intra-articular disorders. I agree, since these disorders are the ones most likely to present for treatment and be identified for research purposes. This is the main purpose of the DC/TMD. As always, a proper history and examination needs to rule out the other conditions that can mimic and be misdiagnosed as TMD, since they are managed differently.

The Focus Article makes another excellent point that is often overlooked by the clinician. The concept of “anchoring” when evaluating the patient and establishing a diagnosis is common and often underappreciated. This is true not only with TMD, but with all pain conditions. Often the clinician will initially hear a few patient comments and/or see a clinical finding and make a quick assumption as to the diagnosis.

Then the remaining history taking and examination can be biased by attempting to verify that preliminary diagnosis. Most clinicians are guilty of this, but may not recognize the concept. All clinicians need to thoroughly review all history and examination findings before establishing the diagnosis. Also, the clinician needs to understand that the initial diagnosis is tentative until treatment is proven to be successful. When treatment is less effective than expected, the clinician needs to re-evaluate the data and reconsider other possible diagnoses.

## Conclusions

I agree with Steenks et al when they state the DC/TMD offers a significant improvement over the original RDC/TMD. Hopefully, these criteria will allow researchers to better define homogenous populations for research studies. These criteria may assist the clinician to some extent, but are certainly not without concerns. Drs Steenks, Türp, and de Wijer have indeed highlighted some concerns to be considered. Still, the authors of the DC/TMD should be commended on their efforts to establish an improved working model that may assist in research and clinical management of TMD.

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