

Occlusal Equilibration for the Management of Temporomandibular Disorders

Daniele Manfredini, DDS, MSc, PhD*

KEYWORDS

- Temporomandibular disorders • Occlusal equilibration • Occlusal adjustment
- Temporomandibular joint • Gnathology

KEY POINTS

- Historically, the focus of dental professionals approaching patients with temporomandibular disorders (TMDs) has been solely based on the assessment and correction of purported abnormalities of the occlusion.
- The so-called myths of gnathology have been dismantled by the increasing knowledge of the masticatory system and the factors that determine the onset of signs and/or symptoms in the temporomandibular joint or jaw muscles.
- For altered occlusion to be a clinical factor in the diagnosis and management of TMDs, a cause-and-effect relationship should exist between the 2 conditions, but the literature does not support such a relationship.
- Studies on the use of occlusal equilibration to manage TMDs do not support its usefulness.
- Protocols for occlusal equilibration are not backed up with any solid biological background.

INTRODUCTION

The group of conditions collectively included under the umbrella term “temporomandibular disorders” (TMDs) has historically been related to altered dental occlusion ever since the otolaryngologist James Costen, in the first half of last century, described otherwise unexplainable symptoms around the preauricular area of some individuals without molar support.¹ The absence of a full dentition was hypothesized as the source of posterior condylar displacement in the temporomandibular joint (TMJ), with subsequent symptom onset due to compression of the retrodiscal and ear structures. From that time on, dentists have been periodically invoking altered dental occlusion as being the cause of TMDs.

A quick overview of Costen’s work shows that he merely used a series of cases in support of

his hypothesis.¹ Moreover, one must wonder if the loss of molar support was so rare in the 1930s as to be a discriminator for identifying individuals with clinical consequences. Notwithstanding, the impact of Costen’s work was of paramount importance in the history of TMD practice. Apart from giving his name to the disease (ie, Costen syndrome), his most notable contribution involved identification of the dentist as the primary caregiver for conditions that, based on current knowledge, have little or nothing to do with the absence of teeth or the presence of purported malocclusions.^{2,3} However, it is because of such work that for years the focus of dental professionals approaching patients with TMDs has been solely based on the assessment and correction of purported abnormalities of the occlusion.⁴

Disclosure: The author has nothing to disclose.

Department of Medical Biotechnologies, School of Dental Medicine, University of Siena, Strada delle Scotte 4, 53100 Siena, Italy

* Via Ingolstadt 3, Marina di Carrara (MS) 54033, Italy.

E-mail address: daniele.manfredini@tin.it

Oral Maxillofacial Surg Clin N Am ■ (2018) ■—■

<https://doi.org/10.1016/j.coms.2018.04.002>

1042-3699/18/© 2018 Elsevier Inc. All rights reserved.

Over the past few decades, emerging evidence has grown in support of a biopsychosocial model of TMD pain.⁵ Notwithstanding, it seems that the new paradigm linking TMD more to central than occlusal/anatomic factors has not been fully accepted by some clinicians. The difficulty in integrating it within the armamentarium of professional skills has a historical (eg, primary role of the dentist as the caregiver for TMD patients), a social (eg, financial disincentives associated with the reduced importance of dental occlusion; patients' expectations), and a clinical (eg, paradox effects of occlusion-oriented therapies such as oral appliances) background. The gap between research and practice can be easily perceived by browsing the Internet and looking at the number of congresses, events, and technological devices that still focus on the search for an ideal occlusion in "dysfunctional" patients. Fancy theories on the relationship between body posture and occlusal abnormalities, which have been dismantled by all reviews on the topic, clearly exemplify the situation.^{6,7}

Based on these premises, the present discussion reviews the concept of using occlusal equilibration for the purpose of TMD management based on an overview of the available literature within the context of the historical background and current treatment concepts.

HISTORICAL BACKGROUND

The concept of equilibrating the occlusion to treat and/or to prevent TMDs found its background in the old precepts of gnathology. Gnathology, referred to as the science that studies the function of the organ of mastication, has historically been pursuing the holy grail of an ideal dental occlusion.⁸ The fascinating issue of the relationship between form and function, with the latter deriving from the former, has permeated all dental specialties. Orthodontists referred to "mal"occlusions to indicate all dental occlusions that deviates from the ideal,^{9,10} and prosthodontists coined the term "centric relation (CR)" to indicate the ideal condylar position in the glenoid fossa.¹¹ The derivative "centric occlusion" was thus assumed as an ideal position of maximum intercuspation (MI) in CR, and was considered a needed criterion for the absence of masticatory dysfunction and in planning treatment of the dental occlusion.¹² During the mechanistic era of orthodontic gnathology, several techniques and devices were proposed as an aid for the clinician in creating a purported harmony between form and function.

Year after year, the fallacies of the gnathological dogmas have progressively emerged. In addition, the absence of an ideal occlusion-to-TMJ

relationship in nature was recognized, and criticism grew against possible overestimation of the importance of such diverse occlusions in the development of TMJ dysfunction. Clinical research has shifted the horizon of TMD pain assessment toward the psychological sphere, and empirical observations of TMD symptom improvement after occlusal equilibration have received alternative explanations.¹³

The so-called myths of gnathology have been dismantled by the increasing knowledge about the masticatory system and the factors that determine the onset of signs and/or symptoms within the TMJ or jaw muscles. In particular, those early theories suggesting that an imperfect occlusion and condylar position are the primary cause of TMDs, and implicitly implying that TMD treatment should be based on the principles of gnathology and occlusal equilibration, have never been supported by solid proof.¹⁴ Nevertheless, the proponents of occlusion-oriented views of TMD treatment keep on producing anecdotes, expressing opinions, and writing letters to journal editors to feed what seems to be a clash of cultures.¹⁵⁻¹⁷

The missing point in these claims is that for an altered occlusion to be a factor in the diagnosis and management of TMDs, a cause-and-effect relationship should exist between the 2 conditions,¹⁸ which means that among the several criteria that must be satisfied to support any causality claims, the presence of a strong and consistent association between certain occlusal features and TMDs is a basic requirement. Even the disappearance or decrease of symptoms after occlusal equilibration in a single individual is a clinical phenomenon that may have various interpretations depending on the epidemiology of the occlusion-TMD association as well as the pathophysiology of the TMD pain.⁵⁻¹⁹ Within this premise, the literature on the association between TMDs and altered dental occlusion, as well the effects of occlusal equilibration in the management of TMDs, are reviewed and discussed in the following sections.

ARE CERTAIN FEATURES OF DENTAL OCCLUSION ASSOCIATED WITH TEMPOROMANDIBULAR DISORDERS?

In the science of medical epidemiology, an association between 2 phenomena is considered *strong* when they are more frequently present or absent concurrently than singularly. In other words, a certain occlusal feature should be more frequently present in TMD patients than in healthy individuals, and more frequently absent in healthy individuals than in TMD patients. Such an association is

Download English Version:

<https://daneshyari.com/en/article/8707040>

Download Persian Version:

<https://daneshyari.com/article/8707040>

[Daneshyari.com](https://daneshyari.com)