Short Communication

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Temporomandibular Disorders: A Crisis in Dentistry

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Dentistry serves as the gatekeeper for oral and maxillofacial health, tasked with identifying and managing diseases and parafunctional behaviors that impact this critical biological system. Yet, the global epidemic of temporomandibular disorders (TMDs) reveals a glaring failure in fulfilling this responsibility. Despite decades of research and clinical advancements, the dental profession has struggled to adopt effective diagnostic and treatment paradigms for TMDs. This failure stems from entrenched misconceptions about etiology, reliance on outdated models of care, and resistance to interdisciplinary approaches. This paper seeks to explore the factors behind this crisis and examine why meaningful discourse remains elusive within dentistry.

Why are TMDs such an enigma? While developmental anomalies, bone disease, and trauma play a role in TMD etiology, the profession has failed to grasp the complexity of parafunction. At the heart of this misconception lies the conflation of two powerful but distinct parafunctional activities: grinding and clenching [1]. Both fall under the umbrella of bruxism, as defined by the American Academy of Orofacial Pain [2], yet they represent fundamentally different modes of force. While the condyles of bruxers glide past the discs with reduced impact, the condyles of those affected with vertical parafunction, dental compression (DCS) [3], target the menisci directly with four times the force and twice the duration [4]. Unfortunately, the dental community has completely embraced and accommodated bruxism while completely ignoring the more serious threat of DCS. The circumstances behind this misdirection were historical. It was only natural that the profession focused on bruxism. The flattened dentitions in the old skulls were testament to its presence since the beginning of time while signs of DCS did not appear until the 19th century. It was not apparent then that a guard would provide protection, so management took the form of equilibration to mitigate bruxism's forces. Subsequently, a paradigm began to develop seeking the occlusal scheme least susceptible to destructive lateral forces. It was termed "optimum functional occlusion" [5]. Unfortunately, it was an error of judgement that would cloud our understanding of the mastication system for decades. This contradictory phrase erroneously describes dysfunction and closure as functional, yet teeth rarely touch during normal function except for brief, light interactions. By prioritizing occlusal adjustments as a goal, this approach diverted attention from DCS as a primary contributor to TMDs. DCS has been a silent witness. The physical signs of clenching, such as unique patterns of hard tissue and prosthetic deformations, were not attributed to compressive forces until the early 1980s [6,7]. This lack of recognition has historically prevented practitioners from considering DCS as a principal etiological factor in TMDs, particularly in cases where condylar forces target the articular disc, leading to displacement. Consequently, treatment strategies often prioritized symptom management, such as replacing damaged discs with implants, rather than addressing the underlying parafunctional activity of clenching. This oversight meant that the primary cause, DCS, remained unaddressed, resulting in continued excessive loading of the TMJ and subsequent implant failure [8]. Effective management of TMD therefore necessitates early identification and mitigation of clenching behaviors to prevent further joint damage and improve long-term treatment outcomes.

A common inquiry asks the contribution of occlusion as a cause of TMD. This unanswered question stems from conflating occlusion (the static state of tooth contact during jaw closure) with broader masticatory function which unfortunately has been a major distraction from focusing on the system itself. By restricting "occlusion" to it original definition -closure- we can isolate its potential to act as a catalyst to initiate parafunctional habits. We need a paradigm shift to reframe occlusion's identity with mechanistic clarity.

Summary

The dental profession has made significant advances in restoring the mastication system despite longstanding confusion and debate surrounding the concept of occlusion. However, a critical gap

remains in the comprehensive management of temporomandibular disorders (TMDs): the lack of recognition and understanding of the destructive potential of silent daytime clenching, or dental compression syndrome. Unlike bruxism, DCS exerts forces on the dentition and condyle that are up to four times greater and persist for twice the duration, yet it often goes undetected and unaddressed in routine dental care.

This oversight has left DCS as a significant but underappreciated etiological factor in TMDs, resulting in its frequent exclusion from both diagnosis and treatment protocols. In my five decades of restorative dental practice, every TMD patient I encountered exhibited clinical signs indicative of DCS, underscoring its pervasive influence. To advance the management of TMDs, the dental community must broaden its focus beyond occlusal adjustment and restoration, integrating a heightened awareness of parafunctional habits such as clenching into both education and clinical practice. A paradigm shift is needed—one that acknowledges the silent yet substantial impact of DCS on TMD etiology and incorporates targeted strategies for its identification and management.

Dr. McCoy is a clinical instructor at the University of California and an honored fellow of the American Academy of Implant Dentists. He has lectured internationally and published extensively on Occlusion Confusion and Temporomandibular Disorders.

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