



The Importance of Occlusion and Function in Modern Prosthodontics: A Focus on New Restorative Materials

In the ever-evolving field of prosthodontics, the emphasis on occlusion and function has never been more critical. With the advent of advanced restorative materials such as high-strength ceramics and hybrid materials, prosthodontists are presented with new opportunities and challenges in restoring both the esthetics and functionality of dentition. As we explore the implications of these materials we must also consider their impact on occlusion and the temporomandibular joint (TMJ).

High-strength ceramics, known for their durability and esthetic qualities, have transformed the landscape of dental restorations. Traditionally favored for their esthetic advantages, these materials are now being recognized for their ability to withstand significant occlusal forces. However, this strength comes with a need for careful consideration regarding occlusion. The monolithic application of high-strength ceramics offers an opportunity for creating single-piece restorations that are not only strong but also seamless in design. This reduces the likelihood of delamination and bond failures, promising increased longevity of restorations.

Nonetheless, monolithic restorations also present unique challenges. Given their rigidity, improper occlusal adjustments can lead to adverse forces being transmitted to the underlying structures, particularly the TMJ. Clinicians must be diligent in ensuring that occlusal relationships are accurately established and maintained. An adaptive approach to occlusal therapy, sensitive to the dynamics of the TMJ, must be integrated into treatment planning to mitigate the potential for joint dysfunction.

Hybrid materials, which combine the benefits of ceramics and composite resins, offer an exciting alternative, striking a balance between esthetics, strength, and workability. These materials are particularly advantageous in situations where the restorative design might require flexibility; they can absorb and dissipate forces more effectively than their purely ceramic counterparts. This characteristic becomes particularly relevant when considering the function of the TMJ, because these materials can help distribute occlusal forces more evenly across the dental arch, thus reducing localized stress concentrations that may lead to dysfunction or discomfort.

The integration of these new restorative materials into clinical practice necessitates a comprehensive understanding of occlusion and its significance in preserving TMJ health. Prosthodontists must prioritize the assessment of occlusal schemes and their relationship with the position and function of the jaw. Employing diagnostic tools such as occlusal analysis and advanced imaging can aid in identifying any discrepancies that may arise during treatment.

Additionally, interdisciplinary collaboration with orthodontists and oral surgeons can enhance treatment outcomes by addressing underlying occlusal issues that may predispose patients to TMJ disorders. Emphasizing a multidisciplinary approach ensures that prosthodontic restorations not only fulfill their immediate esthetic and functional goals but also contribute to the overall health and stability of the masticatory system.

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As we move forward in the context of modern prosthodontics, it is crucial to continually evaluate how advancements in materials science impact treatment strategies related to occlusion and TMJ function. By embracing a holistic perspective that considers both the capabilities of high-strength and hybrid materials and their implications for overall patient well-being, practitioners can deliver restorative solutions that are not only strong and beautiful but also functionally sound.

In conclusion, the importance of occlusion and function in today's prosthodontics cannot be overstated. A thorough understanding of the restorative materials available—alongside an unwavering commitment to

proper occlusal principles—will empower clinicians to enhance patient outcomes, ensuring that our practice remains at the forefront of dental care. Numerous manuscripts in the present issue address the above topics, and we hope that you will find them as valuable as we do!

With best regards on behalf of the entire Editorial Board team,



Irena Sailer, Editor-in-Chief