

Current Evidence on the Suitable Material for Esthetic Restorations in Bruxism Patients

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American Academy of Sleep Medicine has defined sleep bruxism as repetitive jaw muscle activity characterized by clenching or grinding of the teeth and/or by bracing or thrusting of the mandible during sleep.¹ The specific etiology of bruxism is still unclear and seems to be multifactorial in origin. Bruxism results in headaches, temporomandibular disorders, and tooth wear, which may lead to fracture, tooth mobility, loss of vertical dimension, and failure of restorations.²

The dental treatment procedures in bruxism patients is a challenging task due to extensive attrition and erosion of the tooth which many times requires the esthetic and functional rehabilitation of the entire dentition. The esthetic restorative materials have been developed which can withstand occlusal forces, but they need backup with metal frameworks in case of posterior restorations. However, in these cases, cervical metal exposure hampers the esthetics of the prosthesis. To overcome these back draws, high-strength crystalline ceramic restorations veneered with feldspathic porcelain becomes popular. However, in these cases too researchers had reported chipping of the veneering porcelain.^{3,4} With the introduction of the monolithic all-ceramic restorations, other options apart from bilayered all-ceramic restorations have arisen.⁵

Mikeli et al.⁶ in their retrospective study assessed the prevalence of ceramic veneer fracture in bruxism patients. They found 70% of the ceramic veneer fractures in bruxism patients. Levartovsky et al.⁷ in their case series assessed the clinical performance of the patients with bruxism rehabilitated with teeth- and implant-supported veneered and non-veneered zirconia restorations. They found that in the veneered group, the main complication found was minor chipping of the veneer at the incisal edges (13.9%) which can be corrected with polishing. In the non-veneered group, the primary failure noticed was open proximal contacts between the adjacent teeth and implant restorations (9%). The survival and success rate of monolithic zirconia restorations in this study on bruxism patients was found to be excellent.

Melo et al.⁸ in their systematic review and meta-analysis assessed whether sleep bruxism is associated with increased incidence of failure of ceramic restorations. They found that in patients with bruxism only anterior ceramic veneers showed increased hazard and odds of failure. However, when the overall result of the meta-analysis was seen, no favorable association was found in between sleep bruxism and increased odds of failure for ceramic restorations. In this systematic review only a study by Fabbri et al.⁹ had compared monolithic and veneered restorations in sleep bruxism patients. They found 26 mechanical complications: 5 fractures, 17 porcelain chippings, and 4 retention loss. The structural drawbacks were found mainly in posterior segments. The lowest number of mechanical complications was found in the monolithic restorations.

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Monolithic ceramic restorations present better results in bruxism patients in the literatures available. Further research on these restorations in bruxism patients is required to establish this fact. Recently modified polyetheretherketone (PEEK) material veneered with an indirect light-cured composite resin is used in bruxism patients. Veneered PEEK provides protection of a cushioning effect and protects the opposing tooth, has abrasion resistance almost equal to that of dentin, and can be easily repaired intraorally in case of chipping.¹⁰ Further research on PEEK in bruxism patients is required so that we had a tested restoration with clinical success available in near future.

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