

Editorial

Zirconia, is It the Next Change in Esthetic Dentistry?

Dentistry has seen evolution in dental materials with each passing year. One of the most established solutions for a broken or structurally compromised tooth is a crown. Dental crowns have been made by utilizing gold (and semi- and nonprecious metals), composite, porcelain and several all-porcelain varieties and, recently, it has been the 'zirconia'. The shift in dentistry to lifelike restorations that mimic natural tooth structure is undeniable due to the high demand of lifelike, and zirconia crowns are considered 'cosmetic' in nature compared to certain other alternative crown materials. Based on perceived and actual patient demand owing to esthetic and health concerns, material choices have dramatically shifted to 'metal-free' wherever possible. This shift to 'metal-free' is a bit ironic, since dental zirconia is technically an oxidized metal but is considered by dentists and patients to be metal-free.¹



Initially, zirconia crowns were predominantly fabricated with a zirconia coping layered or pressed with different types of porcelain. Recently, a growing number of monolithic (full-contour) zirconia crowns have been requested by dentists, predominantly as a result of ubiquitous laboratory marketing, without much literature evidence supporting it in relation to amount of stress it dissipate, especially when used in implant-supported crowns. These full-contour zirconia crowns are extraordinarily strong, and it has been argued that they are just as esthetic as layered zirconia crowns.^{2,3} A potential drawback of full-contour zirconia-based restorations could be wear compatibility to the opposing enamel, reminiscent of Vita Alpha porcelain, during routine function. Wear to teeth opposing zirconia has not been studied with significance.⁴ Furthermore, in a clenching or bruxing patient, what is the impact of full-contour zirconia on the opposing dentition long-term? Unfortunately, no dental restoration can be expected to last forever. Therefore, inevitably many of these crowns will need to be replaced. When the time comes, can a full-contour zirconia crown be easily removed? Will the heat and vibration generated in the removal of a full-contour zirconia crown likely damage instruments and, more importantly, the patient's underlying tooth?

It appears that the increasing trend toward full-contour zirconia-based crowns should be met with caution and not only due to esthetic limitations. Factors that need to be considered should include occlusal adjustments that would require the placement of the opposing tooth against a 'non-polished' zirconia crown that will potentially wear faster. Today, dentists and patients demand predictable materials, treatments and results. However, the lack of *in vivo* studies makes it difficult to draw any effective conclusions regarding full-contour zirconia-based crowns, rendering the growing use of these crowns for our patients premature.

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