A new alternative to PFM

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For nearly 50 years, porcelain-fused-to-metal (PFM) restorations have been successfully used in dentistry to restore function to patients with failing natural dentition. During that period, dental technologies have changed dramatically and are changing at a faster pace than ever before. Dentistry is advancing every day; digital records, digital impressions, digital radiography, caries risk detection, laser dentistry and computer-aided restorative fabrication are just some of the elements in a dental office that have undergone a technological revolution. Even with these advancements, PFM remains the most prevalent restoration in clinical practice. However, these types of restorations can have some challenges from an esthetic and functional perspective. Marginal discoloration, opacity and a lifeless appearance are some of the more commonly seen limitations with PFM crowns.

As technology has progressed, so has material manufacturing with regard to glass ceramics. With the introduction of IPS e.max lithium disilicate, strength and beauty are combined into a single all-ceramic material, offering the versatility of conventional cementation. In addition, clinical and laboratory testing is continuing to demonstrate that IPS e.max lithium disilicate is an extremely durable material capable of long-term success. The question remains, though: is there something that can replace PFM restorations as the current standard of care? Recent test data indicates there is an alternative.

_Mouth-motion fatigue testing lithium disilicate and porcelain fused to metal_

Researchers at New York University (NYU) utilized unique mouth-motion simulators to evaluate the effects on restorations of chewing in a wet oral environment. The researchers placed crowns of various materials on these machines and subjected them to increasing chewing loads and cycles to determine a survival rate for each material. The NYU testing concluded that results seen with IPS e.max lithium disilicate restorations are comparable to the “gold standard” of PFM.

_Clinical evaluation_

A clinical evaluation of chairside lithium-disilicate CAD/CAM crowns at the University of Michigan evaluated the survival of patient crowns delivered with different cements. For restorations that had been in service for more than three years demonstrating 100 percent survival: “There were no clinically identified cases of crown fracture or chipping.”

_Four-year clinical performance_

The rate of fracture is “lower than other ceramics documented by THE DENTAL ADVISOR over the past 26 years.” In regards to IPS e.max Press: “Performance has exceeded that of traditional PFM restorations as well as many all-ceramic restorations.”

_Clinical success_

In addition, Ivoclar Vivadent has performed multiple clinical trials with renowned international centers with restorations of up to eight years, demonstrating the long-term clinical success of IPS e.max lithium disilicate. Ivoclar Vivadent continues to build clinical confidence through its global technical validation with ongoing laboratory and clinical studies of IPS e.max lithium disilicate.

Editorial note: A complete list of references is available from the publisher.