



Venetian Pointe Dentistry

A Newsletter Prepared by Richard C. Rampi, DMD

WINTER 2011

The BruxZir[®] Crown or Bridge (Solid Zirconia)

According to Time⁴, the long story of Coca-Cola's secret formula began with John Pemberton, a Civil War veteran from Georgia. Pemberton developed Pemberton's French Wine Coca, a brew that included coca wine and kola nut. Since Atlanta passed prohibition legislation in 1886, he reformulated the drink to serve as "essentially a non-alcoholic version of French Wine Coca". He renamed the drink Coca-Cola and began selling it in Georgia pharmacies. While it's well known that the exact formula of Coca-Cola's flavorings is a closely guarded trade secret, the product line was not expanded for nearly 100 years. It was 1982 when Diet Coke was introduced. Since then, the Coca-Cola Company has developed Caffeine-Free Coca-Cola, Diet Coke Caffeine-Free, Coke Classic, Coke Zero, Cherry Coke, Coca-Cola Vanilla, Coca-Cola with Lemon, and Coca-Cola with Lime . . . just to name a few. The point is: choices, choices, and choices. And, then there's Pepsi and its vast product line!

Even in recent times, the dental profession offered just a couple of reliable options for crown/bridge materials. This was especially true when considering the materials used when restoring a posterior (back) tooth where the forces of chewing are great. The choices were basically either metal or porcelain-fused-to-metal. For the sake of durability, there was no good way without involving the use of metal. However, along with a myriad of other technological advancements made in dentistry, now there are more options available in materials when fabricating a durable, esthetic restoration which is metal-free. Just as the Coca-Cola Company has greatly expanded its product line, so has the profession of dentistry. The feature article of this newsletter will discuss the newest option available which shows great promise: the solid zirconia BruxZir crown/bridge restoration.

HISTORICAL PERSPECTIVE Yttria-stabilized zirconia (YSZ) is a zirconium-oxide based ceramic. The addition of yttrium to pure zirconium creates a crystal structure of oxides commonly called "zirconia" which has proved to be useful in many applications. It's common knowledge that a form of zirconia (cubic zirconia) has been used in jewelry because of its close visual likeness to diamond. However, in addition to this, YSZ has been used in applications such as jet engines, light fixtures, non-metallic knife blades, joint prostheses (such as hip replacement), and dentistry too. The key desirable properties of zirconia which have made it useful in dental materials include its exceptional durability and the fact that it is 100% biocompatible.^{4,5}

**ALSO IN THIS NEWSLETTER:
"This and That" from the Office!
From the Doctor's Desk**

THE USE OF BRUXZIR IN DENTISTRY

BruxZir is a type of solid zirconia dental restoration. The name, BruxZir, is the name given to a dental restoration fabricated using a brand of zirconia provided by Glidewell Laboratories. As stated previously, zirconia is extremely durable and 100% biocompatible. Furthermore, the zirconia used in dentistry is available in different tooth colors. Glidewell Laboratories touts that its proprietary processing gives BruxZir “improved light transmission, which provides a more natural shade value”. As a result, the restoration is not only strong and well-tolerated by the surrounding tissues, but can be highly esthetic. The insert shown to the right shows the BruxZir crown as compared with other high-strength crown options.¹

A crown is a type of dental restoration which completely encircles a tooth or dental implant. A bridge is a dental restoration used to replace a missing tooth by joining permanently to adjacent teeth or dental implants. BruxZir can be used in the fabrication of either a crown or a bridge not to mention inlays or onlays (in place of a conventional filling). The “chip-proof durability”¹ makes the use of this material ideal for bruxers (those who noxiously clench and grind their teeth). Like porcelain, the BruxZir restoration is glazed which results in a smooth surface that serves to reduce the accumulation of plaque (thereby providing a healthy environment).¹

BRUXZIR AS COMPARED WITH METALLIC AND PORCELAIN RESTORATIONS

The BruxZir zirconia is more fracture resistant but less flexible than precious metal. The fit of the BruxZir restoration has been shown to be the same as gold⁶ (which has been dentistry’s “standard of excellence” when considering proper fit). The flexural strength of BruxZir is more than 3 times that of commonly used porcelain.¹ The superior durability of solid zirconia is especially significant when compared to restorations with layers of porcelain (such as a porcelain-fused-to-metal or a porcelain-fused-to-zirconia crown or bridge). Finally, restorations which provide zirconia at the chewing surface provide less wear of the opposing teeth as compared with porcelain.²



From: <http://www.bruxzir.com/science-bruxzir-zirconia-dental-crown/>

OTHER MATERIALS OFFERED AT VENETIAN POINTE and CONCLUSION

It is extremely important to me that our patients feel satisfied with all aspects of treatment that’s been provided. This must include the choice of material from which a restoration is fabricated. In fact, there is a principle in the dental profession’s Code of Ethics called “Patient Autonomy” (aka, “self governance”) which states that the dentist has a primary obligation to involve patients in treatment decisions (*ADA, Principles of Ethics and Code of Professional Conduct*). While the choices can almost seem overwhelming, I do ultimately respect the patient’s decision after I have provided the salient information.

BruxZir is the newest addition to my personal armamentarium of material options. BruxZir is extremely durable, completely biocompatible, and potentially highly esthetic. There are, however, areas of the mouth in which esthetics is paramount and durability is less of a concern in which I would recommend all-porcelain (e.g. e-max). Another example is the need for a bridge to replace a missing anterior (front) tooth. In this case, I would recommend Lava (which is porcelain-fused-to-zirconia) in favor of either BruxZir or all-porcelain. When a veneer is required that must be “contact-lens thin”, I would recommend Cerinate porcelain (e.g. a Lumineer). And there are still circumstances when I might recommend a full metal crown (e.g. the tooth is surrounded by other full metal crowns and/or patient preference). So, can I get you a Coke?!?!