

## LONG-TERM CLINICAL PERFORMANCE

### Glidewell Dental Laboratories

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### Purpose

The purpose of this clinical study was to determine the clinical performance of **BruxZir Solid Zirconia Crowns and Bridges** (Glidewell Dental Laboratories) over an 18-month period.

### Clinical Evaluation Protocol

At recall time, over 390 full-contour, monolithic **BruxZir** restorations (crowns and bridges) were placed. All restorations were fabricated at Glidewell Dental Laboratories. Most of the restorations were cemented with self-adhesive resin cement or adhesive resin cement.

### Placement

The following parameters were evaluated at placement: esthetics, marginal accuracy, fit, interproximal contacts, and occlusion. Restorations were evaluated on a 1-5 rating scale: 1 = poor, 2 = fair, 3 = good, 4 = very good, 5 = excellent.

Esthetics, marginal accuracy, fit, and interproximal contacts of more than 96% of the restorations were rated excellent at placement. Very few restorations (less than 2%) had to be remade because of improper fit. A few restorations had light interproximal contacts and had to be remade. For the category of occlusion, 84% of the restorations received an excellent rating. In many cases, the occlusion was light and in some cases the restoration was out of occlusion. Based on customer feedback, Glidewell Dental Laboratories designs most of their crowns light in occlusion.

### Results at 18 Months

In December, 2012, 367 **BruxZir** restorations were recalled and evaluated.

Of the 367 **BruxZir** restorations observed at recall (Figure 1), there were:

- 287 posterior single crowns
- 36 units - 12 three-unit bridges
- 24 units - six four-unit bridges
- 10 units - two five-unit bridges
- One 3-unit inlay bridge
- 7 implant crowns

Of the 367 restorations, 121 (33%) had been in function for 18 months while 246 (67%) had been in function for one year (Figure 2).

### Consultants' Comments

*"BruxZir restorations had a high rate of acceptance by patients."*

*"Great option for second molars because minimal occlusal reduction is required (0.5-1.0 mm)."*

*"The recalled BruxZir restorations looked great and had excellent anatomy and surface finish."*

*"The strength of this material makes it ideal for heavy bruxers."*

### Patient's Comment

*"I am very happy with the last crown you did. It feels great and I have not had any problems with it."*

FIGURE 1

Types of restorations placed.

- Single Crowns
- Implant Crowns
- Bridges

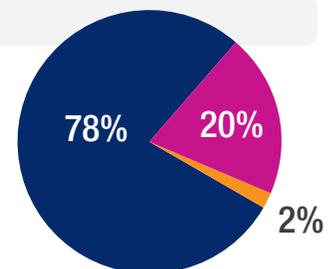
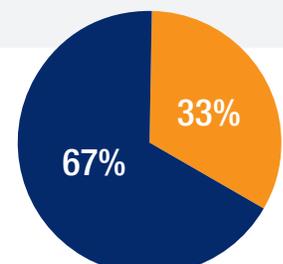


FIGURE 2

Age of restorations at recall.

- 18 Months
- 1 Year



## Results (cont.)

The recalled **BruxZir** restorations were evaluated in the following categories:

- Resistance to fracture or chipping
- Esthetics
- Resistance to marginal discoloration
- Wear on zirconia and opposing dentition
- Retention

*Restorations were evaluated on a 1-5 rating scale: 1 = poor, 2 = fair, 3 = good, 4 = very good, 5 = excellent.*

### Esthetics

**BruxZir** restorations were rated excellent for esthetics when compared to other monolithic zirconia crowns (Figure 3).

### Resistance to Fracture/Chipping

Nearly all **BruxZir** restorations exhibited no fracture or chipping (Figure 3). One five-unit bridge with very little clearance fractured one week after cementation. The bridge was redone, and is in function without any issues.

### Resistance to Marginal Discoloration

No restorations exhibited marginal staining (Figure 3).

### Wear Resistance

Minimal wear was observed on **BruxZir** restorations or on opposing tooth structure (Figure 3).

### Retention

Three posterior crowns debonded (Figure 3). One was cemented with self-adhesive resin cement and two were cemented with an adhesive resin cement. Two of the teeth had short clinical crowns.

## Conclusions

Ninety-eight percent of **BruxZir Solid Zirconia Crowns and Bridges** restorations manufactured by *Glidewell Dental Laboratories* received a 5 or excellent rating at 18-month recall. All of the single crowns and all of the three- and four-unit bridges had no evidence of fracture or chipping. One of two five-unit bridges failed shortly after cementation and was replaced. Over the 18-month period, **BruxZir** has proven to be an excellent restoration with respect to esthetics, resistance to fracture/chipping, resistance to marginal discoloration, wear resistance, and retention. **BruxZir** received a clinical rating of 98%.

FIGURE 3 Ratings of **BruxZir** restorations at recall.

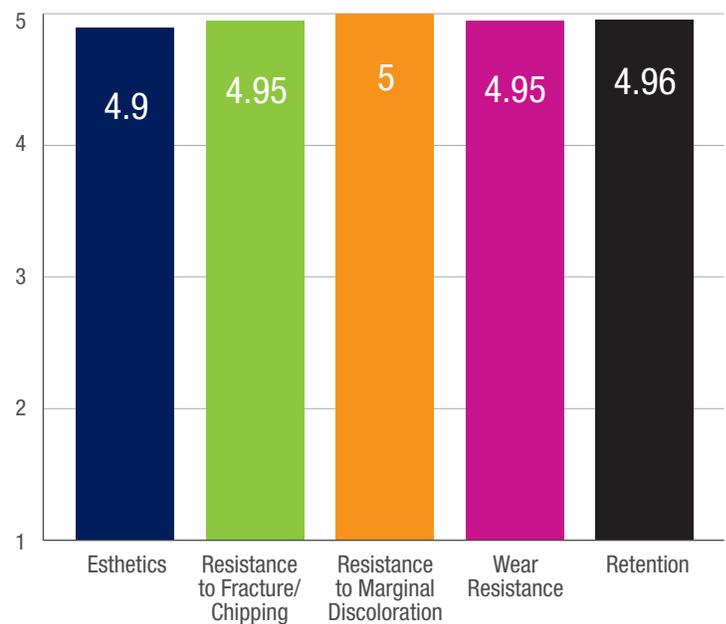


Figure 4. Four-unit bridge for teeth 18-21 at 15 months.