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Quality of tooth preparation produced using diamonds with guide pins

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Introduction: Different bur designs have been developed in order to enhance the quality of tooth preparation and to control the amount of tooth reduction.

Purpose: The aim of this study was to evaluate the quality of tooth preparation produced using diamonds with guide pins in means of convergence angle and finish line width and consistency; in comparison with preparations produced with conventional diamonds.

Method & Materials: 40 typodont mandibular 1st molar teeth were collected and their occlusal surfaces were flattened. 20, 4th year dental students volunteered to participate in the study. Each participant was asked to prepare 2 typodont teeth, one using a Torpido diamond and the other using same exact design with the addition of 0.4 mm guide pin. Standardized images of each prepared tooth were captured by a professional camera while it is seated in custom fit die base in front a black background. Each image was analyzed with computer screen protractor software (Iconic Inc.) to determine the buccolingual and mesiodistal convergence angles of each preparation. Moreover, the width of each finish line was measured in 12 predetermined points using a digital caliper. Data were analyzed using SPSS version 22.

Results: Diamonds with guide pins resulted in more proximal taper (mean=38.1) than conventional diamonds (mean=23.9). The variability in finish line width was significantly less among teeth prepared by diamonds with guide pins (Levene's test p-value=0.005).

Conclusion: Diamonds with guide pins produced more taper than conventional ones. However, diamonds with guide pins were more self-limited and resulted in a more controlled and predictable finish line width.

Biography

Al Ghamdi W has earned her BD in Dental Sciences from Riyadh College of Dentistry and Pharmacy in 2015. She works as a Teaching Assistant at the Department of Prosthodontics in the same college.

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