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Abstract

[GALHANO, Graziela 競lla](#) et al. Adhesive cementation of zirconia posts to root dentin: evaluation of the mechanical cycling effect. *Braz. oral res.* [online]. 2008, vol.22, n.3, pp. 264-269. ISSN . doi: 10.1590/S1806-83242008000300013.

This study evaluated the effect of mechanical cycling on the bond strength of zirconia posts to root dentin. Thirty single-rooted human teeth were transversally sectioned to a length of 16 mm. The canal preparation was performed with zirconia post system drills (CosmoPost, Ivoclar) to a depth of 12 mm. For post cementation, the canals were treated with total-etch, 3-steps All-Bond 2 (Bisco), and the posts were cemented with Duolink dual resin cement (Bisco). Three groups were formed (n = 10): G1 - control, no mechanical cycling; G2 - 20,000 mechanical cycles; G3 - 2,000,000 mechanical cycles. A 1.6-mm-thick punch induced loads of 50 N, at a 45° angle to the long axis of the specimens and at a frequency of 8 Hz directly on the posts. To evaluate the bond strengths, the specimens were sectioned perpendicular to the long axis of the teeth, generating 2-mm-thick slices, approximately (5 sections per teeth), which were subjected to the push-out test in a universal testing machine at a 1 mm/min crosshead speed. The push-out bond strength was affected by the mechanical cycling (1-way ANOVA, p = .0001). The results of the control group (7.7 ± 1.3 MPa) were statistically higher than those of G2 (3.9 ± 2.2 MPa) and G3 (3.3 ± 2.3 MPa). It was concluded that the mechanical cycling damaged the bond strength of zirconia posts to root dentin.

Keywords : Post and core technique; Ceramics; Stress, mechanical; Bond strength.

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