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Abstract

[MELO FILHO, Antonio Braulino de](#) et al. Effect of ultrasonic instrumentation on the bond strength of crowns cemented with zinc phosphate cement to natural teeth. An *in vitro* study. *Braz. oral res.* [online]. 2008, vol.22, n.3, pp. 270-274. ISSN . doi: 10.1590/S1806-83242008000300014.

Several studies have reported the benefits of sonic and/or ultrasonic instrumentation for root debridement, with most of them focusing on changes in periodontal clinical parameters. The present study investigated possible alterations in the tensile bond strength of crowns cemented with zinc phosphate cement to natural teeth after ultrasonic instrumentation. Forty recently extracted intact human third molars were selected, cleaned and stored in physiologic serum at 4°C. They received standard preparations, at a 16° convergence angle, and AgPd alloy crowns. The crowns were cemented with zinc phosphate cement and then divided into four groups of 10 teeth each. Each group was then subdivided into two subgroups, with one of the subgroups being submitted to 5,000 thermal cycles ranging from 55 °C to 5 °C, while the other was not. Each group was submitted to ultrasonic instrumentation for different periods of time: group 1 - 0 min (control), group 2 - 5 min, group 3 - 10 min, and group 4 - 15 min. Tensile bond strength tests were performed with an Instron testing machine (model 4310). Statistical analysis was performed using ANOVA and Tukey's test at the 5% level of significance. A significant reduction in the tensile bond strength of crowns cemented with zinc phosphate and submitted to thermal cycles was observed at 15 min (196.75 N versus 0 min = 452.01 N, 5 min = 444.23 N and 10 min = 470.85 N). Thermal cycling and ultrasonic instrumentation for 15 min caused a significant reduction in tensile bond strength ($p < .05$).

Keywords : Zinc phosphate cement; Tensile strength; Tooth crown; Ultrasonic therapy.

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