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Abstract

FONSECA, Renata Garcia; SANTOS, Juliana Gomes dos and ADABO, Gelson Luis. Influence of activation modes on diametral tensile strength of dual-curing resin cements. *Braz. oral res.* [online]. 2005, vol.19, n.4, pp. 267-271. ISSN 1806-8324. doi: 10.1590/S1806-83242005000400006.

In metallic restorations, the polymerization of dual-curing resin cements depends exclusively on chemical activation. The effect of the lack of photoactivation on the strength of these cements has been rarely studied. This study evaluated the influence of activation modes on the diametral tensile strength (DTS) of dual-curing resin cements. Base and catalyst pastes of Panavia F, Variolink II, Scotchbond Resin Cement, Rely X and Enforce were mixed and inserted into cylindrical metal moulds (4 x 2 mm). Cements were either: 1) not exposed to light (chemical activation = self-cured groups) or 2) photoactivated through mylar strips (chemical and photo-activation = dual-cured groups) (n = 10). After a 24 h storage in 37% distilled water, specimens were subjected to compressive load in a testing machine. A self-curing resin cement (Cement-It) and a zinc phosphate cement served as



controls. Comparative analyses were performed: 1) between the activation modes for each dual-curing resin cement, using Students *t* test; 2) among the self-cured groups of the dual-curing resin cements and the control groups, using one-way ANOVA and Tukeys test ($\alpha = 0.05$). The dual-cured groups of Scotchbond Resin Cement (53.3 MPa), Variolink II (48.4 MPa) and Rely X (51.6 MPa) showed higher DTS than that of self-cured groups (44.6, 40.4 and 44.5 MPa respectively) (p < 0.05). For Enforce (48.5 and 47.8 MPa) and Panavia F (44.0 and 43.3 MPa), no significant difference was found between the activation modes (p > 0.05). The self-cured groups of all the dual-curing resin cements presented statistically the same DTS as that of Cement-It (44.1 MPa) (p > 0.05), and higher DTS than that of zinc phosphate (4.2 MPa). Scotchbond Resin Cement, Variolink II and Rely X depended on photoactivation to achieve maximum DTS. In the absence of light, all the dual-curing resin cement-It (p > 0.05).

Keywords : Resin cements; Tensile strength; Dental materials.

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