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Abstract

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The aim of this study was to evaluate the diametrical tensile strength (DTS) of three light-curing photo-activated composites with two different light curing units (LCU). Three types of dental restorative composites were used in this study: micro filled A110 (3M Espe); P60 (3M Espe) for posterior restorations, and micro-hybrid Charisma (Heraeus-Kulzer). The two LCUs were: halogen light (HAL) (Degulux, Degussa) and blue light emitting diode (LED) (Ultrablue, DMC). Resin composite specimens were inserted incrementally into a Teflon split mold meas-uring 3 mm in depth and 6 mm in internal diameter, and cured using either LCU (n = 10). Specimens were placed into a dark bottle containing distilled water at 37°C for 7 days. DTS tests were performed in a Universal Testing Machine (0.5 mm/min). Data were submitted to two-way ANOVA and Tukey's test. Results were (MPa): A110/HAL: 276.50 ± 62.94^{a}; A110/LED: 306.01 ± 65.16^{a}; P60/HAL: 568.29 ± 60.77^{b} and P60/LED: 543.01 ± 83.65^{b}; Charisma/HAL: 430.94 ± 67.28^{c}; Charisma/LED: 435.52 ± 105.12^{c}. Results suggested that no significant difference in DTS was obtained with LCUs for the same composite. However, resin composite restorative materials presented different DTS.

Keywords : Light emitting diode; Composite resins; Diametrical tensile strength; Mechanical properties.

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Sociedade Brasileira de Pesquisa Odontológica

Av. Lineu Prestes, 2227
Caixa Postal 8216
05508-900 São Paulo SP - Brazil
Tel./Fax: +55 11 3091-7810
e-Mail
bor@sbpqo.org.br