

## The Effect of Irradiation Distance on Microhardness of Hybrid Resin Composite Polymerization Using Light-Emitting Diodes

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**Abstract :** The aim of this research is to evaluate the effect of lighting distance on surface hardness of light composite resin. We held laboratory experimental research with post-test only group design. The samples used are 30 disc-like hybrid composite resins with the diameter is 6 mm and the thickness is 2 mm, lighted by an LED for 20 seconds. They were divided into 3 groups, and every group was consisted by 10 samples, which were 0 mm, 2 mm, and 5 mm lighting distance group. Every samples group was treated with hardness test, Vicker Hardness Test, then analyzed with one-way ANOVA test to evaluate the effect of lighting distance differences on surface hardness of light composite resin. Statistic test result shown hardness mean change of composite resin between 0 mm and 2 mm lighting distance with 0.00 significance ( $p < 0.05$ ), between 0 mm and 5 mm lighting distance with 0.00 significance ( $p < 0.05$ ), and 2 mm and 5 mm lighting distance with 0.05 significance ( $p < 0.05$ ). According to the result of this research, we concluded that the further lighting distance, the more surface hardness decline of hybrid composite resin.

**Keywords :** composite resin hybrid, tip distance, microhardness, light curing LED

**Conference Title :** ICDDS 2017 : International Conference on Dentistry and Dental Sciences

**Conference Location :** Osaka, Japan

**Conference Dates :** October 09-10, 2017