# EFFECT OF DIFFERENT LIGHT CURING SYSTEMS ON MICROHARDNESS AND CURING DEPTH OF HYPRID AND PACKABLE COMPOSITE RESIN MATERIALS

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***ABSTRACT***

The aim of the present study was to compare the intluence of conventional quartz tungsten halogen light (QTH) and plasma arc curing light (PAC) on the microhardness and depth of cure of two packable composite resin materials (ALERT and Surefil) and one hybrid composite resin material (Z100) and to correlate between surface hardness and depth of cure in one side and composite type and light source in the other side.

Materials and Methods: Twenty one composite cylinders 6mm in diameter with variable thicknesses of 2mm, 3mm and 4mm were prepared from each tested composite resin material. Seven specimens from each depth of each composite material were cured with either QTH for 40s, PAC for 10s or step-cure (SC) mode of PAC system. The top and bottom Vickers Hardness Number (VHN) were measured with a Vickers microhardness-measuring instrument. Two-way ANOV A and Tukey's post hoc test were used to determine the significantly different top hardness values of the 2mm thick specimens and paired t-test was used to compare the obtained top and bottom results for all groups

Results: The top VHN and dcpth of cure of the specimen groups cured with QTH light were significantly the highest and SC technique gave the lowest top VHN values and depth of cure of all tested composite materials. Zl00 gave the highest top VHN and depth of cure while ALERT gave the lowest values under all curing techniques used in this study.

Conclusion: Surfaces hardness and depth of cure of composite resin materials are intluenced by the resin composition and type of light source. The combination of QTH light and Z 100 composite material gave the highest degree of conversion and light transmission.

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