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Evaluation of light intensity of light curing units and the relationship in microhardness of composite resins

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The light curing units are subject to loss of efficiency over time. Therefore, it is recommended maintenance by checking the emission values of light intensity. The purpose of this *in vitro* study was to evaluate the light intensity of light cured units of graduation students at Araçatuba School of Dentistry – UNESP and private dental clinics, evaluating the consequences of different light intensities in microhardness of composite resins before and after thermo cycling. Eighty specimens of TPH Spectrum composite resin (5.0 x 2.0 mm), colors A3 and C3, divided into 4 groups according to the restorative material and light curing units used (VALO -Ultradent and EC 450 - ECEL) (n=10). For the measurement of light intensity it was used a digital radiometer (Dabi Atlante RD7 Ecel). Knoop hardness values were performed using the HMV 2000 hardness tester to determine the possible changes in composite resins before and after thermocycling (12000 times, 5-55°C). The microhardness data were analyzed using 3-way repeated measures ANOVA and Tukey's test (p=0.05). The results showed that thermocycling, different luminous intensities of light curing and different color of resin material were able to change the microhardness of the composite resin. The A3 restorative material light cured with higher luminous intensity unit (VALO) showed higher Knoop microhardness values. Therefore, the light curing units must provide adequate light intensity to allow satisfactory mechanical properties of resin materials.

Descriptors: Polymerization; Composite Resins; Hardness Tests.