**Abstract:** Background and Aim: Polymerization shrinkage is a major problem in composite resin restorations and results in marginal leakage. This study evaluated the influence of guided polymerization on microleakage of conservative adhesive resin restorations in premolar teeth using two different light curing units.

Materials & Methods: This in vitro study was done on 96 freshly extracted human premolars. After cavity preparation in the occlusal surface, the teeth were filled using the single bond\ Z250 system, and then randomly assigned to 16 subgroups of 6 each. Irradiation procedures were performed in the experimental group (through tooth structure), first control group (irradiation with conventional method), second control group (irradiation with increased time) and third control group (irradiation with pulse delay method) with high and low intensities of LED and QTH light curing units. Microleakage was evaluated by a stereomicroscope at 40x magnification. The Kruskal-Wallis, Mann-Whitney and logistic regression with a significance level of 0.05 were used for statistical analyses.

Results: The "guided polymerization" technique had no significant effect on the microleakage of the study groups. None of the independent variables (light intensities, light curing units and irradiation protocols) had a statistically significant effect on microleakage.

Conclusion: To reduce working time in pediatric dentistry, irradiation with higher intensity and lower duration and only from the occlusal surface using LED or QTH light curing units is recommended.

**Key words:** conservative adhesive resin restoration, guided polymerization, microleakage.