

Display Settings:  Abstract[Oper Dent.](#) 2007 Jul-Aug;32(4):363-71.

## Effect of intermediate agents and pre-heating of repairing resin on composite-repair bonds.

[Papacchini F](#), [Magni E](#), [Radovic I](#), [Mazzitelli C](#), [Monticellia F](#), [Goracci C](#), [Polimeni A](#), [Ferrari M](#).

Department of Dental Materials and Restorative Dentistry, University of Siena, Siena, Italy.

### Abstract

This study investigated the composite-to-composite microtensile bond strength and interfacial quality after using different combinations of intermediate agents and pre-curing temperatures of repairing resin. Forty-five composite discs (8x4 mm) of Gradia Direct Anterior (GC Corp), stored in a saline solution at 37 degrees C for one month, were sandblasted (50 microm aluminum oxide), cleaned (35% phosphoric acid) and randomly divided into three groups (n=15) according to the intermediate agent applied: (1) no treatment; (2) unfilled resin (Scotchbond Multi-Purpose Adhesive, 3M ESPE); (3) flowable composite (Gradia LoFlo, GC Corp). Each disc was incrementally repaired (8x8 mm) with the same resin as the substrate. For each group, three subgroups (n=5) were created, depending on the pre-curing temperature of the repairing resin-4 degrees C, 23 degrees C or 37 degrees C. Two bonded specimens per group were prepared to evaluate the composite-to-composite interfacial quality via scanning electron microscope. Microtensile bond strength measurements were performed with the remaining three specimens and failure mode was examined by stereomicroscopy. Two-way ANOVA revealed that temperature ( $p < 0.001$ ), intermediate agent ( $p < 0.001$ ) and the interaction ( $p = 0.002$ ) significantly affected the repair strength. Post-hoc comparisons revealed that bond strengths were significantly lower using a 4 degrees C repairing resin in groups where intermediate agents were used. The highest bond strengths were recorded when flowable composite was used as an intermediate agent under each of the three temperature conditions. Interfacial quality improved by raising the resin temperature from 4 degrees C to 37 degrees C.

PMID: 17695609 [PubMed - indexed for MEDLINE]

[+](#) **Publication Types, MeSH Terms, Substances**

[+](#) **LinkOut - more resources**