

3134 Bond Strength of Repaired Filling Materials Using Different Repair Procedures

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Objectives: An adequate repair procedure depends on high bond strength between the existing material and the new material. Matrices of adhesive restorative materials and repair procedures may both influence bond strength of repaired adhesive materials. The purpose of this study was to evaluate the effect of surface treatments and repair material on the repair bond strength of a glass ionomer (Fuji IX GP FAST), a compomer (Compoglass F), and a flowable composite (GRADIA® DIRECT Flo). **Methods:** Twenty four disk specimens were prepared from each material according to the manufacturer's instructions. Specimens of each material were randomly assigned into 3 subgroups of 8 each. Eight specimens of each material with no surface treatment were used as control. Eight specimens of each material (Treatment one) were coated by a self-etching adhesive (GC G-BOND) while eight specimens of each material (Treatment two) were roughened with a finishing diamond bur for 10 seconds followed by application of a self-etching adhesive (GC G-BOND). All specimens (subgroups) were mounted in an assembly apparatus and a flowable composite (Filtek™ Flow) was applied to the opening in a split Teflon mold. Shear bond strengths (SBS) for repairs were evaluated after 48 h (crosshead speed = 0.5 mm/min) and were compared by two-way ANOVA. Planned pairwise comparisons were made and p-values were adjusted using the Tukey method. **Results:** There were significant treatment, material, and interaction effects ($p < 0.01$). For the glass ionomer and compomer; Treatment two showed significantly higher SBS than either no treatment or Treatment one which were not statistically significantly different from each other. For the flowable composite, there was a statistically significant difference in SBS between all treatments. **Conclusions:** It was concluded that surface treatment with a diamond bur and applying self-etching adhesive produces the highest repair strength.

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