



## Evaluation of resin reinforced glass ionomer and packable composite resin used for reinforcement of weaken endodontic canals

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### Abstract

**Background:** When the weakened root is internally rebuilt with suitable adhesive dental materials, the root is dimensionally and structurally reinforced to support and retain a post and core for continued function of the tooth.

**Objective:** To evaluate the effect of reinforcement of weakened endodontically treated teeth with packable composite resin (Filtek P60™, 3M, USA) and resin reinforced glass ionomer restorative material (riva light cure, SDI, Australia) on retention of light-transmitting glass fiber post (FRC postec plus, Ivoclar Vivadent, USA) in comparison with weaken endodontic treated teeth that restored with custom cast post without reinforcement.

**Materials and Methods:** Specimens divided to three groups in which group A represent control group and the other groups represent the experimental groups. Ten samples made from each group giving thirty samples. All samples were stored in deionized distilled water in constant temperature at 37 C° for 24 hr. Retention of post was measured with tensile strength in instron testing machine (ISO TR 11405,2003) with cross head speed of 0.5mm/min. The samples were pulled-out until dislodgement of post from post hole. Tensile strength was recorded in newton unit (n) for each sample. ANOVA One-way test and student-t test were used to analyze the results and to show the comparison of significance.

**Results:** There was increase in retention values in group B (samples reinforced with packable composite) and group C (samples reinforced with resin reinforced glass ionomer) when compared with control group (group A) that used custom cast without reinforcing the canal post. Also the retentive values of (group B) were higher than (group C).

**Conclusion:** Reinforcement of weakened endodontically treated teeth with either packable composite resin or resin reinforced glass ionomer restorative material lead to significant increase in the bond strength of fiber optic post. With greater retentive value for packable composite

**Key words:** Packable composite, weaken endodontic canal, glass ionomer restorative material.

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