

2934 Bonding of Composite Resin Luting Cement to Fiber-reinforced Composite Root Canal Post

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Objectives: The aim of this study was to compare bonding of composite resin luting cement to a FRC post with either cross-linked or interpenetrating polymer network (IPN) polymer matrix. Serrated titanium posts served as reference. **Methods:** Posts with an average diameter of 1.5 mm were tested. Four different types of prefabricated FRC posts with cross-linked polymer matrix and two types of individually formed FRC posts with IPN polymer matrix were tested. The individually formed posts were light-polymerized before cementation. Holes, with a diameter of 2.0 mm, simulating a post space in a root canal, were drilled into discs of composite resin. An auto-polymerizing composite resin cement was used for cementing the posts into the holes. The pull-out force was measured by pulling the post from one end using a universal testing machine after being stored dry or thermocycled (6000x). SEM examination was made for the bonding sites of the posts after testing. **Results:** The highest pull-out force was obtained with titanium posts. Both the type of FRC post and thermocycling had a significant effect on the pull-out force (n= 8, ANOVA $P < 0.001$ and $P < 0.007$, respectively). **Post hoc analysis revealed that the FRC posts with IPN polymer matrix gave significantly higher pull-out force values than the prefabricated FRC posts with smooth surface and cross-linked polymer matrix ($P < 0.004$).** **Conclusions:** This study showed that the FRC posts with IPN polymer matrix could offer better bonding to composite resin luting cement than prefabricated FRC posts with cross-linked polymer matrix.

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