

Influence of Fiber Posts on the Fracture Resistance of Endodontically Treated Maxillary Central Incisors with Different Dental Defects

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Abstract

Objective: Obtain information on the influence of fiber post placement on the fracture resistance of endodontically treated maxillary central incisors with different dental defects.

Materials & Methods: Forty human maxillary central incisors were endodontically treated and randomized into four groups. Each group was prepared according to the number of residual walls, ranged from 0 to 3. Then each group was divided into two subgroups: first restored with glass fiber post and the second without post. In no-post group, gutta percha point 2mm below the CEJ was removed. In the other group, glass fiber post was cemented by leaving at least 4mm of apical seal. Both groups were restored with light-cured composite resin. Then all specimens were subjected to static linear loading in a universal testing machine at an angle of 135° to the longitudinal axis of the tooth with a crosshead speed of 0.5mm/min until fracture. **Results:** In groups with glass fiber posts, the subgroup with three coronal walls showed the highest fracture resistance (717.9 N). The group with glass fiber posts and without coronal walls showed the lowest fracture resistance (451.0). The results show that there was no significant difference in the fracture resistance among groups with and without fiber posts when there were three coronal walls ($P=0.24$). The same results were obtained with no coronal walls left ($P=0.805$). The placement of the fiber post had no significant effect on the fracture mode ($P>0.05$), and the fracture pattern was mainly favorable. **Conclusion:** Endodontically treated teeth restored with glass fiber posts did not have significantly increased fracture resistance.