Evaluation of Fiber Tape Placement effect on Fracture Resistance of Incisal Composite Restoration of Anterior Teeth in Various Thicknesses. (In-vitro)

Aminsalehi E[1], Norozy M[2], Arab Karami S[3]

[1] *Associate Professor, Restorative Dentistry Dept, Islamic Azad University, Khorasgan branch, Isfahan,Iran*
[2] *Specialist in Restorative Dentisty*
[3] *Dentist*

Abstract

Background and Aim: Crown fracture is one of the most prevalent dental problems. With the development of composites and adhesives, Conservative approaches is proposed to treat this type of fractures. The aim of this in-vitro study was to investigate the effect of the one fiber tape on the fracture resistance of the incisal composite restoration with different thicknesses.

Materials and Methods: In this In vitro Experimental study forty extracted upper incisor were selected and randomly divided into four groups. Group 1 and 3 were prepared by cutting 3 mm of the incisal edges horizontally and restored with hybrid composite. Group 2 and 4 were prepared by cutting 4mm of the incisal edges horizontally and restored with hybrid composite and fiber in the mid-palatal surface. All specimens were mounted in acrylic blocks and after that they thermocycled. All the restored teeth were set as 135 degree angle and statically loaded by Zwick until they fractured. The data were analyzed using Two way ANOVA statistical analyze.

Result: The mean fracture resistance of the groups 1 to 4 were: 436±242, 492±195, 917±353, 1053±254. Results showed that the fracture resistance between groups with thicknesses of 3 mm and 4 mm weren't statistically significant Regardless of the presence or absence of fiber tape (P=0.263) but The restorations with fiber showed significantly higher fracture resistance than non-reinforced restorations. (P=0.000)

Conclusion: Based on the findings of this study can be concluded that placement of fiber tape in the incisal edge composite restoration of anterior teeth Can be effective in increasing the fracture resistance of these restorations.

Keywords: *Tooth fracture, Composite resins, Polyethylene Glycol*

* Corresponding Author Email: *monanorozy@yahoo.com*