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MAT 134.

Microtensile bond strength of fiber post: effect of surface roughness

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Introduction and objectives: The breakdown of a fibre post restoration often occurs as a consequence of adhesive failure.

In order to improve the bonding between fibre composite and cements, different post surface treatment have been proposed: the aim of this study was to evaluate the effect of the increased surface roughness of a new fibre post.

Materials and methods: 50 fibre posts in 5 groups:

- 1) DT Illusion#2(Dentsply);
- 2) RelyX Posts#2 (3M-ESPE);
- 3) Unicore#4 (Ultradent);
- 4) Postec Plus#1 (Ivoclar);
- 5) Prosthetic OverPost#3 (Overfibers)

the last having a special surface texture at least 3-times rougher than the other posts.

Surface roughness was determined for each post.

PanaviaF and Photocore composite (Kuraray) were used to make a build-up following the manufacturer directions. The specimens were thermocycled, stored in 100% humidity, and 4 slices for microtensile test were obtained from each post.

Results and discussion:

Mean bonding values of groups 1) to 4) were not significantly different, whereas group 5) value was (15.2 MPa, $p < 0.05$, 1-way ANOVA).

The results strongly suggest that surface roughness, increasing both micromechanical retention and surface area, has a great effect on the post/cement adhesive strength.

Conclusions: A surface texture of 3.8 Ra of a new post type significantly increases the adhesive bonding without any further surface treatment.