

THE EFFECT OF PROXIMAL RETENTION GROOVES ON THE FRACTURE STRENGTH OF CLASS II AMALGAM AND POSTERIOR COMPOSITE RESIN RESTORATIONS

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ABSTRACT

The effect of proximal retention grooves on the fracture strength of class II amalgam and composite resin restorations was studied. One hundred and twenty human upper premolars were used. The teeth were divided into three groups according to the technique of condensation of restorative material used. Each group was subdivided into four subgroups according to the extent and location of the axial grooves. Occluso-mesial cavities were prepared. After filling, the teeth were stored for 7 days. A universal testing machine with 250 kg reversible load cell running at 1 mm/min was used to test the samples. It was found that the proximal grooves increased the fracture strength of the tested materials. The full length grooves, from the gingival seat to the occlusal margin, recorded the highest values, the bonded composites recorded higher fracture strength than amalgam with the same type of groove. Finally, incremental filled composite was higher in fracture strength than the bulk technique.

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