# COMPARATIVE EVALUATION OF FRACTURE RESISTANCE OF TWO DIFFERENT GLASS HYBRID POSTERIOR RESTORATIVE MATERIALS WITH MICROHYBRID COMPOSITE RESIN IN CLASS 2 MESIO-OCCLUSAL CAVITIES: AN IN VITRO STUDY

By

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# ABSTRACT

**TITLE :** Comparative evaluation of fracture resistance of two different glass hybrid posterior restorative materials with microhybrid composite resin in class 2 mesio-occlusal cavities: An in vitro study.

**BACKGROUND AND OBJECTIVES:** The posterior direct tooth-colored restorative materials should have adequate strength to resist masticatory and occlusal forces. Fracture resistance is also an essential factor that affects cracking of the restorations under heavy loading. In this regard, this study was done to investigate and compare and evaluate the mechanical durability and compare the Fracture Resistance of two Glass Hybrid restorative materials and a microhybrid composite resin.

**MATERIAL AND METHODS:** Forty ($n = 40$) sound teeth (mandibular premolars freshly extracted) were used for this study. The teeth were divided randomly into four groups (n = 12): Group 1: positive control, intact; Group 2: MO cavities were prepared and restored with microhybrid composite resin (G-ænial Posterior); Group 3: MO cavities were prepared and restored with GH restorative system (EQUIA Forte); Group 4: MO cavities were prepared and restored with Gold Label Hybrid). Group 2,3,4 were restored with different restorations according to manufacturers instructions. Then, the specimens were stored in distilled water for 24h which was followed by thermocycling of the specimens. Afterwards, all prepared were tested for fracture resistance, using a universal testing machine. The results were subjected to statistical analysis.

**RESULTS:** Fracture resistance of an intact tooth was found to be significantly higher than all the restorative materials in each group. Although, EquiaForte had the best mean values among all groups, still there was no significance difference between each groups.

**CONCLUSION:** GHGI EquiaForte being from a category of GICs proved its ability to provide good fracture resistance to a weakened tooth, and results were comparable to the Microhybrid composite resin.