

Abstract AIOP "Bando Mario Martignoni"

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Area of interest: Dental Materials

Title: Which is the maximum load that adhesive resin-reinforced single crowns can withstand in molar regions?

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Objective: To compare the fracture resistance and mode of failure of CAD-CAM Cerasmart blocks crowns with different occlusal thickness.

Materials and method: Thirty CAD-CAM Cerasmart crowns with different occlusal thickness were randomly distributed into 3 experimental groups: 0,5mm (group 1), 1,0 mm (group 2) and 1,5 mm (group 3). The restorations were cemented on to human molars with GC-CEM LinkForce. The specimens were loaded until fracture; the fracture resistance and mode of failure were recorded. The data were statistically analyzed with the one-way ANOVA followed by the Fisher's Exact test with Bonferroni's correction ($p=0.05$)

Essential results: The group that showed the highest resistance to fracture was the group 3 (1.5 mm) followed with very similar values, the group 2 (1.0 mm) and the group 3 (1.5 mm). We can note that in group 3 (1.5 mm) the types of fracture that have occurred are in 90% restorable, in group 2 (1.0 mm) are 60% types of fracture recoverable while in group 1 (0,5 mm) have only 10%.

Conclusions: The occlusal thickness of the CAD-CAM crowns composite reinforced with ceramic did not affect the fracture resistance. The occlusal thickness has indeed influenced the recoverability of the crown.

