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**Title:** Comparative evaluation of tooth fracture resistance restored by different technique and different-based composites  
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**Abstract:**  
Removal of large amount of sound tooth may result in weakened restored tooth. The type of restorative technique and resin composite may be effective factors on fracture resistance of tooth under occlusal load. The aim of this study was to evaluate the fracture resistance of premolar teeth with large MOD preparations restored with low shrinkage composite.  

**Methods and materials**  
Sixty sound human maxillary premolars extracted for orthodontic reasons were selected. Standardized MOD cavity preparations were made in 50 teeth. Specimens were divided into six groups of 10 teeth based on the type of restorative technique and resin composite: G1: Restoration with posterior composite alone (Filtek P60); G2: 1mm Glass Ionomer + posterior composite; G3: 1mm flowable composite liner + posterior composite; G4: Restoration with low shrink posterior composite alone (Filtek P90). unrestored teeth (G5) and intact teeth G6). The specimens were thermocycled and loaded vertically in an Instron Testing Machine with a speed of 1mm/min. The types of fractures were recorded based on the involvement of tooth structure or restoration. The data were analyzed by one-way ANOVA and Tukey tests.  

**Results**  
The prepared teeth which had been left unrestored, presented significantly the lowest fracture resistance values (P-value<0.05). The fracture resistance of groups 1&4, 2&3&4 were not significantly different with each other (P-value<0.05). The type of fracture was not significantly in relation with restorative techniques among 4 restored groups (P-value>0.05).  

**Conclusion**  
The silorane restorative system could not improve the resistance to fracture of teeth compared to the methacrylate-based system.  

**Fracture resistance, Composite Resin, Silorane**  
**Presentation:** Oral