



## Influence of Different Obturation Systems on the Fracture Resistance of Endodontically Treated Roots

Mazen Doumani

Alfarabi Colleges of Dentistry and Nursing, Saudi Arabia

### Abstract

**Objective:** This study aimed to compare the fracture resistance of endodontically treated roots filled by different obturation systems.

**Materials and Methods:** Ninety-six maxillary central incisors were used and decoronated, retaining 12 mm of the roots. On the basis of obturation systems, the roots were randomly divided into 4 groups (n=24): Group1 (COGR): control group (unprepared, unfilled), Group 2 (AVGR): ActiV GP points/ActiV GP sealer, Group 3 (GPGR): Gutta percha points / AH plus sealer, and Group4 (GAGR): Gutta percha points/ActiV GP sealer. The last three groups were obturated with the single cone technique. The roots were then stored in 100% relative humidity at 37 °C for 2 weeks. A vertical compressive force was exerted in a universal testing machine until fracture occurred. Data were statistically analyzed using one-way ANOVA.

**Results:** Mean (SD) failure loads for groups ranged from  $920.51 \pm 210.37$  to  $1113.44 \pm 489.42$  N. The fracture resistance between the different study groups indicated no statistical difference ( $p>0.05$ ).

**Conclusion:** ActiV GP system did not exert a significant effect on the fracture resistance of endodontically treated teeth.

### Biography

Mazen Doumani is working at the Department of Restorative Dental Sciences, Alfarabi Colleges of Dentistry and Nursing, Saudi Arabia.

The mean fracture resistance and standard deviation (SD) for the studied groups represented in Newtons.

Obturation system groups	N	Mean	SD	Lowest mean	Highest mean
Activ GP cones + Activ GP sealer	24	920.51	210.37	588.6	1373.4
Gutta percha + AHplus	24	1113.44	489.42	490.5	2599.65
Gutta percha cones + Activ GP sealer	24	960.15	323.37	392.4	1667.7
Control group	24	1060.71	353.58	412.02	1726.56

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