

# INFLUENCE OF THE FERRULE EFFECT AND PREFABRICATED POST TYPE ON THE FRACTURE RESISTANCE OF ENDODONTICALLY TREATED CROWNED TEETH

Moahamed Abdelmageed Awad\*, Abdulhameed A Maghrabi\*\*

and Ragab Eid Seif\*\*\*

## ABSTRACT

**Objectives.** To investigate the fracture resistance of endodontically treated crowned teeth with ferrule and without ferrule effect preparation incorporating prefabricated posts with different diameters. Also to compare the fracture resistance of these teeth using parapost and carbon fiber postsystems.

**Methods.** Eighty sound extracted human maxillary central incisors were root canal treated, decoronated and restored with two different sizes of ready made post systems (parapost and carbon fiber post systems). Ferrule effect preparation was made in forty teeth and the other forty teeth were left without ferrule preparation. Teeth were restored by composite build up and covered by crowns. Load was applied at an angle of  $135^{\circ}$  to the long axis of the teeth and failure load for each tooth was recorded. Data were statistically analyzed using one way analysis of variance (ANOVA) and Scheffe multiple comparison test ( $p < 0.05$ ).

**Results.** For each post system, statistical analysis showed significant difference between mean failure load of teeth with ferrule and without ferrule effect preparation. Also for teeth with ferrule effect, there was significant difference between the type of post. There was no difference between smaller or medium sized diameter posts for both systems investigated.

**Conclusions.** Teeth with ferrule effect preparation restored with carbon fiber posts had higher fracture resistance than those restored with paraposts. However, for teeth without ferrule preparation, there was no significant difference between parapost and carbon fiber post.

\*Restorative Dentistry, Fixed Prosthodontics and Endodontics Department, Faculty of Dentistry, University of Tanta, Tanta, Egypt

\*\*Oral Maxillofacial Rehabilitation Department, Faculty of Dentistry, King Abdulaziz University Jeddah, Saudi Arabia

\*\*\*Endodontic Department, Faculty of Oral and Dental Medicine, Cairo University, Cairo, Egypt