

Current Evidence on the CAD-CAM-fabricated Glass Fiber Post

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Pulpless teeth are prone to fracture and it is one of the most common reasons for the loss of teeth. One of the important clinical issues is to prevent root fractures of pulpless teeth and maintain the integrity of the tooth throughout its lifetime. Post and core with a modulus of elasticity close to dentin can prevent root fractures and be considered a better treatment option.¹

Apart from conventional cast metal posts and prefabricated fiber posts, there are other methods for restoring grossly damaged teeth. Recent advances in technology using computer-aided design (CAD) and computer-aided manufacturing (CAM) has provided newer techniques for designing and manufacturing intra-articular retainers.² The debonding of glass fiber posts has been reported to be the most common type of failure and is associated with the geometric characteristics of the post in terms of length and diameter.³ Zirconia posts and cores fabricated using CAD-CAM technology are being used. Nowadays, customized glass fiber post fabricated using CAD-CAM technology to improve its properties is an area of interest to many researchers.³⁻⁸

Costa et al.,⁶ in a systematic review has compared the fracture resistance and bond strength of prefabricated glass fiber posts to those fabricated using CAD-CAM and found that CAD-CAM-fabricated glass fiber post has improved fracture resistance and bond strength compared to prefabricated post. Gutierrez et al.,⁷ in another systematic review had, evaluated the comparative efficacy of CAD-CAM glass fiber posts with prefabricated and metal cast posts for the restoration of endodontically treated teeth. They found that the CAD/CAM glass fiber and metal cast posts had greater fracture resistance, adaptation, and retention compared to prefabricated glass fiber posts. Al-Qarni FD,⁸ in a literature review has summarized articles describing fabrication techniques and materials used to fabricate posts and cores using CAD-CAM. They found that the post fabricated with CAD-CAM technique could be considered as an alternative to conventional techniques. They concluded that although CAD-CAM posts offer good fracture resistance, bond strength, and superior esthetics and adaptation, there are limited *in vivo* studies conducted and published utilizing this technology.

In cases of widened channels and weakened tooth structures, the prefabricated post needs limited preparation, which results in poor fit with a thickened layer of cement layer, leading to bond failures and displacements under stress. The CAD-CAM-fabricated glass fiber post is very precise and anatomic, thus reducing the cement thickness, and needs minimal channel preparation. These posts are very precise and provide sliding frictional retention to the post.⁶

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Most of the studies done on CAD-CAM glass fiber posts were *in vitro* studies or case reports, so it's too early to come to any conclusion. More randomized clinical trials were needed to establish any facts on CAD-CAM glass fiber posts.

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