

MORE INFORMATION ON POST PLACEMENT IN ENDODONTICALLY TREATED TEETH

Studies have confirmed that root stress caused by post and core restorations can predispose endodontically treated teeth to vertical root fracture. Passive prefabricated metal posts—usually stainless steel or titanium—have become the most popular method when insufficient coronal tooth structure remains to retain the core. Passive prefabricated posts of the proper length, size and design for the tooth in question generally place less stress on the surrounding dentin than cast posts and cores or threaded posts that engage dentin.

However, metal posts respond differently to occlusal stresses than natural tooth structure does. Even when passively placed, these posts can cause added stress on surrounding dentin. In addition, when a post and tooth respond differently to occlusal forces, the cement interface can be compromised, resulting in loosening of the post.

Researchers are experimenting with new post materials and designs that may solve or minimize these problems. Several studies reporting on the properties and performance of carbon-fiber posts, for instance, demonstrate that promising exploration is underway.

Made from microscopic strands of carbon embedded in an epoxy resin, carbon-fiber posts are bonded to the tooth structure and a composite resin core with resin cement. Manufacturers claim that the post and complete restoration respond similarly to dentin under certain occlusal stresses.

Independent scientific research indicates that carbon-fiber posts may be a suitable alternative in some cases. Corrosion is not an issue, and, especially when serrated, retention can be comparable to stainless steel posts of similar design. If failure of carbon-fiber post restorations does occur, it may be more likely to affect the coronal tooth structure or cement interface, rather than the root, leaving the tooth in suitable condition for endodontic and restorative retreatment.

While initial research indicates that carbon-fiber posts may become an important addition to the dental armamentarium, further scientific and clinical studies of this and other alternatives are needed to demonstrate long-term effectiveness. In all cases where sufficient tooth structure remains, however, restoring the tooth without a post is still the best option.