

CLINICAL INSIGHTS
PRESENTED BY
ESCONDIDO ENDODONTICS



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Post and Core Restoration of Endodontically Treated Teeth

The need for immediate and proper coronal restoration after root canal obturation is paramount for the long-term success of endodontic treatment. The seal provided by the post, core, and crown should compliment that of the remaining root canal filling. The build-up is an extension rather than an invasion of the endodontic seal.

There are several important elements of post and core restoration to consider

Ferrule Effect: Numerous investigations have determined that the availability of a substantial ferrule collar of coronal tooth structure for the marginal finish of the permanent restoration is of greater importance in crown retention than dowel length and diameter. The ferrule is a critical element in stabilizing the core from the ravages of lateral excursive occlusal movements. Occlusal cycling without an adequate ferrule will break the marginal seal and allow bacteria to infiltrate the post and eventually, the remaining root canal obturation.

Post Selection: From a retention stand-point, threaded posts are the most retentive followed by cemented parallel-sided posts. Serrations increase post retention. Cemented tapered posts are the least retentive. Photoelastic stress analysis generally favors parallel cemented posts. Combined data from multiple clinical studies report that threaded posts produce the highest root fracture incidence followed by tapered posts. Parallel posts are the least likely to fracture posts.

Post Length and Placement: The perception that post length and size are strategic variables contributing to root reinforcement and reduced fracture have been discounted. Posts provide no reinforcement to an already weakened tooth structure. Length is certainly more important than width for retention, however, length ultimately compromises the endodontic obturation. A single post per tooth should be placed in the largest, straightest, and most circular canal. Essentially, for posterior teeth, posts are best placed in the distal root of mandibular molars and the palatal root of maxillary molars. Posting other posterior molar roots invites perforation into root concavities. Root canals should never be shaped to fit posts. Use no instrument in a canal space unless it is intended to clean and shape the canal for endodontic obturation.

Remaining Root Obturation Material: The literature often refers to a minimum remaining length of 5 mm's of gutta-percha that is necessary to maintain an adequate seal. Actually, anything less than the entire intact obturation is inferior. The post must function as an extension of the endodontic seal.

Immediate Restoration: The timing sequence for post-endodontic rehabilitation is a seriously under-appreciated variable. Posts must be cemented as soon as possible after endodontic obturation. Otherwise, a layer of bonded unfilled resin along the floor of a properly prepared pulp chamber and canal orifice is an excellent secondary protective seal after finishing root canal obturation.

Suggestions for Maintaining Post-Space Sterility Prior to Permanent Post Cementation: Use Peridex soaked cotton pellets in the chamber or place Calcium Hydroxide paste (UltraCal or Calasept) into the post space. The Calcium Hydroxide can be washed out prior to post cementation using 17% liquid EDTA.