

quartz fibre post systems look very promising for this type of canal configuration and also for the creation of aesthetically superior restorations. (Fig. 5)

### POSTERIOR TEETH

Full cusp coverage on molars and premolars is the treatment of choice. This applies even to teeth opposing full or partial dentures due to further proprioceptive loss and the ability to develop heavy forces when only one denture is involved. A bonded corono-radicular amalgam core with or without pins is the material of choice. These substructures fair well even as abutments for fixed or removable partial dentures. The rule of thumb in determining the need for additional retention resistance form is the presence of 4mm of tooth wall. This height can be gained by utilizing the pulp chamber and if needed the first 2-3 mm of root canal.

### POSTS

A post is only necessary to retain a core and as such, diameter, length and design are of utmost importance. Threaded active posts are more retentive than serrated posts, which are more retentive than smooth sided posts. Parallel-sided posts are preferable to tapered. Custom cast posts are usually tapered and more problematic. Cast custom posts should be cast from the same metal that will be used in the final core and crown. As well, they should have a positive occlusal seat and a vent escape path for cement. Parallel sided posts can be created from plastic patterns but they should taper as they approach the root apex.

The post diameter should not exceed  $\frac{1}{3}$  of the root diameter due to the possibility of perforation and the increase in fracture potential (Fig. 4). The minimum amount of dentin thickness where the post ends should be 1 mm. Post length equal to crown height is necessary

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not only for retention but to soften the forces acting along the root surface. Clinicians believe that a 2.0 mm ferrule assures function on the tooth and not the post core complex. But in reality, when extensive coronal destruction has taken place, the crown does function on the post core and thus creates a potential for fracture and debonding of the core.

Gutta percha is removed with a hot instrument or with Gates Glidden burs. The removal of the gutta percha for the post should be completed at the end of the obliteration appointment. The decision on whether a post is necessary needs to be made before the endodontics is completed, thus the need for early treatment planning. The final flare and shaping of the root canal space should be completed by hand held peeso reamers. Parapost drill sets should never be used in the root canal due to possible perforation.

If 50% or more sound coronal tooth structure remains, do not enter the radicular anatomy with a post.

### CORE

The function of the core is to provide retention and resistance to the final restoration. Dentin bonded reinforced resin composites and dispersed phase alloys (less initial leakage) are the materials of choice. These core materials may or may not be combined with a post. All crown finish lines must be 2 mm apical to the core materials. If this

finish line cannot be developed due to deep caries or a severe fracture, then extrusion or crown lengthening must be completed (Fig. 6).

### CEMENTATION

The cementing medium enhances retention, aids in stress distribution, and ideally seals microgaps between the post and the tooth. Recent studies have advocated the use of low viscosity resin cements in combination with the removal of the smear layer from the canal walls. Certain cements form a hybrid collagen layer at the dentin cement interface and in addition, bond to metal.

### SUMMARY

The routine use of dowels in the restoration of endodontically treated teeth is no longer mandatory.

The key to success is to have a 2 mm ferrule of solid tooth structure above the crown margin.

If the criteria developed in this review cannot be met perhaps the best treatment would be removal and replacement with an implant or a fixed bridge. **OH**

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*Oral Health welcomes this original article.*