

# Custom-made post and core - part II: fabrication of direct resin core using special mold

## Abstract

This technique is described to facilitate fabrication of custom made cores with 6 degree tapers of opposing axial walls quickly and easily. This is achieved by fabrication of pre-formed cellulose acetate or thermoplastic molds with different sizes and shapes to suit prepared anterior and posterior teeth.

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**Mohamed Abdelmageed Awad<sup>1,2</sup>**

<sup>1</sup>Fixed Prosthodontic Department, Faculty of Dentistry, Tanta University, Egypt

<sup>2</sup>Fixed Prosthodontic Division, Faculty of Dentistry, King Abdulaziz University, KSA

**Correspondence:** Mohamed Abdelmageed Awad, Fixed Prosthodontic Department, Faculty of Dentistry, Tanta University, Post Code 33111; Tanta, Egypt, Tel 2-01003836121, Email awad61@yahoo.com

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## Text

Quick fabrication and adjustment of resin cores connected to custom-made posts saves time and effort for the fixed prosthodontic clinician. Retention of an overlying crown is mainly achieved by parallel opposing axial prepared walls. Achieving this parallelism or even a 6 degree taper for maximum retention of a crown without undercuts may be difficult to achieve.

## Procedure

After the post space has been prepared, the remaining coronal tooth structure is reduced for the extracoronal restoration as though it was undamaged. If a porcelain fused to metal restoration is planned, a facial shoulder and lingual chamfer finish line is prepared giving adequate reduction labially for good esthetics.

1. Remove internal and external undercuts that will prevent withdrawal of the pattern.
2. Remove any unsupported tooth structure i.e. the wall height should not exceed one and half times the wall thickness to prevent its fracture. Also the part of the remaining coronal tissue must be prepared perpendicular to the post to prevent overseating and splitting of the tooth.
3. Complete the preparation by eliminating sharp angles and establishing a smooth finish line.
4. Lubricate the canal, notch a loose fitting plastic dowel and fabricate the direct custom-made post using autopolymerizing resin (Pattern resin, GC Europe, NV, Interleuvenlaan 13, B-3001 Leuven, Belgium). The post pattern should be passively inserted into the canal.<sup>1</sup>
5. Trim the extruded part of plastic post until the trimmed portion protrudes about 1.5 to 2mm into the pulp chamber (Figure 1).
6. Choose the suitable shape of preformed cellulose acetate or thermoplastic molds constructed to suit the prepared anterior and posterior teeth either upper or lower, with a 6 degree taper of opposing axial walls to maximize the retention of the fabricated crown later on. This maximum retention is important in cases with limited interocclusal space.

7. N.B. Some preformed molds are available in the market to buildup composite cores as Build-It kit (Jeneric/Pentron, Wallingford, CT 06492, USA) (Figure 2) but one needs to increase the sizes and modify the shapes.



**Figure 1** The plastic post is trimmed 1.5-2mm protruded into the pulp chamber.

8. Check the selected mold over the trimmed extruded part of plastic post (Figure 3), being sure there is enough space between the plastic post and the fitting surface of mold. If not, trim the plastic post until enough space is obtained.
9. Mix an auto-polymerizing resin powder and liquid or syringe a light polymerized resin and load a suitable amount into the selected mold trying to reduce entrapment of air bubbles (Figure 4). Insert the filled mold over the extruded part of plastic post (Figure 5).
10. After polymerization of the resin, trim the excess resin around the margins (Figure 6), separate and remove the external mold.
11. Remove the custom-made post and core from the canal and send it to be casted (Figure 7).



**Figure 2** Preformed molds available in the market to build-up composite core.



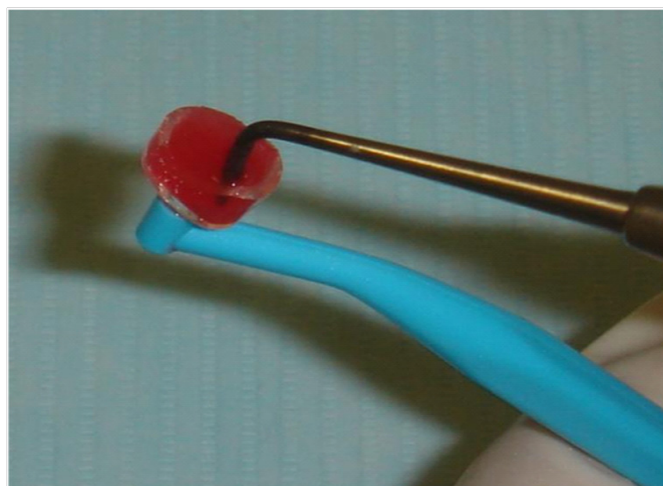
**Figure 5** Insert filled mold over the extruded part of plastic post.



**Figure 3** Select the suitable size of preformed mold.



**Figure 6** Trim the excess resin around the margin.



**Figure 4** Try to reduce entrapped air bubbles into mixed auto-polymerizing resin.



**Figure 7** Auto-polymerizing resins ready to be cast.

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## Conflict of interest

The author declares that there is no conflict of interest.

## References

1. Rosenstiel SF, Land MF, Fujimoto J. *Contemporary fixed prosthodontics*. 4<sup>th</sup> ed. St. Louis, Mosby;2006:348–370.