PFM Preparation On Posterior Tooth

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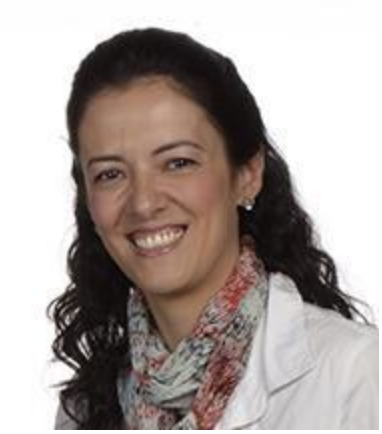

Porcelain fused to metal (PFM) crowns consist of a metal coping (infrastructure) veneered with porcelain. PFM crowns have been used historically due to their combination of strength, durability and reasonable esthetics. PFM restorations may also be used as retainers for fixed partial dentures (FPD).

The materials needed for a PFM crown preparation are:
1. Scalpel blade and handle
2. Silicone putty impression material
3. Metal matrix band
4. Wooden wedges
5. High-speed handpiece
6. Coarse-grit flat-end tapered diamond bur
7. Coarse-grit football-shaped diamond bur
8. Fine-grit flat-end tapered diamond bur
9. A small diameter round-end diamond bur
10. End-cutting diamond bur

A PFM crown preparation on a posterior tooth (#46) should follow this sequence of steps:

1. Make a putty index prior to tooth preparation to guide you through tooth reduction. The putty mold preparation has been described in other crown prep videos.

2. For the occlusal reduction of posterior teeth, two factors will determine the depth of the preparation: the location of the functional cusp and the restorative material, either metal or porcelain-veneered metal. For the preparation of a mandibular molar, make 3 depth orientation grooves in the functional cusps, i.e. the buccal cusps, approximately 1 mm deep using a tapered diamond bur.

3. For a metal occlusal restoration, make 3 depth orientation grooves in the lingual cusps approximately 0.7 mm deep.

4. Connect the grooves following the occlusal contour of the tooth. Since no proximal reduction has been started yet, be careful not to damage the adjacent tooth when performing occlusal reduction near the marginal ridges.

5. The reduction of the axial wall of the functional cusp (buccal surface) is performed in two phases – gingival and occlusal – the gingival phase is near parallel to the path of insertion of the crown (along the long axis of the tooth), while the occlusal phase is parallel to the tooth surface and the bur positioned slightly inclined toward the occlusal surface. Place 2-3 depth orientation grooves in these two planes without over tapering them! The depth of the grooves should be around 0.8 mm.

6. Connect the grooves while keeping in mind: the contour of the tooth, both occlusogingivally and mesiodistally. Also remain attentive to the location of the finish line, which should stay supragingival, and the amount of reduction expected.

7. For the non-functional cusp axial reduction (lingual surface), the depth orientation grooves are also placed in two planes – the gingival phase and occlusal phase. The depth of these grooves should be approximately 0.5 mm. Connect those grooves as previously described.

8. Protect tooth #47 with a metal matrix band, stabilized with a wooden wedge, to break the interproximal contact while preparing the distal surface of the tooth. Break the distal interproximal contact using a small diameter diamond bur. As the bur moves toward the buccal and lingual surfaces, start joining the newly created interproximal finish line with the ones previously created on the buccal and lingual. Keep the tip of the bur away from the gingival tissue. Repeat this procedure to break the mesial interproximal contact. Complete the preparation of both proximal walls with a tapered diamond bur.

9. To finish off the preparation, use a diamond finishing bur to smooth and blend the totality of the crown preparation, rounding off any remaining sharp line angles. Complete the occlusal reduction by performing the functional cusp bevel – the putty index may be used to ensure optimal reduction. The buccal shoulder margin is defined and finalized with the modified flat-end tapered diamond bur and the end cutting diamond bur. The lingual chamfer finish line is finalized with a round end tapered diamond bur. All margins should be slightly supragingival.

10. Please note that for porcelain occlusal restorations, the porcelain shoulder should extend 1 mm lingual to the interproximal contact. For metal occlusal restorations, the porcelain shoulder does not pass through the proximal contact, it stops buccal to the contact. Porcelain occlusal = porcelain contacts; mental occlusal = metal contacts.

11. Consult the preparation quickguide and flowchart in the restorative manual for the recommended amount of reduction for all crown preparations

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