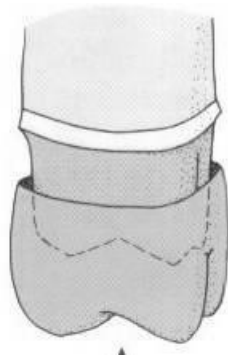


Full metal crown (Complete cast crown preparation):

For many years ago it was one of the most commonly used crowns in the posterior region of the oral cavity, it completely covers the prepared tooth surface by metal (gold alloy, base metal alloy).

**Indications:**

1. Posterior teeth with extensive caries, large amalgam restorations in order to protect the remaining tooth structure and amalgam from fracture.
2. Teeth where maximum retention and resistance are needed as in short posterior crowns so it substitutes 3/4 crown.
3. Recontouring of the posterior teeth.
4. Teeth receiving clasps for partial denture.
5. As a bridge retainer.

Contra-Indications

1. If high esthetic need is demanded.
2. If a more conservative crown could be used, ex: 3/4 crown as intact buccal surface, in cases of very short span bridge.

Advantages:

- 1) More retentive and resistant than partial coverage.
- 2) Its strength is superior to that of other restoration.

Disadvantages:

- 1) Display of metal therefore poor esthetics.
- 2) Difficulty to test the vitality of the tooth especially with the electrical pulp tester.

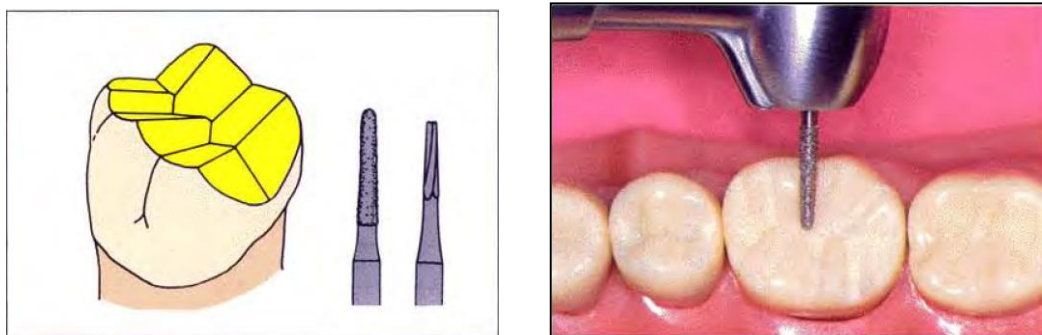
Steps in preparation:

- 1. Occlusal surface preparation
- 2. Buccal surface preparation
- 3. Lingual surface preparation
- 4. Proximal surface preparation

The chamfer finishing line is used in all the axial walls; therefore a round end tapered fissure bur is used in the preparation.

Occlusal surface preparation:

-Planar occlusal reduction and depth orientation grooves (D.O.G.) are made on the occlusal surface by a round tapered diamond bur to follow the inclines of the cusps as shown in the figure below:-



Depth Orientation groove.(D.O.G.) It is a groove that placed on a surface of a tooth to act as a guide to determine when sufficient amount of tooth structure is removed by preparation. If preparation is done without these grooves under and over preparation is possible, and more time will be wasted by repeated checking of the preparation.

- Join the grooves by preparing the lingual half of the occlusal surface and then the buccal half.
- The occlusal preparation in **the functional cusps** should be (1.5mm) (buccal cusp in the lower molars and palatal cusps in the upper molars), and at least (1mm) for the *nonfunctional cusps*.

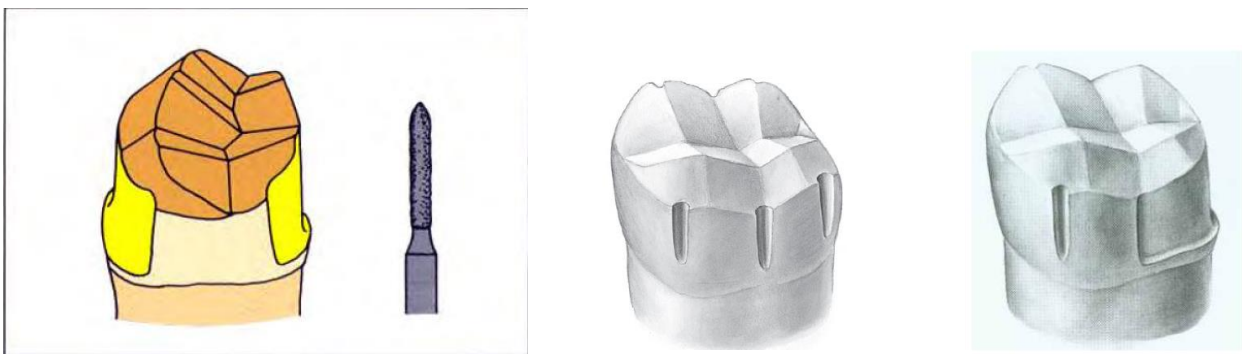
Buccal surface preparation:

-In the case of the mandibular molars the buccal surface is prepared in two steps (two planes) due to the lingual convexity.

1. Gingival 2/3.
2. Occlusal 1/3 (beveling of the functional cusp).

-Three D.O.G. are placed parallel to the long axis of the tooth on gingival 2/3 of the buccal surface (mesially, middle and distally).

-Join the grooves by the same bur and leave the tip of the bur in the gingival area to make a continuous, smooth chamfer finishing line.



Note: Occlusal 1/3 was prepared by beveling the functional cusp. This type of preparation is called two planes or two step preparation.

The two plane preparation is done in the buccal surface of the mandibular molars, and the palatal surface of the maxillary molars.

Lingual surface preparation:

The same preparation procedure is used as in the buccal surface but in one plane or one step preparation.

Fig. Occlusal view showing prepared tooth with intact proximal contact area



Proximal surface preparation:

-By the use of a fine tapered fissure bur, the contact area should be removed carefully by moving bucco-lingually.

-The bur should rest on the prepared tooth to prevent any damage to the adjacent tooth, which if it is damaged will cause a rough surface susceptible for future caries.

-Any sharp end should be removed because this will act as a stress concentration area.

-A seating groove may be placed in the buccal surface of the lower molar and the palatal surface of the upper molar which acts as a guide during the placement of the crown and prevents the rotation.



a



b

Figure: using short thin tapered fissure to open the contact. b. continue the preparation by the same round taper fissure diamond.

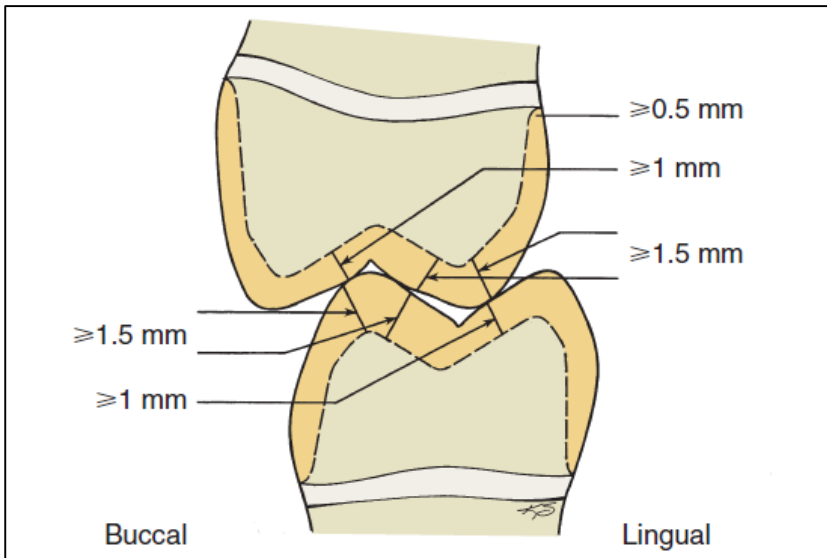


Fig: The amount of tooth structure reduction in mm for each surface of tooth prepared for full metal crown.

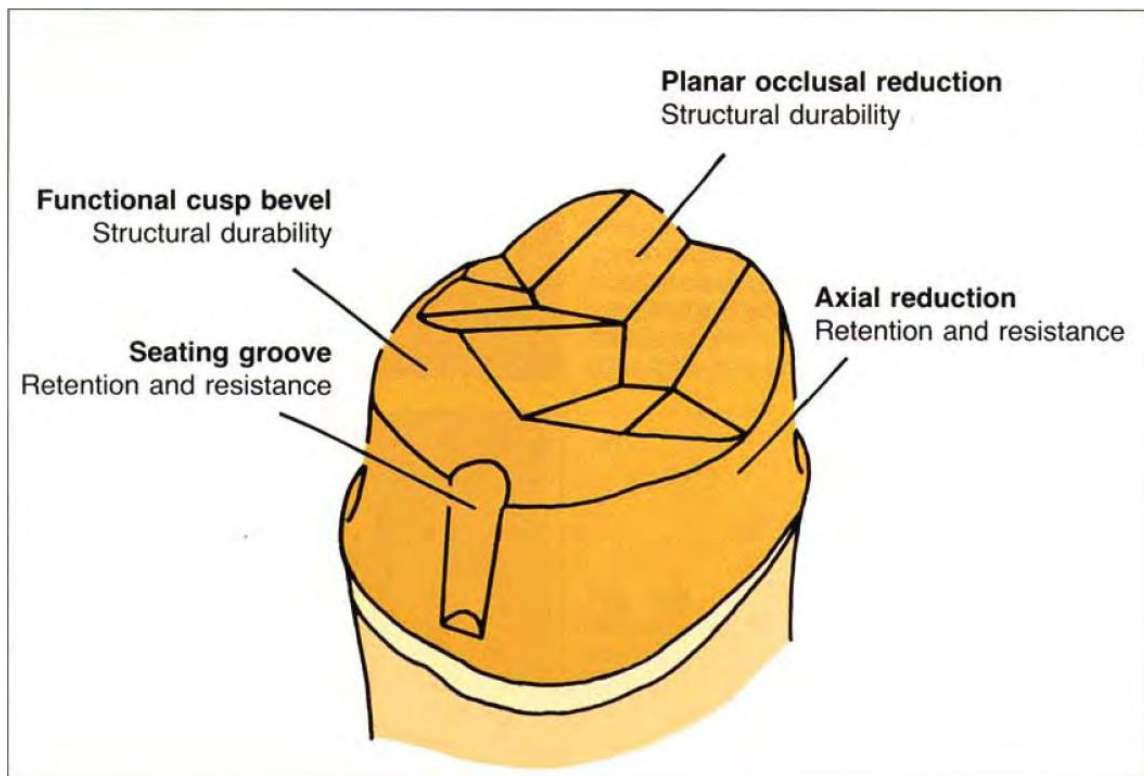


Fig. The final preparation for a full metal crown on the mandibular first molar