

## Posterior composite CL I

### Typical Composite Preparation:

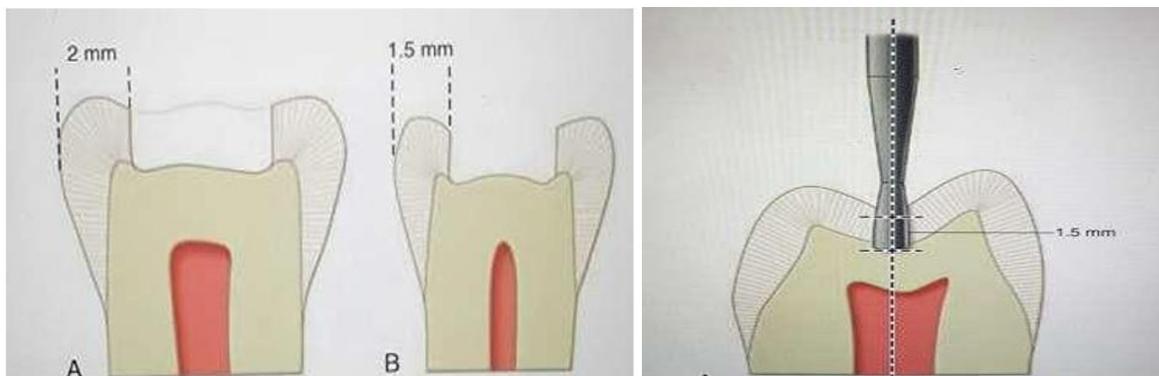
1. Conventional (for medium & large preparation or restorations subjected to heavy occlusal forces).
2. Modified (small to moderate restoration).



#### Conventional Design

- Outline form should be as conservative as possible.
- Box like preparation (like amalgam cavity preparation).
- Facial and lingual extension and width of the cavity depend on caries or old restoration.
- Pulpal floor should be flat.

- Cuspal and marginal ridge area should be preserved as much as possible.
- Extensions into marginal ridges should result in at least 1.5 mm of remaining tooth structure for premolars and approximately 2 mm for molars fig 1.



### Clinical Steps

- The tooth is entered in the area most affected by the caries lesion, the bur positioned parallel to the long axis of the tooth crown.
- When it is anticipated that the entire mesio-distal length of a central groove will be prepared, it is easier to enter the distal portion first and then transverse mesially to permit better operator visibility during the preparation.
- **The pulpal floor is prepared to an initial depth that is 1.5 mm from central groove (Fig. 2).**

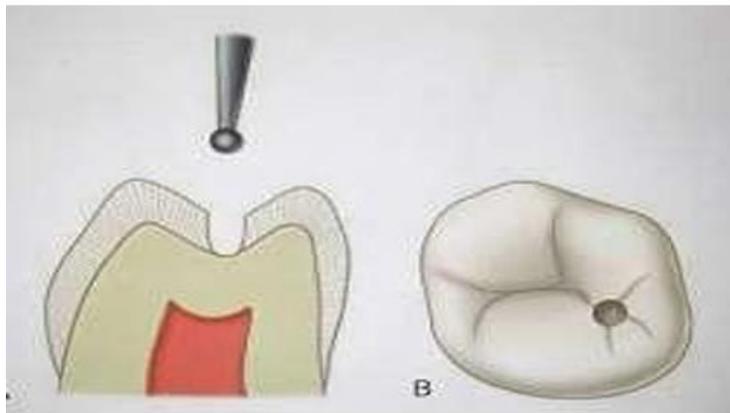
- Mesial, distal, facial, and lingual extensions are determined by the caries lesion, old restorative material, or defect fig 3.
- **Unnecessary extension into cuspal and marginal ridge areas should be avoided** as much as possible as this compromises the strength of the tooth. (Fig. 1).



- After extending the **outline form to sound tooth structure**, if any caries or old restorative material remains on the pulpal floor, it should be removed with the appropriately sized round bur or hand instrument.
- **No attempt is made to bevel the occlusal margin** because it may result in enlarging the occlusal isthmus of the preparation.

## Modified design

- Minimally invasive tooth preparation
- No uniform or flat pulpal floor or axial walls.
- As conservative as possible in tooth structure removal.
- Cavity size determined by the size of the caries.



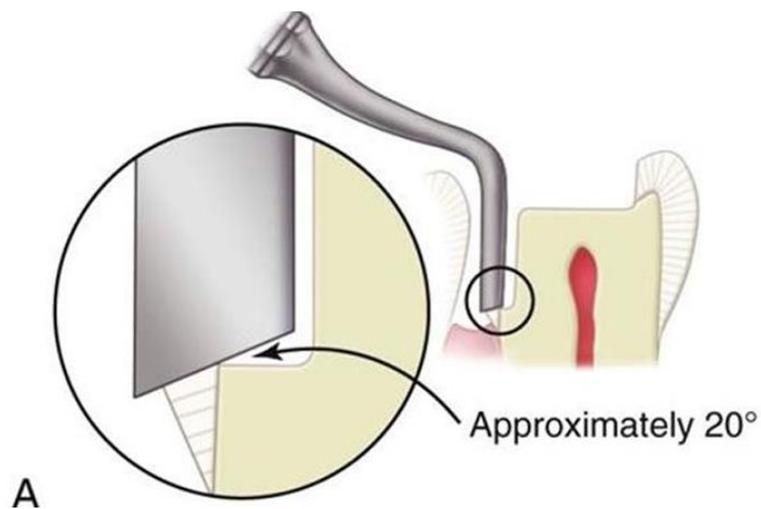
These conservative preparations are **prepared with a small round bur**, the size and shape of the instrument generally are dictated by the size of the lesion or other defect or by the type of defective restoration being replaced fig 4.

## CL II Composite Cavity Preparation

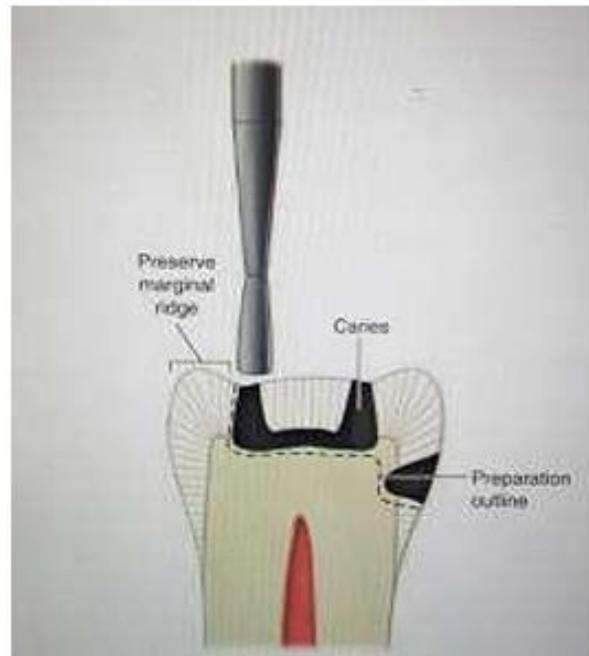
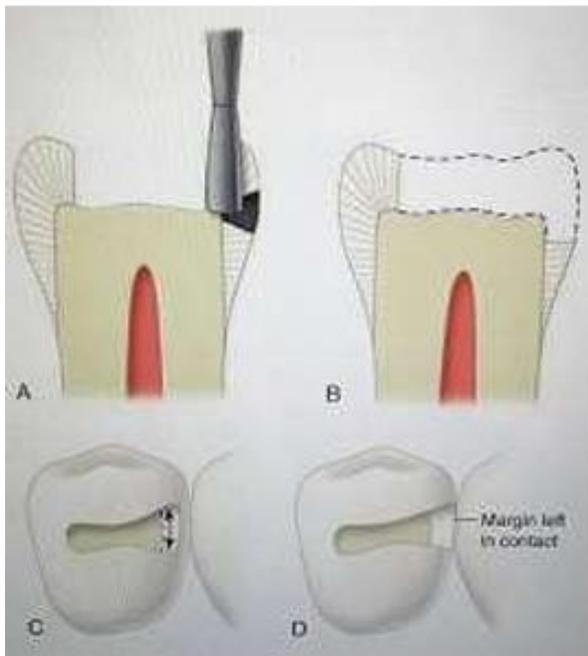
### Conventional Design

- Used for moderate to very large caries fig 5.
- Composed of CL I + proximal box.
- Cavity should be **conservative** as much as possible.
- Walls prepared **perpendicular to long axis of the tooth**.
- **Pulpal floor & gingival seat should be flat.**
- For the box caries develops on a proximal surface immediately gingival to the proximal contact, the extent of the caries lesion determine the facial, lingual, and gingival extensions of the proximal box of the preparation.
- Extension of the proximal box beyond contact with the adjacent tooth provide clearance with the adjacent tooth, **simplify the preparation, matrix placement, and contouring procedures.**

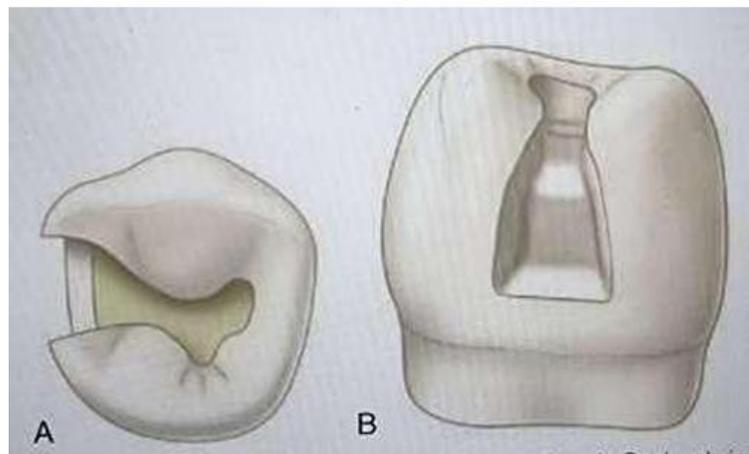
- The axial wall should be 0.2 mm inside the DEJ and have a slight outward convexity.
- **No bevels are placed on the occlusal cavosurface margins and proximal box walls** because these walls already have exposed enamel rod ends and it's difficult to be finished.
- It is still necessary to **remove brittle unsupported enamel** along the gingival box margins by the use of gingival margin trimmer because of the gingival orientation of the enamel rods.



- A No. 330 or No. 245 shaped diamond bur is used to enter the pit near to the carious proximal surface, the instrument is positioned parallel with the long axis of the tooth crown, the occlusal portion of the Class II preparation is prepared similarly as described for the Class I conventional preparation with occlusal extension toward the involved proximal surface should go through the marginal ridge area at initial pulpal floor depth fig 5.



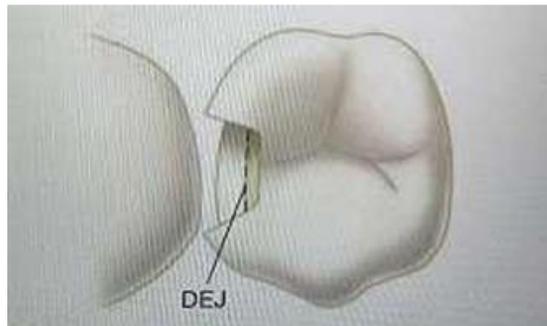
- Preparation outline before the instrument is extended through the marginal ridge, the proximal ditch cut is initiated, a gingivally directed cut that is **0.2 mm inside the DEJ** should be done fig 5, the instrument is extended facially, lingually, and gingivally to include all of the caries lesion, the facio-lingual cutting motion follows the DEJ and therefore is usually in a slightly convex arc outward in at least a 90-degree margin to prevent unsupported enamel.
- The **gingival floor is prepared flat** with an approximately 90-degree cavosurface margin.



## Modified Design

### ➤ Box like preparation

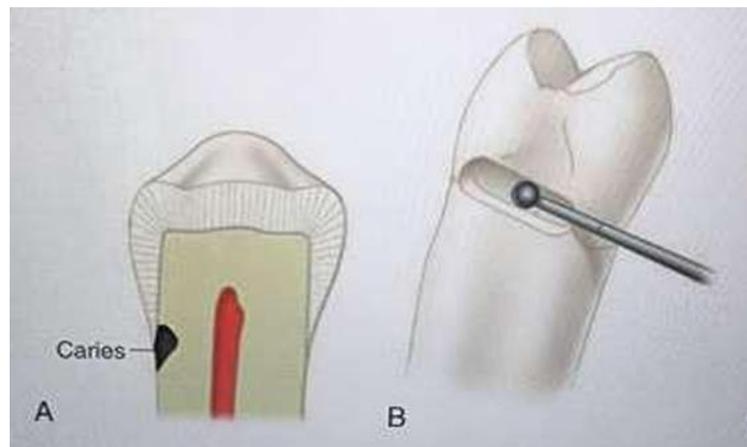
- Used for small proximal lesion with no caries on occlusal surface.
- Composed of **proximal box only** fig 6.
- The depth of the box determined by depth of the caries.
- Walls are 90 degree or greater.
- No bevel is indicated.



- A proximal box is prepared with a small round instrument fig 6, held parallel to the long axis of the tooth, the instrument is extended through the marginal ridge in a gingival direction aiming at the center of the proximal caries lesion or defect.
- The axial depth is dictated by the extent of the caries lesion or fault, the facial, lingual, and gingival extensions are determined by the extension of the caries lesion or defect.
- No beveling or secondary retention is indicated.

### ➤ Slot Preparation

- **Minimally invasive cavity preparation.**
- The caries on the proximal surface but the access can be obtained from either facial or lingual direction rather than through the marginal ridge fig 7.



- A small round diamond bur is used to gain access to the lesion.
  - The instrument is oriented at the correct occlusogingival position, and the entry is made with the instrument as close to the adjacent tooth as possible, preserving as much of the facial or lingual surface as possible.
  - The preparation is extended occlusally, facially, and gingivally enough to remove the lesion, the axial depth is determined by the extent of the lesion.
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- The occlusal, facial, and gingival cavosurface margins are **90 degrees or greater.**
  - Care should be taken not to undermine the marginal ridge during the preparation.
  - If the defect extends occlusally to the point of undermining the marginal ridge, a more conventional Class II preparation should be used.