In The Name Of God

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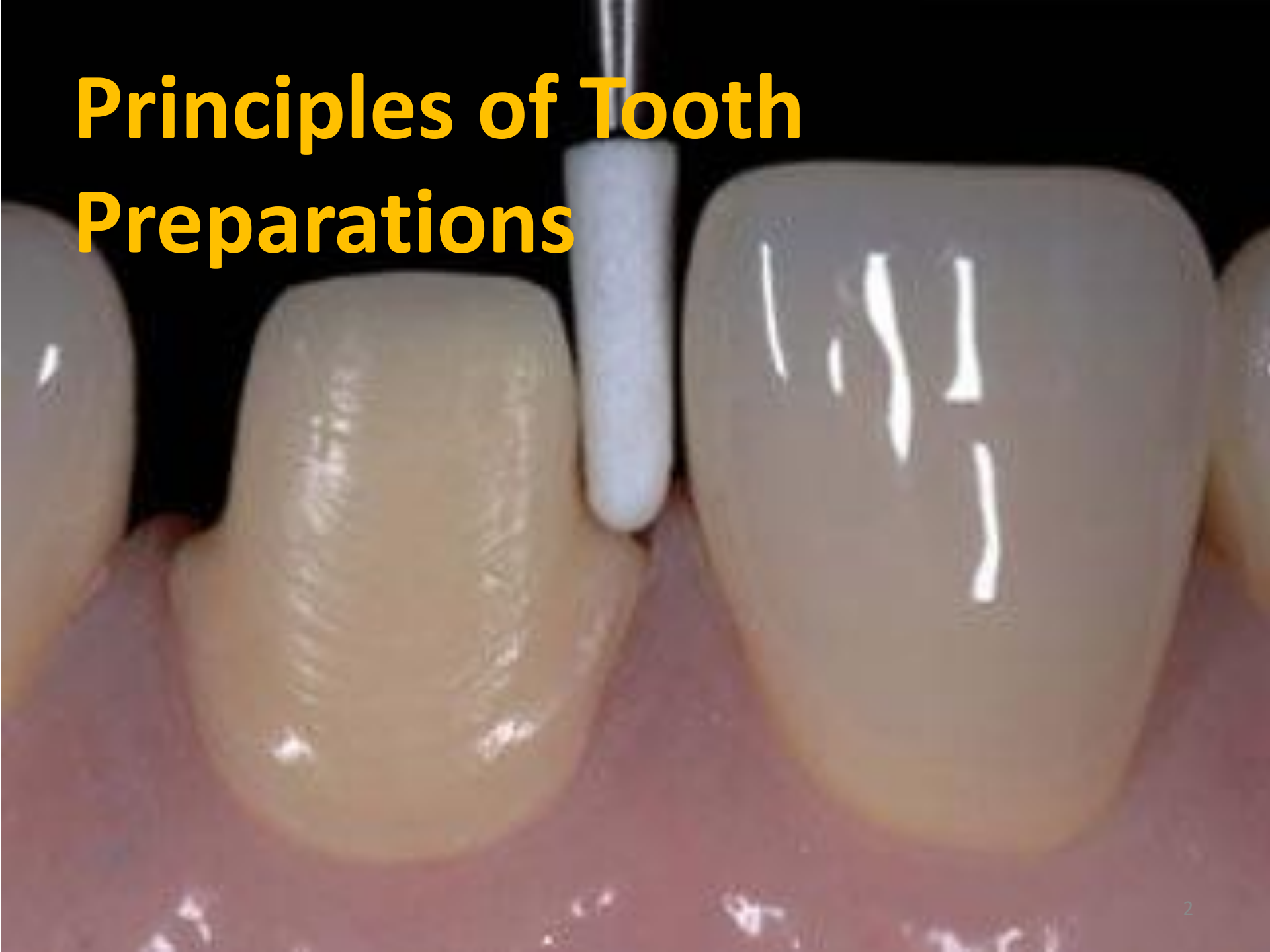
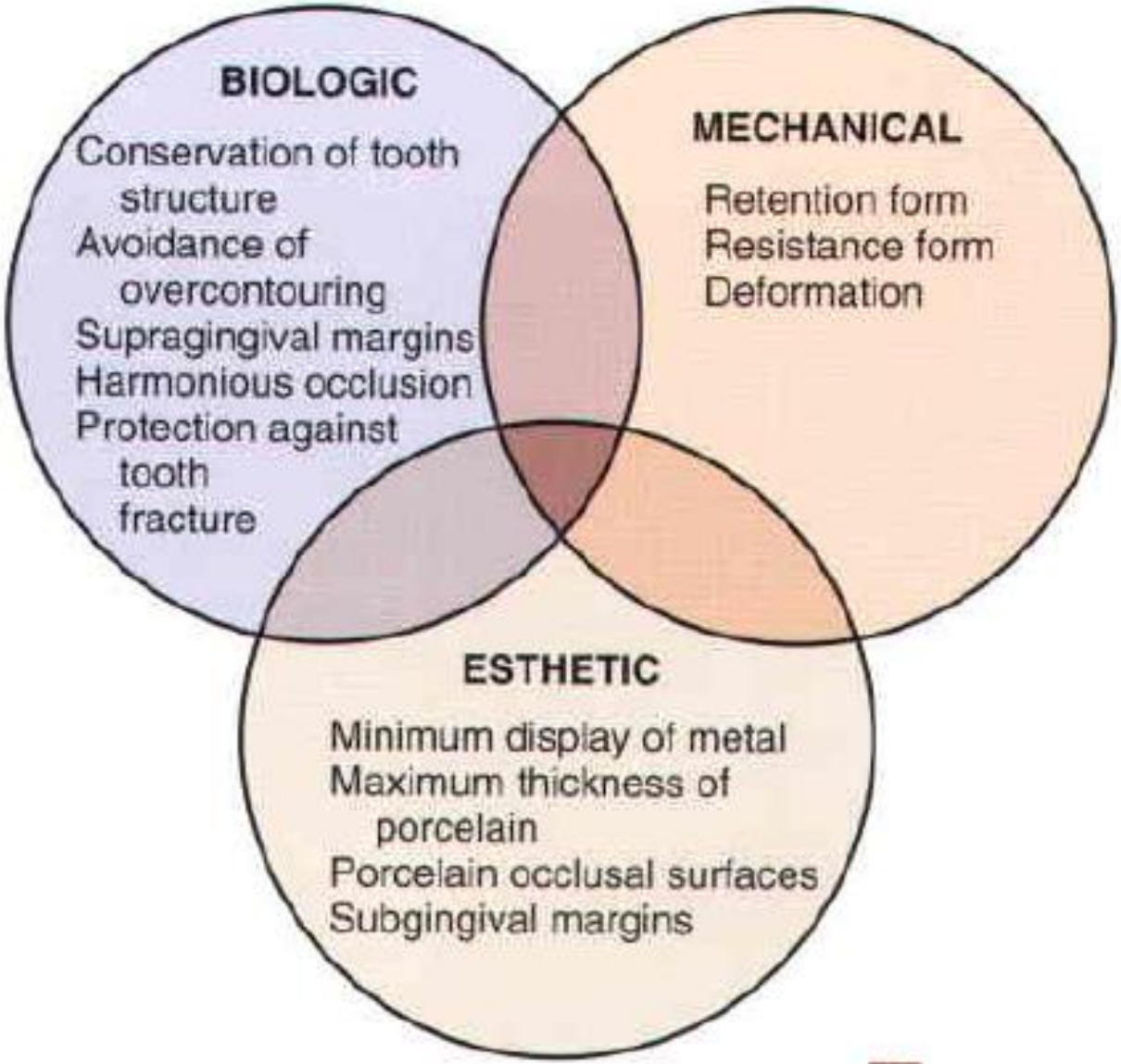
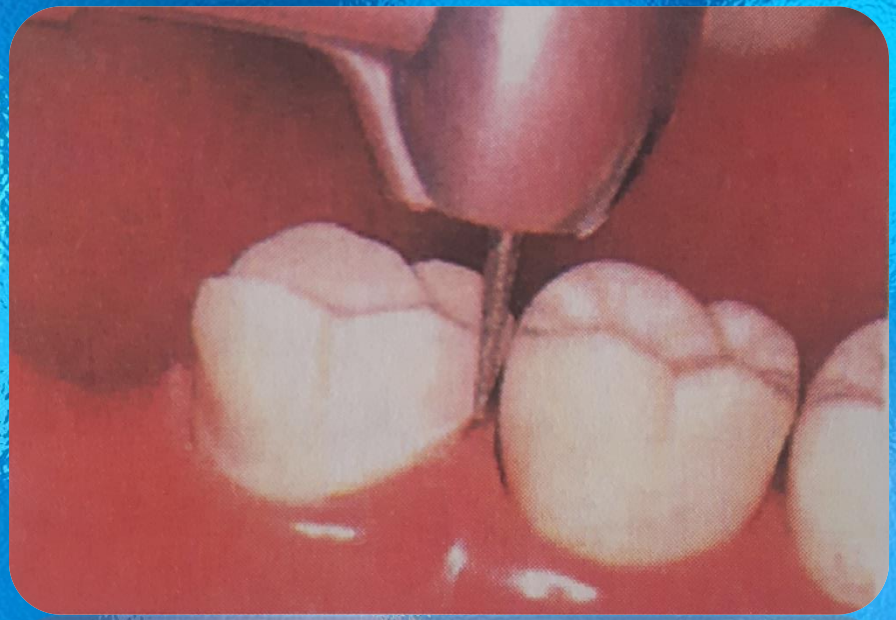
Principles of Tooth Preparations




BIOLOGIC
Conservation of tooth structure
Avoidance of overcontouring
Supragingival margins
Harmonious occlusion
Protection against tooth fracture
MECHANICAL
Retention form
Resistance form
Deformation
ESTHETIC
Minimum display of metal
Maximum thickness of porcelain
Porcelain occlusal surfaces
Subgingival margins

BIOLOGICC ONSIDERATIONS

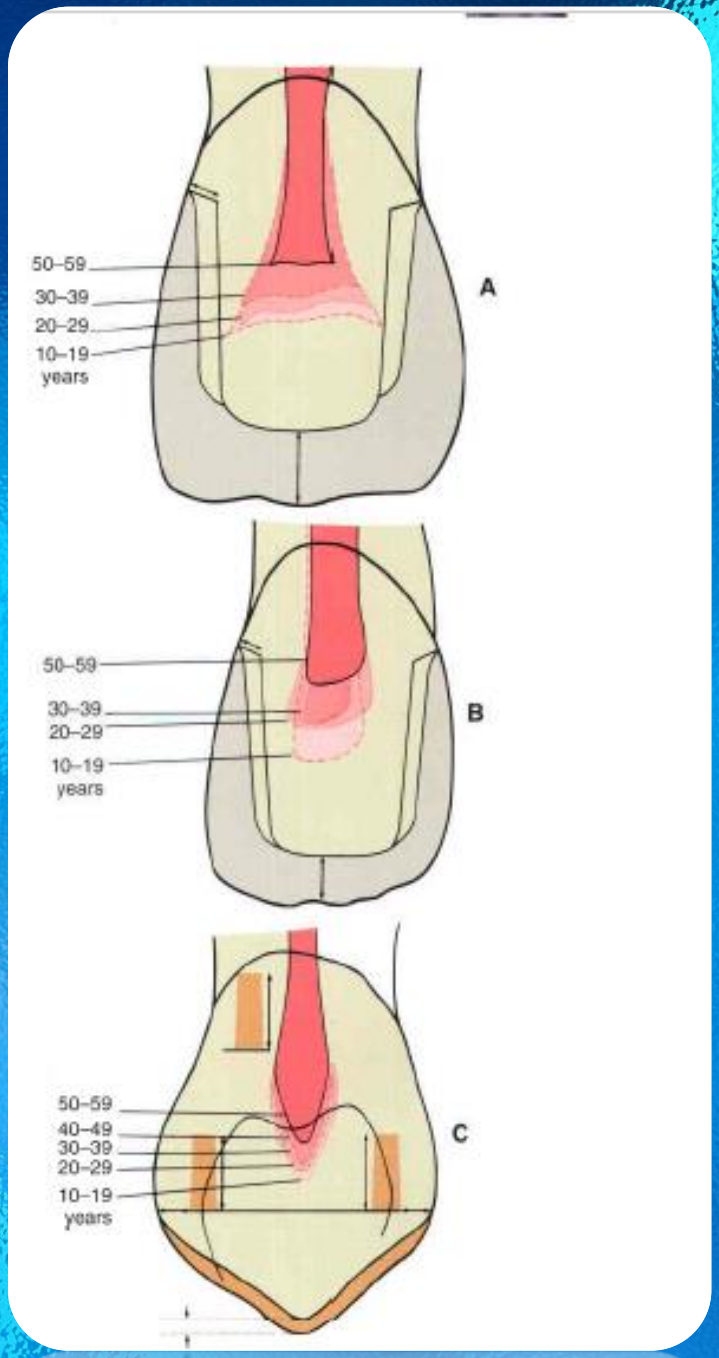
Prevention of damage during Tooth Preparation



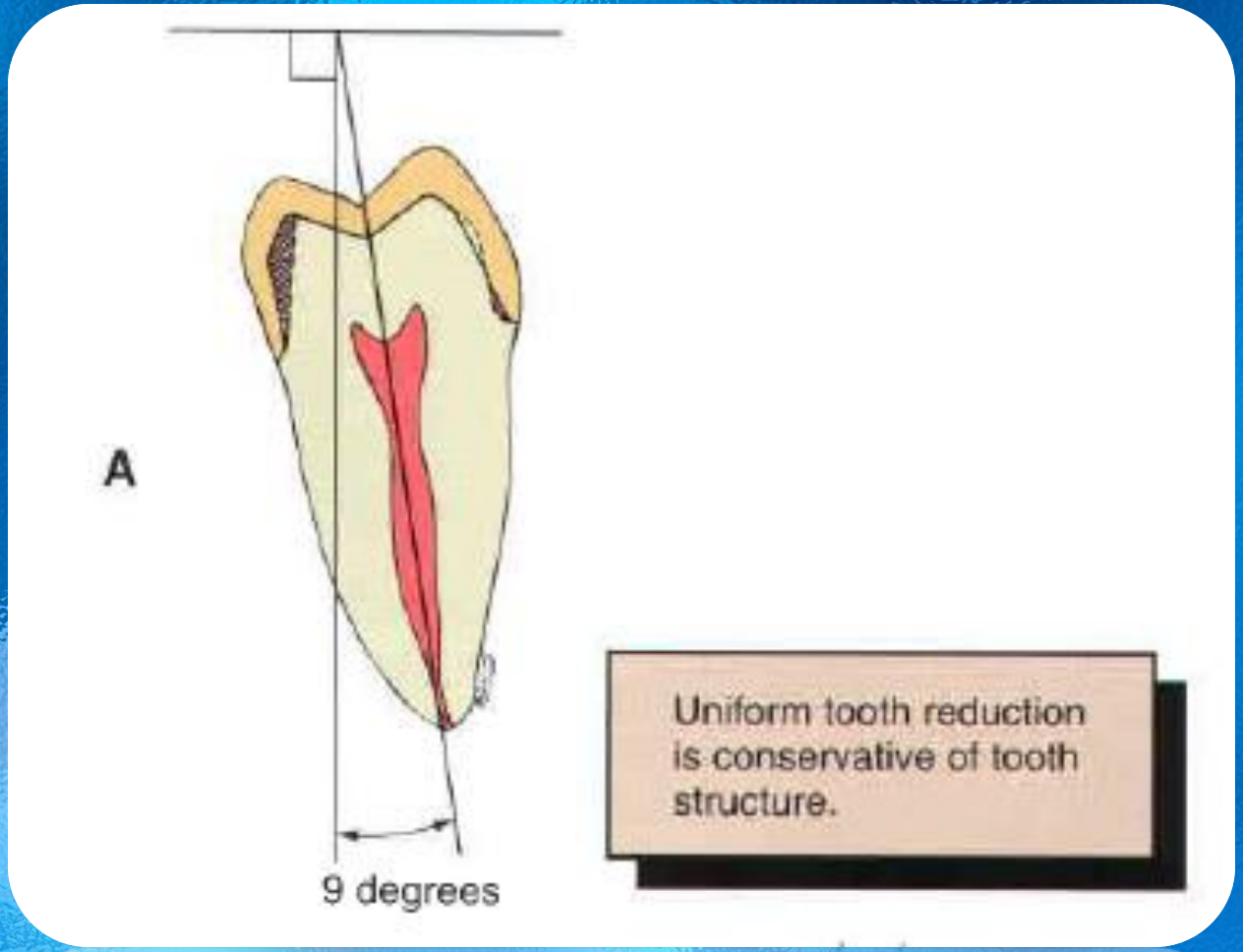
Pulp

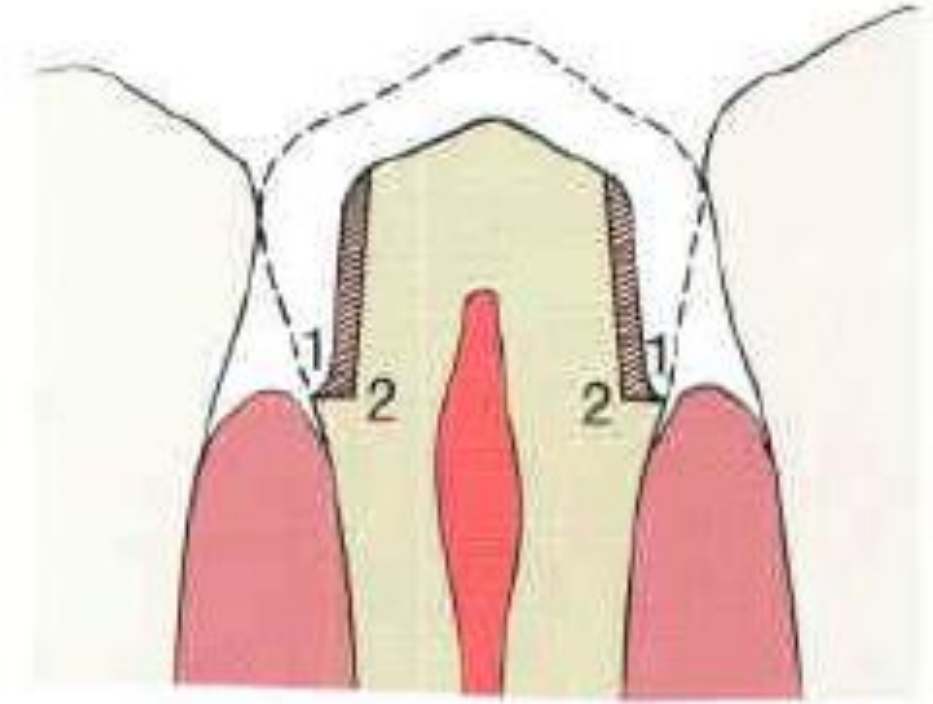
Temperature

IPC or DPC



Conservation of Tooth Structure

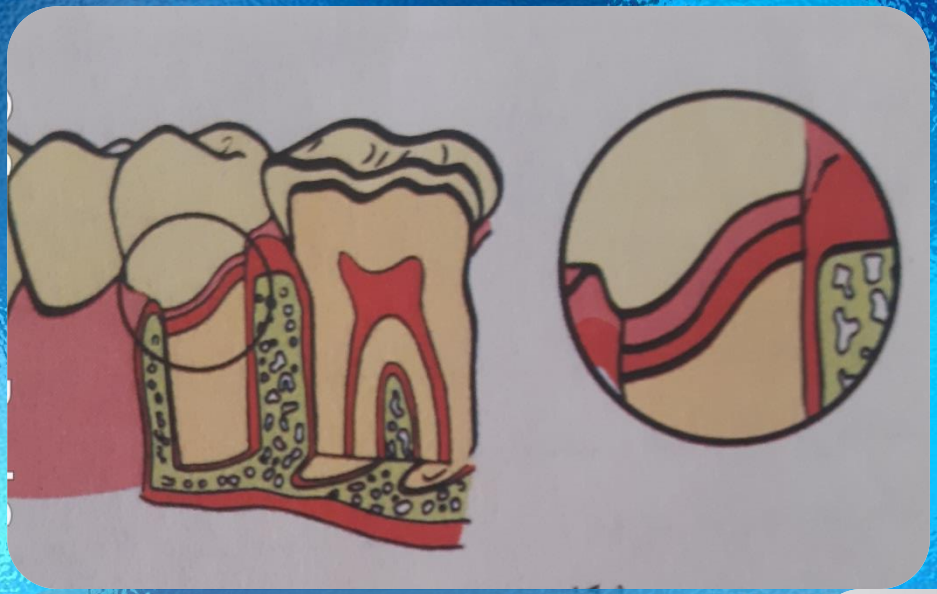


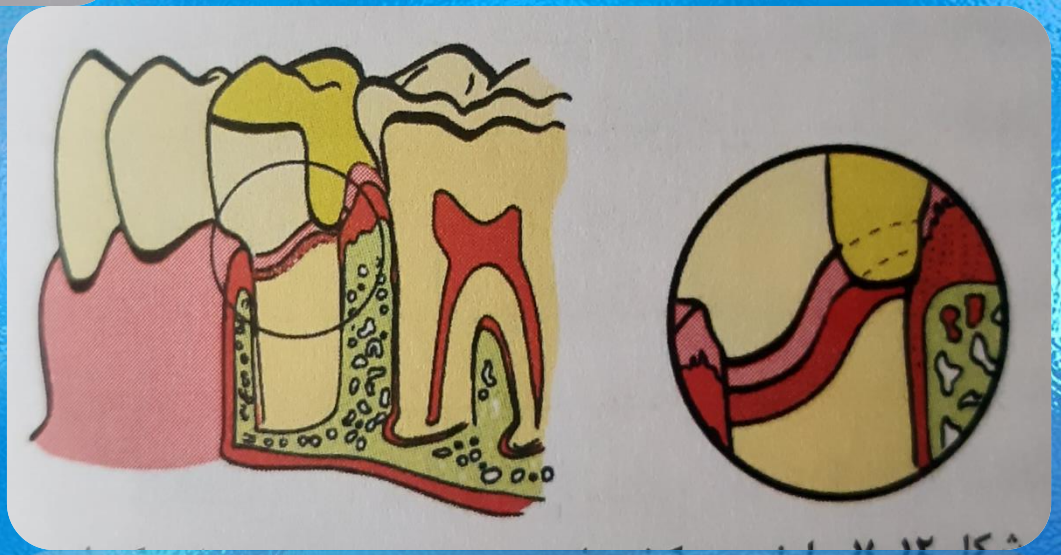


Shoulder margin versus chamfer

Apical extension of the preparation can necessitate additional tooth reduction

Preservation of periodontal tissue during teeth preparation





Considerations Affecting Future Dental Health

Margin placement

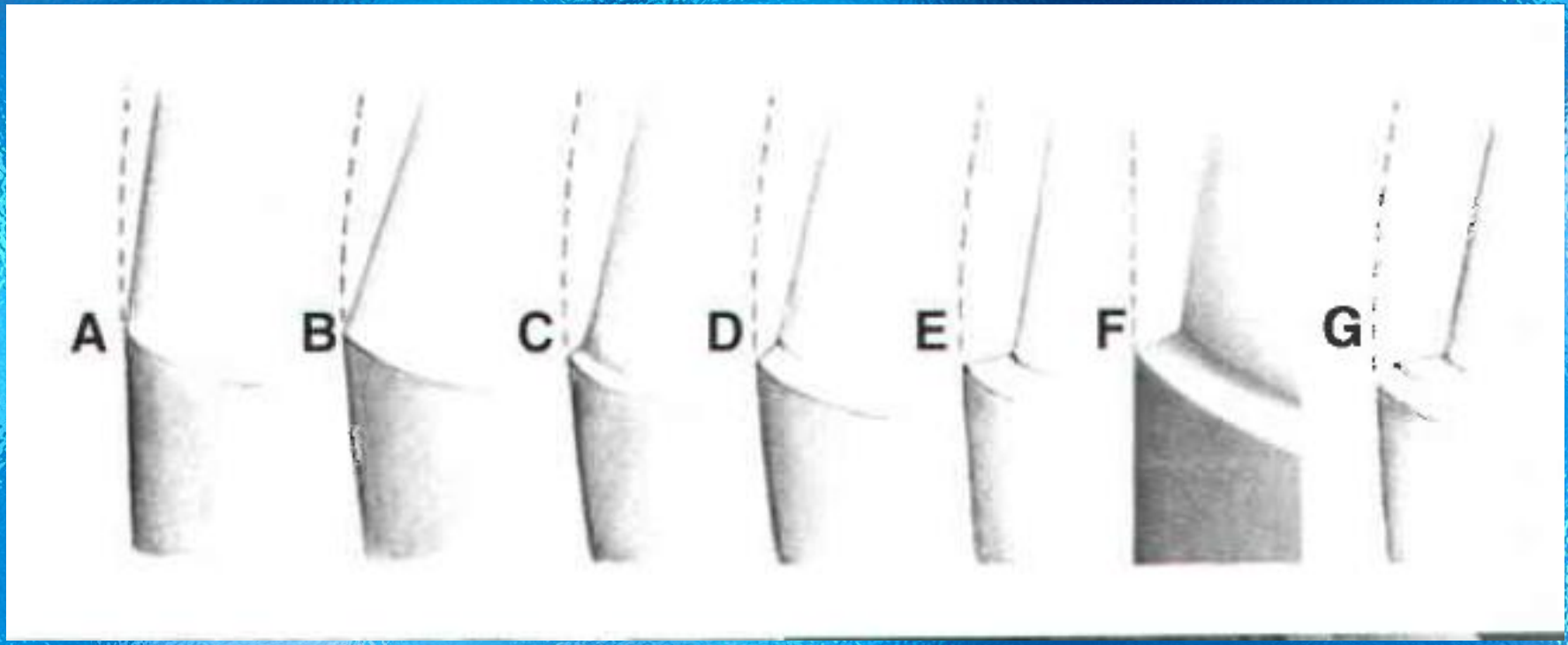
- Rough, irregular margin makes the fabrication of an accurately fitted restoration almost impossible

Margin geometry

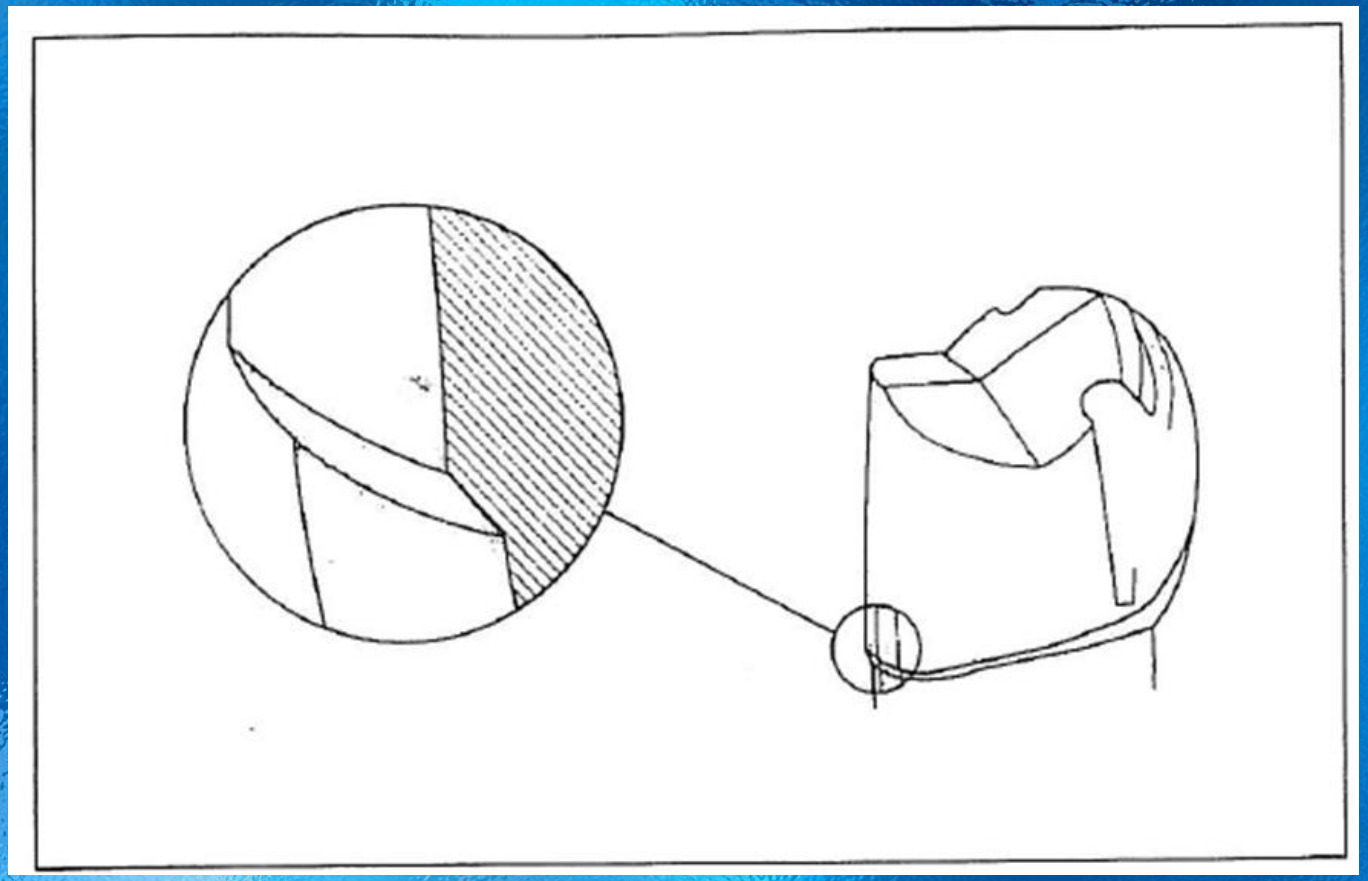
Table 7-2 ADVANTAGES AND DISADVANTAGES OF DIFFERENT MARGIN DESIGNS

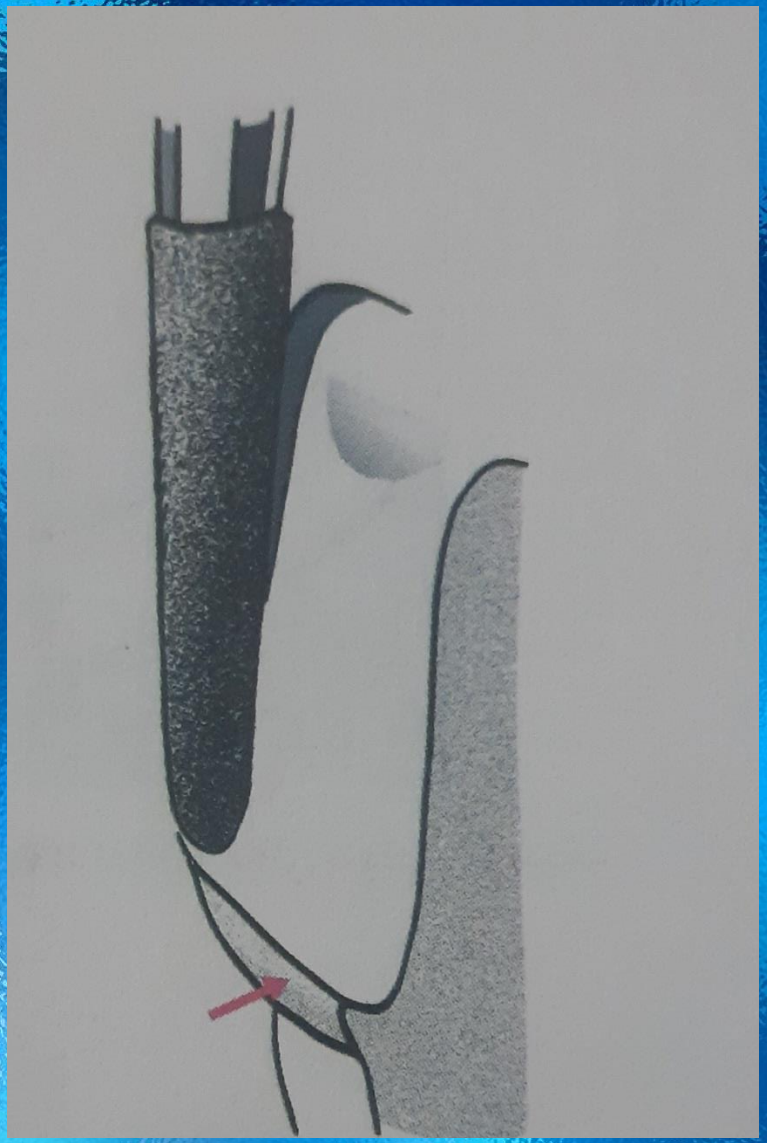
Margin design	Advantages	Disadvantages	Indications
Feather edge	Conservative of tooth structure	Does not provide sufficient bulk	Not recommended
Chisel edge	Conservative of tooth structure	Location of margin difficult to control	Occasionally on tilted teeth
Bevel	Removes unsupported enamel, allows finishing of metal	Extends preparation into sulcus if used on apical margin	Facial margin of maxillary partial-coverage restorations and inlay/onlay margins
Chamfer	Distinct margin, adequate bulk, easier to control	Care needed to avoid unsupported lip of enamel	Cast metal restorations, lingual margin of metal-ceramic crowns
Shoulder	Bulk of restorative material	Less conservative of tooth structure	Facial margin of metal-ceramic crowns, complete ceramic crowns
Sloped shoulder	Bulk of material, advantages of bevel	Less conservative of tooth structure	Facial margins of metal-ceramic crowns
Shoulder with bevel	Bulk of material, advantages of bevel	Less conservative, extends preparation apically	Facial margin of posterior metal-ceramic crowns with supragingival margins

Feather edge (A)
Chisel edge (B)

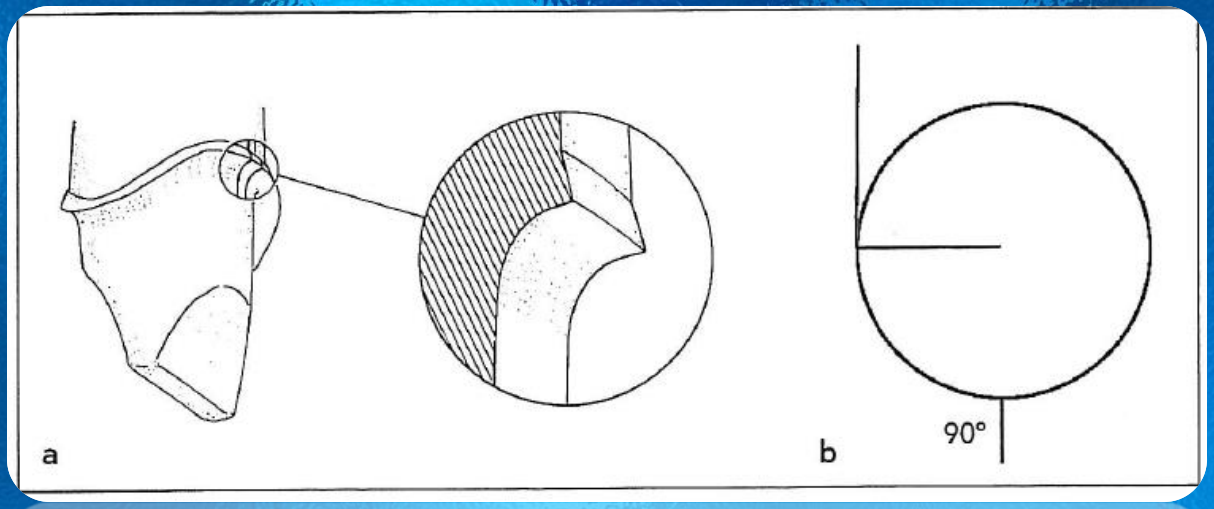


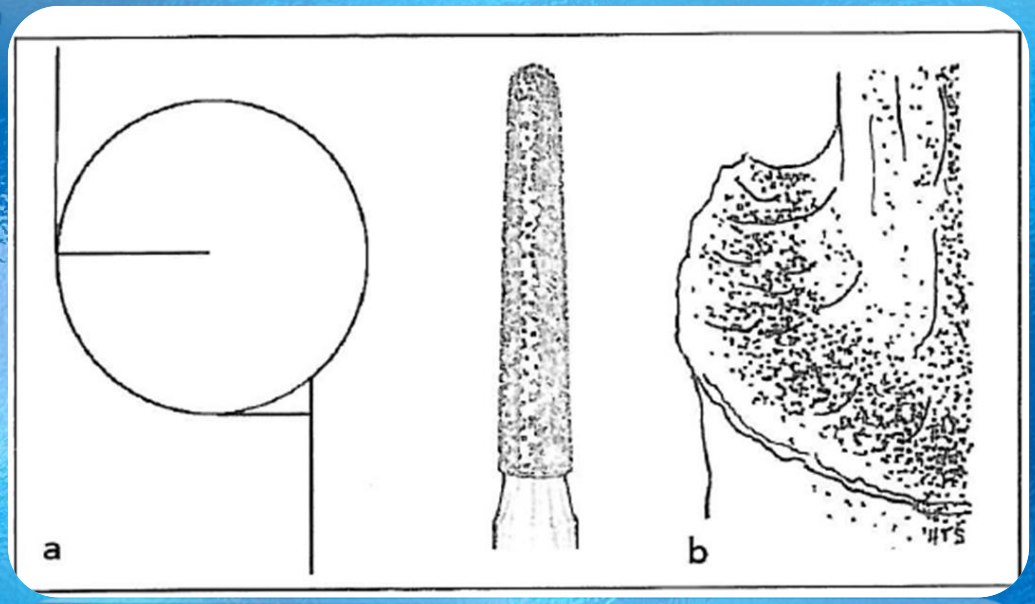
Chamfer margin



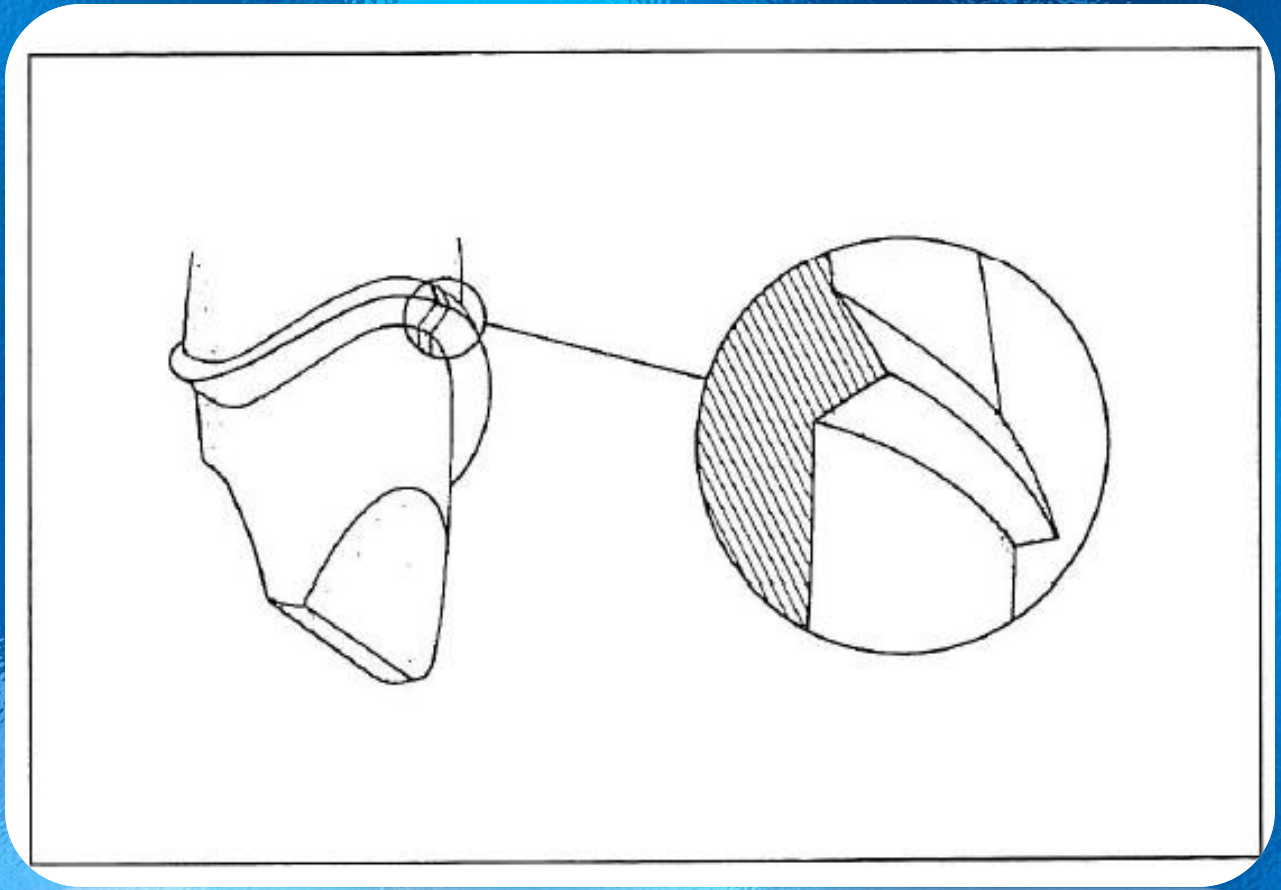


Heavy chamfer

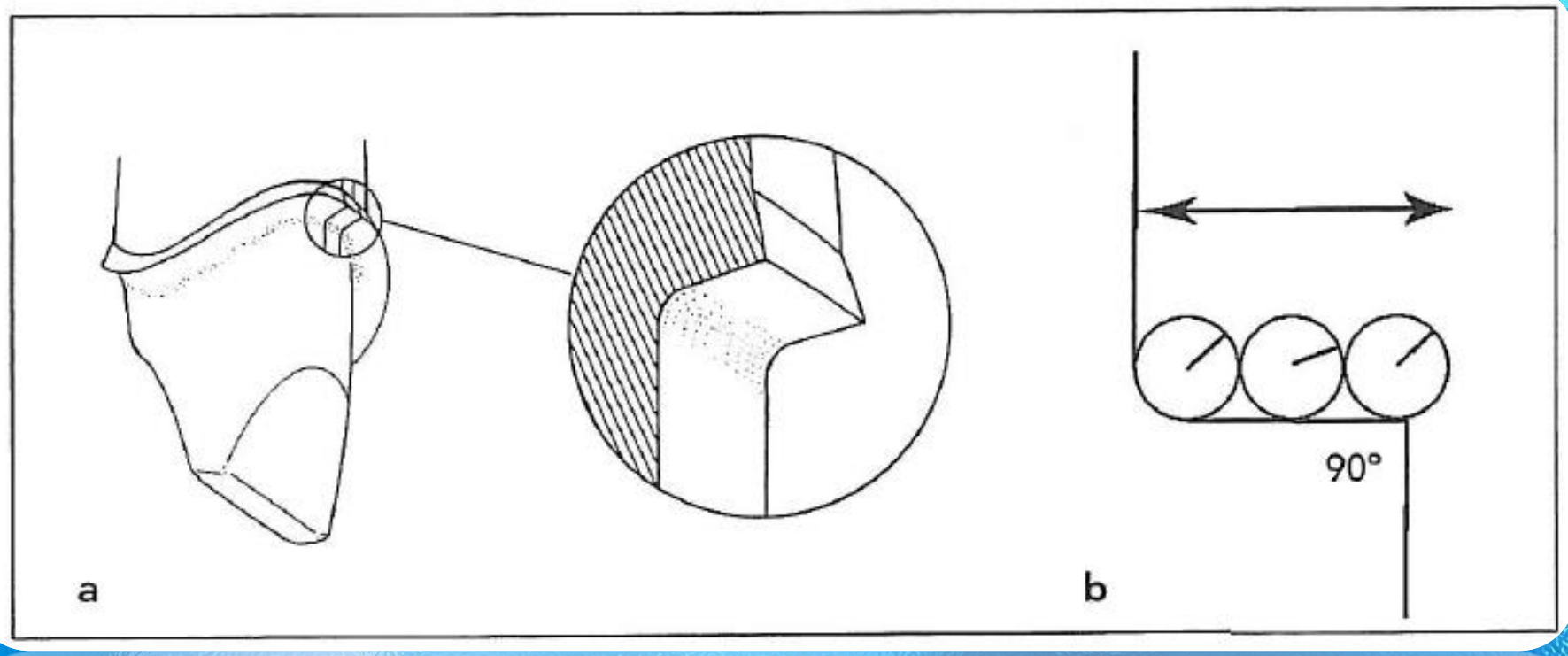




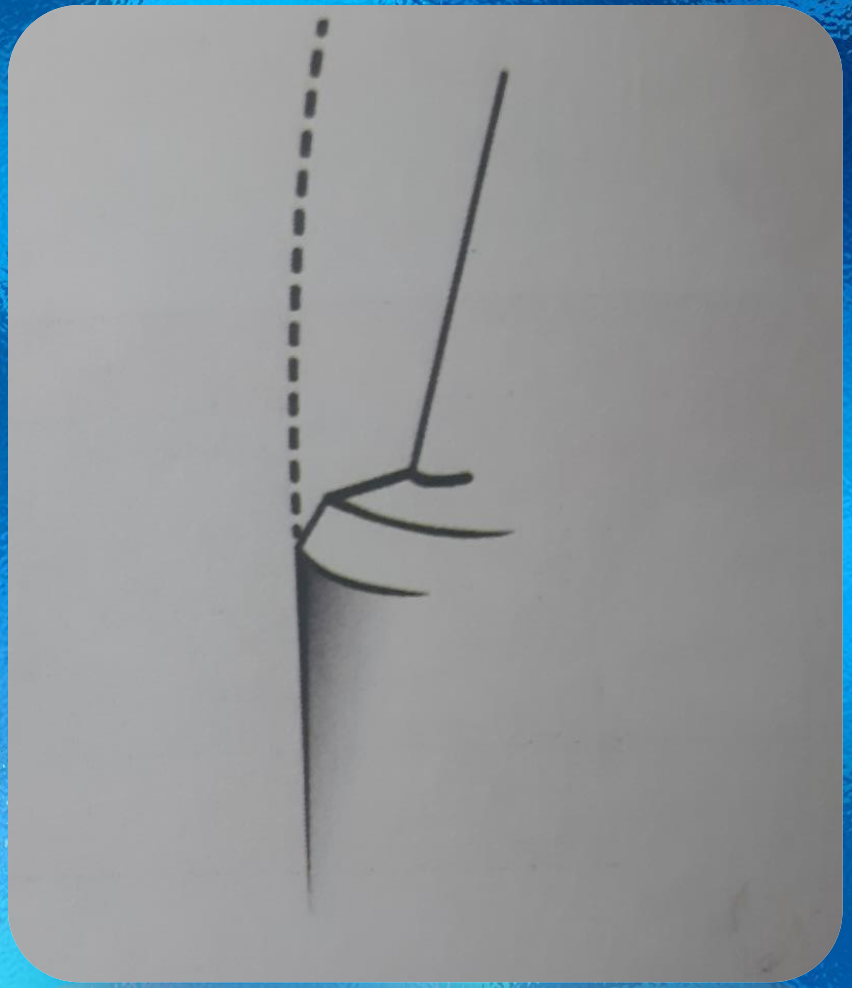
Classic Shoulder

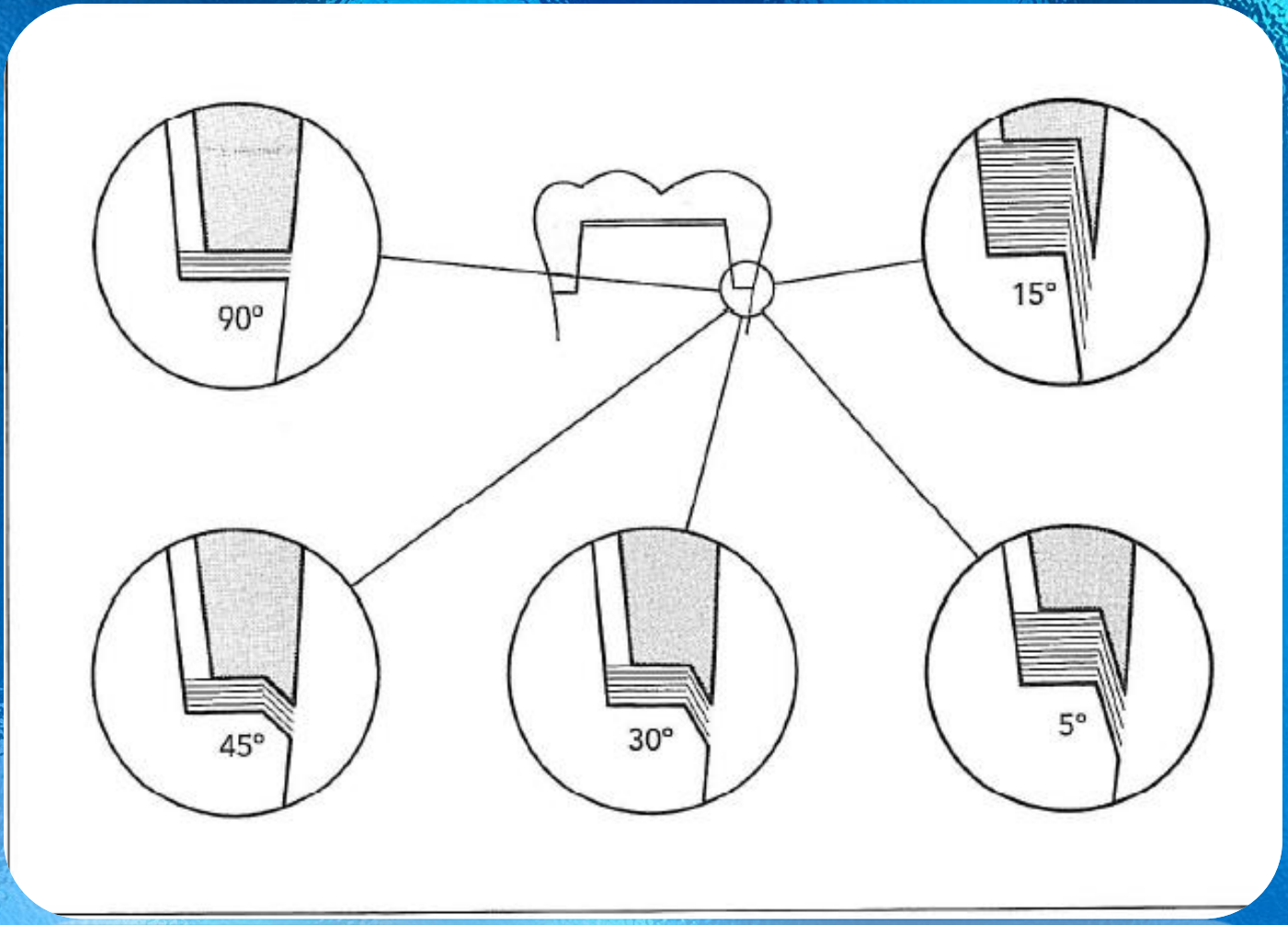


Radial shoulder

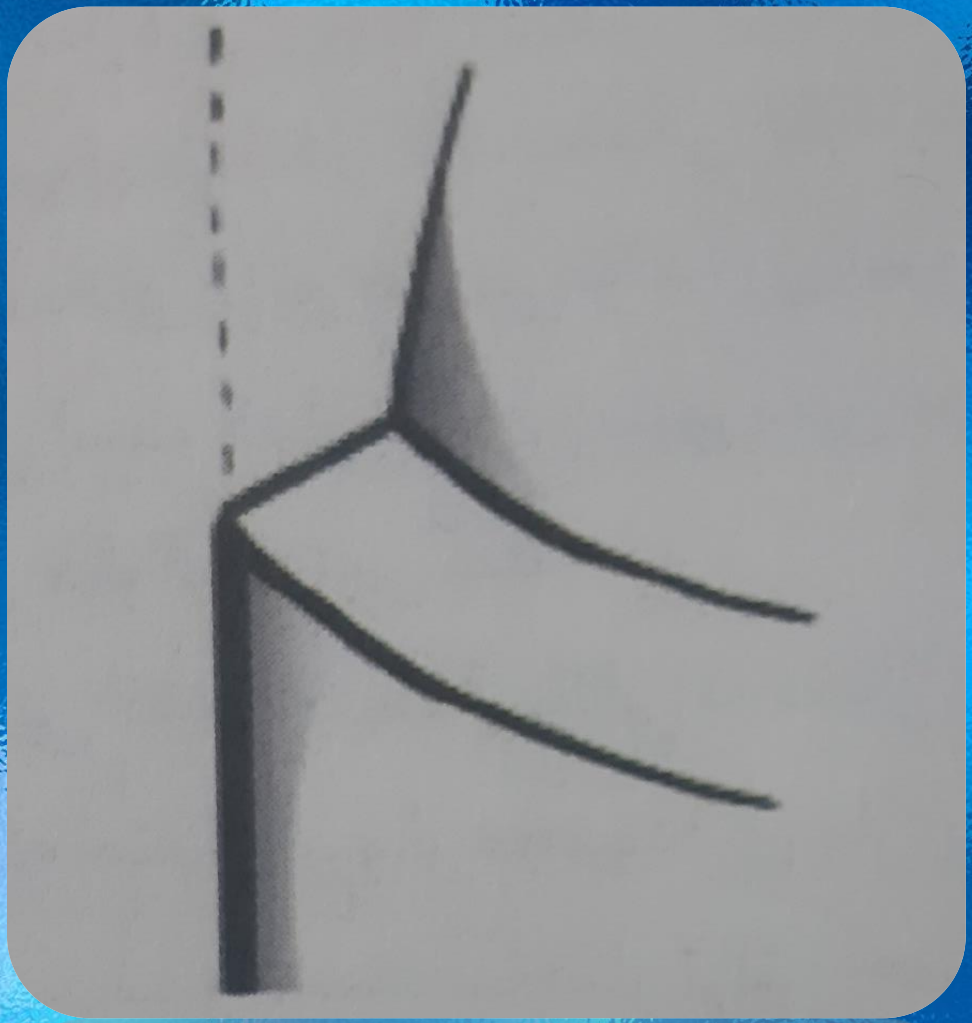


Shoulder with a bevel




90°
15°
45°
30°
5°

Sloped shoulder



MECHANIC CONSIDERATIONS

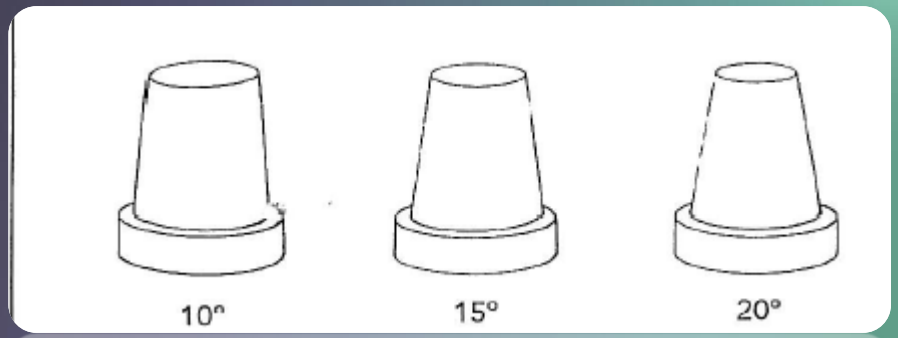
1. Providing retention form.
2. Providing resistance form.
3. Preventing deformation of the restoration.

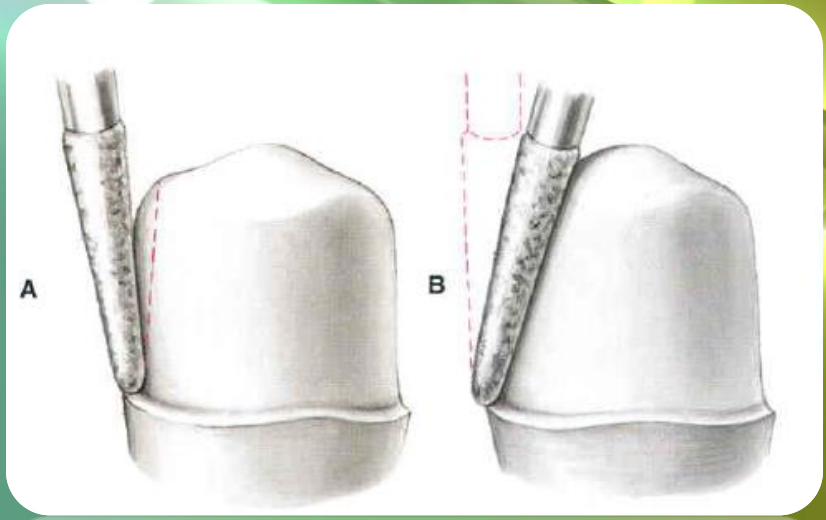
Reteantion Form

The quality of a preparation that prevents the restoration from becoming dislodged by such forces parallel to the path of placement is known as retentton.

1. Geometry of the tooth preparation.
2. Roughness of the fitting surface of the restoration.
3. Materials being cemented.
4. The surface of the tooth preparation

Geometry of the tooth preparation: Taper





1. Geometry of the tooth preparation.
2. Roughness of the fitting surface of the restoration.
3. Materials being cemented.
4. The surface of the tooth preparation

Resistance Form

Resistance prevents dislodgment of the restoration by forces directed in an apical or oblique direction and prevents any movement of the restoration under occlusal forces.

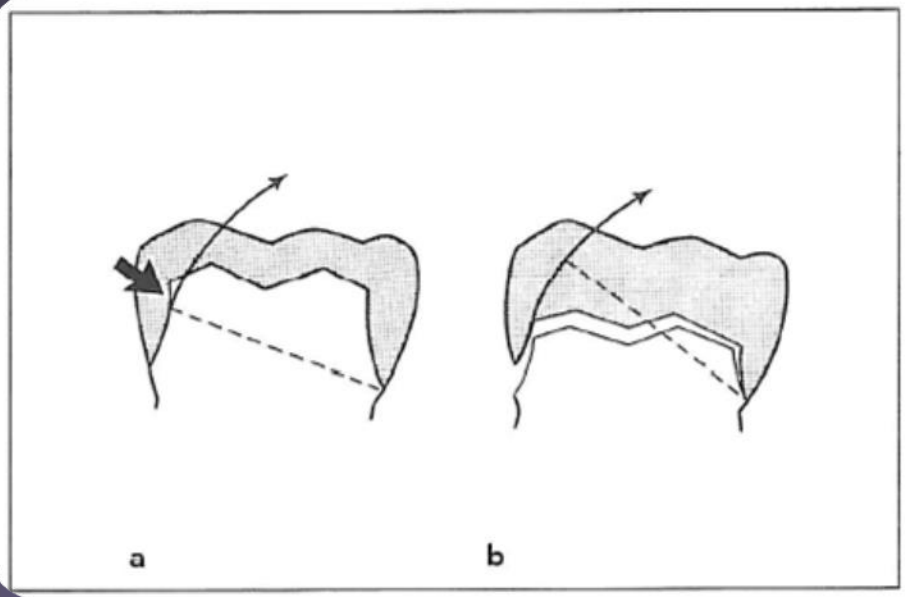
Adequate resistance depends on the following:

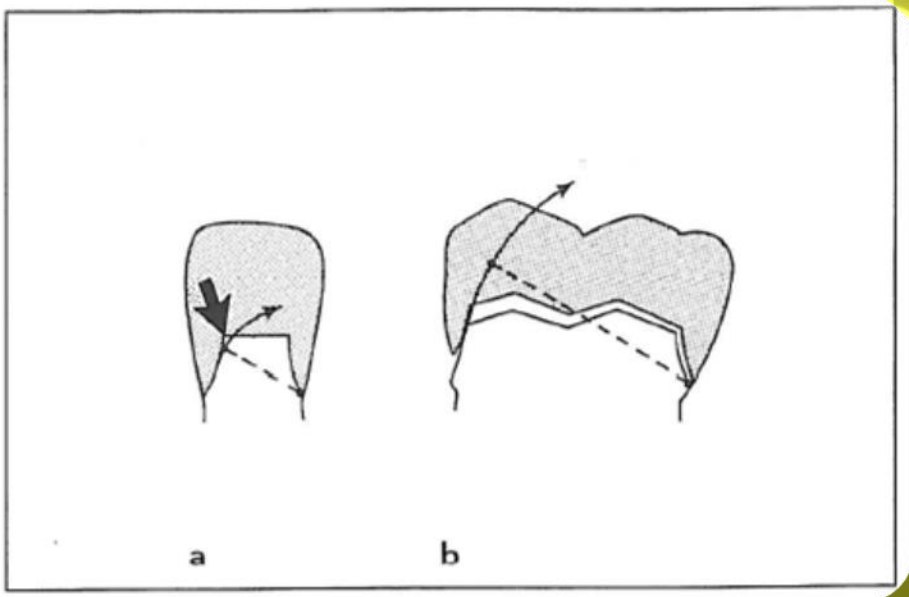
1. Magnitude and direction of the dislodging forces.
2. Geometry of the tooth preparation.
3. Physical properties of the luting agent.

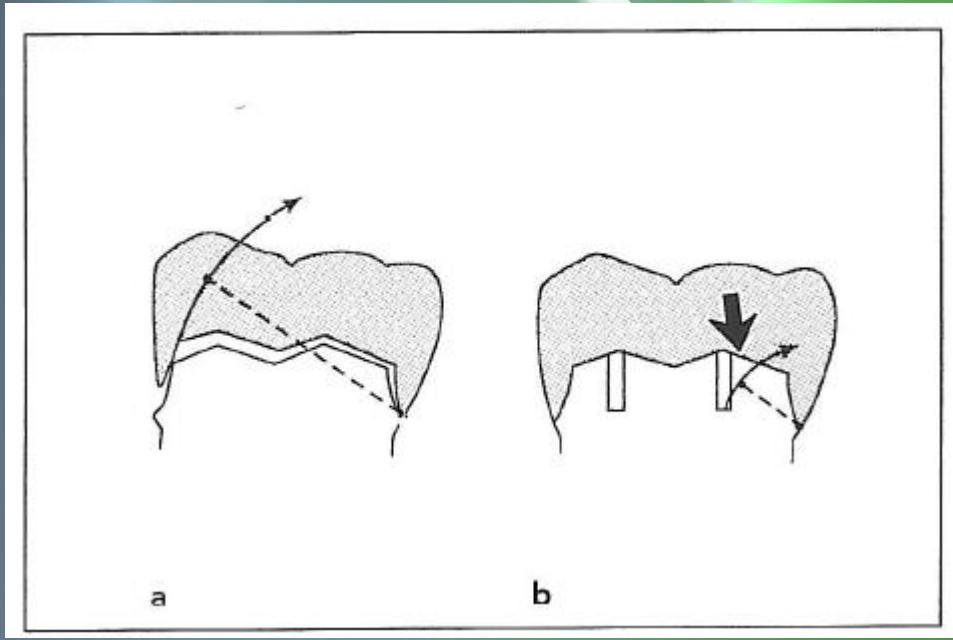
Geometry of the tooth preparation.

Taper

Length and diameter







The resistance of a short preparation improved by adding grooves (B).

ESTHETIC CONSIDERATIONS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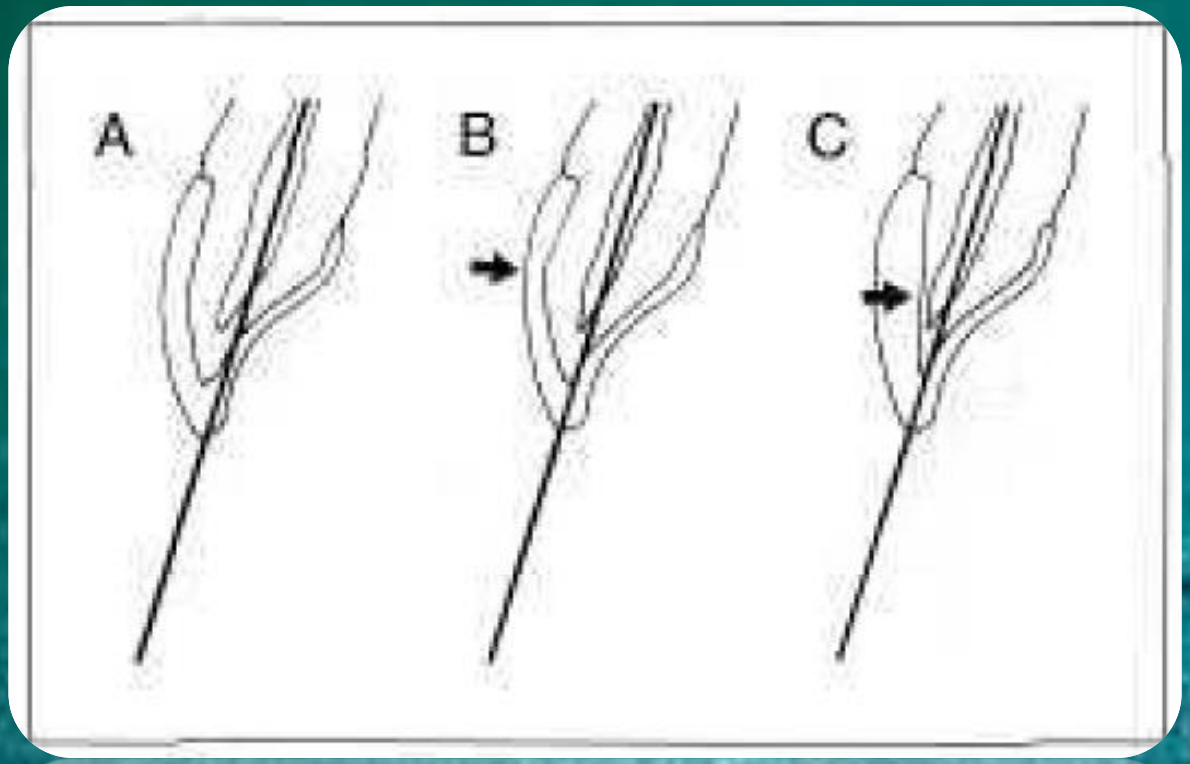
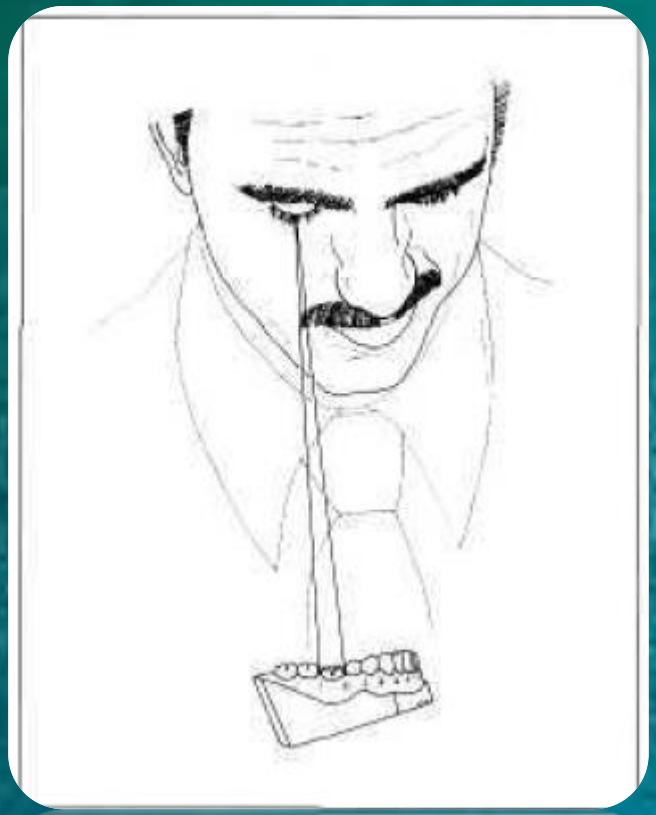


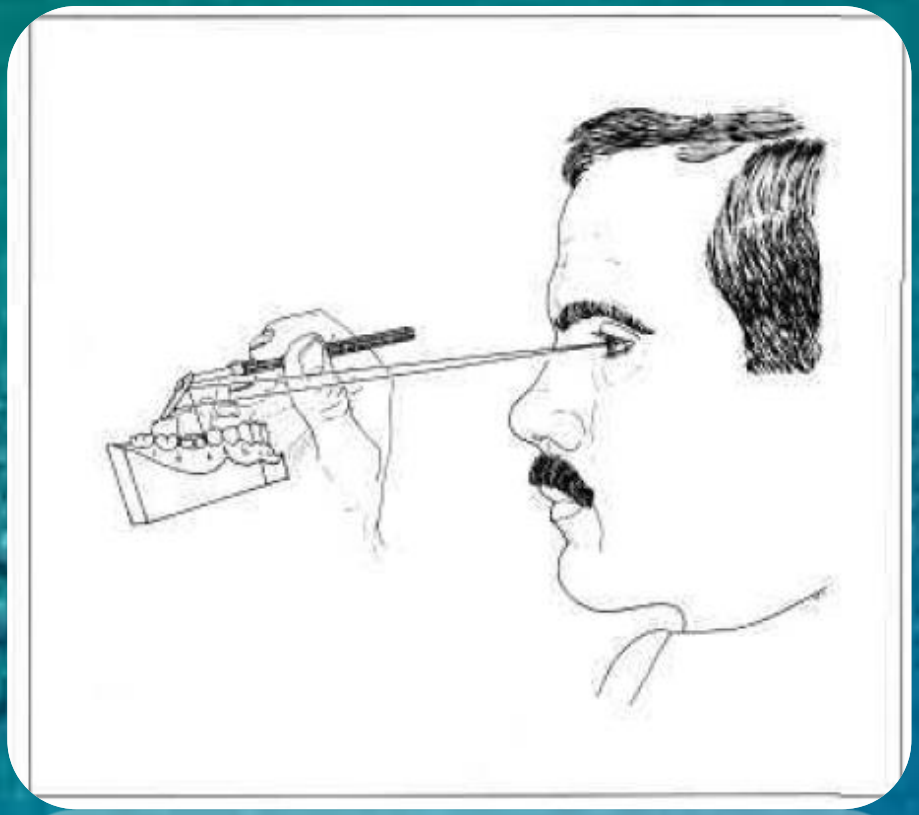
A: Path of Insertion of the PFM crown should paralel the long axis of the tooth

B: If the path is directed facially, the prominent facioincisal angle may create esthetic problems of overcontouring or "opaque show-through“

C: if the path is directed lingually, the facial surface will intersect the lingual surface, creating a shorter preparation. It also may encroach on the pulp.

Path of Insertion



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