

RPD Mouth Preparation

RPD Mouth Preparations

- **Proximal Guiding Planes**
 - Tooth borne
 - Tooth/tissue borne
- **Rest Seats**
 - Occlusal
 - Cingulum
 - Incisal
- **Adjusting Survey Lines**
 - Reciprocating elements
 - Direct retainers (circlet shoulders)
- **Enhancing Undercuts**
- **Lingual Guiding Planes**
 - Reciprocating lingual clasps

**ALL RPD MOUTH PREPARATIONS
SHOULD BE PLACED IN ENAMEL ONLY.**

**THERE SHOULD BE NO DENTIN
EXPOSURE.**

NO LOCAL ANESTHESIA IS REQUIRED.

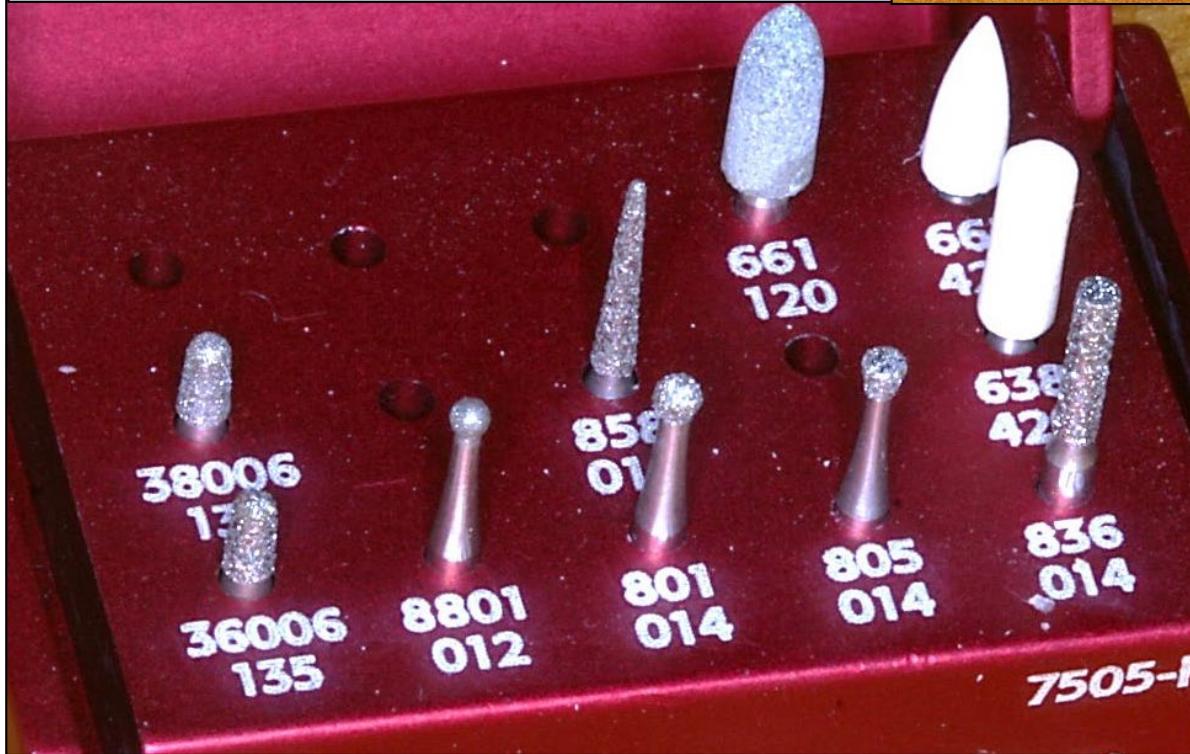
RPD Mouth Preparations

- Are always confined to the enamel.
- Should not require anesthesia.

Example of unacceptably invasive preparation.



RPD Prep Burs

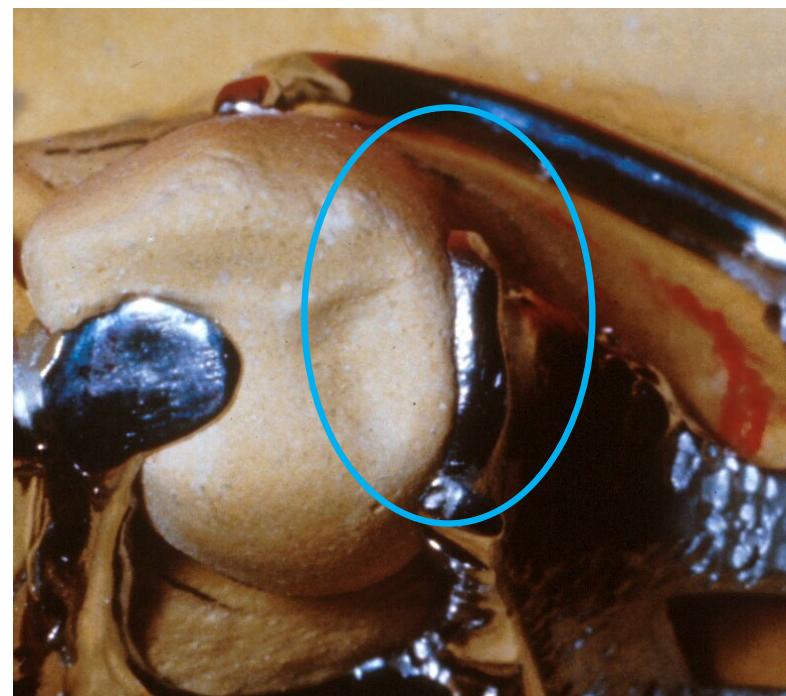
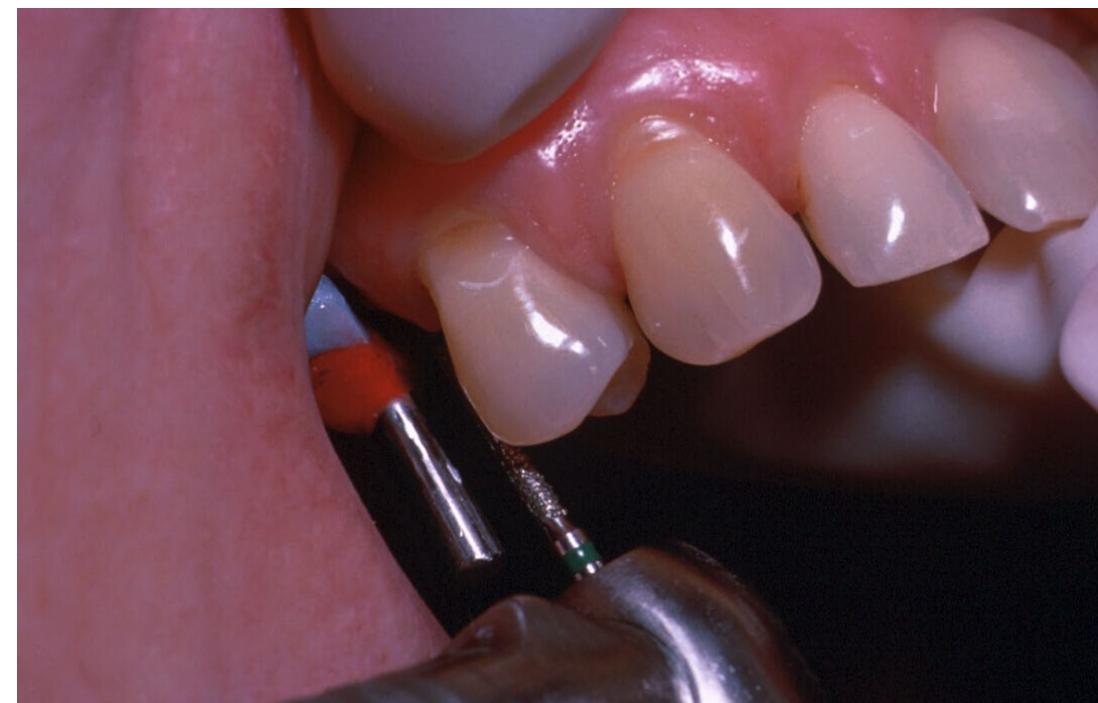


- **Round burs**
 - 801 014
 - Medium
 - Diameter-- 1.4mm
 - 8801 012
 - Fine
 - Diameter-- 1.2mm
- **Cylindrical bur**
 - 836 014
 - Medium
 - Diameter --1.4mm
 - Length-- 6mm
- **Mushroom**
 - 36006 & 38006 135
 - Med & fine
 - Diameter--2.0mm tapering to 1.5mm at tip
 - Length--3mm
- **Inverted Cone**
 - 805 014
 - Medium
 - Diameter--1.4mm
 - Length--1.4mm

- **Needle bur**
 - 858 014
 - Diameter-- 1mm at base
 - Length—8mm
- **White and green stones**

Parallel Guiding Planes

- Guiding planes are prepared FIRST, as determined by the path of insertion.
- Guides proximal plate of framework during insertion.



PREPARING GUIDING PLANES

- Prepare with cylinder bur.
- Have chairside, close to hand:
 - current DESIGN MODEL...
 - on survey table...
 - at designated tilt...
 - with adjustment areas marked in red.
 - *this will guide you as to how much tooth structure will need to be removed...
 - *and will keep you organized.
- Orient bur parallel to path of insertion, on cast, to get a feel for orientation you want when you prep tooth.

Cylindrical bur

836 014

Medium

Diameter --1.4mm

Length-- 6mm

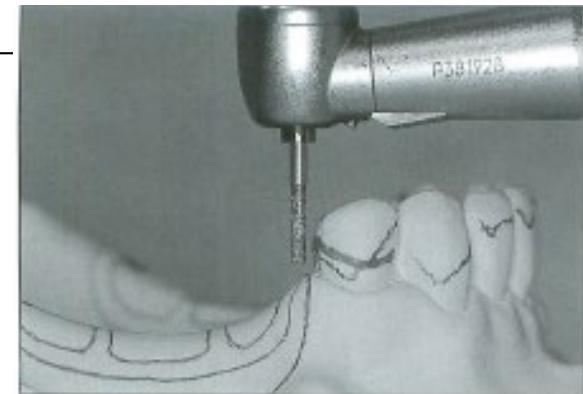


Fig 10-18 The design cast should be properly oriented on the surveying table during mouth preparation procedures. This permits the practitioner to visualize the desired relationship between a dental bur and the teeth to be recontoured.



Fig 10-19 The relationship between the bur and the dental cast (see Fig 10-18) may then be duplicated in the patient's mouth.

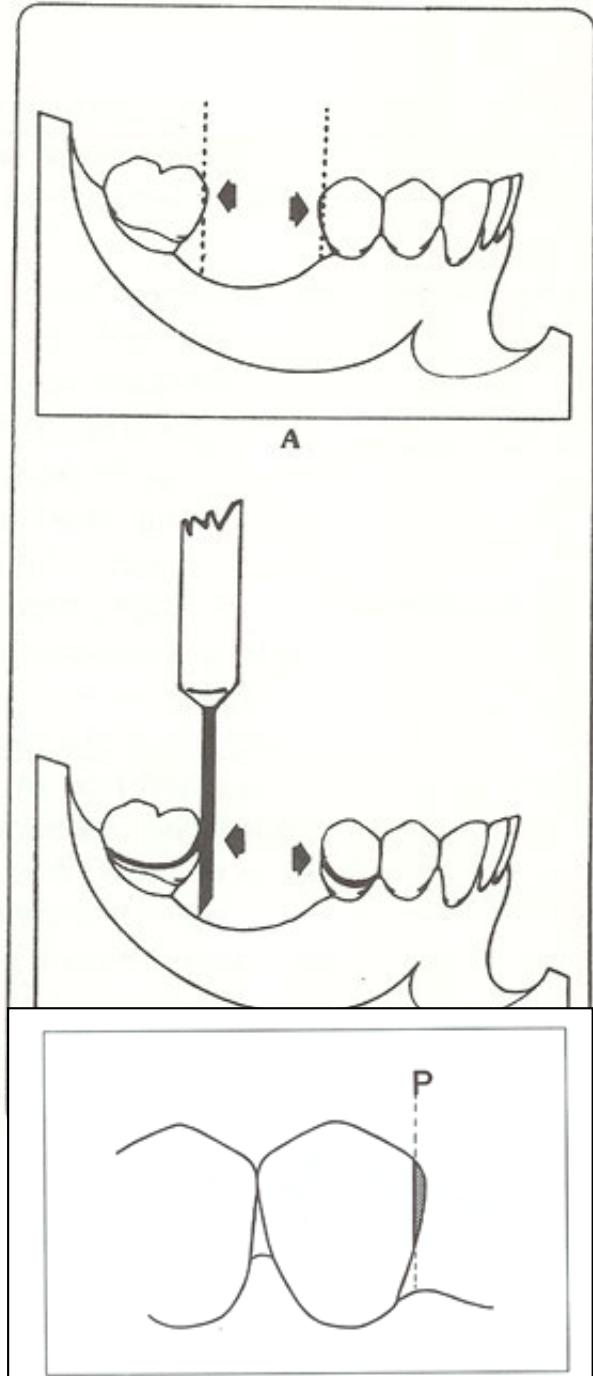
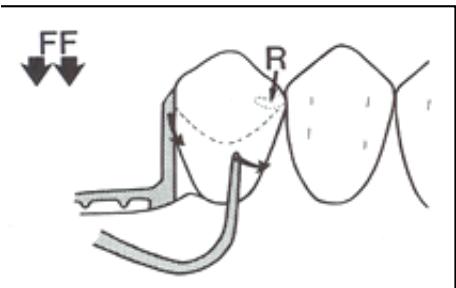
**MUST VISUALIZE GP FROM 2
VIEWPOINTS:**

B-L VIEW

OCCLUSAL VIEW

Proximal Guiding Planes: BL View

- Parallel to path of insertion/dislodgement
- Appears straight (must guide the straight, flat metal proximal plates)
- Height
 - Tooth borne- 2-4mm
(~2/3 height of proximal surface)
 - Tissue borne- 1.5-2mm
(~1/2 height of proximal surface)
Because proximal plate needs space to move under occlusal load.

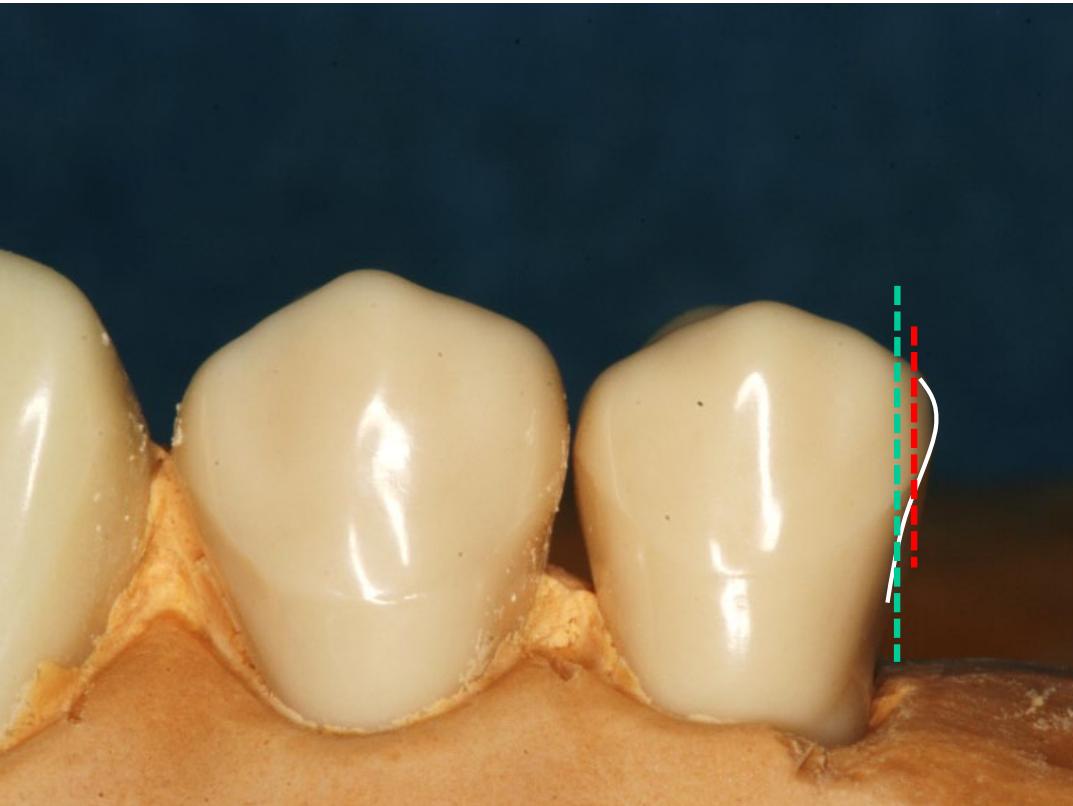


Guiding planes: BL view



- **Unaltered proximal tooth surface has natural curve when viewed from the buccal**
- **It is not naturally a flat plane**

Guiding planes: BL view



- Prepped guiding planes appear as a straight cut from BL

*How “deep” or “far in” does the plane prep go?
Depends on how tall the plane needs to be.*

For tooth/tissue supported dentures (distal extension): 1.5-2 mm

1/3-1/2 height of proximal surface.

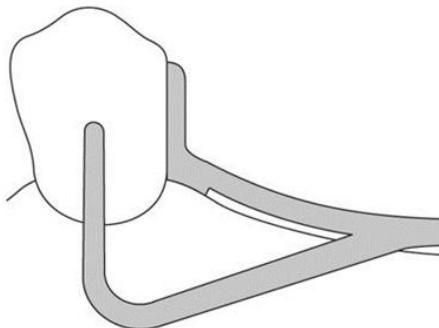
Want shorter plane so cut will require less mesial/distal reduction.

For tooth supported dentures: 2-4 mm

1/2-2/3 height of proximal surface

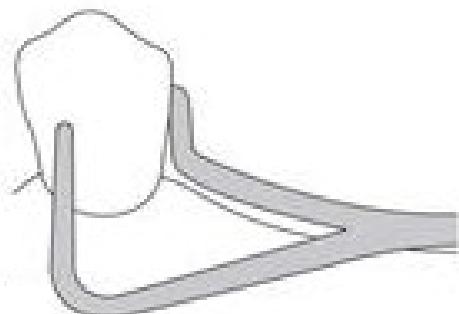
Want taller plane so cut will have to be made further into the tooth.

I Bars: Kratochvil and Krol Designs



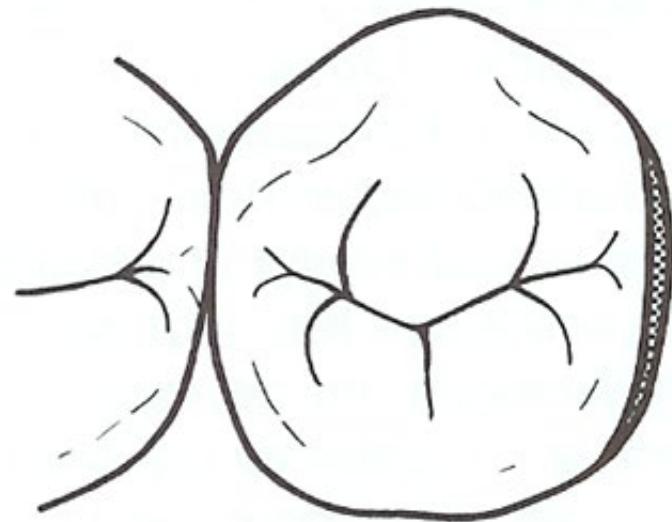
Both designs required special preparation and framework features.

For guiding planes and proximal plates we will employ standards of other RCAs.

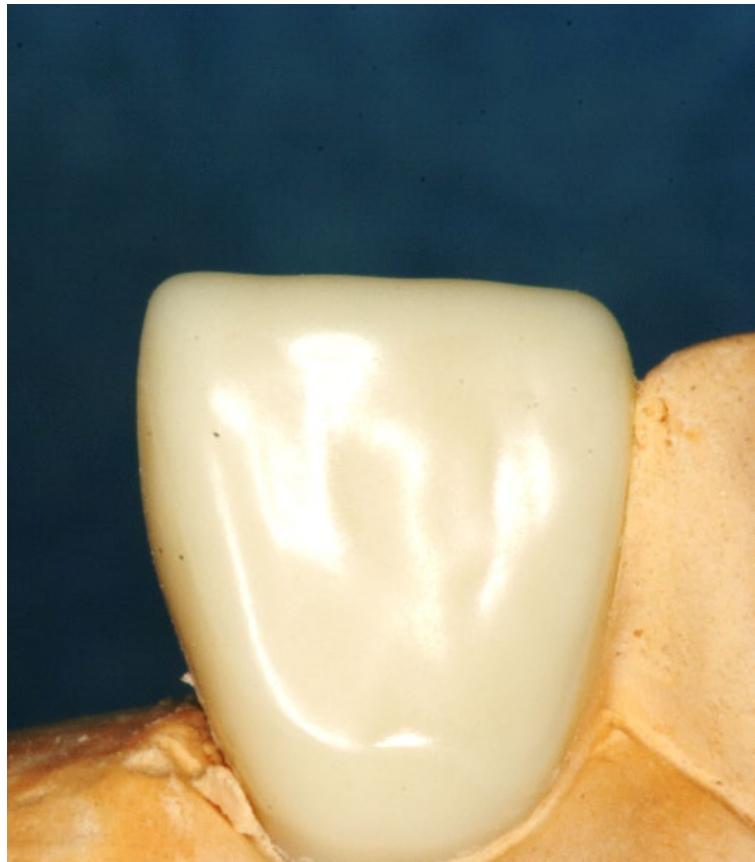


Guiding planes: Occlusal View

- The preparation curves from buccal to lingual, following natural shape of tooth.
- It appears naturally curved.



Anterior proximal guiding planes: Two significant special features



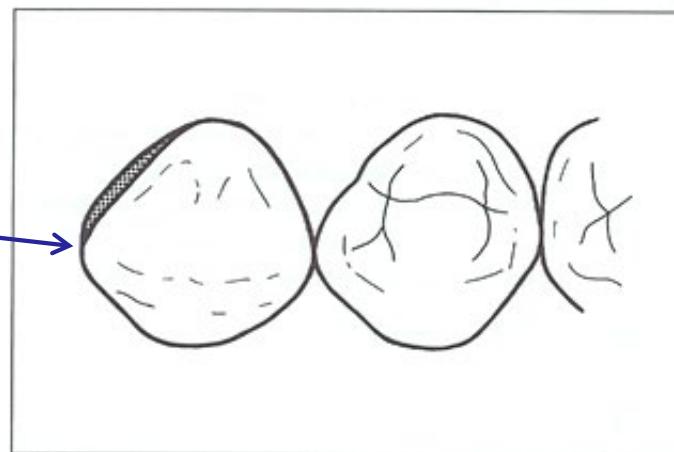
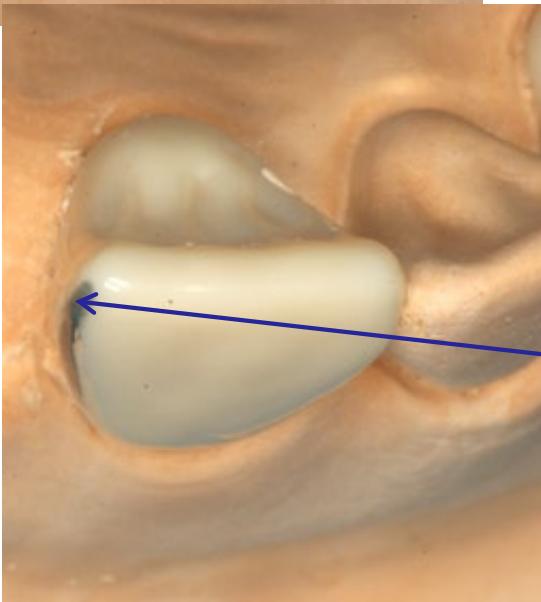
1: HEIGHT

- Planes are taller than for posterior abutments.
- Frictional retention greater due to taller parallel planes of abutment teeth.
- This may mean that RCA not needed, only rest and proximal plate.

Anterior proximal guiding planes: Two significant special features

2: ESTHETIC PLACEMENT

- Looking from facial view, mark proximal surface visible from facial aspect.
- Keep preparations just lingual to the visible edge of tooth.
- Guiding plane is really ML instead of simply mesial.



ANTERIOR Guiding Planes: Ribbon-shaped



- To help you place GP without violating esthetics of tooth, place pencil line at visible extent of proximal surface.
- Start GP with cylinder bur just behind mark and follow outline of tooth.
- This will result in ribbon-shaped GP, narrow but tall.



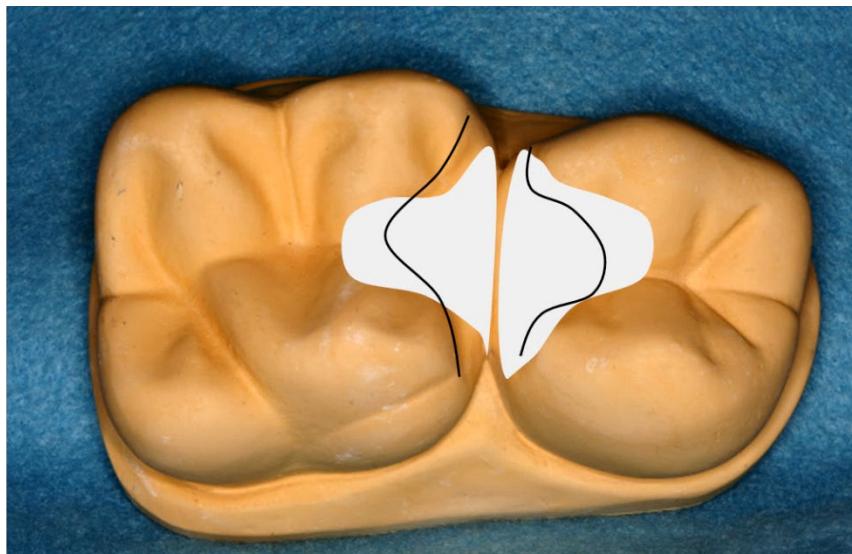
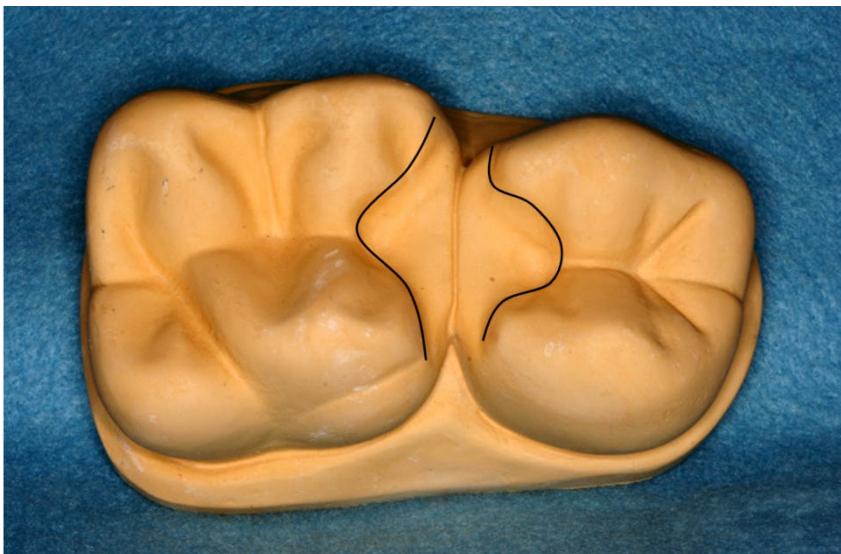
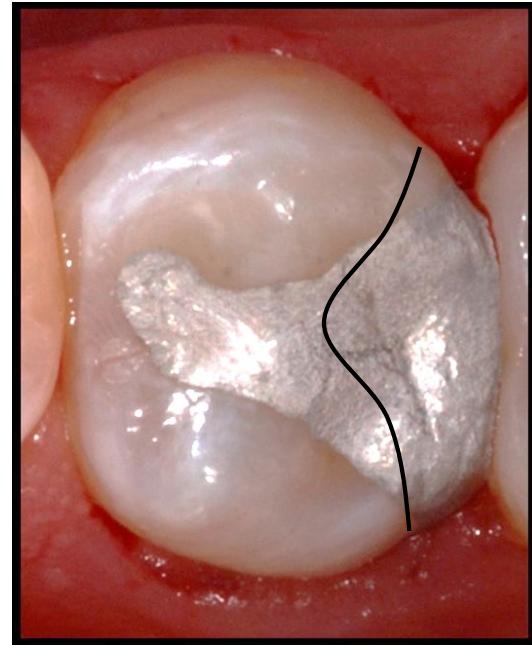


Rest Seats:

- **Occlusal**
- **Incisal**
- **Lingual**

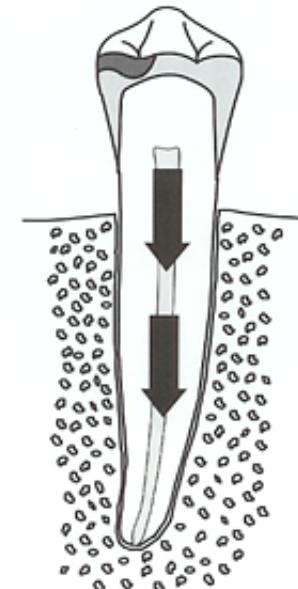
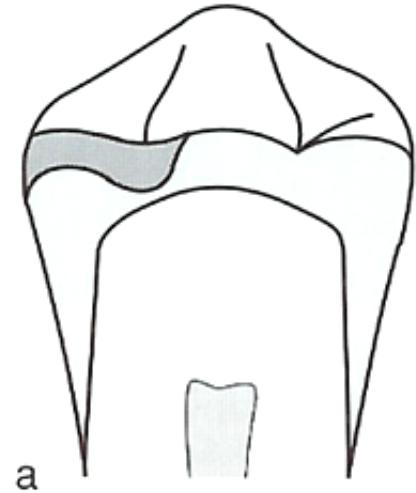
Rest Seats

- Existing restorations and caries
 - All caries must be eliminated.
 - Rest seats:
 - can be placed in amalgam restorations if edges can be placed in enamel.
 - can be placed in metal crowns, but may run risk of perforation.
 - should not be placed in composite restorations.
 - should not be placed in porcelain, but many times are after cautioning patient.
 - Infrabulge retainers should not be used if abutment has a Cl V restoration.
- Abutment teeth with large restorations, especially DE abutments, should have surveyed crowns.



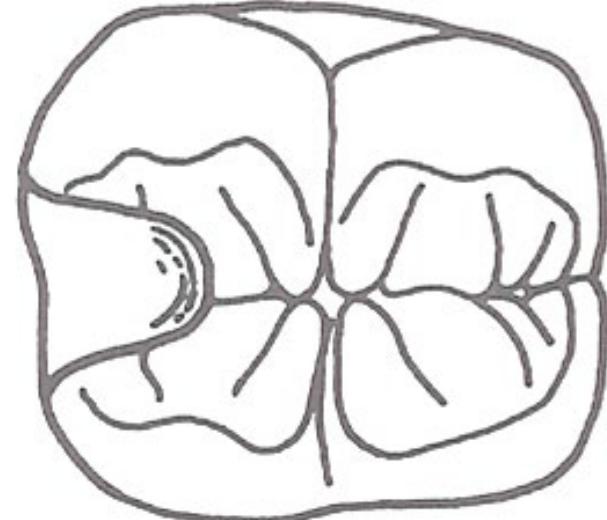
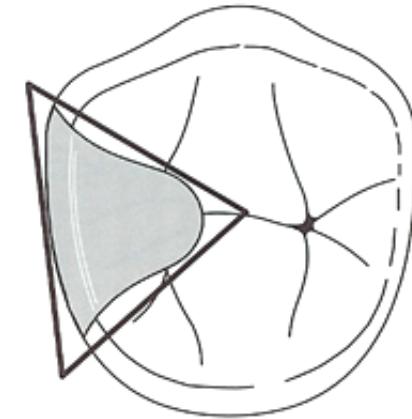
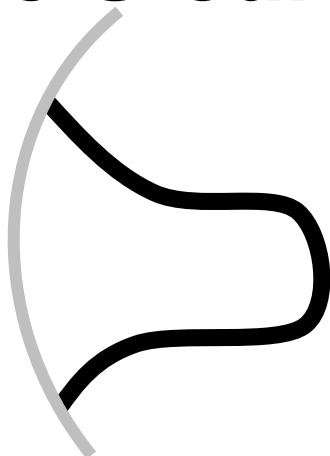
Rest Seats: Requirements

- **Sufficient thickness**
 - To avoid fracture
 - To strength junction of rest and minor connector
 - 1.5 mm thick
- **Direct forces along long axis of abutment tooth.**



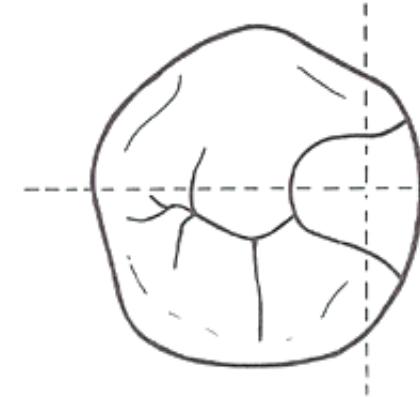
Occlusal Rests Seats: Shape of outline

- Rounded triangle
- Apex center of tooth, base at marginal ridge
- Reverse S curve



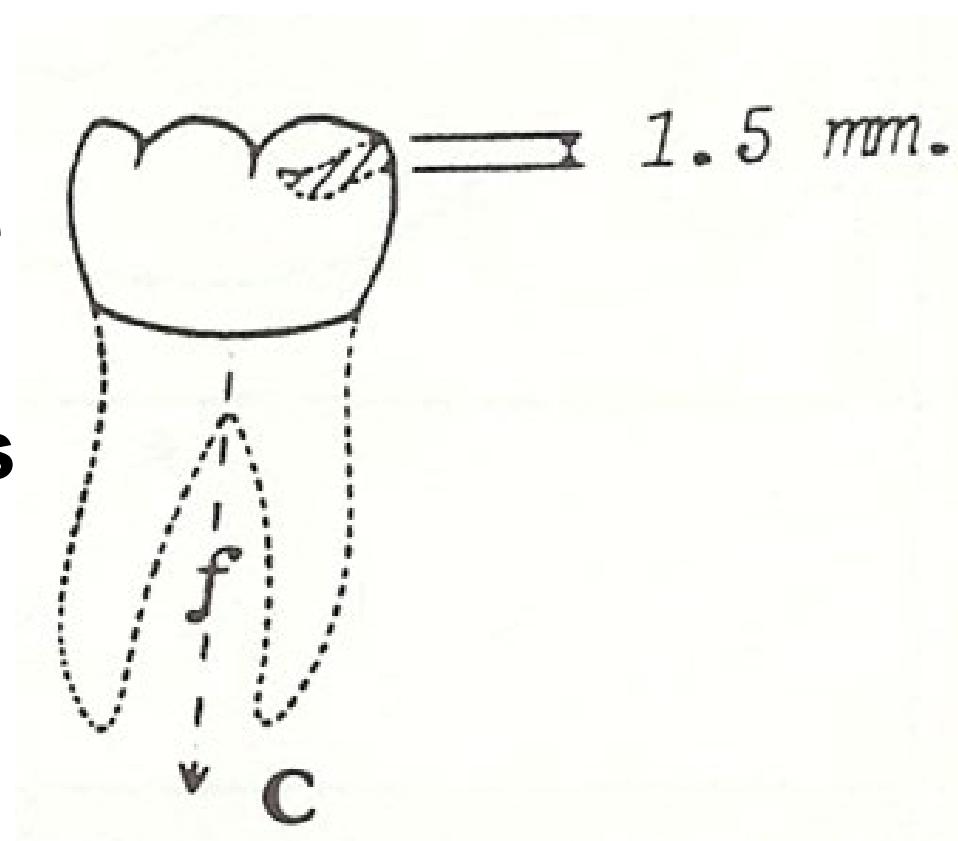
Occlusal Rest Seats: Inner surface contours

- No sharp angles
- Junction of floor and walls gently curved
- Walls slightly divergent with no undercuts
- They should be non retentive-no undercuts.



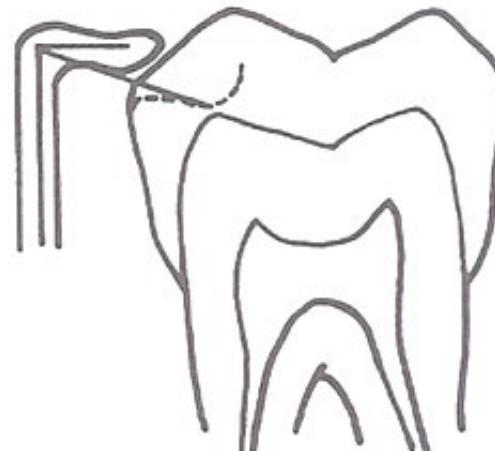
Occlusal Rest Seats: Ridge reduction

- 1.5 mm reduction needed to provide occlusal clearance for framework rest
- Rest directs forces along long axis of the tooth.



Occlusal Rest Seats: Inclination and positivity

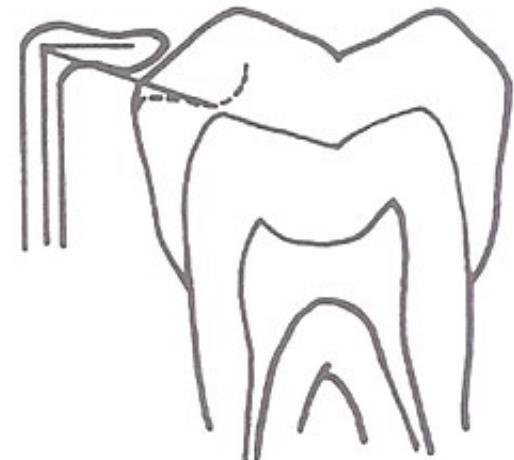
- Floor is spoon shaped.
- Curves apically from marginal ridge toward center of tooth.
- Angle at junction of guiding plane and rest seat is acute, < 90 degrees.



Occusal Rest Seats Must be POSITIVE

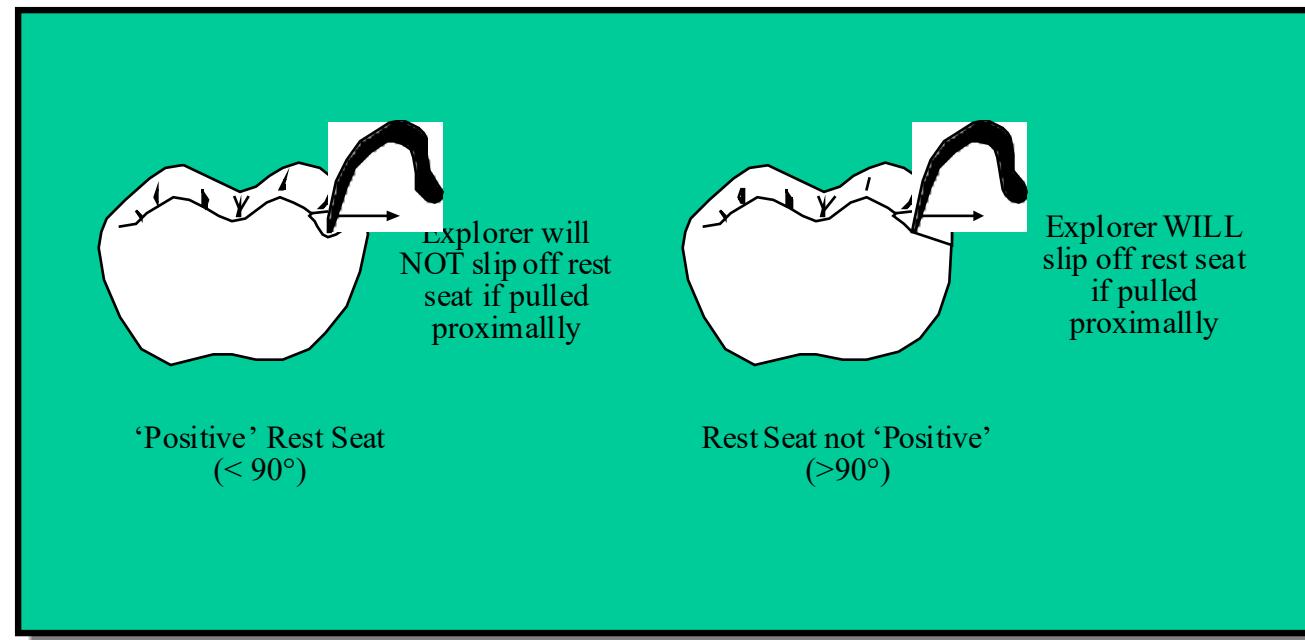
Deeper here

- *****all rests (not only occlusal) must have 'hooking' function, or will act as inclined plane*****
- Without a positive rest seat, when occlusal force is applied the rest will push tooth horizontally like an inclined plane.
- If the rest of the framework hooks into a positive seat, when occlusal force is applied the framework and tooth cannot push away from each other. The rest must stay in its seat and direct forces vertically.

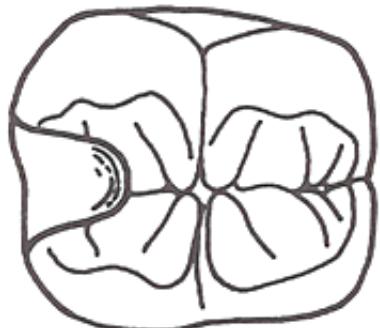


“Positive” Rest Seats

- An explorer tip will not slide off the rest seat



- Three dimensions of an occlusal rest seat



Occlusal shape:
rounded triangle, reverse S

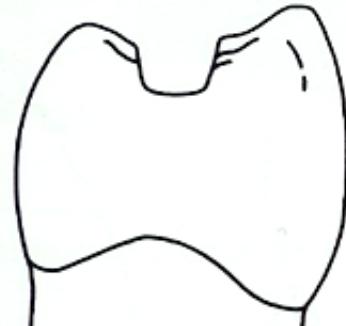
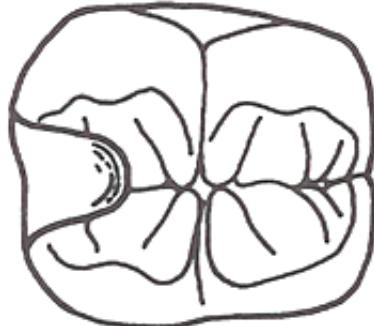


Proximal shape:
smooth, divergent



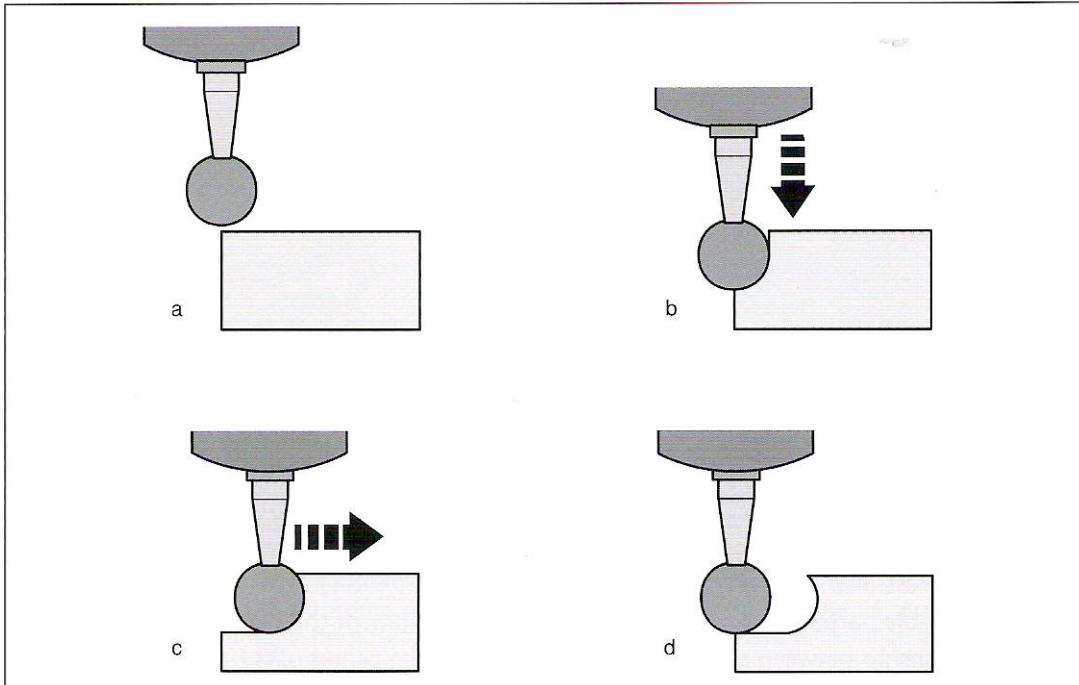
Lateral shape:
positive, spoon shaped

- Reason for occlusal rest seat configuration



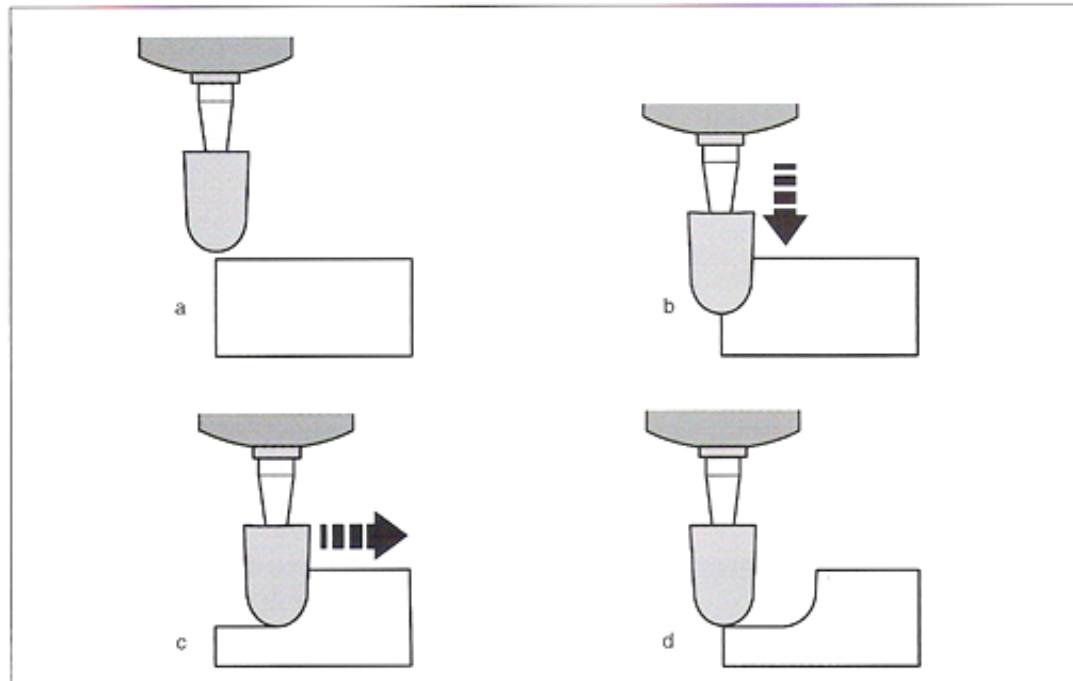
- All surfaces of seat are rounded, smooth, and free of undercuts.
- The rest provides support only.
- Should not resist movement other than vertically toward tissue.
- Other resistance would torque the tooth when distal extension moves slightly.
- Avoid sharp angles to avoid fracture of tooth (you want no stress concentration).

Occlusal Rest Preparation: Round Bur



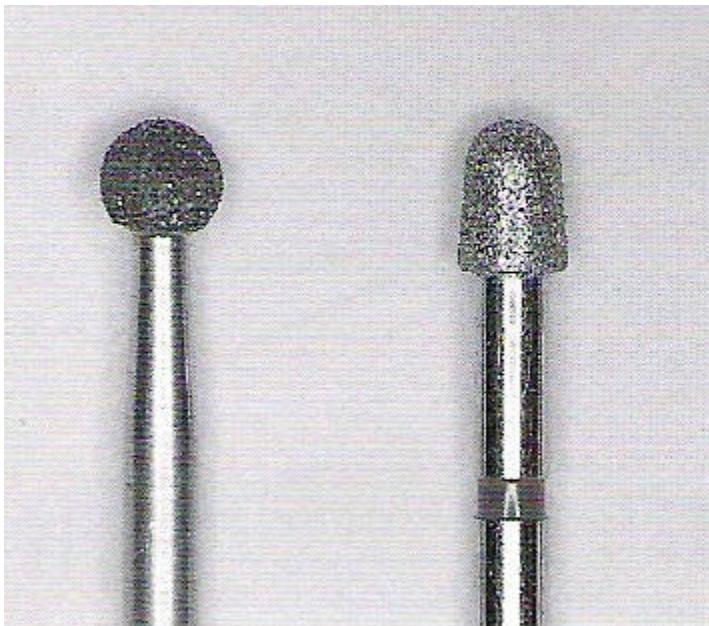
- Undercut created naturally with round bur.

Occlusal Rest Seat Preparation: Tapered Cylinder Bur (mushroom)



- **Less chance of mechanical undercuts**
- **Must maintain consistent orientation**

Occlusal Rests Seats



Round bur

801 014

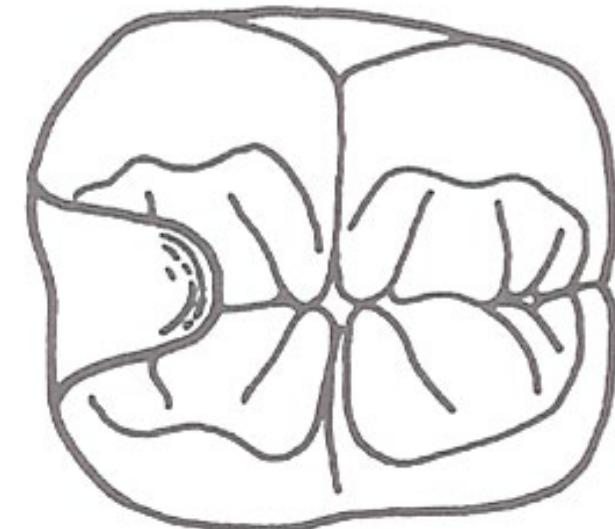
Medium

Diameter-- 1.4mm

8801 012

Fine

Diameter-- 1.2mm



Mushroom

36006 & 38006 135

Med & fine

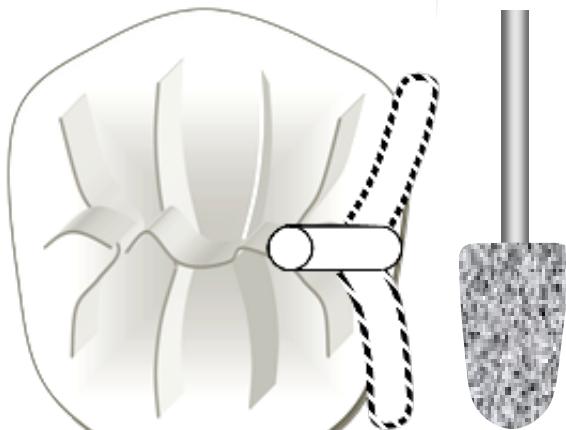
Diameter--2.0mm tapering
to 1.5mm at tip

Length--3mm

Occlusal Rest Seat



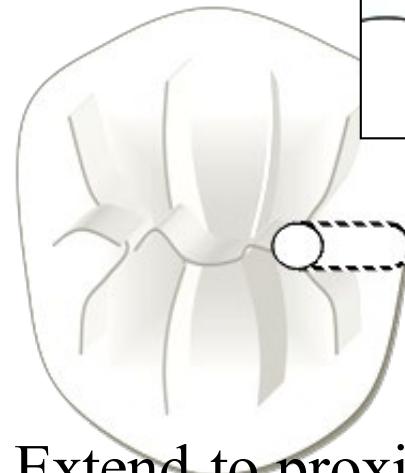
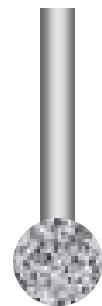
After guiding plane has been prepped...



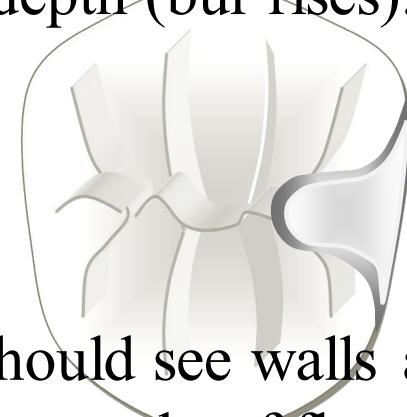
Flare cut to lingual (and buccal for circlet clasps) w/ mushroom bur.



...make initial cut in fossa about 1mm deep (2/3 bur depth).



Extend to proximal surface at same 1mm depth (bur rises).

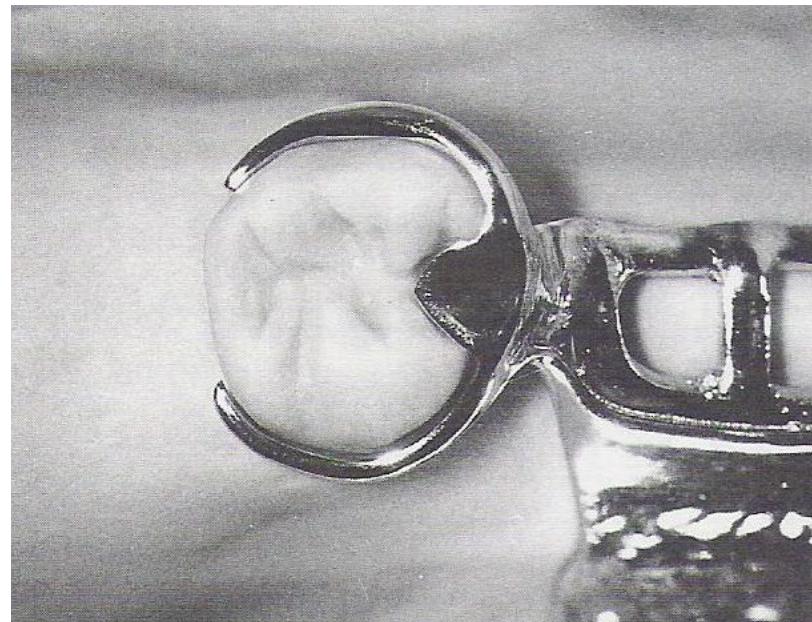
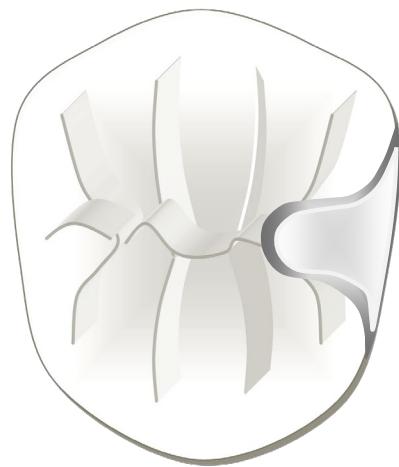


Rest seat has reverse S shape.

Should see walls and line angle of floor, walls divergent.
Deepen fossa. Polish.



Buccal and lingual flares incorporated into occlusal rest seats to allow for continuity of metal of framework.

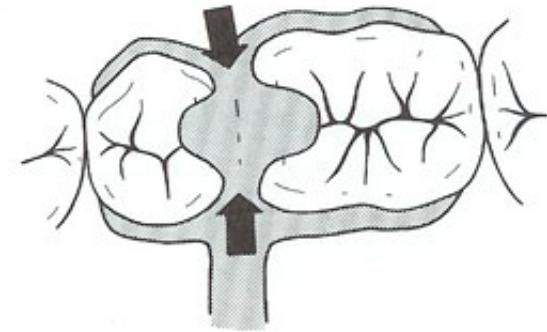


Lingual flare always needed for occlusal rest seat, buccal flare needed if suprabulge retainer is present.

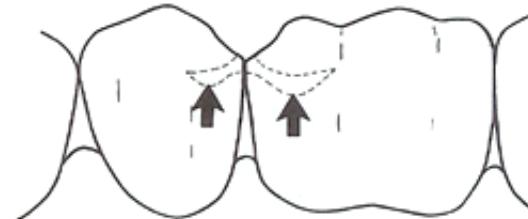
Embrasure Clasps:

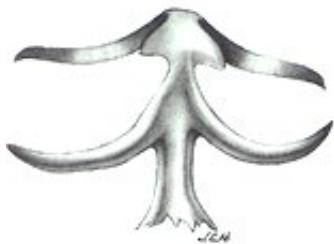
sometimes design requires RCA in area without edentulous space.

- Inadequate reduction results in breakage of clasps.**

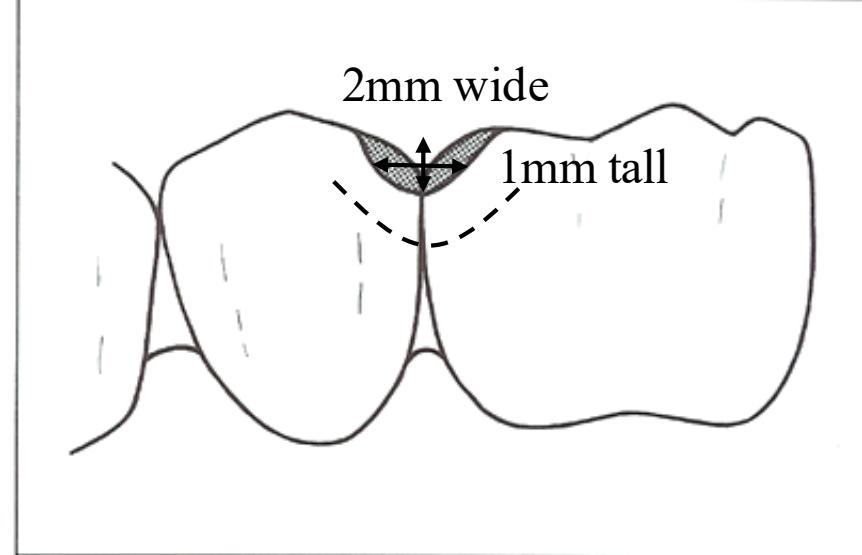
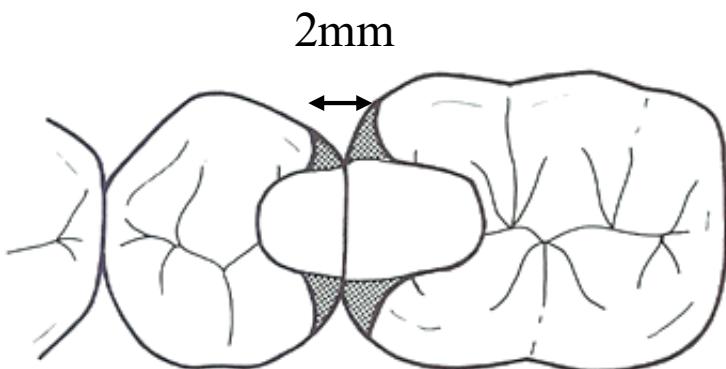
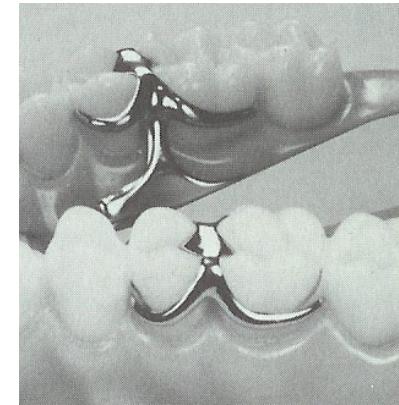


- Positive seat must be maintained.**

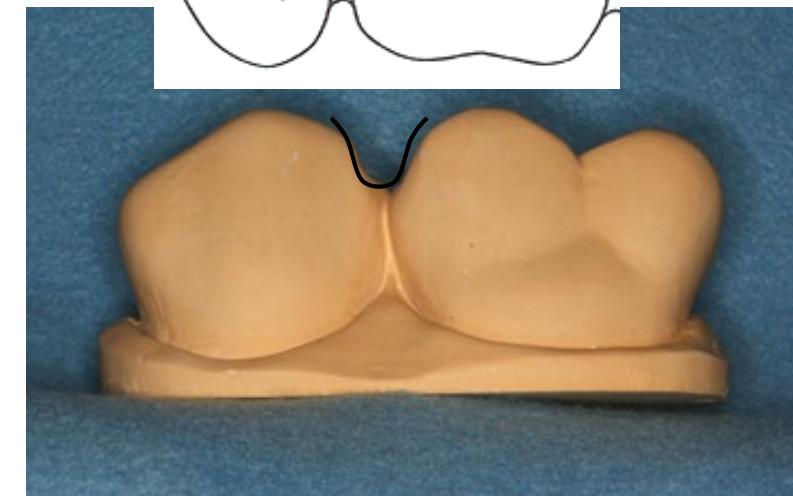
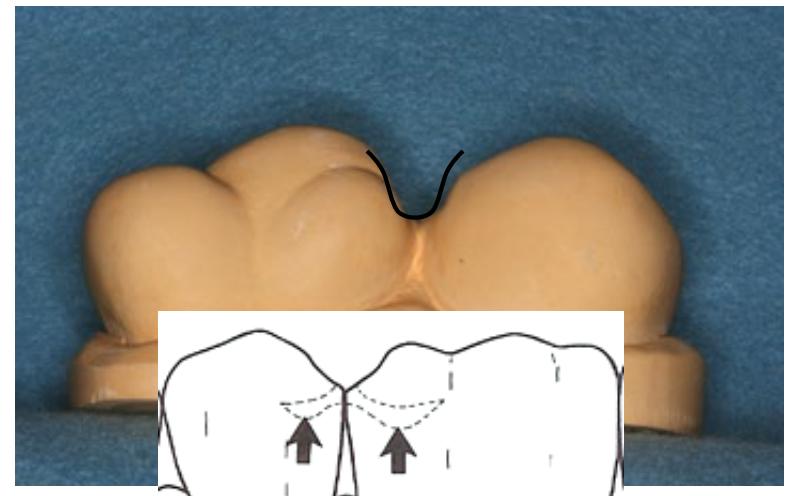
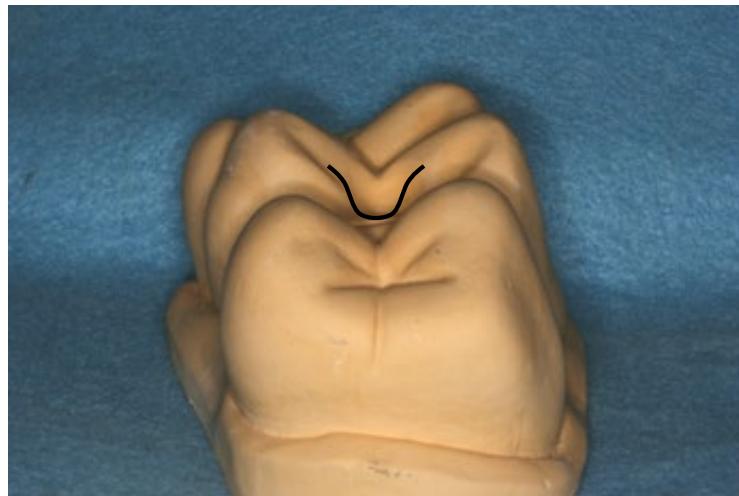




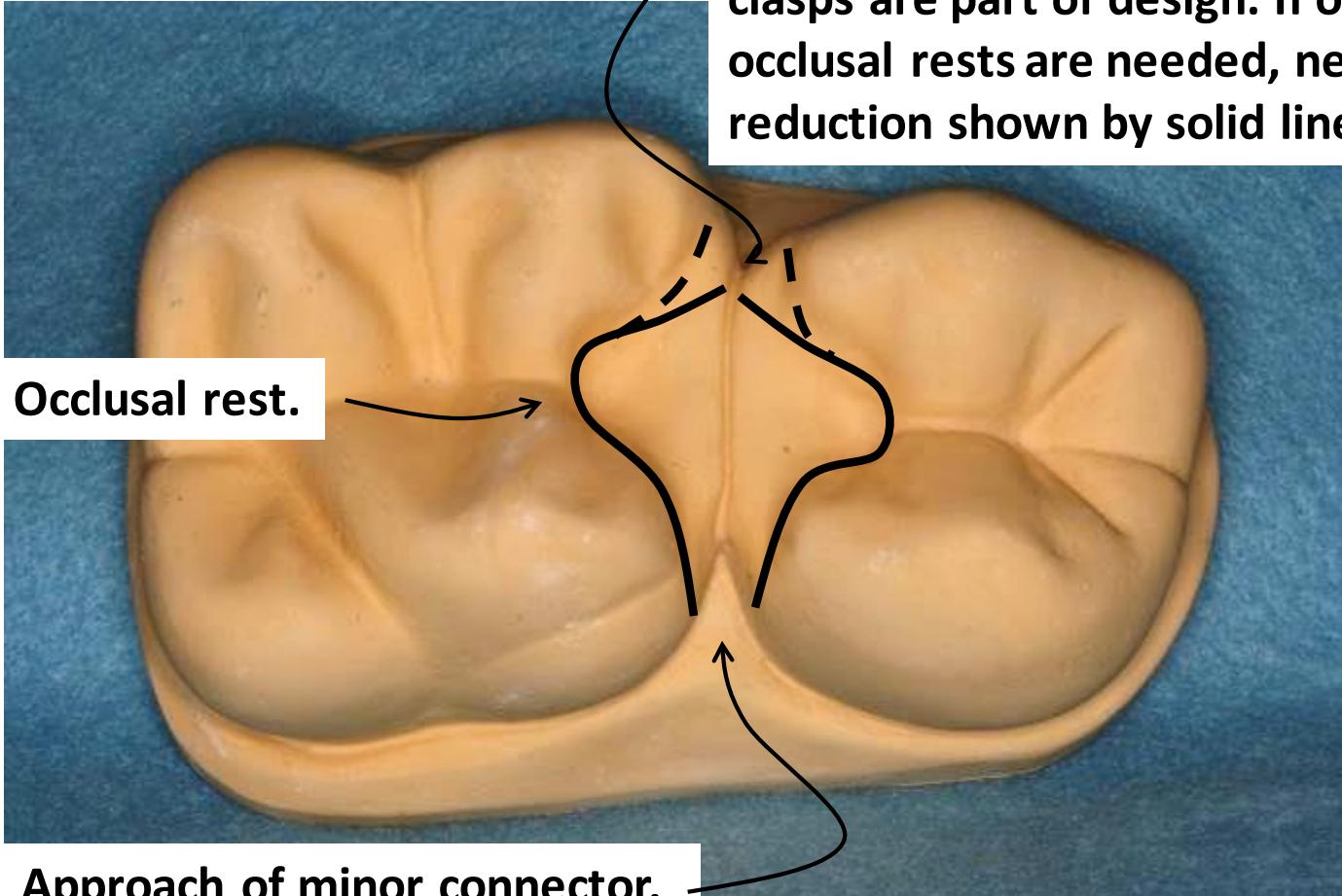
Embrasure Clasp



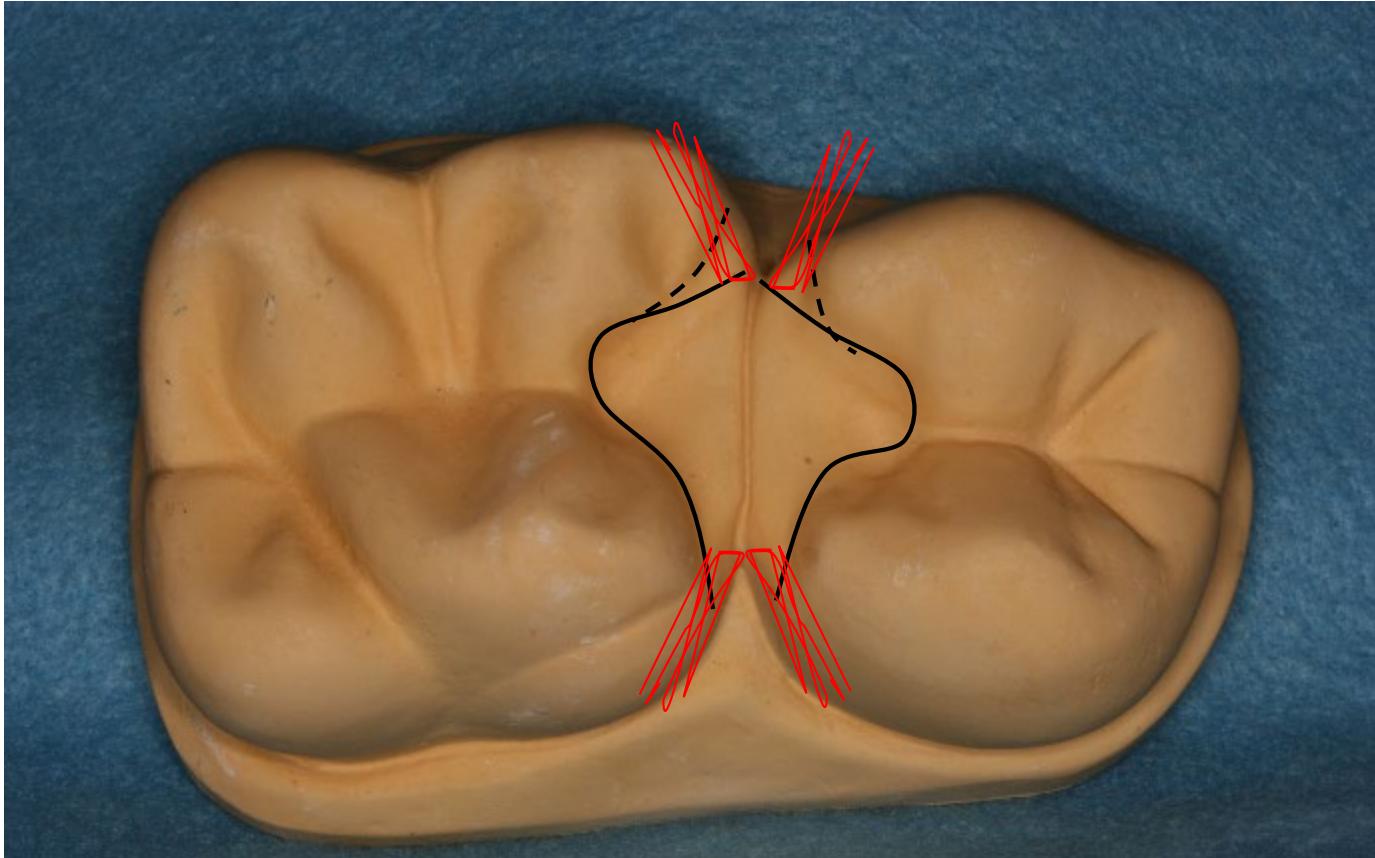
Embrasure Clasp Preparation: M-D (proximal) & B-L (lateral) Views



Occlusal Rest Preparation: Occlusal View

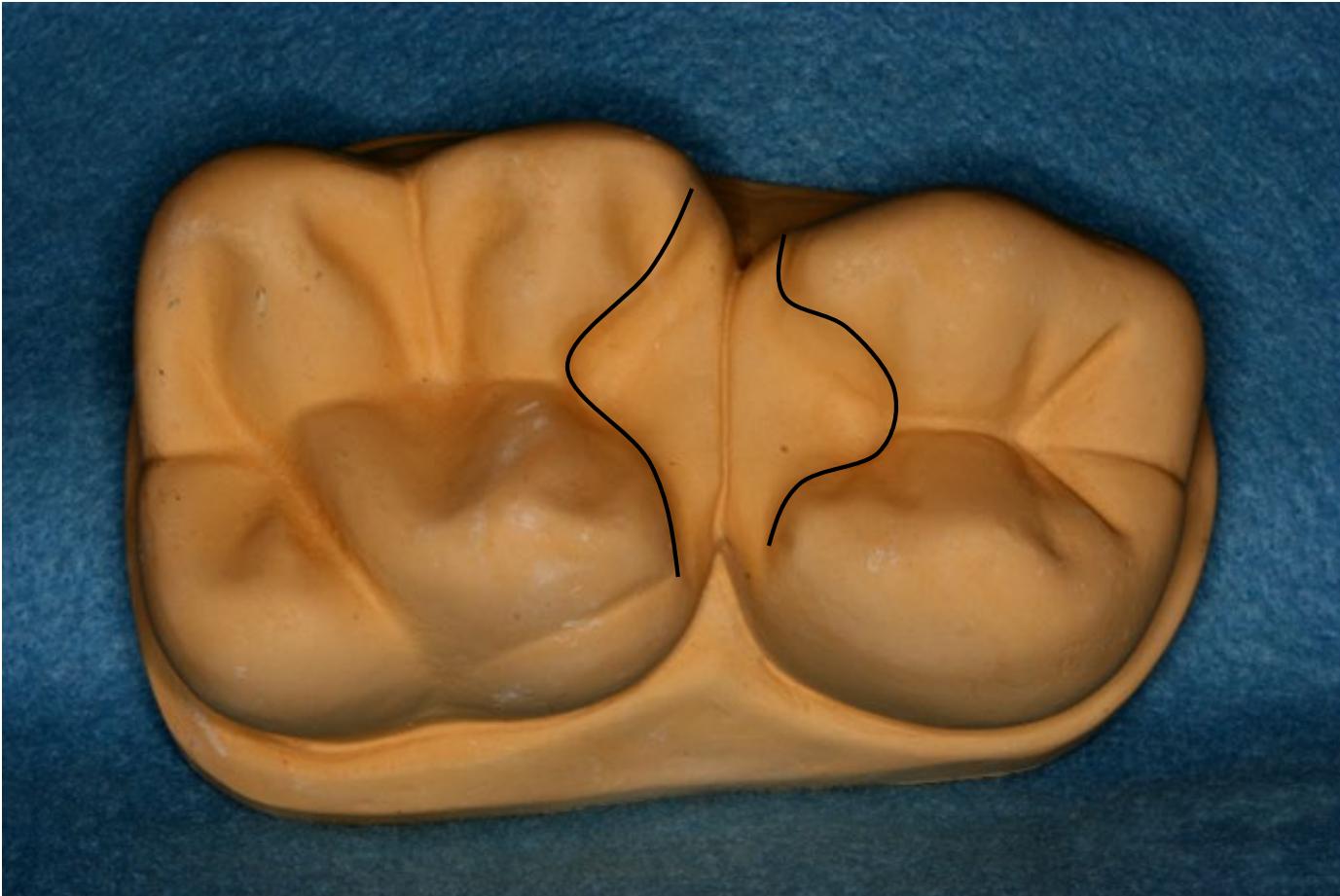


Occlusal Rest Preparation: Occlusal View

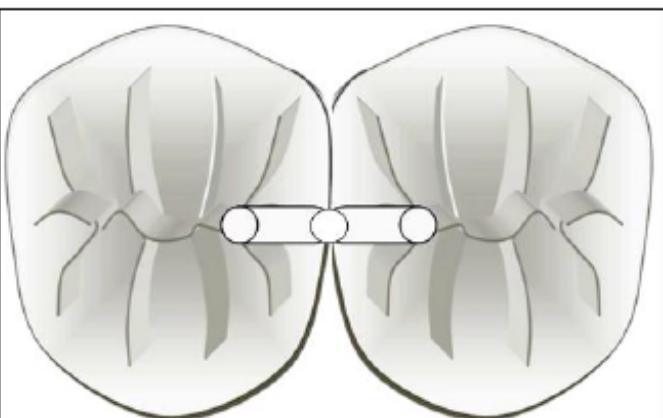


- Too often these areas are not prepped!!

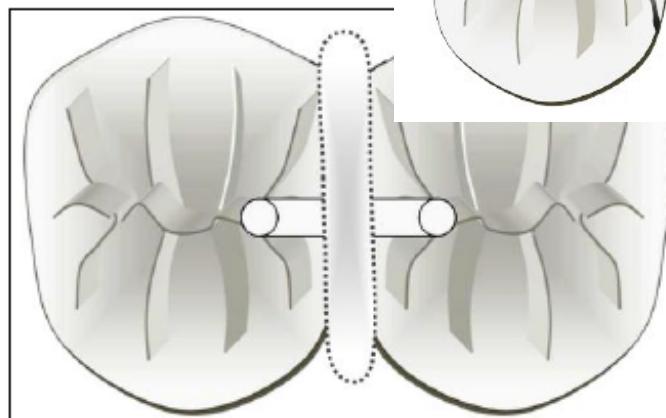
Embrasure Clasp Preparation: Occlusal View



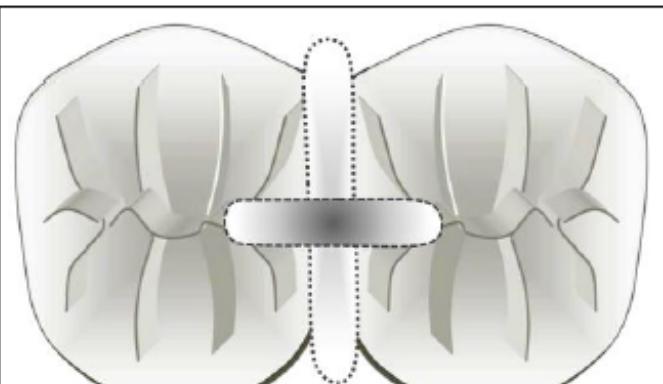
EMBRASURE REST SEATS



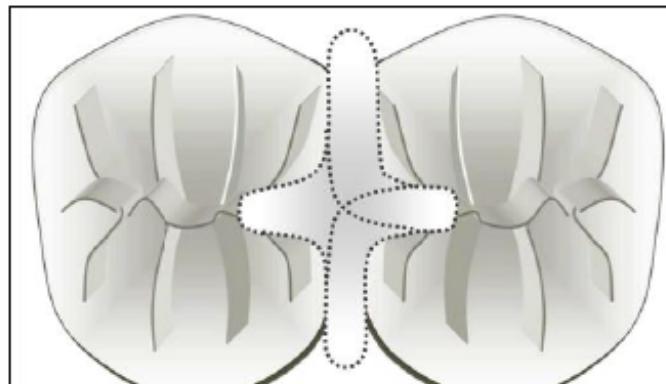
Using round diamond, go to 1mm depth in fossae and at marginal ridges. Connect the three pilot holes. The fossae holes will be more apically positioned than the marginal ridge.



Using mushroom, make a channel 1mm deep passing though lingual and buccal embrasures.



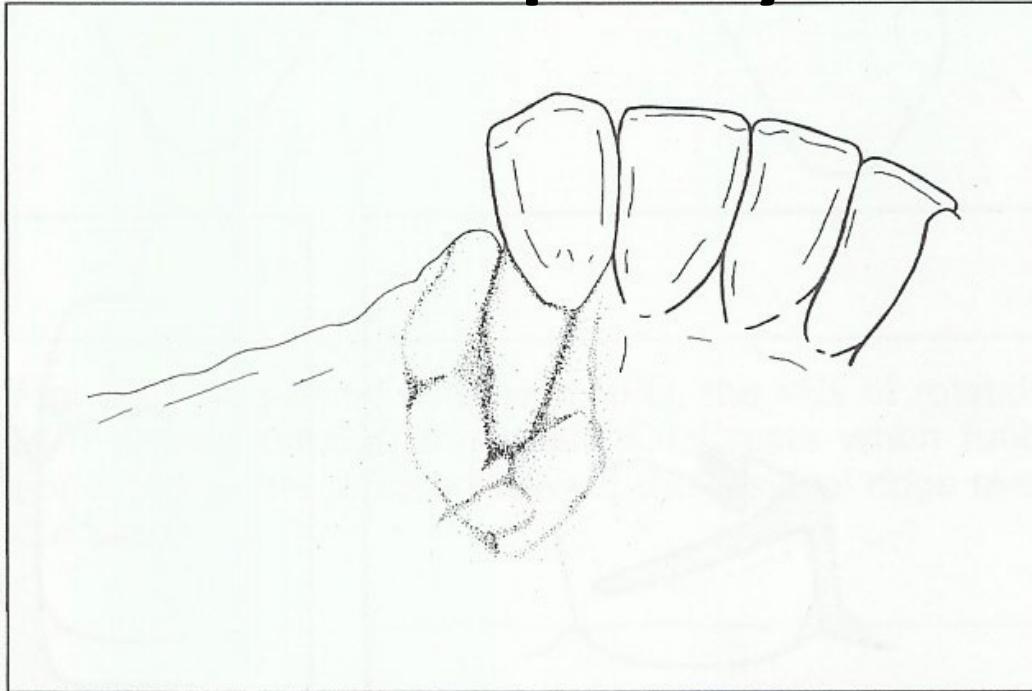
With mushroom, join fossa pilot holes, maintaining the hole depth slightly deeper than the ridge.



Join the fossa pilot holes with both buccal and lingual embrasure channels, slightly deepening the preparation and flaring walls for divergence.

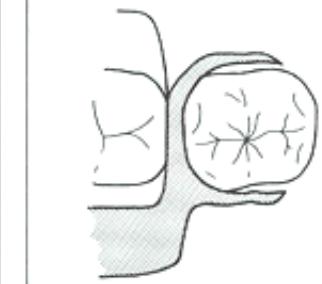
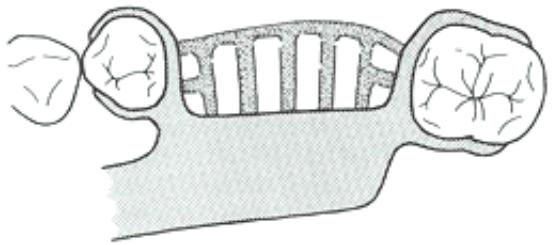


What can happen if rests are not positive, or are completely missing



- There is no resistance to occlusal force
- Framework moves tissueward
- Destruction of periodontal support
- Stripping of tooth
- With lingual plating pushes tooth outward (action of inclined plane).

What can happen if rests are not positive, or are completely missing



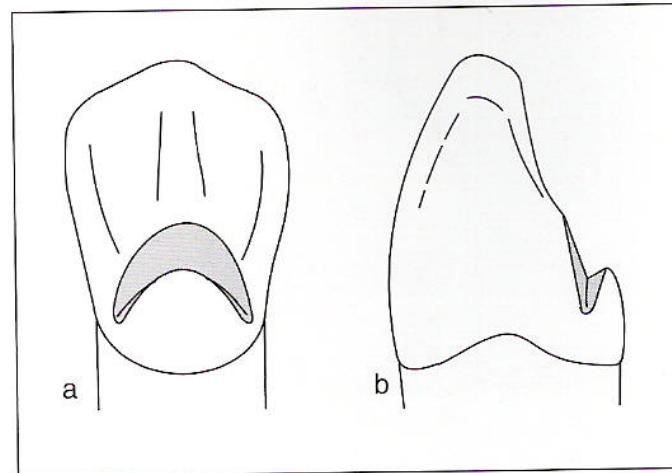
- With no resistance to occlusal force, reciprocating clasps and shoulders of circlet clasps are forced downward toward height of contour
- This pries the clasps outward and deforms them
- Forces clasps to spread

Evaluate this embrasure clasp rest seat preparation.

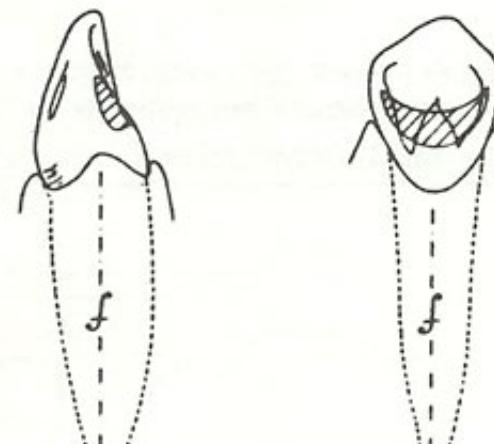
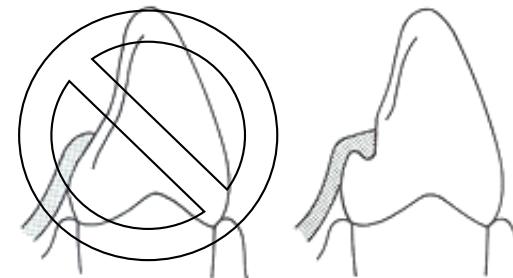


Rest Seats: Cingulum

- Lingual view
- Proximal view
- Maxillary
- Mandibular
 - Less available enamel

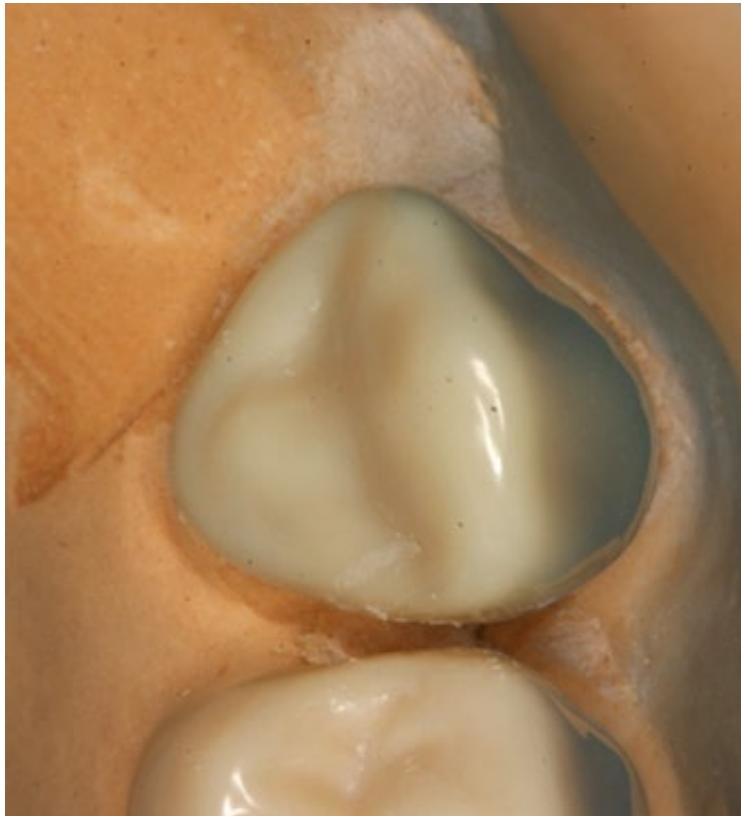


Cingulum
rest seat



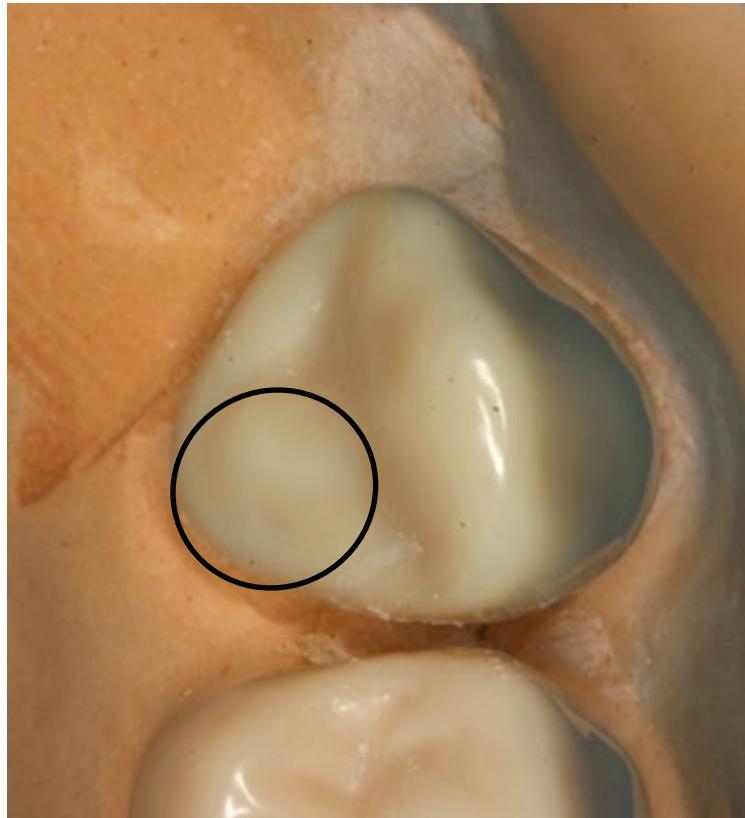
Alternate
cingulum
rest seat

Cingulum Rests



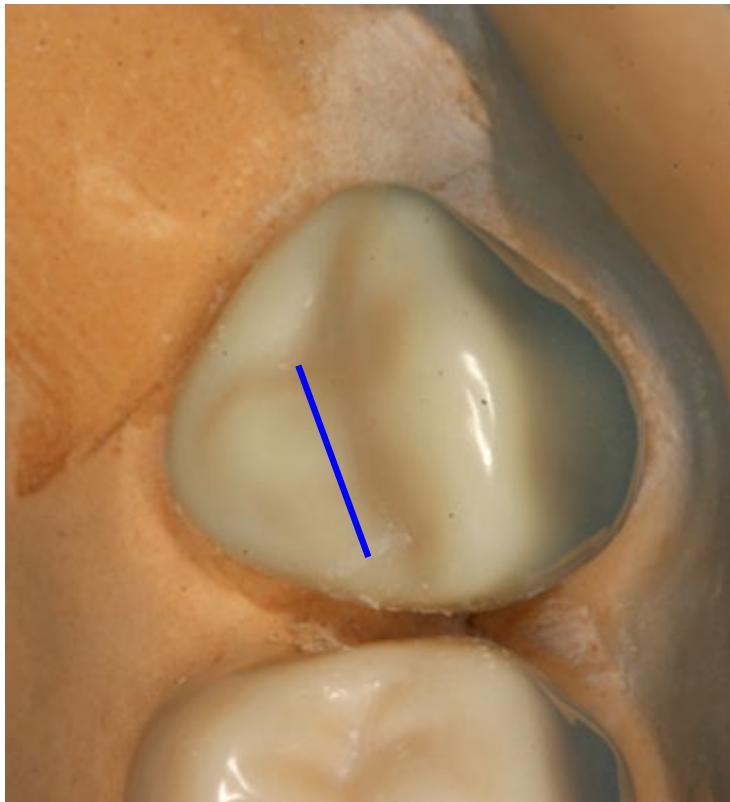
- Natural cingulum anatomy
- Visualize natural cingulum anatomy
- Identify incisal and gingival extent of prominence

Cingulum Rest Seats



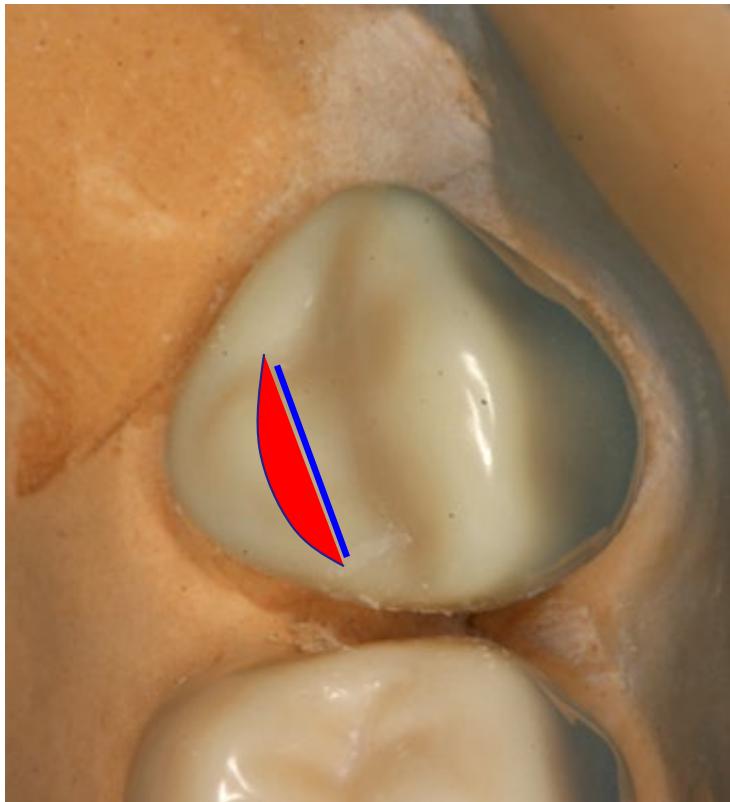
- Natural cingulum anatomy
- Visualize natural cingulum anatomy
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Cingulum Rest Seats



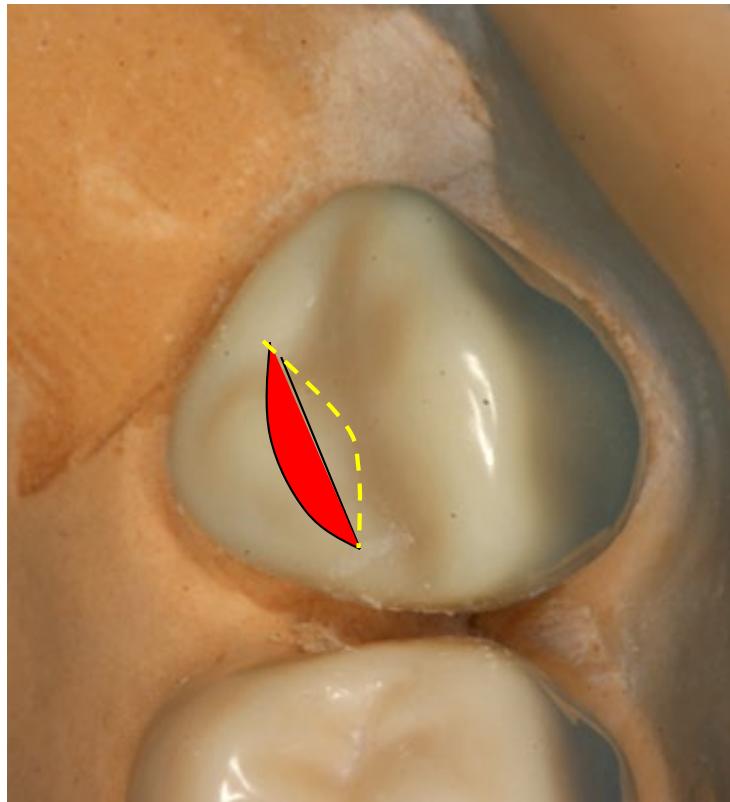
- Start prep at top of cingulum prominence.
- Actually appears as straight line from occlusal
- Cingulum prominence makes prep wider at center of lingual surface

Cingulum Rest Seats



- Start prep at top of cingulum prominence.
- Actual appears as straight line from occlusal
- Cingulum prominence makes prep wider at center of lingual surface
- Tapers down to marginal ridge

Cingulum Rest Seats



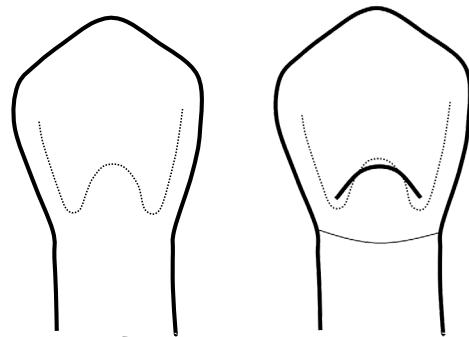
- Typical error
- Cut chevron shape laterally into canine
- Results in preparation too deep

Cingulum Rest Seat

- Slightly rounded to avoid sharp line angles
- Test as ‘positive’ with explorer tip
- 1mm depth



Inverted Cone
805 014
Medium
Diameter--
1.4mm
Length--1.4mm

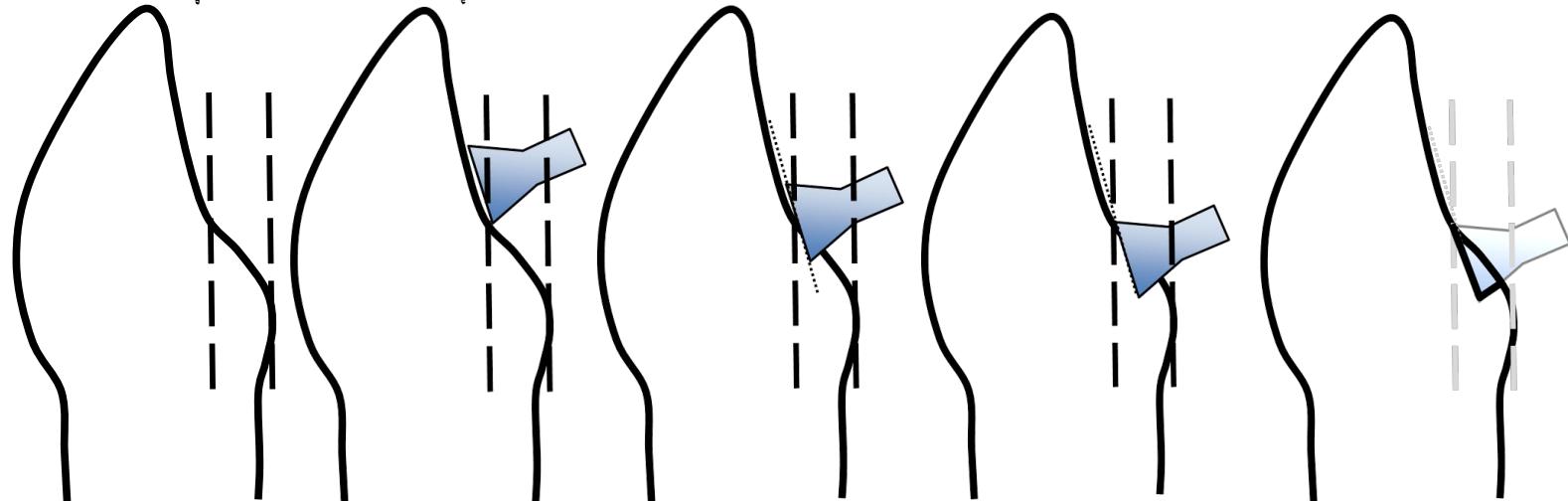


Cingulum Rest Seats:

Use inverted cone bur aligned with slope of lingual surface.

Travel down into cingulum at that angle.

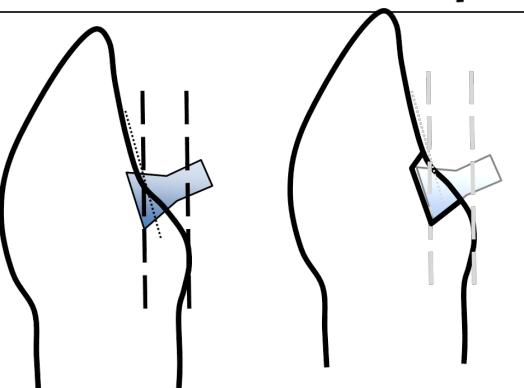
Don't go straight down into tooth.



Don't go straight down into tooth.

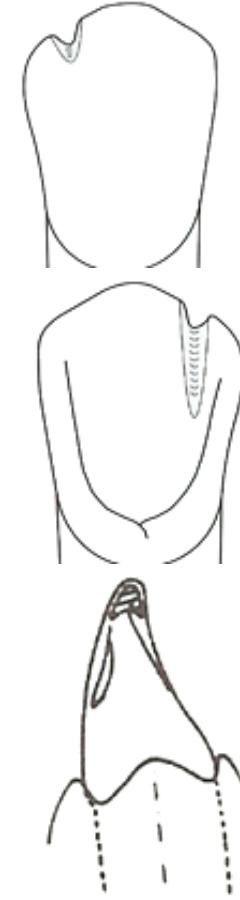
Prep will be undercut.

Cut too far into tooth will expose dentin.



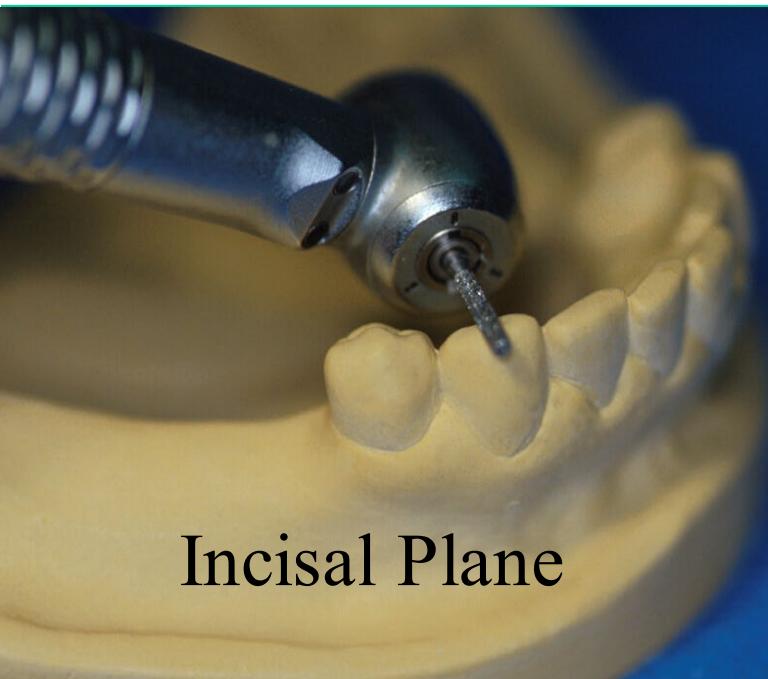
Incisal Rest Seats

- Labial view
 - Concave
 - Approximately 1mm
- Lingual view
 - channel
- Proximal view
 - convex
- Greater mechanical advantage than cingulum, meaning less stable, wiggles the tooth.
- Unesthetic

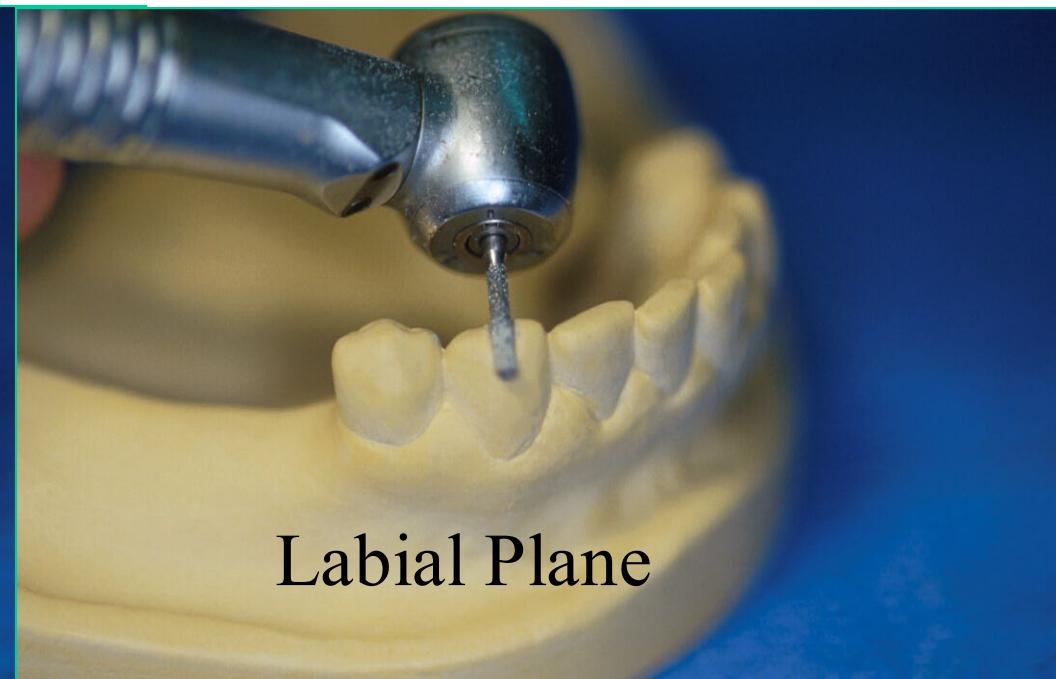


Incisal Rests: Tapered bur

Three Plane Preparation:
Lingual Plane
Incisal Plane
Labial Plane



Incisal Plane



Labial Plane