

# Good Morning



# Full Metal Crown

- A full-metal crown , used as a single crown or a retainer for fixed bridge in the posterior teeth.



# Advantages of MC

- longevity and retention
- superior resistance
- superior strength
- modify axial tooth contour and all walls of tooth

• فوائد التيجان المعدنية:

• متانة ومقاومة عالية

• ديمومة و ثبات

• إمكانية تعديل المحاور السنية

# Disadvantages of MC

- removal large amount of tooth structure Vs partial restoration.
- not esthetic
- vitality test cannot be done

• إزالة النسيج السنية  
بكمية اكبر من التيجان  
الجزئية

• ليس تجميلي

• لا يمكن اجراء اختبار  
حيوية اللب

# Indications of MC

- extensive destruction from caries/trauma
- endodontically treated teeth to avoid potential future fracture
- maximum retention & resistance
- high displacement forces like long-span fixed dental prosthesis

• الاستطباب:

• اذية كبيرة بسبب نخر او رض

• الاسنان المعالجة لبيا

• الحصول على تثبيت ومقاومة كبير

• ضمن الجسور كدعامات

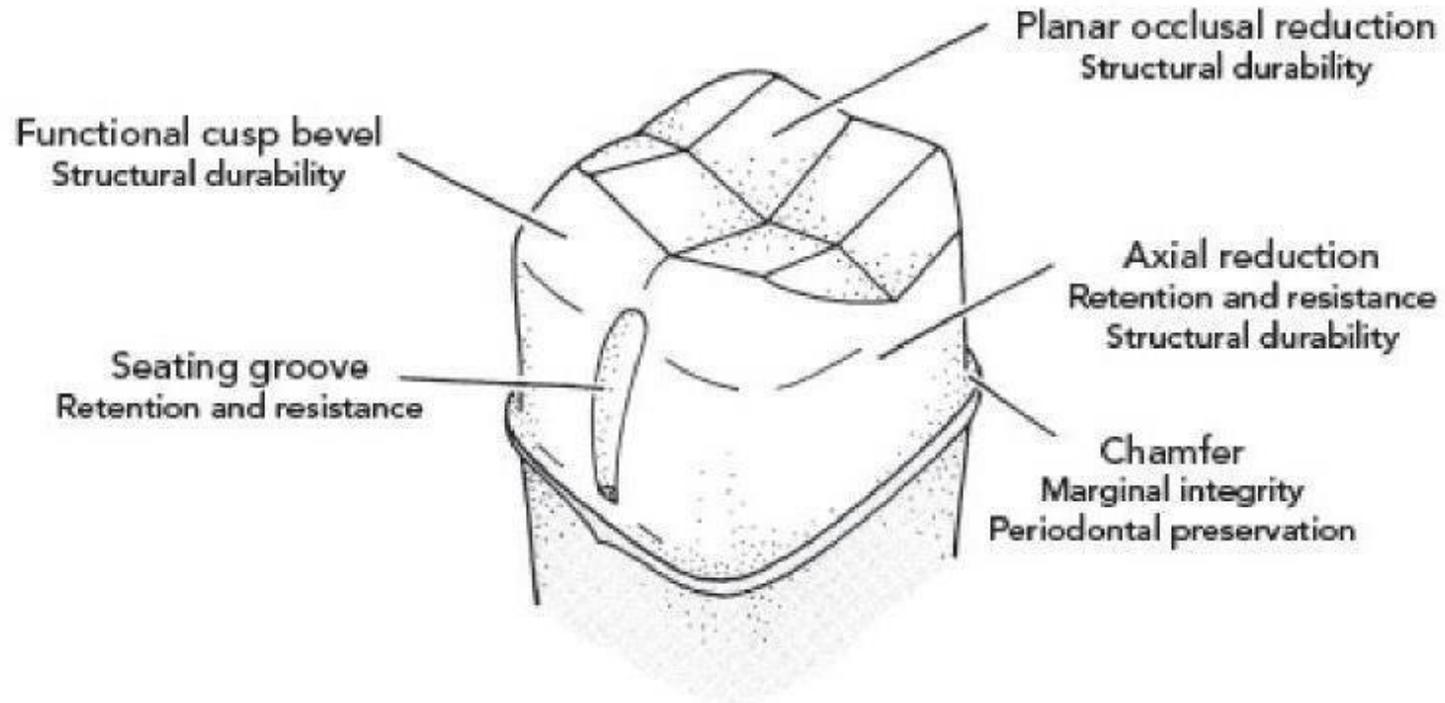
# Contraindications of MC

- More conservative restoration would suffice
- Caries extends gingivally so finish line cannot be done
- High esthetics needs (anterior teeth)

# Preparations steps

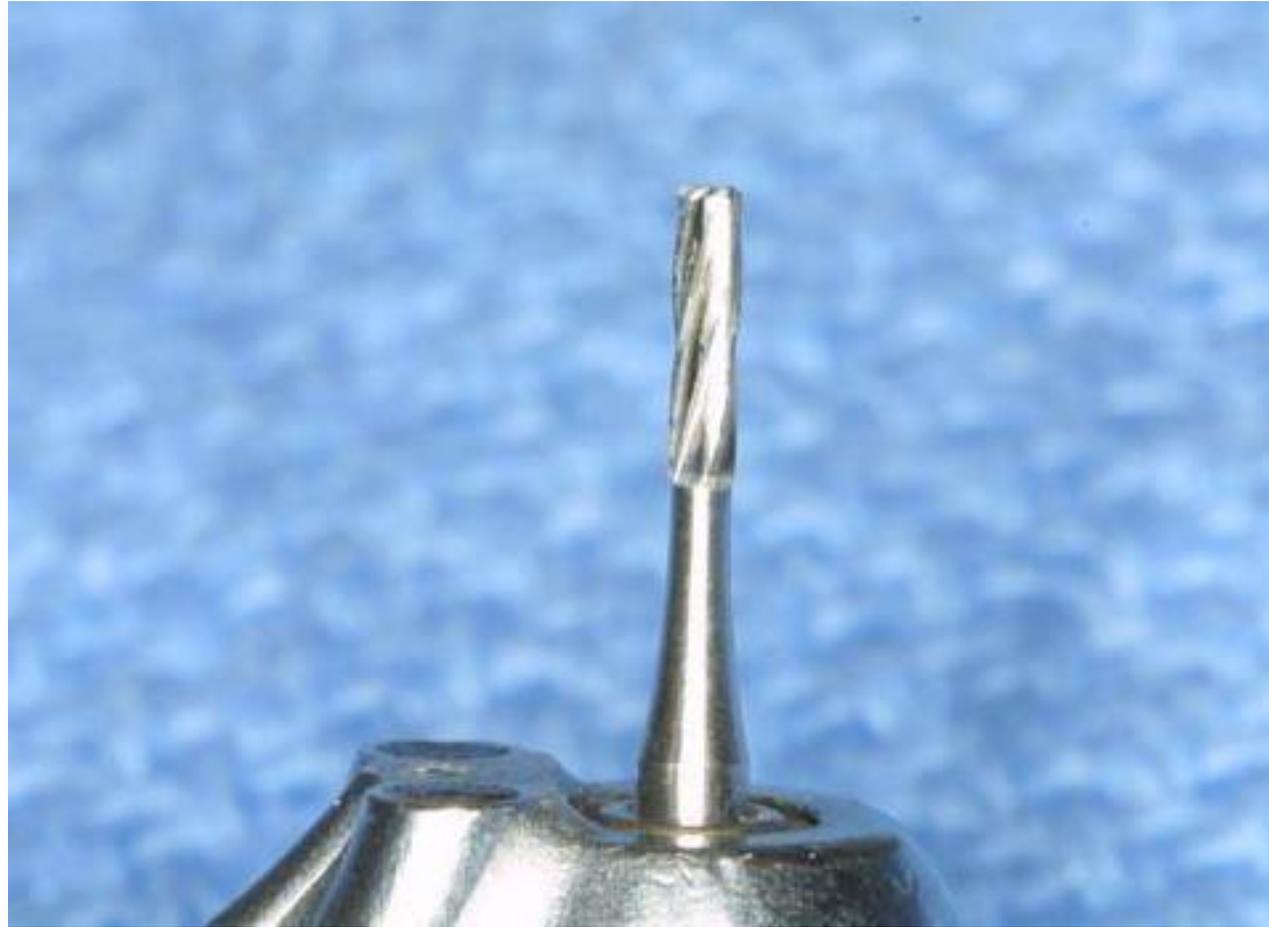
- **Occlusal/ incisal Reduction**
  - ❖ Functional cusps prep
  - ❖ Non-Functional cusps prep
  - ❖ Functional cusps bevel
- **Axial walls Reduction**
  - ❖ buccal & Lingual prep
  - ❖ Mesial & distal prep
- **Finish line**
- **Evaluation and Finishing**

# Preparation of metal crown

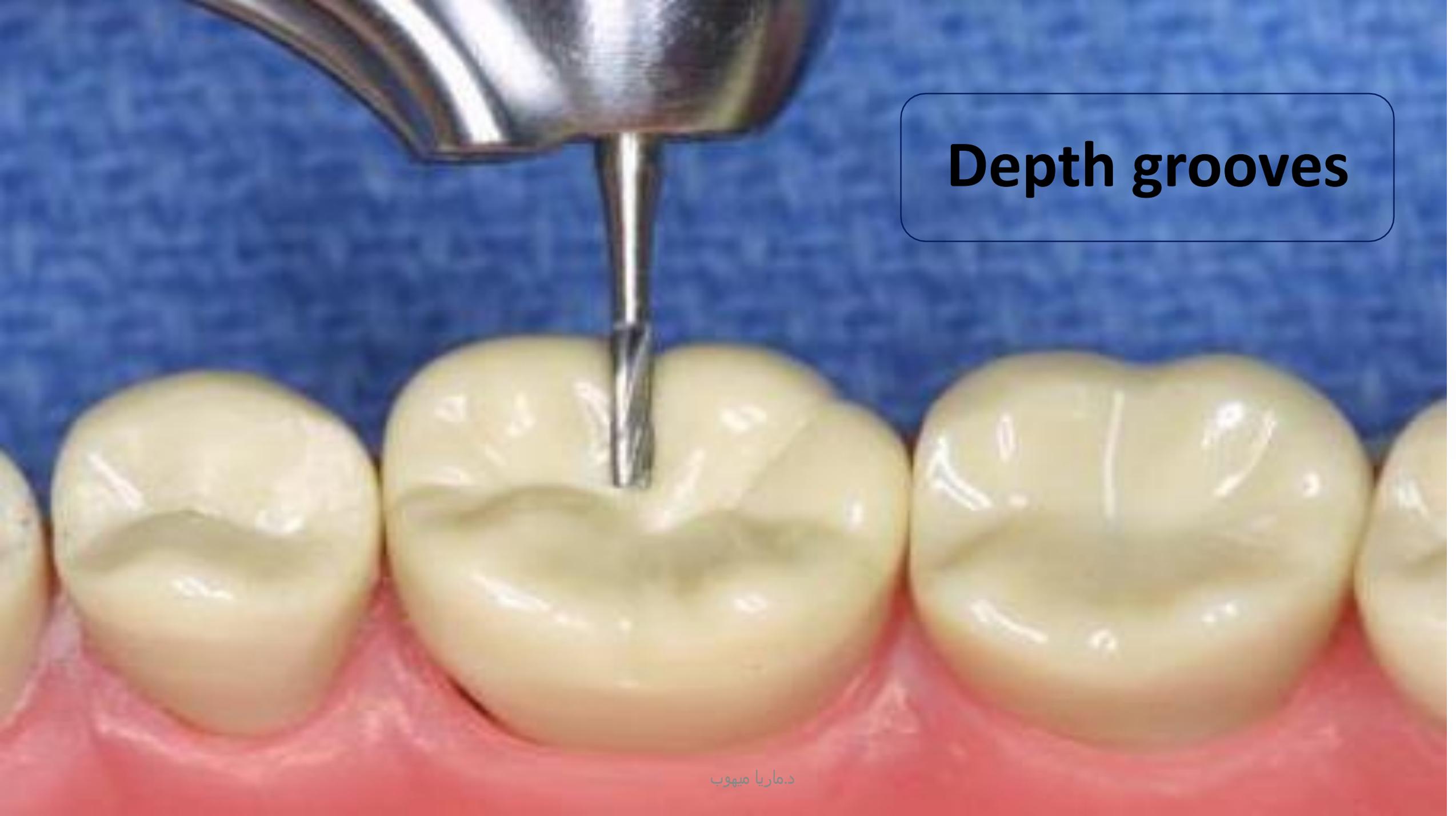


# Occlusal Reduction

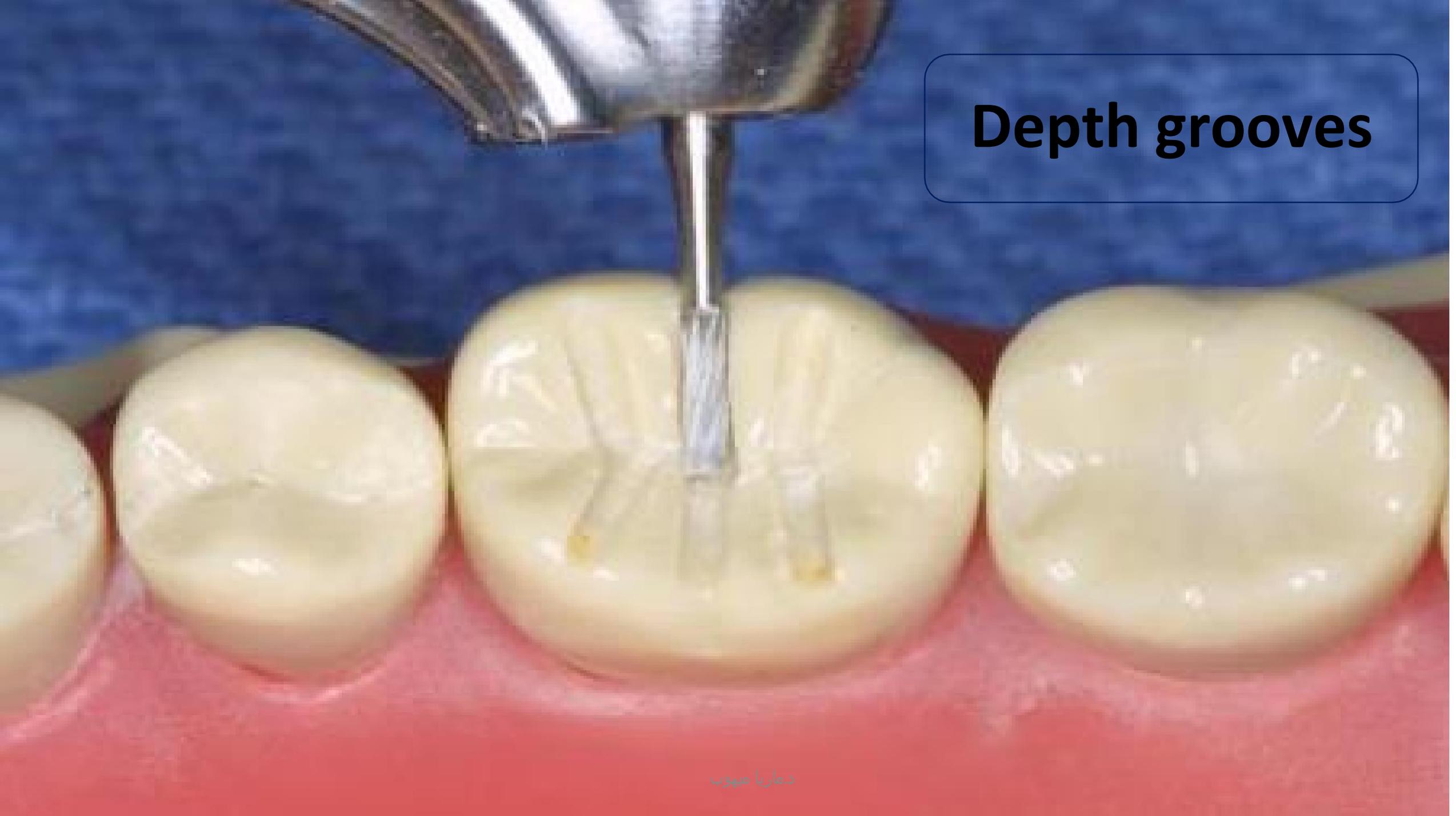
# 1 مم Straight bur



# Depth grooves



# Depth grooves



# Depth grooves



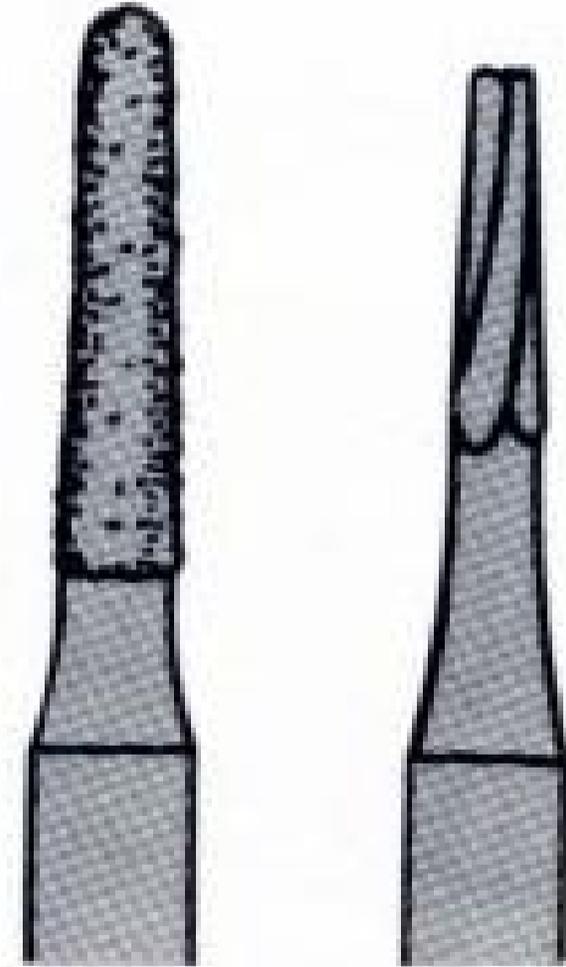
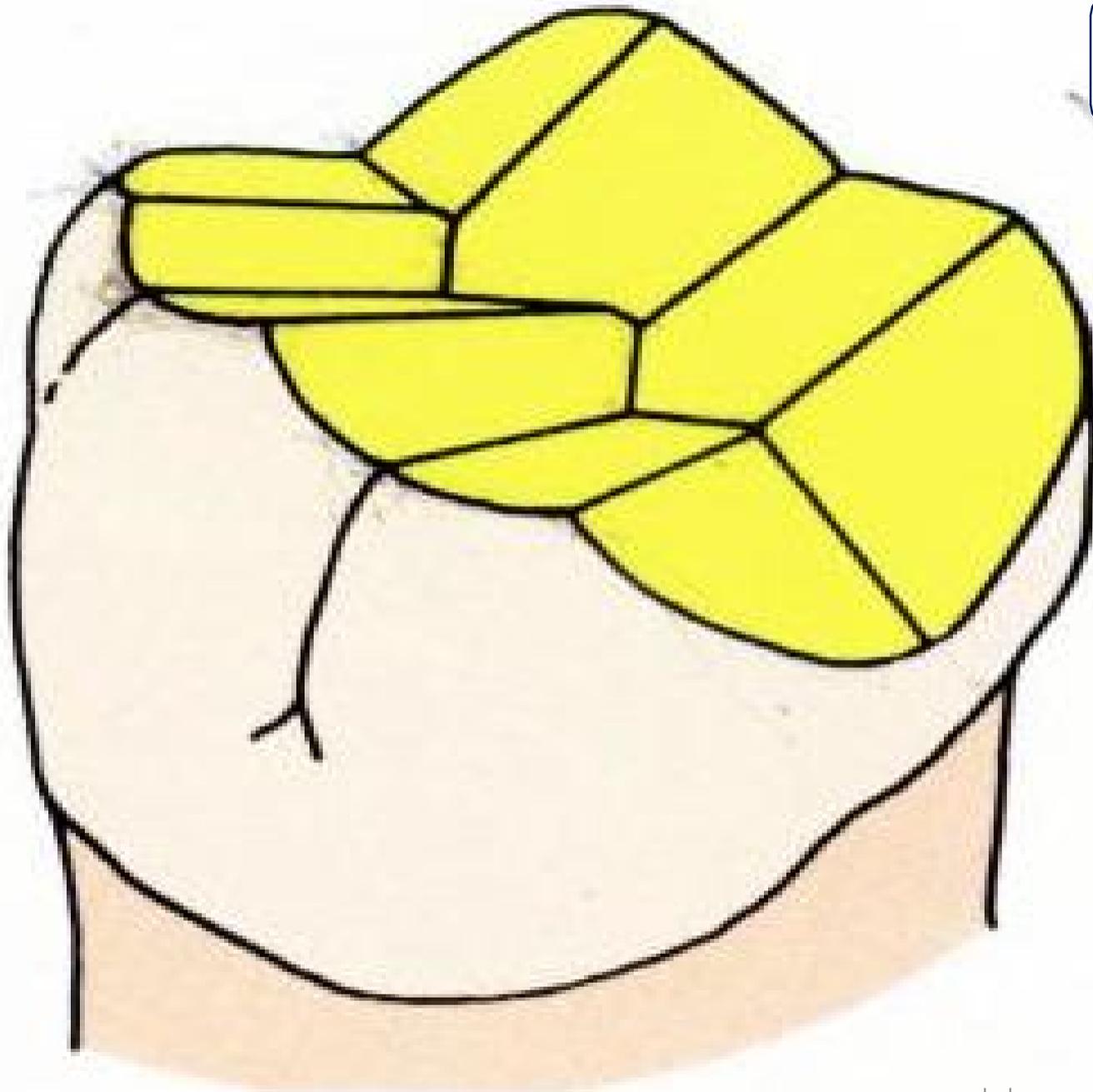
# Depth grooves connection



# Depth grooves connection

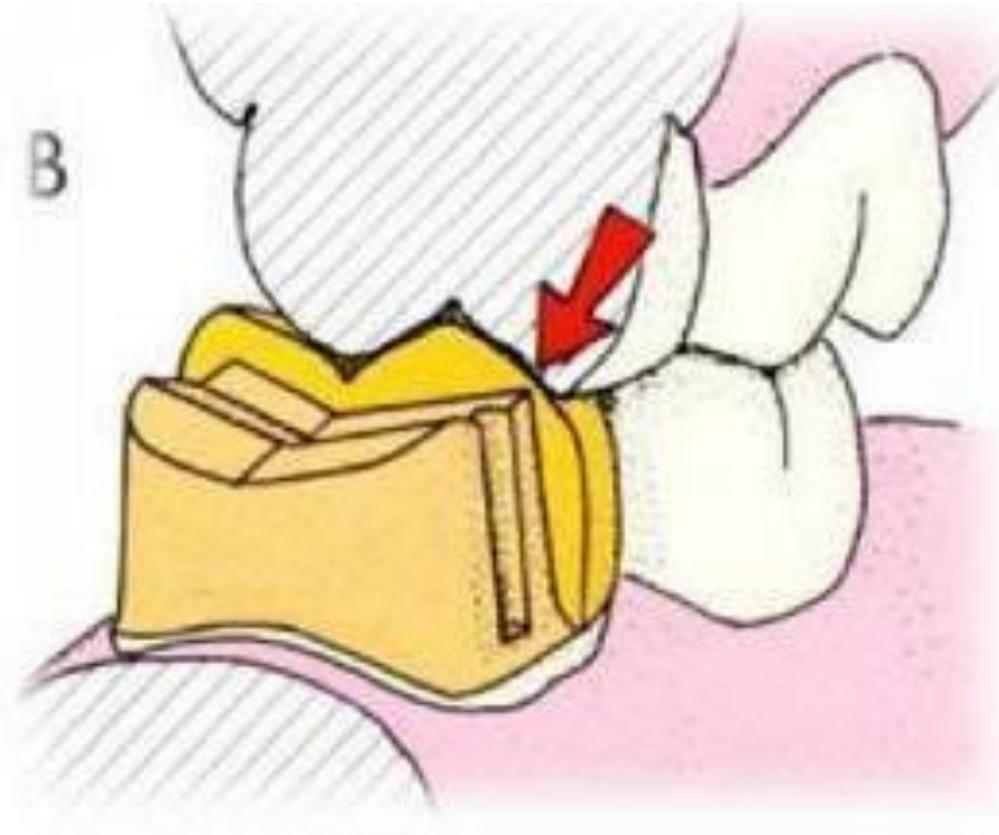
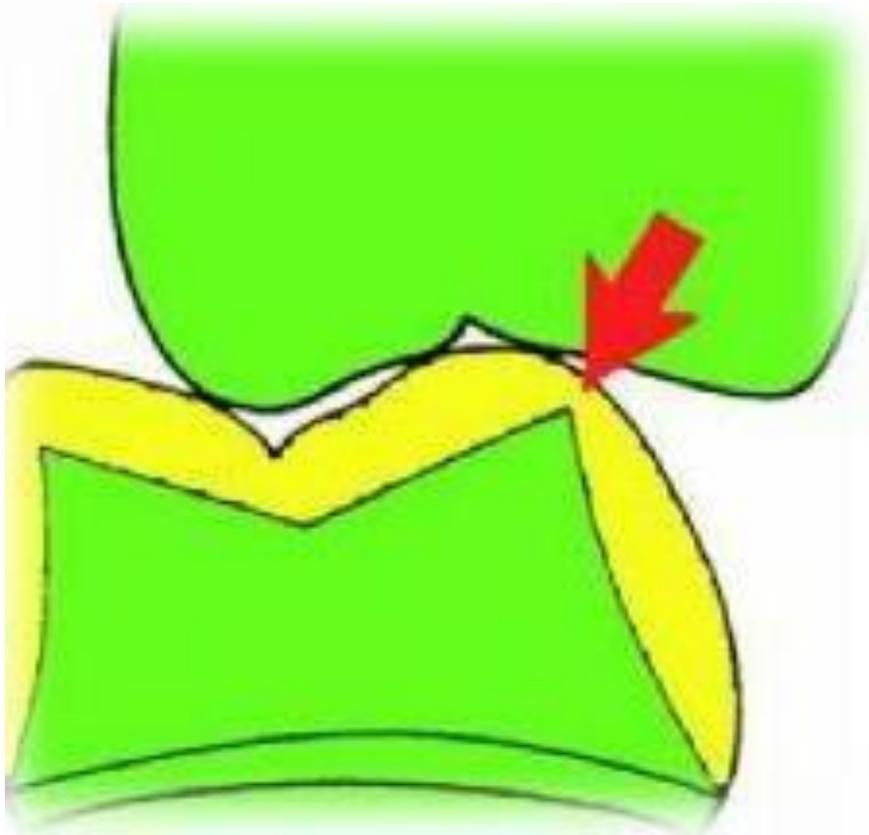


# Occlusal Reduction

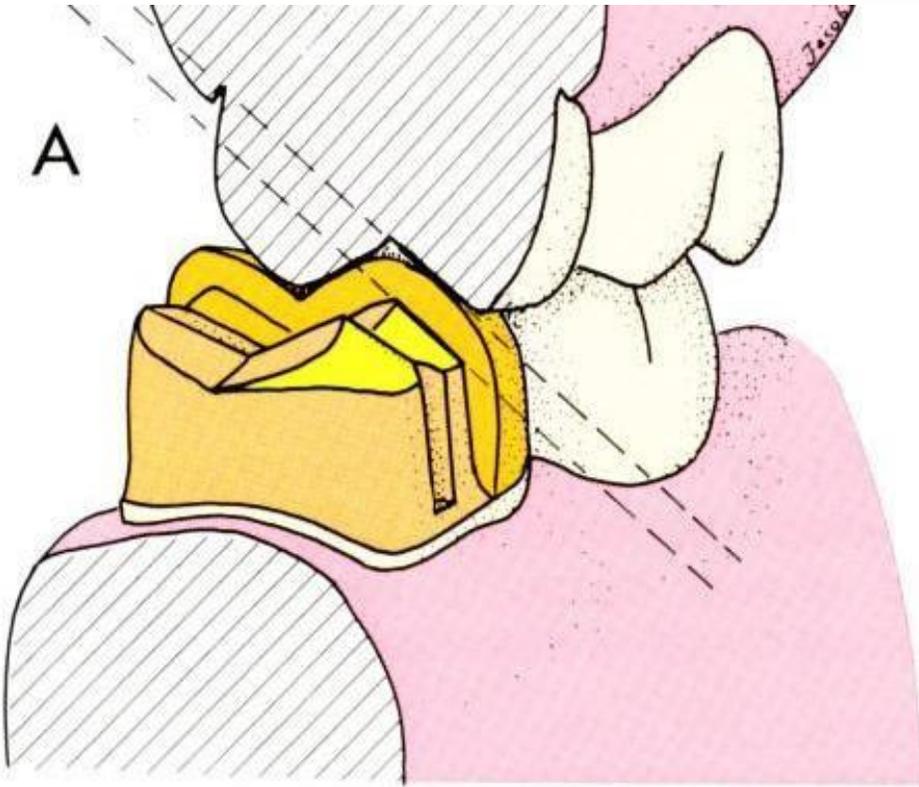




# Supported cusp



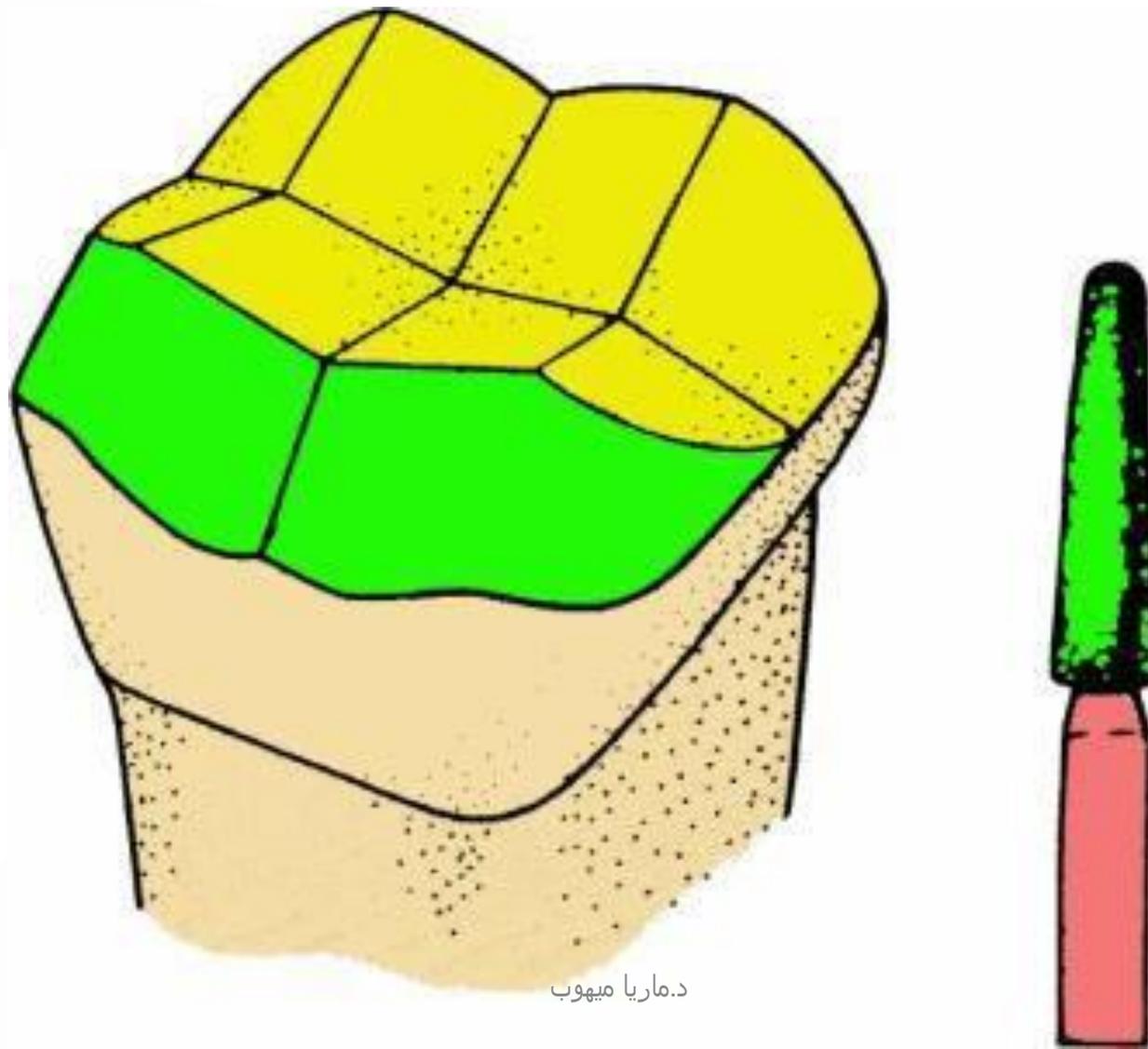
# Supported cusp bevel

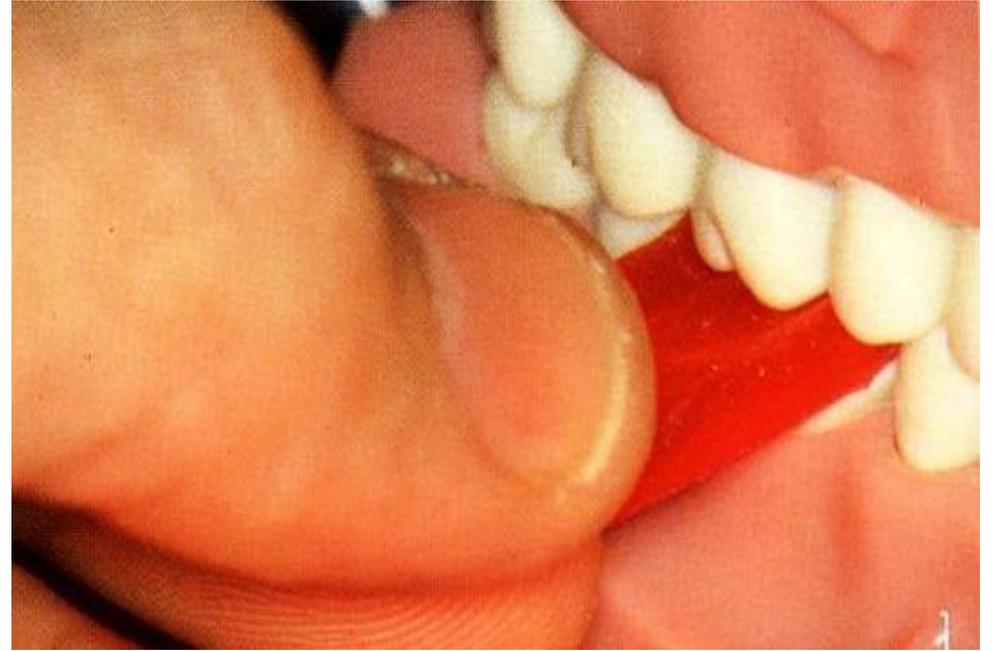
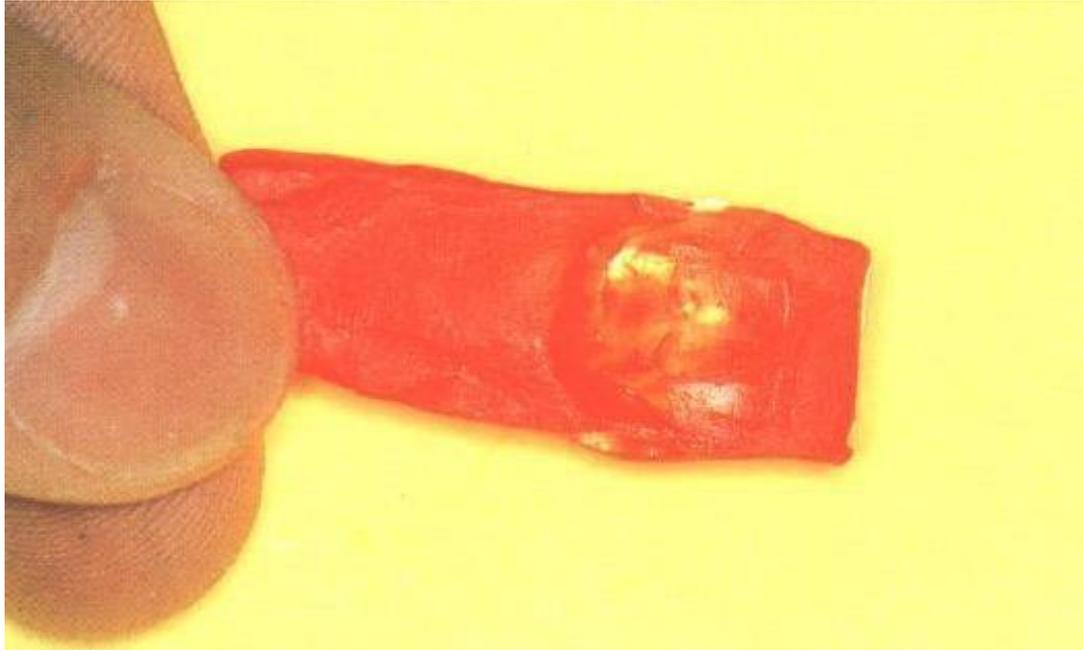


# Occlusal Reduction



# Occlusal Reduction

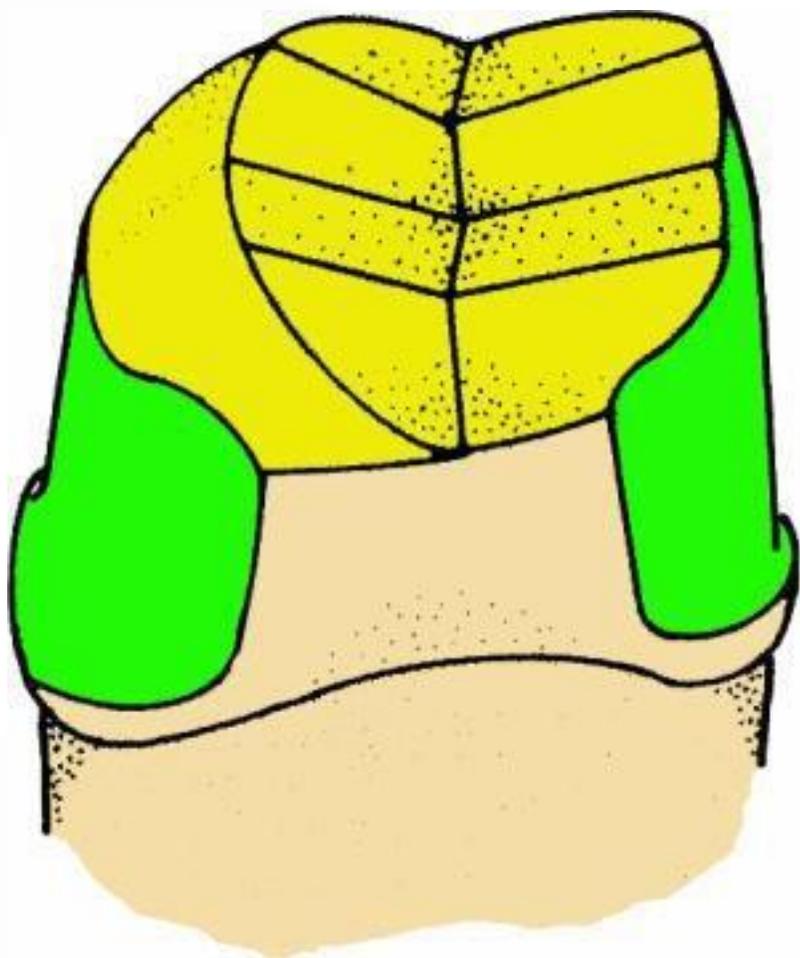




# Axial Reduction

# 1 mm Tapered bur



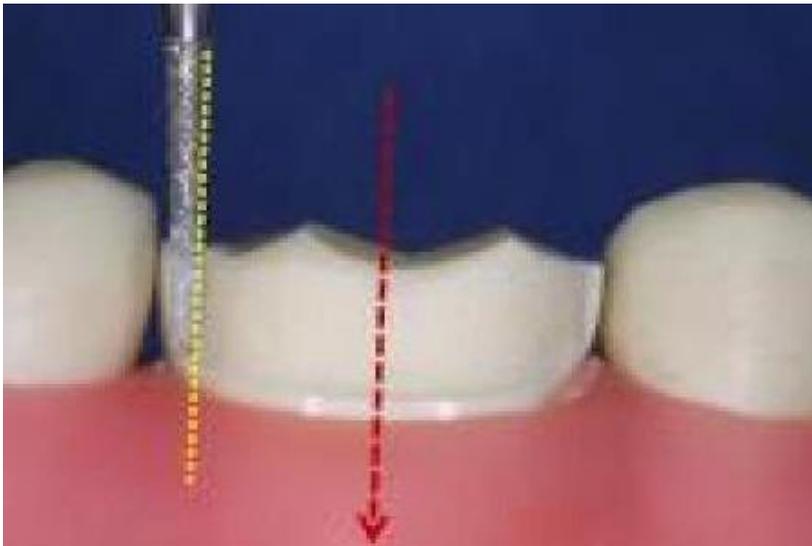


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Parallel to axial walls

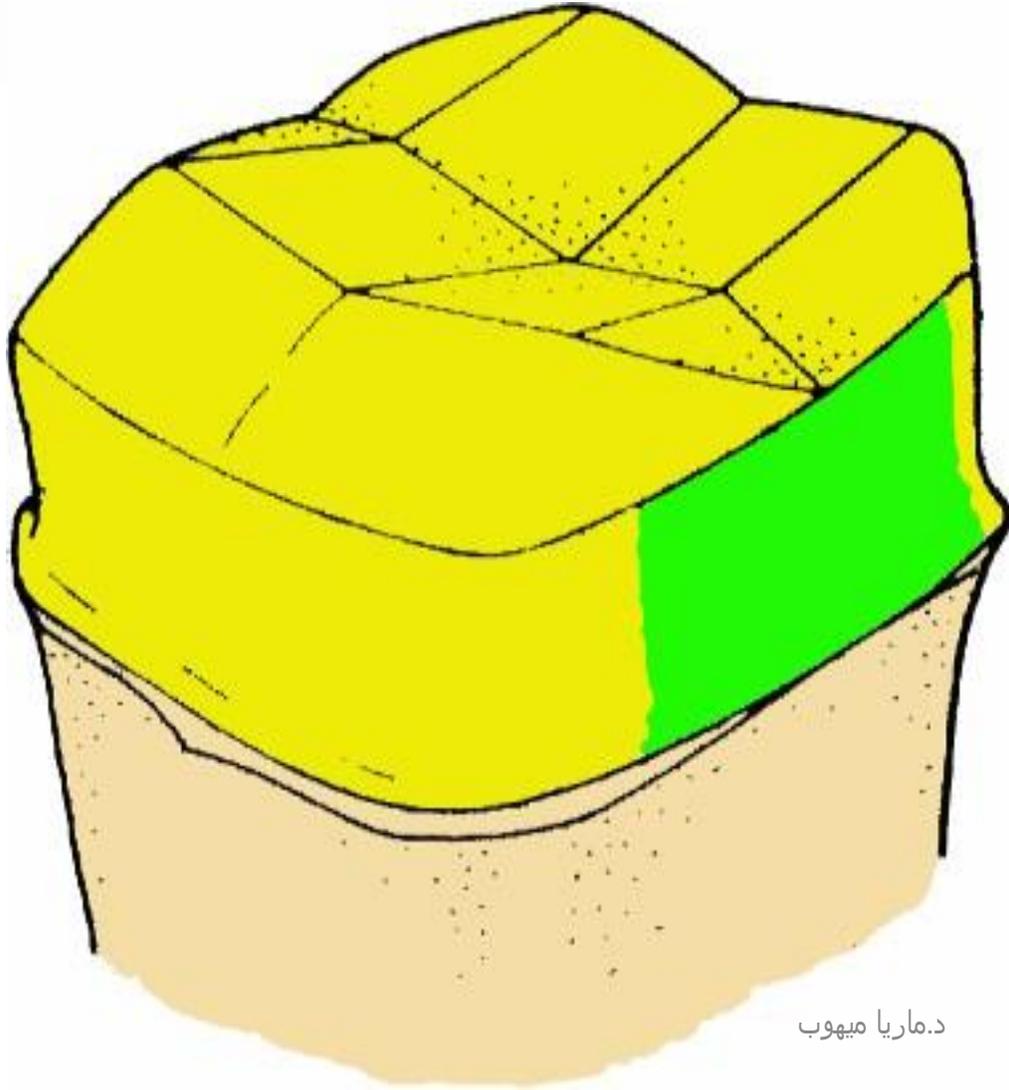


# Proximal walls

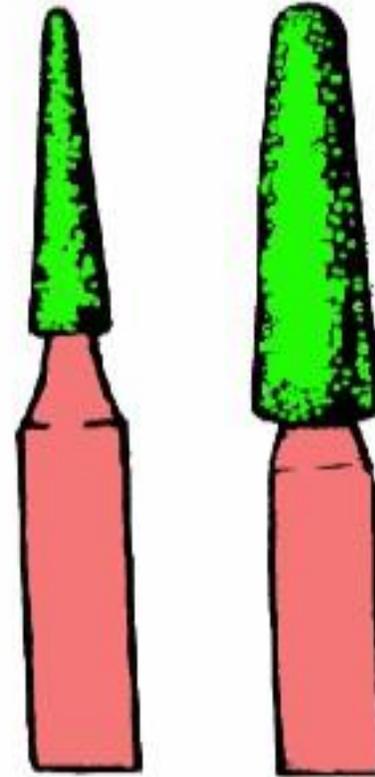


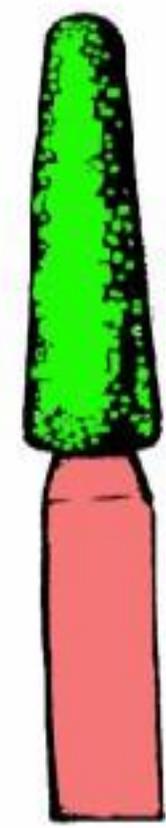
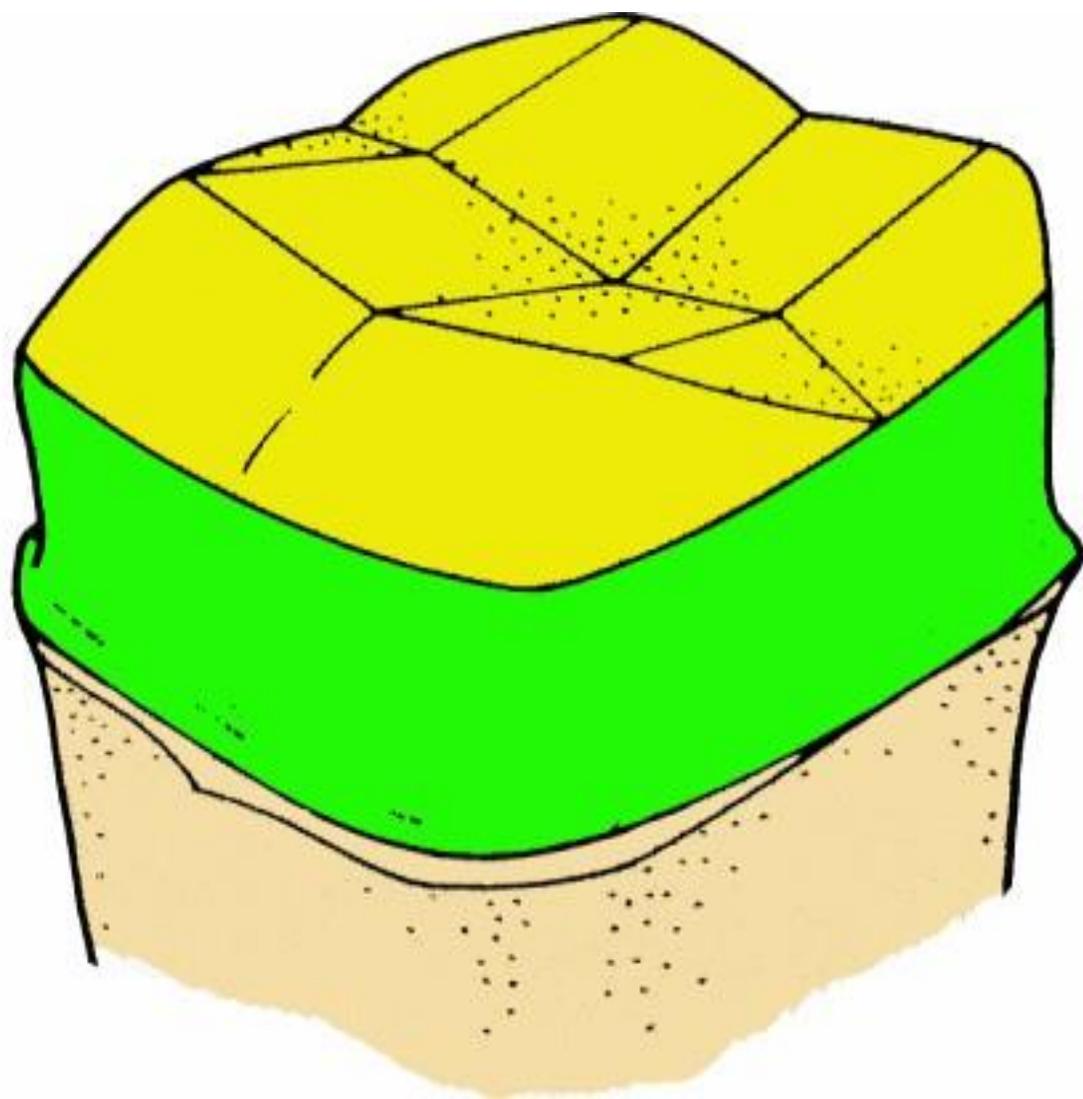
# Finish line

0.5 mm chamfer finish line



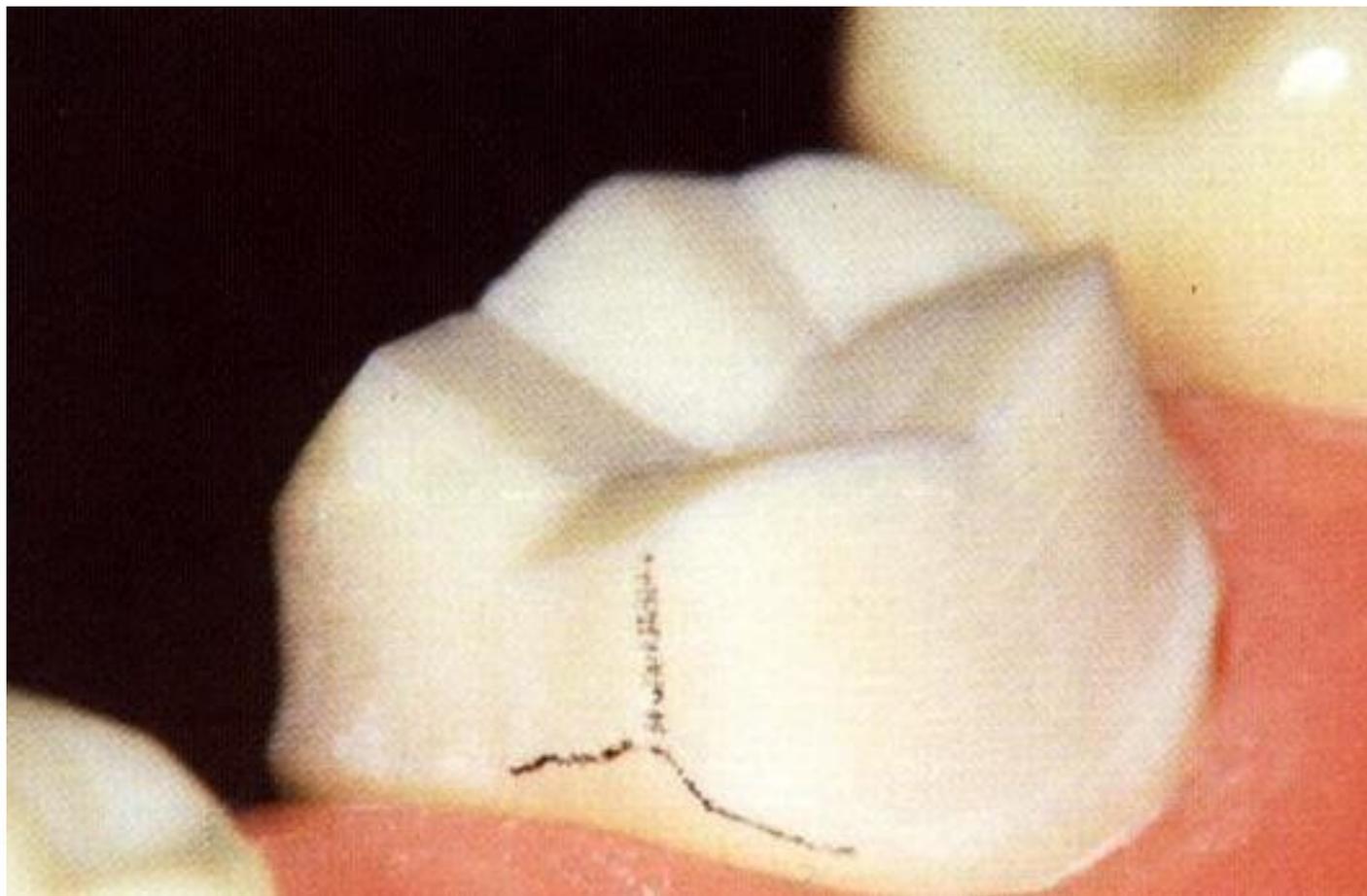
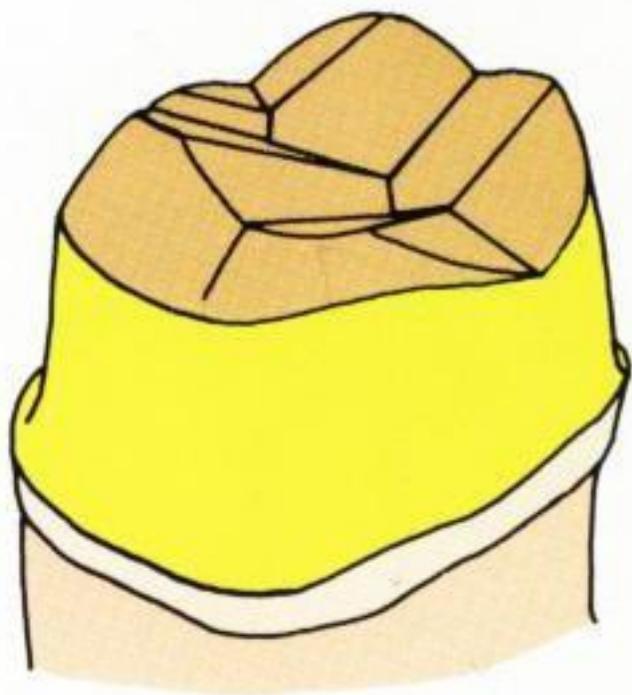
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# Evaluation and Finishing

# Flame bur



# unsupported cusps rounding





# The Metal –Ceramic crown

## Porcelain fused to metal (PFM)

- A crown restoration that consists of a complete-coverage cast metal crown (or substructure) veneered with a layer of fused porcelain to mimic the appearance of a natural tooth.



# Advantages of PFM

- longevity and retention
- superior resistance
- superior strength
- modify axial tooth contour and all walls of tooth
- Esthetics

# Disadvantages of PFM

- removal large amount of tooth structure Vs partial restoration.
- Periodontal damage
- vitality test cannot be done
- Porcelain fracture
- Cost effective
- Not very high esthetics



# Indications of PFM

- Esthetic cases specially in posterior area.
- Indications of all metal crowns:
  - ❖ extensive destruction from caries/trauma
  - ❖ endodontically treated teeth to avoid potential future fracture
  - ❖ maximum retention & resistance
  - ❖ high displacement forces like long-span fixed dental prosthesis

# Contraindications of PFM

- Teeth with large pulp chamber
- Intact buccal wall.
- Conservative preparations.

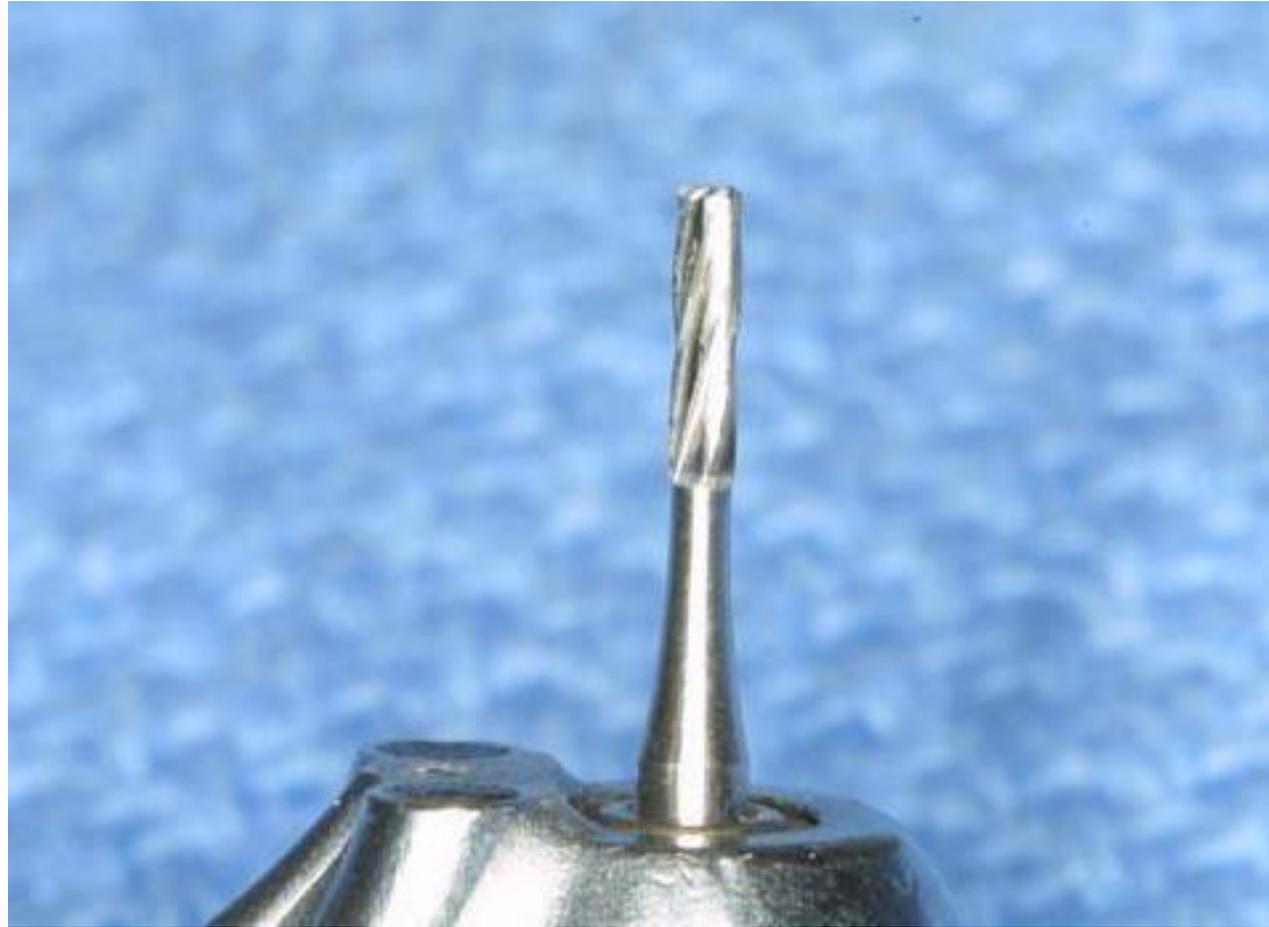
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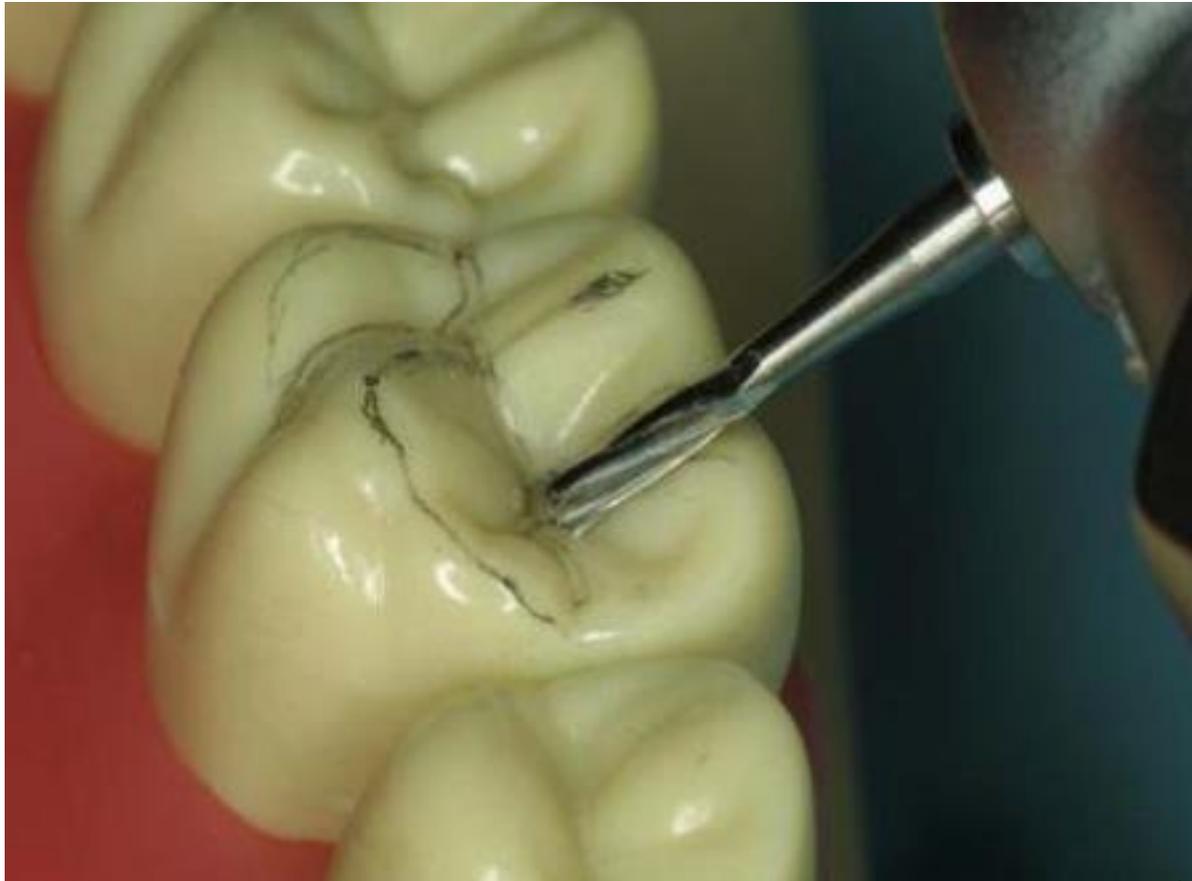
# Occlusal Reduction



# 1mm Straight bur



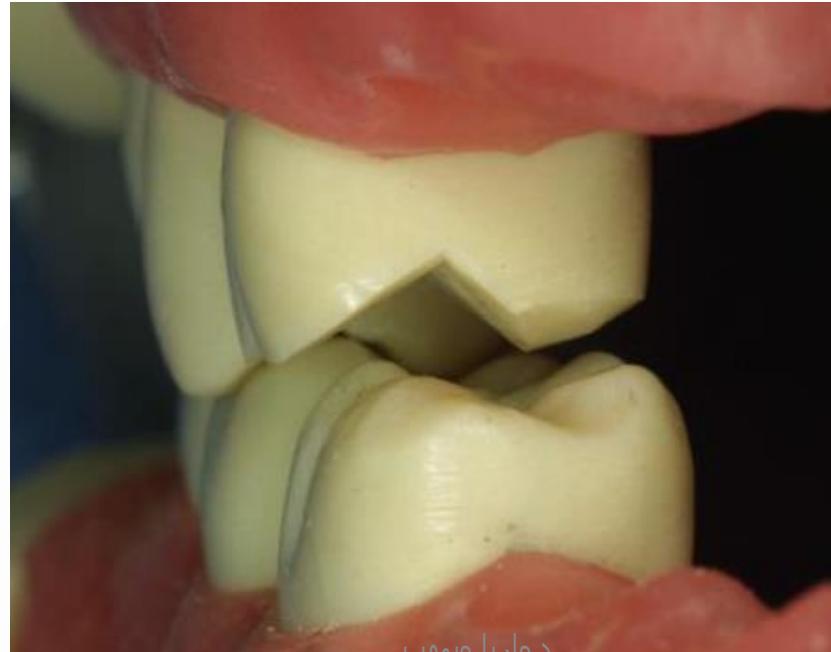
# Depth grooves



## Depth grooves connection



# Supported cusp bevel



# Axial Reduction

Parallel to axial walls





# Finish line

champher

Buccal Shoulder



# Evaluation and Finishing

# Flame bur



# unsupported cusps rounding

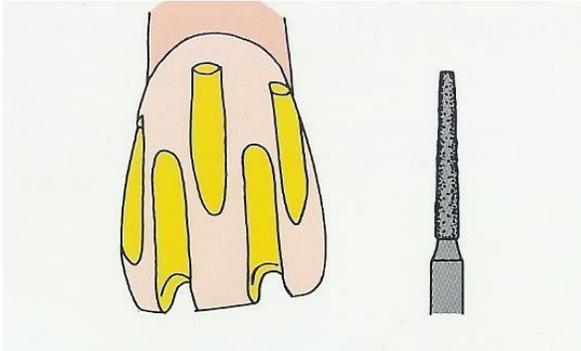


# The All-Ceramic crown

- A crown restoration that consists of all ceramic material without any metal core (or substructure) , to mimic the appearance of a natural tooth.

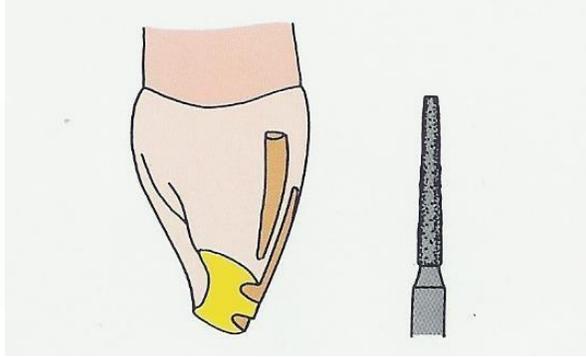
# Porcelain Crown

## All-ceramic crown



- Depth orientation grooves-parallel with the gingival portion
- Two or more vertical cuts in the incisal portion
- Grooves disappear near the middle of the facial surface, where the curvature of the surface is greatest



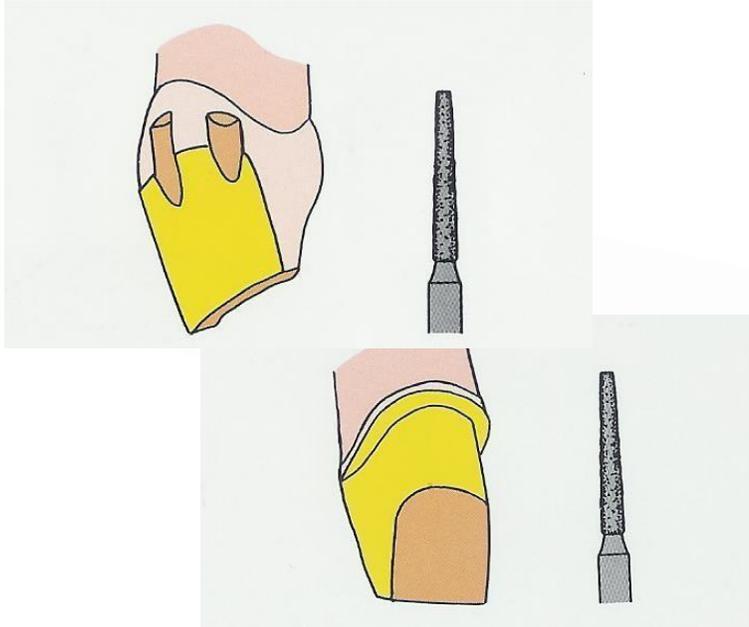


# Incisal reduction

- Incisal reduction: flat end tapered diamond
- 2.00mm deep faciolingual incisal orientation grooves
- Plane of the reduced incisal surface parallel with the former incisal edge, perpendicular to the forces of mastication (45 degree incisolingual bevel)



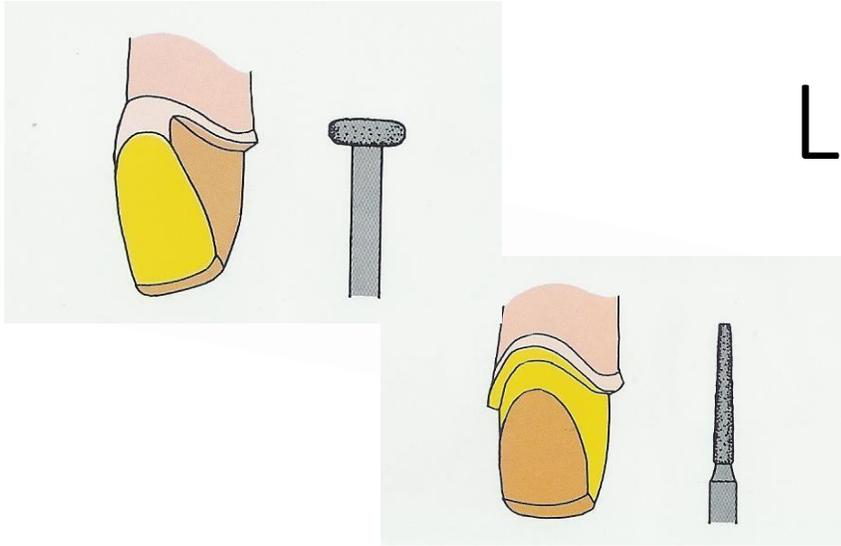
# Facial reduction



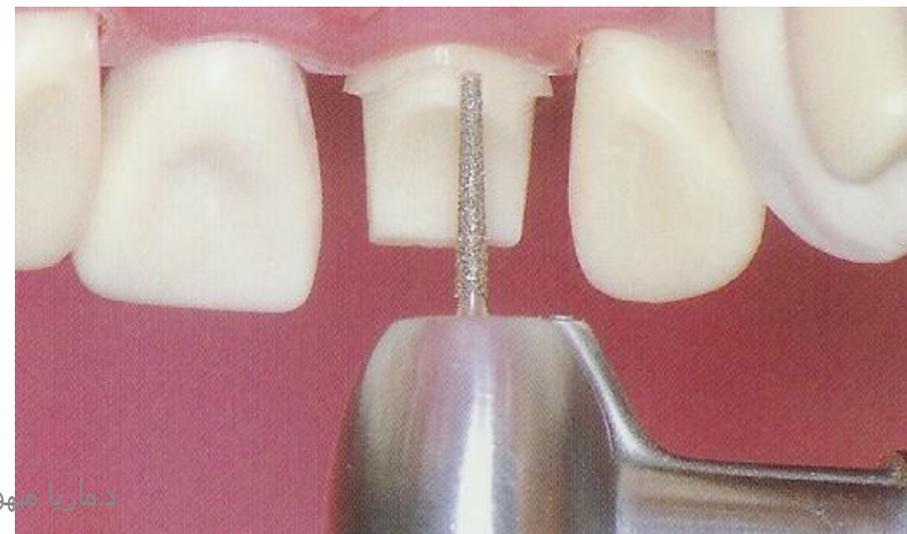
- Facial reduction, incisal half: flat-end tapered diamond
- Facial reduction, gingival half: flat-end tapered diamond
- Remove tooth structure between orientation grooves
- Extend facial reduction through proximal surfaces with flat-end tapered diamond, producing a shoulder in process



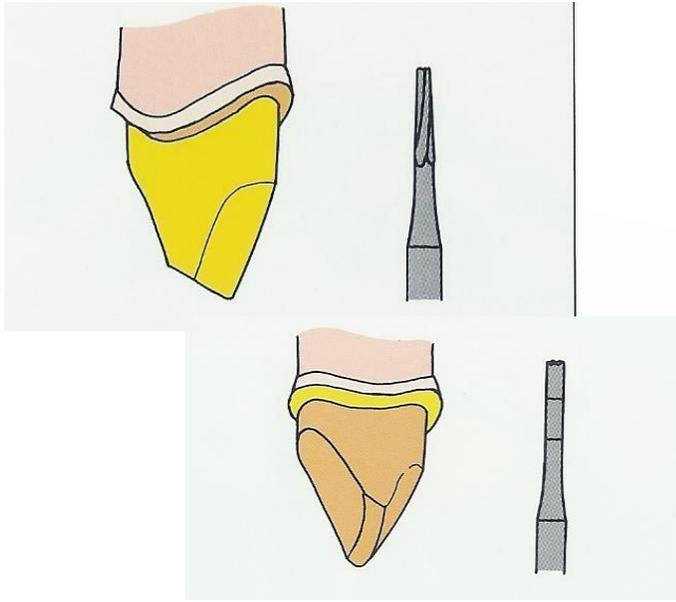
# Lingual reduction



- Lingual reduction: small wheel diamond
- Producing concave shape
- Curved surface reduce stress
- Lingual axial reduction: flat-end tapered diamond
- 1mm depth, minimum taper in relation to the gingival portion of facial surface
- Blend the reduction of axial surfaces, rounded preparation produces greater strength



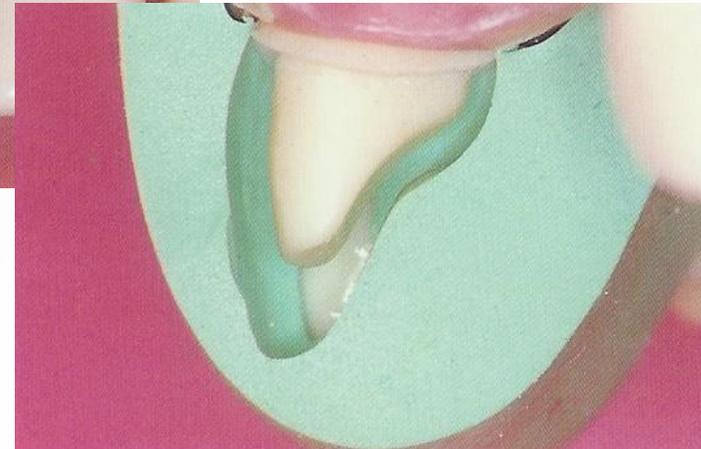
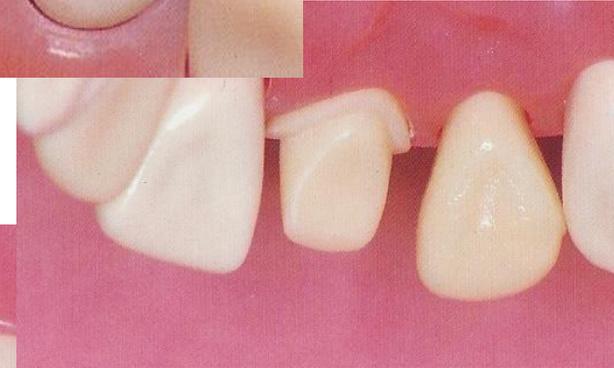
# M Shoulder



- Smooth axial surfaces with tapered fissure bar
- Round over all positive angles: sharp line angles cause crown to fracture
- 1.0 mm wide shoulder with flat-end diamond, smoothed with end-cutting bur
- Shoulder perpendicular to the line of force or to the long axis of tooth



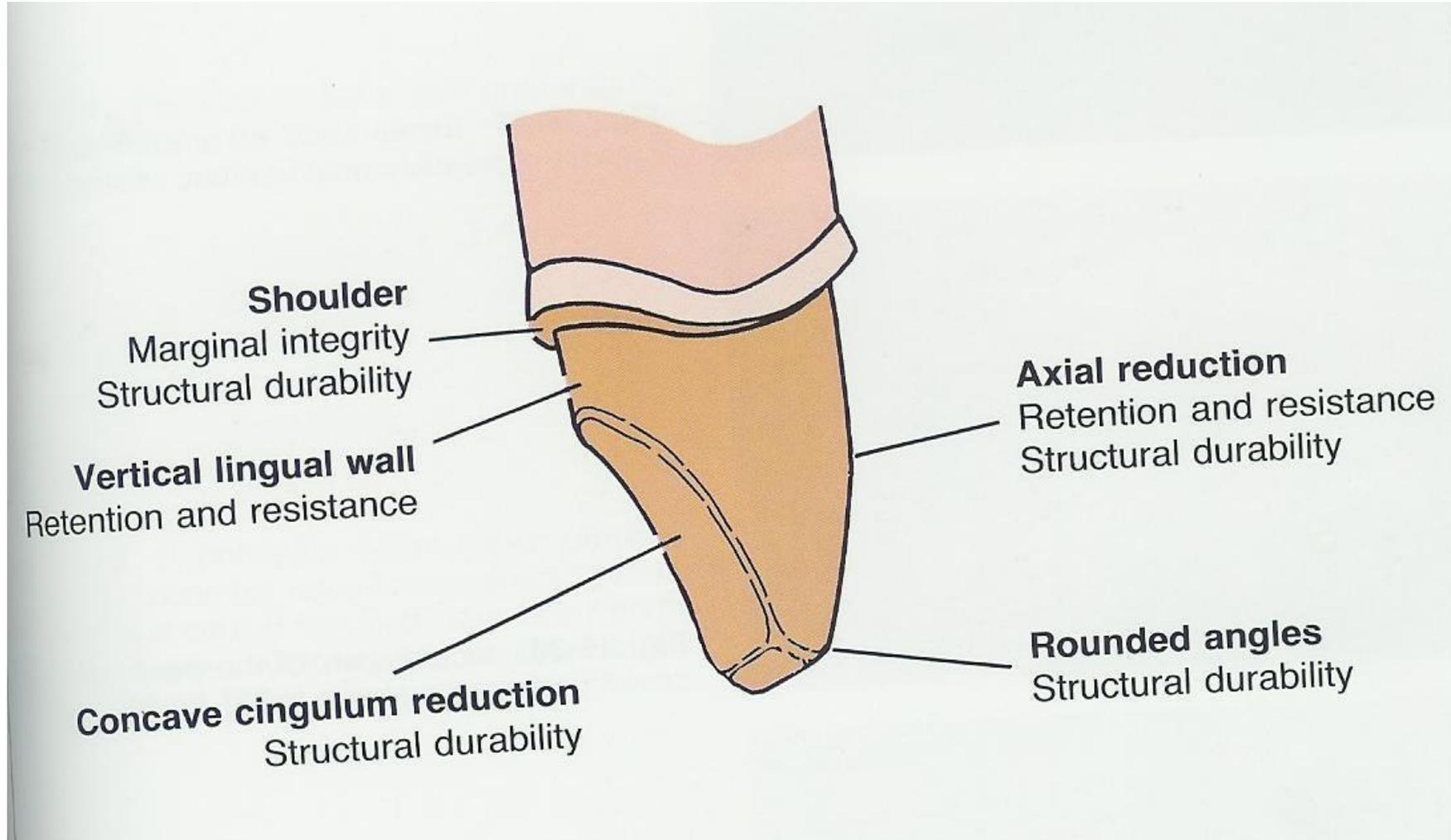
- Overall reduction can be checked with midsagittal index and horizontal facial index
- No sharp line angles on the lingual and incisal aspects of tooth





د. ماریا میہوب

# Features of preparation and function



Crown	Finish line	Functional cusps	Nonfunctional cusps	Axial walls
<b>All Metal</b>	Chamfer 0.5 mm	1.5 mm	1 mm	1 mm
<b>PFM</b>	Shoulder 1mm	2mm	1.5 mm	1.2-1.3 mm
<b>All Ceramic</b>	Rounded shoulder 1-1.2 mm	2mm	2mm	1.5 mm

