

Semmelweis University Faculty of Dentistry  
Department of Prosthodontics

# Types of prosthetic appliances

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# Types of prosthetic appliances

## Natural abutments (tooth, radix)

- retained
- supported
- 1. Fix appliances
- 2. Removable partial dentures (RPD)

## Implant

- retained
- supported
- 1. Fix appliances
- 2. Removable partial dentures (RPD)

# Types of the fixed prosthetic appliances

## Extracoronal

- Single tooth restoration
  - Full coverage crown
  - Partial coverage crown
  - Veners
- Bridge
- Splint
- Maryland bridge
- Inlay bridge
- CBW bridge

## Intracoronal

- Inlay
- Onlay

## Intraradicular

- Post and core
- Post

# According to retention

## Types of single tooth restoration:

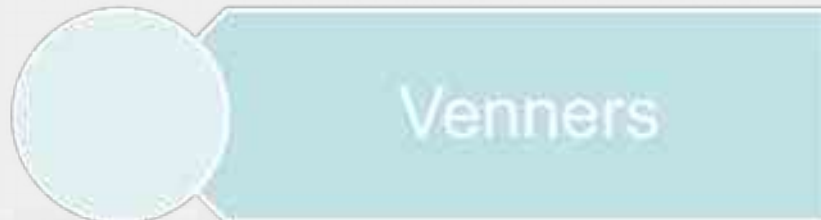
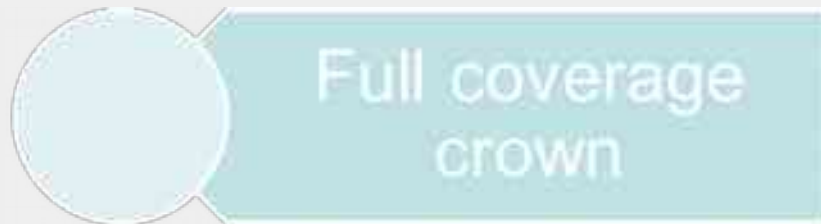
Extracoronal

Intracoronal

Intraradicular

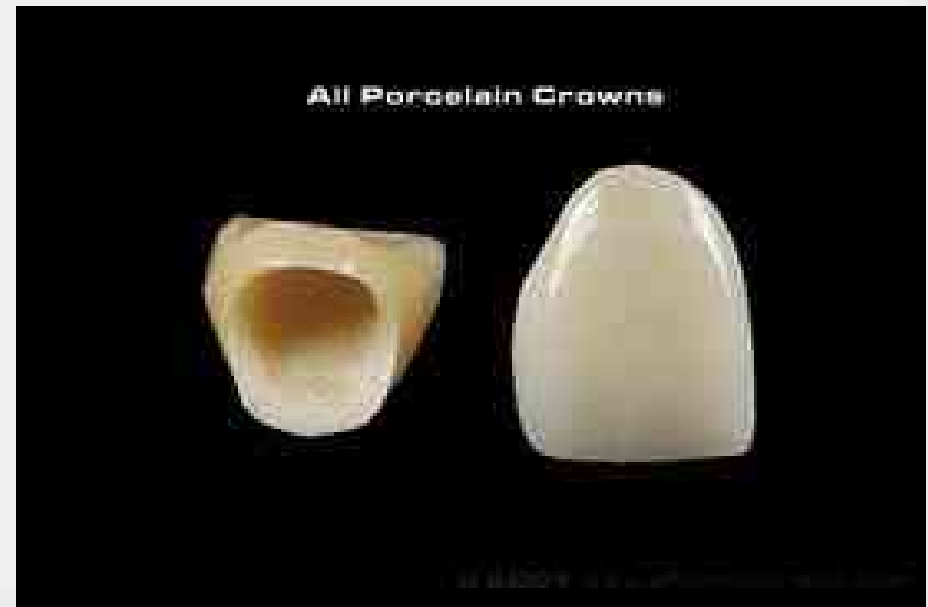
# Extracoronaral restorations

## Single tooth restoration :



# Full coverage crown

Restore/cover all surface of the clinical crown of the prepared tooth



# Material of the full coverage crown

Metal

Non metal (ceramic, composit)

Combination

# Metal crown

- Mainly for posterior teeth (upper arch)
- Tooth structure preservation
- Long span bridge
- Economic reason





# All ceramic

## Advantage:

Superior esthetics

Good tissue response – marginal gingiva

Metal free - allergy



## Disadvantages:

Reduced strength compared to porcelain fused to metal crown

Preparation → pulp opening

# All ceramic

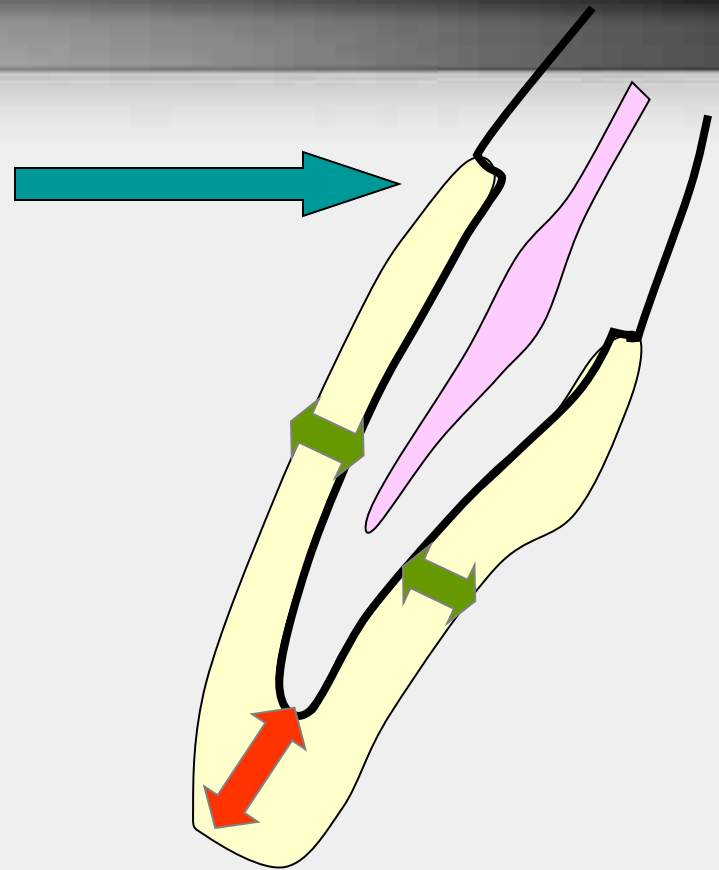
## Indication:

- high esthetic requiremet (anterior teeth)
- suffient coronal strucutre to support the porcelain



# Critical criteria

- 1mm min at 90 ° shoulder margin
- 1mm min all round buccal and palatal
- 1.5mm min at incisal edge



# Fiber reinforced composites

## Indication:

- high esthetic requiremet (anterior teeth)
- decrease wear to antagonists
- metal free
- single crown or short front bridge

# Material of the full coverage crown

Metal

Non metal (ceramic, composit)

Combination

# Combination of materials



Porcelain  
fused to metal



Acrylic  
veneered  
metal crown

# Porcelain fused to metal crown

## **Advantages of porcelain fused to metal crown:**

- The strength from metal substructure is its major advantage
- It resists occlusal and other forces well.
- It may allow minimum palatal reduction.
- Can be adapted to many shape of tooth preparation.
- Additional retention can be gained in difficult preparation by the use of pins or grooves.

# Pocelain fused to metal crown

## Principals of tooth preparation

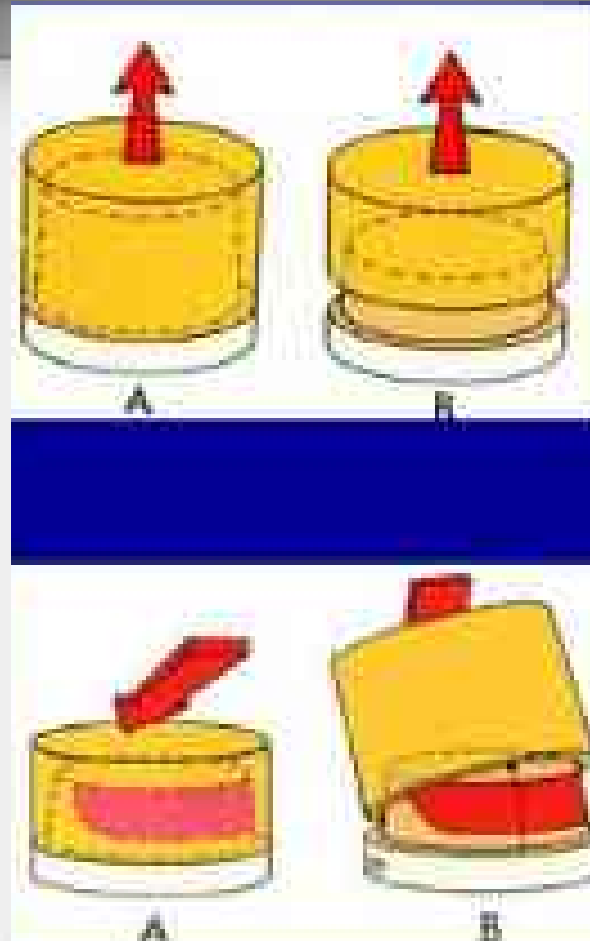
1. Preservation of tooth structure
2. Retention and resistance
3. Structural durability
4. Marginal integrity
5. Preservation of periodontium



# Principals of tooth preparation

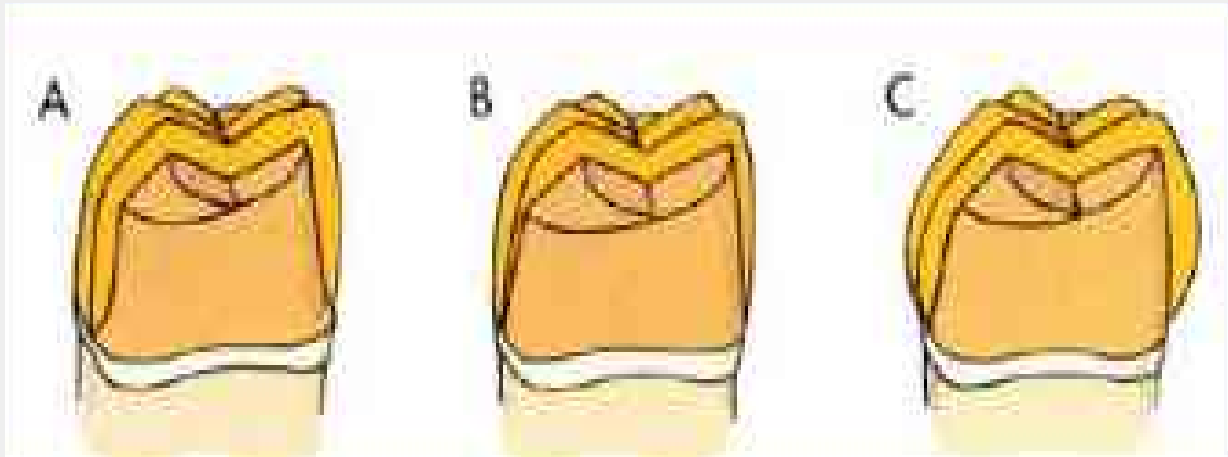
**Preservation of tooth  
structure**

# Principals of tooth preparation



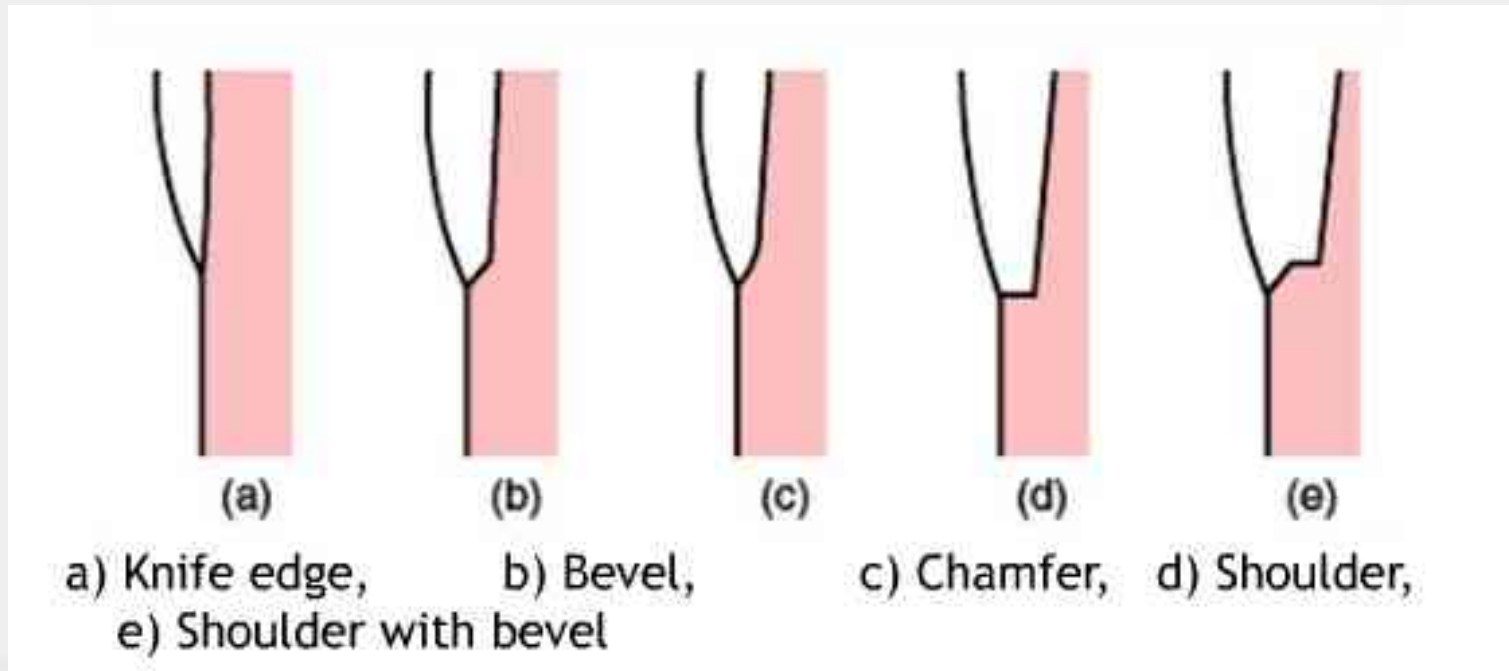
# Principals of tooth preparation

## Structural durability



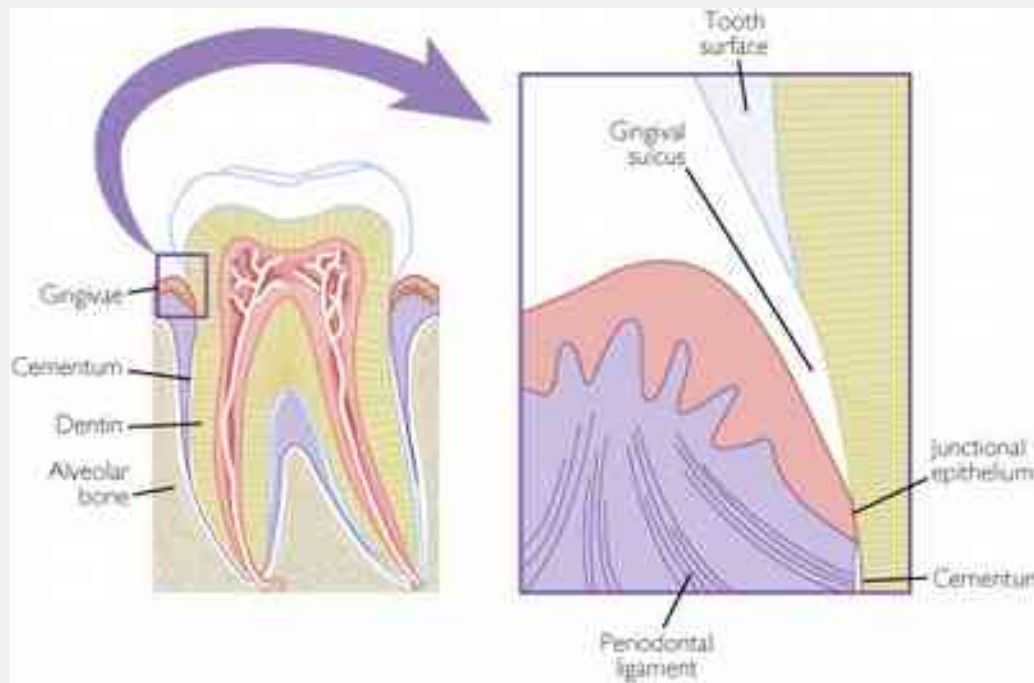
# Principals of tooth preparation

## Marginal integrity



# Principals of tooth preparation

## Preservation of periodontium



# Extracoronary restorations

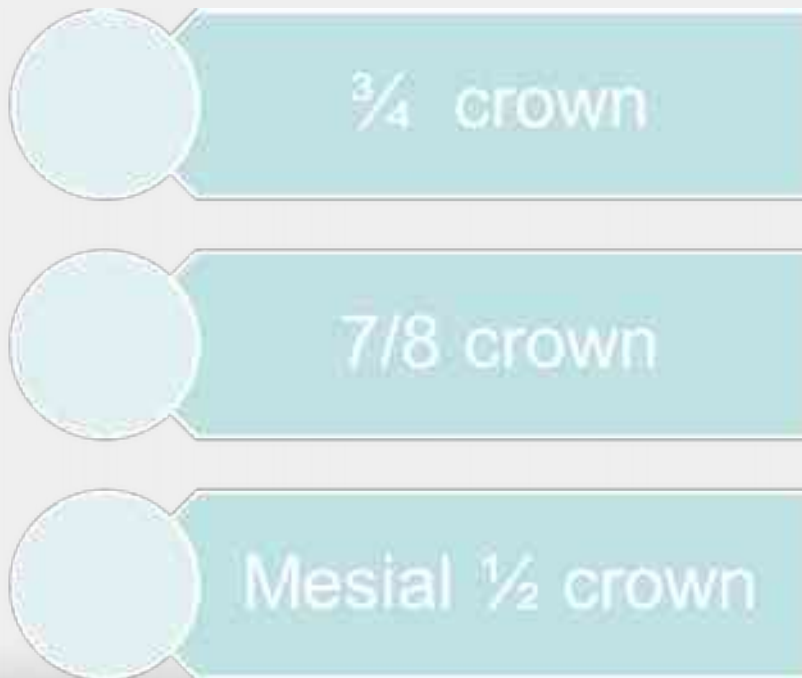
## Single tooth restoration :

**Cover only the damaged coronal part of the tooth**



# Partial veneer crown

Restore only a portion of the missing clinical crown



# Partial veneer crown

Types according to retention:

- Retention by grooves
- Retention by pins
- Combination





# Indications for partial veneers:

- Intact or minimally restored teeth
- Teeth with crown length that is average or exceeds average
- Teeth with normal anatomic crown form without cervical constriction
- Anterior teeth with adequate labio-lingual thickness

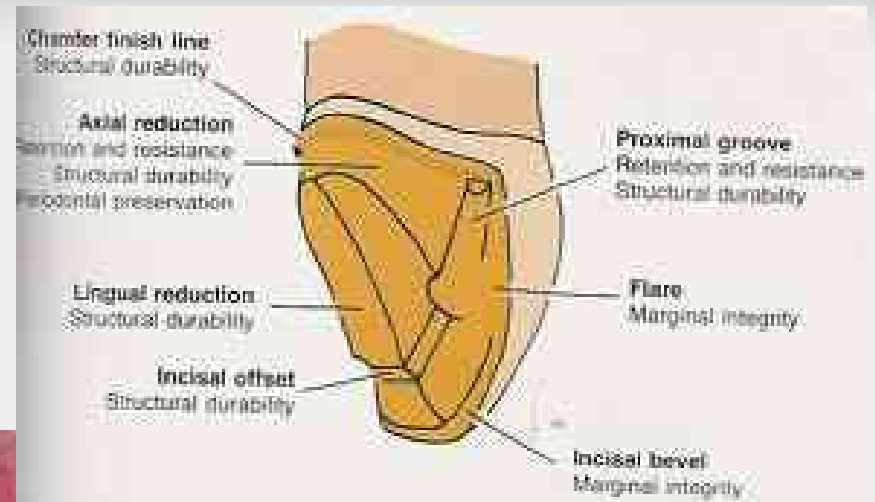
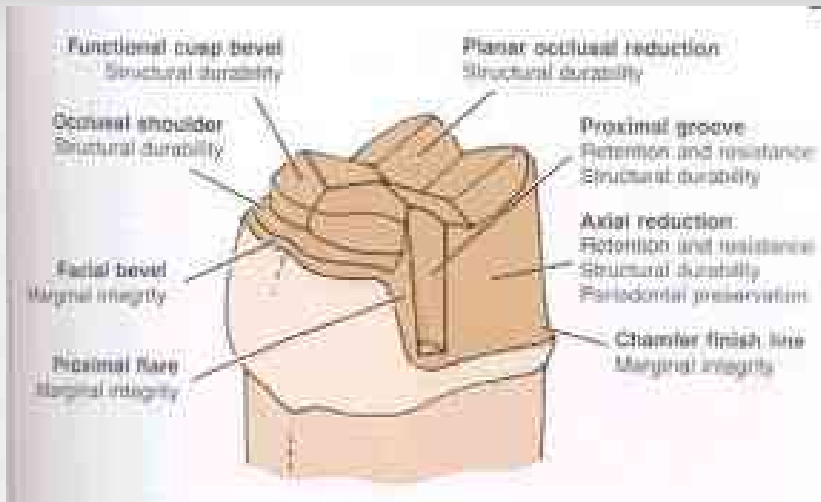
# Advantage:

- Conserves tooth structure
- Easy access to margins for finishing (for dentist)
- Less gingival involvement than with complete cast crown
- Aesthetics are superior to that of the complete crowns
- Electric pulp testing can be done on the intact surface
- Complete seating of the restoration can be easily verified

# Disadvantage:

- Retention is less than that of complete veneer crown
- Skilful preparation is crucial to avoid metal display
- Preparation is limited to teeth with normally shaped, average length clinical crown

# Partial veneer crown



# Extracoronary restorations

## Single tooth restoration :

**Cover only the damaged coronal part of the tooth**



# Veneers

*Dental veneers (dental laminates)* are covered the front surface of the tooth. They are made from easthetic, tooth-colored material.



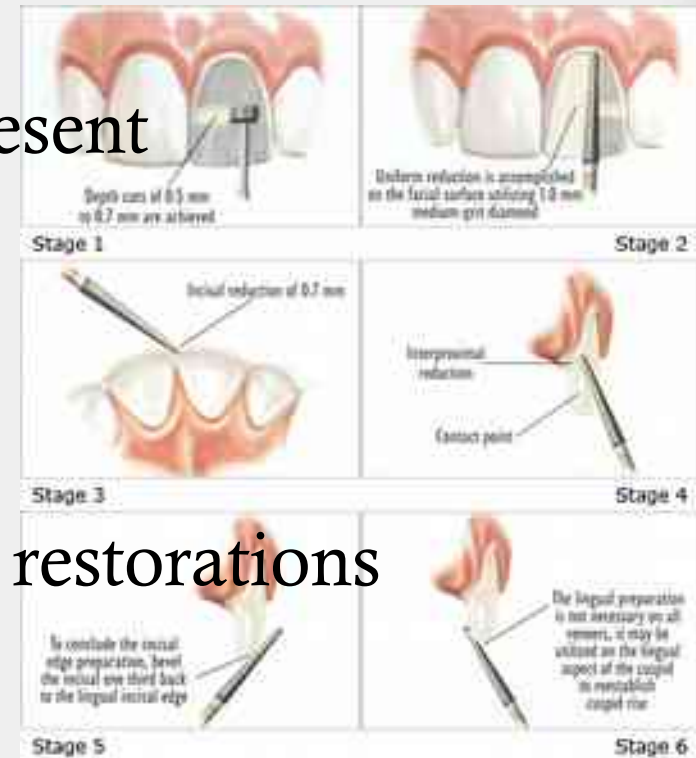
# Indications of veneers

- Esthetically compromised anterior teeth
- Poorly shaped or crooked teeth
- Stained teeth (intrinsic/extrinsic)
- Closure of diastemas
- Enamel hypoplasia
- Fractured teeth
- Anatomically malformed teeth
- Tooth wear



# Contraindications of veneers

- Crowded teeth
- Teeth with inadequate enamel present
- Patient with habitual clenching and grinding
- Non-ideal occlusion
- Teeth weakened by existing large restorations





# According to retention

## Types of single tooth restoration:

Extracoronal

Intracoronal

Intraradicular

# Intracoronal restorations:



## Inlay

- Indirect restoration: occlusal surface excluding cusps



## Onlay

- Indirect restoration: occlusal surface plus cusp(s)

# According to retention

## Types of single tooth restoration:

Extracoronal

Intracoronal

Intraradicular

# Intraradicular restoration

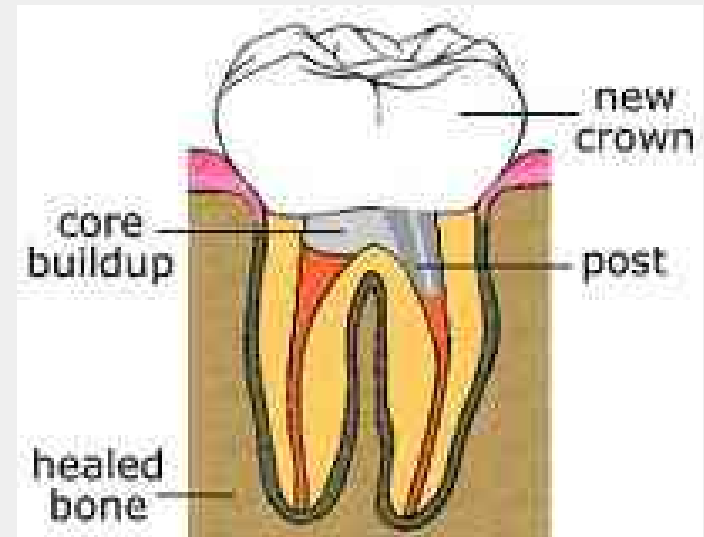
## Definition:

### Dowel:

a post, usually made of metal or fiber reinforced composite material that is fitted into a prepared root canal of a tooth that has had endodontic therapy

### Core:

the coronal aspect of the post foundation



# Intraradicular restoration: post and core:

## Insufficient sound coronal tooth structure due to:

- Caries
- Endodontic treatment
- Previous restorations

## Consequences of insufficient coronal tooth structure

- Retention of subsequent restorations are problematic
- Increases likelihood of fracture during functional loading



# Intraradicular restoration: post and core:

## Indications:

- to retain restoration
- to protect remaining tooth structure

## Contraindication:

- malformed tooth
- severe curved root
- need for further retreatment

# Preparation- post and core

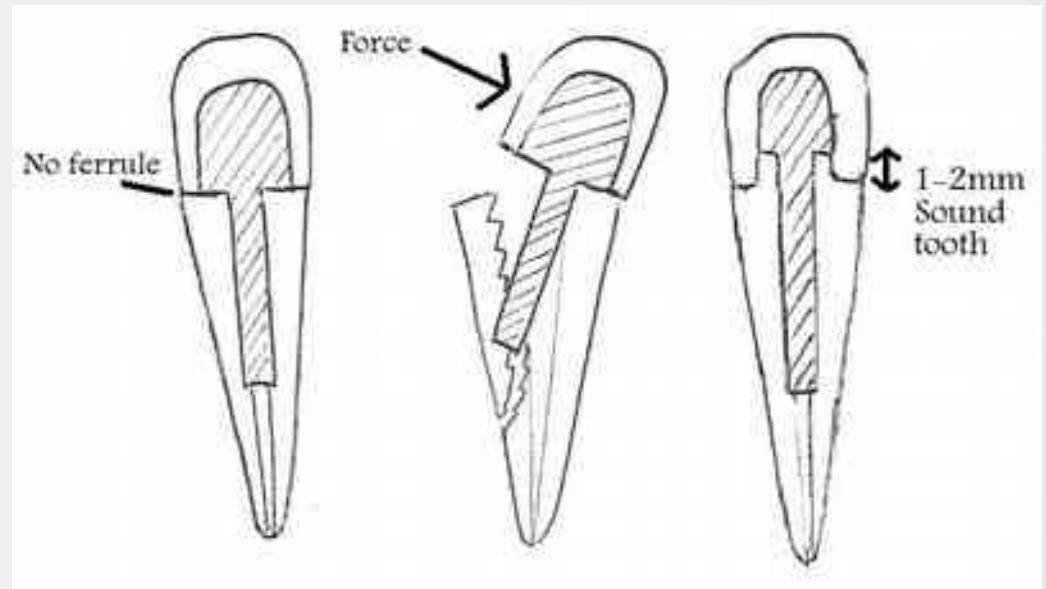
- Conservation of tooth structure
- Retention form
- Resistance form

# Conservation of tooth structure

**Canal preparation** - 1-2 additional file sizes beyond the largest size used

## **Coronal part preparation-**

- removal of undercuts
- ferrule (extension of axial wall of the crown apical to the missing tooth structure)





# Retention form

- Post length
- Post diameter
- Surface texture
- Luting agent

# Post length:

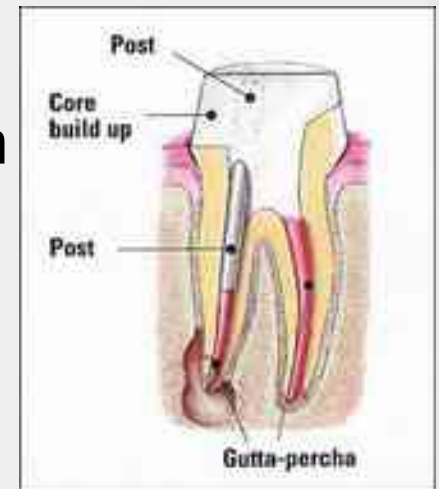
- Greater post length=greater retention
- **2/3 length of root** / post length should equal crown length
- make the post approximately **three-quarters the length of the root when treating long-rooted teeth**;
- when average root length is encountered, then post length is dictated by **retaining 3-5 mm of apical gutta-percha** and extending the post to the gutta-percha
- whenever possible, posts should **extend at least 4 mm apical to the bone crest** to decrease dentin stress.

# Post diameter

Post diameter is to not exceed one-third the root diameter

A minimum of 1 mm of sound dentin should be maintained circumferentially

Each millimeter of increase (beyond one-third the root diameter) causes a sixfold increase in the potential for root fracture.



# Classification I.-Technique:



Direct



Indirect

# Classification II.-Materials:



Metal

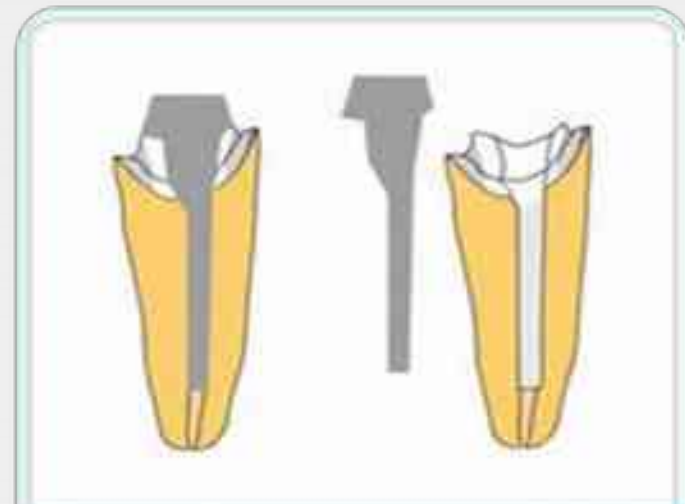


Non-metal  
Fiber, zircon

# Classification III.- Retention:



Direct



Indirect

# Classification IV.:



Pre-fabricated



Custom-made

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## Intraradicular

- Post and core
- Post



# Bridge

It is a fixed restoration replaces one or more missing teeth. It is cemented to the natural teeth, roots, implants or fixed with a screw to an implant.

Parts:

Abutment

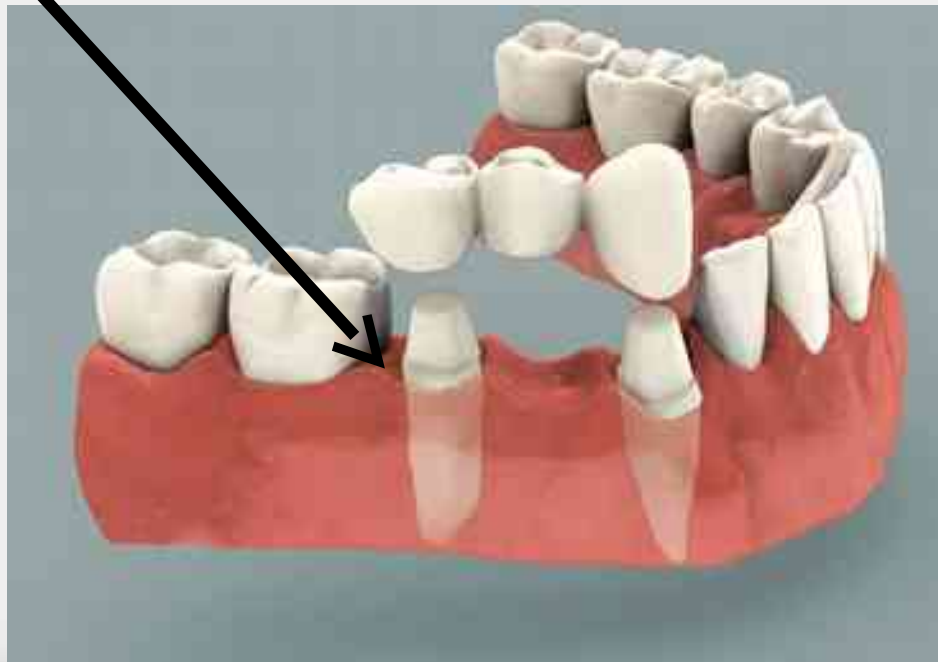
Retainer

Pontic



# Bridge - Abutment

Natural tooth, root or an implant used to support and retain the bridge



# Bridge – Retainers

Connection between abutments and pontic.



According to the retention:



# Bridge – Pontic

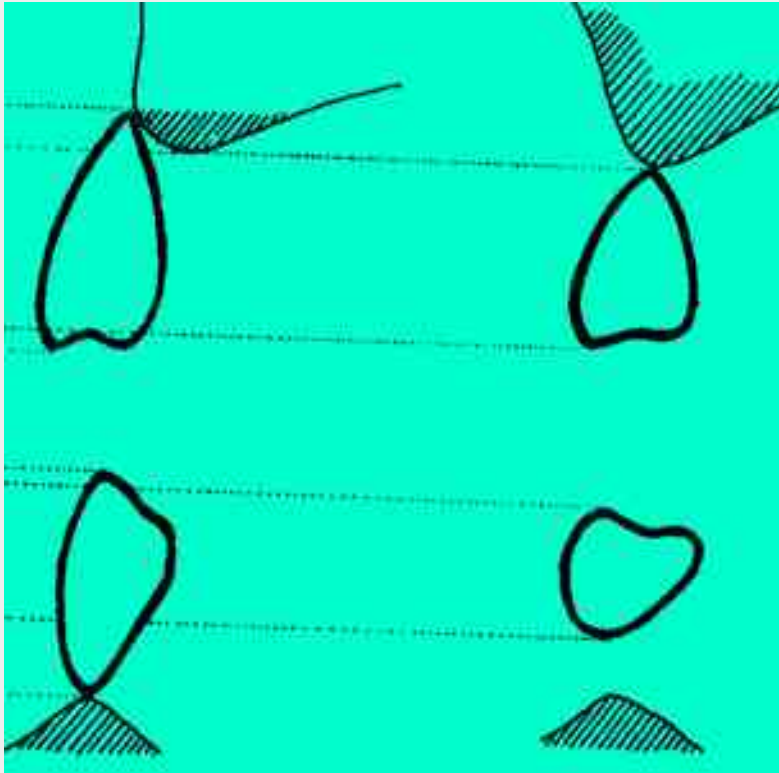
Artificial coronal part of the missing tooth to be replaced



# Pontic – general considerations

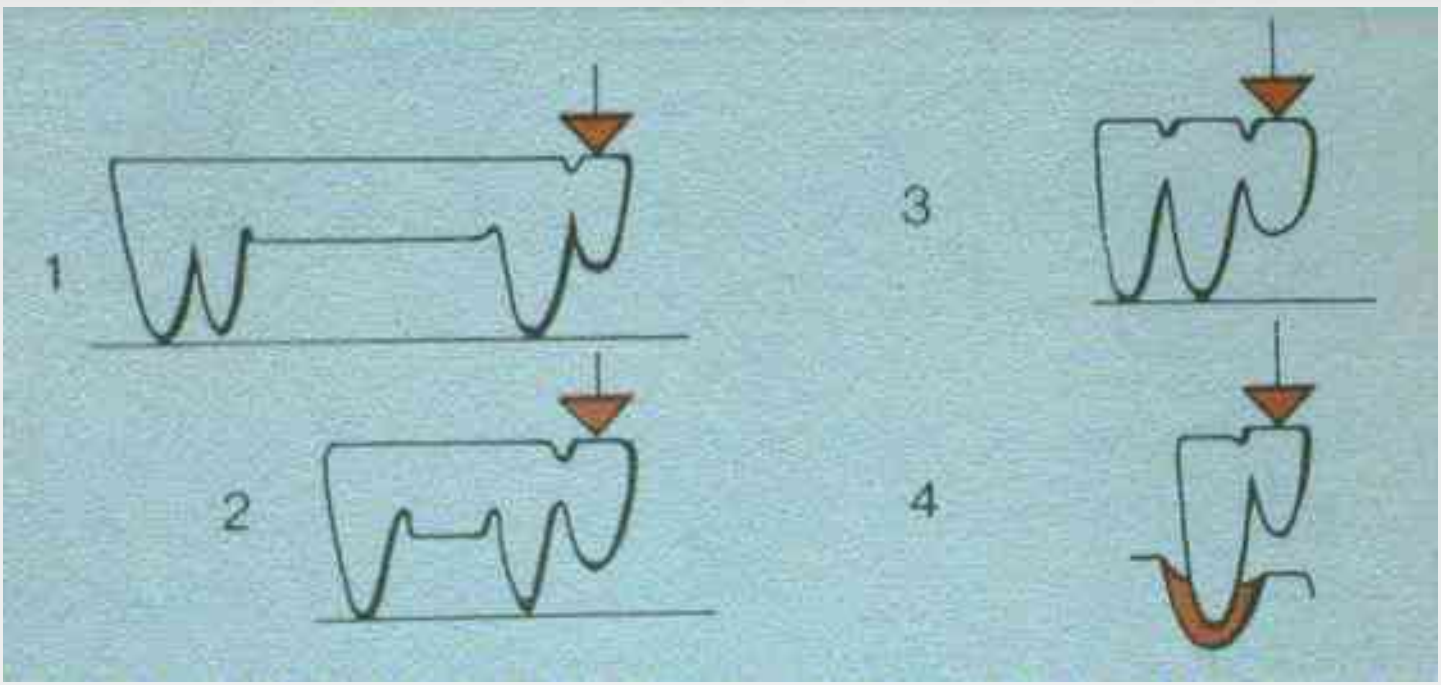
- Biomechanical considerations
- Aesthetics considerations
- Hygienic considerations
- Phonetic considerations

# Hygienic considerations



- SADDLE
- RIDGE LAP
- HYGIENIC
- CONICAL

# Cantilever fixed partial denture



# Cantilever fixed partial denture

Mesial

Distal

Distal-distal





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# Removable dentures

Partial edentulousness

Complete edentulousness

# Removable dentures

## Partial edentulousness

### Retainers

- clasp
- precisional attachment
- telescopic

### Support

- dentomucosal
- mucodental







Thank you for your attention!