

what is the crown ?

Is a restoration which encompasses coronal tooth tissue. Covering remaining tooth substance and restorations or dental implant. Dental crowns may be used to anchor a dental bridge and is typically bonded to the tooth using dental cement. Crowns can be made from many materials of metal, or porcelain to restore strength and eliminate discomfort.



preparation and crowns



dental implant



bridge

How to do the preparation?

crown and bridge burs kit



How to do the preparation?

Colour coding of burs



Key to the diamond grit

ring colour	silicone support colour	type	grit in μ
● Green	● Green	coarse	125
-	● Blue	medium	105
● Red	● Red	fine	40
● Yellow	● Yellow	superfine	20

How to do the preparation?

Measure your bur diameter

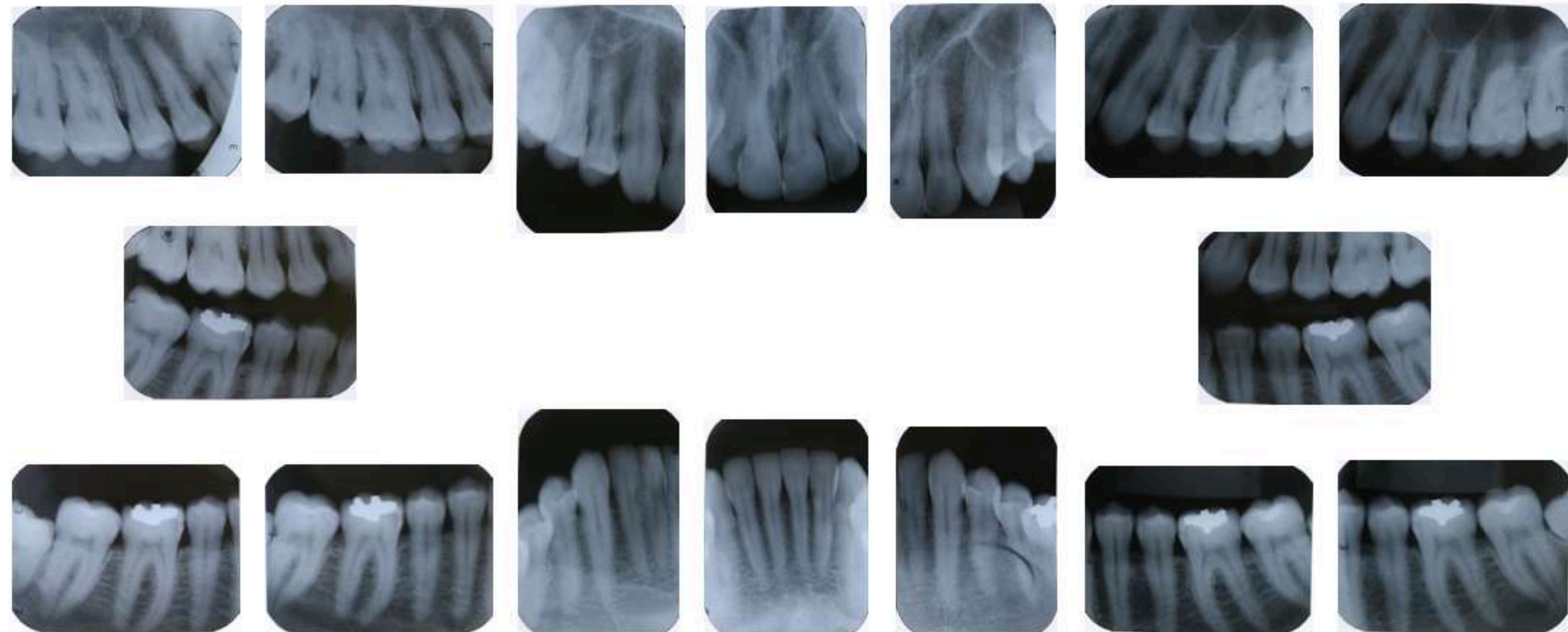
finishing and polishing



How to do the preparation?

NOTE!!!!

X-Rays



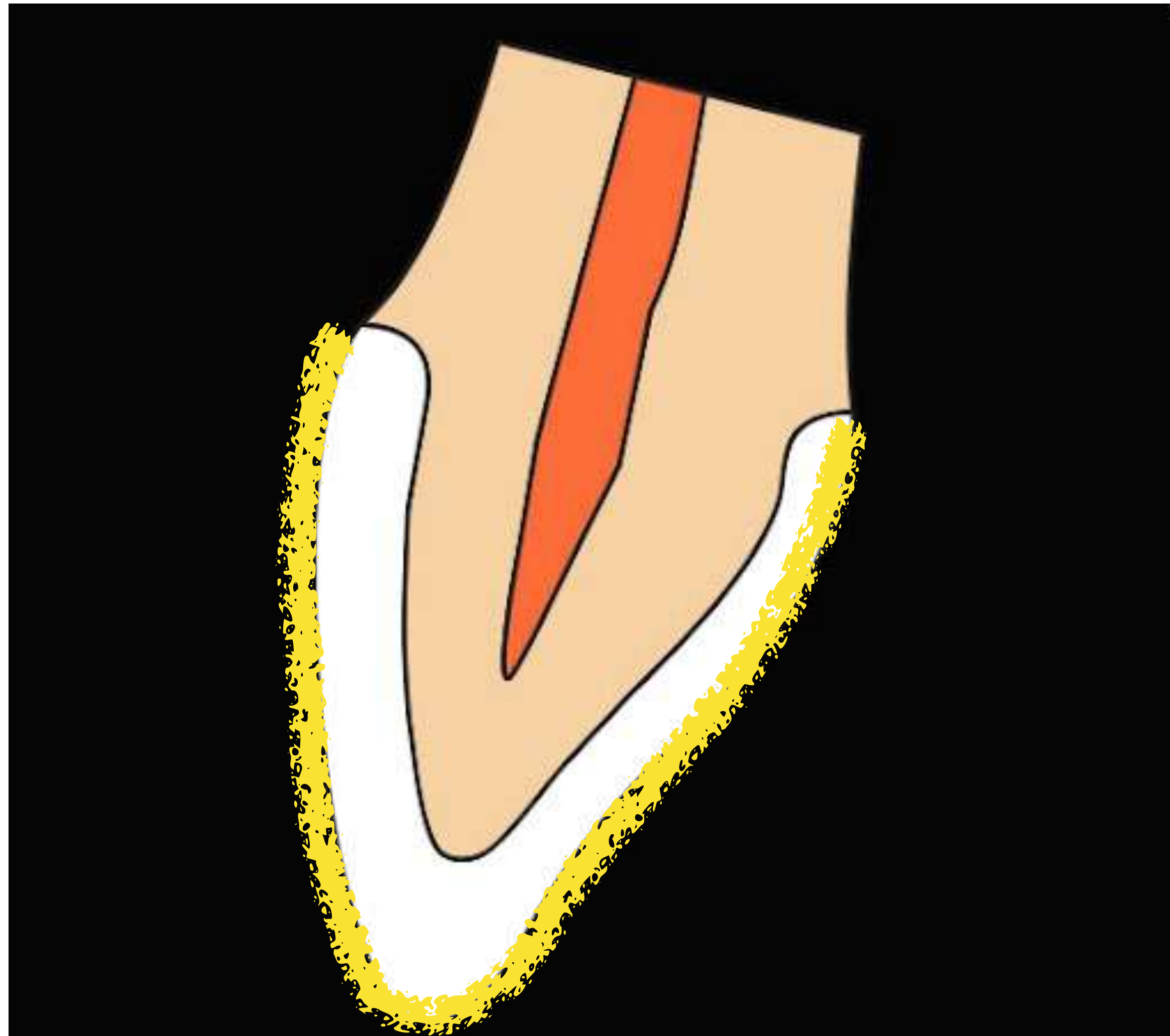
How to do the preparation?

Depth orientation grooves



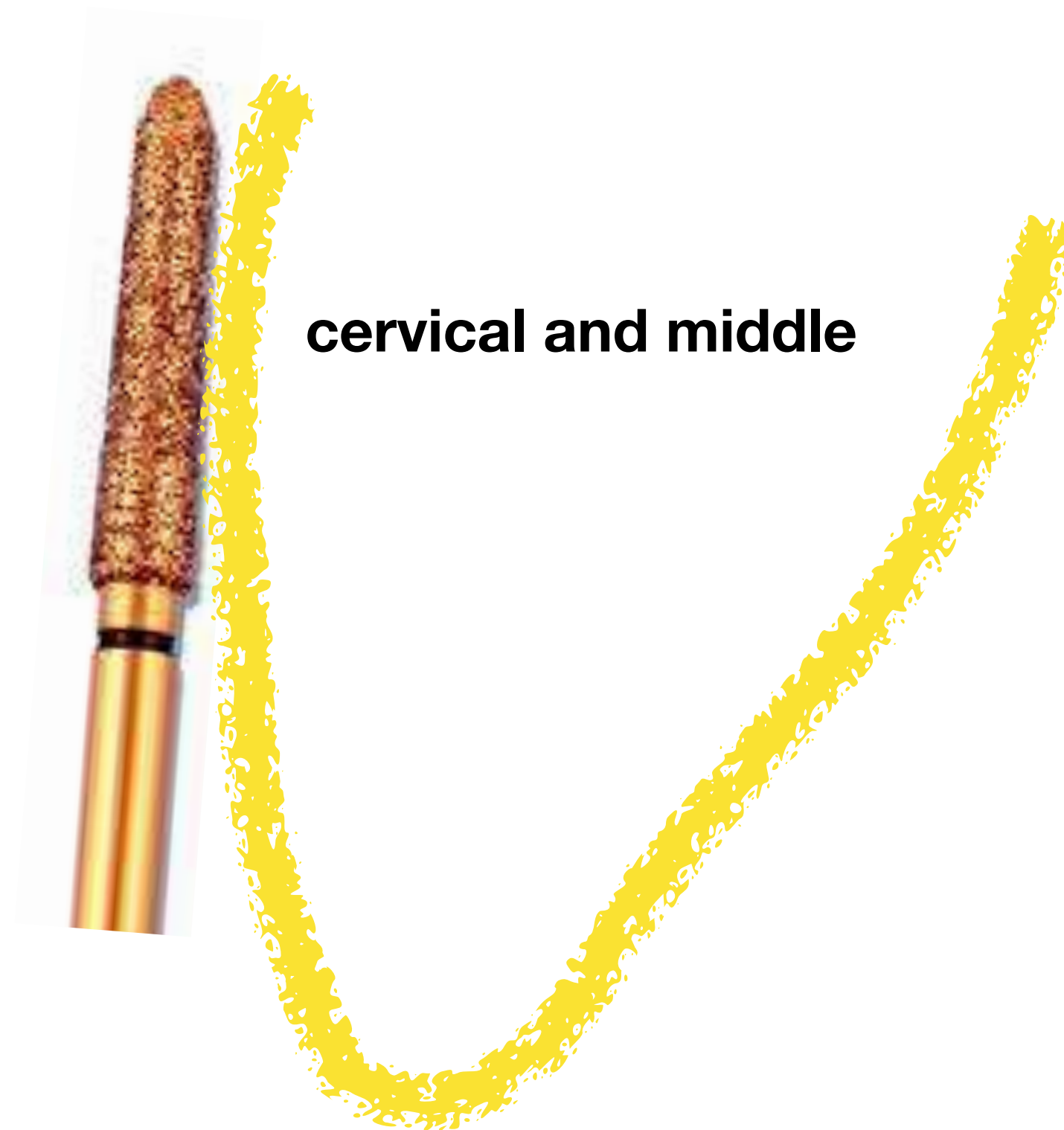
How to do the preparation?

Depth orientation grooves



How to do the preparation?

Depth orientation grooves



How to do the preparation?

finishing and polishing

To smoothening the prep.

well defined finishing line

smooth finishing line on the cast

finishing and polishing



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crown and bridge

Dr. Auday Asady

How to do the preparation?

finishing and polishing

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How to do the preparation?



3. Lingual surface: the DOG is placed in the middle parallel to the long axis of the tooth and by moving the bur mesially and distally we complete the reduction. This type of preparation is done in one plane as it is indicated for the lingual lower and buccal upper molar and premolar teeth.

4. Proximal surfaces: we start with a fine tapered diamond fissure bur (needle type) to open and remove the contact area carefully without touching the adjacent tooth, because we are going to create a rough surface in addition to removing the outer layer of enamel which is saturated with fluoride which leads to high caries susceptibility. The bur should be rested on the prepared tooth itself and by moving the bar up and down the contact will be removed.

Finally any sharp angle should be removed to prevent fracture due to stress concentration, sometimes seating groove is placed in the buccal surface of the lower and the palatal surface of the upper molar teeth which act as a guide during placement of the crown.

The advantages of these seating grooves are:

- 1– To prevent the rotation of the restoration.
- 2– Increase the surface area of preparation so it enhance the retention and the resistance.
- 3–Improves the seating of crown as it enhance the escape of the excess cement during cementation.

Types of crowns: (classification)

A) According to coverage area

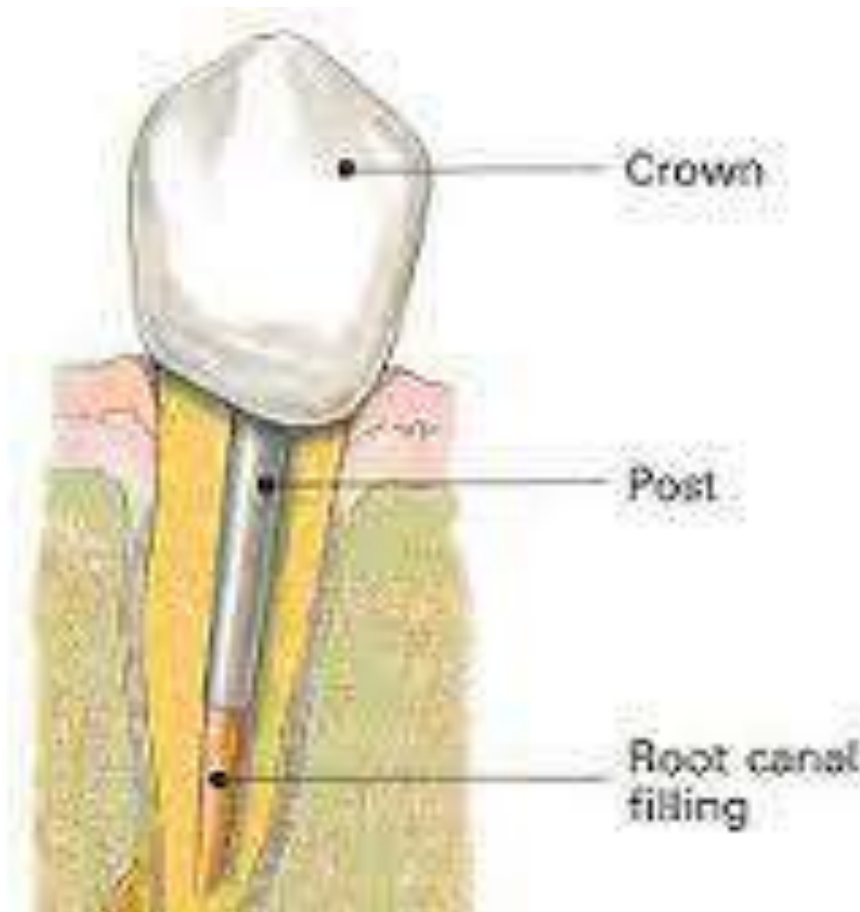
- 1. Complete crown: It is the crown that covers all the coronal portion of the tooth, such as full metal crown, all Ceramic crown which is a complete crown made of ceramic material.**
- 2. Partial Crown: It is a crown that covers part of the coronal portion of the tooth such as 3/4 Crown, 7/8 Crown.**
- 3. post crown: it involve those which replace the natural crown entirely. This type of crown retains itself by means of post extended inside the root canal space of the tooth .**

B) According to Materials: According to Materials used in the construction of crown and Bridge crown restorations could be made of:

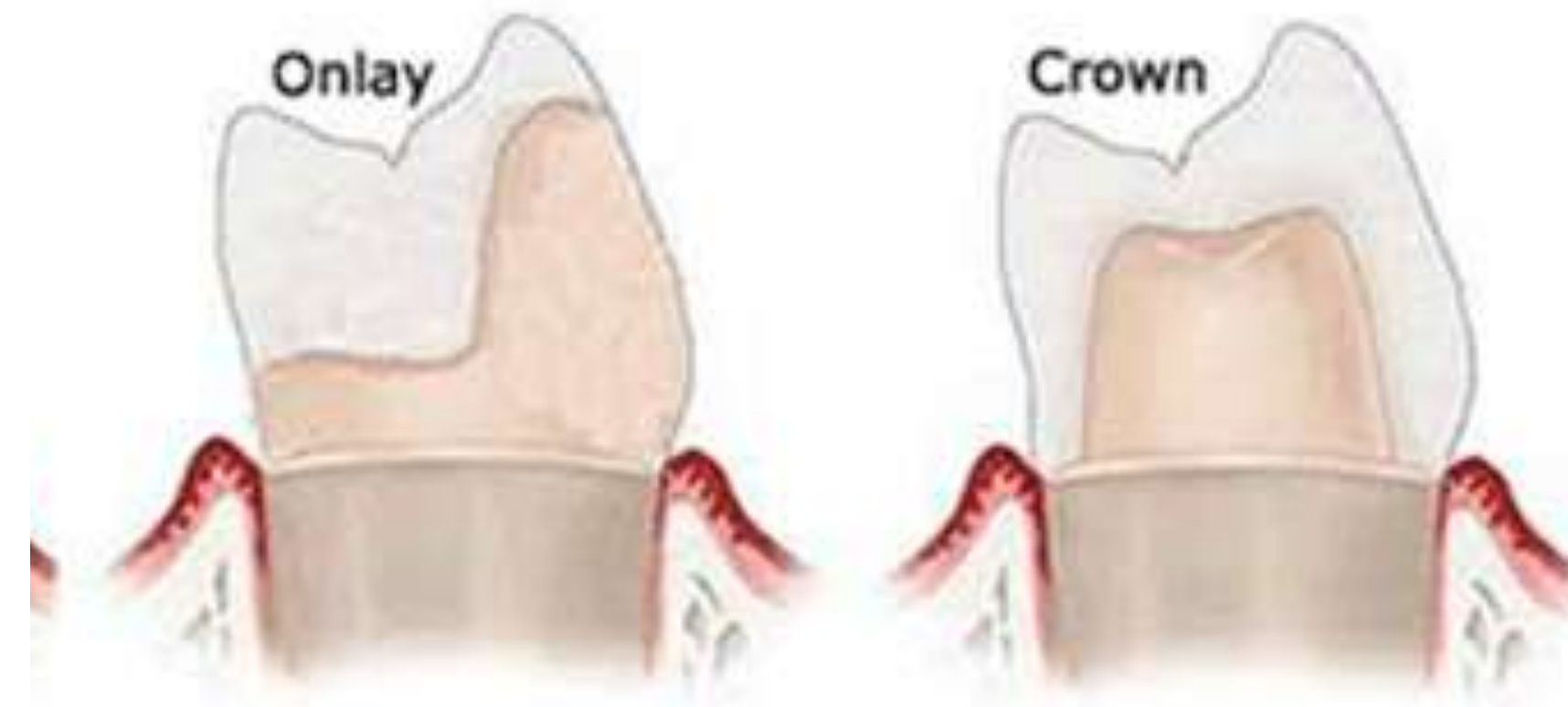
- 1. Metal Crowns {Gold alloy and its alternatives} as in Full metal Crown and 3/4 Crown.**
- 2. Non-metal crowns: Such as Acrylic resin, Zirconium or Porcelain as in jacket crown.**
- 3. A combination: of metal and plastic materials as in PFM Crown restorations.**

Purposes Of crown Construction

1. To restore the grossly damaged tooth, fractured tooth or a tooth with a heavy filling [amalgam or composite].
2. To restore the masticatory function and speech.
3. To restore the esthetic [hypoplastic condition whether heredity defect or Acquired defect].
4. To maintain the periodontal health by re-contouring the occlusion and prevents food impaction.
5. To alter the occlusion (occlusal relationship) as a part of occlusal reconstruction to solve occ. Problem or to improve function.
6. As a retainer for the bridge.



Post crowns:



Partial coverage:

Full coverage:

Steps in crown construction

1. Diagnosis: The first step should be diagnosis of the tooth and Surrounding Structures.

a) Periodontal Examination: Proper oral hygiene should be available to ensure that no plaque accumulation is formed on the crown margins, which might lead if left to caries.

b) Dental examination

i. Visual: The occlusion, Crowding, Spacing, Rotation of teeth are examined .The condition of remaining tooth Structure and future treatment is also analyzed.

ii. Radiographic: The radiographic film reveals the condition and shape of the roots and surrounding structures. A lesion in the bone, Root canal treatment, Fracture in the tooth, bone Loss, un-erupted teeth, Size and number of teeth etc...These Information Affects the prognosis of the treatment.

2. Tooth Preparation: It is the cutting or instrumentation procedure that carry on the tooth during crown construction procedure. Prepared tooth: It's the final form or shape of a tooth after cutting (Preparation) procedure.

3. Final impression.

4. Temporary restoration (Crown).

5. Construction of working model.

6. Waxing.

7. Investing.

8. Wax Elimination.

9. Casting.

10. Finishing and polishing.

11. Try-in &Cementation Of the restoration.

Objectives of tooth Preparation

1. To eliminate undercuts from the axial surface of the tooth.
2. To provide enough space for the crown restoration to withstand the force of mastication, this space depends on the material used, so the metal material needs little space while the plastic material needs more space.

Disadvantages Of crowns

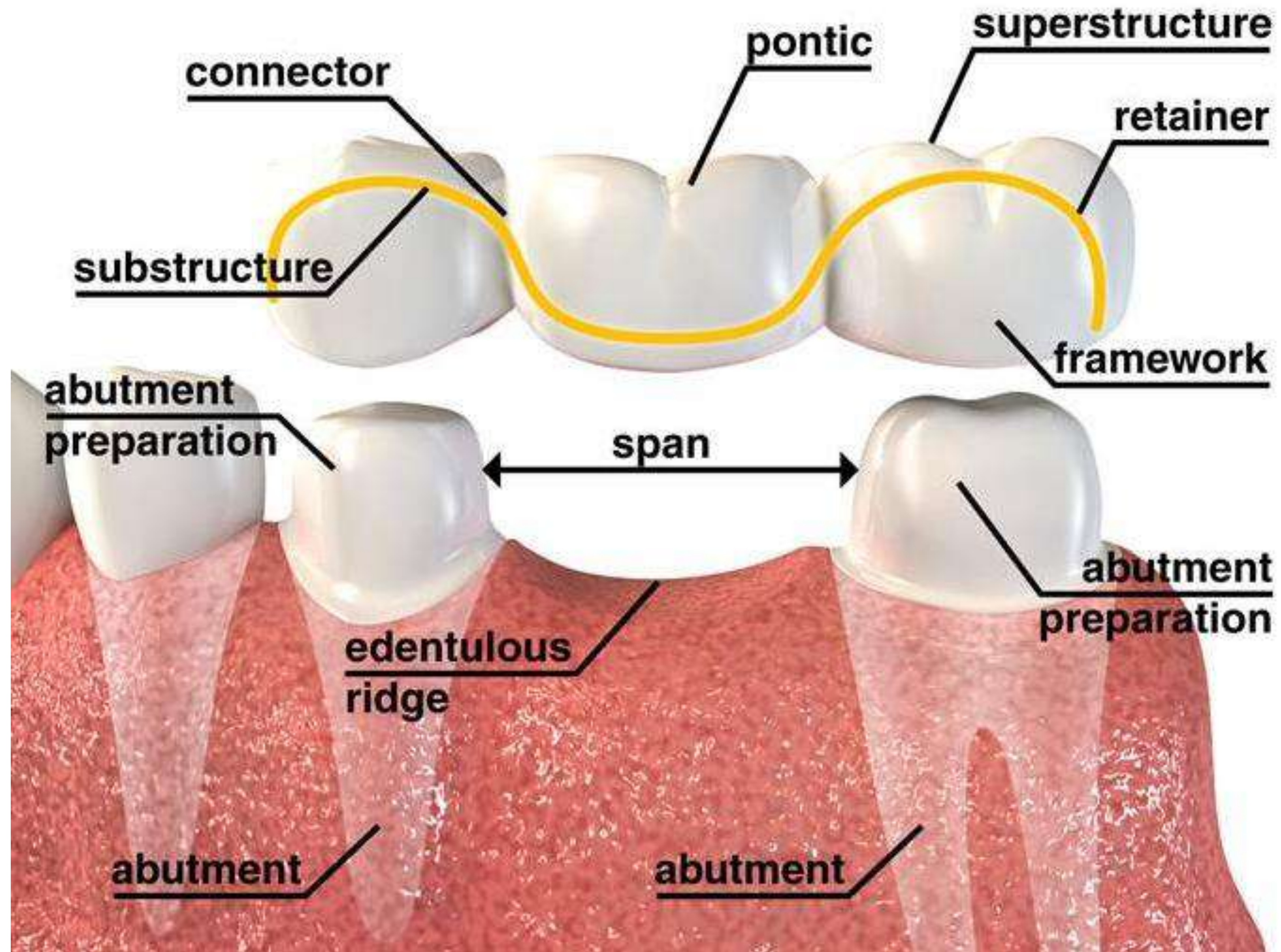
1. Heat generation during cutting procedure of the teeth, might affect the health of the pulp. Therefore water coolant must be used during preparation procedure.
2. Over preparation can cause pulp irritation or even pulp exposure which might lead to death of the pulp. Excessive tooth preparation can also weaken tooth structure.
3. Periodontal problems, food Impaction, and secondary caries might develop.

what's the bridge ?

Bridge: It is a fixed dental prosthesis (appliance) which replaces and restores the function and esthetic of one or more missing natural teeth; it cannot be removed from the mouth by the patient. It is primarily supported by natural teeth or root. Tooth that give support to the bridge or part of the bridge to which retainer is cemented an abutment tooth.

Components of the bridge:

- 1. Retainer:** It's the part that seat over (on or in) the abutment tooth which could be major or minor, connecting the pontic to the abutment.
- 2. Pontic:** It is the suspended member of fixed partial denture that replaces the missing tooth or teeth, usually it occupies the position of the missing natural tooth.
- 3. Connector:** It Part of F.P.D that join the individual components of the bridge together (retainer& pontics), which could be fixed (rigid) or movable (flexible) connector. When the retainer is attached to a fixed connector it's called a major retainer, but when it is attached to a flexible [movable] Connector it is called a minor retainer.



Advantage of bridge:

- 1) Improve appearance.**
- 2) Improve masticatory function.**
- 3) Improve speech.**
- 4) Occlusal stability.**
- 5) Periodontal splinting.**
- 6) Restore occlusal vertical dimension.**

Disadvantage of bridge:

- 1) Damage to the tooth & pulp.**
- 2) Secondary caries.**
- 3) Periodontal problem.**
- 4) Cost.**
- 5) Discomfort.**

CLASSIFICATION OF DENTAL BRIDGES (Types of bridge):

A. Depending on material used 1. Cast metal FPD

2. Metal ceramic FPD 3. All ceramic FPD

4. Resin veneered FPD

B. Depending on location

1. Anterior FPD

2. Posterior FPD

C. Depending on number of teeth

1. Two units FPD

2. Three units FPD.

D. Depending upon the tooth reduction

1. Conventional (Conventional preparation) bridge

where substantial tooth preparation is necessary for the abutment teeth.

2. Minimal preparation bridge

(adhesive, acid etched, resin bonded bridge): such bridge is designed so that to be luted to the unprepared or minimum preparation surface of abutment teeth permanently by acid etching of enamel with some type of resin bonding agent.

3. Hybrid bridge

A bridge with a combination of conventional & minimal preparation.

4. Implant-Supported Fixed Partial Dentures

5. Removable bridge

It is a bridge that is totally supported by the teeth & should not confusing with R.P.D,

E. Depending on the connector (Basic bridge designs) 1. Fixed-fixed bridge

2. Fixed-movable bridge

3. Cantilever bridge

4. Spring Cantilever bridge 5. Compound bridge

Contra-Indication of Fixed Partial Denture :

1. Long span edentulous area.

2. Free end extension area.

3. Abutment teeth with unstable bone support.

4. Short inter jaw space & short teeth.

5. Patient with excessive bone loss especially in the visible anterior teeth because the bridge will have unacceptable appearance.

6. Age of the patient, Fixed partial denture should not be used for patient under 18 years old since before this age the teeth have large pulp (pulp exposure), also subgingival finishing line will become supragingival after years because teeth not completely erupted. So we should use acrylic temporary bridge (without metal). Also do not use F.P.D for elderly patients.