

CROWN AND BRIDGE PROSTHODONTICS

4TH GRADE



B.D.S., M.Sc. in Conservative Department

Lec.1

Prosthodontics

The dental specialty concerned with the making of artificial replacements for missing parts of the mouth and jaw. Also prosthetic dentistry or prosthodontia.

Fixed prosthodontics (Crown and Bridge prosthodontics):

It's a branch of dental science that deals with restoration of damaged teeth with artificial crown and replacing the missing natural teeth by a dental prosthesis permanently cemented in place (Fixed partial denture).

Fixed Prosthodontics involve:

- + Inlays-gold and all ceramic.
- + Gold crowns-full and partial veneer.
- + Porcelain & Zirconium-all porcelain and PFM.
- + Fixed partial dentures.

Crown: It's fixed extra coronal artificial restoration of the coronal portion of a natural tooth. It must restore the morphology, contour and the function of the tooth and should protect the remaining tooth structures from farther damage.



Types of crowns (classification):

A) According to coverage area:

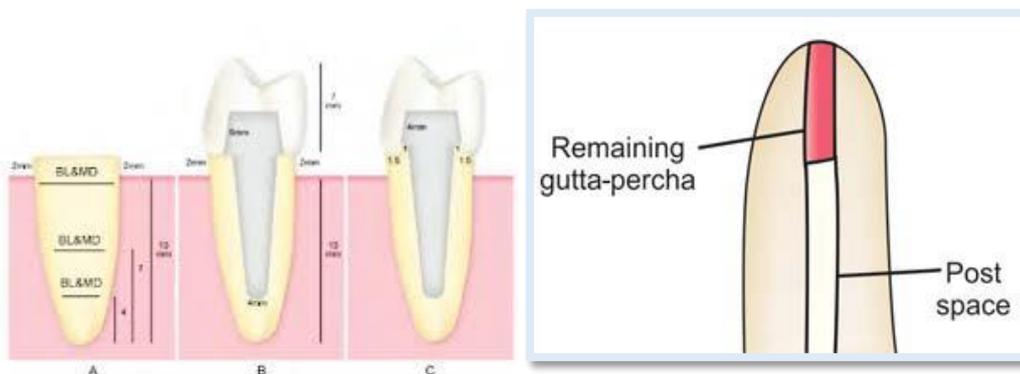
1. Complete crown: It is the crown that covers all the coronal portion of the tooth, such as full metal crown, all-ceramic crown which is a complete crown made of ceramic material.



2. Partial Crown: It is a crown that covers part of the coronal portion of the tooth such as 3/4 crown, 7/8crown.



3. Complete replacement: It involve those which replace the natural crown entirely. This type of crown retains itself by means of a metal extended inside the root canal space of the tooth such as a post crown.



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 it's 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.



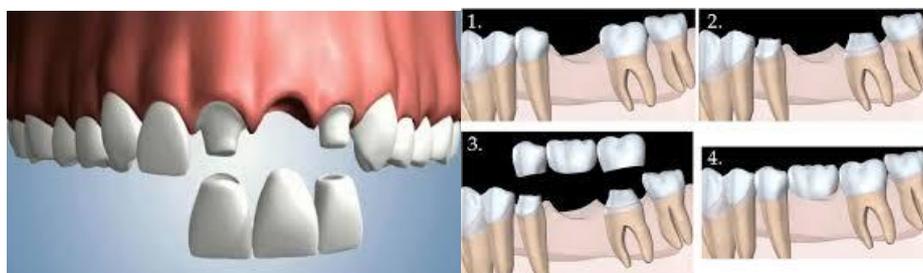
Bridge: It is a fixed dental prosthesis (appliance) which replaces and restores the function and esthetic of one or more missing natural teeth; it can not be removed from the mouth by the patient. It is primarily supported by natural teeth or root. **Tooth that** give support to the bridge or part of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

Components of the bridge:

1. Retainer: It is 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*.



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 occl. re-construction to solve occ. problem or to improve function.
6. As a retainer for the bridge.

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.

Steps in crown construction:

1. Diagnosis.
2. Preparation.
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.

- 1. Diagnosis:** The first step should be diagnosis of the tooth and Surrounding Structures, it involove *history taking and examiation:*

Examiation: Involves Extra oral and Intra oral examination.

❖ Intra oral examination:

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.

(iii) Diagnostic casts (Articulating Cast Examination).

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.

The tooth is prepared so the crown restoration can slide into place and be able to withstand the forces of occlusion.

- + Rotary instruments are used to reduce the height and contour of the tooth.
- + Hand cutting and rotary instruments prepare the gingival margins.

