**Title of the lecture: Anterior Rests and clasp assemblies.
Lecture number 3.
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Refer to slide number 4 we only wrote the extra notes,the doctor didn't even read some slides but you have to memorize them.**we'll start from slide #8.
slide 8: anterior rest seats are generally divided into two types : lingual (cingulum) on the lingual surface , incisal on the incisal edge .

slide 9: inverted V for teeth with prominent cingulum ( like upper canine ) if we want to classify them according to the cingulum ( form most prominent to least ) :

1. Upper canine
2. Lower canine
3. Upper incisors
4. Lower incisors (very rarely do it on them ) almost absent

Width : 2.5-3mm , we don’t break the marginal ridge in the preparation .

Note : when we say inverted V that refer to the floor that looks like an inverted V.

Slide 10:The orientation of the floor has an angulation less than 90 degree with the long axis of the tooth why? Because this makes the metal part sit in it and never fall and this applies for all of the other rests as well .

Depth: 1-1.5mm

Slide 11 : cingulum ledge is the same but we prepare it on one side of the tooth , break the marginal ridge , depth and width like the inverted V , the extension will cross the midline of the tooth .

Slide 12 : cingulum ball rest seats : one side ether mesial or distal and we make sure that the area above is without an undercut

Slide 13 : a proximal view , the floor with an orientation that will retain the metal also, the area on the axial wall with no undercuts

Slide 14 : the incisal rest seats is easier to clean than cingulum one so if we want to use it we should reinforce the oral hygiene instruction because most of the patient don’t brush their teeth lingually

Slide 16 : we don’t involve the marginal ridge far the preparation , width:2.5 ,depth:1.5 , but its nor aesthetic at all which is one of its disadvantages but in some cases we have to user it for example : patient that have only lower centrals and laterals and doesn’t have a prominent cingulum ,so we can’t do a cingulum rest seat we have to do an insical one but we have to inform the patients that they will show metal and make sure that they accept it

Slide 17 : mesiodistally this preparation is concave and buccolingually you do a bevel so if you look at it will look convex , and we do a triangle like shape (flaring) with a straight fissure bur to make a route for the minor connector to hold this rest seat with the major connector

Slide 18 : in incisal ledge we included the marginal ridge , the angle between the long axis of the rest seat with the floor less than 90 degree to retain the metal part , depth and width like the incisal hook

Slide 19 : in some cases the patient has a lot of attrition we try to restore the vertical dimensions sometimes we use this insical rest seat with a different design that is along all the incisal edge to increase the length of the tooth

Slide 21: direct retainer = clasp

Slide 26: components : body: that connects the occlusal rest seat with the minor connector . why its named like that because everything else will come out from it

Shoulder : that separate between the body and the clasp arms , each clasp has two arms : retentive and reciprocal (force from one arm to counter act the forces of the retentive arm ) in other word it prevent the retentive arm form moving .The retentive arm is composed of two part ( you can notice the change of the color in the picture ) and its tapered . the two parts is the arm and the distal third which is the retentive tip and this tip has qualities : its flexible to enter the undercut and exit from it without any deformation and when there is forces it will prevent the dislodgment of the denture , this distal tip of the arm has the tapering that make it more flexible . the reciprocal arm doesn’t have two parts and less tapered (more cylindrical ) because we need it just for function it will never be in an undercut area , it will slide along the guiding planes to counter act the forces of the retentive clasp arm

Slide 27: how to differentiate between the two arms : the distal third of the reciprocal arm is under the undercut area everything else is above it , but all of the reciprocal arm is above the survey line and the second thing is the tapering . here the giding plate (look at the picture) act like a minor connector that connect the rest assembly with the major connector.

Slide 35 : the retentive arm when it does it movement of the partial denture it will make force in the tooth as in the direction in the picture , so I want the force from the reciprocal arm to be opposite to it . one of the functions of the guiding plans is to make reciprocation ,so the reciprocal arm will be at the side of the guiding plan (flat) without any undercuts and this allow it to move freely in an up and down movement against the movement of the retentive arm if this side isn’t flat the reciprocal arm can’t do its function properly.

Note : most of the undercuts of the lower posterior teeth is on the lingual surface because the tooth is inclined lingually .

**-**Types of the clasps **:**

1.Occlusally approaching clasps (suprabulge clasps) from occlusal surface.

2.Gingivally approaching clasps (infrabulge clasps) from gingival side.

- **Occlusally approaching clasps** : typical c-clasps or circumferential clasps or

Aker's clasps, they're mostl commonly used on posterior teeth.

Q: Why do we call it occlusal clasp ?
Because it originates from occlusal surface( rest seat).

-Types of Occlusally approaching clasps.
we have many types but the doctor only mentioned the most commonly used ones, ''just mentioning'' so you have to go back to the slides and study them by yourself.
Those types have same idea ... rest seats, retentive arm , reciprocal arm..,etc. The differences are only in the undercuts and in some modifications.
Note : Embrasure clasp (Double Aker’s ) is the clasp that we use in the lab.

here the doctor started to skip some slides that you have to study.

**RPI system:**
we use it when we have edentulous areas with distal extension, because it has a stress breaking mechanism.
**R** : for rest
**P** : for proximal plate
**I** : for I bar.

it's all about MESIAL rest seat, proximal plate , and I bar, so we'll counter act the force when we bite , hence having the tooth stabilized.
We get the **reciprocal arm** from :
1.Minor connector .
2.Proximal plate when we extend it to the lingual surface.
we don't really have to be provided by a reciprocal arm we could be provided by another part of RPD.. minor connector or proximal plate sometime from the major connector itself.
**RPI** here is the **retentive arm.**

 **- Gingivally approaching clasps:**
we call it gingival because the retentive arm is on the tooth from the gingival side.

 **-Parts of Gingivally approaching clasps:**

All components of the clasp assembly are similar to those of suprabulge clasps except for the retentive arm which is comprised of:

1- Approach arm.

2- Retentive terminal.

**1- Approach arm:**It is a minor connector that connect the retentive tip to the denture base. It crosses the gingival margin at right angle and it is the only flexible minor connector, we all know that the minor connector has to be rigid except for here.

**2- Retentive terminal:**

It should end on the surface of the tooth below the undercut.

**Factors affecting the choice of clasps:** 1.Position of the undercut.

2.Health of the periodontal ligament.

3.Shape of the sulcus.

4.Length of clasp.

5.Appearance.

6.Occlusion.

Example: if we want to be more esthetic we use **gingival approaching clasp** because it covers much less of the tooth surface, its tip is underneath the undercuts specially with pt's with a high smile line, here we put the clasp arms on the premolars.

Another example: Clasps are made of Cast metal, it's very rigid so we can only put it in small undercuts
(0.25 mm ).
both molars and premolars have 0.25 mm undercut.
So how we are going to choose ?
We're going to choose according to the length of the clasp.

The length of the clasp is approximately 15 mm from the origin to the retentive tip to have two categories : rigid area to stabilize the RPD yet the distal third should be flexible enough to do its function correctly. On premolars we don't have that length because the maximum width is (7-8 mm ).
Since the cast metal is very rigid so 15 mm will give is enough flexibility to do the right function, (7-8 mm ) will be too rigid, that's why on premolar we don't use Occlusally approaching clasps, we use Gingivally approaching ones because they're much longer and that would give us enough flexibility, hence correct function.

We can only use gingivally approaching clasps if we have edentulous areas behind the abutment teeth ( it's one of the differences between gingivally and occlusally approaching clasps).we also use the ginigivally approaching clasps when we are not worried about the occlusal adjustments.

Note : we did the tunnel and flaring in the lab to accommodate the shoulder and the body of clasp arms in order not to have interference in occlusion.

**Indirect Retainers**:

A part of an RPD which assists the direct retainers(clasps) in preventing displacement of distal extension bases in class I, class II, maybe class IV but not III.

**Effectiveness of indirect retainers :**

- Location of the fulcrum line.

- Distance of the indirect retainers from the fulcrum line (the longer the distance the better the indirect retention)

- Rigidity of the connector.

- Effectiveness of the supporting tooth (premolars and canines are better than incisors).

**Fulcrum line:** it's an imaginary line between two rest seats.

**Location of indirect retainers :**here in the picture it's mesial of the first premolar



we don't prefer it on the central incisors so we choose the closet tooth to the anterior teeth which is Canine.

**Types of indirect retainers:**

- Auxiliary occlusal rest or canine rest.

- Canine extension of the occlusal rest.

-Continuous bar and lingual plate.

- Indirect retention from the major connector.