

Selection of posterior teeth

Posterior teeth are selected for color, buccolingual width, mesiodistal length, vertical height (occlusogingival height) and occlusal form.

Shade (color):

Shade of posterior teeth should be harmonized to the shade of anterior teeth. Generally the shades of posterior teeth are slightly darker than anterior teeth.

Maxillary first premolars are sometimes used for esthetic more than function, so it's advisable to select premolar teeth with lighter color than the other posterior teeth, but not lighter than anterior teeth.

Buccolingual width:

The buccolingual width of posterior teeth should be slightly narrower than natural teeth in order to:

1. Decrease occlusal surface area which direct less force during function to the supporting tissue.
2. Enhance the development of the correct form of polished surfaces of the denture.

Mesiodistal length:

Mesiodistal length of posterior teeth in upper arch should be equal to the distance between canine line and anterior border of maxillary tuberosity. For lower arch should be equal to distance between canine line and anterior border of retromolar pad.





If the residual ridge anterior to retro molar paid area slopes upward, smaller teeth or even fewer in number (without second molar) must be used.

If placing a tooth on an inclined plane, dislodgment of denture will occur.

Occlusogingival height:

The occlusogingival height or length is controlled by the available interarch distance. The length of the maxillary first premolar should be comparable to that of maxillary canine to have the proper esthetic effect.

The height of posterior teeth usually divided into:

- 1- Long
- 2- Short
- 3- Medium

Long posterior teeth are generally more esthetic in appearance than shorter teeth.

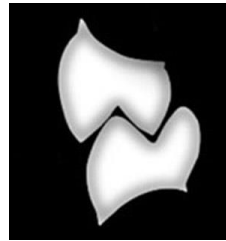
Occlusal form:

Posterior teeth either :

- A- Anatomical (cusped)
- B- Non anatomical (cusplless)

Anatomical teeth:

Simulate the natural teeth form with inclination approximately 33 degree .



Advantages:

- 1) Esthetic.
- 2) Better food penetration.
- 3) Vertical stress decrease (but more horizontal force).
- 4) Harmony with TMJ and muscle of mastication.
- 5) Balance occlusion in eccentric position can be obtained.

Non anatomical teeth:

Flat and without cusp height.



Advantages:

- 1) Used for patient with poor neuromuscular coordination.
- 2) Used for patient with malrelation jaws.
- 3) Used for patient with flat ridges.
- 4) More comfortable.
- 5) Less time required in set up.

Arrangement of posterior teeth

Correct placement of posterior teeth is important for the retention and stability of complete dentures. Prior to arrangement of the posterior teeth we must understand some of the definitions which are related to posterior teeth arrangement.

- The posterior teeth should be arranged and their surface form a curve. This curve should be in harmony with the movement of the mandible.
- Curve of Spee, Monson, Wilson curves are associated only with natural dentition. In complete denture compensating curves

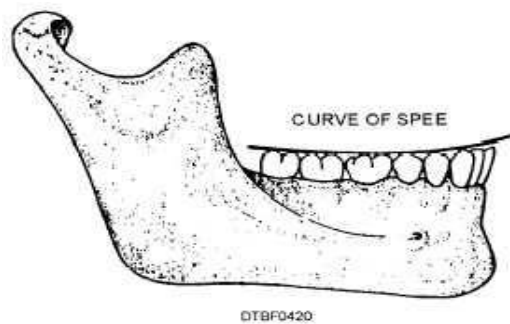
similar to these natural teeth curves incorporated to develop balance occlusion.

There are two type of compensating curve in artificial teeth arrangements:

- 1) Antero-posterior compensating curve
- 2) Lateral compensating curve

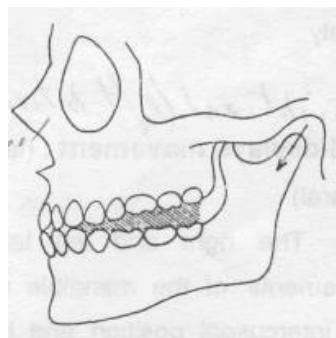
Curve of spee:

Anatomical curve of occlusal alignment of teeth beginning at the tip of lower canine and follow the buccal cusps of lowers premolar and molars continue to the anterior border of mandibular ramus.



Christensen's phenomenon:

Posterior opening of dental arch or occluding rims during forward movement of the mandible.



- To compensate for posterior opening during protrusive movement in complete denture we arrange the teeth following a compensating curve.

Compensating curve:

The antero-posterior and lateral curvature in the alignment of the occluding surfaces and incisal edges of artificial teeth, which is used to develop a balanced occlusion.

Antero-posterior compensating curve:

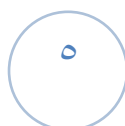
Curves running in anteroposterior direction to compensate for curve of spee in natural dentition.



- The significant of this curve when the patient move the mandible forward the posterior teeth remain in contact ,if the teeth not arranged in this curve there will be displacement of denture during protrusion (because there is no contact posteriorly).

Lateral compensating curve:

It is a part of compensating curves extend mediolaterally from one side of the arch to the other side, this curve compensate for the opening occur when the lateral movement is made.

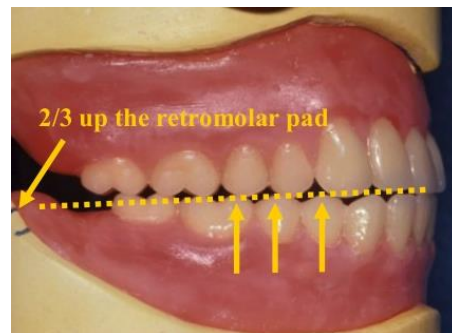


- The significant of this curve when the patient move the mandible to one side the teeth on the opposing side remain in contact ,if the teeth not arranged in this curve there will be displacement of denture during lateral movement.

Arrangement of mandibular posterior teeth

The lower posterior teeth will be arranged before the upper posterior, because there are more anatomical landmarks and guide lines aid to locate the teeth:

1. The line of the crest of lower residual ridge which extend between the tip of lower canine and the middle of retromolar pad. The central grooves of the lower posterior teeth should coincide with this line.
2. The line extending between the tip of lower canine and upper 2/3 of retromolar pad will determine the height of lower posterior teeth.



- ✚ We start the arrangement with:

Mandibular first premolar:

- The tooth should be set perpendicular to the occlusal plane.
- The central groove should be over the center of the ridge.
- The tip of its buccal cusp should be 1 mm below the line from tip of canine and upper 2/3 of retromolar pad.

Mandibular second premolar:

- Should be arranged in the same way as mandibular first premolar.

Mandibular first molar:

- The central groove should be over the center of the ridge.
- The mesio-buccal cusp should be 1 mm below the line from tip of canine and upper 2/3 of retromolar pad.
- The disto-buccal cusp should be 1/2 mm below the line.

Mandibular second molar:

- The central groove should be over the center of the ridge.
- The mesio-buccal cusp should be 1/2 mm below the line from tip of canine and upper 2/3 of retromolar pad.
- The disto-buccal cusp touch the line.



- ❖ Mandibular posterior teeth slightly inclined lingually to form the lateral compensating curve.

Arrangement of maxillary posterior teeth

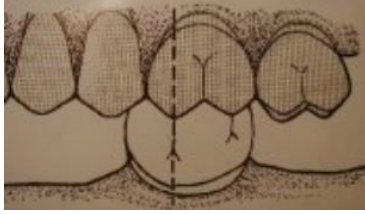
Start with upper first molar, in order to get normal molar relationship.

Maxillary first molar:

- The mesio-buccal cusp should rest in the buccal groove of the lower first molar.



- The mesio-lingual cusp should seat into the central fossa of lower first molar.



Maxillary second premolar:

- The palatal cusp should seat into the embrasure between the mandibular second premolar and mandibular first molar.



Maxillary first premolar:

- The palatal cusp should seat into the embrasure between the mandibular first and second premolar.

Maxillary second molar:

- The mesio-buccal cusp should rest in the buccal groove of the lower second molar.
- The mesio-lingual cusp should seat into the central fossa of lower second molar.



Common errors in teeth arrangement:

1. Setting mandibular anterior teeth too forward in order to meet maxillary teeth.
2. Lack of rotation of anterior teeth to give a narrower effect.
3. Failure to make the canine the turning point of the arch.
4. Setting mandibular first premolar to the buccal side of the canines.
5. Setting the mandibular posterior teeth too far to the lingual side in the second molar region which cause tongue interference and mandibular denture displacement.
6. Failure to establish the occlusal plane at the proper level and inclination.

Materials of artificial teeth

There are two main types:

1. Acrylic teeth
2. Porcelain teeth

Acrylic teeth are made from acrylic resin, indicated when:

- a- There is insufficient interocclusal distance, and grinding becomes necessary.
- b- In case of opposing natural teeth (because porcelain teeth cause attrition of opposing natural teeth).

They are inferior when they are compared with porcelain because they cannot maintain luster for long time and it abraded easily. Porcelain teeth are preferred particularly for young person because:

- a- They look more vital and very smooth.
- b- Difficult to abrasion.

Characteristics of acrylic teeth:

- ✦ Not brittle, but poor abrasion resistance.
- ✦ Easily ground and polish.
- ✦ Esthetic very good.
- ✦ No clicking on teeth contact.
- ✦ Chemical bonding with denture base.
- ✦ Transmit less forces to the mucosa.
- ✦ Thermal expansion same as acrylic denture base



Characteristics of porcelain teeth:

- ✦ Brittle but more resistant to abrasion.
- ✦ Difficult to ground and polish.
- ✦ Esthetic excellent (does not stain).
- ✦ Clicking on teeth contact.
- ✦ Mechanical bonding with denture base.
- ✦ Transmit more forces to the mucosa.
- ✦ Thermal expansion much lower than acrylic denture base causes stresses in acrylic denture base.



