Complete denture occlussion

Occlusion:

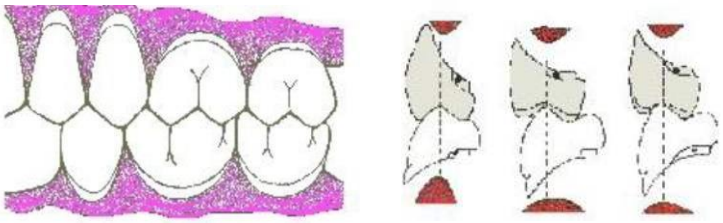
Any contact between teeth of opposing dental arch usually referring to contact between the occlusal surfaces.

Occlusion of complete denture:

Is the static relationship between the incising and masticatory surfaces of the maxillary and mandibular teeth analogues.

*In complete denture construction it is essential that centric occlusion is in harmony with centric relation even though this condition doesn't always occur in natural dentition, so the dentist is responsible to record centric relation, and maintain this relationship in the laboratory procedure during mounting and arrangement of teeth in centric occlusion.

***In centric occlusion, the buccal cusps of the mandibular teeth contact the central fossa of maxillary teeth, while the lingual cusps of the maxillary teeth fill into the central fossa of the mandibular teeth. This facial overlap prevents cheek biting when the denture is completed.**

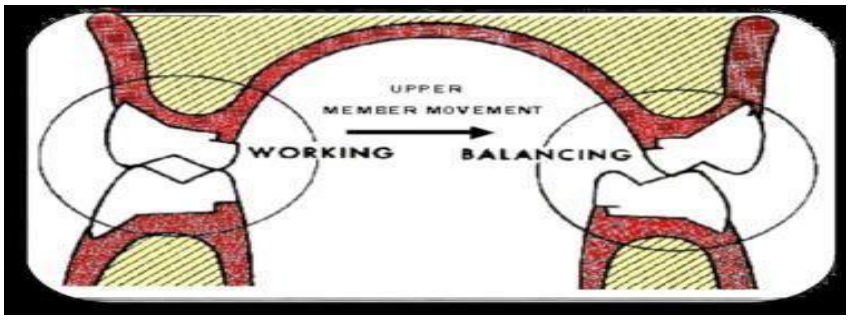


Concepts of complete denture occlusion:

1. Balanced occlusion.
2. Monoplane or non-balanced occlusion.
3. Lingualized occlusion.

Balanced occlusion

It means the simultaneous contact of the upper and lower teeth on the right and left and in the anterior and posterior occlusal areas (working, balancing and protrusive).



Working side:

Is the side toward which the mandible moves in a lateral excursion. Occurs when the facial or buccal cusps of maxillary teeth meet the facial cusps of the mandibular teeth and the lingual cusps of the maxillary teeth meet the lingual cusps of the mandibular teeth.

The relationship is not cusp tip to cusp tip, but cusp tip into cusp "valley" with each maxillary cusp distal to the corresponding mandibular cusp. Working occlusion enable a person to hold and crush food.

Balancing side (non-working side):

That side of the mandible that moves toward the median line in a lateral excursion (the side opposite the working side). It occurs simultaneously on the opposite side from working occlusion. Balancing occlusion functions is to maintain the dentures in position during lateral excursive movements.

In balancing occlusion, the lingual cusps of maxillary teeth contact the buccal cusps of the mandibular teeth. In many techniques, balancing contacts are necessary only on **the second molar**.



Working side



Balancing side

Protrusive occlusion:

It is the relation acquired by the mandible when it moves in protrusive direction from centric position. The protrusive direction is downward and forward. When the condyles travel in this direction, it brings the anterior teeth into a position favorable for incision. In protrusive balance, the distal inclines of the maxillary buccal cusps contact the mesial inclines of the mandibular buccal cusps.

Protrusive balancing contact may occur on lingual cusps this help to maintain denture stability.

Importance of balanced occlusion:

1. It avoids displacement of denture and help in its **stability** during functional and non-functional movements.
2. It helps in earlier **repositioning of denture**, which become displaced duringmastication.

3. It minimizes **period required for adaptation** of patient to the denture due to itsstability.

4. **Prevent trauma to the supporting tissue** since the pressure is equally distributed onthe teeth.

Factors controlling the balanced occlusion:

1. Inclination of condylar guidance.
2. Inclination of Incisal guidance.
3. Cusp height.
4. Orientation of the occlusal plane.
5. Prominence of the compensating curve.

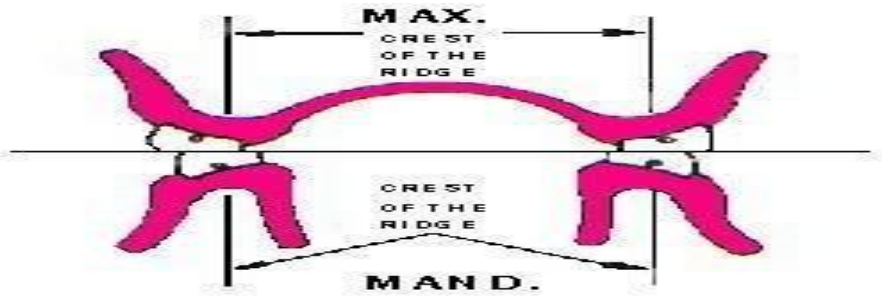
Monoplane occlusion

Monoplane occlusion characterized by occlusal contacts of maxillary and mandibular teeth initially in maximum intercuspation.

The disocclusion of posterior teeth occurs because of their arrangement in a single plane, and the contact of the anterior teeth during movement of the mandible (teeth are set in a flat plane with no vertical overlap of the anterior teeth).

Indications of the monoplane occlusion (neutrocentric concept):

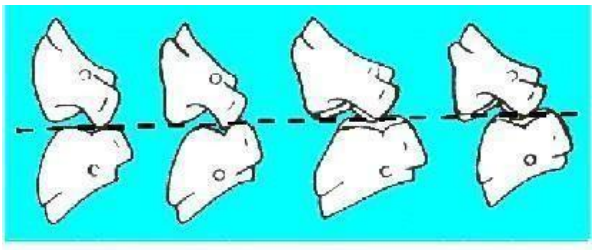
1. Flat ridge(s)
2. Class II jaw relations
3. Class III jaw relations
4. Handicapped patients
5. Cross bite
6. Doubtful or without any perfect centric relation records.



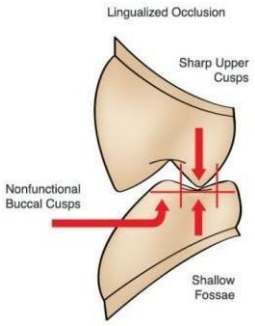
POSTERIOR HORIZONTAL OVERLAP OF FLAT PLANE TEETH.

Lingualized occlusion

The maxillary lingual cusps are the main functional occlusal elements. These may oppose mandibular 0º or shallow cusp teeth in balanced or non-balanced patterns depending on the needs of the patient.



Occlusal relationships of posterior teeth in Lingualized Occlusion.



Advantages:

1. The presence of a cusped tooth in the maxillary premolar and first molar regions looks more natural when compared to a zero° tooth.

2. The use of maxillary lingual cusps could be expected to centralize the occlusal forces and reduce the frictional resistance of flat teeth sliding over one another.

3. Additional stability can be gained during para-functional movements.

Waxing and carving of complete denture (festooning)

It is the contouring of wax base of trial denture into the desired form.



Polished surface:

The outer surfaces which will be in contact with oral tissues and developed by contouring the wax.

The form of the polished surface of the denture influence:

1- Retention and stability of the denture.

2- Esthetic of complete denture.

3- Tissue tolerance of the denture.

There are three principle surfaces concerned in functional stability of the dentures:

1. The basal or impression surface.

2. The leverage position and occlusal surface of the teeth.

3. The location and form of the polished surface.

The polished surface is defined by:-

1. The width of the border.

2. The buccolingual position of teeth.

3. The fullness given to wax to obtain convexity and concavity both facially and lingually.

Requirements of waxing the polished surface

1- They should duplicate the covered soft tissue as accurately as possible.
2- The border both buccal and lingual should full the vestibule.
3- Notches should provide to accommodate the frenum both size and direction.
4- The contour of the denture flange should be compatible with the drop of the cheek and lips.
5- The contour of the lingual flanges should be compatible with the tongue.
6- The palatal section of maxillary denture should be nearly a production of the patient palate and rugae.

Procedure for wax contouring

1- The casts are removed from the articulator.
2- Contour wax carefully to prevent movement of teeth.
3- Avoid a bulky wax –up. The additional bulk of acrylic resin may contribute to porosity and dimensional processing error.
4- A strip of base plate wax is added from the gingival 1/3rd of the teeth to the periphery border of the trial denture.
5- The palatal surface of the maxillary denture is covered with a layer of base plate wax if the trial base is a temporary one and it is thinner than 2mm
6- After the wax has cooled, carve the interdental papillae to resemble the natural papillae.



7- Develop the margin by **carving at a 45 degree angle to the neck of the tooth**.

8- Wax the lingual flange of the mandibular denture thickly enough to fill all depressions and to slope down from the necks of the teeth inward toward the tongue. The slope of the flange should be free from undercut and very slightly concave at or near the lower border.

9- After the wax has been contoured smooth it by flaming and then polish it with wet cotton**.**

The polished surfaces, which are in contact with oral tissues (lips, cheeks and tongue), must be smooth and have the natural details. This smoothing will be developed by waxing or festooning.

Q– why we do festooning?

The polished surface has an effect on:
– retention.
– esthetic.
– feeling of patient and phonetics (because there is a relation between the tongue and the palatal part of the teeth).

Festooning : is process of carving the denture base to simulate the contour of the natural tissues which are being replaced by the denture.

The form of the denture bases between the teeth and the border should be shaped in such a manner as to aid retention by the mechanical directional forces of the muscles and tissues.

In general , we have two methods for festooning:

1. Press on method

2. Drop on method.



Stippling: it is a procedure of giving the outer surface of denture from premolar –to – premolar region the shape of orange shell.

Advantages of stippling:

- Scattered of the light to maintain the natural esthetic of the denture.
- Give natural appearance and enhance the comfort of the patient.
- Improve the stability of the denture.

Disadvantages of stippling:

Is the accumulation of food. For this reason, stippling would made in the anterior region only.