

Complete Denture Occlusion

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

Occlusion of complete denture: The static relationship between the incisive and masticatory surfaces of the maxillary and mandibular teeth analogues.

* In complete denture reconstruction, it is essential that the maximum intercuspation is in harmony with centric relation even though this condition does not 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.

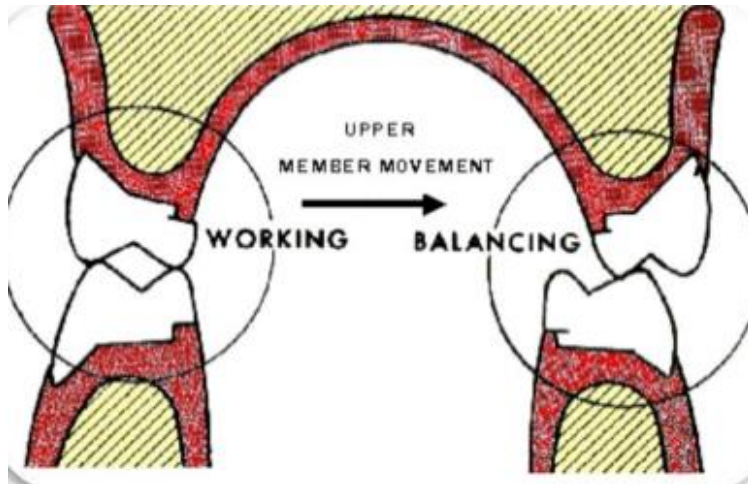
* In centric occlusion, the facial cusps of the mandibular teeth contact the central fossae of maxillary teeth, while the lingual cusps of maxillary teeth fit into the central fossae of the mandibular teeth. Note how the facial cusps of the maxillary teeth extend beyond the facial surfaces of the mandibular teeth. This overlap prevents cheek-biting when the dentures are completed.



Concepts of complete denture occlusion:

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

Balanced occlusion: Means the simultaneous contacting of the upper and lower teeth on the right and left and in the anterior and posterior occlusal areas (working, balancing and protrusive). Balanced occlusion is achieved by using of anatomical teeth and adjustable articulators.



Working side: It is the side toward which the mandible moves in a lateral excursion. **Working or functional occlusion** occurs when the facial cusps of the 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). **Balancing occlusion** occurs simultaneously on the opposite side from working occlusion. Balancing occlusion functions to maintain the dentures in position during lateral excursive movements. In balancing occlusion, the lingual cusps of maxillary teeth contact the facial cusps of the mandibular teeth. In many techniques, balancing contacts are necessary only on the second molars, to decrease the cuspal interference.

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 they bring 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 avoid displacement of denture and help in its stability during functional and non-functional movements .
2. It help in earlier repositioning of denture, which become displaced during mastication.
3. It minimize period required for adaptation of patient to the denture due to its stability.
4. Prevent trauma to the supporting tissue since the pressure is equally distributed on the 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.

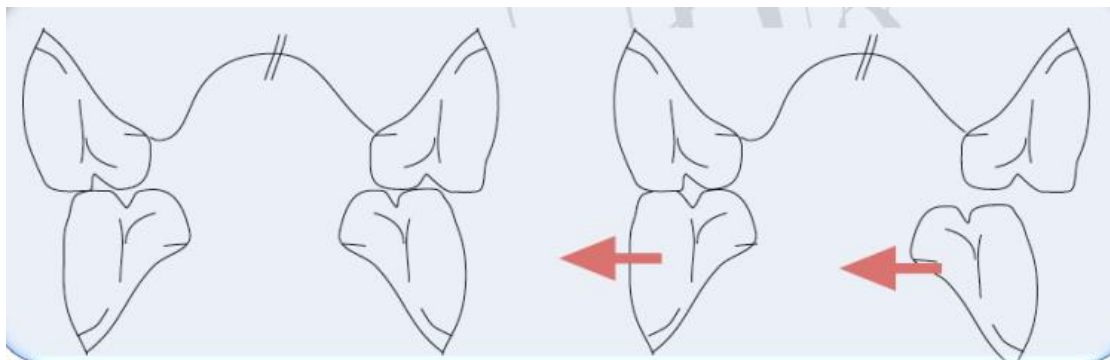
Advantage:

1. Penetration of food easily (good chewing efficiency).
2. Resistance to denture rotation (cusp interdigitation).
3. Better esthetic.
4. Act as guide for proper jaw closure.

Disadvantage:

1. When there is occlusion disharmony during setting, difficult to correct it by adjusting.
2. Stable bases and precise jaw closure is required.
3. Increase horizontal forces.
4. Difficult to adapt in jaw relation other than skeletal class I.
5. Need adjustable articulators.

Monoplane occlusion: is characterized by occlusal contacts of maxillary and mandibular teeth initially in maximum intercuspation. The disocclusion of posterior teeth as result 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). Protrusive balance compensation in monoplane denture occlusions needs a second molar slant (ramp). Monoplane occlusion is achieved by use of cusplless teeth, to obtain occlusal plane flat and parallel to the upper and lower residual ridges.





Indications of the monoplane occlusion (neurocentric 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

Advantage:

1. More denture stability due to absence of lateral force during vertical chewing, less resistance to lateral force and parafunctional movements.
2. Freedom in centric (mandible is not lock in centric by cuspal interdigitation).
3. Easier to use in skeletal class II and class III.
4. Simple articulator may be used.
5. Less damaging effect in uncontrolled neuromuscular movement.
6. More comfortable.

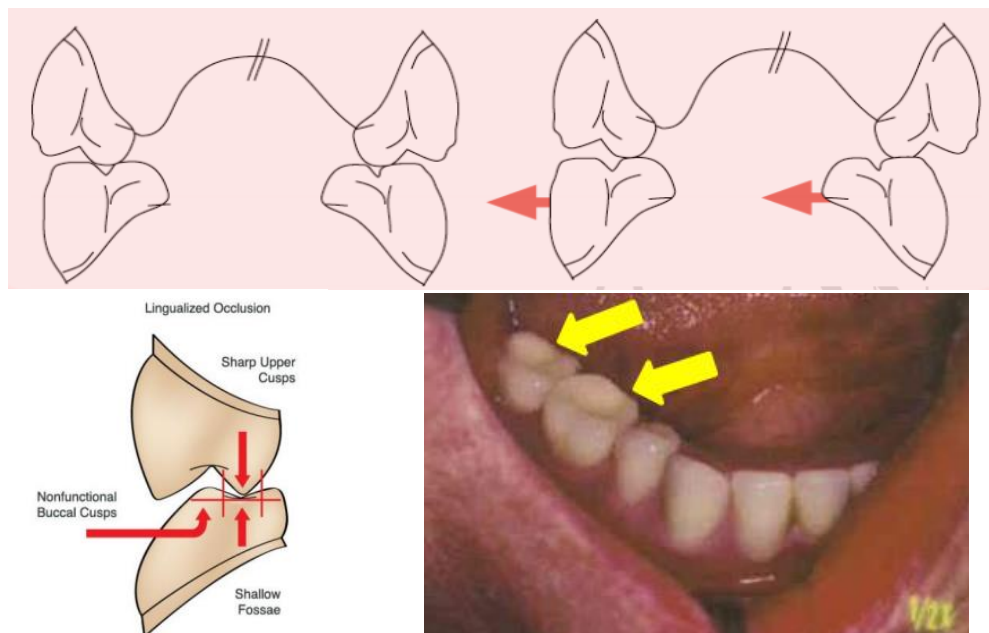
Disadvantage:

1. Decrease chewing efficiency (no cusp), increased by a metal insert in posterior teeth as cutting tool.
2. Poor esthetic, in premolar, absence of cusps, in anterior teeth there is edge to edge no overbite, no overjet due to absence of cusps in posterior teeth. This overcomes by using ramp (cusped posterior tooth) to have contact in protrusive movements that permits to set the anterior teeth in overbite and overjet.

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

* Lingualized occlusion is achieved by using anatomical teeth or semianatomical teeth with some modifications:

1. Reducing and flattening the cusps and cusp slope.
2. Setting the posterior upper teeth so that the lingual cusps articulate in the middle of the fossae and the buccal cusps is out of occlusion (slight buccal tilt of upper posterior teeth).



Advantages:

1. The presence of a cusped tooth in the maxillary premolar and first molar regions looks more natural when compared to a 0° tooth.
2. The use of occlusal curves for purpose of balance allows for incisal overlap of the anterior teeth. This is more similar to the natural tooth overlap than can be provided by non-balanced occlusal schemes without violating the mechanics of complete denture function.
3. 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.
4. Better stability can be gained during parafunctional movements.