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**Occlusal schemes in complete dentures**

1. **Balanced occlusion**
2. **Monoplane occlusion**
3. **Lingualized occlusion**

* **Balanced occlusion** : even contact of teeth bilaterally .

When the patient bites in centric occlusion , anterior teeth will be out of contact, posterior teeth will have even simultaneous harmonious contact on both sides. When the patient protrudes the mandible, anterior teeth will get in contact, posterior teeth will also be in contact on both sides.

When the patient moves the mandible laterally, there will be contact on both the working and the non working side, which is a good thing in complete dentures.

Balanced articulation is to have contact between teeth during movement of the mandible.

To be able to make adequate balanced occlusion , we must have facebow registration and semi adjustable articulator. We also need to register the condylar guidance angle.

Sometimes when the case is difficult , it's enough to have one point of contact anteriorly, and two points posteriorly( one on the left and one on the right) , to get balanced occlusion.

Hanau's quint: five factors that affect balanced occlusion:

1. Condylar angle
2. Incisal angle
3. Occlusal plane
4. Cusps angles
5. Compensating curves

The only factor that you can't change is the condylar angle.

There 2 factors that you can change up to a limit, which are the incisal angle and the occlusal plane, and they're limited by the esthetics and function.

For example, you can't make the overjet 1 cm , it will affect esthetics and speech.

The same goes for the occlusal plane.

So the 2 factors that you can control are the cusps angles and the compensating curves ( curve of spee and curve of monson) .

Curve of spee( anteroposterior curve), arc shaped, starts from the lower canine to the last molar.

Curve of monsoon, mediolateral curve, has three shapes. At the first premolar it's concave from below, at the second premolar it's a straight line, at the first molar it's concave from above .

Thieleman's formula:

C=condylar guidance x incisal guidance / occlusal plane x compensating curve x cusps angles

C ( constant number ) , which the balanced occlusion . if you increase the incisal angle , you should increase either the cusps angles or the occlusal plane or the compensating curve or all of them , so that at the end balanced occlusion will remain constant .

If the condylar guidance angle is big, you will need taller cusps and narrower fossa to maintain balanced occlusion. Steep cusps might lead to instability of the denture, so you can change other factors to get a stable denture at the end.

In lateral movements, the condyle moves downward forward and medially on the non working side. The steeper this medial movement , the taller cusps that you'll need to maintain the contact of teeth.

Inter condylar distance: if this distance is big, you'll need short cusps and wide fossa, and if it's reduced , you'll need tall cusps.

**-incisal guidance :**

To reduce the incisal guidance angle, you either increase the over jet or reduce the over bite.

**-the occlusal plane**

You can adjust the occlusal plane up to 10 degrees.

The effective cusp angle : the actual cusp angle plus the degree of inclination of teeth on the occlusal plane.

The occlusal plane goes anteriorly with the angles of the mouth, and posteriorly up to two thirds of the retromolar pad. It should be 3.3 mm away from the parotid gland duct.

So if the patient has big ears or has a problem with the nose, and you can't rely on the ala-tragus line to locate the occlusal plane, you can use these guide lines to help you locate it.

In addition to that, the tongue usually covers the lingual cusps of the lower posterior teeth, and the tip of the tongue covers the gingival area of the lower anterior teeth. All these factors help you locate your occlusal plane.

-**compensating curves:**

In natural dentition, they're called curve of spee and curve of monson. In artificial dentition, there's the anteroposterior compensating curve(which resembles curve of spee), and there's the mediolateral compensating curve(which resembles curve of monson).

-**cusps angles:**

Types of teeth:

-anatomic teeth have cusps angles of about 33 degrees.

-semi-anatomic teeth have 15-20 degrees cusps angles.

-zero degree teeth have 0 degree cusp angles.

Notes:

-if there's any premature contact on any side, you'll lose the balanced occlusion.

-if you use teeth with wide occlusal table, you'll increase the chance of premature contacts and lose the balance.

-consider the place of teeth, for example, don't place a tooth on the retromolar pad area.

-the second type of occlusion in complete denture is monoplane occlusion, where there're zero degree teeth.

Indications:

-in cases with class 2 or class 3 skeletal relationship.

-in cases with flat ridges.

Monoplane occlusion can be balanced by placing ramps distal to the mandibular second molar. So when the patient protrudes the mandible, the incisors will be in contact, and the last molars of the upper denture will contact the ramps, so there will be 3 points of contact, which are enough to get balanced occlusion.

-the third type of occlusion in complete denture is lingualized occlusion, where the upper teeth have big lingual cusps and small buccal cusps, and the lingual cusps contact wide fossa or a flat surface.

The buccal cusp is only for appearance and to prevent cheek biting.

Indications:

-with flat or flabby ridges.

-patients with neuromuscular control problems.

-in immediate dentures.

Lingualized occlusion provides good penetration of food and allows bone resorption.

-confirmative occlusion , to confirm the patient's original occlusion( when making single crowns).

-reorganized occlusion, to reorganize the patient's occlusion according to the centric relation.

Use the confirmative approach, when there's ideal or normal occlusion, good vertical dimension, and no TMJ problems.

Use the reorganized approach, when there's TMG problem, problem in the vertical dimension and in occlusion.