**Occlusion**

**-please make sure you understand this topic really well since they ask about it a lot in the VIVA.**

**-** defined simply as the contact of teeth.

-According to this simple definition CR is not an occlusion.

Occlusion could be: 1**- Static**: it means the *relation between teeth when the jaw is not moving.*

 2- **Dynamic***: the relation between teeth when the jaw is moving.* (teeth are gliding against each other). Also called **Articulation.**

Some books refer to the **Static occlusion** as **Occlusion** and the Dynamic one as Articulation.

-Centric Relation: 🡪 bone to bone relation.
Centric Occlusion 🡪 tooth to tooth relation. (maximum intercuspation)

-coincide in 10% of people.

-Balanced occlusion (articulation): *to have on both sides and antero-posteriorly contact on the teeth all the time. During jaw movement there would be contact on the right and left side, anteriorly and posteriorly.*

Balanced Static Occlusion: of the patient bit on his anterior teeth and there was contact on the posterior teeth.
-In edentulous patients wearing a complete denture we call it ***Artificial Centric Occlusion*** that is coinciding with Centric Relation.

Centric Relation: is defined according to three aspects, first anatomical, second conceptual and third geometrical. Starting with the
1.anatomy: glenoid fossa has an anterior, posterior and superior areas. The ***condyle*** in CR is in the *superior* area. Superior area is further divided into three compartments anterior, middle and posterior. The condyle is in the *anterior* compartment of it when in CR.

2.Conceptual: when muscles are in the least strain position(most relaxed).

3.geometric: when the condyles **ONLY rotate** around the terminal hinge axis (an axis that passes through the centers of both condyles. Mandible can open 20-25mm while still in the Centric Relation.
-Perfect Arc > 

-Centric Relation is important in complete dentures because its reproducible.

-Freedom in Centric (Long Centric Occlusion) is 1mm of lateral freedom during maximum intercuspation.

This is important in complete dentures because *if they were locked any movement will dislodge the denture*.

-When the mandible moves we have three factors to consider: 1) muscles 2) condyles 3) teeth

**-Posterior** Guidance System: **the Condyles**.

**-Anterior** Guidance System: Anterior and Posterior **teeth**.

We have a working condyle and a non-working condyle. Working is the one I work food on; this is why it’s called working. The Working Condyle moves less than the non-working condyle.
The non-working (Orbiting condyle) travels forward, downward and medially.

-When condyles move they create angles.
1) **Anterior Posterior** **Condylar Guidance Angle (AKA Condylar Angle):** *between the horizontal plane and the path created from the forward downward movement of the condyle* (condylar path) ,usually its 30”-45”**.**

 **2) Benette angle AKA Mediolateral Condylar Guidance Angle :** in a frontal view. Non-working Condyle moves forward downward and medially thus it is angle created between the path of movement and the sagittal plane.

anterior guidance could be
1) a **Canine Guidance**2) **Incisal guidance** [or could be both incisal+canine which is called anterior teeth guidance]
3) a **group function guidance.**

**-During Lateral excursions it could be canines or incisors or both(anterior teeth guidance or a group function). HOWEVER during protrusion only anterior teeth coincide mainly incisors, canines could be involved but if posterior teeth were in contact we call this an ‘interference’.**

**-An interference could be defined as something that interferes with the movement of the mandible.**

**-if I was chewing on the ‘working side’ and there was contact on the non-working side this is called a non-working side interference.**

**-working side interference when only one cusp on the working side is touching.**

**-Protrusive interference: when in protrusion posterior teeth contact each other this is an interference because during protrusion there shouldn’t be any contact posteriorly.**

-In artificial teeth I need those interferences and they are called Balancing side contacts. In Complete dentures I should have contact all the time anteriorly and posteriorly. If they weren’t present the denture will dislodge.

-In natural teeth most of the occlusal loads are on the **7s**. Whereas in an artificial dentition it’s on the **5,6s**.

-why on 7? Because it is the *closest to the masseter muscle*.

-Also in an artificial dentition there will be balancing contacts on the non-working side.

**‘Occlusal Schemes’**

Recall:

-Retention: is the resistance of movement of the denture away from the tissues.

-Support: is the resistance of the movement of the denture towards the tissues.

-Stability: is a function of everything else. Other than the support and retention.

\*Occlusion is very important in providing stability.\*

We have 3 Occlusal Schemes:

a) Balanced and Non-Balanced articulation (occlusion)

b) Monoplane occlusion

c) Lingualized occlusion

-Balanced Occlusion is the *minimum provided for the Complete Denture patient.* There should be a *harmonious simultaneous bilateral contacts* when the patient is biting on centric occlusion (Artificial centric occlusion).

- Artificial centric occlusion = CR

-Christenson Phenomena: is when the patient occludes on the anterior teeth and there was a *space between the posterior* teeth. No balanced occlusion.

-How to overcome this phenomenon? By adjusting some factors.

-We have *two compensating* curves: a) Curve of Wilson b) Curve of Spee.

Curve of Wilson (Horizontal) we have 3:
1) if we are talking about the 4s both buccal cusps are touching the occlusal plane while the palatal cusps aren’t. So it’s concave downward. 2) When it comes to 5s it produces a straight line since both cusps are touching. 3) 6s however produce a convex downward line since only the ML cusps are touching

-If you want to establish a balanced articulation in a complete denture you should have minimum: 1- facebow registration 2-semiadjustable articulator 3-(couldn’t hear it)

**\* 5 Factors that maintain a balanced occlusion (*Hanau’s Quint)***

1) Condylar Guidance that you cannot change.

2) Incisor guidance (modifiable up to a limit dictated by function and esthetics)

3) Occlusal Plane (modifiable up to a limit dictated by function and esthetics)

4) Angulation of teeth (can be adjusted to a higher level)

5) Compensating Curves (can be adjusted to a higher level)

**-Theilman’s Formula**



-Factors that affect the condylar guidance angle:

1) ***Eminence slope*** (superior wall of the glenoid fossa) the steeper the slope the taller the cusps that I need to use. (Tall cusps have narrow fossae whereas short cusps have wide fossae)

2) ***Medial wall*** of the glenoid fossa. Again the steeper it is the taller the cusps I must choose.

-Topic is to be continued in the next lecture.