

Occlusion
in
Complete Denture

Definitions:

Occlusion:

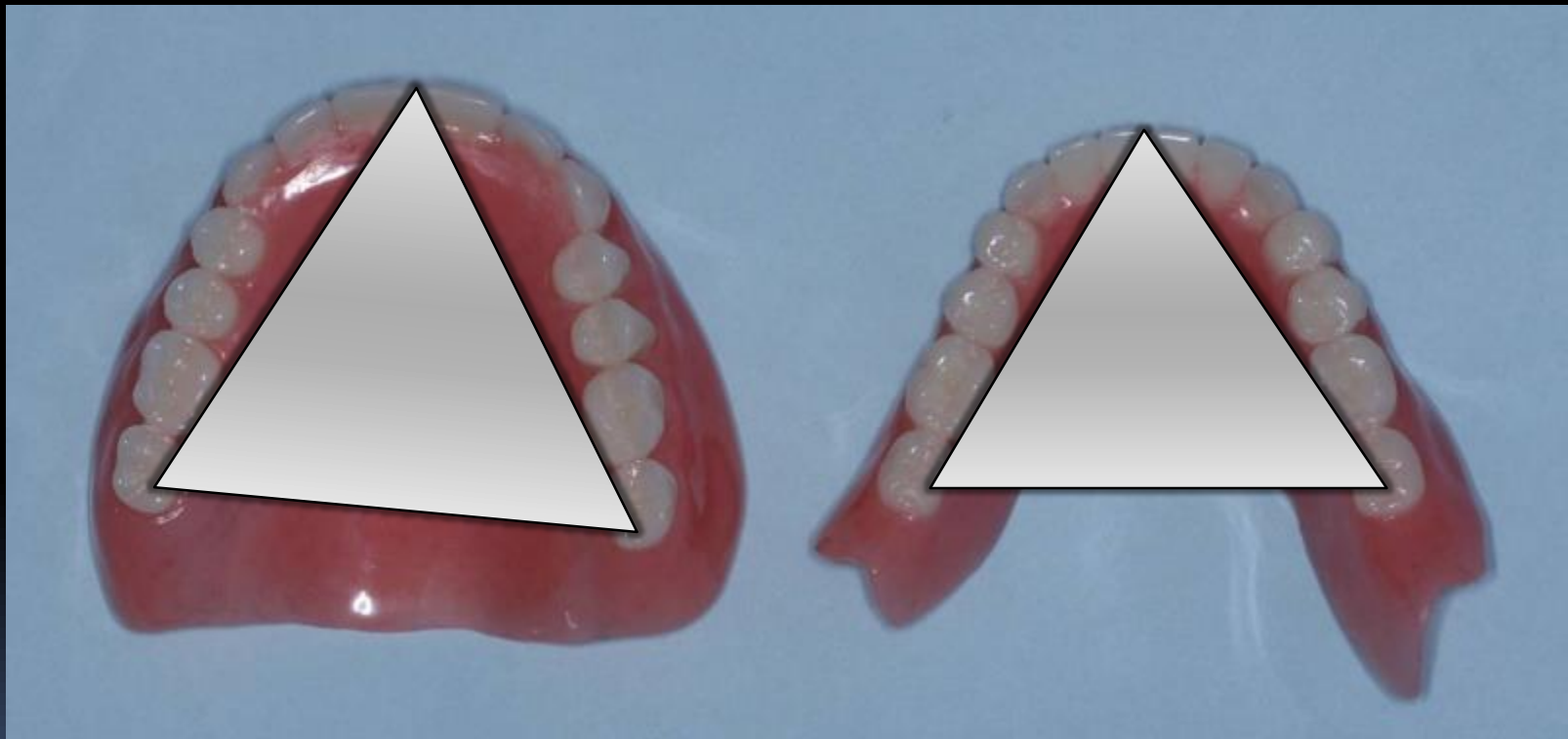
Occlude means to 'to close'.

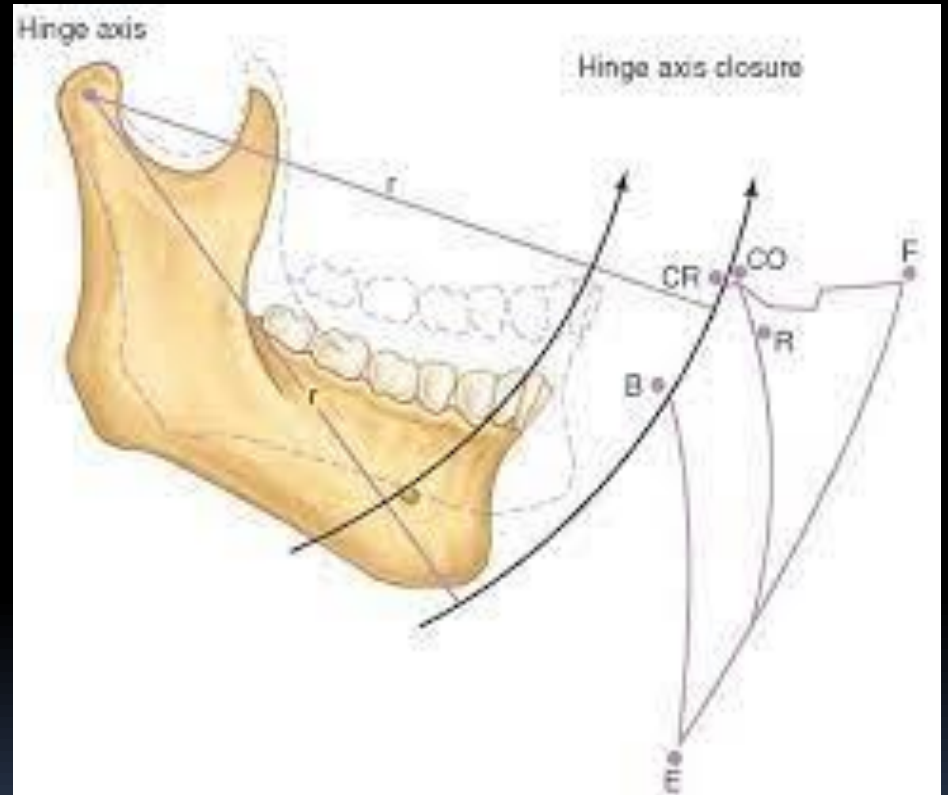
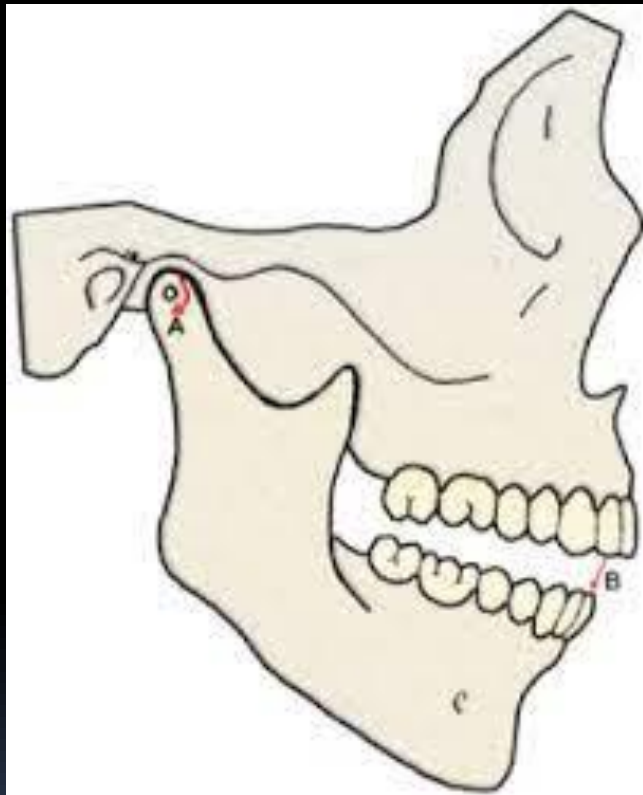


Tripods Stand



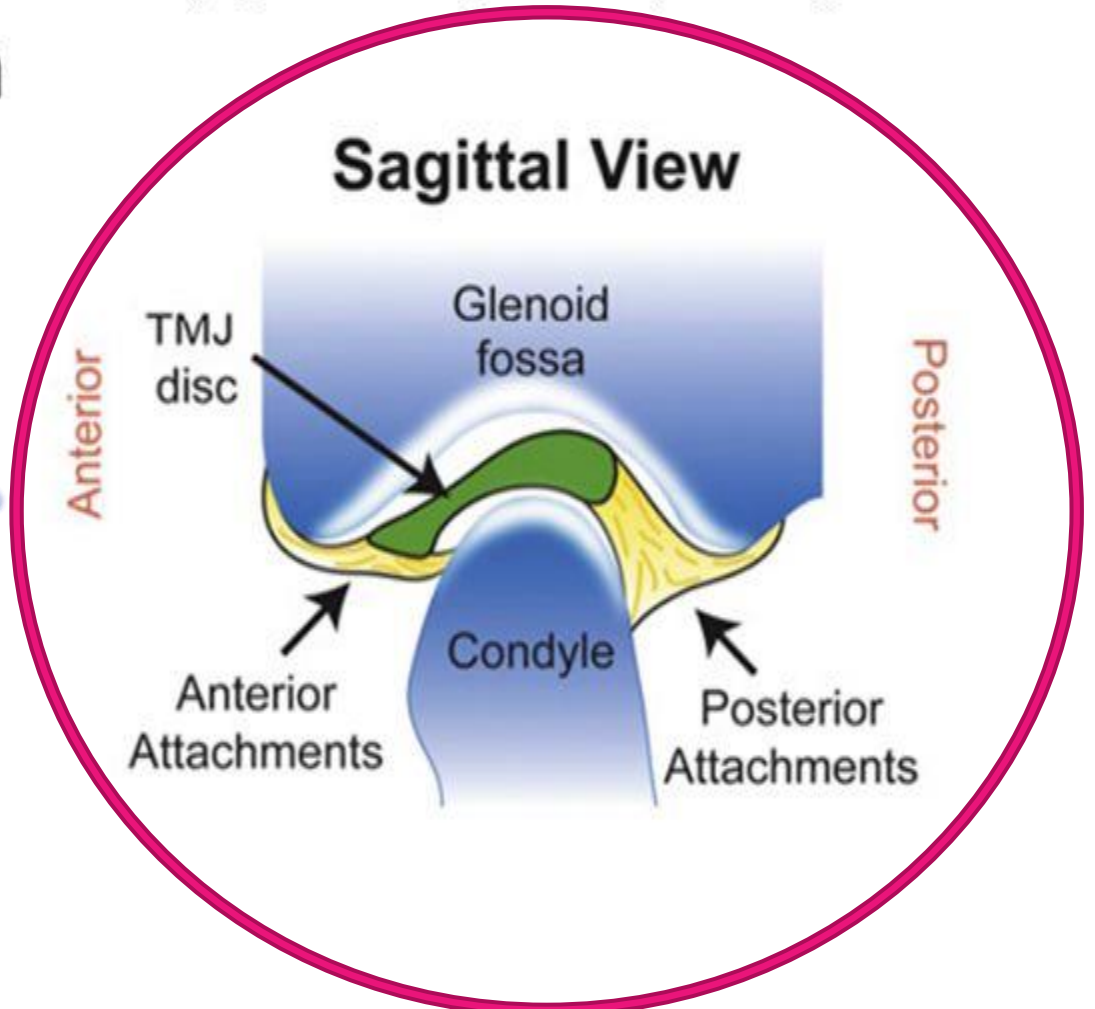
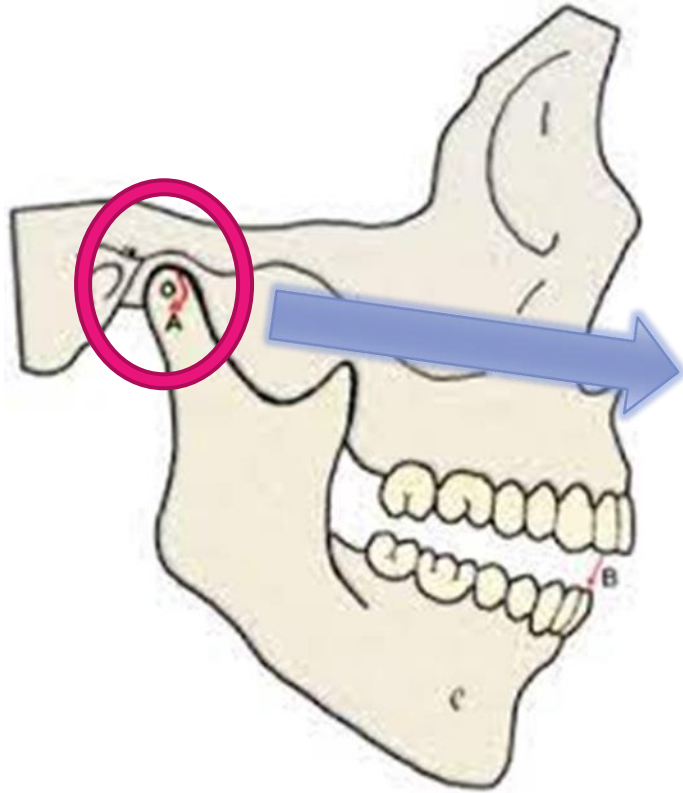
All occlusal forms should at least have a tripod contact in centric relation





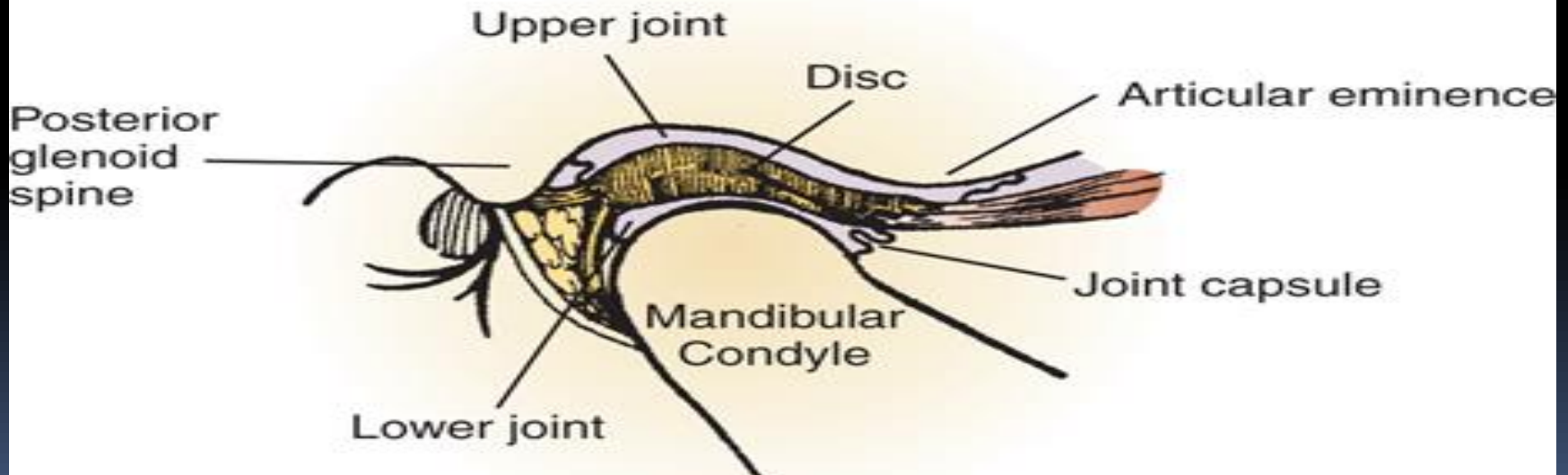
Centric relation:- the most retruded relation of the mandible to the maxilla when the condyles are in the most posterior unstrained position in the glenoid fossa from which lateral movement can be made, at any given degree of jaw separation

It's a bone relation

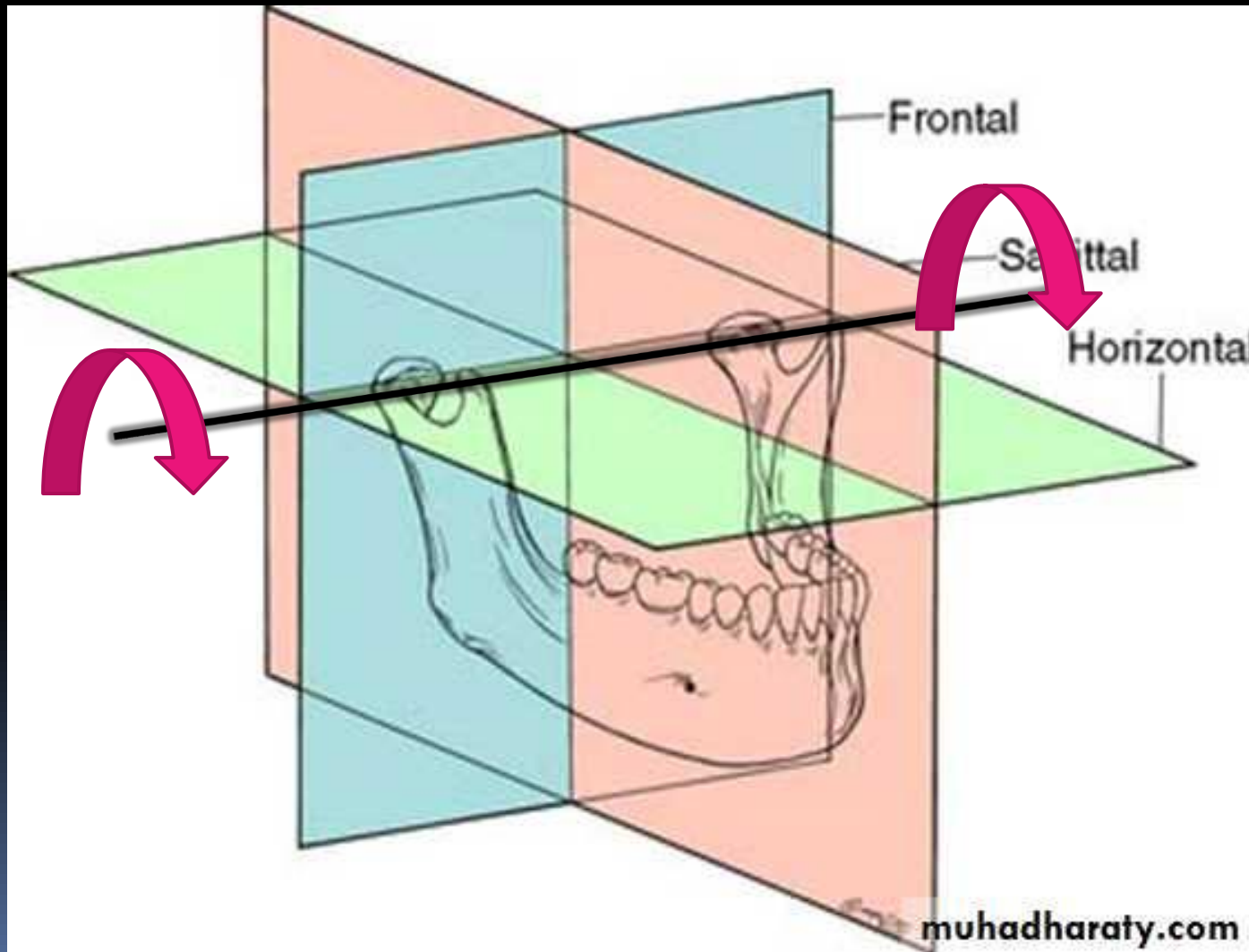


Centric relation:

The maxillomandibular relationship in which the condyles articulate with the **thinnest** avascular portion of their respective disks with the complex in the **anterior-superior** position against the slopes of the articular eminences.



It is a purely rotary movement around the transverse horizontal axis.

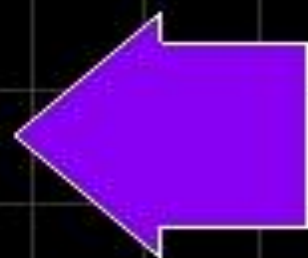


Centric Relation

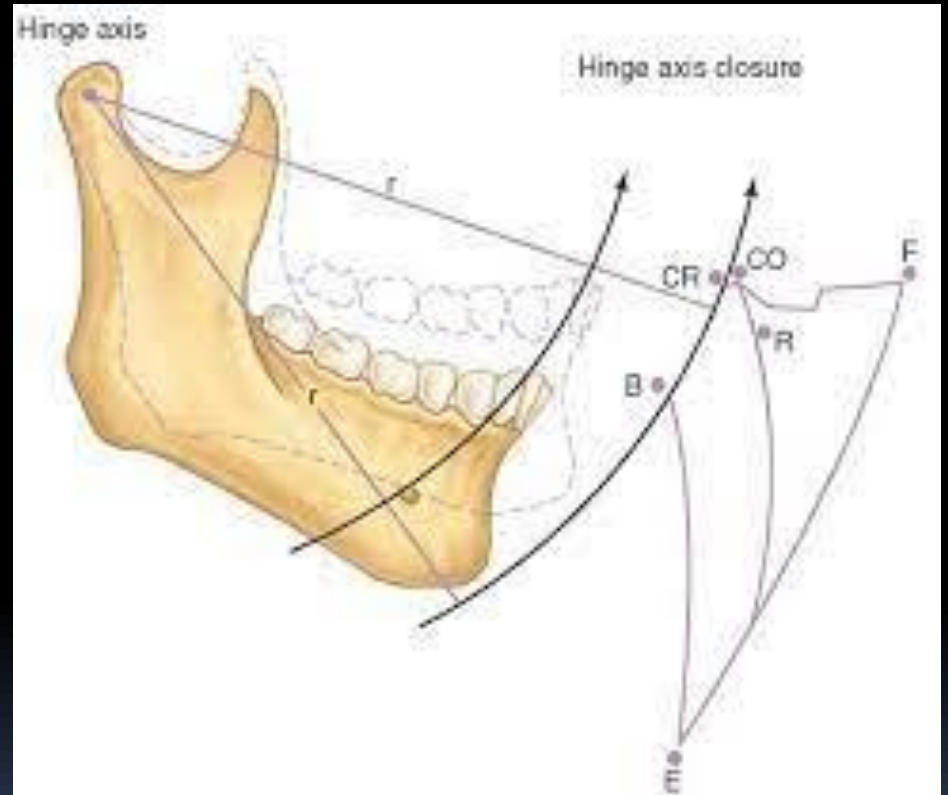
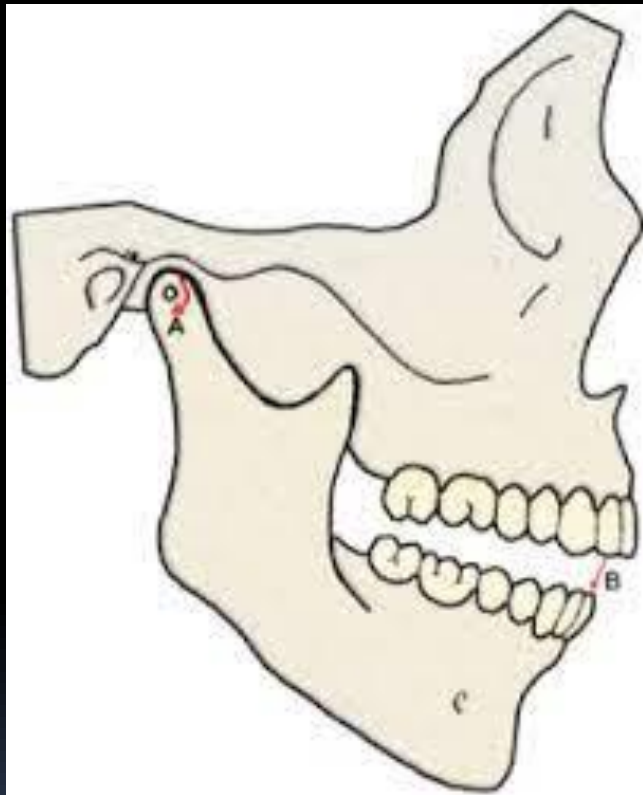
Anterior-superior-most condyle position bilaterally



most posterior
functional position
of the mandible





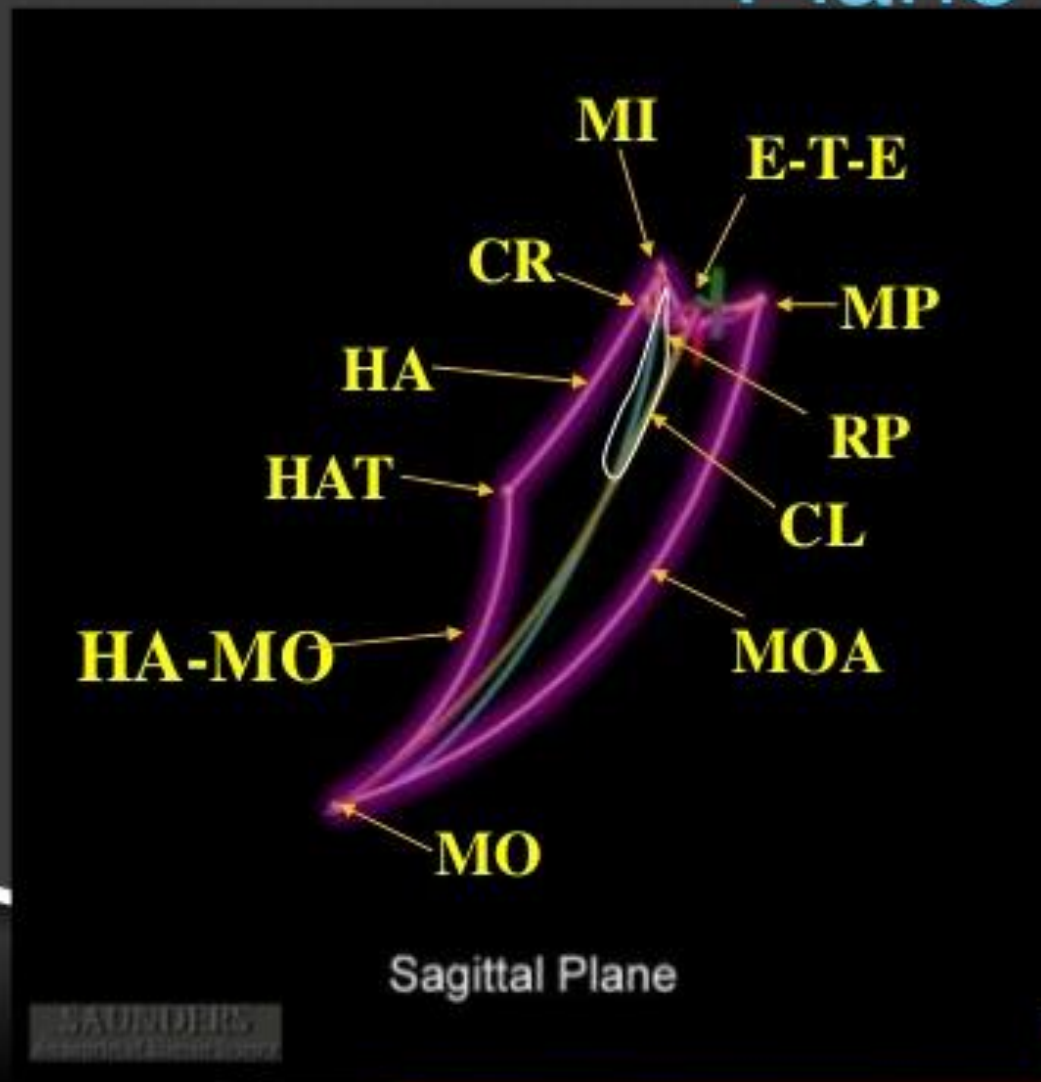




- Centric relation
- Centric occlusion
- Protrusion
- Hinge movement (terminal arc of opening)
- max. jaw opening

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Border Movements in Sagittal Plane



Legend:

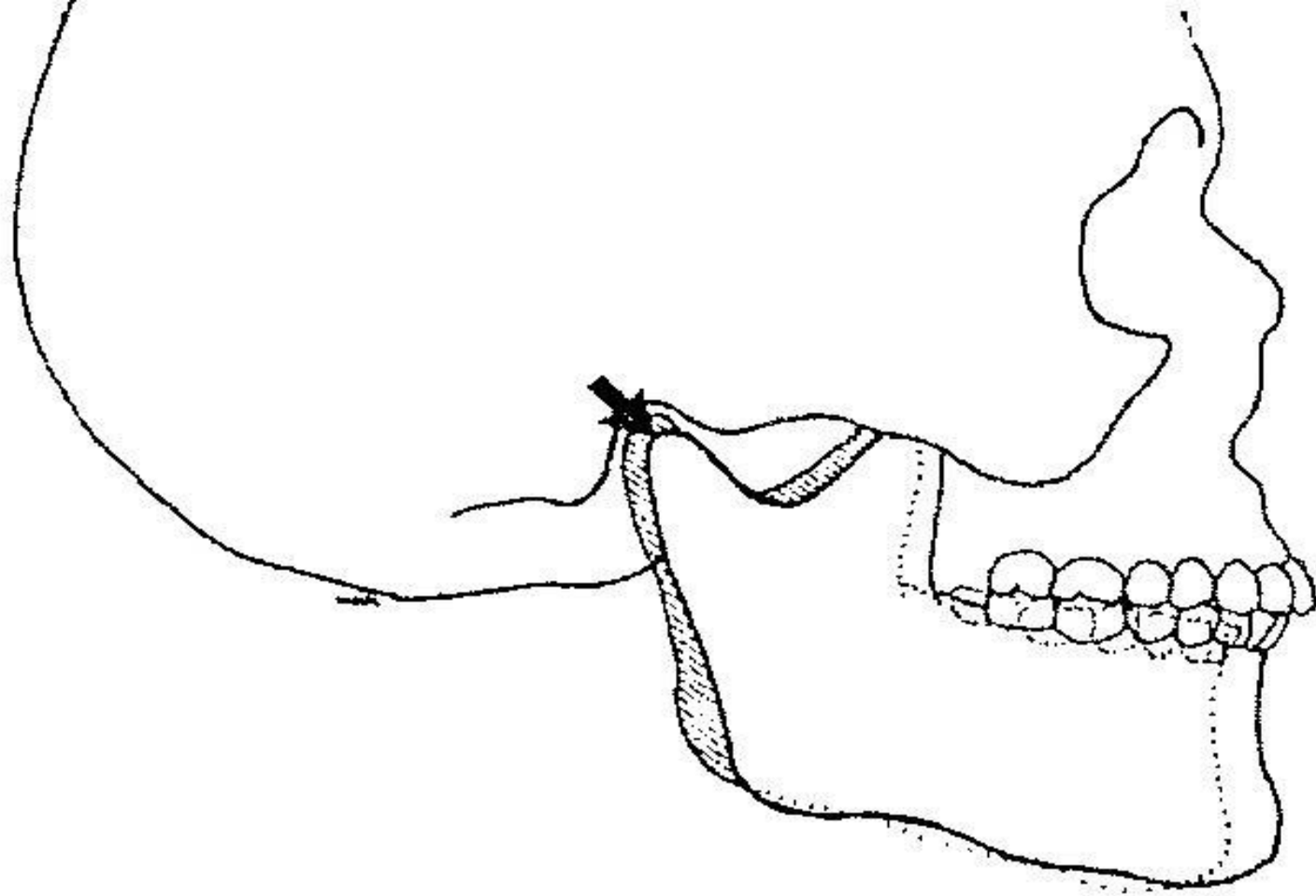
- CR = Centric Relation
- MI = Maximum Intercusation
- E-T-E = Edge to Edge Incisal
- MP = Maximum Protrusion Point
- MOA = Maximum Opening Arc
- MO = Maximum Opening Point
- HA-MO = Hinge Axis to Maximum Opening
- HAT = Hinge Axis Terminating Point
- HA = Hinge Axis Arc
- RP = Rest Position or Postural Position of the Mandible
- CL = Chewing Loop

Centric occlusion:

The occlusion of opposing teeth when the mandible is in centric relation. This may or may not coincide with maximum intercuspation.

Maximal Intercuspal Position:

The complete intercuspatation of the opposing teeth independent of the condylar position.



The continuous line denotes maximal intercuspation position the shaded area and dotted line denotes the positioned centric occlusion

Articulation:



Refers to the dynamic contact relationship of maxillary and mandibular teeth as they move against each other during function.

Balanced Occlusion:

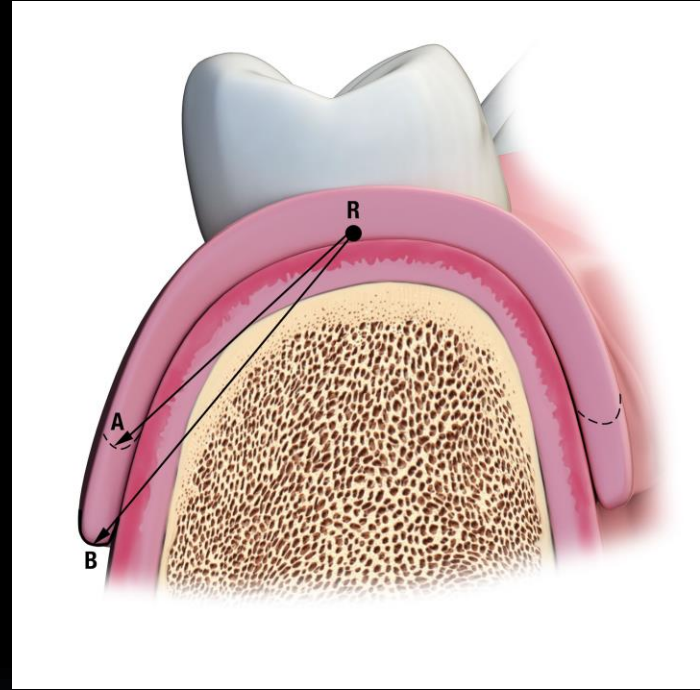
It refers to the bilateral, simultaneous, anterior, and posterior occlusal contact of teeth in centric and eccentric position.



Difference Between Natural and Artificial Occlusion

1. The teeth in natural dentitions are retained by periodontal tissues that are uniquely innervated and structured. In complete artificial occlusion all the teeth are seated on a compressible mucosal tissues.
2. In natural dentitions the teeth receive individual pressures of occlusion and can move independently. In complete artificial occlusion, teeth cannot move independently.

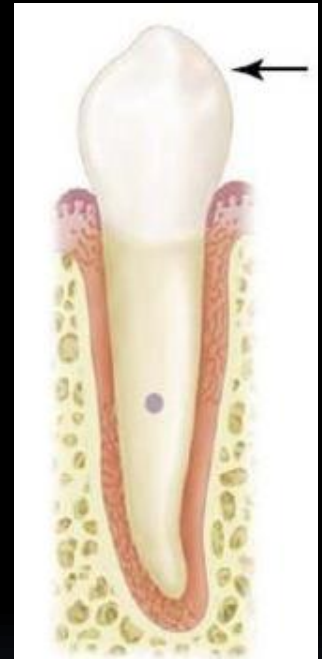




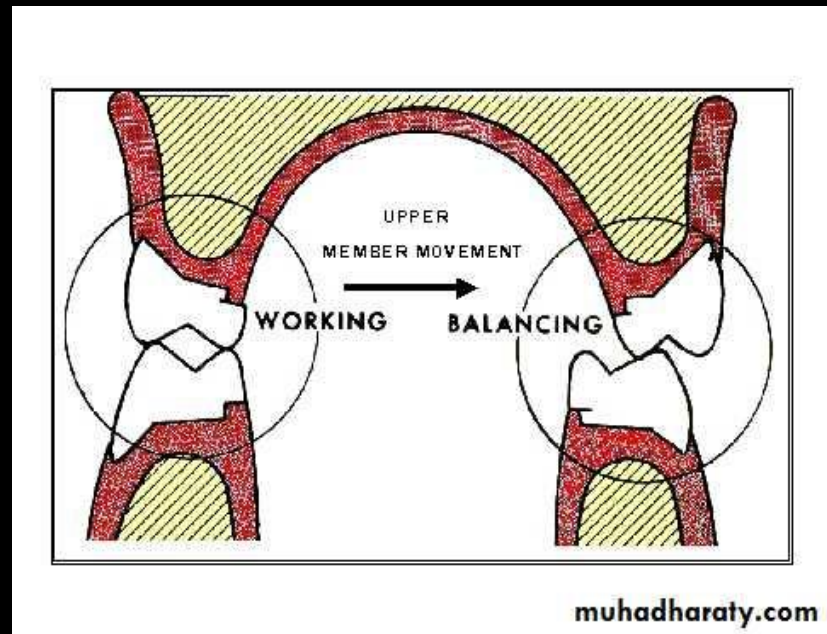
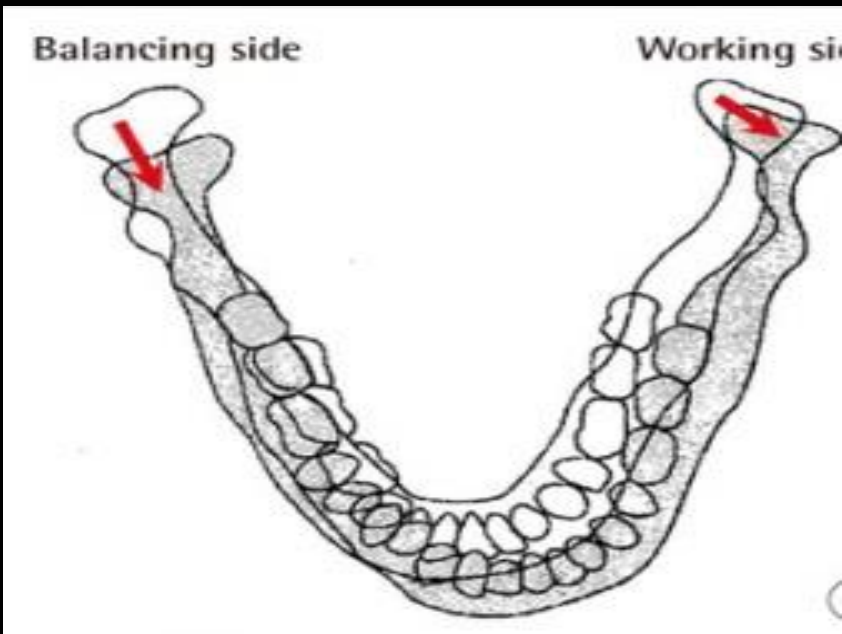
3- Malocclusion of natural teeth may be uneventful for years. Malocclusion of artificial teeth may affect all the teeth and the denture base.



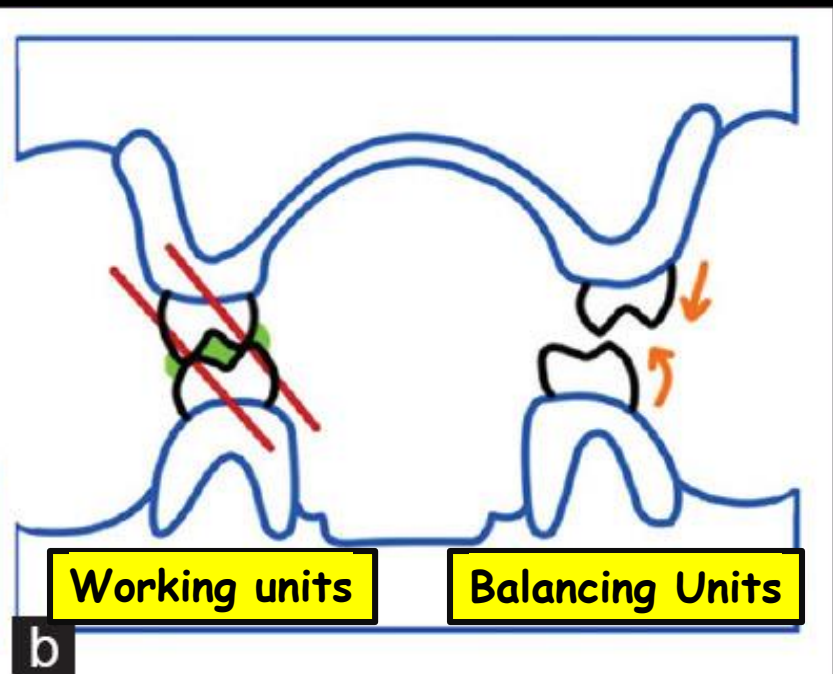
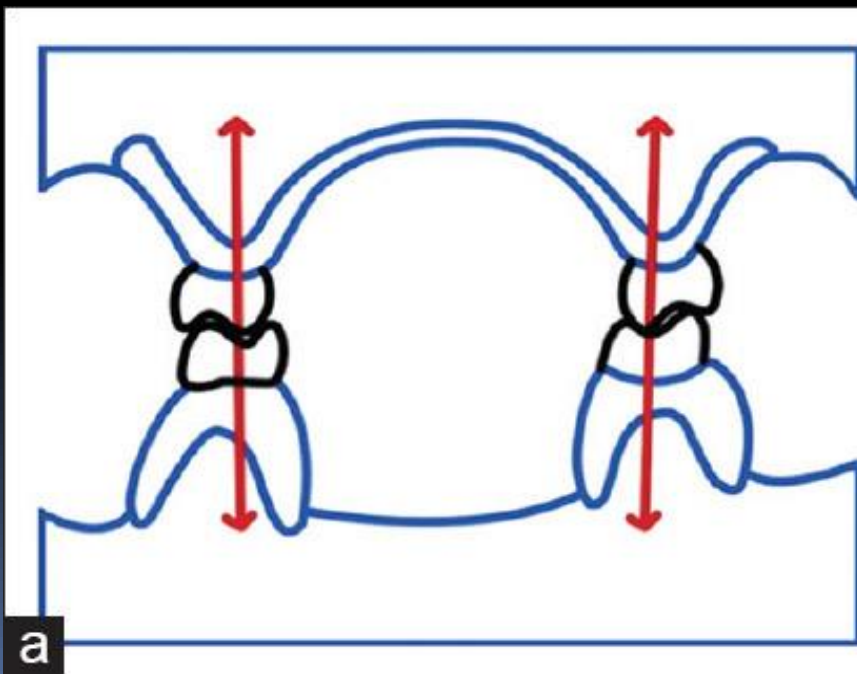
4. Non vertical forces on natural teeth during function affect only the teeth involved and are usually well tolerated, whereas in artificial teeth the effect involved all of the teeth on the bases. It is usually traumatic to the supporting structures.



5. Incising with the natural teeth does not affect the posterior teeth. Incising with artificial teeth affects all of the teeth on the base.
6. In natural teeth the second molar is the favored area for masticating hard foods. Heavy pressures of mastication in the second molar region with artificial dentition will tilt the base.
7. In natural teeth bilateral balance is rarely found; If present it is considered balancing side interference. In complete articulation teeth bilateral balance is desired for base stability.

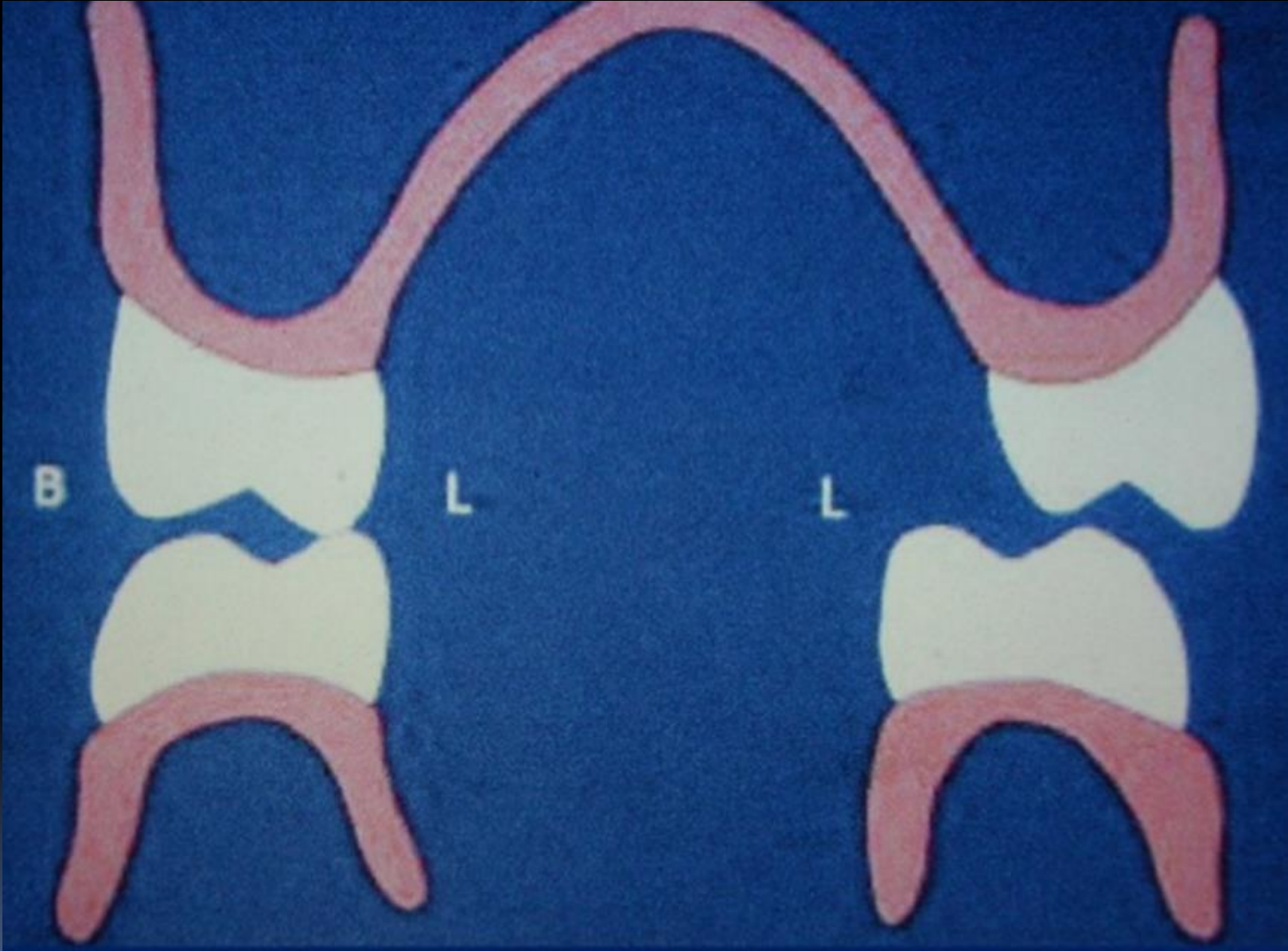


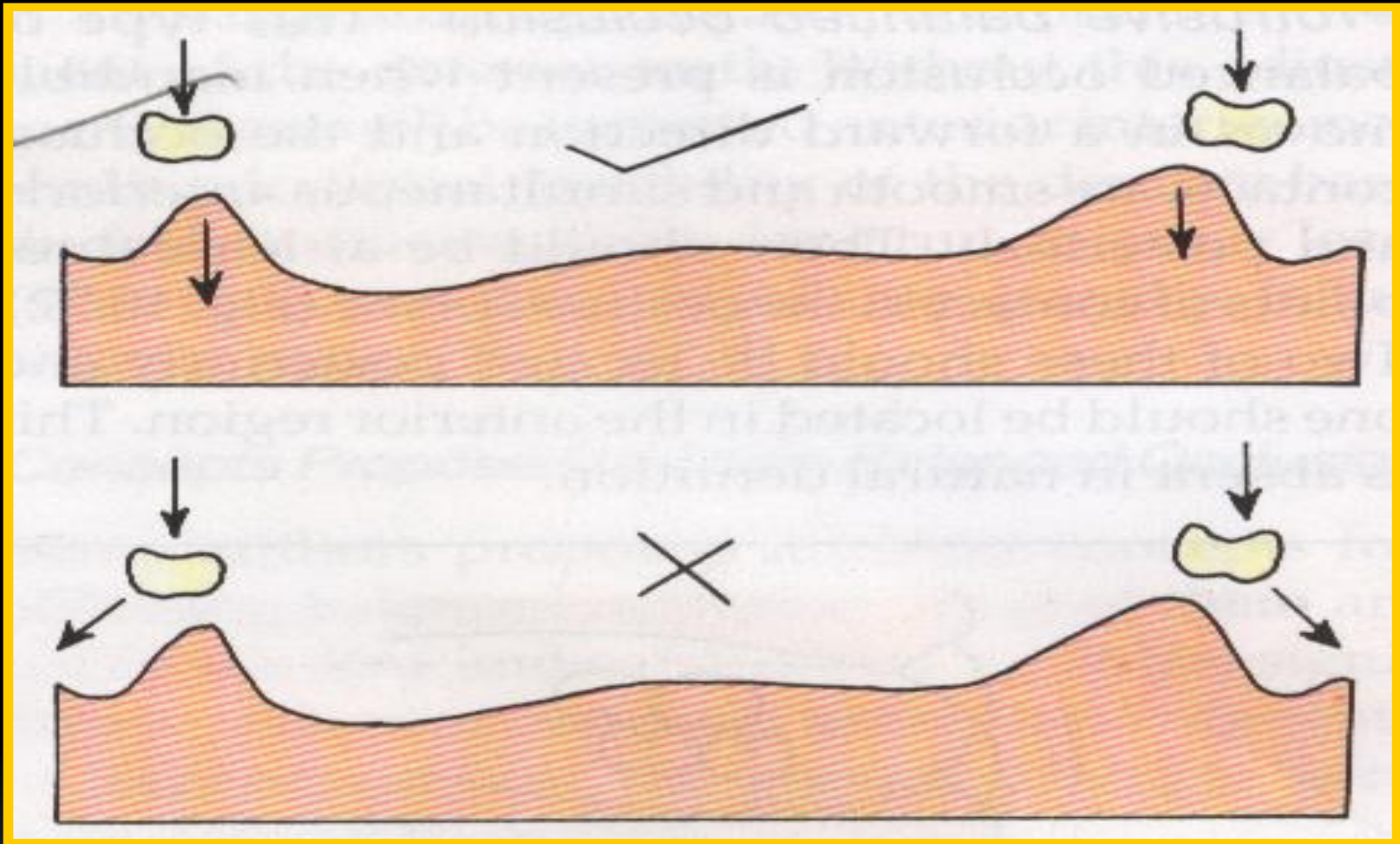
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Balancing side interference in natural teeth





The body will **tip** when the moment exerted by the pushing and friction **forces** exceeds the moment exerted by the gravity and normal **forces**.

Requirement of Complete Denture Occlusion

1. Stability of occlusion in centric relation position and in an area forward and lateral to it .
2. Balanced occlusal contacts bilaterally for eccentric contacts.

3-Unlocking the cusps mesiodistally [removing interference] so that the denture can settle down when there is ridge resorption.

4- Control of horizontal forces by buccolingual cusp height reduction according to the residual ridge resistance and inter ridge space.

Working

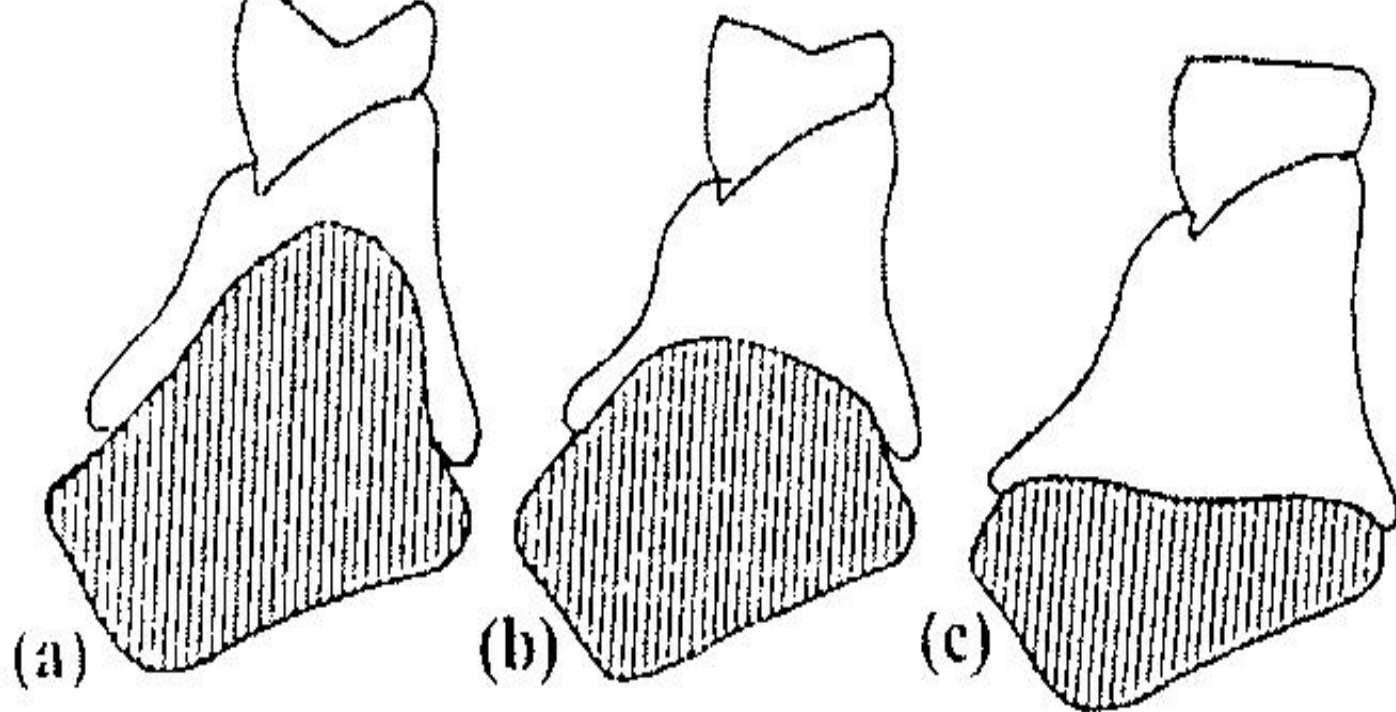


Balancing



Protrusive

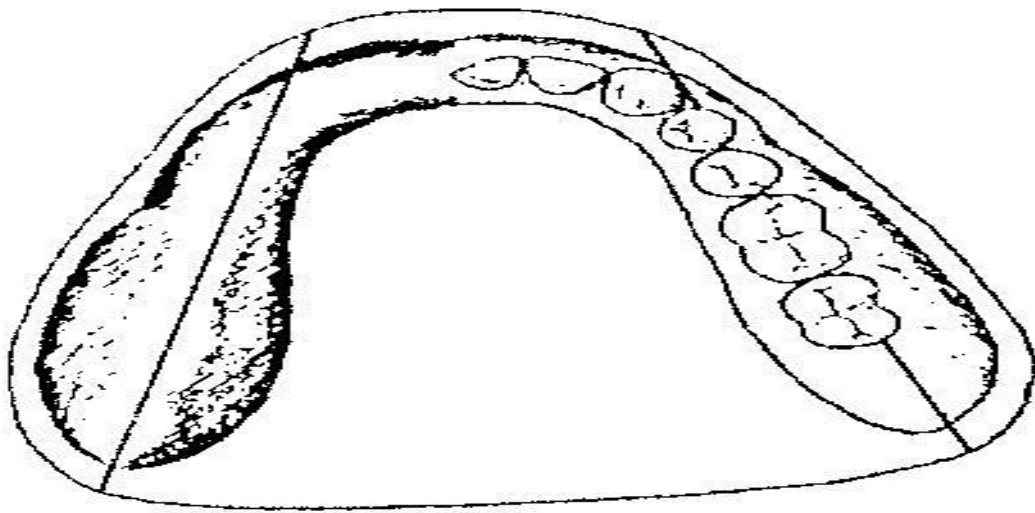




Reduction of cusp height according to the ridge height

- (a) Well formed ridge can resist horizontal forces of cusped teeth*
- (b) The use of reduced cusp height with resorbed ridge*
- (c) The use of flat non anatomic teeth with flat ridge*

5. Functional lever balance by favorable tooth to ridge crest position.



Posterior teeth over the center of the ridge

LOCATION OF
BUCCAL CUSP
IN LINE OF
ACTION OF
LOAD

DENTURE BASE
ON THE OPPOSITE
RIDGE - NOT
THE TEETH -
PROVIDES BALANCE

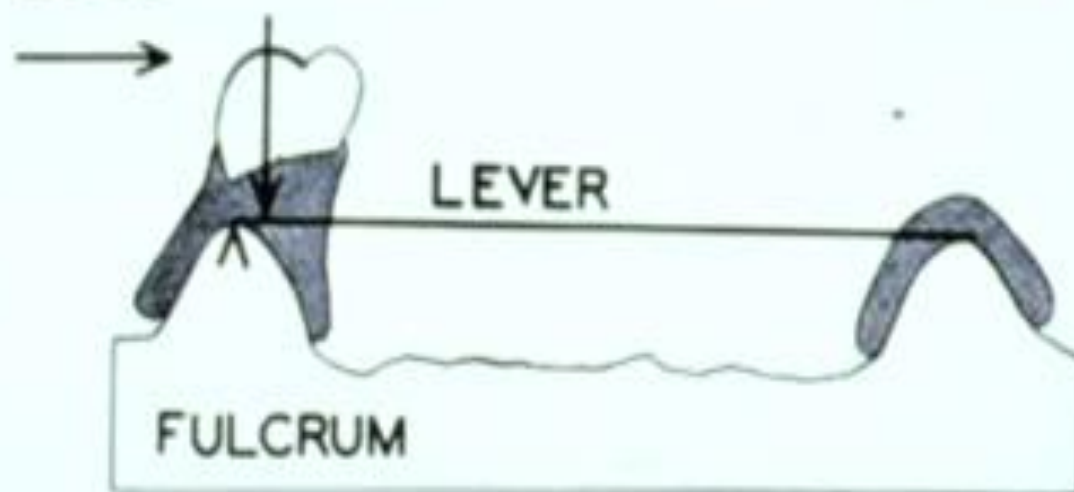


Fig. 6.—Mechanics of the cartoon shown in Figure 5. In order to secure stability, the "line of action of load" is directed at a point between the fulcrum and the resistance thereby creating a lever of the third class.

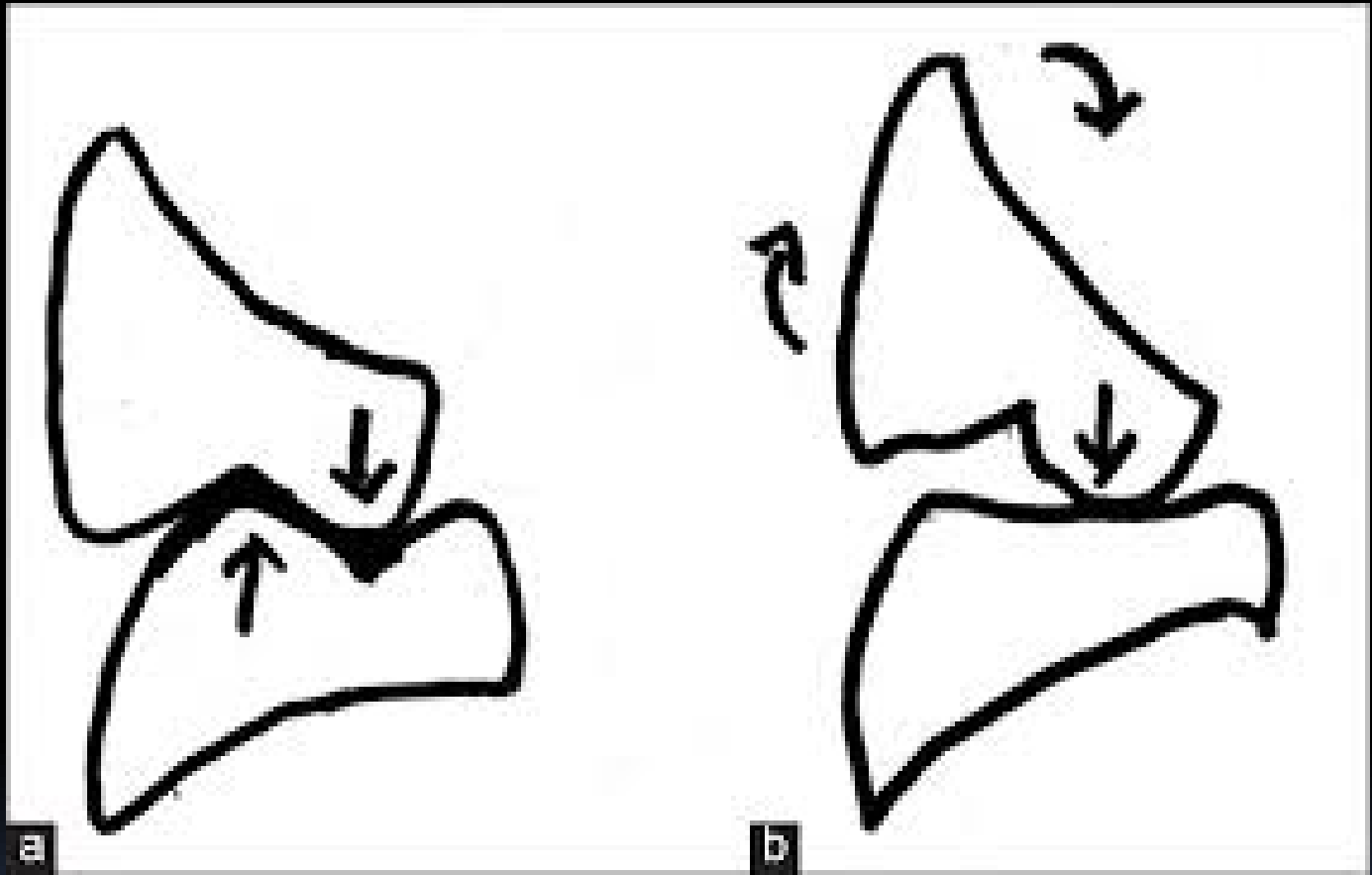
When the artificial teeth do contact, they do so in the same way as in the unworn natural dentition and leads to tipping, denture base tip up until the teeth on other side meet.



It would be therefore be entirely logical to try to achieve that situation in the first place, an occlusion that balances both sides with each other, & anterior part with the posterior part.

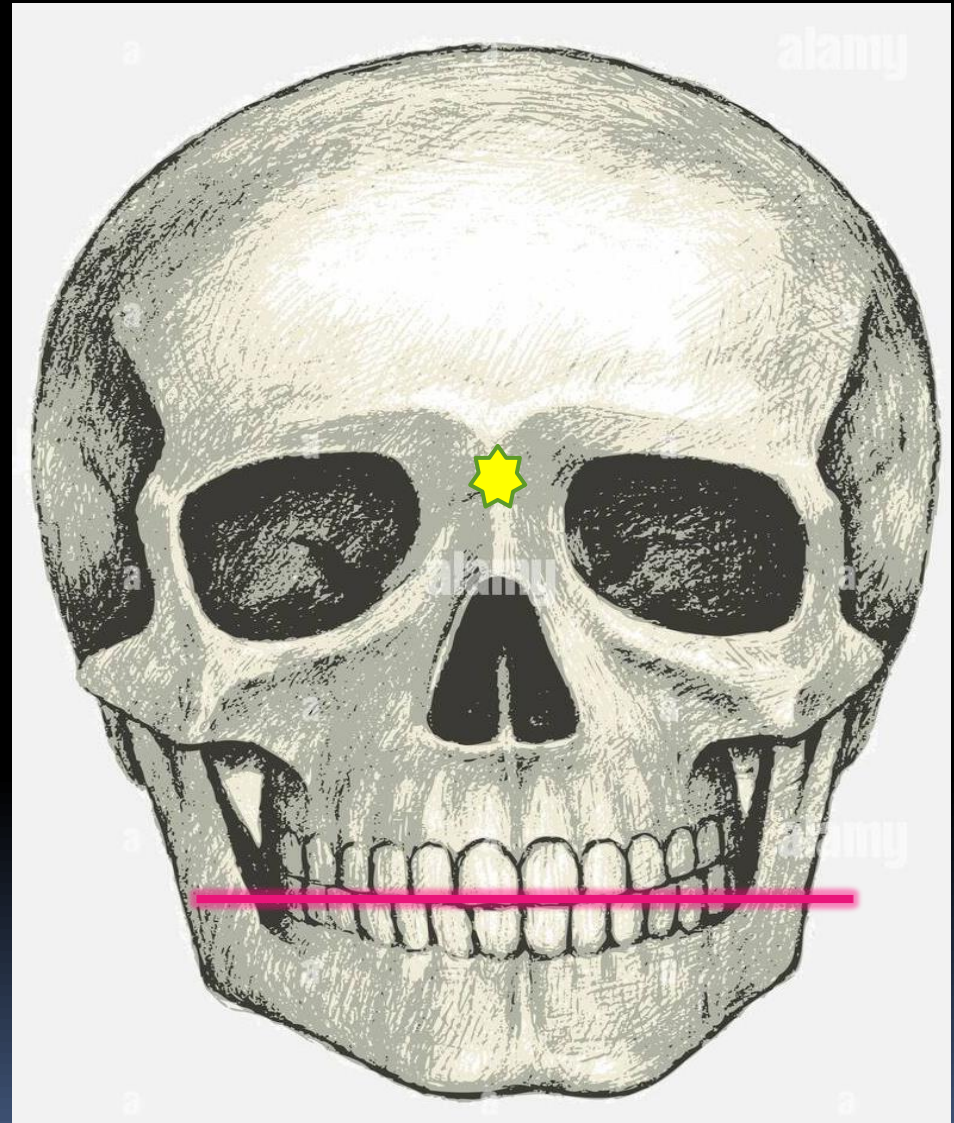
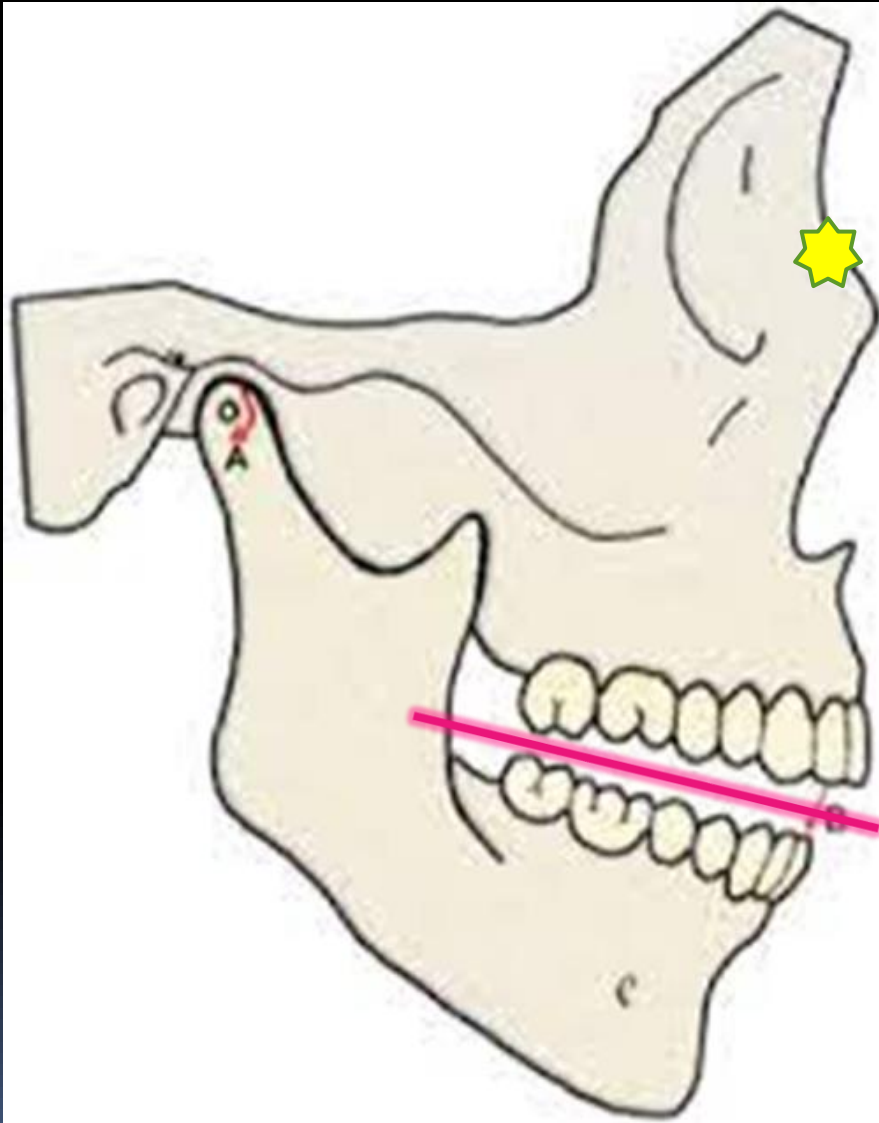
6). Cutting, penetrating and shearing efficiency of occlusal surface (sharp cusps or ridges) equivalent to natural dentition.

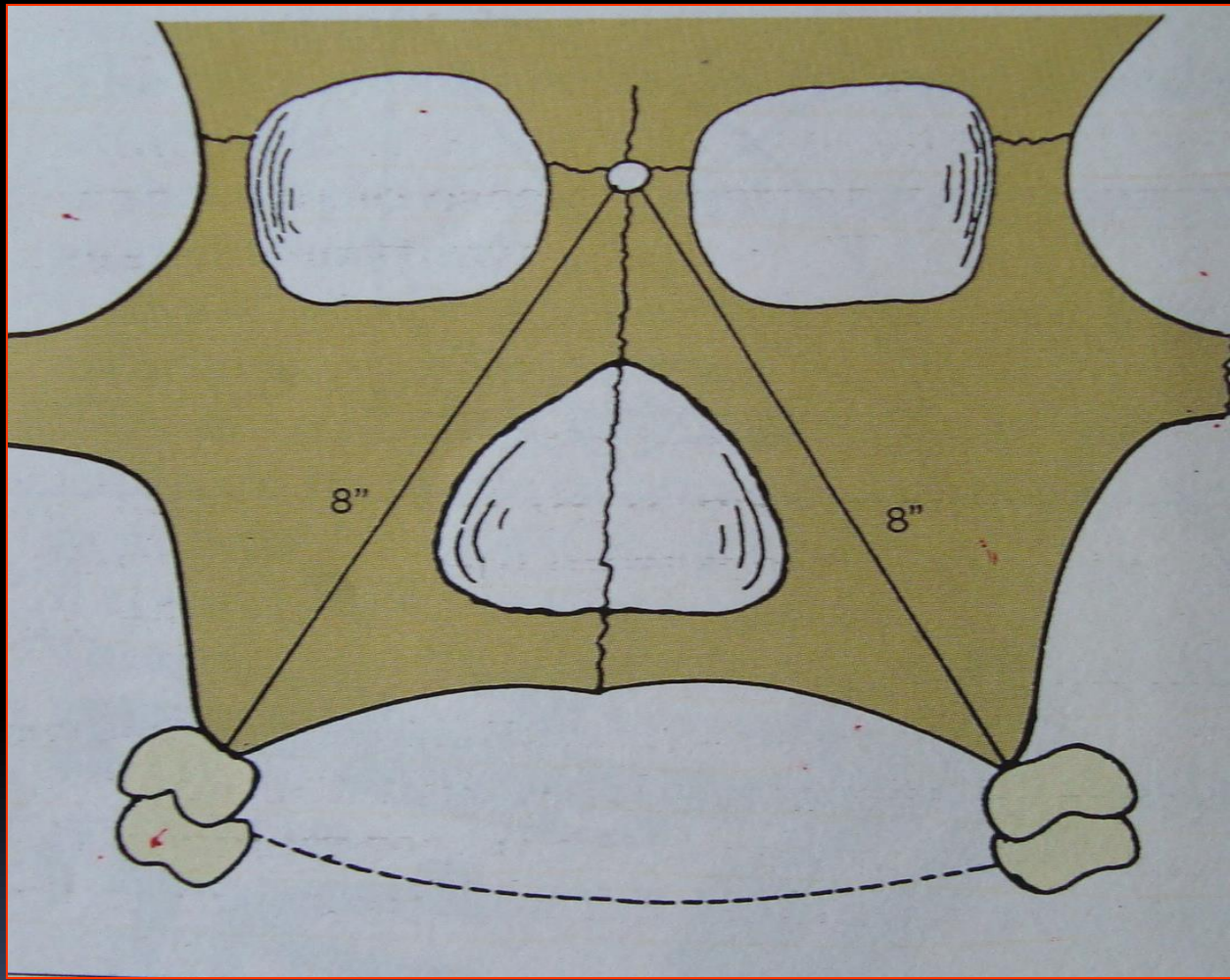
7). Minimum occlusal contact between the upper and lower teeth to reduce pressure during function (linguillized occlusion).

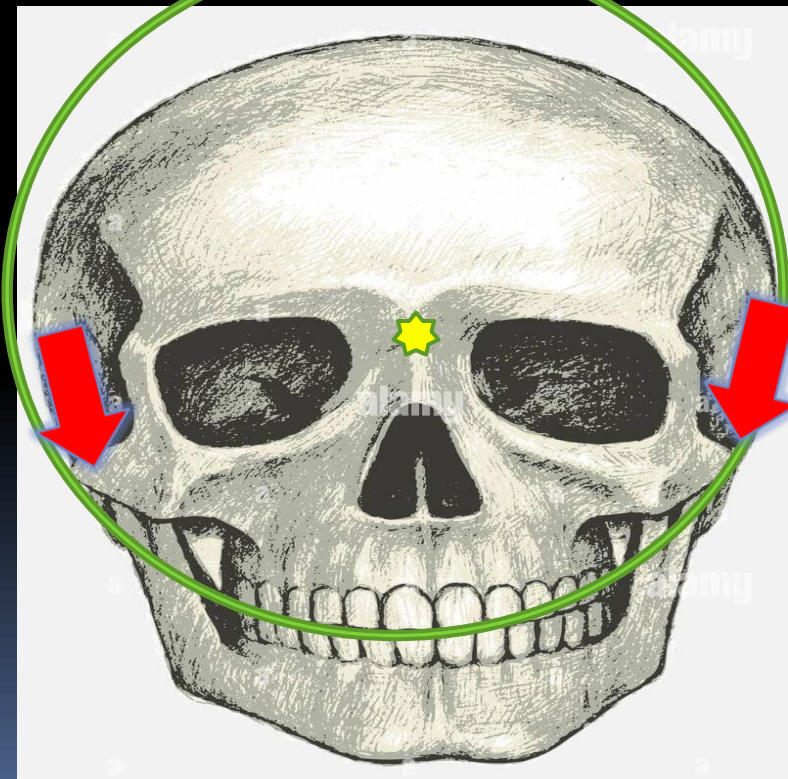
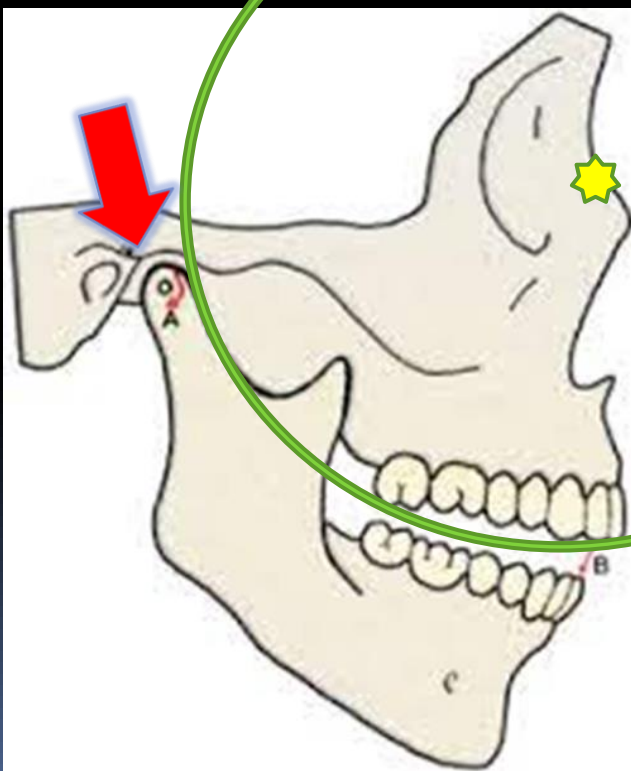
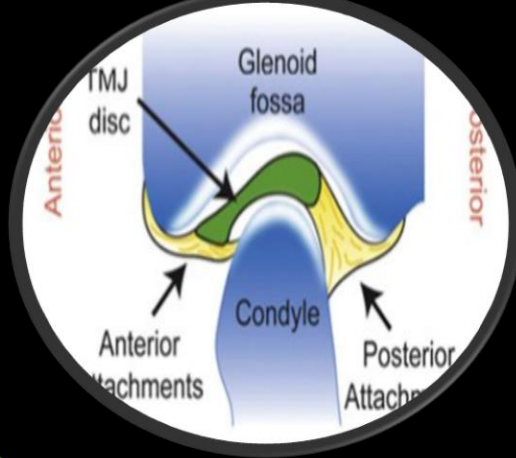


lingualized occlusion

Spherical theory

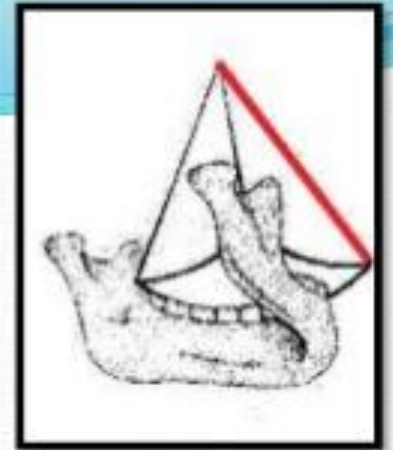


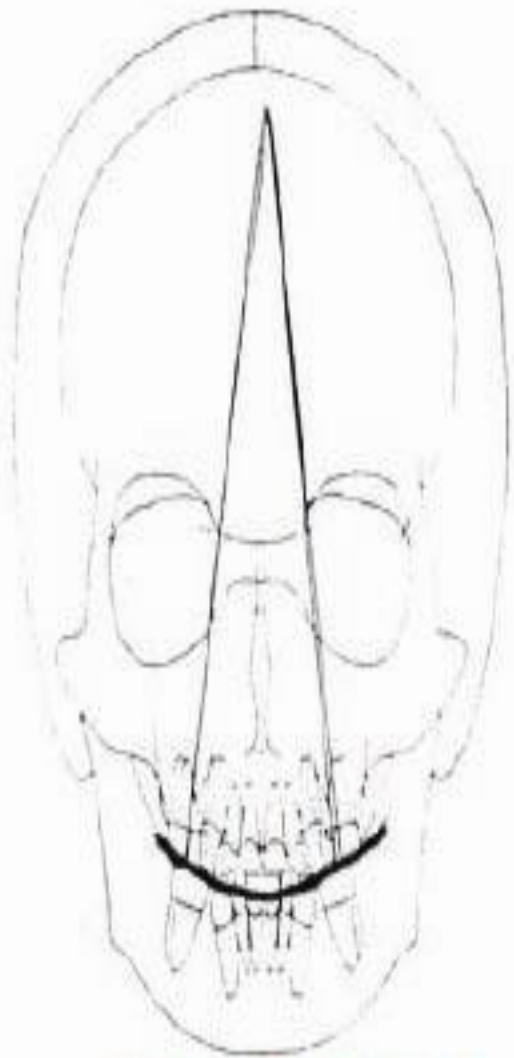




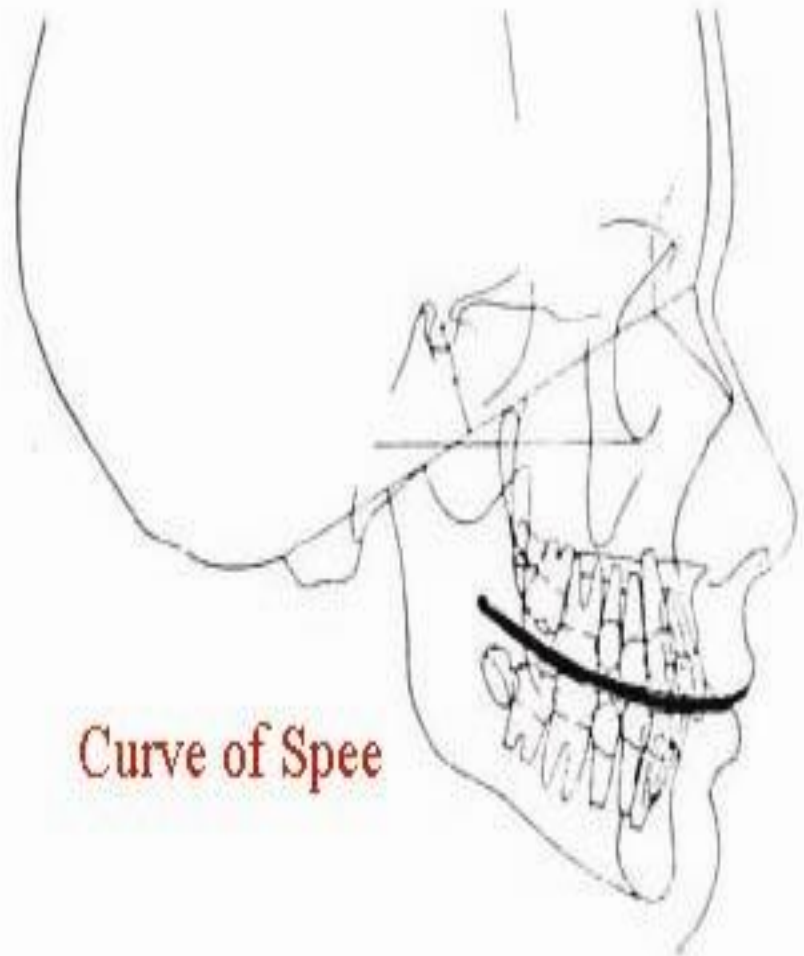
Sphere of Monson

- Compensating Occlusal Curvature
- Three dimensional curvature of the occlusal plane, which is the combination of the Curve of Spee and the Curve of Wilson
- This curvature is in form of a portion of a ball, or sphere
- This curvature is concave for mandibular arch & convex for the maxillary arch





Curve of Wilson



Curve of Spee

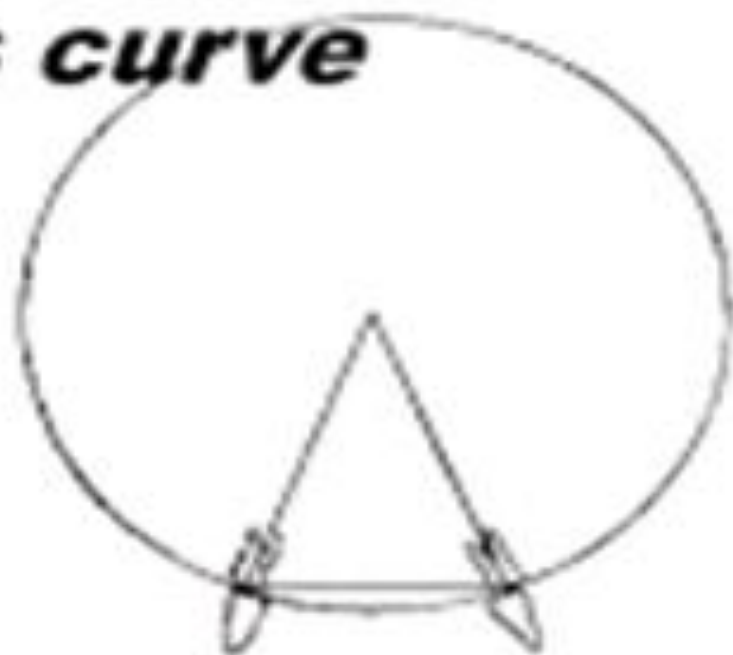
Spee's curve



Wilson's curve



Monson's curve



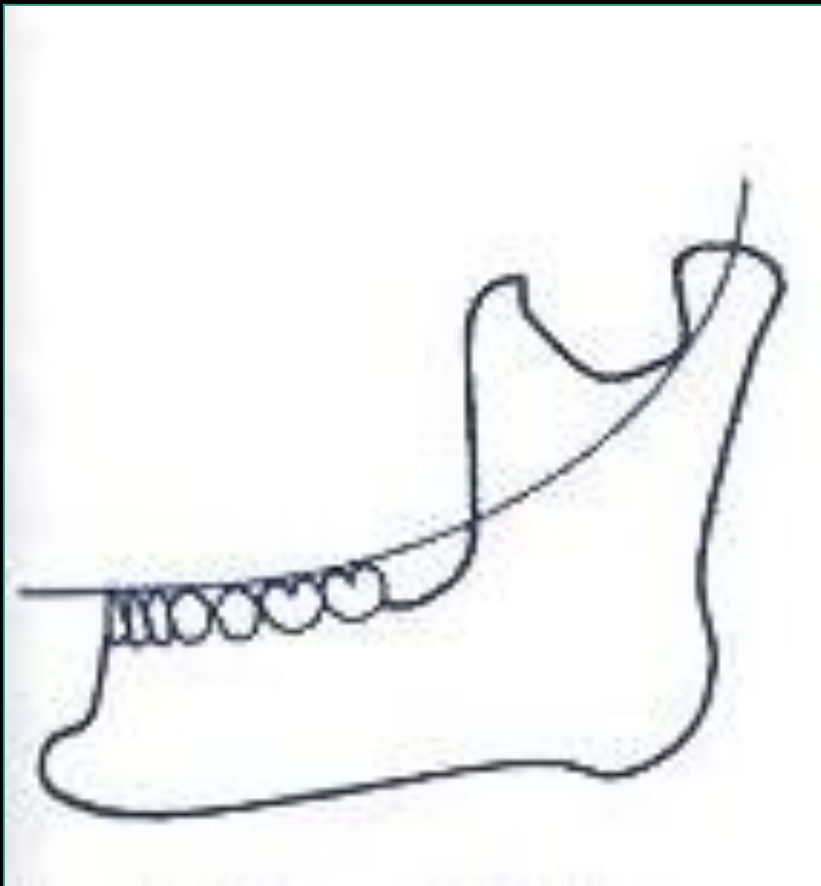
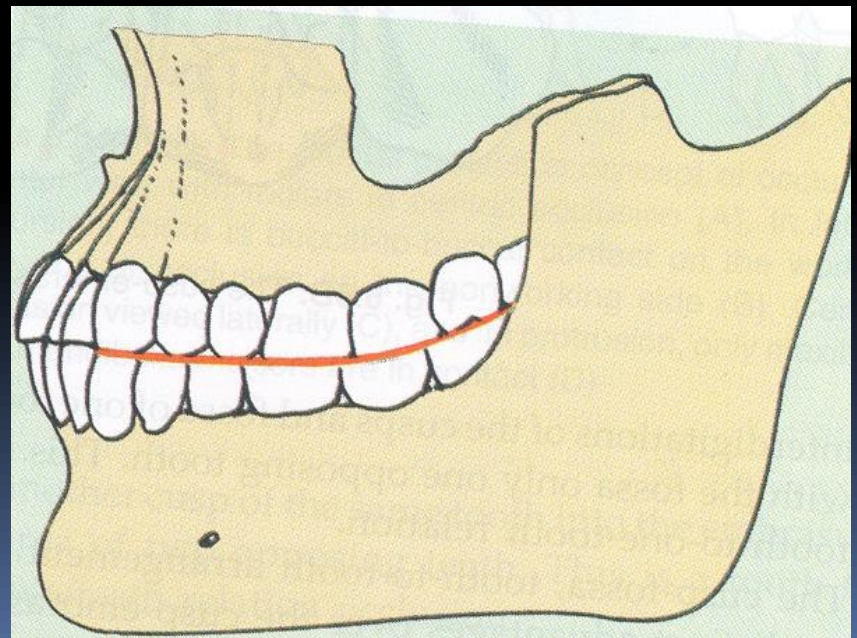


Figure: The measurement of depth of curve of Spee.



Curve of Wilson



Sphere of Monson



Thank
you