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5th Grad / 7th Lec.

2019-2020

JAW RELATION FOR COMPLETELY EDENTULOUS PATIENT

JAW RELATION:- It is defined as "Any relation of the mandible to the maxilla"

• Types:

1- Orientation jaw relation.
2- Vertical jaw relation.
3- Horizontal jaw relation

1- ORIENTATION JAW RELATION

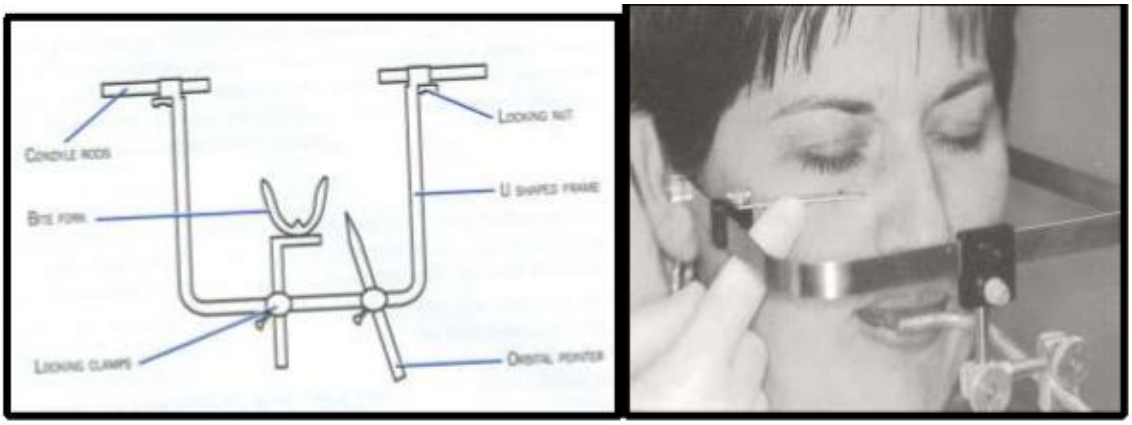
Are those that orient the mandible to the cranium in such a way, that, when mandible is kept in its most posterior position, the mandible can rotate in sagittal plane around an imaginary transverse axis passing through or near the condyles.

It include:

1- Orientation of maxilla or mandible to skull by using (face bow).
2- Orientation of occlusal plane by using (fox plane).

Face Bow

- U shaped Caliper like instrument used to record the relationship of the maxillary arch to some anatomic reference point or points and then transfer this relationship to an articulator.
- Face bow is used mainly when the vertical dimension of occlusion is expected to be altered.
- Use of face-bow minimizes occlusal errors in the restoration as the casts will be oriented as close to as they are in the patient.
- It orients the dental cast in same relationship to the opening axis of articulator. Customarily the anatomic references are the mandibular condyles transverse horizontal axis and one other selected anterior point.
- Also called Hinge bow, Ear bow, Kinematic face bow.



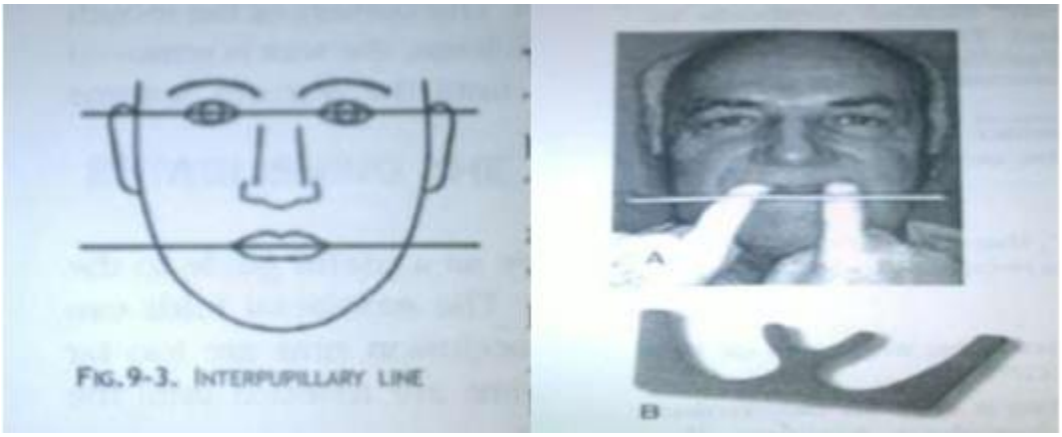
During Orientation Jaw Relation Clinically We Should Do the Following:

- Properly contoured maxillary occlusal rim is inserted in the patient's mouth and following are assessed:-
  - Lip support: Upper lip - just supported enough.
  - Visibility of the rim: at rest 1.5-2 mm of the rim should be visible.
  - Lips relaxed.
  - Nasolabial angle should be at 90 degree.
  - Philltrum should be depressed slightly, There should be no obliteration or stretching of philltrum.

FOX PLANE (Fox Bite)

- Anteriorly the maxillary occlusal plane is adjusted to be parallel to interpupillary line.
- Posteriorly the occlusal plane is adjusted to be parallel to alaetragus line (camper's plane),

Camper's plane: Imaginary line joining the alae of the nose to the tip of the tragus.



2- VERTICAL JAW RELATION

VERTICAL DIMENSION: is the distance between two selected points -: one on the fixed part and the other on the movable (maxilla and mandible) at the mid line.

REST VERTICAL DIMENSION (RVD):- The distance measured when the mandible is in the rest position .

OCCLUSAL VERTICAL DIMENSION (OVD) :- The distance measured when the occluding members are in contact.

INTEROCCLUSAL DISTANCE (FREE WAY SPACE):- It is the distance measured when the occluding surface of the maxillary and mandibular teeth when the mandible in its physiologic rest position and it is equal to 2-4mm.

IMPORTANCE OF VERTICAL DIMENSION:

1- Functional role which include mastication, respiration, deglutition and phonetics.
2- Esthetic role.
3- Preservation role maintenance of healthy tissues such as mucosa, bone, muscles and TMJ.

The Vertical Jaw Relations can be recorded in tow positions:-

1- The vertical dimension at rest position.
2- The vertical dimension at occlusion.

Effects Of Excessively Increasing the Vertical Dimension:-

1- Discomfort – teeth come into contact sooner than expected.
2- Trauma – caused by constant pressure on the mucous membrane.
3- Loss of freeway space.
4- Clicking of teeth – teeth are raised & the opposing cusps frequently meet each other during speech & mastication.
5- Appearance – over opening may cause elongation of the face & at rest the lips are parted.

Effect Of Excessively Decreasing the Vertical Dimension:-

1- Inefficiency – the force exerted with the teeth in contact decreases considerably with over closure.
2- Cheek biting – the flabby cheek tend to become trapped between the teeth & bitten during mastication.
3- Appearance – Closer approximation of nose to chin, soft tissue sag & fall in, & the lines on the face are deepened.
4- Soreness at the corner of the mouth (Angular cheilitis) – falling in of the corner of the mouth beyond the vermilion border & the deep fold thus formed become bathed in saliva. This area becomes infected & sore.
5- Pain in TMJ – caused due to strain of the joint & associated ligaments.

1- METHODS OF RECORDING REST VERTICAL DIMENSION(RVD):-

A- Swallowing Method :

- It is based upon **the hypothesis** that after each act of swallowing the subject passes through rest V.D. After insertion of the occlusion rims inside the patients mouth where the head in the upright position the patient swallows and then let the jaw relax several times when the relaxation is obvious several measurements between the 2 selected points and do average for them to obtain the rest vertical dimension . it is important to mention that there must be a separation between the occluding members of 2-4mm before taking the measurement.
- However it has been found in experimental research that a rapid adaptation takes places takes place after changes of the vertical dimension leading to another rest position such findings indicate that the rest position is not are liable basis for the determination of vertical dimension .

B- Tactile Sense Method :

- This method depends upon the patient,s muscular perception in registering comfortable and relaxed position . We instruct the patient to open widely until strain is felt in the muscles and when this opening become uncomfortable ask him to close slowly until the jaws reach a comfortable relaxed position and then measure the distance.
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C- Phonetic Method:-

- The bilabial sounds like M , P or (emm) are considered the most popular sound used as the patient repeat these sounds when the lips come together in contact we measure the distance.

D- Facial Expression:-

- The experienced dentist learn the advantage of recognizing the related facial expression when the patients jaw are at rest where the lips will be even anterio-posteriorly and in slight contact the skin around the eyes and over the chin will be relaxed.

E- Anatomical Landmarks:-

- The distance between the outer canthus of the eye to the corner of the mouth and the distance between the anterior nasal spine and the lower

border of the mandible. When these measurements becomes equal the jaws are considered at rest position.

2- RECORDING OCCLUSAL VERTICAL DIMENSION (OVD):-

A- Mechanical Methods:

1- **Pre-extraction records:-**

- Profile photographs
- Radiography (cephalo metric profile and the condyles in the fossae)
- Articulated cast
- Facial measurements.

2- **Former dentures.**

3- **Ridge relation.**

B- Physiological Methods:

1- Swallowing Threshold:

- **The position of the mandible at the beginning of the swallowing act as a guide to the vertical dimension of occlusion .**

2- Tactile Sense Method:

- **A central bearing screw and central bearing plate apparatus is used and attached to accurately adapt record bases permits the patient to experience through neuromuscular perception the different vertical relations. The central bearing screw is adjusted downward and upward until the height of contact feels right to the patient and this represents the occlusal vertical dimension .**

3- Phonetics (Silver Man,s Closest Speaking Space) ;-

- It is the minimal amount of inter occlual space between the upper &lower teeth. When sounds like Ch, S, and J are pronounced , there is 1-2mm clearance between teeth when observed from the profile and frontal view. If the distance is too large it mean that too small a vertical dimension of occlusion may have been established. If the anterior teeth touch when these sounds are made , the vertical dimension is probably too great.