

PROSTHO

SHEET #8

DR. SALAH

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The 3rd step of denture construction is the jaw relation demonstration or bite registration

Why to record jaw relation?

1. To maintain harmonious relationships with oral structures.
2. Provide masticatory apparatus that is efficient and acceptable.
3. To ensure all the effect of occlusal loading was distributed evenly to all supporting structures.
4. To control the unwanted effect of rotational and torque force on the prosthesis itself.
5. To prevent all the deflective contact and premature contact of the teeth during centric and eccentric relation of the prosthesis that can produce some changes in the supporting structures of the oral cavity

*In order to record jaw relations we need a dentures base (either from shellac or acrylic material) with wax rim. This record base/base plate is a temporary form that represents the base of the denture used to record the maxillomandibular relation and the arrangement of teeth.

*** Requirement of the base plate:**

1. Accurate
2. Rigid
3. stable
4. the borders should be rounded and smooth so u won't injure patient.
5. table with no rocking "from past yr sheet"
6. Stable dimensions "from past yr sheet"

*Occlusal rims or record blocks: occluding surfaces constructed on a record base or permanent denture base used in recording jaw relation for arranging teeth.

***Requirements of the occlusal rim:**

1. Should be in the anticipated position of the artificial teeth at the center of the ridge
2. Securely attached to the denture base
3. the occlusal surface should be smooth & flat
4. Contoured to support the lip and cheeks
5. proper dimensions "height and width"

***Reasons to construct the record block or wax rim :**

1. Establish the level of the occlusal plane
2. Establish the arch form
3. Record the maxilla-mandibular relationship
4. For teeth setting

The dr said that you should know the measurements of the wax rim bcoz u studied it last year

And it narrower anteriorly and wider posteriorly but this is from past yrs sheet it could help

"Wax rims width equal the buccolingual width of the denture teeth, so they are wider posteriorly than anteriorly, they must be centered buccolingually and parallel to the residual crest, maxillary wax rim is labially oriented, no voids within the wax, retentive and stable within the patient mouth if not we add denture adhesive powder."

Wax rim	Maxilla	Mandible
Height anteriorly	22	18
Width anteriorly	3-5	3-5
Width posteriorly	8-10	8-10

Testing the UPPER recording jaw:

Should be retentive and stable inside the mouth

Here we are not talking about the same retention required for the final denture and we want it to be stable enough to stay in the oral cavity or in the arch, so it's ok to use denture adhesive at this step.

Now we have to test: "the **sequence** here is very important"

1. Lip and cheek support "amount of fullness"
2. Amount of tooth showing (smiling line)
3. Occlusal plane orientation, anterior and posterior planes (camper's plane)
4. Midline
5. Canine line

As we said the sequence here is important bcoz for ex if u started with step 2 and u made sure that the smile line is ok and that the amount of teeth showing is good and everything then u moved to step 1 to find out that the lips are over supported (remove wax) or under supported (add wax here) now the amount of teeth showing is going to be different after this step so follow the sequence

Lip and cheek support

There're some guidelines that help us to determine the lip and cheek support:

1. Nasolabial angle: it's the angle between the saddle of the nose and the fulcrum. Range is between 90-120 °, the preferable angle is 90° but some races has it as an acute angle and others as obtuse angle, for example



- Chinese "yellow race": their nose is small and the tip is directed upward.
- Black people: large and the tip is directed downward.

So this angle has a huge impact on esthetics.

If we over support this area so the angle is less than 90 or 60 the pt will look like a rabbit.

The dr was explaining an image with the classification of noses in literature; we don't have the slides,

- Vermillion border: is the junction between skin and mucosa, it shouldn't be over supported in order not to show mucosa.
- Nasolabial fold: it increases in depth with age its related to check support, with over support the patient will look like a monkey.
- Philtrum of the lip: it shouldn't be over supported in order not to look like a rabbit.
- Patient perception: how the patient feels and if he's comfortable or not.

Amount of tooth showing /smiling line /incisal showing

When we breath from our mouth in an upright position with lips slightly apart 1-2 mm of ur upper centrals will show >> this is in normal individuals

Variables affecting teeth showing:

1. Size and type of lip (small ,large, medium ,thin ,inverted ,competent) for ex a pt with thin lip if u give him 2mm tooth showing he will have a gummy smile or the neck of the teeth will show (he will show more than desired of the wax rim)
2. So in this case you have to make it at the same level of the lower border of the upper lip or according to the pts desire so u have to ask the pt
3. Acquired or congenital lip deformity; scars or burns or cleft lip or cancer
4. Age: with age the muscle tone decreases
5. Patient desire
6. Skeletal relationship; skeletal class 2 div1 (incompetent/mouth breathers):
In relaxation: they already show the neck of their teeth you need force to bring their lips together
So when they smile even the flanges of the denture will show so most of the time we make the wax border above the lower border of the lip or sometimes at the same level but we prefer above it
7. High lip line and low lip line: determine the length of the central incisors we ask the pt to slightly smile and we mark the lip line then we ask him to smile normally and then we mark the smile line

Occlusal plane orientation:

We have two planes: anterior and posterior planes.

1. Occlusal plane anteriorly that helps in achieving esthetics and phonetics
2. Camper's plane posteriorly for mastication "forms a milling surface for (28:8)and buccinator muscle are able to position the food during mastication

The anterior plane : determines the position of the anterior teeth from canine to canine

it's an imaginary line that should be parallel to the line that joins the two pupils of the eyes "inter papillary line " its determined by a fox plate and a ruler u ask the pt to look at u directly the fox plane has an anterior part for anterior plane, a posterior part for posterior plane and a fork that should be in contact with the occlusal rim.

If a patient has one eye, stigmatism, how would u determine the anterior plane?

Posterior plane: determines position of molars and premolars backwards. And should be parallel to ala-tragus line (Camper's line), the lowest point of the ala of the nose to the center of the tragus of the ear. The tragus is variable from person to person.

Midline and canine line are called accessories "the dr's naming"

Midline is an imaginary vertical line dissecting the face. For esthetic reasons, the acrylic must occupy the same position of previous teeth, since there's no 100% symmetry of the two sides of the face.

Methods to detect the midline (use at least 2 methods):

- Approach your patient from the front at least 1m away, while the patient is in upright position.
- Some people rely on the labial frenum, but it's not a reliable method, since it sometimes maybe missing. Or you'll pull it more towards your dominant hand.
- Centre between the eyebrows, centre of the chin, tip of the nose and tip of the chin. Then stand on front of him and let him talk, noticing if the the bisecting line is shifted to a side or another.
- Bisect the mouth from corner to corner "the philtrum"

Use at least two methods.

Canine line

When the lips are relaxed mark the corners of the mouth which marks the tip of the canine or from the ala of the nose downwards .This helps the technician to choose size of teeth.

As we said there're some variations in nose shape, Chinese have small nose so the line of the ala of the nose will meet at lateral incisors while in large nose it will meet at premolars area.

Drop a perpendicular line from the outer side of the ala of the nose onto the wax rims. Due to small nose and large nose variation, it is used as a third guiding line.

Buccal corridor: space at the buccal side of premolars.

After checking the upper wax rim, leave it inside the patient's mouth and insert the lower. There must be even contact and if there's space, remove from the upper rim till the contact is even.

Remove the upper and leave the lower rim inside. We work on it from two dimensions, vertical and horizontal. The vertical detention is the rest vertical jaw relation (RVD) and

occlusal vertical dimension (OVD) and the interocclusal space, free way space.
OVD-RPD= freeway space.

The horizontal relations, centric relation or the retruded contact relation.

Vertical dimension: by definition is the distance between 2 selected points , one fixed on the tip of the nose(maxilla) , and one in the least movable part in the chin(mandible) and that when the maxillofacial tissue or muscles around the oral cavity is in tonic or equilibrium state (relaxed) and the lips are slightly in touch .

Simply, it is a position for any individual while in upright position with no stress or strain on TMJ, and he/she is breathing through their nose, with separation between upper and lower teeth or between two wax rims of 2-4 mm.

To measure it, we draw two small dots on the least movable tissues. The problem with beard patients is you can't draw on their chin, so apply paper tape and draw a dot on it. The head must be unsupported by the head rest, full body relaxation, which is impossible unless under GA.

Factors that affect measurement of the rest vertical dimension

"Rules during taking the vertical dimension ":

1. The patient must at upright position with head and neck unsupported, if the patient head tilted backward the measurement will increase, but if the head tilted forwards the measurement decrease. Due to gravity and muscles that work when the mandible tilt forward are depressor muscles, and the elevator muscles work when move backward.

*you should refer to anatomy course to know these muscles.

2 .ask the patient to be completely relaxed.

3. Any tension should be avoided.

4. Special attention and enough time should be taken in patients with neuromuscular diseases ex: tremors and Parkinson disease.

5. No valid method for all patients so it is advisable to use several methods to compare the result so there is variable results between dentists.

There are many methods, use the most clinically appropriate.

Other factors affect our measurements:

- Patient head position.
- Patient's emotional state. If the patient comes in stress state the measurement will be less.
- When the pt is under the medication ex: muscle relaxants increasing measurements (Valium?) and antidepressant (tricyclin, diazepam) then the measurement will increase.

It is called physiological rest position; it is the same as the physiological pressure. In the morning it is low and the midday it is higher.

- Caffeine: if the patient comes after he had 7 cups of coffee then the measurement will be less.

RVD measurements:

1. Moisturizing method: After applying the dots (two points should be fixed on the patient profile one on the tip of the nose, the second is in the least movable tissue over the mentalis muscle), ask the patient to lick their lips all around and close their mouth, lips barely touching. Take measurement between the two dots. Take each the measurement 10 times and take the most repeatable number.

2. Swallowing methods: Ask the patient to swallow, at half the swallow the head of the condyle has moved to the most superior posterior position, and by continuing the swallow it comes rest vertical dimension.

3. Phonitics: Ask the pt to say prolonged M 4-5 times.(m pronounced as bilabial sound) When saying M, the lips becomes slightly touched, and that gives a position of rest vertical dimension keeping in mind that the patient is at upright position and breath from nose .

The upper border block should touch the lower vermillion border, area between skin of lips and mucosa. If the incisors were set too labially it touches the skin not the border, increasing the OJ. But if the teeth set too palatally it touch the mucosa. It determines the amount of OB and OJ, by saying words containing F,V.

It gives you a clue of the patient's freeway space. Once the patient is fully adapted to the denture after 1 week, all the faults of pronunciation should be fixed.

All the phontics will be discussed later.