Trial insertion for complete denture

This appointment is perhaps the most critical in the series of appointments for denture construction. This is your last opportunity to correct errors before the dentures are processed.

The following steps should be checked at the trial insertion.

1. **Midline** - Should be centered to the philtrum of the upper lip when the patient is smiling. Mandibular midline should correspond with maxillary if a complete mandibular denture is being constructed. A discrepancy usually indicates an incorrect centric relationship.

2. **Centric Relation** - The posterior teeth must all contact simultaneously when the patient closes lightly to their perceived "first contact" in centric relation. If a prematurity exists the mandibular cast must be remounted and the teeth rearranged to provide even and simultaneous contact. This must be verified again in the mouth. Never ignore an erroneous relationship. It will be worse after the dentures are processed.

To confirm centric jaw relations the following procedures should be applied:

a. Insert the wax trial dentures in the patient's mouth. Instruct the patient not to hold the teeth firmly together during the try-in phase as this may dislodge the teeth from the wax and alter the arrangement.

b. Holding the lower record base in place, guide the patient slowly into centric relation. Clinical observation of the tooth contacts intraorally in centric relation will detect gross errors. Repeat this several times until you are certain the mounting is correct or incorrect.

To verify centric on mounting use the following procedures:

a. Apply Vaseline to the maxillary posterior teeth and place it in the patient's mouth.

b. Remove the mandibular posterior teeth and place recording material bilaterally on the posterior of the mandibular record base.

c. Place the mandibular record base in the patient's mouth and guide the patient into centric relation.

d. Remove the trial bases and centric relation record from the patient's mouth.

Place the trial bases on the master casts mounted on the articulator. Invert the articulator and carefully position the trial bases into the new centric relation record.

e. If the ball-shaped condylar elements on the articulator do not remain seated against the posterior stop of the condylar housing during closure of the articulator when the new record is in place and the posterior teeth are properly seated in the record, then the original centric relation record is incorrect. The mandibular cast must be removed from its mounting. A new centric relation record is then used to remount the mandibular cast. The mandibular posterior teeth must then be rearranged.

3. **Occlusal Vertical Dimension** - The patient should look normal. During sibilant sound production one or two millimeters of space should exist between the maxillary and mandibular first premolars. Patient should feel comfortable with the degree of jaw separation their trial dentures provide.
Develop the ability to look at the patient and form an opinion as to whether their OVD contributes to a normal appearance. Make nose to chin measurements at rest position. This should be 2-3 mm greater than the OVD. Teeth should not contact during speech sounds, especially the sibilant sounds. A larger change of vertical dimension will require a new centric relation record made at the new vertical dimension of occlusion.

4. Lip Support and normal Contour - Observe the lip support when the complete denture is in place. The labial flange must be waxed to proper contour. The patient's lip should have proper support and a natural appearance.

5. Tooth Position - Mandibular posterior teeth are set over the crest of the lower ridge. Maxillary anterior teeth are set to provide natural lip support and position that is agreeable to the patient. The inclination of the maxillary six anterior teeth must be correct. Mandibular anterior teeth should be set slightly anterior to the crest of the ridge and non-interfering in protrusive position, especially for the first 2 - 3 mm of protrusive movement. Check the inclination of these 6 teeth carefully. A crossbite relationship may need to be established if the maxillary posterior teeth tend to be positioned too far buccally. The posterior teeth must have approximately 1.5 mm of horizontal overlap to avoid cheek biting. Zero degree teeth must be set flat - perfectly flat - antero-posteriorly and medio-laterally. A compensating curve may be developed later, after a protrusive record is made. When the six maxillary and mandibular anterior teeth have been set correctly and the posterior teeth meet the requirements for their correct position, observe the relationship of the maxillary canine to the first premolar. The first premolar should be slightly wider in arch position than the canine. Adjust the canine and premolar as necessary. All of the maxillary posterior teeth should have nearly the same inclination to their facial surfaces as the canine to create a harmonious appearance.

6. Buccal Corridor - The buccal corridor is the space between the buccal surfaces of the posterior teeth and the cheeks. This space should be neither excessive (maxillary teeth constricted) nor diminished (maxillary teeth set too far toward buccal).

7. Occlusal Plane - The occlusal should be parallel with the pupils of the eyes when viewed from in front of the patient. The occlusal plane should not drop as it progresses posteriorly. The mandibular second molar distal occlusal surface should be 1/2 to 2/3’s up the retromolar pad. Ascertain that the maxillary anterior teeth are not at a higher level than the posterior teeth.

8. Phonetics (C.S.S. and Sibilant Clarity)- Ask the patient to count from sixty to seventy. Observe how close the teeth approach each other. They should not contact during speech. If they touch, the occlusal vertical dimension is too great and will need to be reduced. Also listen for sibilant distortions such as a whistle or central lisp. It is helpful to attempt to engage the patient in a meaningful conversation in which the patient expresses himself in a natural way. During the conversation certain sounds should be observed carefully:
a. "F" and "V" sounds are produced when the highest part of the lower lip is barely in contact with the incisal edges of the upper teeth. Difficulty in producing the "F" and "V" sounds is due to placing the maxillary anterior teeth too far lingually or placing the occlusal plane too high.
b. "S" sounds are produced by air as it escapes behind the maxillary incisors near the center of the mouth between the tongue and palate. Lisping can be caused by excessive thickness lingual to the maxillary central incisors. A deep channel located lingual to the maxillary central incisors causes whistling. An "S" sound that sounds like the "sh" may be caused by too broad a channel lingual to the maxillary central incisors preventing contact between the tongue and the denture base in the premolar and molar region.
c. "Th" sounds are produced by slightly protruding the jaw and bringing the tip of the tongue in contact with the incisal edges of the upper and lower incisors. Difficulty in producing this sound is due to too much horizontal overlap or a deep and/or board channel between the tongue and the area of the denture base lingual to the upper incisors. The "S", "Sh" and "Th" sounds are closely related to one another. Remember all patients will have some difficulty with new dentures and require an adaptation period. Don't be too demanding of phonetics at this stage. Use phonetics to verify the position of the teeth.

9. Overall Appearance (Size, Position, Form, and Arrangement) – Stand back away from the patient. Ask him to smile and speak. The dentures should appear natural looking.

10. Program the Articulator with Protrusive Records (Anatomic Teeth)
1. If you are using monoplane non anatomic posterior teeth, it is not necessary to make lateral and protrusive records to program the articulator. The mechanical incisal guide table should be set at 0 degree. The condylar guidance should be set at 30 degree.

2. If you are using anatomic posterior teeth, you must make a protrusive record. Using Aluwax in a manner similar to that used when making records for natural teeth, record the interocclusal relationship of the denture teeth in protrusive position. The patient should move the jaw approximately 6 mm from centric relation when making these records. The protrusive record is used to adjust the horizontal condylar guidance.

3. To adjust the protrusive condylar guidance, set the condylar guide inclination at 0. Place the maxillary and mandibular trial dentures on their respective master casts attached to the articulator. Place the protrusive record on the occlusal surface of the posterior teeth of the mandibular trial denture and seat the maxillary cast into the record. Loosen the locking screws on the protrusive condylar guidance and gently hold the articulator in the protrusive interocclusal record. Then rotate the condylar guidance toward the condylar element until the ball of the condyle makes contact with the condylar housing. Slight digital pressure is helpful in this procedure. Tighten the locking screws. Check the condylar element adjustment and record this setting in the patient’s chart.
11- **Maxillary Posterior Extension** - Using an indelible transfer applicator, mark each pterygomaxillary notch and the vibrating line. Evaluate the extension of the trial denture to verify that it ends on the line and in the pterygomaxillary notches.

**Procedure:**

1. Gently dry the tissues in the posterior palatal seal and pterygomaxillary notch with a gauze sponge.

2. Locate the pterygomaxillary (hamular) notches with a T burnisher by passing it posteriorly along the crest of the ridge until it drops into the notch. Mark the notches with the indelible marker.

3. Locate the vibrating line by having the patient say a series of short "aah" and mark it in the mouth with the indelible marker. Mark the area of the soft palate where movement just begins.

4. Insert the dried maxillary trial denture in the patient's mouth and seat it fully. Visually observe the relationship of the denture base to the line marked in the patient's mouth. Ask the patient to tilt his head down and swallow and/or say a series of short "aah."

5. Remove the maxillary denture. The indelible marking may have transferred to the record base. If the line has not transferred to the denture base, reinsert the base and instruct the patient to blow through his nose while you gently pinch it shut. Look in the patient's mouth. You may be able to see the indelible marker line through the translucent record base.

6. Trim the posterior border of the denture base to the transferred marking using acrylic burs. Reinsert the record base in the patient's mouth and evaluate the relationship of the posterior border to the vibrating line. Adjust until the correct length is obtained. The fovea palatine are not reliable indicators of the location of the vibrating line.

7. Place the maxillary denture base on the cast. Scrape a line into the cast, marking the posterior border of the record base using a sharp instrument. Extend this line approximately 3 mm beyond the crest of the pterygomaxillary notch continuous with the disto-buccal border. This marks the posterior limit of the denture.

8. Palpate the tissue anterior to the vibrating line with the ball end of the T-burnisher. Examine the thickness and displaceability of the tissue. Using a pencil, outline the posterior palatal seal on the cast. The generally accepted outline is a butterfly pattern. The average dimensions are 2-3 mm in the midline and distal to the tuberosities. A width of 4-6 mm is appropriate for the intervening areas between the midline and pterygomaxillary notches. The seal should be deeper posteriorly becoming more shallow as it extends anteriorly. It should be rounded and smooth in contour.
9. Scrape the master cast using a carver to the proper depth. This is usually one-half the depth the ball of the T-burnisher displaces the tissues. The deepest part of the posterior palatal seal usually is placed on either side of the midline where the seal approaches the hamular notches. This is generally in the range of 1.0 - 1.5 mm in depth.

12. **Selection of Denture Base Shade** - if a custom gingival denture base shade is to be selected, it must be selected at this time.

13. **Patient Approval** - The wax trial dentures should be clean and neatly festooned. All excess wax on the teeth should be removed so the patient can visualize the final appearance. Wax caught between the teeth, incisal to the contact level should be removed carefully with unwaxed dental floss. The patient may then be provided with a mirror to view the arrangement. Ask for comments and objections. Do not “bully” the patient to accept the dentures. Correct objections immediately, where possible. Try to have a family member present at this time. Criticism is better at this time than when the patient goes home with the completed prosthesis. Some especially particular patients may require an additional trial insertion appointment before they are satisfied. Accept this as a learning opportunity and a chance to provide a superior service.