Impression Technique for complete dentures

Dr. M A Abdullah M.D.S.
Associate Professor of Prosthodontics,
College of Dentistry, King Saud University.
Saudi Arabia.

References.
Complete Denture impression

Is a negative registration of the entire denture bearing, stabilizing and border seal areas present in the edentulous mouth.
Objectives of complete denture impression

- Preservation of supporting tissues
- Retention
- Stability
- Support
- Esthetics
**Impression Techniques**

- **CLOSE MOUTH OR PRESSURE IMPRESSION TECHNIQUE:**
  Records impression in a condition that assumes under masticatory load.

- **NON PRESSURE OR MUCOSTATIC IMPRESSION TECHNIQUE:**
  Records impression of the tissue in an anatomical form without pressure.

- **SELECTIVE COMPRESSION IMPRESSION TECHNIQUE:**
  Records impression with more compression on the tissue in certain selected areas than on other areas.
Pressure or Close Mouth Impression Technique

This technique believes that occlusal loading during impression will record the tissues in a functional form as during swallowing and eating.

Advocates of this technique believe that the periphery of dentures must be established during function.
Pressure or Close Mouth Impression Technique

Procedure:

- Construct custom trays with compound occlusion rims.
- Adjust occlusion rims for interocclusal distance and uniform contact in centric and eccentric positions.
- Load the impression material into both the custom trays simultaneously.
- Have the patient close the mouth with the custom trays in mouth and moves the jaw through functional movements to record the impression.
Pressure or Close Mouth Impression Technique

Disadvantages:

- The total time during 24 hours associated with directs functional occlusal force application to periodontal tissue is 17.5 minutes. Thus dentures are in function for a short period of time each day.

- Dentures will fit well during mastication, and will lift up at rest due to tissue rebound. This results in premature contacts.

- Due to constant pressure on the tissues, mucosal tissue reaction and resorption may result.

Advocates of this technique believe that impression must be recorded in an anatomic form of the tissues (resting form).

Dentures constructed by mucostatic impression technique have shorter flanges.

Short flanges are used to prevent the dentures moving in lateral direction and NOT for border seal.

Metal bases which are dimensionally stable are used.
Non Pressure or Mucostatic Impression Technique

Disadvantages:

- Dentures do not cover broad areas
- Inadequate support
- Short flanges do not support the lips and cheeks
Selective Pressure Impression Technique

It combines pressure and minimum pressure principles in making impression for maxilla and mandible:

- **Primary stress bearing areas** are recorded under pressure.
- **The secondary stress bearing areas** are recorded with minimal pressure.
- **Peripheral areas** are recorded under **compression** to develop seal.

*The pressure can be selectively applied to the tissue by the custom trays for making final impression.*
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Primary stress bearing area:
Horizontal portion of had palate (1)

Secondary stress bearing area:
ridge crest (2).

Non stress bearing area
ridge slopes (n/c)
Anatomy of Edentulous Mandible

- Labial, buccal & lingual frenae
- Labial, buccal and lingual sulcus
- Buccal shelf
- Masseter groove
- Retromolar pad
Anatomy of edentulous Mandible

- **Primary stress bearing area:**
  - buccal shelf & retromolar pad (1)
- **Secondary stress bearing area**
  - Residual ridge & genial tubercles (2)
- **Non stress bearing area**
  - Labial and lingual inclines (n/c)
Preliminary Impression of Maxillary Arch

- Select edentulous perforated stock metal tray 6 mm larger than the outside surface of the ridge.

- Examine the extension of tray flange at labial and buccal areas.

- Examine the posterior extension of the tray by dropping the handle down. It must cover the hamular notches and vibrating line.
Preliminary Impression of Maxillary edentulous arch

- Load the tray with alginate impression material
- Place small amount of impression material in the rugea area of the hard palate
- Place the tray in the mouth. Hold the impression tray in the middle of the palate until the material sets

Impression in modeling plastic impression compound material
Construction of Maxillary Custom Tray

- Draw the outline of wax spacer in pencil on the diagnostic cast.
- Do not cover the post palatal seal area with wax spacer (arrow).
- Provide tissue stops at the molar and incisal regions.
Advantages of Not Covering the Post palatal Seal Area with Wax Spacer

- Completed custom tray will contact the post palatal seal area
- Additional stress can be placed at this area during impression making
Border molding

The shaping of the border areas of an impression tray by functional or manual manipulation of the tissue adjacent to the borders to duplicate the contour and size of the vestibule
Adjusting Maxillary Custom Tray

- Reduce the flanges of the tray 2 mm short from the sulcus
- Adjust labial frenal attachment
- Adjust buccal frenal attachment
- Do not remove the wax spacer until final impression is made
Establishing Vibrating Line

Place “T” on the crest ridge, move posteriorly until it dips into hamular notch. Join the hamular notches with pencil across the fovia palatinae. Confirm the vibrating line by asking the patient to say series of short ‘AH’ sounds.

The junction between the movable and immovable soft palate through the foveae palatinae is called vibrating line.
Posterior Border of Maxillary Custom Tray

The posterior border of the custom tray must cover the hamular notches and extend approximately 2 mm posterior to the vibrating line across the palate.
Border Molding

- Soften the modeling plastic impression compound over the alcohol torch flame, and place it over the border of the tray.

- After tempering in water bath at 70°F, border mold it in the mouth.
In the region of labial sulcus, the upper lip is elevated and extended out and then pulled downward and inward.

Re-soften the compound and repeat this procedure to establish proper border molding.
Border Molding Buccal Sulcus

- In the region of buccal frenum, the cheek is elevated and then pulled outward, downward and inward.
- Move the cheek backward and forward to simulate movement of buccal frenum as in function during eating and smiling.
Border Molding of Buccal Sulcus at Tuberosity

The posterior buccal flange at the tuberosity region is border molded when the cheek is extended outward, downward and inward.

With the tray in place, have the patient open mouth widely and move the jaw laterally to establish the width of the sulcus.
Border Molding the Post palatal Seal Area

Place strip of softened compound at the posterior border of the custom tray and seat it firmly in the mouth.

Mark vibrating line and post palatal seal area with indelible pencil.

Seat the tray again firmly in the mouth for the indelible pencil mark to be transferred to the tray. Remove excess of modeling compound.
Relief for Impression

- Place holes in the palate of the custom tray with no. 6 round bur to provide escape ways for the final impression material.
- The holes provide relief while making final impression at mid palatine raphe and hard palatal regions.
Practice Positioning Border Molded Tray in Mouth Before Making Final Impression

- Place the tray in mouth with labial fremum in the labial notch.
- Place index fingers at first molar region and seat the tray until the posterior border of the tray fits into hamular notches and across the palate.
- Hold the tray in position with fingers placed in the palatal region.
Making Final Impression

- The mixed impression material is placed on the tray with borders covered.
- Seat the tray in the mouth and border mold in the posterior region first and then in the anterior region.

Do not load the tray with excess of material.
Final Rubber Base Impression with Outline Landmarks

1. labial frenum
2. Labial flange
3. Buccal frenum
4. Bucaal flange
5. Pteromandibular raphe
6. Fovea palatinae
7. Vibrating line
Preliminary Mandibular Impression

- Select perforated lower metal tray with 6 mm larger than the outside surface of labial and lingual ridge.

- Raise the handle and examine extension of tray flange at labial, buccal, lingual and retromolar pad. It should cover all these areas.

- Adapt strip of utility wax on the borders of the metal tray.

- Load the tray with mixed alginate material. Place the tray in the mouth with the tongue raised slightly.
Preliminary Mandibular Impression with modeling plastic impression compound

- Soften the modeling plastic impression compound in a water bath.

- The mandibular impression.

- Soften the impression borders using alcohol torch, temper it in water bath.

- Reintroduce it in the mouth and activate the tissues to refine the impression.
Construction of Mandibular Custom Tray

- Draw the outline for wax spacer in pencil on the diagnostic cast.
- Do not cover the buccal shelf areas with wax spacer.
- Make additional tissue stops at the anterior regions.
Advantages

- Completed custom try will contact the buccal shelf areas
- Additional stress can be placed at these areas during the final impression
- The part of the tray in contact with buccal shelf areas act as tissue stops
Adjusting Mandibular Custom Tray

- Reduce the flanges of custom tray 2 mm short of the tissue reflection of the:
  - Labial, buccal and lingual sulci and frenal attachments

- Do not remove the wax spacer until final impression is made
Border Molding Mandibular Labial Flange

- Start border molding beginning with labial flange (1), buccal flanges (2) and finally lingual flanges (3).

- In the region of labial sulcus, the lower lip is lifted outward, upward and inward.
Border Molding The Labial and Buccal Flange of Lower Tray

Anatomical Considerations

- The mandibular labial frenum contains a band of fibrous connective tissue that is attached to orbicularis oris. Therefore, the labial frenum is active.
Border molding the Buccal flange of lower tray

- The buccal flange must not extend lateral to external oblique ridge.
- The disto buccal flange must record the masseter groove and the superior border of retromolar pad.
- In the region of buccal frenum, the cheek is lifted outward, upward inward, backward and forward to simulate the movement of buccal frenum.
- Record masseter groove by instructing the patient to exert closing force and the dentist exerting a downward pressure on the tray.
Border Molding the Lingual Flange

- The lingual flange is border molded in 5 steps
- Step 1. The extension of anterior lingual flange of the tray is limited by the lingual frenum and sublingual folds, and is 2mm short of the tissues
- Step 2. Place the softened modeling compound on the border of the tray extending between premylohyoid fossa

struct the patient to protrude the tongue to establish the length of the sulcus
Establish Length and Thickness the Lingual Flange

- Step 2. Instruct the patient to protrude the tongue to establish the length of the sulcus.
- The compound is re-softened and placed again in the mouth and the patient is instructed to push the tongue forcefully against the palate to determine the thickness of the flange.
A. The lingual flange is extended to the most superior level of the floor of the mouth

B. Slight pressure on mucosa overlying lingual slope ensures a broader seal when tongue is at rest
Border Molding of Lingual Flange

- Step 3. Modeling compound is added to the lingual borders from premylohyoid fossae posteriorly on both sides. After placing the tray in the mouth, instruct the patient to protrude the tongue. This procedure establishes the length h of the sulcus.

- Step 4. Repeat step 3 and have the patient move the tongue laterally and touch the corners of the mouth.

- Remove the wax spacer from the tray.
Border Molding Lingual Flange

- **Step 5.** Add modeling compound on the distal end of the lingual flange of the tray.

- Place the tray in the mouth and have the patient protrude the tongue to activate the superior constrictor of the pharynx muscles (1) that support the retromylohyoid curtain and pterygomandibular raphe.

- Instruct the patient to forcefully close the mouth. The resulting contraction of the medial pterygoid muscles (2) limits the retromylohyoid area.
Final Rubber Base Impression

- Place the tray with impression material in patients mouth. Manipulate lips and cheeks.

- Have the patient move the tongue and keep it in protruded position till the impression sets.
Defects in Impression

- In correct tray position in mouth resulting in under extended impression
- Pressure
- Voids
Final Impression with Border Outline Landmarks

- A, labial frenum; B, labial flange
- C, buccal frenum; D, buccal flange
- E, masster groove; F, retromyoalar pad
- G, Ling. frenum; H, Premylohyoid eminence.
Scoring the master cast at the posterior palatal seal

- **Step 1.** With a sharp knife vertically score the cast to a depth of 1.5 mm along the vibrating line.
- **Step 2.** Score the anterior border of the posterior palatal seal area to depth of 1 mm.
- **Step 3.** From step 1 bevel the cast posteriorly to step 1 to a depth of 1.5 mm.

The End