IMPRESSION TECHNIQUE AND MATERIALS

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Impressions

• An impression – an imprint produced by ‘the pressure of one thing upon or into the surface of another’

• Active rather than passive role

• Making rather than taking

• Flawed impressions account for the majority of denture problems
• Definition-an impression made for the purpose of diagnosis or for the construction of a tray
Tray selection

- stock trays: dentate
- metal or plastic
- 2-3 mm clearance between stock tray and ridge
Stock tray
Materials for primary impression

• Alginate
Secondary or definitive impression

- **Definition**
  - An imprint that records the entire functional denture-bearing area to ensure maximum support, retention and stability for the denture during use.

- **Primary purpose**
  - To record accurately the tissues of the denture-bearing areas, in addition to recording the functional width and depth of the sulci.
Secondary impression

- Conventional techniques
- Selective pressure techniques
- Functional techniques
- Reline and rebases techniques
Conventional technique

Also known as

• Anatomical or
• Mucostatic

The surface contour of the ridge is recorded at its resting form (no occlusal load)
Special trays
Conventional technique

- Material of choice (soft or less viscous impression material) alginate,
- Disadvantages: In free-end saddle dentures, distal end will show tissueward movement under occlusal load → ridge resorption
Conventional technique

• recommended for tooth supported partial dentures
  - Kennedy’s class III and IV
  - These are bounded saddles
Functional impression technique

- Impressions are recorded under functional load (pressure) i.e. Record tissue in a compressed form
- Also known as: Mucocompressive impression
Selective pressure technique

Mucostatic impression

AND

Mucocompressive impression
Support in free end saddle

- Support from tooth (rest seat) and soft tissue (mucosa)
- Tooth is rigid, mucosa is soft and displaceable
- During function, the free end saddle will be pushed towards the tissue and then bounces back. This movement may cause loosening of abutment tooth and resorption of alveolar bone.
- The aim is to create minimum movement of the denture base during function
- Therefore, selective pressure technique may be used to achieve this.
Selective pressure technique

Kennedy Class I
2 Techniques to achieve selective pressure impression

- Functional dual impression technique
- Altered cast technique or Applegate technique
Functional dual impression

• A functional impression of the edentulous ridge is made.

• The 2\textsuperscript{nd} impression made over functional impression and record structures in their anatomic form.
Altered cast technique

- Anatomical master impression of oral structure is made
- Construct master cast and refractory cast
- Construct metal framework with temporary self-cured acrylic resin saddles
Special tray construction for selective pressure technique
• A viscous impression eg impression wax heated to 65°C and painted onto surface of saddles, then placed inside mouth, to get satin finish impression of the ridge

• Other viscous impression material is compound
Altered cast technique

In the lab, the saddle area is cut away from stone cast
• The metal frame is located onto the abutment teeth

• The saddle area is beaded and boxed

• The saddle area is cast (2-part stone cast)
Disadvantages of selective pressure techniques

- Tissues are constantly compressed, and can cause bone resorption due to 2 reasons:
  i) Constant pressure stimulate formation of osteoclasts
  ii) Constant pressure reduces blood supply, which simulates formation of osteoclasts.
- If retentive clasps do not hold denture in place, the denture will be slightly occlusal to normal position → premature contact.
Techniques to be used in PPSG Dental Clinic for free end saddles

• Secondary impressions:
  1. Partial acrylic – alginate with spaced, perforated tray
  2. Partial cobalt chrome – PVS with closed (1 layer wax), non perforated tray OR alginate with spaced, perforated tray
References

• McCracken’s Removable partial prosthodontics. 11th edition. Elsevier, Mosby