Laboratory Project #4

Maxillary and Mandibular Record Bases and Occlusion Rims

**Marking Anatomical Landmarks on Master Casts**

- Mark the following **maxillary** anatomical landmarks on the land area:
  1. center of incisive papilla
  2. center of the posterior ridge
  3. midline

- Mark the following **mandibular** anatomical landmarks on the land area:
  1. retromolar pad posteriorly
  2. upper 2/3 of retromolar pad
  3. Ascending ramus of the mandible
  4. center of posterior ridge
Baseplates are made from a rigid material to an occlusal rim in wax is added in order to take records in the patient’s mouth.

1. Block out severe undercuts on both casts with hard baseplate wax. If the ridge is very thin, flow wax on each side to prevent fracturing the cast. Avoid excessive block-out, as it will reduce the retention of the record base.

2. Apply a light coat of model releasing agent or Vaseline over the entire tissue surface of the cast to serve as a separating medium.

Block all undercuts and apply model releasing agent to the cast.
3. **On the Maxillary Cast**: Place a sheet of Triad pink baseplate material in the middle of the palate and adapt the resin gently moving from the depth of the palate to the borders of the vestibules to avoid trapping air bubbles under the base plate material.

**On the Mandibular Cast**: Cut a V-shaped wedge out of the middle of the Triad sheet to permit adaptation of the wafer to the lingual of the cast.

4. Carefully trim the material. Make the **borders of the tray as smooth as possible prior to curing** the resin as it is much easier to smooth when it is soft. Take care not to use excessive finger pressure and thin out the resin.

5. Cure the record base for **4 minutes** in the Triad unit.
6. Carefully remove from cast, invert and cure the tissue surface for 4 minutes. You must cure the record base a total of at least 8 minutes for the Triad material to become fully cured. Breaking can result if not fully cured.
7. Smooth and trim the borders of the record base until completely smooth.

**Wax Occlusion Rims**

**Maxillary Occlusion Rim:**

1. Dry the record base thoroughly as wax will not adhere to a wet surface. Roughen the area of the record base where the wax will be adapted.
2. Uniformly soften a sheet of hard pink baseplate wax.
3. Heat the wax on the torch slowly by passing the wax quickly through the flame many times. When the wax is thoroughly softened, fold the wax in half. Continue to flame the wax to soften it. Repeat the folding and warming until the entire sheet of wax is used.
4. Form the wax into a horseshoe shape and adapt the wax to the record base over the ridge crest area. Begin at the right tuberosity area and continue to the anterior and to the left tuberosity area.
5. Seal it to the record base with molten wax using a hot spatula. Add wax as needed to contour the rim. Sticky wax can also be used to attach the occlusion rims.
6. The Rim Former can be used to fabricate the maxillary wax rim.

7. Place the posterior ledge of the rim former in the hamular notch area directly on the cast as shown in the picture below.
8. The rim former should be heated and rotated down on the wax rim until the height of the rim is 22mm in the anterior, measured from the vestibule to the incisal edge of the wax rim.

9. Use the hot rim former to develop a flat occlusal plane that angles in toward the hamular notch.
10. The wax rim should approximate the position of the natural teeth. Remember the facial surfaces of the central incisors are 5-7 mm anterior to the center of the incisive papilla you marked on the land area. The wax rim must be anterior to the crest of the maxillary ridge.

11. The width of the occlusion rim in the molar area is 8-10 mm, 5-7 mm in the premolar region, and 3-5 mm in the anterior.

12. Anteriorly: The rim will measure 22 mm from the anterior labial border of the baseplate (depth of vestibule) to the incisal edge. Posteriorly: The rim will measure 8 mm from the occlusal surface of the wax rim to the intaglio surface of the record base.
Mandibular Occlusion Rim:

1. The procedure for making the mandibular rim is very similar to that for the maxillary rim. Make the height of the rim about 15 to 18 mm from the anterior border of the baseplate (depth of vestibule) to the incisal edge. The shape, position and dimensions of the rim should represent those of the natural teeth.

2. Posteriorly the occlusal surface gradually widens in width from 3-5 mm in the anterior region to 5-7 mm in the premolar area and to 8-10 mm in the molar region.

3. Posteriorly the wax rim parallels the base of the cast (and residual ridge) on a plane intersecting the retromolar pad at 2/3 of the pad's height. Note that the rim's occlusal surface ends at the distal of the first molar and is beveled posteriorly and inferiorly from this point.
Occlusal View of Mandibular Rim

8-10mm
5-7mm
3-5mm
# Record Base and Occlusion Rim Evaluation Form

## Record Base Evaluation Criteria

<table>
<thead>
<tr>
<th>Record Base Evaluation Criteria</th>
<th>Maxillary</th>
<th>Mandibular</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Record base 2 – 3 mm uniformly thick, except in vestibule which may be thicker</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>2 Record base rigid, stable and fits properly on cast with no rock</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>3 Record base fully extended to depth of vestibule</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>4 All surfaces of record base smooth with no voids</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>5 Borders smoothly contoured as in a complete denture</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>6 No excessive blocking of undercuts</td>
<td>Y</td>
<td>N</td>
</tr>
</tbody>
</table>

## Occlusion Rim Evaluation Criteria

<table>
<thead>
<tr>
<th>Occlusion Rim Evaluation Criteria</th>
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<th>Mandibular</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 Landmarks are correctly placed on land area.</td>
<td>Y</td>
<td>N</td>
</tr>
</tbody>
</table>
| 8 Thickness of wax rim is appropriate  
  Anterior region 3 – 5 mm | Y | N | Y | N |
|  Premolar region 5 – 7 mm | Y | N | Y | N |
|  Posterior region 8 – 10 mm | Y | N | Y | N |
| 9 Anterior border is facial to record base flange, 5 – 7 mm from papilla center | Y | N |
| 10 Height of rim is appropriate  
  **Maxillary:** 22 mm anteriorly from the depth of vestibule to incisal edge, 8 mm posteriorly from the depth of vestibule to occlusal surface of rim  
  **Mandibular:** 18 mm anteriorly from the depth of vestibule to incisal edge, posteriorly occlusal surface of rim is at the level of 2/3 the retromolar pad | Y | N | Y | N |
| 11 Wax rims centered over posterior ridge | Y | N | Y | N |
| 12 Wax rims neat, smooth, and polished | Y | N | Y | N |

## Record base and occlusion rim grades

| Record base and occlusion rim grades | /5 pts | /5 pts |