Thank you for attending this lecture.

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3 ways to build an occlusion

- Teeth
- Muscles
- Joints

1. **Teeth**

**Advantages**
- Safe
- Easy
- Predictable (adaptable)

**Disadvantages**
Limited number of teeth
Replicates current symptoms
Danger - if you do the wrong tooth
Leaves posterior interference

2. **Muscles**

**Advantages**
Reproducible
Multiple teeth can be restored at one time

**Disadvantages**
Leaves posterior interference
Often requires large quantity of dentistry

3. **Joints**

**Advantages**
Reproducible
No interferences
Convenient
Multiple teeth can be restored at one time
Can be used at any vertical dimension

**Disadvantages**
Requires a knowledge of the TMJ
Confidence
Perfect stability between
- Joints
- Muscle
- Teeth

Centric Relation
Using the joint to guide the path of closure.

Inverted Tripod Concept
Centric relation is the relationship of the mandible to the maxilla when the properly aligned condyle disk assemblies are in the most superior position against the eminentiae… irrespective of tooth position or vertical dimension.

At the most superior position the condyle disk assemblies are also braced medially… thus centric relation is also the midmost position
Elements of Condyle

Muscles of Mastication
- Superficial masseter
- Medial pterygoid
- Deep masseter
- Temporalis

Self Centering - condyle will seat in its most superior position when masticatory muscles contract.

Key point...
Condyles can not move forward, backward, or medially from CR without moving downwardly.

Disk Positioning
Disk Movement

<table>
<thead>
<tr>
<th>Pole</th>
<th>Piper Stage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lateral Pole</td>
<td>I</td>
<td>Normal</td>
</tr>
<tr>
<td></td>
<td>II</td>
<td>Sometimes Clicks</td>
</tr>
<tr>
<td></td>
<td>III A</td>
<td>Lateral Pole Click (reducing joint)</td>
</tr>
<tr>
<td></td>
<td>III B</td>
<td>Lateral Pole Lock (non reducing joint)</td>
</tr>
<tr>
<td>Medial Pole</td>
<td>IV A</td>
<td>Medial Pole Click (reducing joint)</td>
</tr>
<tr>
<td></td>
<td>IV B</td>
<td>Medial Pole Lock (non reducing joint)</td>
</tr>
<tr>
<td></td>
<td>V A</td>
<td>Perforation Acute (disk perforation)</td>
</tr>
<tr>
<td></td>
<td>V B</td>
<td>Perforation Chronic</td>
</tr>
</tbody>
</table>

Red Flags for Dangerous joints
- If you put in an anterior deprogrammer and the patient gets worse
- When the patient opens wide they deviate significantly to one side
- The patient has very limited opening
- Most posterior molars are very flat from wear
- Wear on anterior teeth that do not touch

Requirements for A Balanced Occlusion
- TMJ at treatable position
- Stable contacts (or substitutes) on all teeth in CR
- Separation of all posterior from CR or ACP
- Anterior guidance in harmony w/ Envelope of Function
Clinical Exam

Joint & Muscle Questions:
- Do you have a history of injury to your face?
- Are you aware of any joint problems?
- Does or has your jaw ever clicked or popped?
- Has your jaw ever locked open or closed?
- Does your face get tired or sore when eating or chewing gum?
- Do you get headaches? How often, when, and where?

Tests:
- Load test (deprogrammer)
  - Load test
  - Diagnostics
  - Educational

<table>
<thead>
<tr>
<th>Load Testing</th>
<th>Tension/pulling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Light</td>
<td>Lateral pterygoi</td>
</tr>
<tr>
<td>Medium</td>
<td>Tender/pain</td>
</tr>
<tr>
<td></td>
<td>- Retrodiscal tissue</td>
</tr>
<tr>
<td>Firm</td>
<td></td>
</tr>
</tbody>
</table>

- Range/path of movement
- Clicks and/or crepitus
- Muscle palpation
- Doppler auscultation
- Clench test

Materials for CR Record
Lucia Jig (greatlakesortho.com) 255-023
Whale Tails (greatlakesortho.com) 255-027
Quick Bite (Clinicians Choice)
Red & Blue articulating paper
Triad (Dentspy) 89304