IMPLEMENTING A RISK ASSESSMENT STRATEGY IN CLINICAL PRACTICE:
EMPHASIS ON OCCLUSION
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## Principles

**Diagnosis** is a determination of the “cause.”

**Prognosis** is a prediction of the probable cause and outcome of disease.

High blood pressure is a **sign**, not a diagnosis!

Mobility is a **symptom**, not a diagnosis. Primary or secondary occlusal traumatism is a **diagnosis**.

Wear is a **sign**. Attrition is a **diagnosis**.

Bone loss is a **sign**. Aggressive periodontitis is a **diagnosis**.
PERIODONTAL RISK ASSESSMENT

**AAP II**
- **Radiographic Bone Loss**
  - ≥2 – ≤3 mm Horizontal Pattern
- **Mobility**
  - Slight
- **Furcation Involvement**
  - Grade 0–1
- **Probing Depth**
  - Supra Bony >3 – ≤5 mm
- **Bleeding on Probing**
  - Yes
- **Clinical Attachment Loss**
  - 1 – 2 mm
- **Infrabony Defects**
  - None
- **Shared Risk Factors**
  - None

10% Low

**AAP III**
- **Radiographic Bone Loss**
  - >3 – ≤5 mm Horizontal Pattern
- **Mobility**
  - Class I–II
- **Furcation Involvement**
  - Grade II–III
- **Probing Depth**
  - Infra Bony ≥5 – <7 mm
- **Bleeding on Probing**
  - Yes
- **Clinical Attachment Loss**
  - 3 – 4 mm
- **Isolated Infrabony Defects**
  - Moderate
- **Shared Risk Factors**
  - Minimal

80% Moderate

**AAP IV**
- **Radiographic Bone Loss**
  - > 5 mm Horizontal Pattern
- **Mobility**
  - Class II–III
- **Furcation Involvement**
  - Grade II–III
- **Probing Depth**
  - Infra Bony ≥7 mm
- **Bleeding on Probing**
  - Yes
- **Clinical Attachment Loss**
  - ≥5 mm
- **Infrabony Defects**
  - Severe
- **Shared Risk Factors**
  - More Significant

10% High

### PRINCIPLES
- **Patient Specific:** Genetics (Ethnicity), Smoking, Diabetes
- **Tooth Specific:** Secondary Occlusal Traumatism
- **Site Specific:** Infrabony Component

### DENTAL HISTORY

<table>
<thead>
<tr>
<th>GUM AND BONE</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>7. Do your gums bleed or are they painful when brushing or flossing?</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>8. Have you ever been treated for gum disease or been told you have lost bone around your teeth?</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>9. Have you ever noticed an unpleasant taste or odor in your mouth?</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>10. Is there anyone with a history of periodontal disease in your family?</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>11. Have you ever experienced gum recession?</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>12. Have you ever had any teeth become loose on their own (without an injury), or do you have difficulty eating an apple?</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>13. Have you experienced a burning or painful sensation in your mouth not related to your teeth?</td>
<td>☐</td>
<td>☐</td>
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</tbody>
</table>
Implementing A Risk Assessment Strategy In Clinical Practice: Emphasis on Occlusion

**BIOMECHANICAL RISK ASSESSMENT**

**Biofilm Mediated Diseases**
- Caries
  - Pit and Fissure System
    - Molars Only

**Environmentally Mediated Concerns**
- Minimal

**Load Based Mediated Problems**
- Friction
- Bite Force

**PRINCIPLES**

**Tooth Structure Loss**
- Biofilm Mediated Diseases
  - Caries Risk Assessment
  - Shared Risk Factors*
- Environmentally Mediated Concern
  - Erosion
  - Abrasion

**Load Based Mediated Problems**
- Friction
  - Attrition Shared Risk Factors (Abrasion)
  - Abnormal Attrition
- Bite Force
  - Abfraction
  - Cracked Tooth Syndrome (CTS)
  - Pulpal Vitality?

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<table>
<thead>
<tr>
<th>DENTAL HISTORY</th>
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<tbody>
<tr>
<td><strong>TOOTH STRUCTURE</strong></td>
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</table>

14. Have you had any cavities within the past 3 years? __________
15. Does the amount of saliva in your mouth seem too little or do you have difficulty swallowing any food? __________
16. Do you feel or notice any holes (i.e. pitting, craters) on the biting surface of your teeth? __________
17. Are any teeth sensitive to hot, cold, biting, sweets, or do you avoid brushing any part of your mouth? __________
18. Do you have grooves or notches on your teeth near the gum line? __________
19. Have you ever broken teeth, chipped teeth, or had a toothache or cracked filling? __________
20. Do you frequently get food caught between any teeth? __________

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*Shared Risk Factors (i.e. Diet, Saliva, Tooth Structure, Oral Hygiene)
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FUNCTIONAL RISK ASSESSMENT

Acceptable Function
Minimal Adaptation

Aberrant Envelopes
Adaptive Mediated

Brain Initiated
Linear Lateral Movements

**Acceptable**
- Chewing/Swallowing
- Speaking
- Breathing

**Frictional Chewing Pattern**

**Constricted Chewing Pattern**

**Dysfunction**

10% Low

80% Moderate

10% High

**F/u.sc/n.sc/c.sc/t.sc/i.sc/o.sc/n.sc/a.sc/l.sc**

**PRINCIPLES**

- Attrition
- Primary Occlusal Traumatism (Mobility)
- TMD
- Stability

**FUNCTIONAL RISK ASSESSMENT**

**Occlusion Stress Test**

DENTAL HISTORY

**BITE AND JAW JOINT**

21. Do you have problems with your jaw joint? (pain, sounds, limited opening, locking, popping)

22. Do you feel like your lower jaw is being pushed back when you try to bite your back teeth together?

23. Do you avoid or have difficulty chewing gum, carrots, nuts, bagels, baguettes, protein bars, or other hard, dry foods?

24. In the past 5 years, have your teeth changed (become shorter, thinner, or worn) or has your bite changed?

25. Are your teeth becoming more cracked, crowded, or overlapped?

26. Are your teeth developing spaces or becoming more loose?

27. Do you have trouble finding your bite, or need to squeeze, tap your teeth together, or shift your jaw to make your teeth fit together?

28. Do you place your tongue between your teeth or close your teeth against your tongue?

29. Do you chew ice, bite your nails, use your teeth to hold objects, or have any other oral habits?

30. Do you clench or grind your teeth together in the daytime or make them sore?

31. Do you have any problems with sleep (i.e. restlessness or teeth grinding), wake up with a headache or an awareness of your teeth?

32. Do you wear or have you ever worn a bite appliance?
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DENTOFACIAL RISK ASSESSMENT

- Color
  - Not Critical
- Facially Related Tooth Position
  - Minimal Display
- Lip Dynamics
  - Low - No Gingival Display
- Gingival Architecture
  - Position - Not visible
    - Tissue Conceals Normal Anatomic Crown Length
  - Symmetrical - Not visible
  - Scalloped - Flat
  - Papilla Present

- Color
  - Natural White
- Facially Related Tooth Position
  - Moderate Display
- Lip Dynamics
  - Moderate - Gingival Display to Facial FGM
- Gingival Architecture
  - Position
    - Tissue Exposes Normal Anatomic Crown Length
  - Symmetrical
  - Scalloped - Normal
  - Papilla Present

- Color
  - Dark/Uneven
- Facially Related Tooth Position
  - Excessive Display
- Lip Dynamics
  - High - Excessive Gingival Display
- Gingival Architecture
  - Position - Visible
    - Tissue Exposes Root Surface
  - Asymmetrical
  - Scalloped - High
  - Papilla Loss

10% Low
80% Moderate
10% High

PRINCIPLES Dentofacial Risk Assessment

- Color
- Facially Related Tooth Position
  - Intra-Arch Tooth Position
- Lip Dynamics/Tooth Display (Length)
- Gingival Architecture/Horizontal Position

DENTAL HISTORY

SMILE CHARACTERISTICS

<table>
<thead>
<tr>
<th>Question</th>
<th>YES</th>
<th>NO</th>
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<tr>
<td>33. Is there anything about the appearance of your teeth that you would like to change (shape, color, size)?</td>
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<tr>
<td>34. Have you ever whitened (bleached) your teeth?</td>
<td></td>
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<tr>
<td>35. Have you felt uncomfortable or self-conscious about the appearance of your teeth?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>36. Have you been disappointed with the appearance of previous dental work?</td>
<td></td>
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* Ask Key Question: “Are we creating the smile you used to have or a smile you never had?”
Position (Orthopedic Position of Mandible)

- MIP – Teeth
- CR/Adapted Centric Posture – TMJ
- Myocentric – Muscles

**Objective**
- Reference/Starting Point

**Technique**
- Flawed

**Concerns**
- MIP – Remaining Dentition
- CR – Manipulation Techniques
- NM – Muscles, Head Posture, Neurologic System

Place (Occlusion, Esthetics)

- Bilateral Equal Intensity Simultaneous Contact Cuspids – Posterior
- Esthetics – OVD?

**Objective**
- Vertical Support/Posterior Teeth or Anterior Platform?

**Technique**
- Articulation Paper
- Shim Stock
- T–Scan
- Digital Palpation

**Concerns**
- Mandibular Flexure
- Worn Teeth
- Periodontal Ligament
- Pulpal Status

Pathway vs. “Guidance”

- Steepness vs. Flatness

**Objective**
- Minimize Friction and Load
- Avoid Chewing Interferences

**Technique**
- Articulation Paper – 200 microns
- Digital Palpation
- Assess Phonetics

**Concerns**
- Envelope Retrained?
- Overload Anterior Teeth
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**Management of the Envelope of Function**

1. **Position of Maxillary Anterior Teeth**
   
   **Anatomic Reference**
   
   Treatment Options:
   - Orthognathic
   - Orthodontic
   - Restorative

2. **Condylar Position**

   ![Figure 1](image1)
   ![Figure 2](image2)
   ![Figure 3](image3)
   ![Figure 4](image4)
   ![Figure 5](image5)
   ![Figure 6](image6)
   ![Figure 7](image7)
   
   Orthopedic Position of the Mandible-Reference System:
   - Teeth
   - TMJ
   - Muscles

3. **Position of Mandibular Anterior Teeth**

   **Anatomic Reference - Treatment Options:**
   - Orthognathic
   - Orthodontic
   - Restorative
   - Limited

4. **Alteration of OVD**

   **Rationale:**
   - Facial Balance/Esthetics
   - Functional
   - Structural Concerns
   - Speech