The Dental Hygienist’s Role in Identifying Malocclusion and the Benefits of Tooth Alignment

Sponsored by Our Time Together...

- Ortho 101: Perio-Ortho-Systemic Connections
- Long Term Oral Health Solutions with Invisalign Therapy
- Abrasions vs Abrasions
- Implementing Ortho in the Dental Practice
- Hygiene Ortho Exam
- Orthodontic Conversations from the Hygiene Chair
- Case Reviews

Comprehensive Care/Treatment?

- Assessing Risk Factors: Periodontal/Systemic Disease/ Sleep Apnea
- Educating Patients on the Inflammatory and Systemic Ramifications of Periodontal Disease
- Non Surgical Periodontal Therapy Strategies
- Recognizing Malocclusion and Orthodontic Solutions
- Myofunctional Therapy
- Educating and Screening Diabetes Patients
- CAMBRA “Caries Management for Risk Assessment”
- Oral Cancer Screening
- Communication with Medical Team
- Smoking Cessation/Nutritional Counseling

Ortho 101:

1. Sagittal (Anterior-Posterior)
2. Vertical
3. Transverse (Horizontal)

Sagittal Relationship: Anterior-Posterior (AP)

Sagittal Dimension

Molar & Cuspid Relationship

Class I  Class II  Class III

(From Phinney, DJ, and Halstead, JH, Delmar’s Dental Assisting; A Comprehensive Approach, ed 1, Albany, NY, 2000, Delmar Thomson Learning)


(From Phinney, DJ, and Halstead, JH, Delmar’s Dental Assisting; A Comprehensive Approach, ed 1, Albany, NY, 2000, Delmar Thomson Learning)
**Transverse Dimension (Horizontal)**

**Transverse Dimension: Arch Shape**

| U Shape | V Shape | Square | Omega |

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**3 Causes of Crowding**

1. Improper Arch Form
2. Improper Arch Width
3. Buccolingual Inclination

**Vertical Dimension**

**Vertical Dimension: Anterior Bite**

| Normal | Edge to Edge | Deep Bite | Open Bite |

Overbite (OB): Vertical overlapping of the upper teeth over the lower. Ideal OB is 10-30% overlap.

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(From Phinney, DJ, and Halstead, JH, *Delmar’s Dental Assisting: A Comprehensive Approach*, ed 1, Albany, NY, 2000, Delmar Thomson Learning)

The authors reviewed cross-sectional epidemiologic studies of gingival recession and correlated the prevalence of recession to:

- Trauma, Sex, Malpositioned Teeth, Inflammation and Tobacco Consumption.
- 1+ Sites with Recession:
  - 88% of people 65+ years of age.
  - 50% of people 18 to 64 years of age.

**CLINICAL IMPLICATIONS:**

- Dentists should be knowledgeable about the etiology, prevalence and associating factors of gingival recession, as well as treatment options, so that appropriate treatment modalities can be offered to patients.
- Treatments for gingival recession include gingival grafting, guided tissue regeneration and orthodontic therapy. Such treatments typically result in esthetic improvement, elimination of sensitivity and a decreased risk of developing root caries.


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**Gingival Cleft: Mosby's Definition**

n. A Cleft of the marginal gingiva; may be caused by many factors, such as incorrect tooth brushing, a breakthrough to the surface of pocket formation, or faulty tooth positions, may resemble a V-shaped notch.

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**Abfractions are Non Carious Class V Lesions**

The term *abfraction* refers to an Non Carious Class V Lesion with an etiology that includes tooth flexion and occlusal stress.


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**4 “C’s” Abfraction vs. Abrasion**

1. Clefting present?
2. Canines Involved?
3. Collisions? (teeth sliding or colliding?)
4. Cusps Flattened?

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**Short Term vs. Long Term Solutions: Providing Patients with Options**

<table>
<thead>
<tr>
<th>CONDITIONS</th>
<th>SHORT TERM TREATMENTS</th>
<th>LONG TERM ORTHODONTIC SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abfractions</td>
<td>Class V composite/gingival graft occlusal adjustments</td>
<td>Uprighting teeth to correct the vertical alignment and take teeth out of trauma</td>
</tr>
<tr>
<td>External Trauma/ Fractured Teeth</td>
<td>Occlusal adjustments</td>
<td>Preventing the recession, usually with end, anterior, or lingual adjustments</td>
</tr>
<tr>
<td>Worn Down/Fractured Posterior Teeth</td>
<td>Occlusal adjustments</td>
<td>Preventing the recession by taking teeth out of trauma</td>
</tr>
<tr>
<td>Grinding</td>
<td>Night Guards, occlusal adjustments</td>
<td>Preventing the recession by taking teeth out of trauma</td>
</tr>
<tr>
<td>Gingival Recession</td>
<td>Grafting, usually refer to Periodontist</td>
<td>Uprighting teeth to correct the vertical alignment and take teeth out of trauma</td>
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</tbody>
</table>

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Class V Buccal Composites:

- Low Retention rate: After 2 years, 1/3 of the composites were lost\(^1\)
- Patients blame Dr. for poor workmanship
- Most dentists do not like performing these types of restorations

**Controversial Treatments for Non Carious Class V lesions**

- **Occlusal Adjustments:**
  - If abfraction is suspected, then any decision to carry out destructive, irreversible treatment, such as occlusal adjustment, should be considered very carefully.
  - Inappropriate occlusal adjustments may increase the risk of certain conditions such as caries, occlusal tooth wear and dentine hypersensitivity
- **Night Guards/ Occlusal Splints**
  - Occlusal splints have the potential to reduce non-axial tooth loading when constructed appropriately. Although they provide a conservative treatment option for managing suspected abfraction lesions, there is no evidence base to support their use.

**Summary and Conclusions of Abfraction Evidence**

Rees. Eccentrically loaded, restored premolars demonstrated higher stresses in the cervical region compared with similarly loaded unrestored premolars
Palamara et al. Non-axial tooth loading resulted in potentially damaging cervical strains. The direction and magnitude of loading had a strong influence on the nature of cervical strains
Rees, Lee et al, Palamara et al. Non-axial tooth loading increases the magnitude of cervical stress values
Boricic et al. Teeth in malocclusion generated larger tensile stresses in the cervical region compared to teeth in normal occlusion upon tooth loading

**Evidence Based Dentistry?? ( EBD)**

ADA definition of EBD:

Summary- A 3 Realm Approach
1. Science
2. Clinician’s Judgment
3. Patients’ needs/ Preference

“What external clinical evidence can inform, but can never replace, individual, clinical expertise” — Dr. David Sackett

**Recognizing Malocclusion/Malpositioned Teeth is Paramount to Patient Health**

- Malocclusion and abnormal tooth position are now recognized as potential contributors to the disease process when they cause occlusal traumatisms.
- Excessive functional stress may initiate inflammatory changes in the periodontium and thus enhance destructive bacterial processes.

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Implementing Ortho into the Dental Practice

Clinical Protocol: TX Planning
1. PERIO
2. ORTHO
3. RESTORATIVE*
*Restorative takes precedence if active decay/pathology/pain.

Supportive Evidence...
Most Need Straighter Teeth But Few Get Treated

- 75% of US affected with malocclusion*
  Epidemiological study by NCHS**
- 49% want straighter teeth ***
  Braces vs no treatment? Opt for no TX

*Brunelle, et. al. in Journal of Dental Research (2/96)
**National Center for Health Statistics
***Data on file. Align study of 18,000 adults 25-49.

One Second Ortho Exam

CLOSE!!!!

Evaluating Lingual Inclination

TOP FIVE CLUES to Disclose Malocclusion (CLAWS)
- Clefting/Recession
- Lingual Inclination
- Abfractions
- Wearing (Night guard candidates)
- Shifting (Slipped the Contact)
Why Discuss Orthodontics?

• Professional responsibility. AAP guidelines
• Advise on the latest advances in dentistry
• Treat an orthodontic problem with an orthodontic solution.
• Be the first to inform patients about the benefits of straight teeth (not media!)

Conversation Starters “ING”
This Concerns me Because…

“Show and Tell”
• Your gums are receding
• Your teeth are chipping
• The enamel is thinning
• Your teeth are shifting
• Your teeth are wearing
• How is Dr. _____ going to fix this in 10, 20 years?
• “Your teeth are colliding rather than sliding”

6 Words to Avoid while “Bib On”

6 WORDS NOT TO USE
• “Brand Name”
• Ortho/Braces
• Crowded
• Straighten
• Crooked

REPLACE WITH
• “Teeth out of trauma”[solution]
• Clear Aligner Therapy
• Shifting or crowding
• Align
• “No such thing as crooked teeth”

Doctor Exam with Hygienist
Goal: Reinforce Patient Value

Step 1: Reviewing the RDH Exam
• Hyg shares findings with Dr. in front of patient
• Dr. performs exam confirming HYG exam/consequences of malocclusion

Step 2: Dr. Focus on Long Term Solutions compared to “Band-aid TX”
• “Can we agree that the best dentistry is the least?”
• “We like to do dentistry that’s designed to succeed not to fail”
• “Teeth don’t age they wear”
• My Concern Is… If we don’t take your teeth out of trauma…… PCS model

“Teeth don’t age, they wear”

“Anti- Aging Strategies”
Roman time skull
“Real Age” 200-400 AD

“Do you want to keep your teeth for a lifetime”?
“Teeth that fit together properly, last longer”

Identify Show and Tell Provide

Malpositioned teeth causing Malocclusion

“ING” words..
Chipping, receding, shifting
Hard and soft tissue damage
Tooth loss and costly dentistry: Surgery, Implants
Bypassing Chairside Financial Discussions

“But I Don’t Have Insurance…it’s too Expensive”
Solution: “Best Insurance Policy is teeth that fit together properly to avoid costly dentistry”
“How much does it cost?”
Solution: “Mary, our office manager is an expert in making this investment in your health, comfortable for your lifestyle.”

When to Refer to Orthodontist

- Class II or Class III A/P Correction (Teen)
- Pre-Teen Mixed Dentition
- Are Auxiliaries Required?
- What is GP comfort level?
- Consider networking with Orthodontists

What do Hygienists need to Implement Ortho?

- Continuing Education on Ortho/ Clinical Confidence
- Tools in the operatory for case presentation
- Time for Patient Education (2 minutes)
- Respect from Doctor/Confirmation of RDH Data
- Support from Dr. and Team
- Office Manager on board (insurance/financing options)

Invisalign as an Oral Health Solution?

Scientific Evidence + Clinical Expertise = Evidence Based Dentistry

- Does this make sense?
- Will my patients benefit?
- Is it minimally invasive?
- Pros vs cons?
- Do my patients deserve options?

Monday Morning Action Items:

HYG:
- Use the conversation starters, Try an “ING” or two!
- Avoid the “6 words”
- Use the intra-oral camera on each patient. (focus on recession, abfractions, excessive wear)

Dentist:
- Commit to be the “reinforcer” and be proactive with recommending C.A.T. as a potential solution to Non-curious class V Lesions.
- Consider a Perio-Ortho-Restorative philosophy

Thank you… Questions?

Join me: Lauren Gueits, RDH BS
4/27- Webinar Colgate Oral Health Network
7/28- RDH/ Under One Roof – National Harbor, Maryland

Contact: lgueits@aligntech.com
## Hygiene Ortho Exam

### Malocclusion Classification

<table>
<thead>
<tr>
<th>Molar Relationship</th>
<th>Class I</th>
<th>Class II</th>
<th>Class III</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deep Bite</td>
<td>Mild</td>
<td>Moderate</td>
<td>Severe</td>
</tr>
<tr>
<td>Overjet</td>
<td>Mild</td>
<td>Moderate</td>
<td>Severe</td>
</tr>
<tr>
<td>Crowding</td>
<td>Mild</td>
<td>Moderate</td>
<td>Severe</td>
</tr>
<tr>
<td>Spacing</td>
<td>Mild</td>
<td>Moderate</td>
<td>Severe</td>
</tr>
<tr>
<td>Crossbite</td>
<td>Anterior</td>
<td>Posterior</td>
<td>Left side</td>
</tr>
<tr>
<td>Arch Form</td>
<td>U-Shaped (rounded)</td>
<td>V-Shaped (Narrow)</td>
<td>Omega (Irregular)</td>
</tr>
<tr>
<td>Lingual Inclination</td>
<td>Mild 5-15 degrees</td>
<td>Moderate 15-30 degrees</td>
<td>Severe 30-60+ degrees</td>
</tr>
</tbody>
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### Problems Associated with Improper Tooth Alignment: CIRCLE

<p>| | |</p>
<table>
<thead>
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<th></th>
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<tbody>
<tr>
<td>Receding Gums/Clefting</td>
<td>Increased plaque levels</td>
</tr>
<tr>
<td>Abfractions (notching</td>
<td>Decay</td>
</tr>
<tr>
<td>Excessive wearing of</td>
<td>Teeth Shifting (Crowded)</td>
</tr>
<tr>
<td>Periodontal pocketing</td>
<td>Difficulty eating (food impaction)</td>
</tr>
<tr>
<td>Difficulty brushing &amp;</td>
<td>Gingivitis</td>
</tr>
<tr>
<td>flossing</td>
<td></td>
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