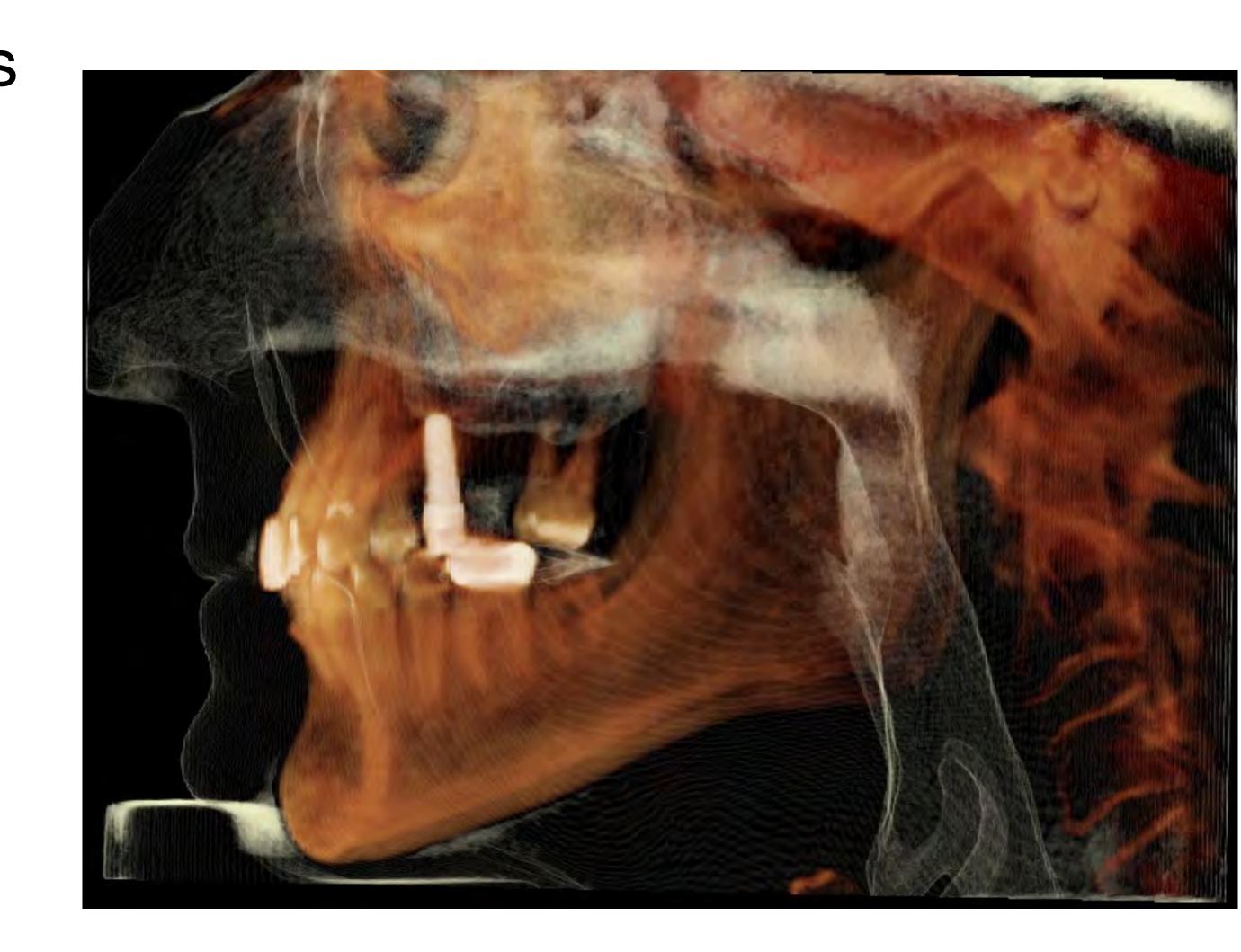
TIMD for the GP

Incorporate basic TMD therapy into your general practice Evaluation of new and existing patients for practical long term sensible outcomes

Course Objectives

- Identify common T.M. conditions for proactive therapy
- What are we looking for in our examination
- Bite Techniques
- Splint determination
- Temporary diagnostic orthotics
- Treat or Refer



Think Big Life is Limitless

MikeSmith

The Biting Edge

FAMILY DENTISTRY

AESTHETIC, CONTEMPORARY RESTORATIVE,
ORTHODONTICS & COSMETIC REHABILITATION
THREE GENERATIONS IN ARIZONA

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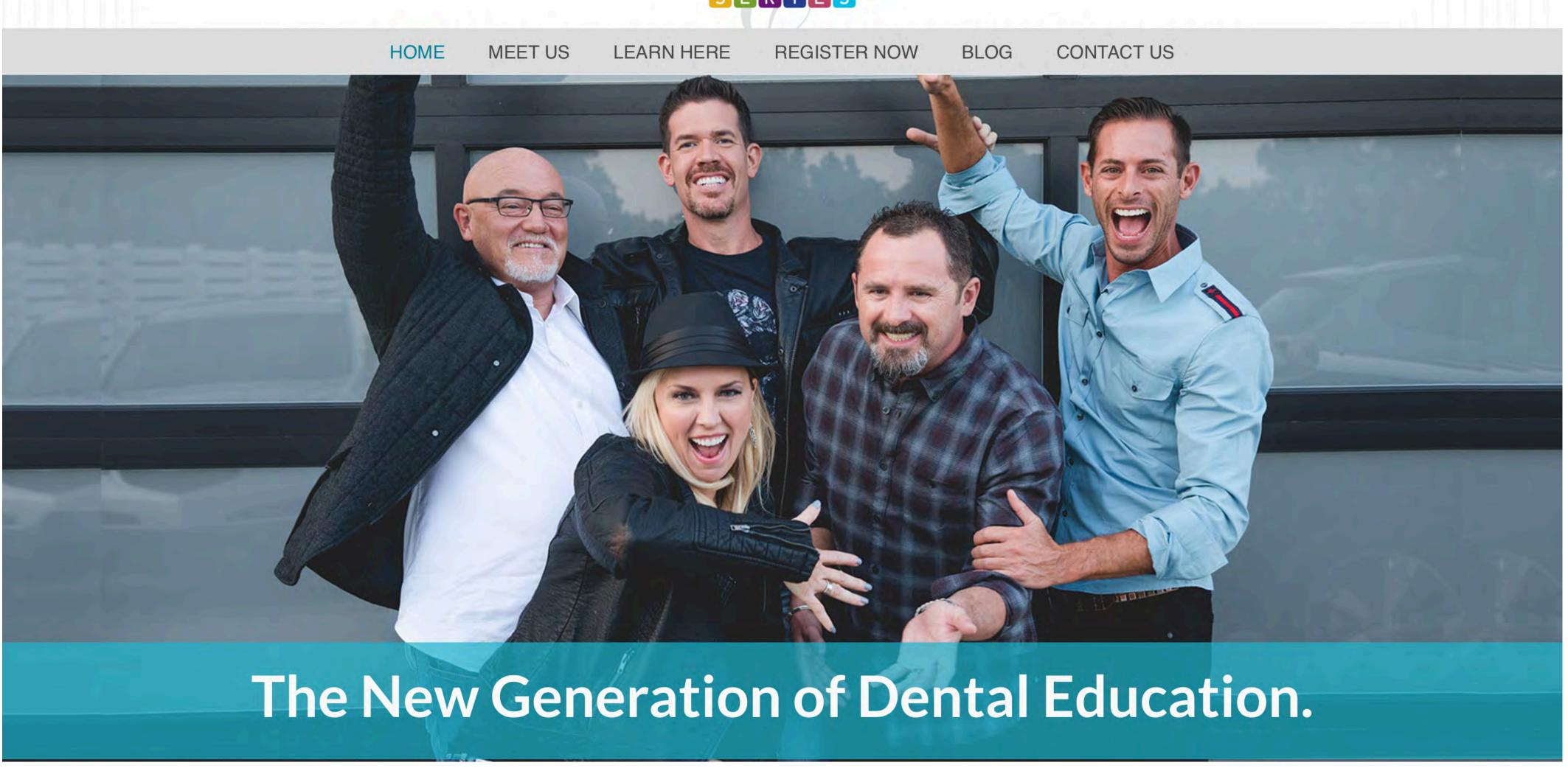
drmike@thebitingedge.com

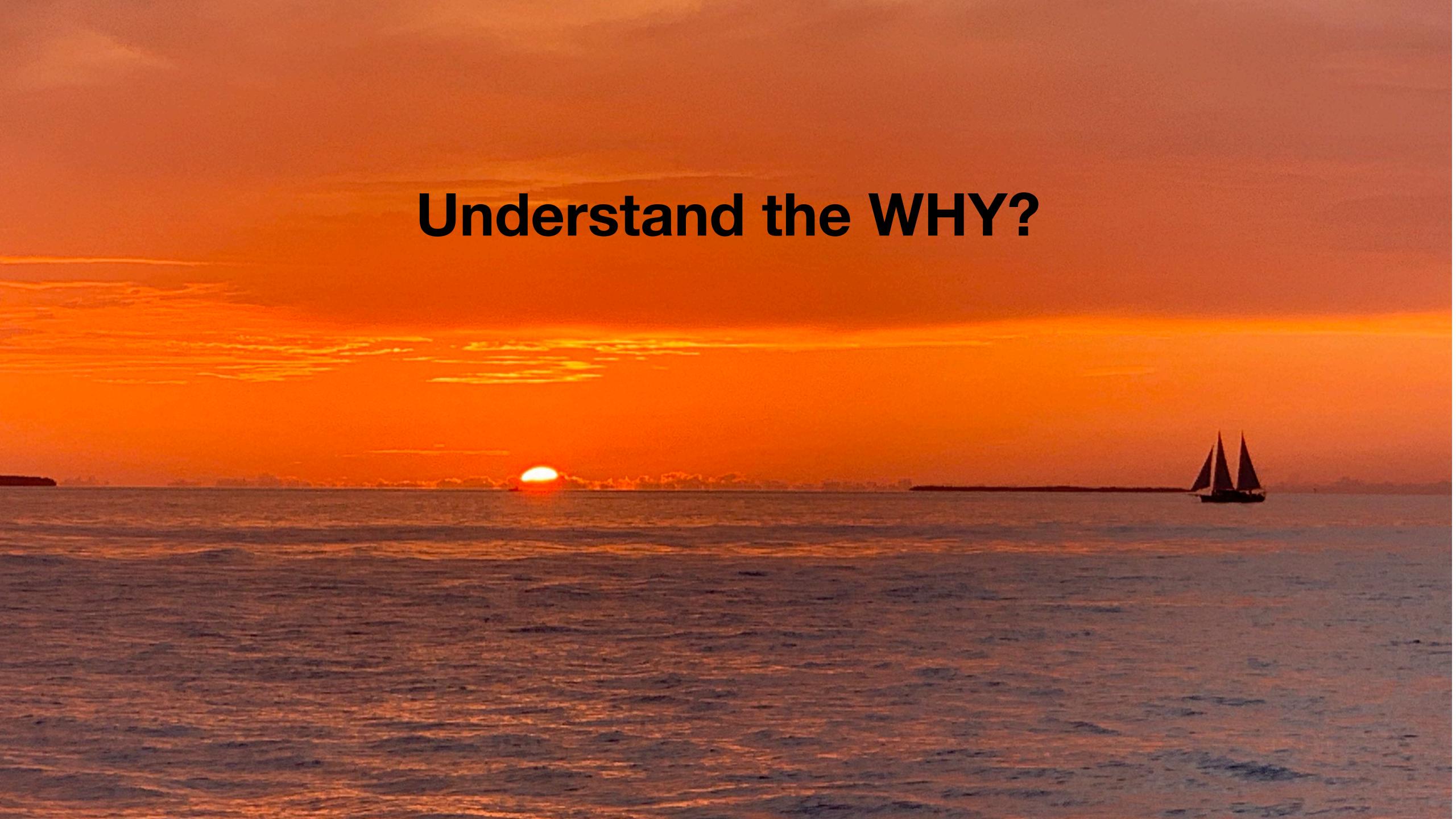
Michael Alan Smith, DMD

BOARD CERTIFIED GENERAL DENTISTS

721 W. GLENDALE AVENUE, PHOENIX, ARIZONA 85021 TEL 602.279.7312

CLINICAL MASTERY SERIES





#1 question I get asked from Dr's?

What should I do to treat my patient?

Let's start from the beginning! What information do I need first?

What is the

<u>History</u>

Symptoms

Conditions

Diagnosis

Goals

What is a good starting point??
What about a temporary diagnostic splint

How does the patient fit into your practice

- General
- Orthodontic
- Cosmetic
- TM Pain
- Airway
- Combination
- Referral

Screen Every Patient

TM Conditions

Acute Chronic

Adapted Non Adapted

Many times after Dx and education the patient's goals change

Get them to say yes

- We need to enroll more of these patients into Comprehensive care
- Screen and diagnose common TM joint and muscle abnormalities
- What types of proactive treatment therapies can we offer to improve our patients' health
- How do we predictively treat more advanced common TM conditions

Establish the Patient's Goals, Wants and Desires

- Patient history
- Determine the patients chief concerns
- What are the patients immediate expectations
- What are the patients extended goals
- What type of treatment is the pt. looking for
- Are treatment options achievable
- Establish realistic goals
- Discuss compromise
- Can you deliver

Does the Pt. have a Normal or Abnormal TMJ Complex

Popping or clicking

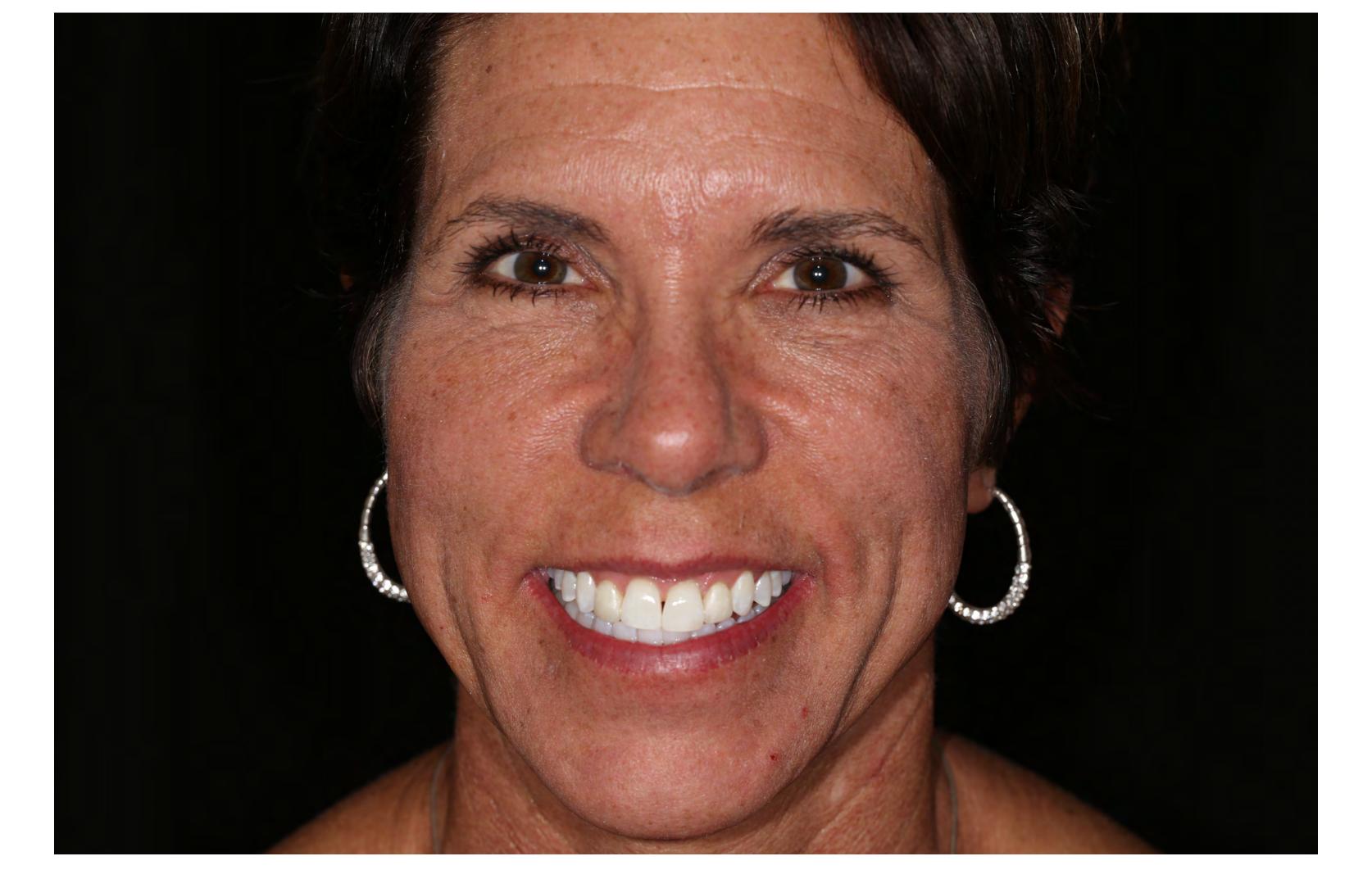
Any diet changes due to ROM

History of jaw locking

Past history of trauma

Is the patient suffering from any facial, head or neck **pain**, headaches

If abnormal,
How abnormal is it?



Most patients don't realize they have a TM issue

Establish long and short term goals Early diagnosis and education is key

Abnormal

- 75% of the population have at least one sign or symptom of a Temporomandibular dysfunction
- 34% of the population reports having a Temporomandibular disorder
- That leaves 41% waiting for a DX
- Steve Olmos; Dental CE Digest Volume 3, No. 6 2008

So how do you handle this

Easy

Screen every patient for T.M. abnormalities

Document

Joints, Muscles, Teeth, Airway

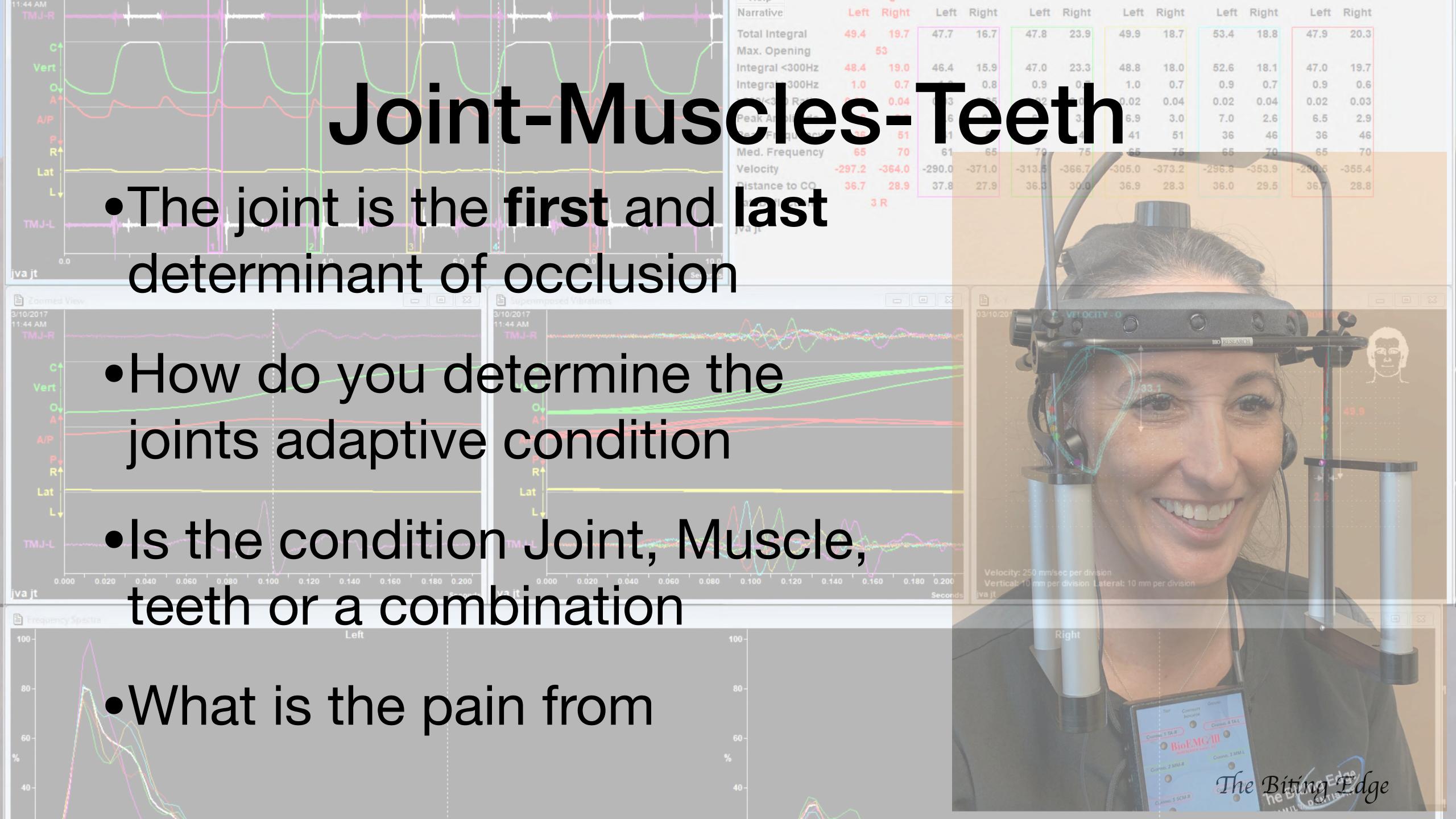
Patients appreciate a very detailed examination

Joint, muscles, teeth, pain, sleep, esthetics, gums, soft tissues

Ask leading questions

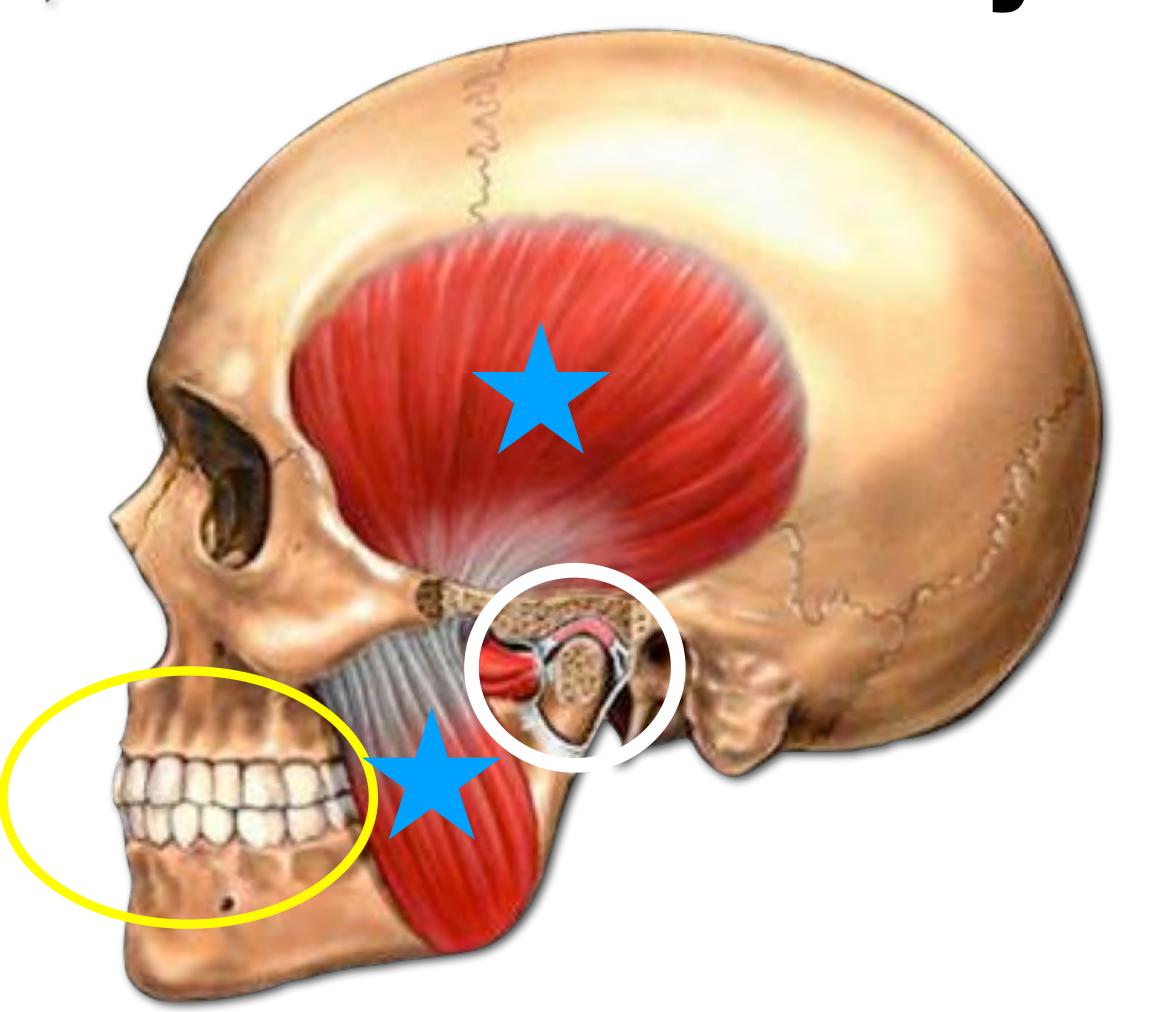
Establish a Comprehensive Care Model What can you do to improve the patient's conditions





What is Involved Joints - Muscles - Teeth - Airway

- History
- Pain / function findings
- Symptoms
- · Is it bite, joint, muscle, airway
- Combination
- · PTs. Chief Complaint



What are we looking to Diagnose

Muscle

- Myalgia ICD-10 M79.1
- Local Myalgia ICD-10 M72.1
- Myofascial Pain ICD-10 M79.1
- Myofascial Pain with Referral ICD-10 M79.1
- Arthralgia ICD-10 M26.2
- Headache attributed to TMD ICD-10.
 G44.89

Joint

- Disc displacement with reduction ICD-10 M26.63
- Disc displacement with reduction with intermittent locking ICD-10 M26.63
- Disc displacement without reduction with limited opening ICD-10 M26.63
- Disc displacement without reduction without limited opening ICD-10 M26.63
 - Degenerative joint disease ICD-10 M19.91
- Subluxation ICD-10 SO3.OXXA

Muscle Masticatory Disorders

Muscle pain

Myalgia; local myalgia, Myofascial pain, Myofascial pain with referral

Tendonitis

Myositis

Spasm

- Masticatory Pain attributed to systemic central pain disorders
 - Fibromyalgia / widespread pain syndrome

Contracture

Hypertrophy

Neoplasm

Movement Disorders

Oral Facial Dyskinesia

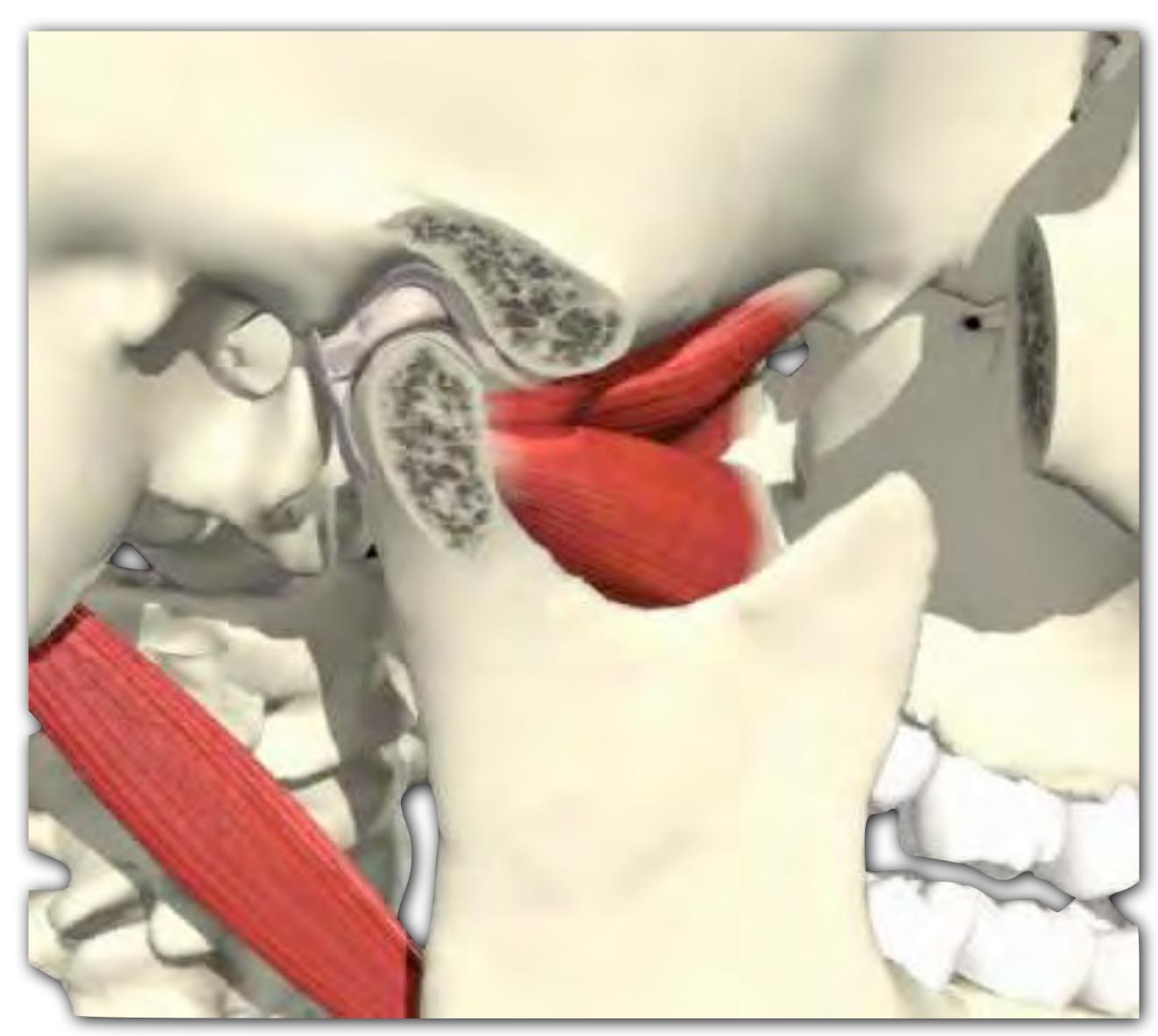
Oromandibular Dystonia

Headache

Headache attributed to TMD

Temporomandibular Joint Disorders

- Joint Pain
- Joint Disorders
- Joint Disease
- Fracture
- Congenital / Developmental Disorders



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Temporomandibular Joint Disorders

Joint pain

Arthralgia, pain

The term "arthralgia" should only be used when the condition is non-inflammatory
The causes of arthralgia are varied and range, from a joints perspective, from <u>degenerative</u>
and destructive processes such as <u>osteoarthritis</u> and sports injuries to inflammation of tissues
surrounding the joints, such as <u>bursitis.[5]</u> These might be triggered by other things, such as
infections or vaccinations.[6]

· Arthritis, pain with inflammation

The most common forms are osteoarthritis (degenerative joint disease) and rheumatoid arthritis. Osteoarthritis usually occurs with age and affects the fingers, knees, and hips. Rheumatoid arthritis is an autoimmune disorder that often affects the hands and feet. Other types include gout, lupus, fibromyalgia, and septic arthritis. They are all types of rheumatic disease.

Disc Disorders

Joint Disorders

Ligaments

- Disc Displacement with reduction
- Disc Displacement with reduction with intermittent locking
- Disc Displacement without reduction with limited opening
- Disc Displacement without reduction without limited opening
- Other hypo-mobility disorders
 - Adhesions / Adherences
 - ankylosis fibrous and osseous
- Hyper-mobility disorders
 - Dislocations
 - Subluxation
 - Luxation

Joint Diseases

- Degenerative Joint Disease
 - Osteoarthrosis (degeneration from inflammation)
 - Osteoarthritis (inflammation of the joint space)
- Systemic Arthritis
- Condylysis/idiopathic condylar resorption
- Osteochondritis disscecans, a disorder of one or more ossification centers, characterized by sequential degeneration or aseptic necrosis and recalcification
- Osteonecrosis
- Neoplasms
- Synovial chondromatosis, tumor of cartilaginous nature

Congenital/Developmental disorders

- Aplasia, failure of the joint to grow into normal function
- Hypoplasia
- Hyperplasia
- Coronoid hyperplasia
- Ernest or Eagle's Syndrome



12/16/2021 11:58 PM A. - SA

Diagnosis

Analog and Biometrics

Fingers and Sensors need to correlate what you see clinically with your biometric data Your overall findings need to match This is useful to aid in your diagnosis determination and therapy protocols

Vertical: 5 mm per division Lateral: 5 mm per division Ant./Post.: 5 mm per division

OM 2

2.0

6.0



Biometrics

Establish the baseline



• JVA - T.M. Joint

Jaw Tracker - Range of motion

• EMG - Muscles



• Tscan - Occlusion



• MLS laser - Pain, Inflammation

Naris - Nasal flow-Airway

Establish a starting point before you start treatment As your patient adapts do you



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Goals & Outcomes Initial Phase 1 Therapy Reduction of pain Establish a normalized ROM

Regain normal chewing function

Can you treat and transform to an acceptable level

Long Term Plan When Do You Plan Phase 2

Can the patient go without the Tx orthotic

W/O Symptoms

Normal Function

Esthetics

Protection

Airway

Resolution of Pain

History

What do we need from this evaluation to help with our diagnosis

Medical conditions, medications What are the patients chief complaints What are the patients short and long term goals Past treatment history and therapy (what type of success not just dental) What kind of success do they expect from you Past accident and injury survey Aspects of Pain

History Form

Dentalling

Dental software exam forms

N/A R L itus itus itus Img/Popping Improcal/Clicking Improcal/Clic	Comments Adequate Anter Yes mm mm	rior Guidance No © N/A	Anterior: Snaced Crowded XBite Rotated Wear Facet Overiet: 0 mm Occlusion: Class I N/A
ing/Popping	Mm T		Overiet: 0 mm Overbite: 0 mm Occlusion: Class I N/A
cles	Mm T		N/A
ation on closing: Comparison of the compariso	mm 7	No GENZA	TMJ Evaluation: 03/27/21 Crepitus
ation on opening: 0 mm 0		* 9	
ral Movement:	mm **	(32)	
TO DO	mm i		Tenderness to Palpation: TMJ
Maximum Opening: 0 mm	Next Exam	Erel	Dev. on Closing 0 0 mm Dev on Opening 0 0 mm Lateral Movement 0 0 mm Max. Opening 0 mm
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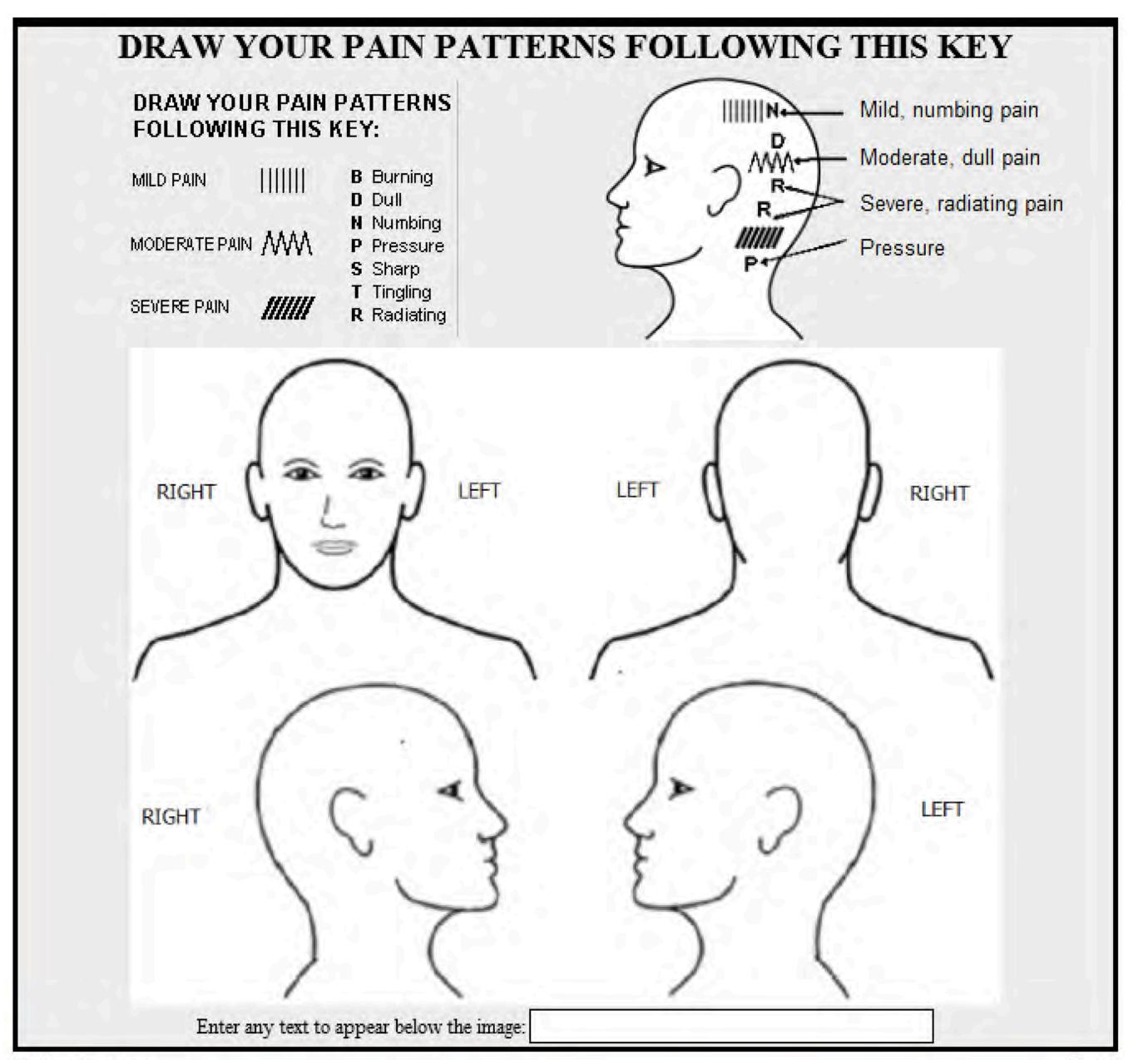
Patients get symptom amnesia!!!!!

Aspects of Pain

- · Establish pain values, perception of Pain
- What type of pain
 - Intensity, position, onset, duration, relief, and referral patterns
 - · Determine head, neck, back, face
 - Headache values
 - Current and past relief
 - · trigger, when, how much, where, time



Have the patient fill out the degree of pain diagram



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Patient Signature:

Head/Neck Position

- Does the patient have Forward Head posture
- Is the airway compromised
- How does this relate to the Jaw, Neck, Back
- Ascending / Descending posture issues affecting the T.M.
- Are referrals needed for other areas



Clinical Evaluation

What are we looking for

- What history does the patent have to help with your clinical findings?
- · Joints, Muscles, Teeth, Airway
 - Trauma, extractions, orthodontics, arch discrepancies, pathologic **wear**, erosion, exostosis
 - Is ROM (range of motion) normal or abnormal?
 - Are slides present going to closure, occlusion
 - · Arch evaluation, Collapsed, canted, asymmetric
 - · Do joints make audible noise, pain in the joint area
 - Muscle pain restriction
 - Tongue position and soft palate evaluation, pharyngal space, Nasal restriction, Apnea?

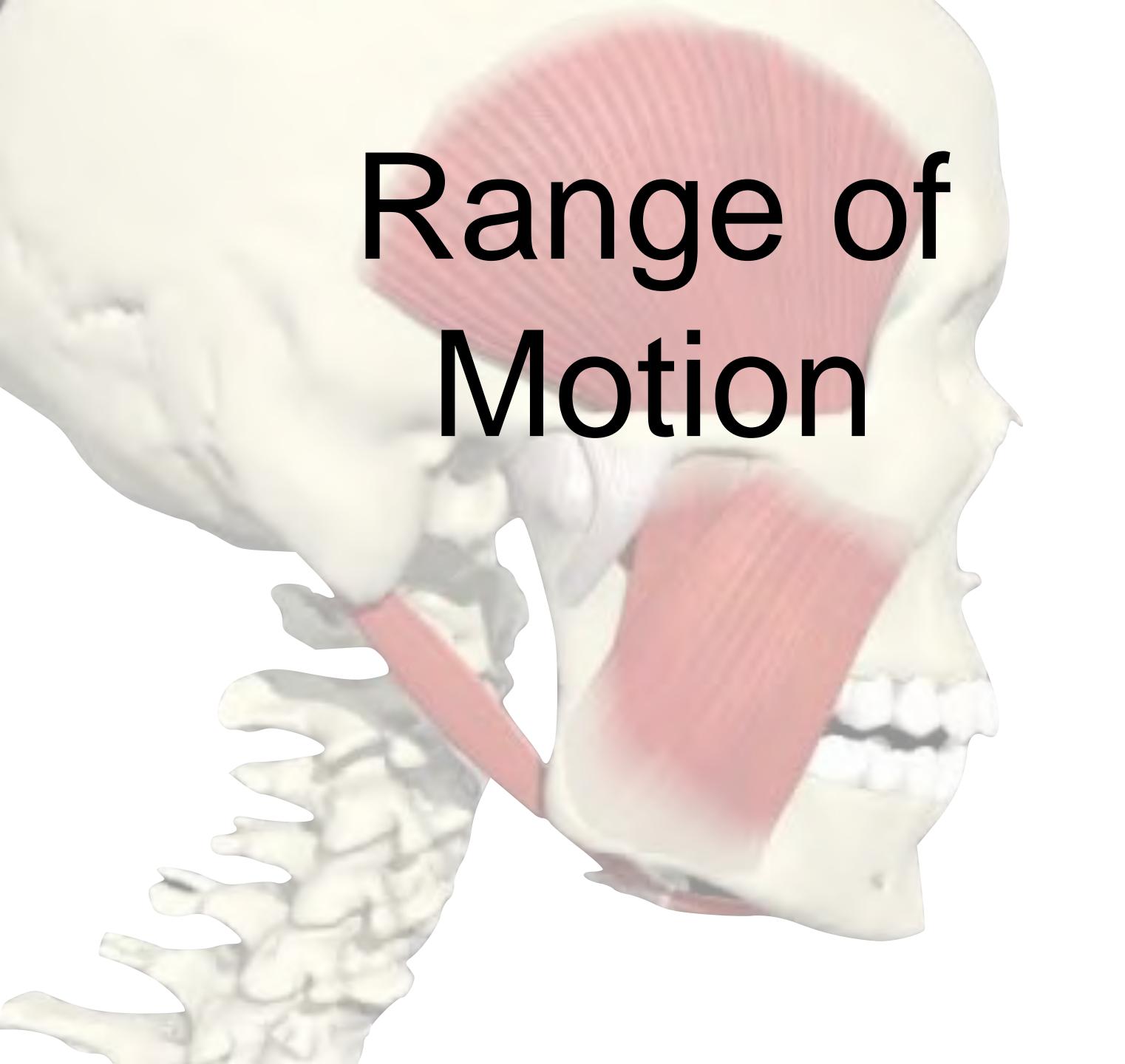


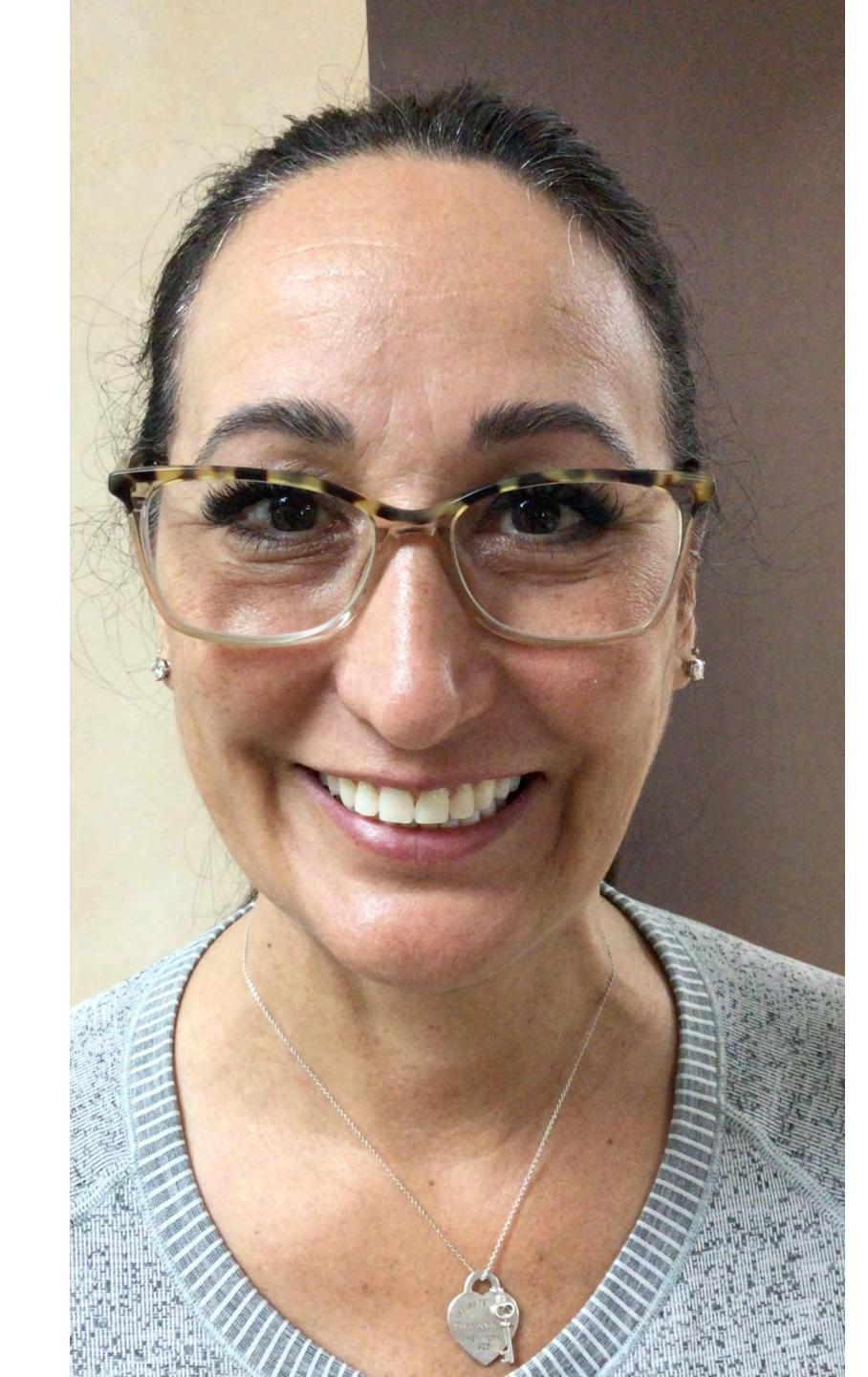
Clinical Findings

- What is your comfort level in treating this case
- What conditions are you able to treat
- Does the Patient want to get better
- Is this the kind of treatment you feel that you can deliver in your office without compromise
- How do you start
- Do you refer out

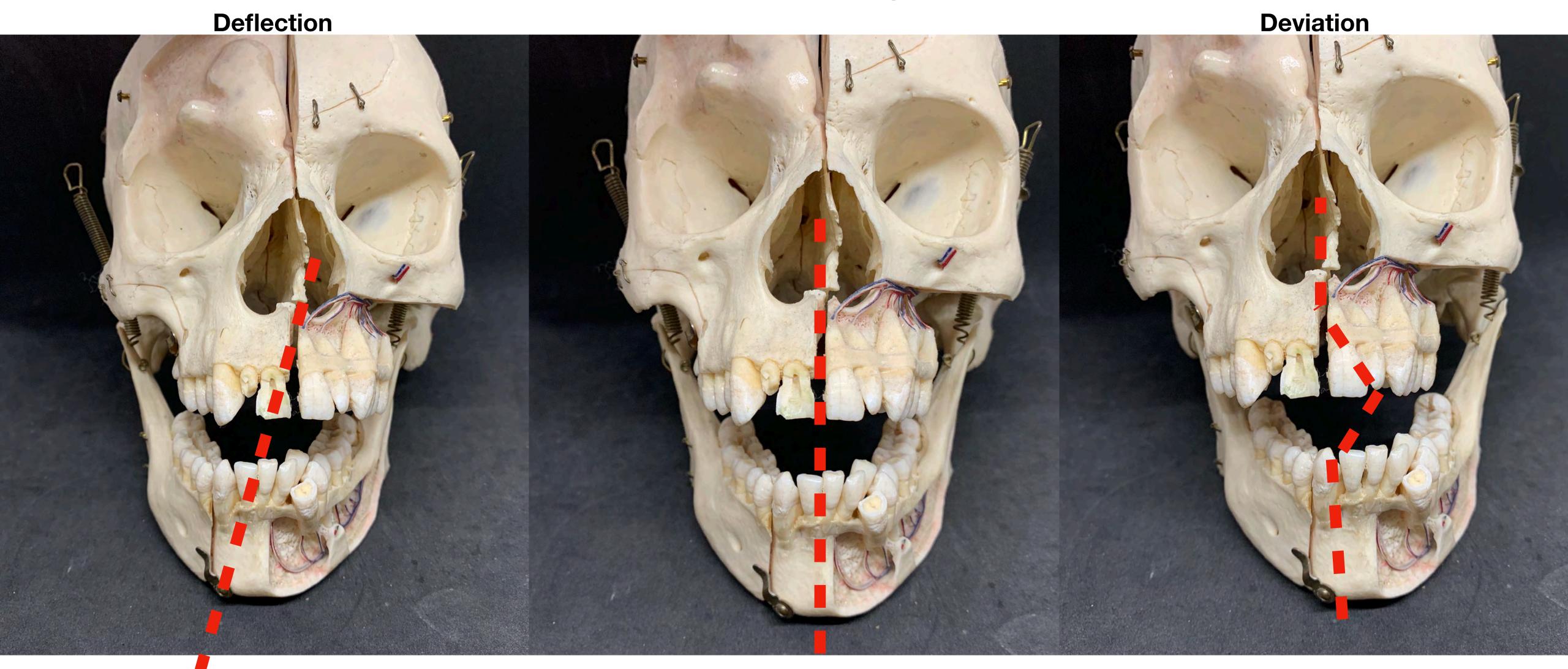
Starting Points

- From your pre-op condition what do you need to do to satisfy oral health. (infection, decay, perio, broken teeth, missing)
- Does the patient have the structure to satisfy long term health
- Is Phase 2 evident from the start! Discuss this early to set expectations
- Discuss long term from the very beginning
 - Don't surprise the Pt that they need more treatment when you finish phase 1. They can get pissed!





How Does the Jaw Move



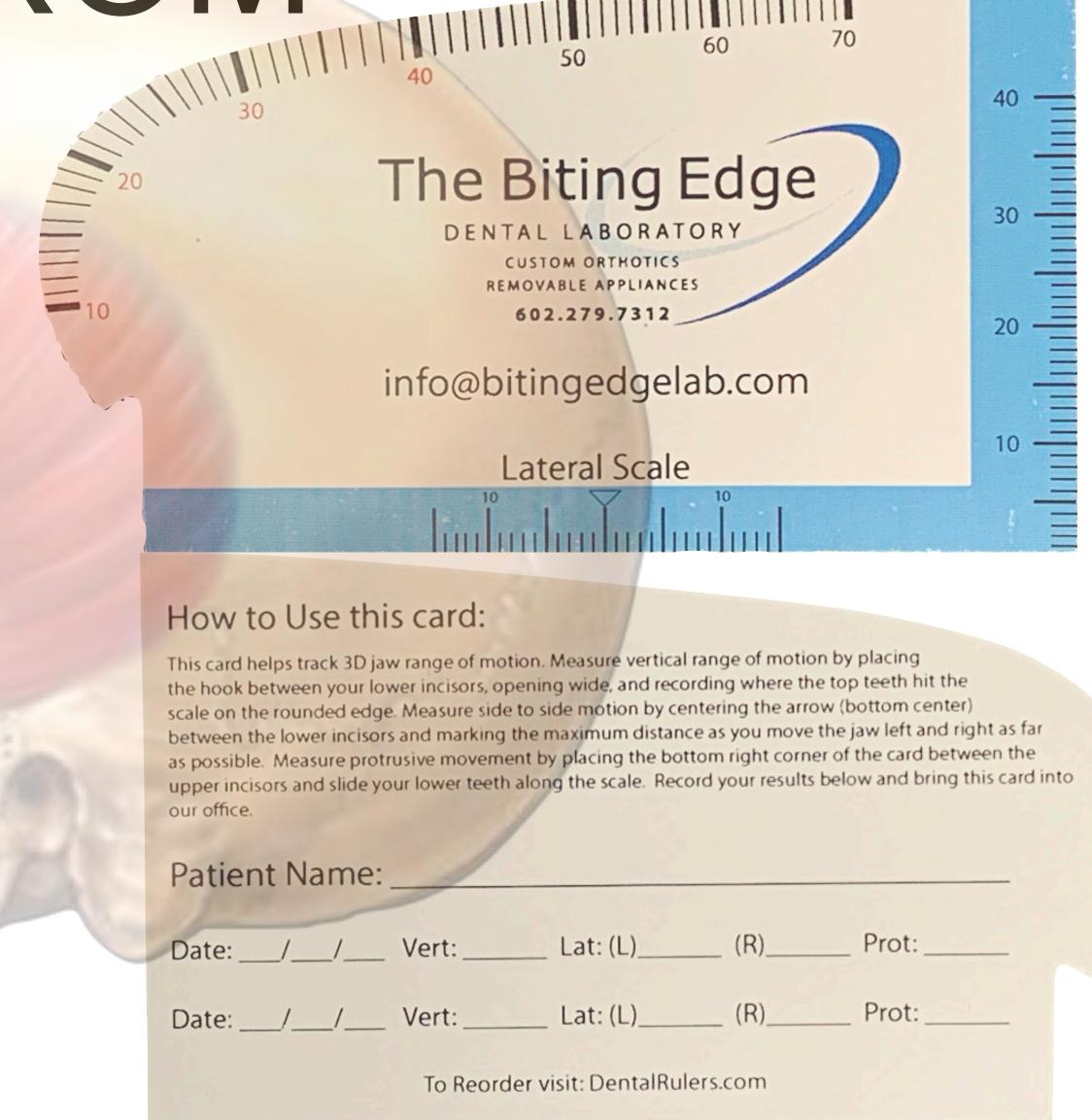
The motion of the jaw in movement matters

What happens as they open and close

Basic ROM

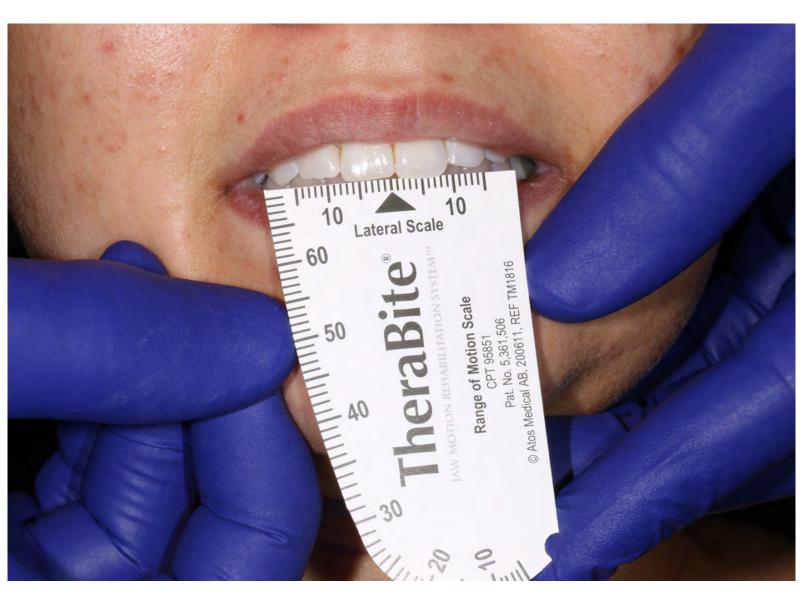
How does ROM reflect to the T.M. condition

- Max open 40-65
- Max open with stretch
- Right-Left Lateral >6.5mm
- Protrusive >5.5mm
- Deviation or Deflection > 3mm
 - Both how does it end?
- Document position of event
- Document Position of pain
- Hard/soft end feel test



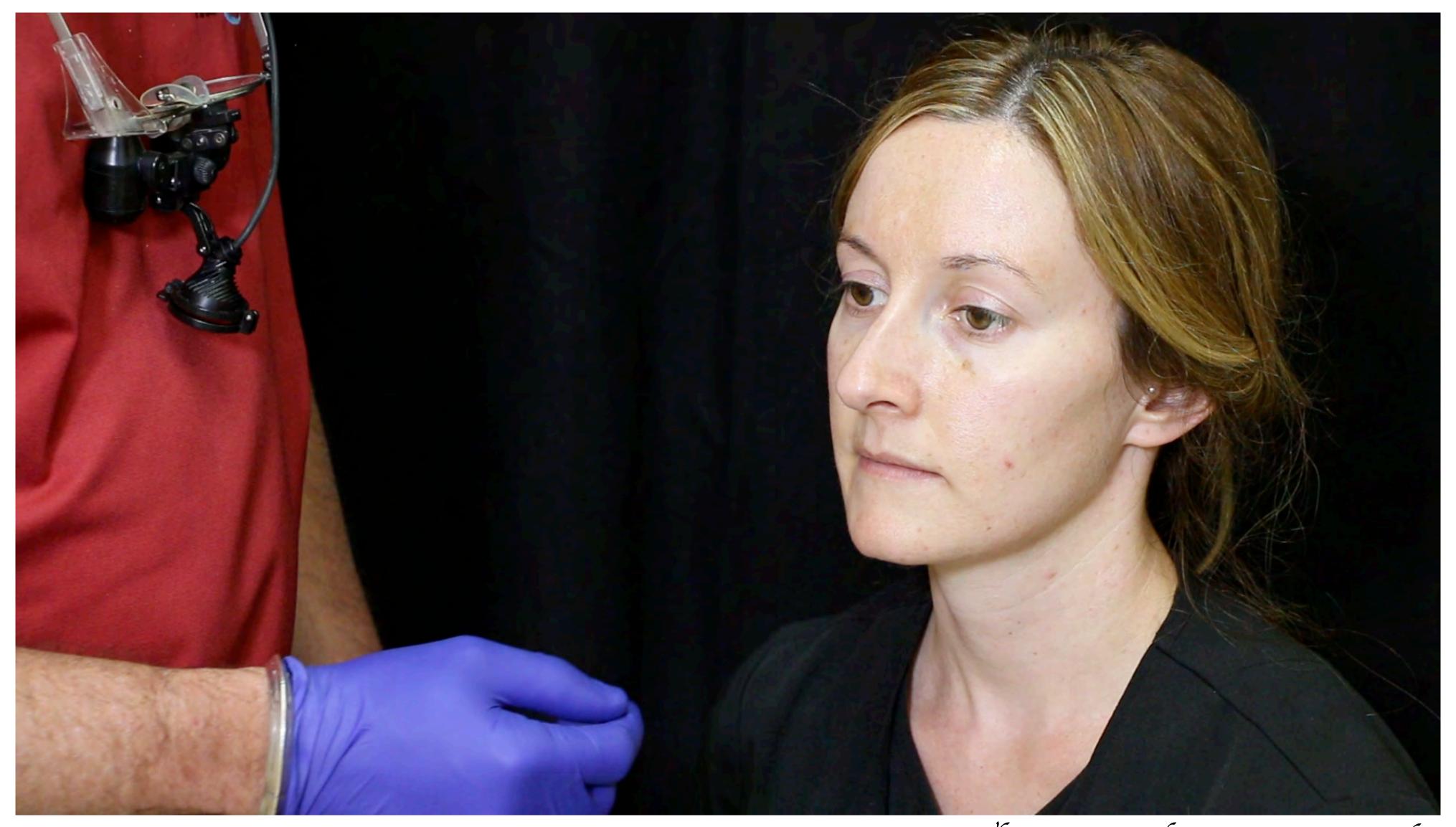






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Hard Soft End Feel Test



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ROM Findings

- What restrictions does the patient have
- Is it a joint or muscle issue or both
- How does this affect normal function
- Does the patient have pain with movement, if so in what motion or what position
- Can you restore a normal ROM

Pain - Function Findings

- Pain in Chewing or Normal Motion
- Does it hurt when you induce pressure?
- Pain present without stimulus
- Restriction in ROM, Locking
- Pain on max open, close, lateral motion, protrusion
- Joint palpation
 - Palpation of lateral pole of condyle
 - Palpation of posterior space of condyle
 - Lateral range palpation of lateral pole
 - Is pain induced on function, clench, chewing
- Muscle palpations Basic 3,
- 1. Temporalis; anterior, middle, posterior
 - Temporal tendon insertion
- 2. Masseter; body, superficial
- 3. Medial pterygoid

additional head, neck and shoulders areas are always helpful



Most patients don't realize they have pain until you test it!



e Bítíng Edge™

Tooth Structure Wear into dentin Why is this important?

- Occlusal signs of wear
 - -What type of wear
 - physiologic, pathway wear, parafunctional
 - -Attrition, erosion
 - Parafunction lesions, abfractions
 - -Fragmenting anterior edges of teeth, uneven wear
 - -Indexed wear facets
 - -Closing interference, working, non-working
- Existing restorations type and condition
 - Sometimes you have to ask WHY

Occlusal Stability

- Stable stops at Apex of Force
- Unworn teeth, healthy periodontum, fremitus free
- Does the patient have a CR to CO slide
 - Document the slide to closure, direction, position, amount
- Anterior guidance with a proper envelope of function
 - Disclusion of posterior teeth on working or non working

Common Wear Patterns

If you have to alter the joint to get your teeth together tissues will get damaged over time



Past Ortho Relapse Over Time





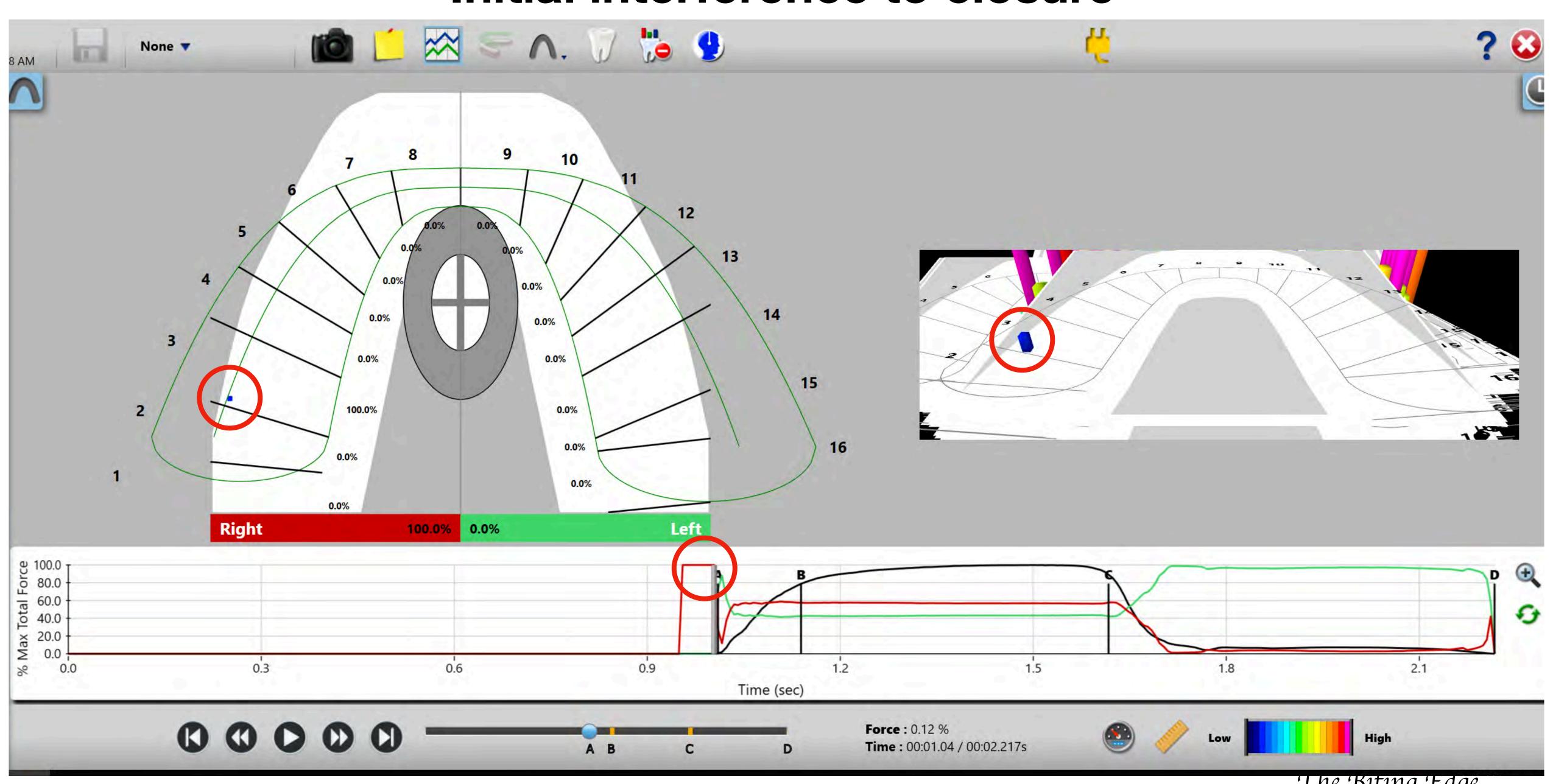
What does the joint and muscles have to do to allow this to happen



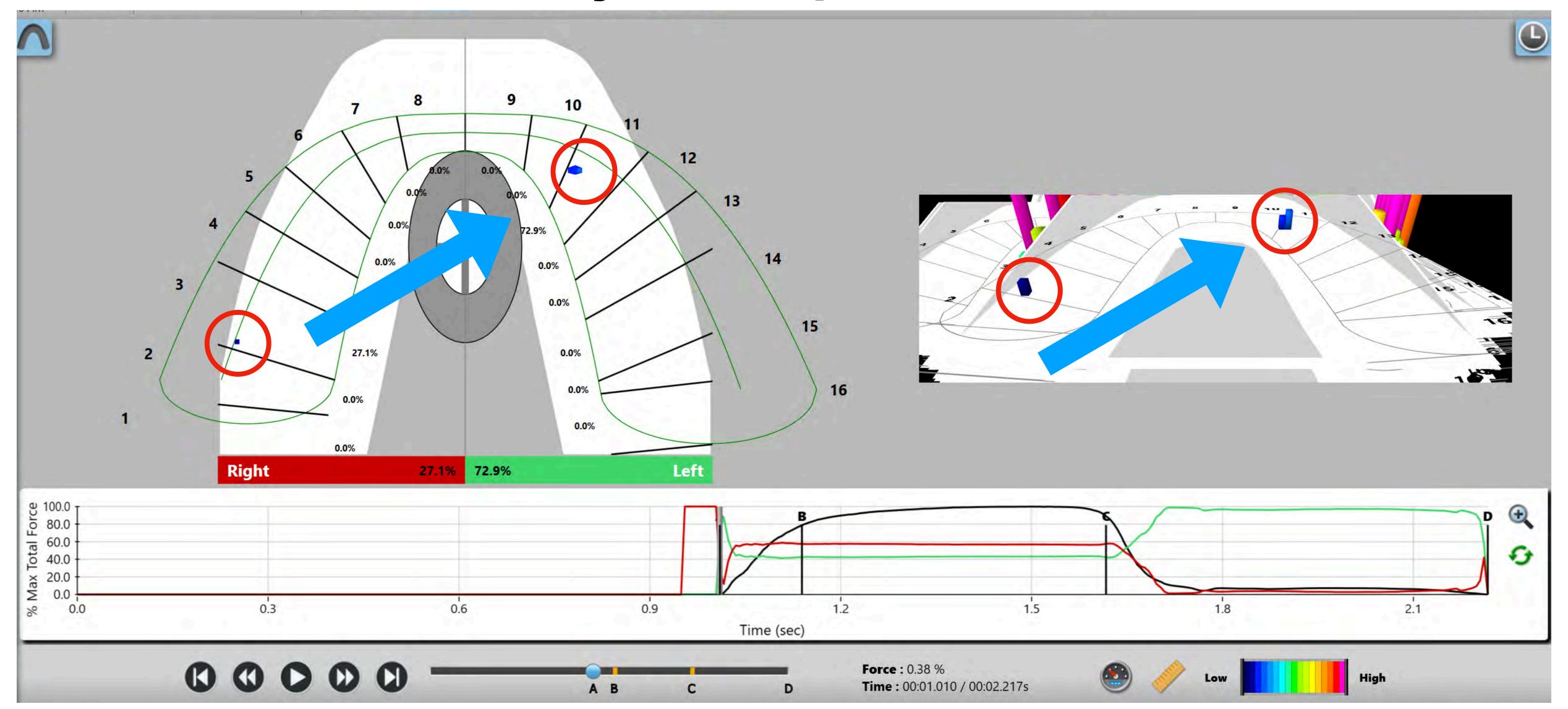
Hit

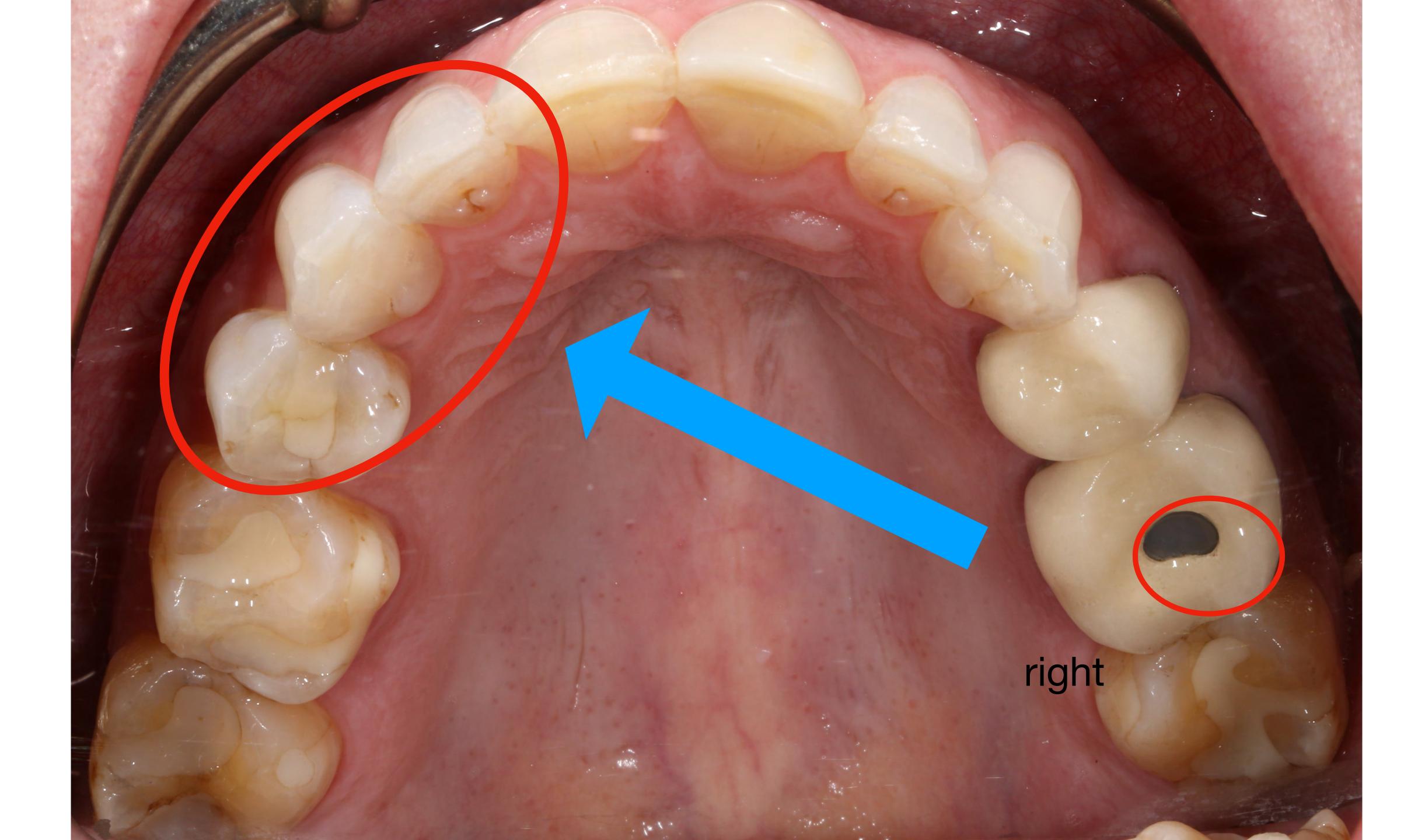


Initial interference to closure

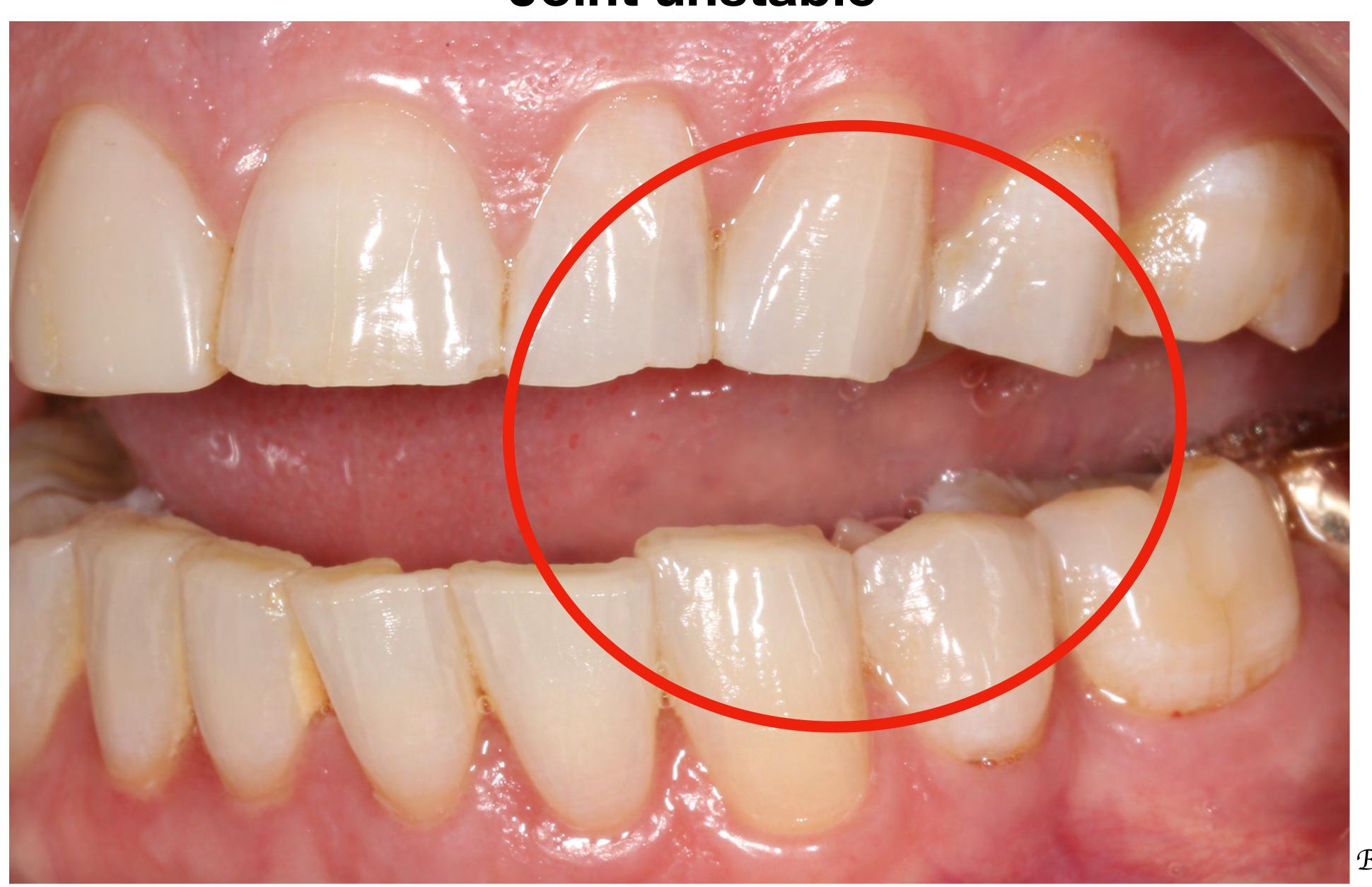


Shift of force away from posterior interference

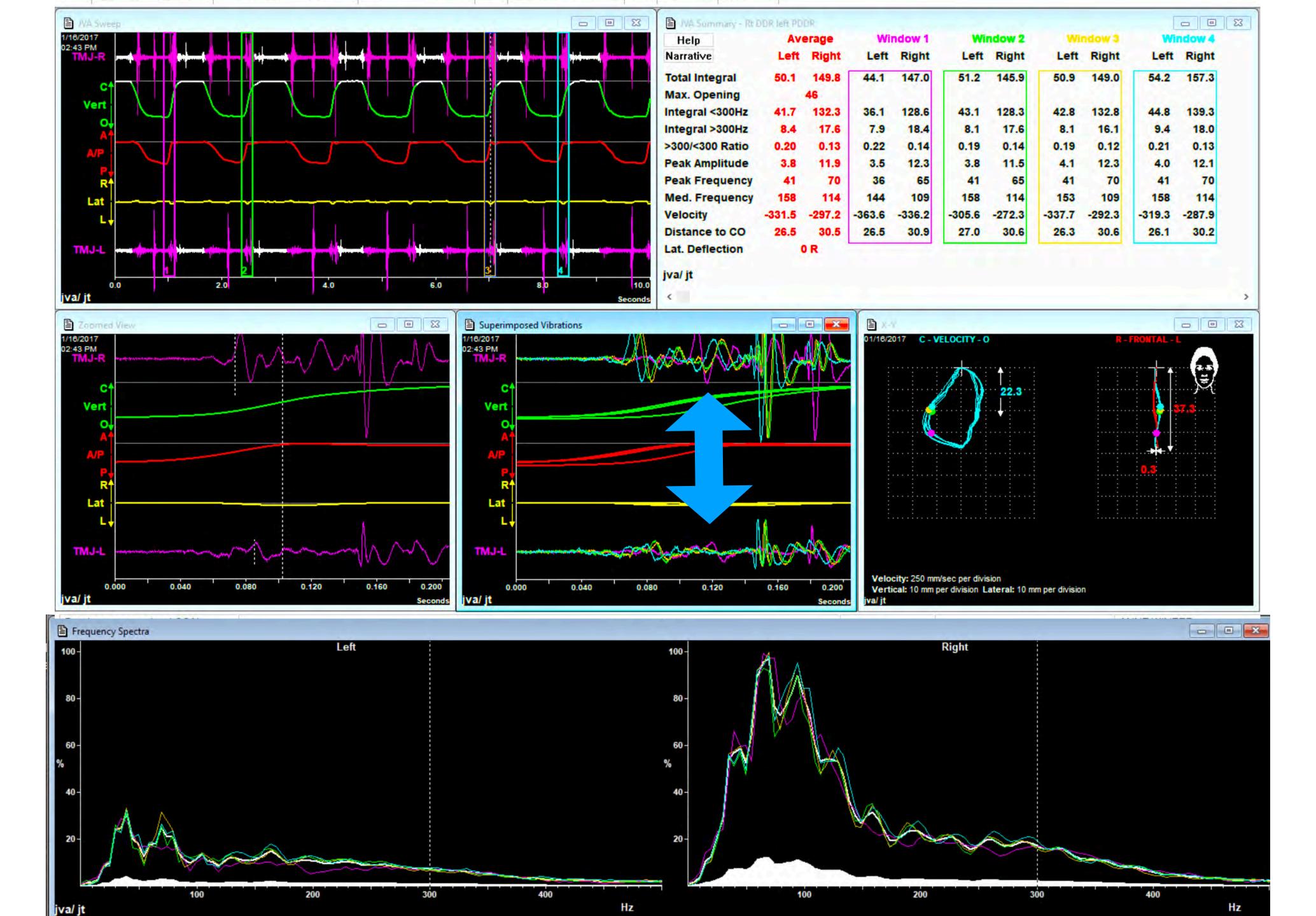




Destruction due to a hit and slide Joint unstable



Biting Edge



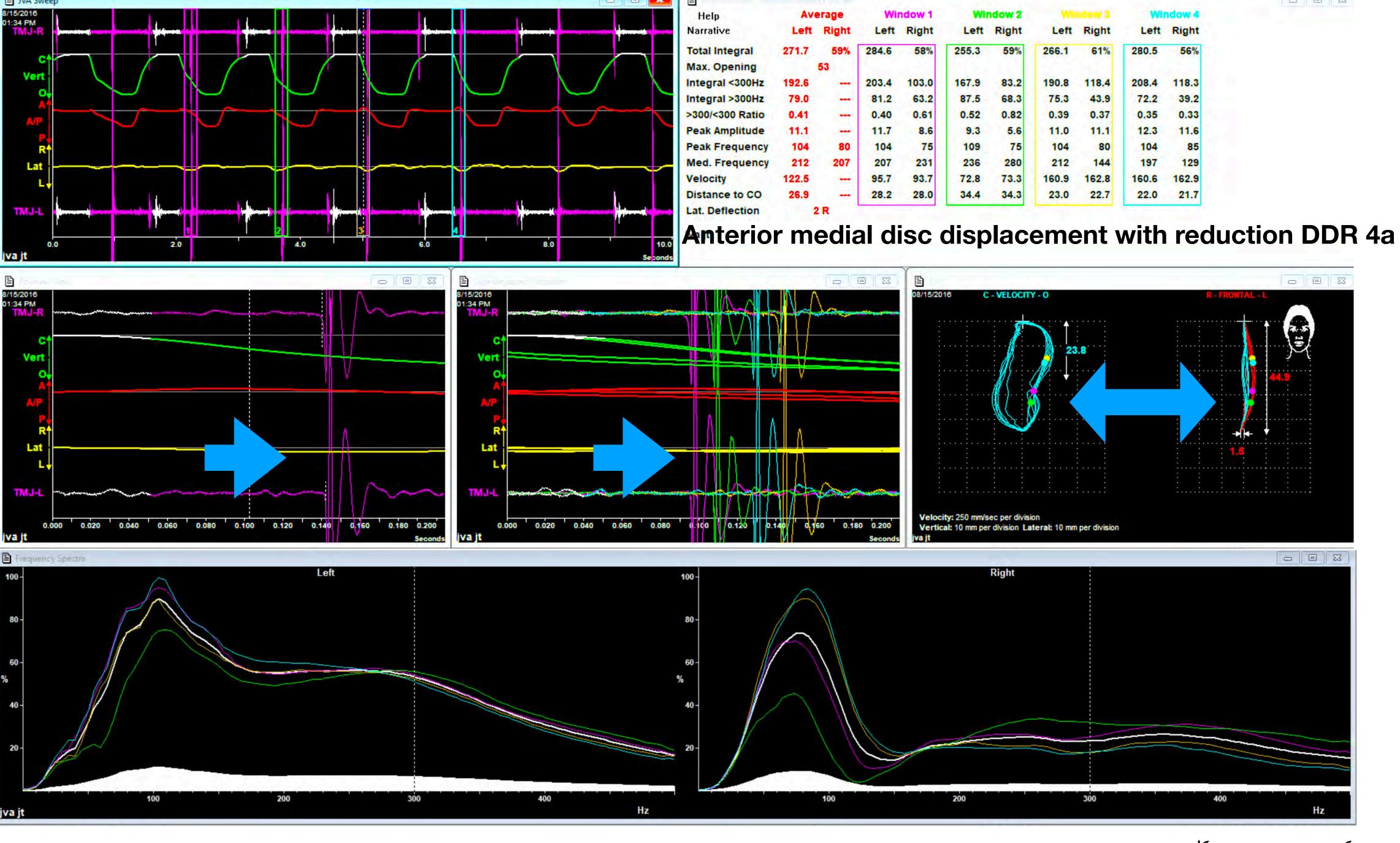




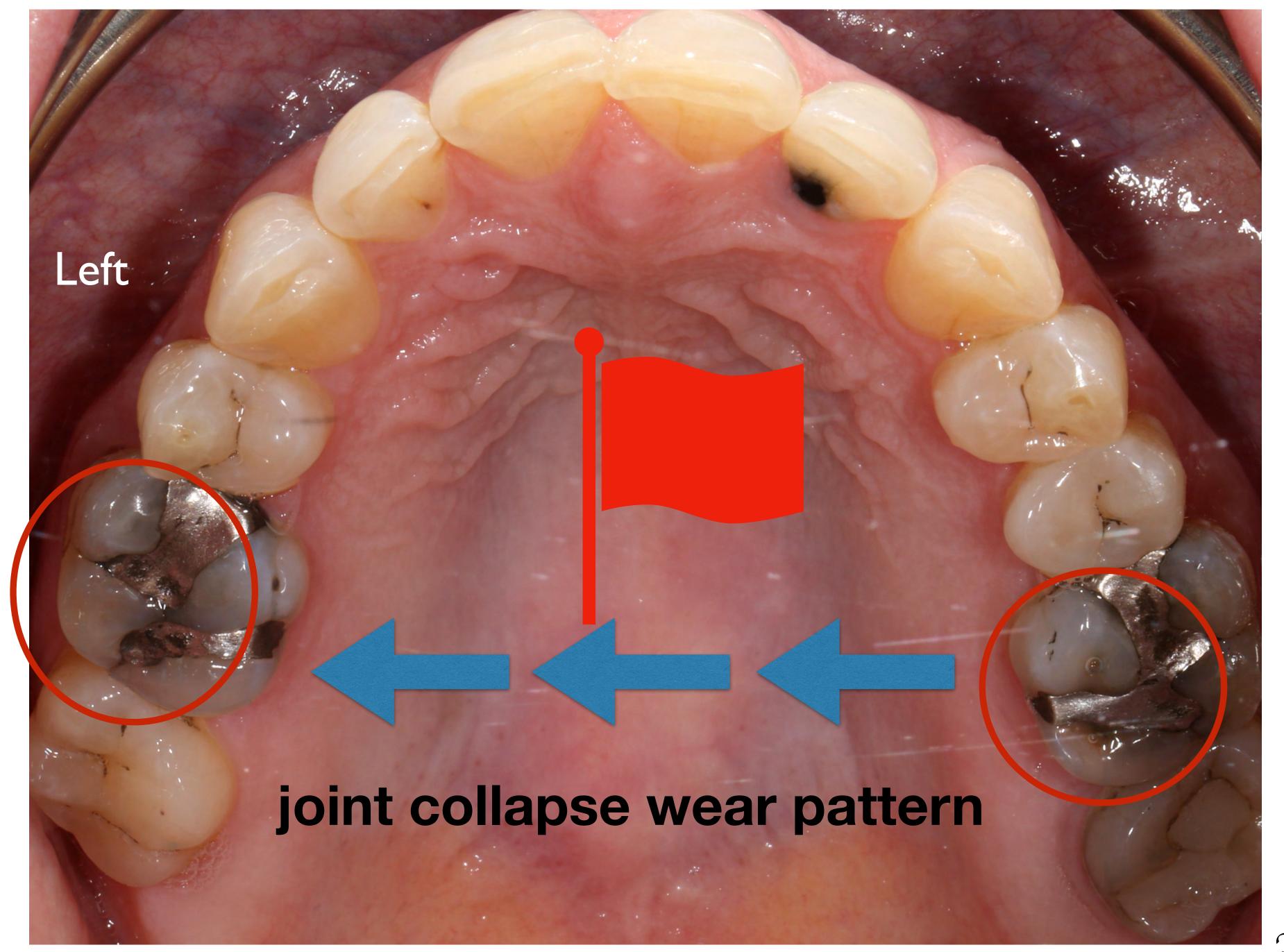
The Biting $Edge^{TM}$



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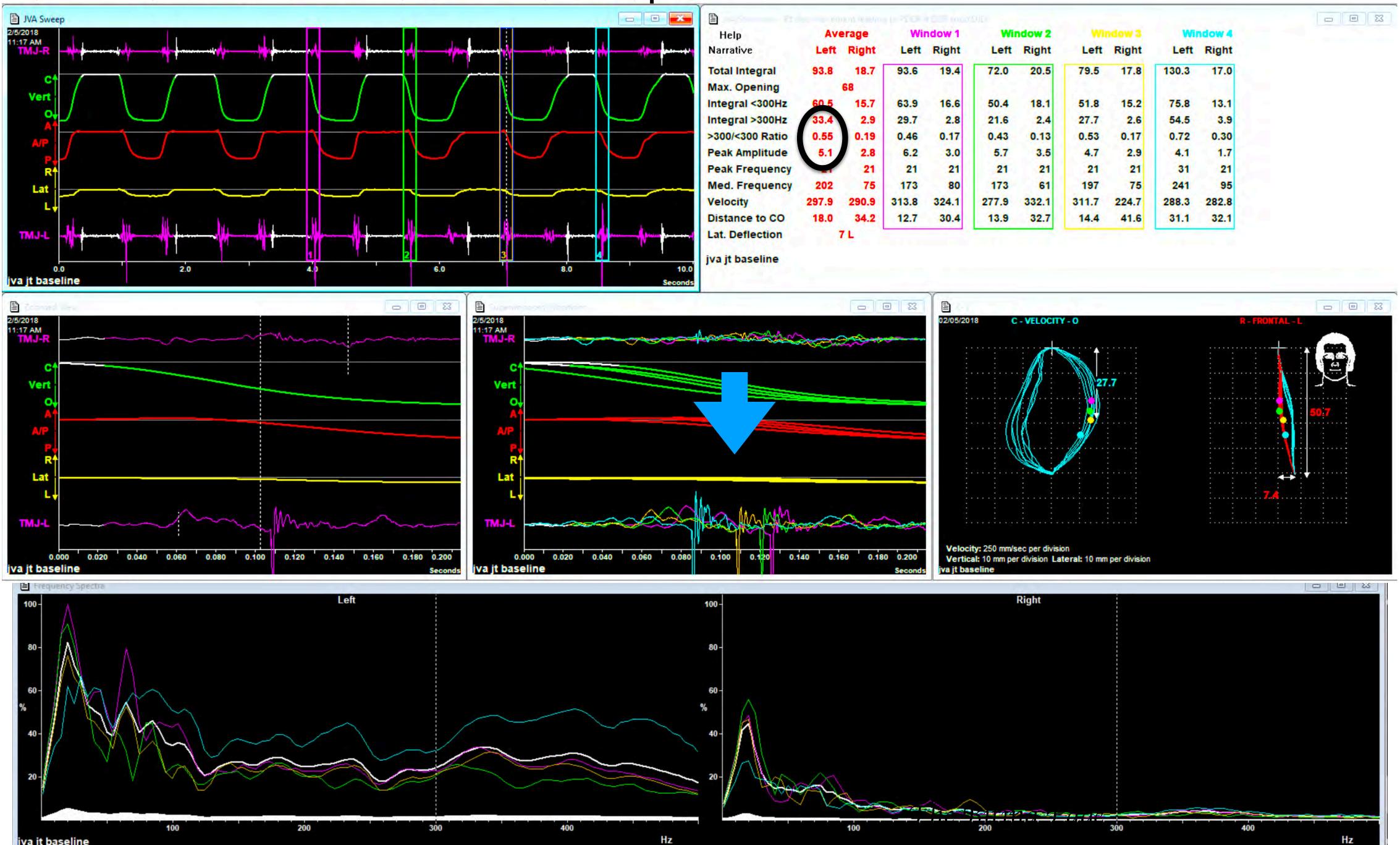
The Biting Edge TM



The Biting EdgeTM



DD with perforation 5a



Cant's with wear



When do you start Treatment What do you do?

Data Analysis, Goals, Diagnosis

Pain - Function - Findings

Pain no Pain

Muscle - Joint

Wear no Wear

Day vs Night treatment or both

Modalities Needed Referral for PT, Chiro, Cranial Sacral, Surgery OS, ENT, MYO

PROACTIVE APPROACH

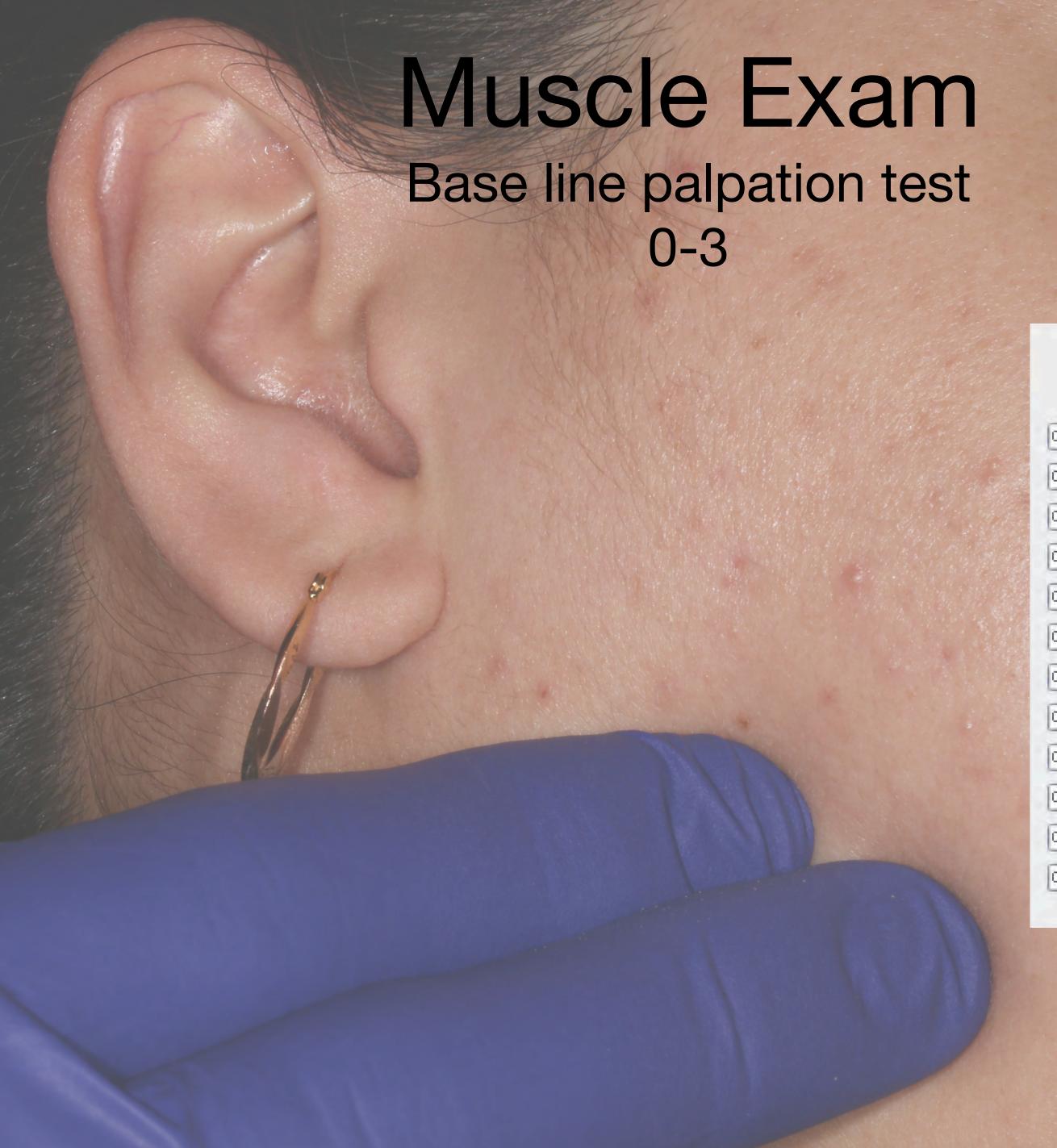
Patients already in your practice

When do I start treatment?

Signs, Symptoms, Change

Establish a baseline

Early treatment is always better to reduce symptoms and establish a healthier condition **Stop patients from hurting themselves**

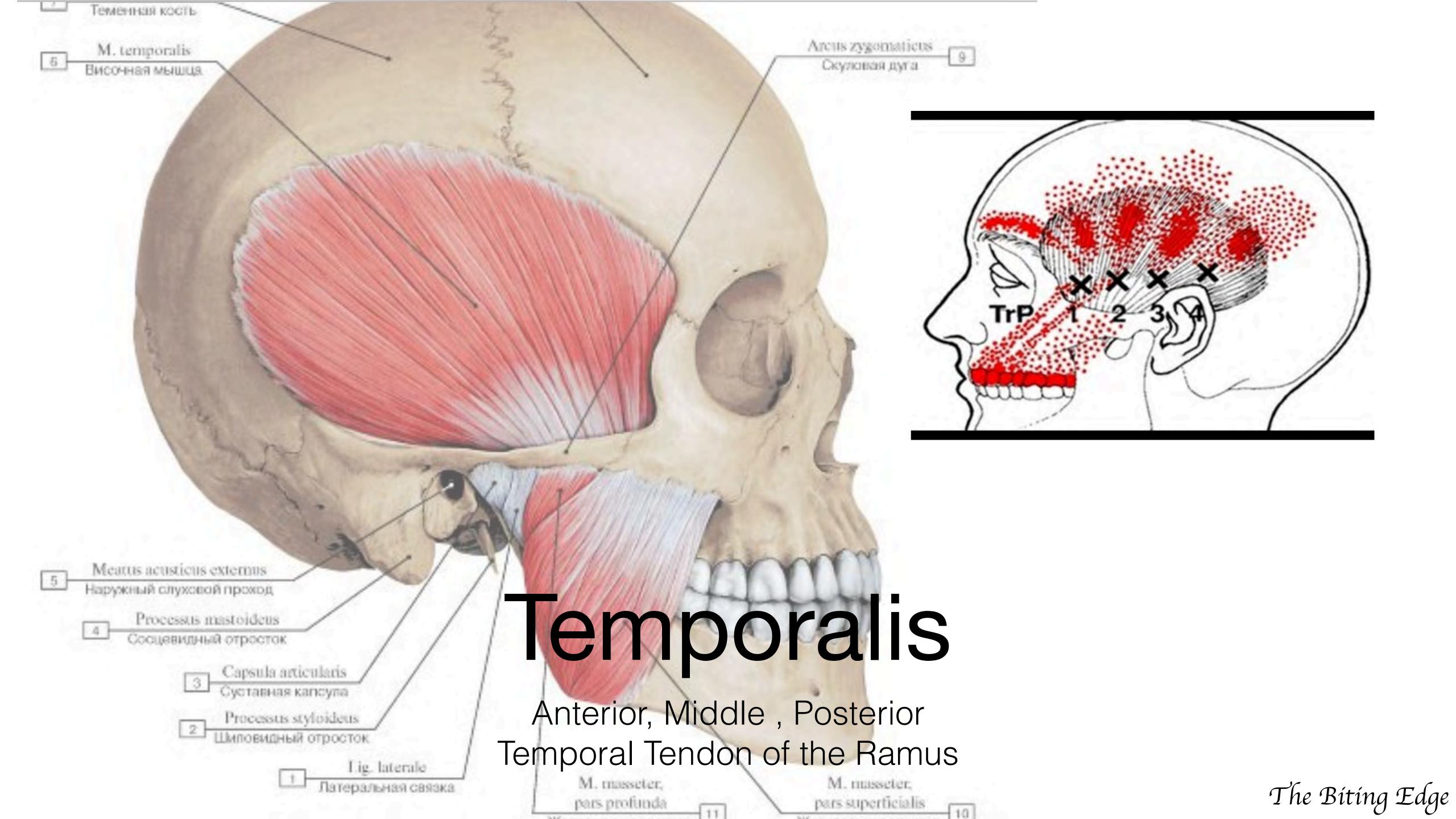


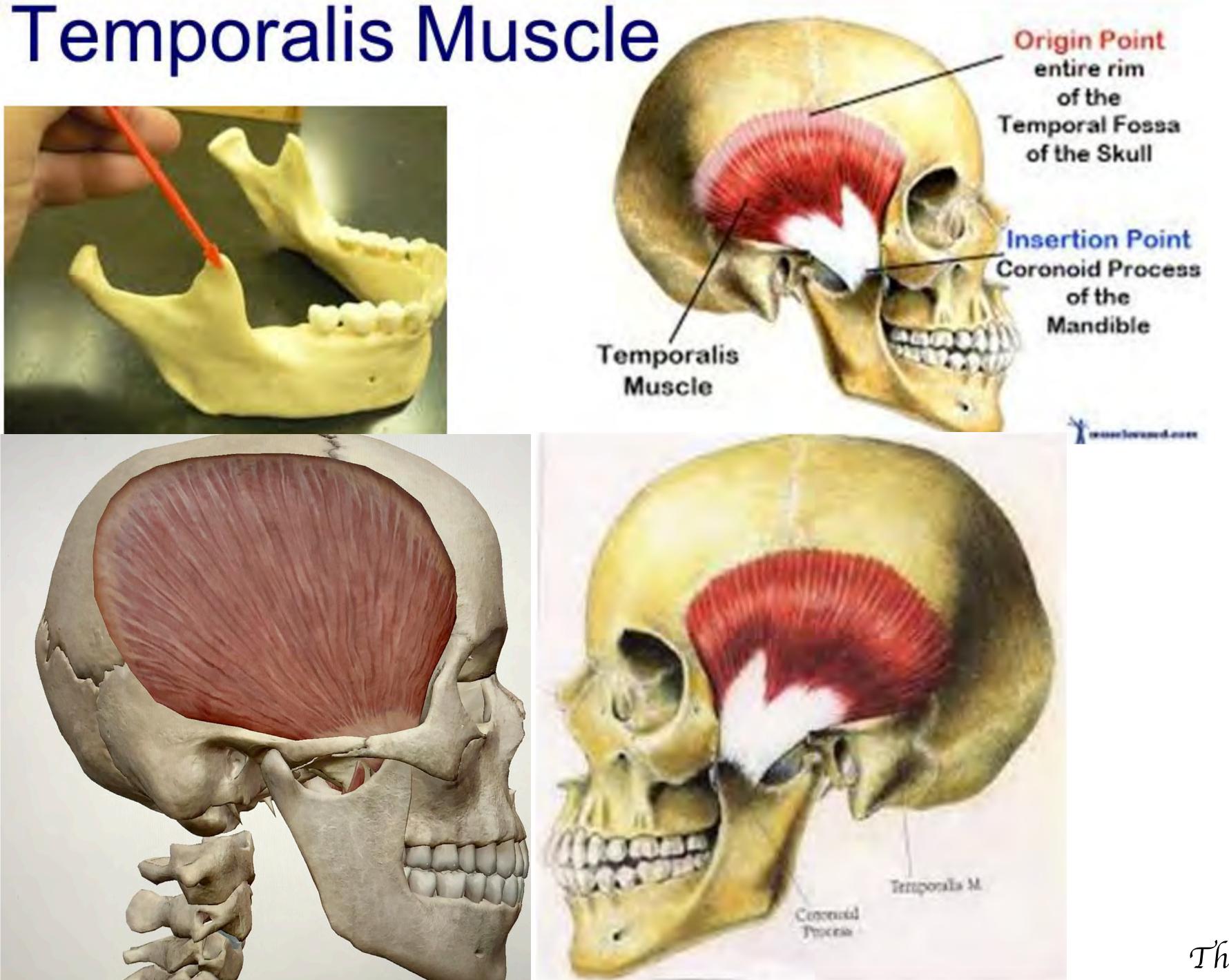
Existing Recall Basic 3

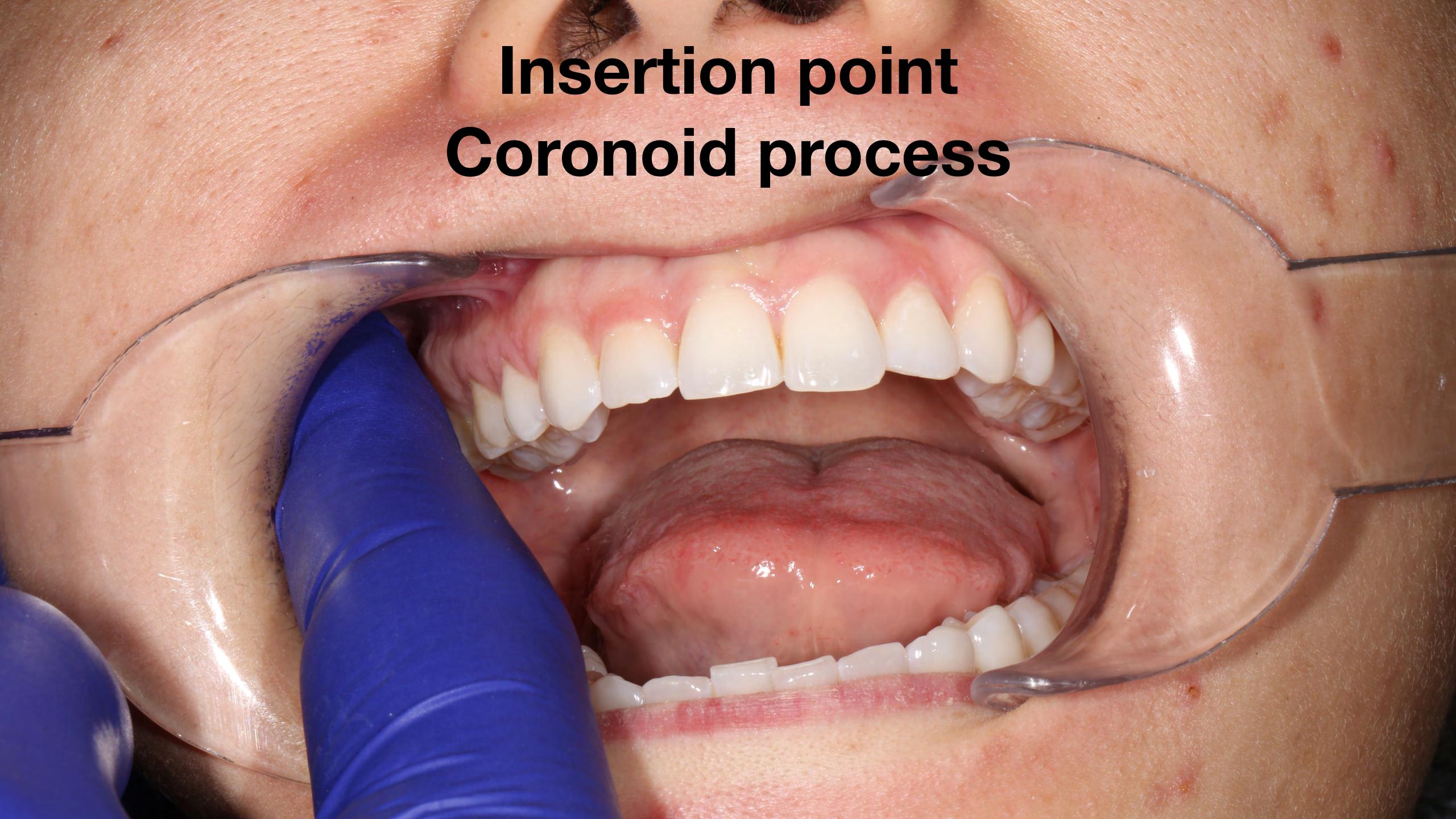
T.M. Eval complete list

Muscle Palpation							
	0: No Tenderness		1: Mild Tenderness	2: Moderate Pain		3: Severe Pain	
	<u>Left</u>	Right		<u>Left</u>	Right		
	0123	0123	Anterior Temporalis	0123	0123	Temporal Tendon	
	0123	0 1 2 3	Middle Temporalis	0 1 2 3	0123	Medial Pterygoid	
	0123	0123	Posterior Temporalis	0123	0123	Buccinator Origin	
	0123	0123	Lateral TMJ Capsule	0 1 2 3	0123	Buccinator Insertion	
	0123	0123	Posterior Joint Space	0123	0123	Pre-Auricular Region	
	0123	0123	Deep Masseter	0 1 2 3	0123	Greater Cornu of the Hyoid Bone	
	0123	0123	Superficial Masseter	0123	0123	Greater Occipital	
	0123	0123	Stylomandibular Ligament	0123	0123	Lesser Occipital	
	0123	0123	Anterior Digastric	0123	0123	Levator Scapulae	
	0123	0123	Sternocleidomastoid	0123	0123	Posterior Digastric	
	0123	0123	Occipital	0123	0123	Lateral Pterygoid	
	0123	0123	Trapezius Neck Area				
	□ Within Normal Limits						

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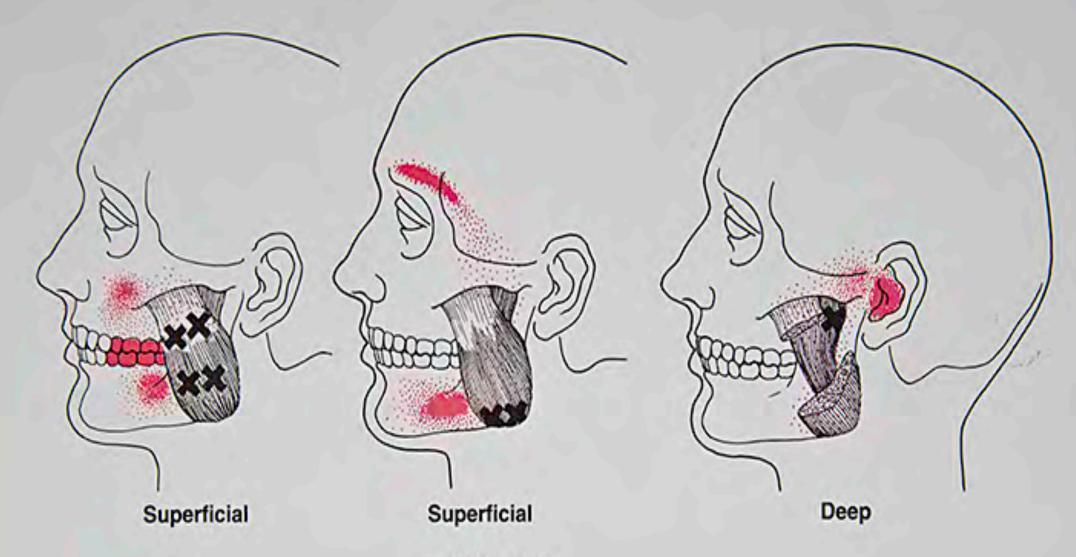




Middle

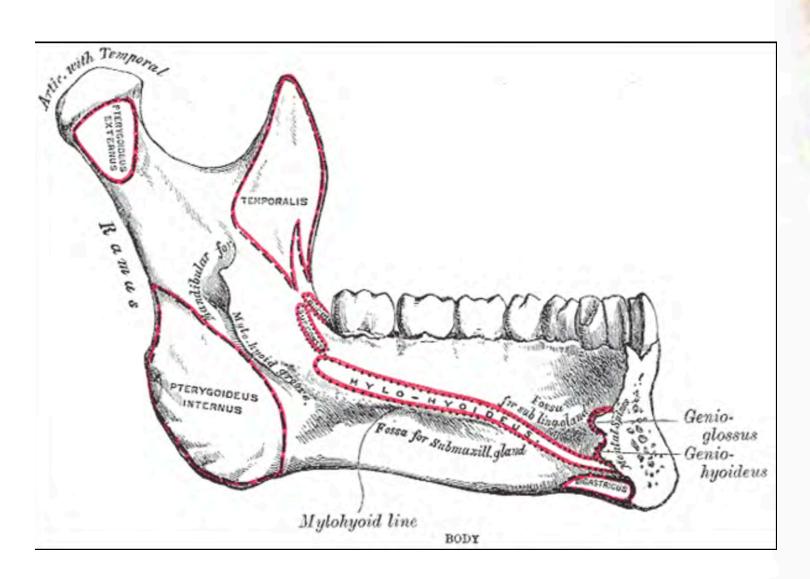


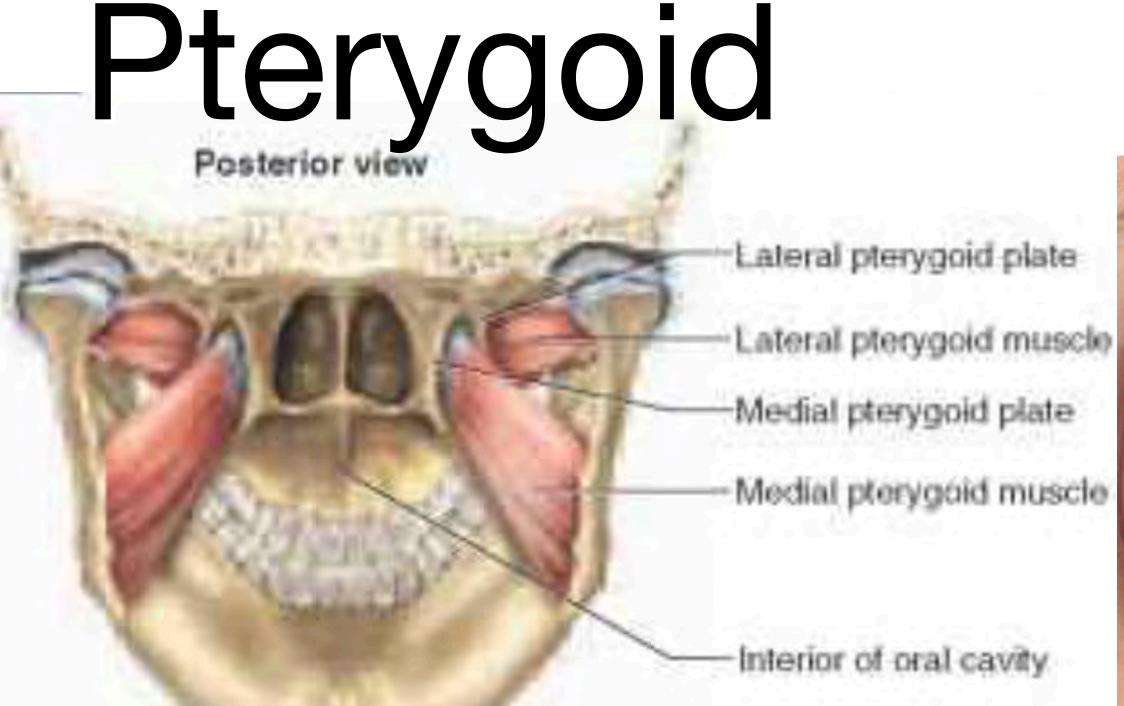
Masseter Superficial and Deep

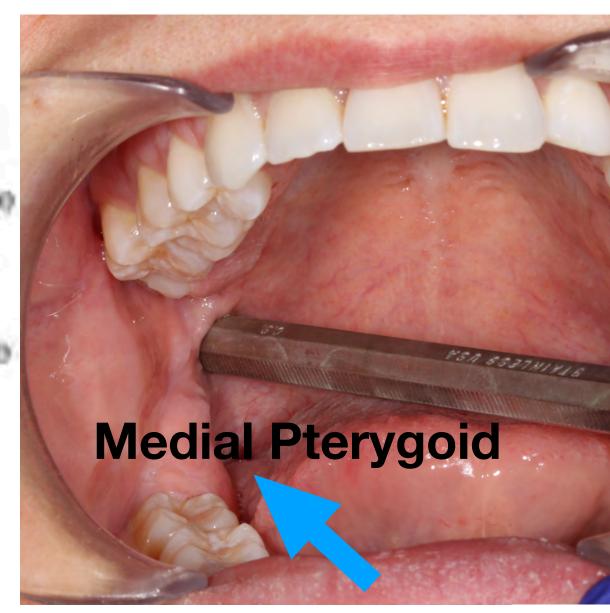


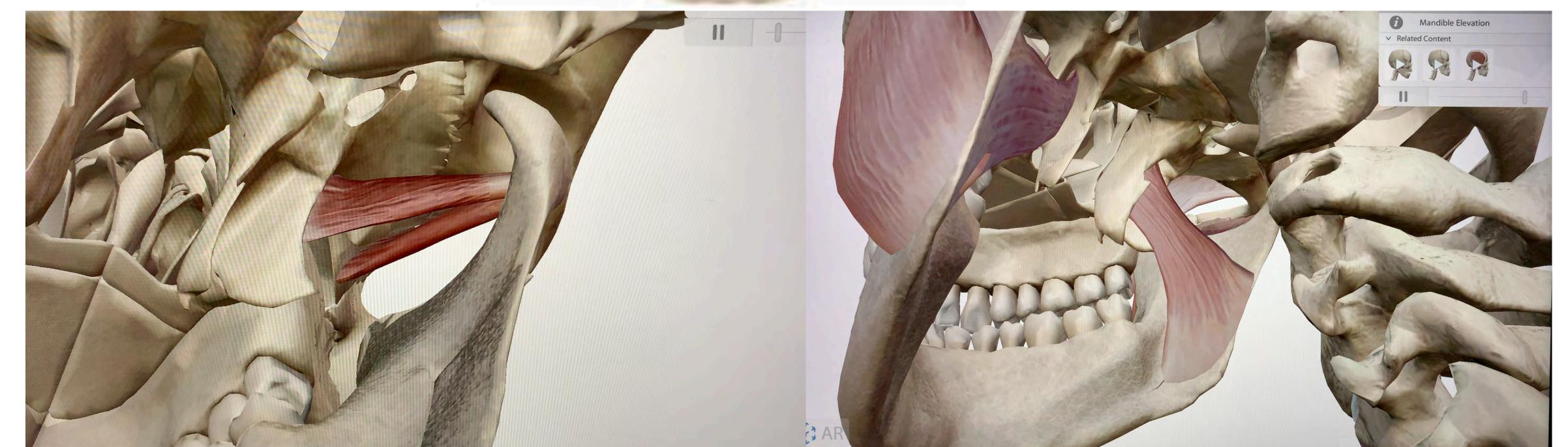
MASSETER

Xs locate trigger points in various parts of masseter muscle. Solid red shows essential referred pain zones; stippled areas are spillover pain zones. Left, superficial layer, upper portion and mid-belly. Center, superficial layer, lower portion. Right, deep layer, upper part, just below temporomandibular joint. [V.1Fig8.1] Lateral and Medial Medial is easier to palpate









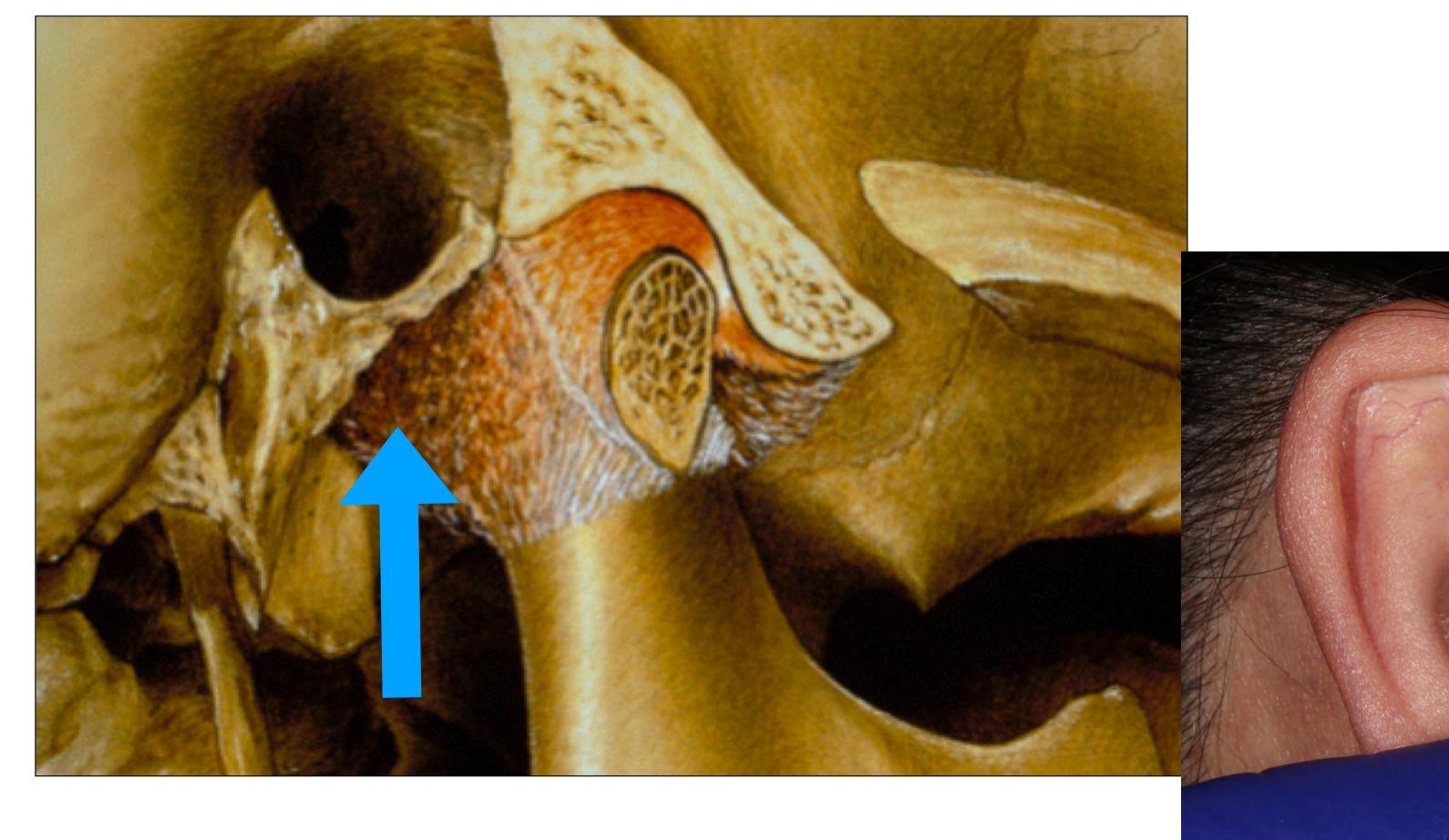
Stylomandibular/ Stylohyoid



Lateral Pole



Retrodiscal Tissue





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What about the popping and clicking

- When the disc dislocates and recaptures it makes noise
 - Dislocate on close recapture on open
- The position and sound that occurs helps with the diagnosis click - pop - crepitus
- Range of motion also gives us pathology guidance
- Early recapture and late dislocation is usually easier to treat. Closer to tooth contact
- Less restriction in motion is better
- When in doubt treat to the greater problem
- Think what happens to occlusion as the disc dislocates on closure, change in tooth contacts and position

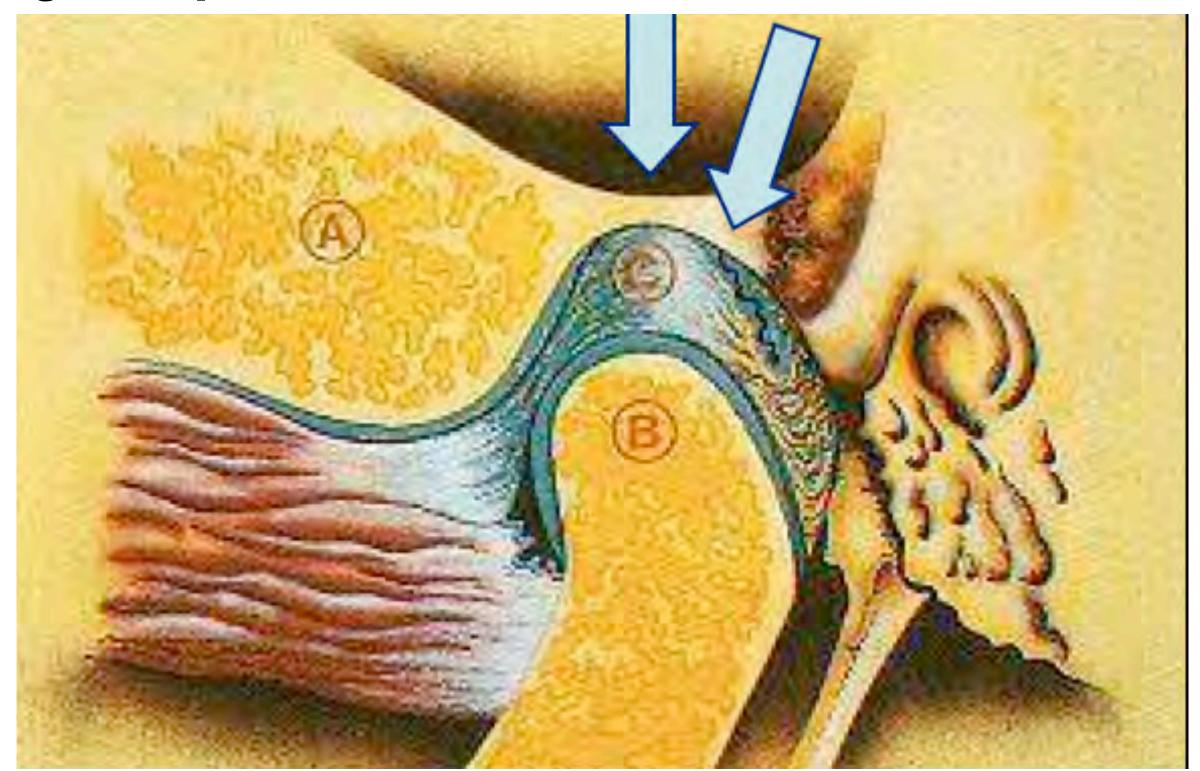




Joint Considerations

Highest point of the fossa

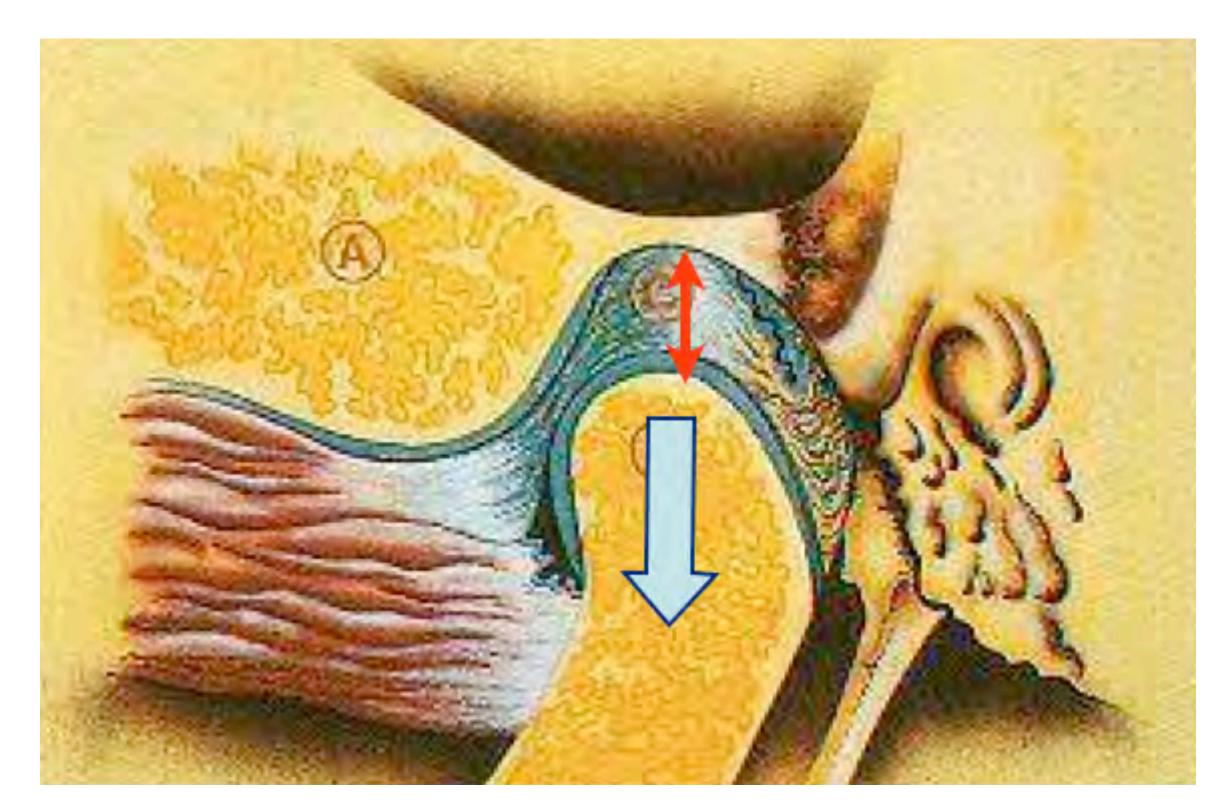
Posterior band slightly distal



If the posterior band moves anterior what happens to the dimension between the condyle and the fossa?

The Joint is the first and last determinant of occlusion

Joint Considerations

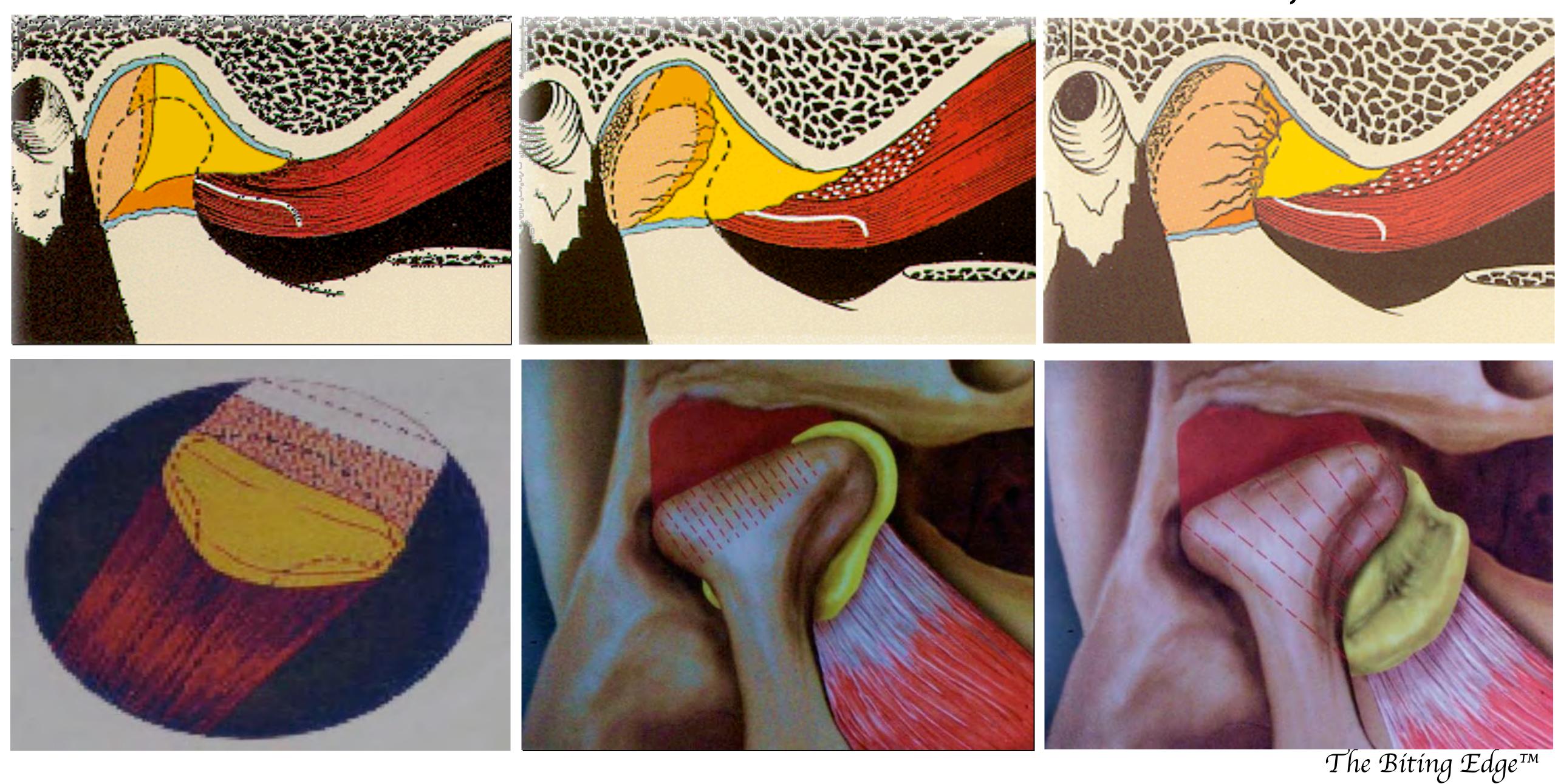


When vertical space in the TM joint increases, the condyle/ mandibular fossa space increases What happens to the occlusion?

After occlusion the joint is also the last determinate of occasion

Normal

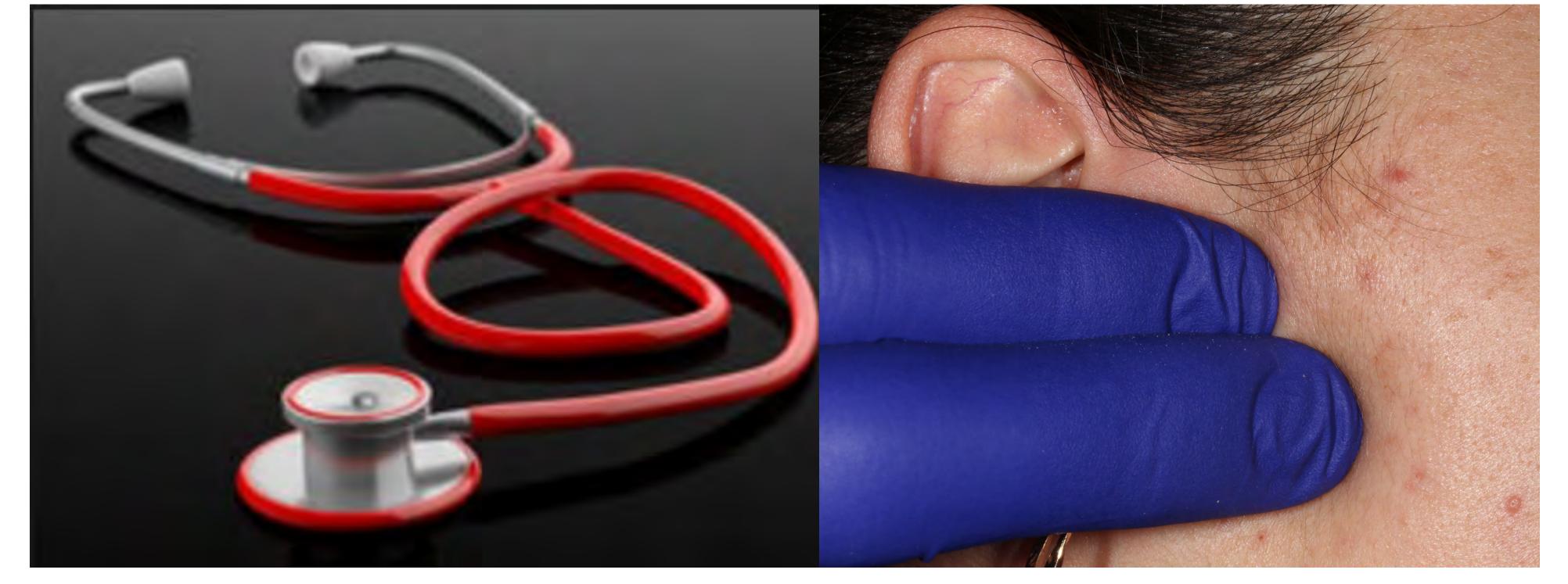
Partial Disc Displacement Complete Disc Displacement 3a, 3b 4a, 4b



How Are We Screening The TMJ

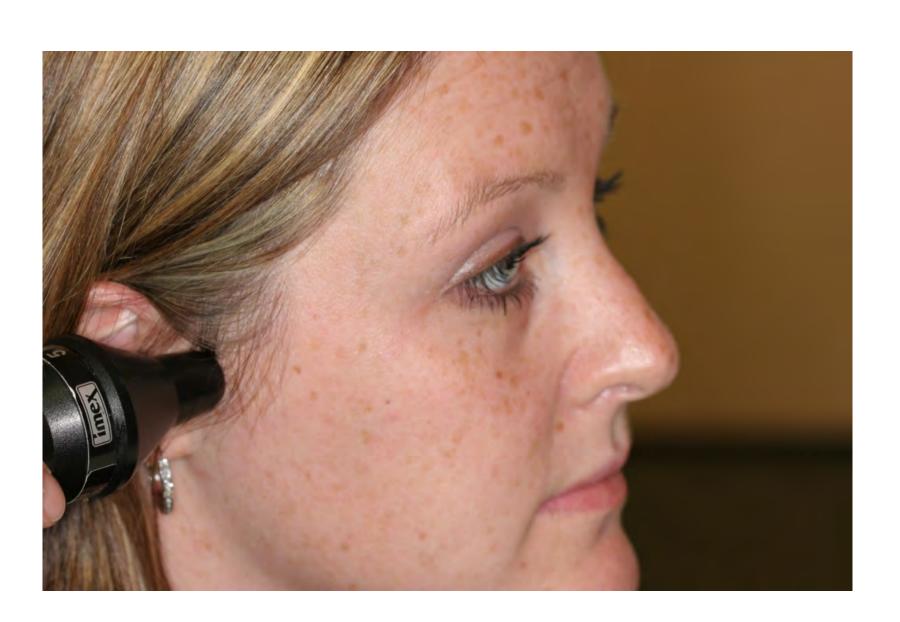
Overlook, failure to notice - None Dr. observation and questions Questionnaire, TMJ scale Patients observations Look, listen, feel Stethoscope Doppler X-rays, CT, MRI JVA, Biometrics

How do we determine a healthy joint? What does this tell you about the Joint? ANATOMAGE 20120807



- Christianson, Mckay, et.al
- •<u>Patients</u> with joint sounds/dysfunction were only able to describe the sound in <u>50%</u> of cases, and are <u>not</u> reliable for detection of early TMD
- •Cranio, 1992
- Erikson, et.al.
- •Classify sounds with auscultation (no sound, click, crepitation). Only 14% interobserver agreement
- J. Cranio Disord, 1987
- Hardison & Okeson
- •Poor agreement between patient subjective reporting of sound and clinician assessment by palpation and auscultation.
- •Cranio, 1990

How do we determine a healthy joint?



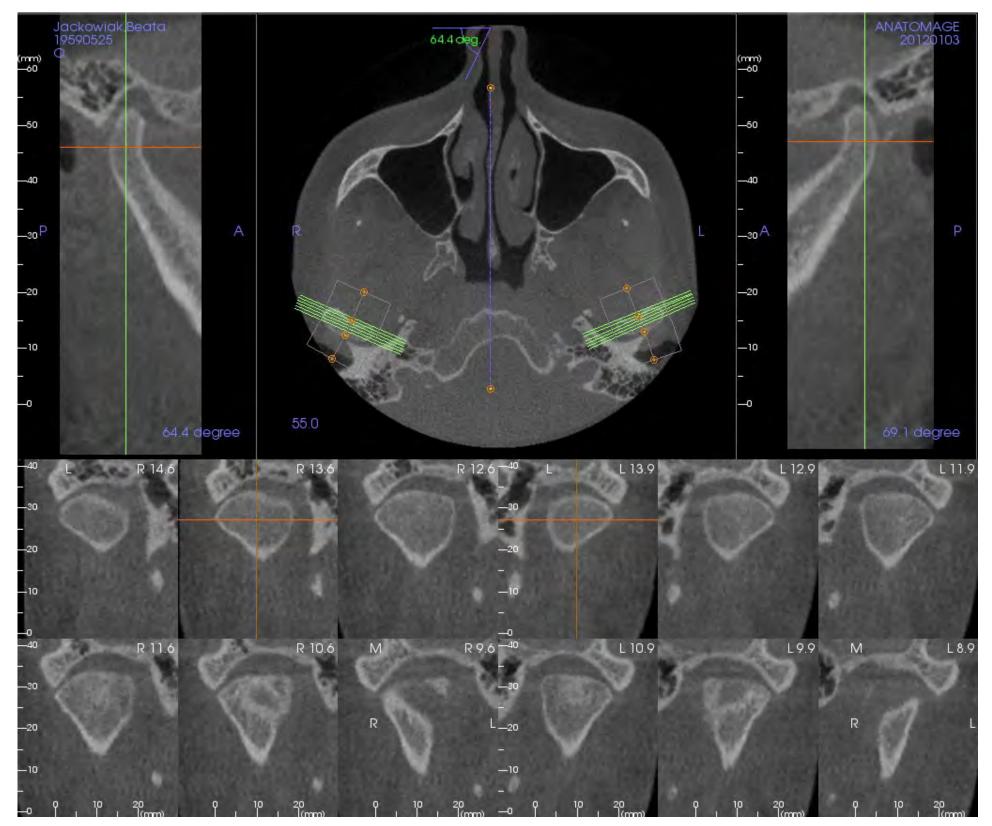


Less than 49% Accuracy

- •In a clinical study of 628 joints in symptomatic patients, using auscultation, palpation and doppler assessing internal derangement, accuracy ratings were less than 49%
- •Brooks, C.P. 8th International Congress of ICCMO, Alberta Canada, Oct 1993

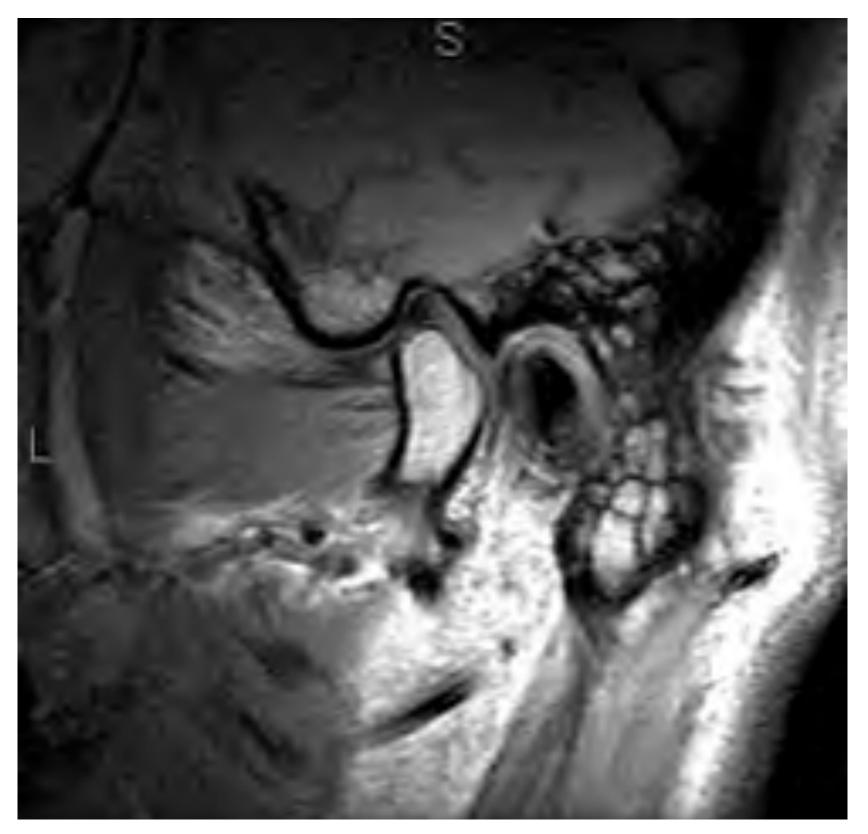
Good for audible sound and patient confirmation Subjective test results

CBCT



Look at structure and 3D position
Hard tissue analysis
Bone or no bone degeneration
What does this show us about soft tissue?

MRI

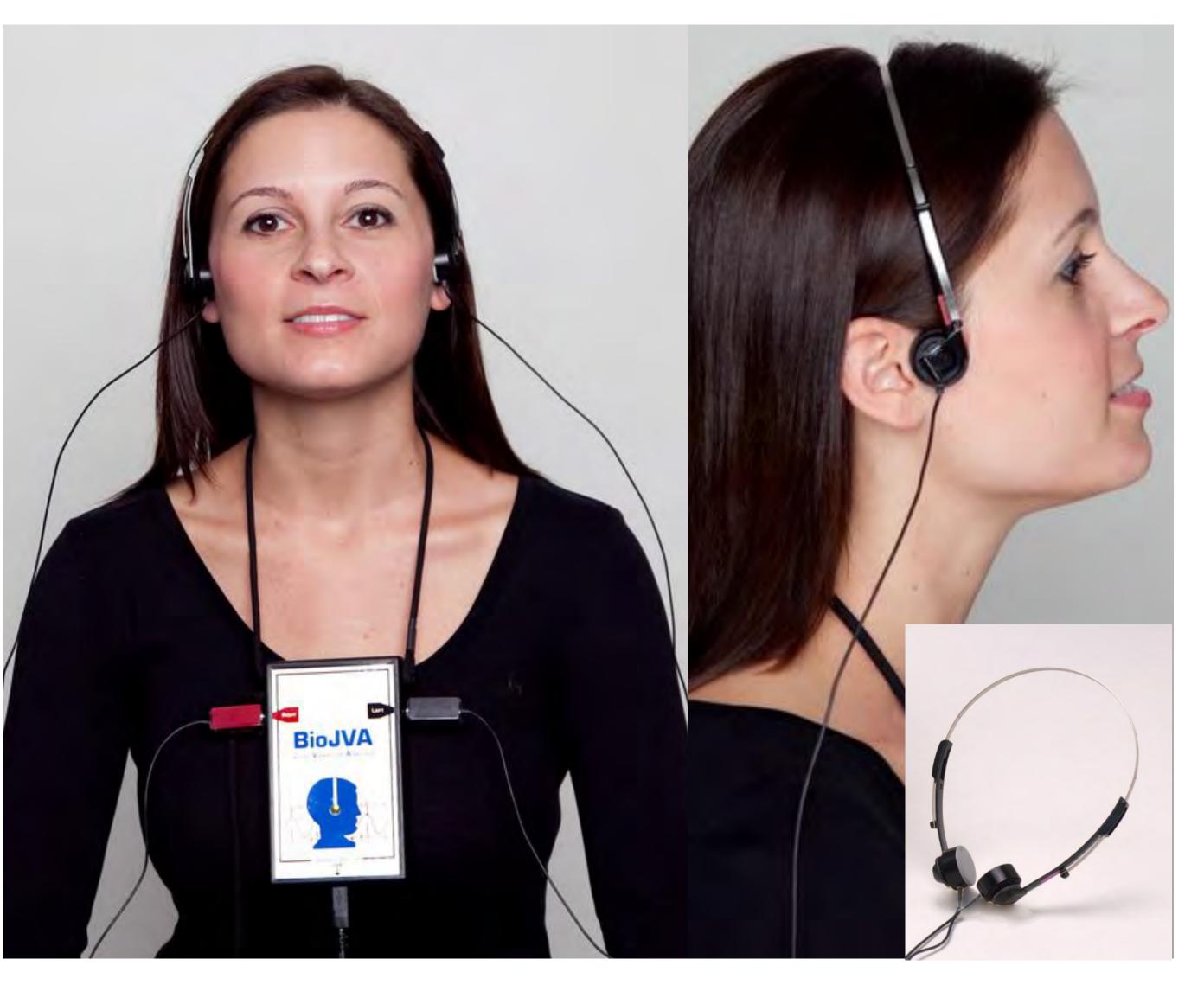


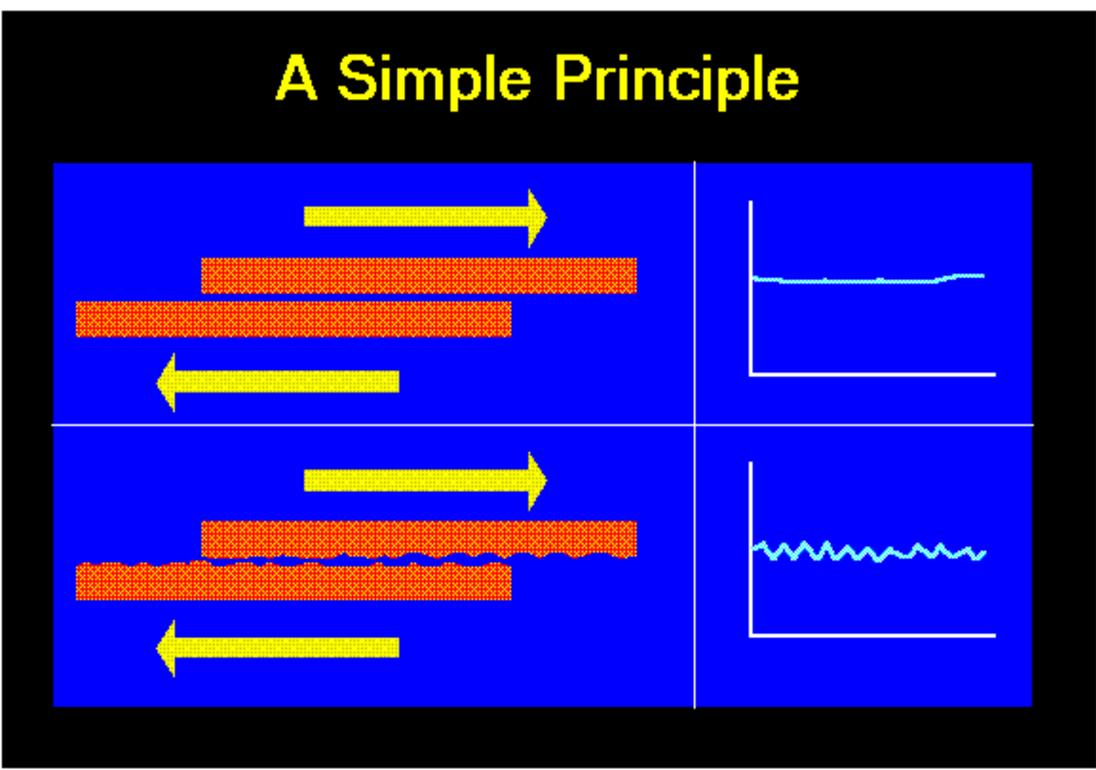
Gold standard Hard to soft tissue density in a static position, detail of joint, ligament and tendon

Expensive longer test time

The Biting Edge

Joint Vibration





JVA operates on a very simple principle of motion and friction

movie



Basic Diagnosis

- Determine what is normal and what is abnormal
- Stages of abnormality
- Can you treat and transform the patient into some degree of normalcy, Joint, Muscle, ROM

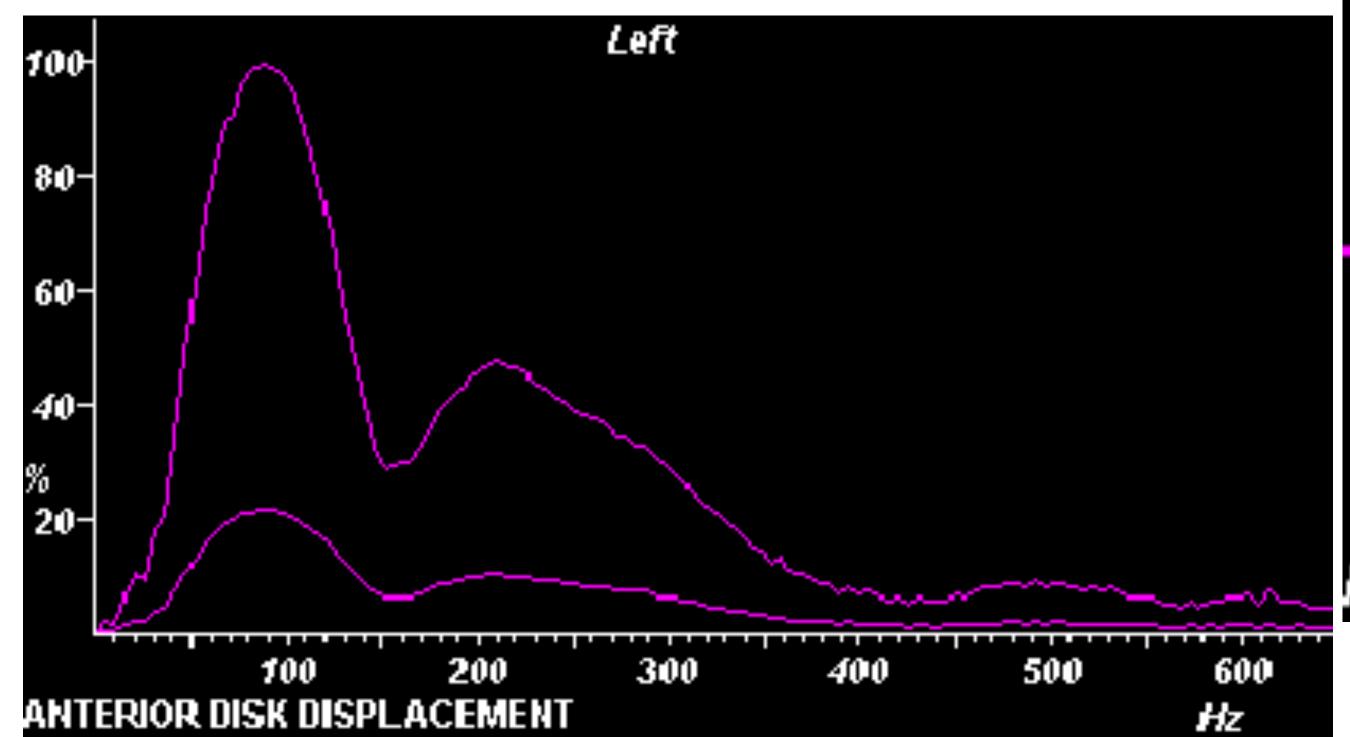
Do you need to treat the muscles, the joint or both Night time only or full time wear

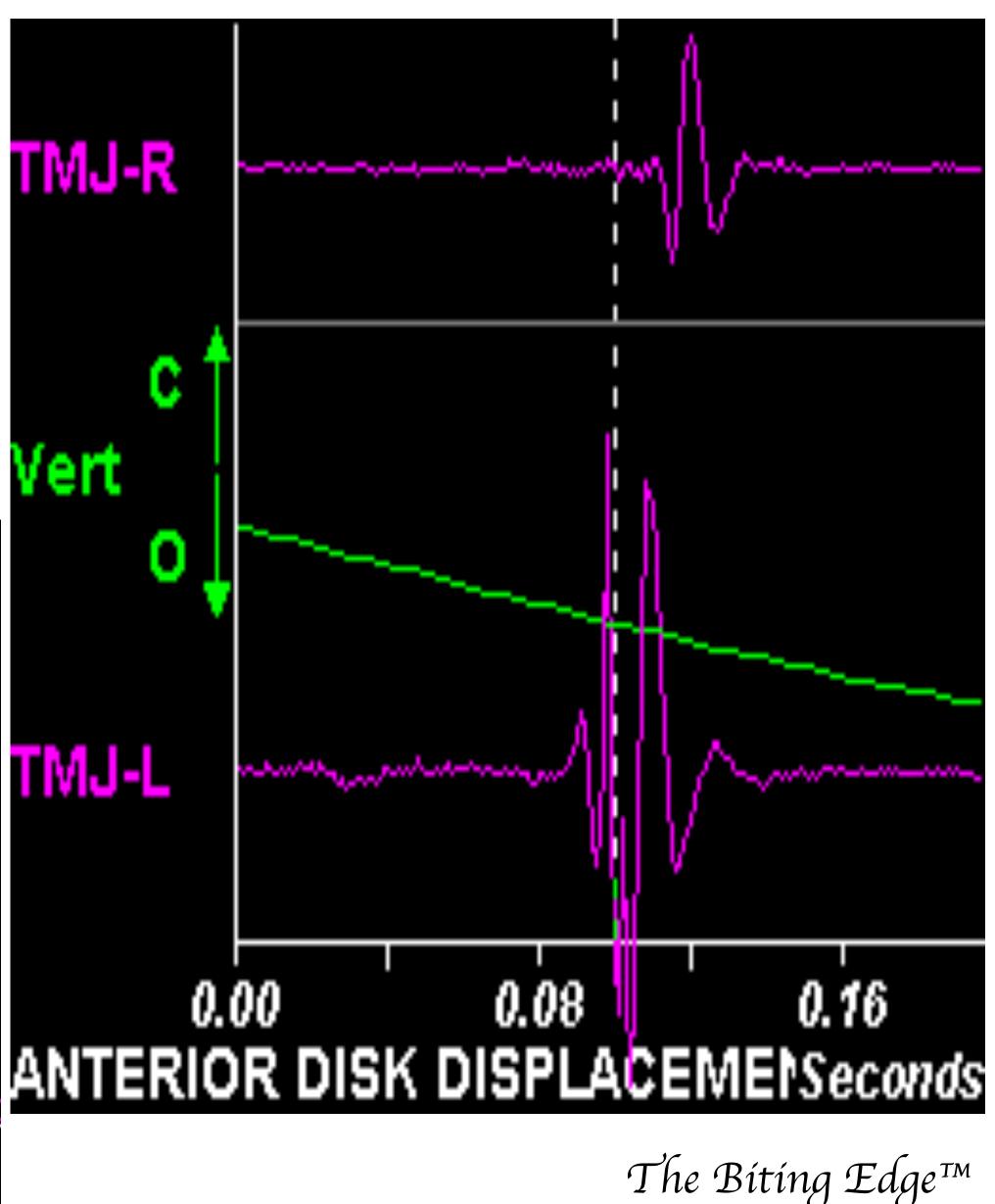
What Are We Looking For

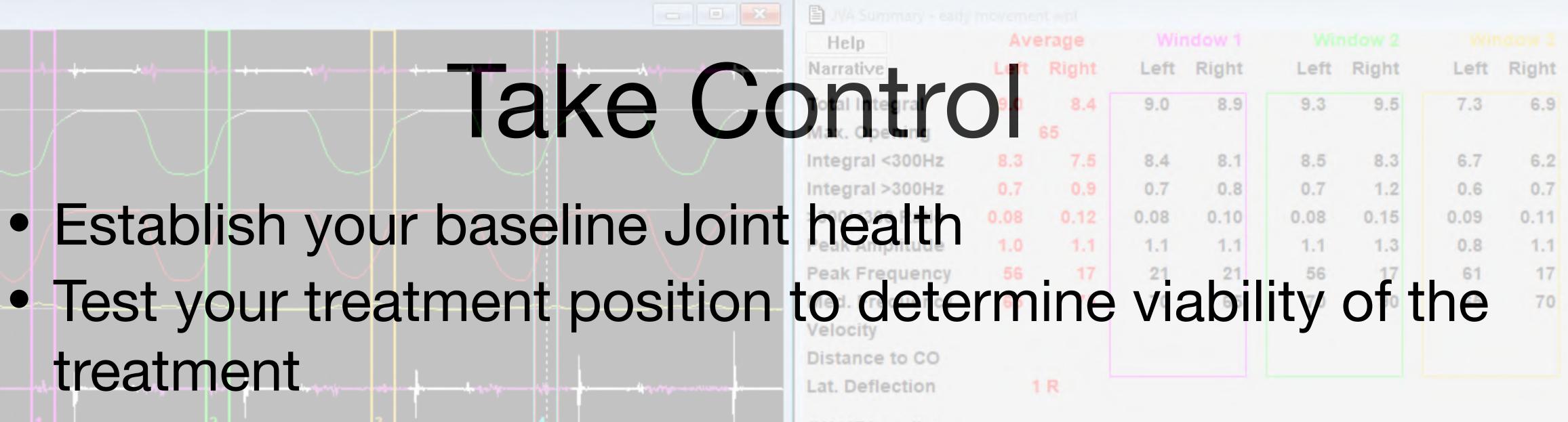
- Normal
- Disc Movement Ligament Laxity DM Piper 2
- · Partial Disc Displacement PDDR Piper 3a, b-non-reduced
- Complete Disc Displacement with Reduction DDR Piper 4a
- Disc Displacement Without Reduction DD 4b
- No Disc, Degeneration DJD Piper 5
- Inflammation
- Occlusal Imbalance
- Muscle Pain / Joint Pain

JVA What are we measuring?

- Amplitude the power of a vibration
- Duration length of time of the event
- Frequency degree of soft / hard tissue involvement







- -Joint, ROM, muscles, inflammation
- Identify if you are going in the best direction to promote healing
- Track and treat for success

treatment

Use your Biometrics in functional testing

JVA/JT baseline

Test existing prior Splints to evaluate effectiveness



What About The Therapeutic Records

Techniques for bite registration are many

How to capture the corrected position

Does the bite position reduce joint friction and improve ROM

Different appliances require certain bite registrations



Bite Position Testing

Composite ball bite index
Apex of Force
Decompressed
Phonetic
CR
NM

Any position you can test!

This is Philosophy Independent



What gives you the best result Retest your therapeutic position to evaluate ROM, and reduction in joint friction

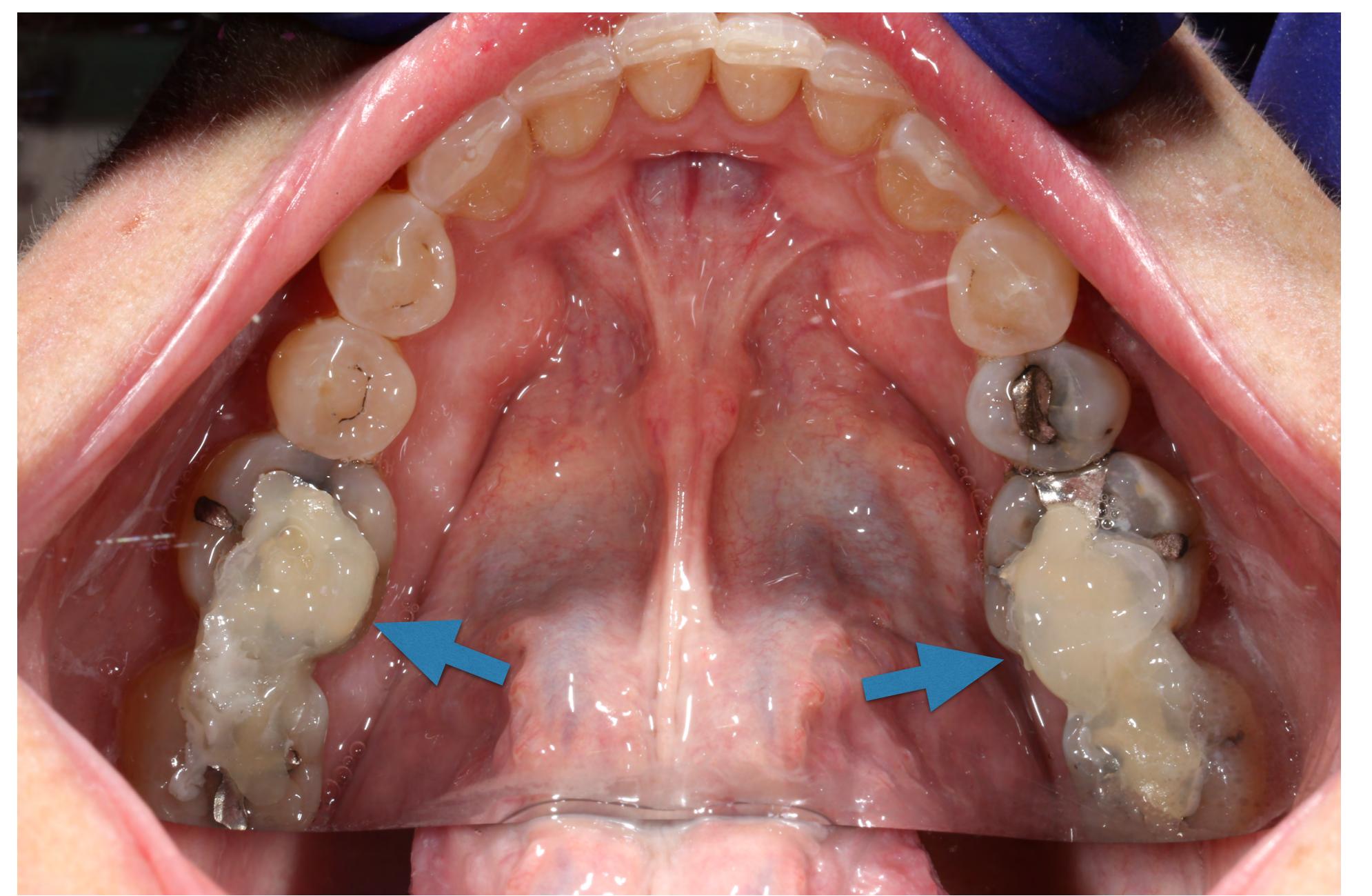


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Composite ball and pad addition to test vertical and remove collapse from the slide Verify your new joint position

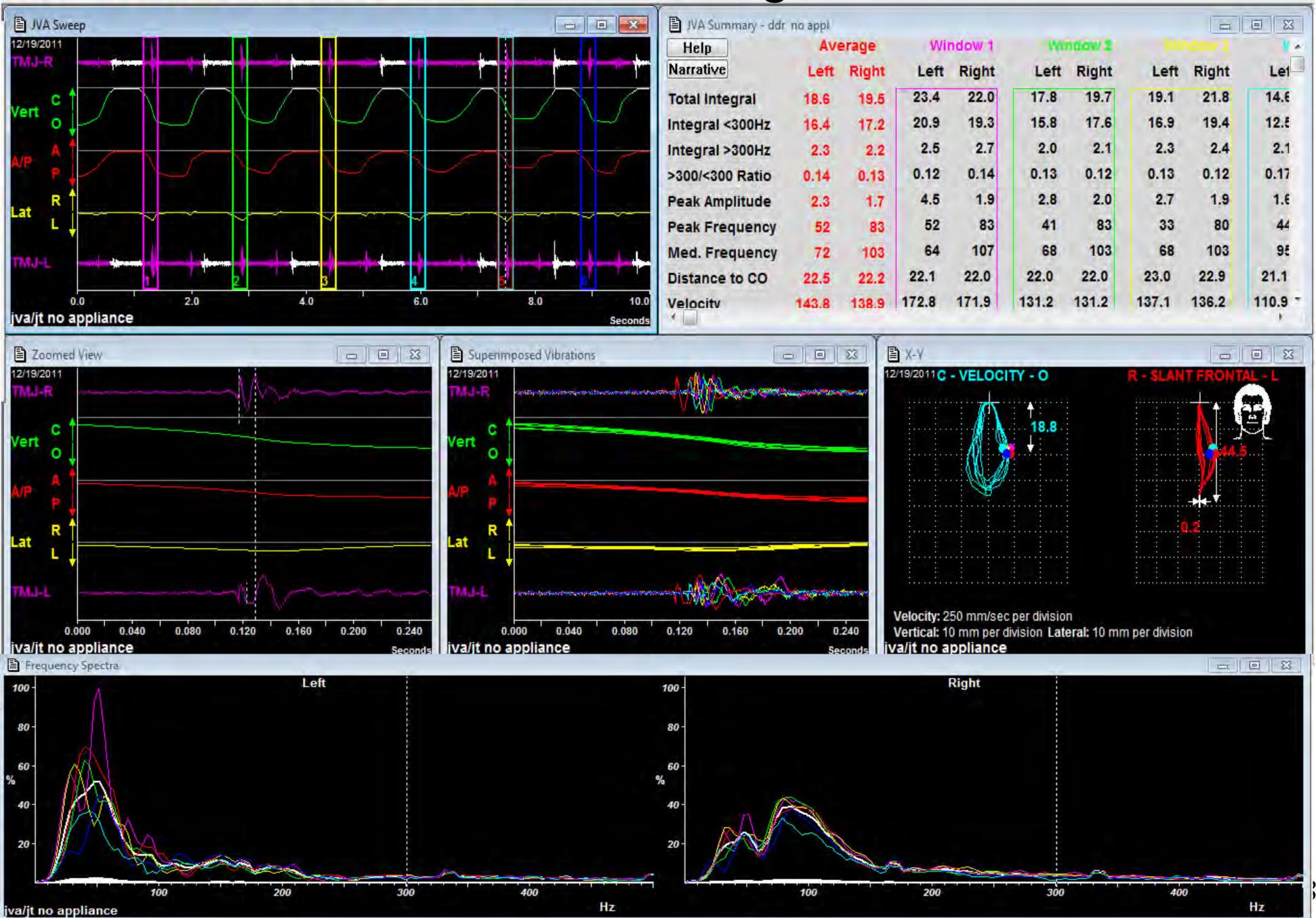


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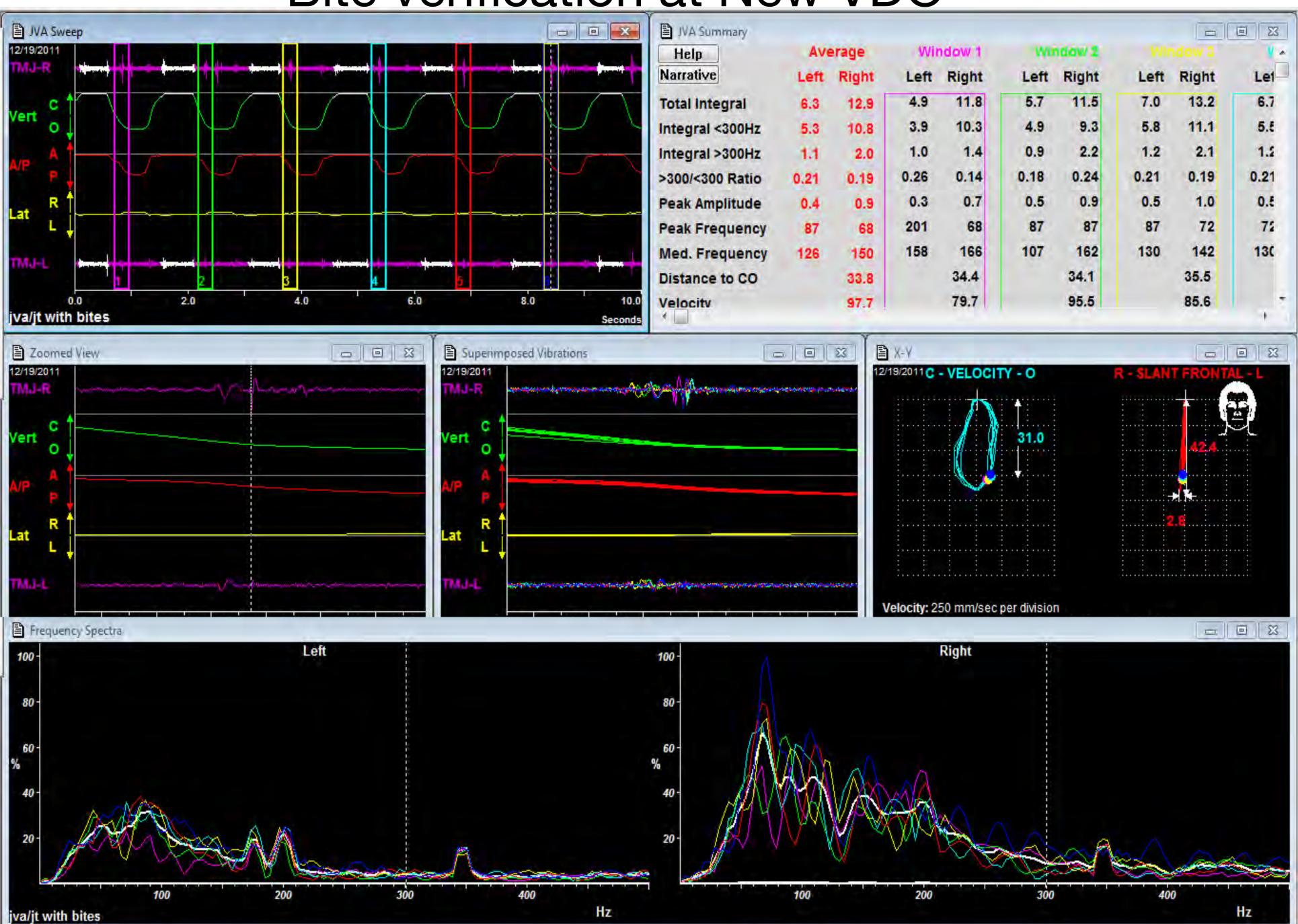
The Biting Edge™

Disc Movement leading to PDDR

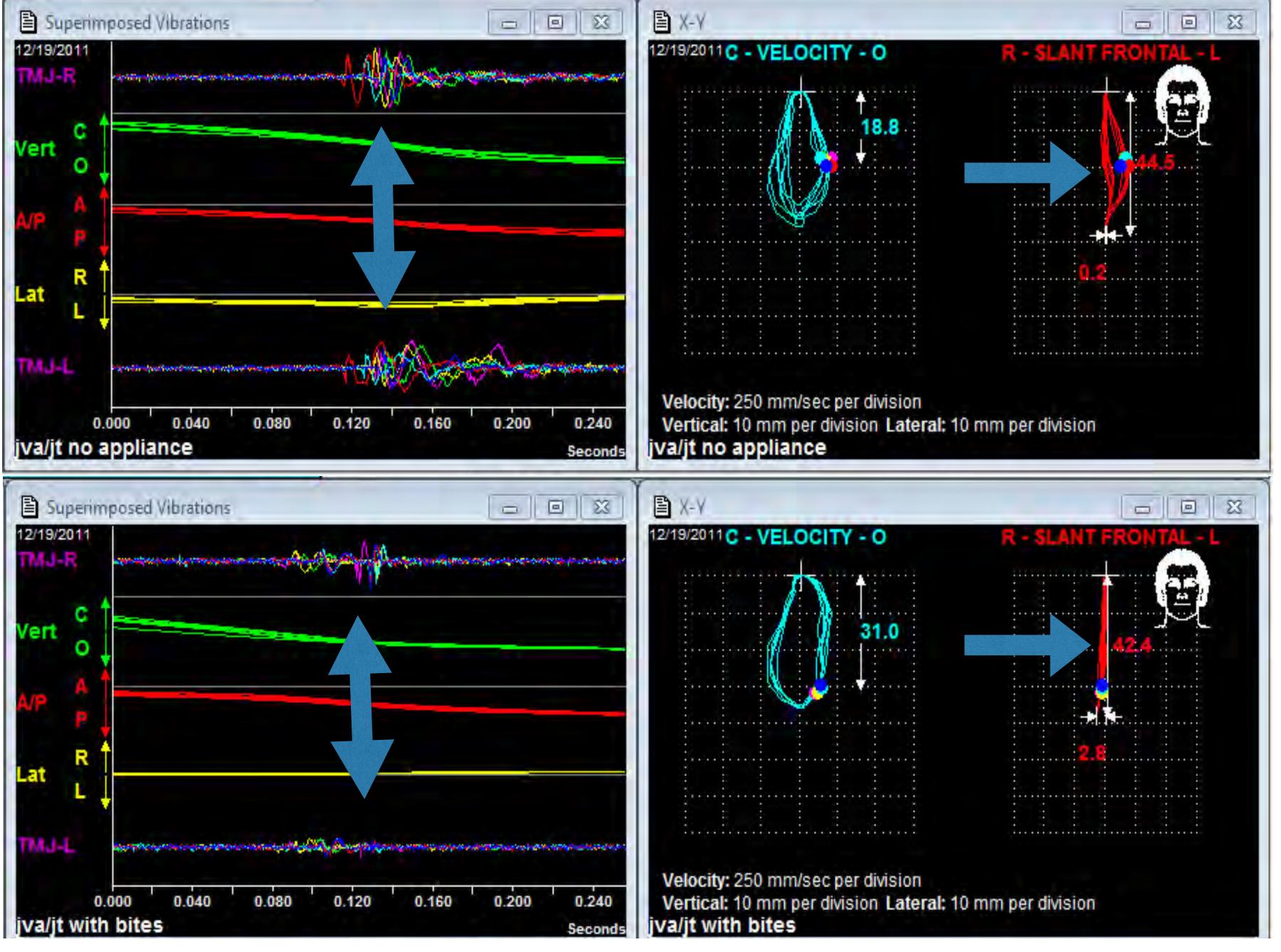


¦iting Edge™

Bite verification at New VDO

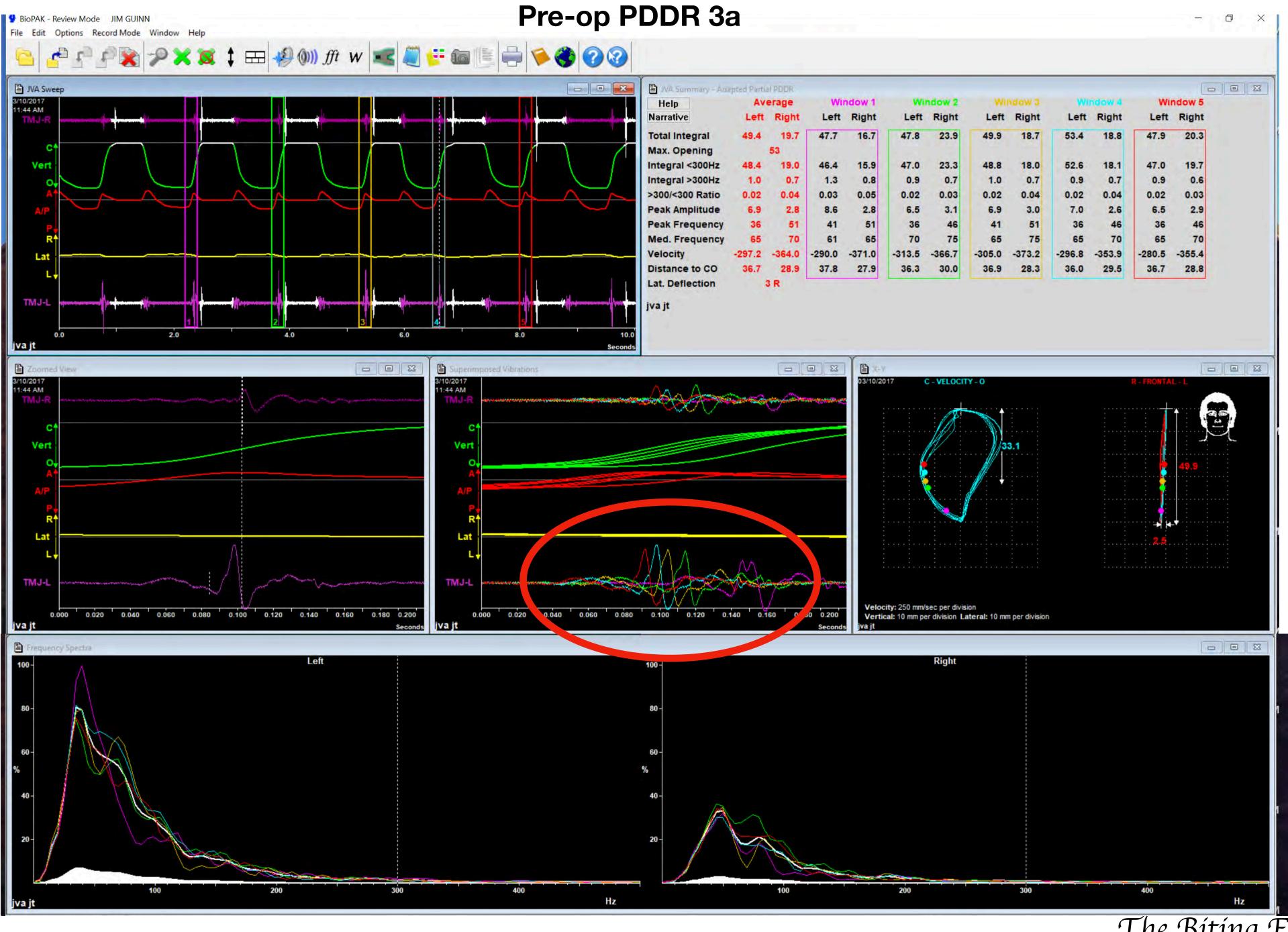


Biting Edge™



The Biting EdgeTM

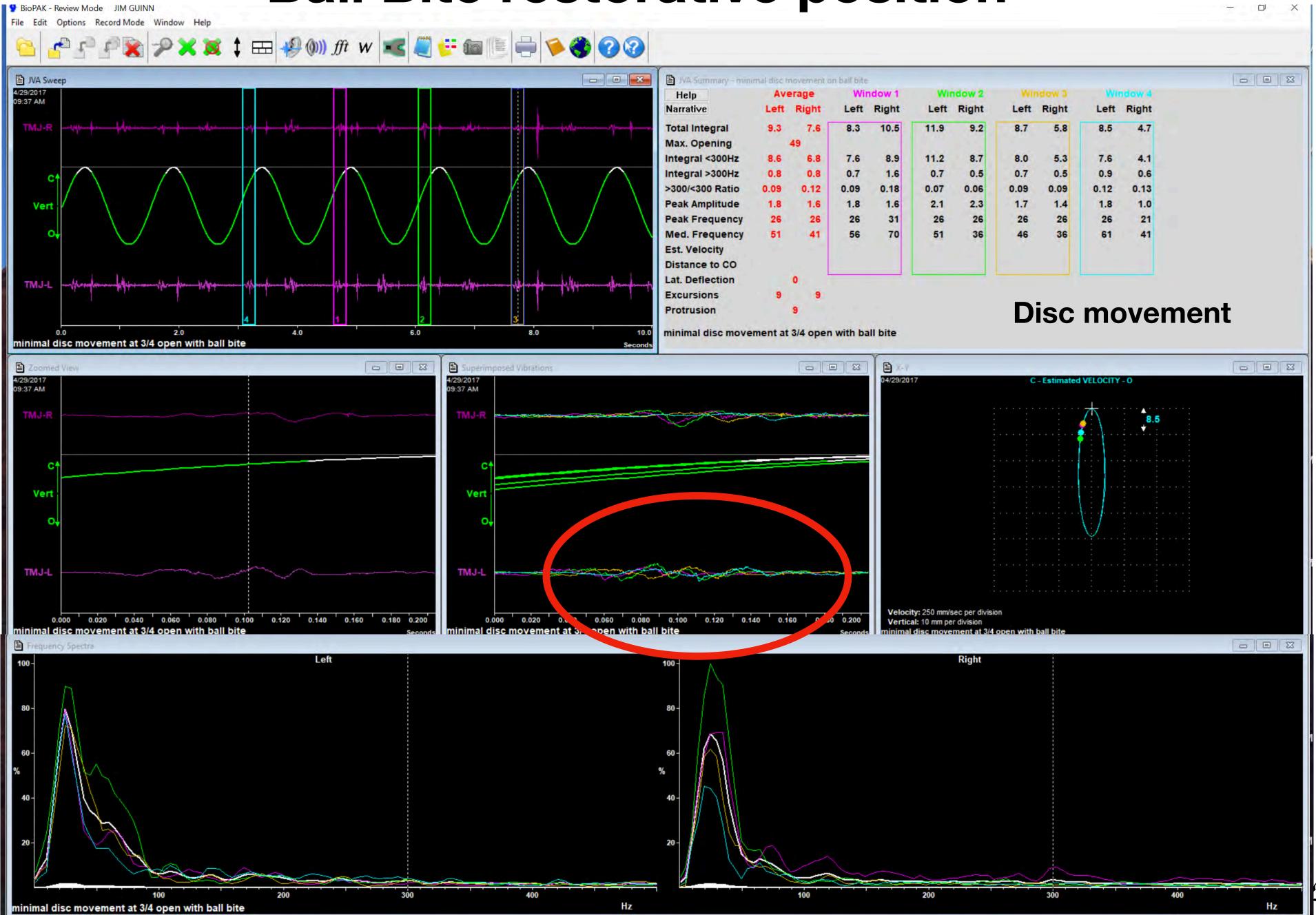




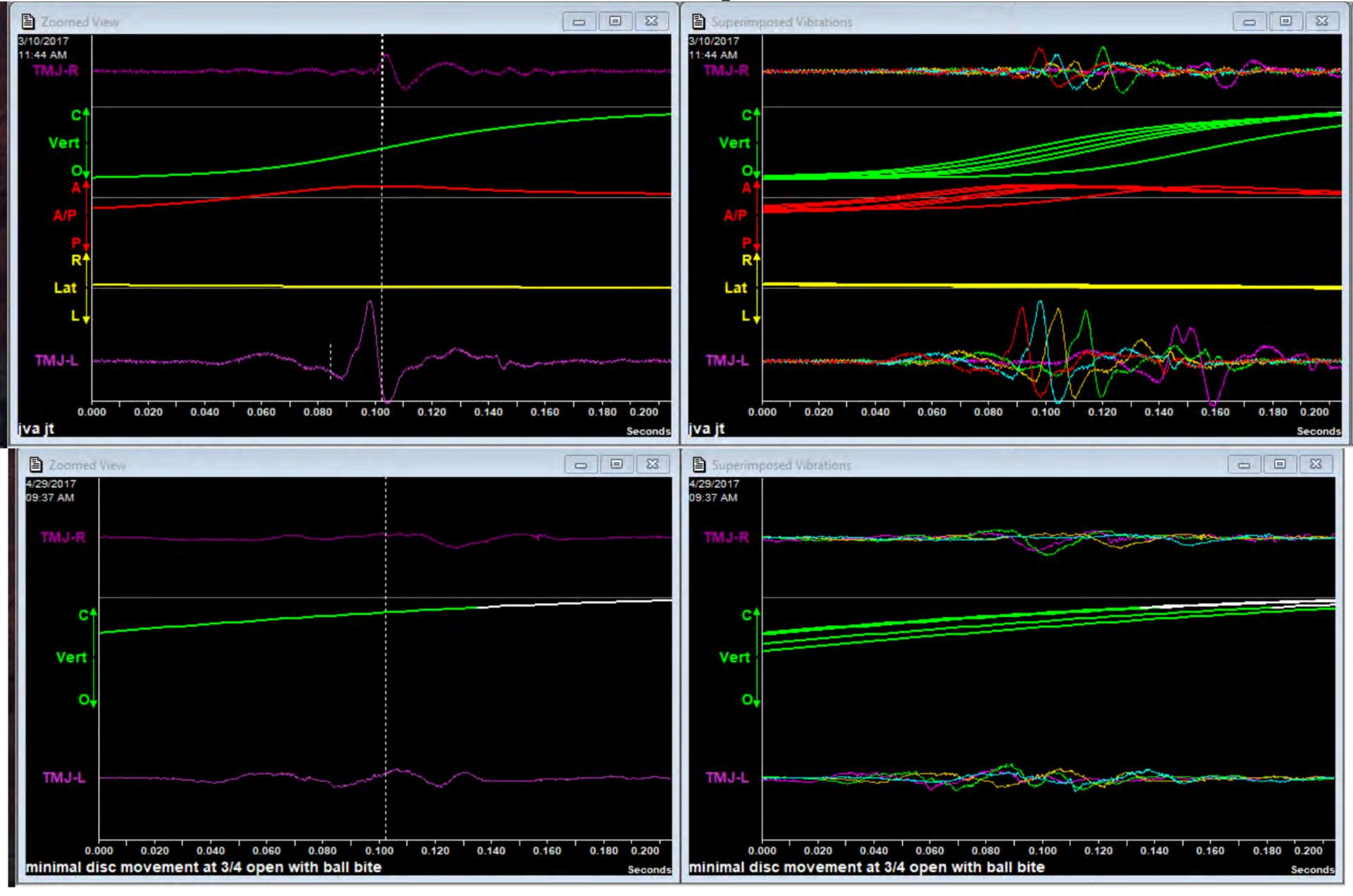
The Biting Edge



Ball Bite restorative position



Preop



Restorative Position

The Biting Edge



The Biting Edge

What is Your First Step



Deprogram. Reduce Engrams

Traditional deprogrammers

Quick Splint, NTI, Release Appliance, Anterior Mid

Point, Lucia Jig

Resolve inflammation, joint and muscles

This can take up to 2 weeks or more

Take corrected bite based on the diagnosis

Modalities can be used to help with active deprograming

Drugs ie. anti-inflammatories, steroids

TENS

MLS laser MY FAVORITE!!!

Test your position!!!!





Deprogram muscle engrams
Inflammation removal
900 hz. For three minutes per side
Keep teeth apart
Triangle technique
Posterior Capsule, Temporal Tendon, Masseter

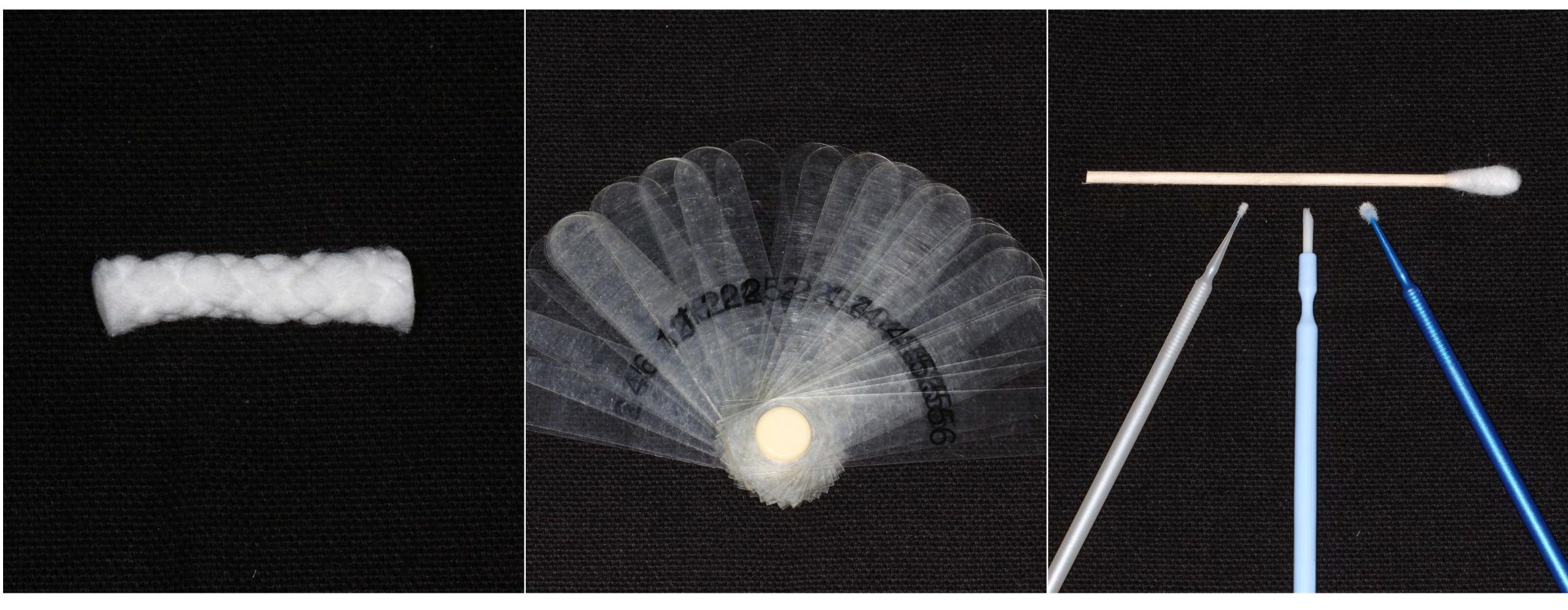


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Cotton role

Leaf gauge

Brushes



How do you capture a corrected bite registration or jaw record

Cotton Role Set Up



Non corrected open centric bite

Adjusting Leaf gauge



Apex of Force or CR corrected open bite record



Michael A Smith DMD

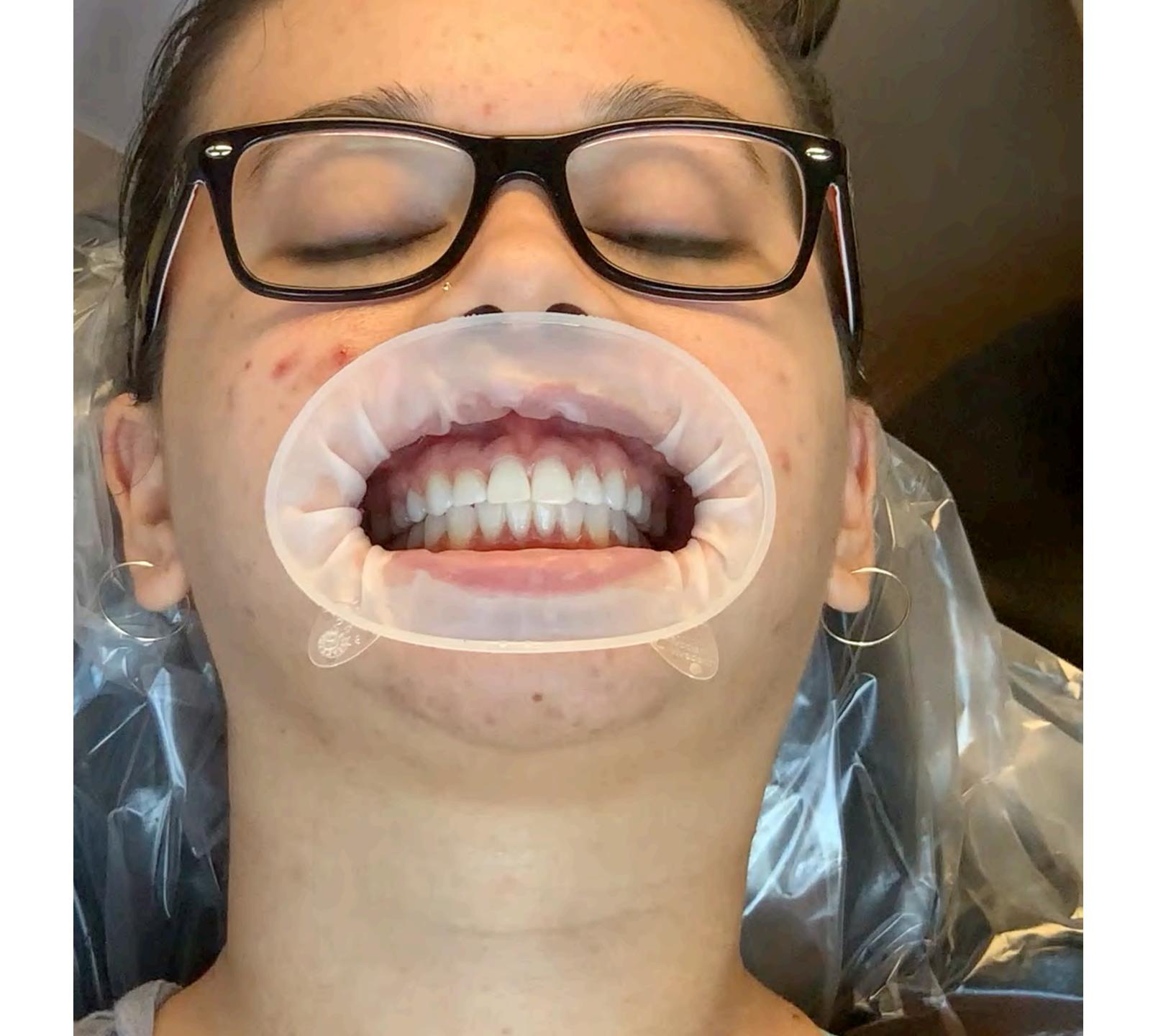
Different Diameter Sticks





Can be used for CR, Apex, Phonetic Bite Registrations Helps reduce 3D jaw torque and pitch, yaw, role





The Biting EdgeTM





The Biting Edge™



What Kind of Orthotic

Test the position before fabrication

Do you need permissive or non permissive treatment

What is your expected goal

Will it Help or Hurt

The Biting Edge

Conditions Affecting Orthotic Determination

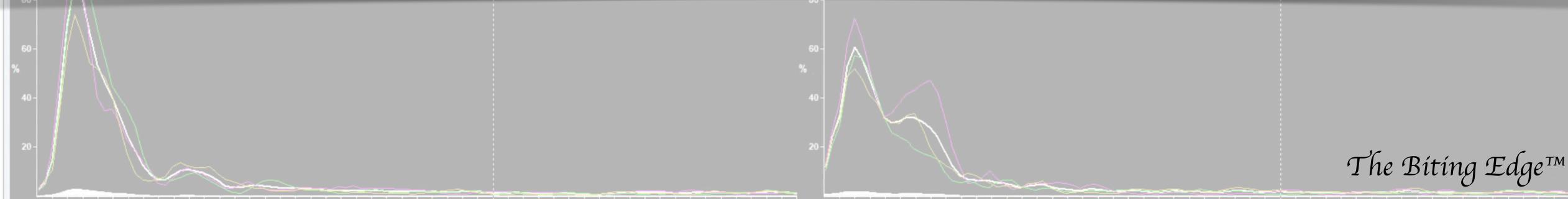
- Muscle Pain
- Joint Pain, Conditions and Position
- Combination Intra and Extra Capsule (Joint and Muscle)
- · Tops of Teeth, Occlusal/Dental Conditions, wear or no wear
- Is Occlusion the Only Factor? What happens getting to MIP?
- What did position testing reveal about your ROM and joint

Definitions

- Adaptation: an advantageous change in function or constitution of an organ or tissue to meet new conditions (medical-dictionary)
- Adapting: in the process of changing to a different condition
- Adapted: able to exist in a particular environment because of changes that have happened to it over time (dictionary cambridge)
- **Non-Adapting:** not contributing to the fitness, performance, or survival of an organism or its parts. Not serving to adapt to the environment.(*Merriam-Webster*)



 Adaptation in a positive direction is what we want to establish for our patient's condition in our therapeutic positioning and or treatment method. This is why we measure for success from the start, during and finishing of our cases. Biometrics are a valuable testing method to measure and modify our treatment modalities for positive adaptive change.



Types of Splints

Permissive
Nonpermissive
Hydrostatic (Aqualizer)
Soft rubber (silicone)

The Basics of Splint therapy Dentistry Today July 2002

The types of splints currently employed in occlusal splint therapy include permissive, nonpermissive, hydrostatic, and soft rubber (silicone) splints.

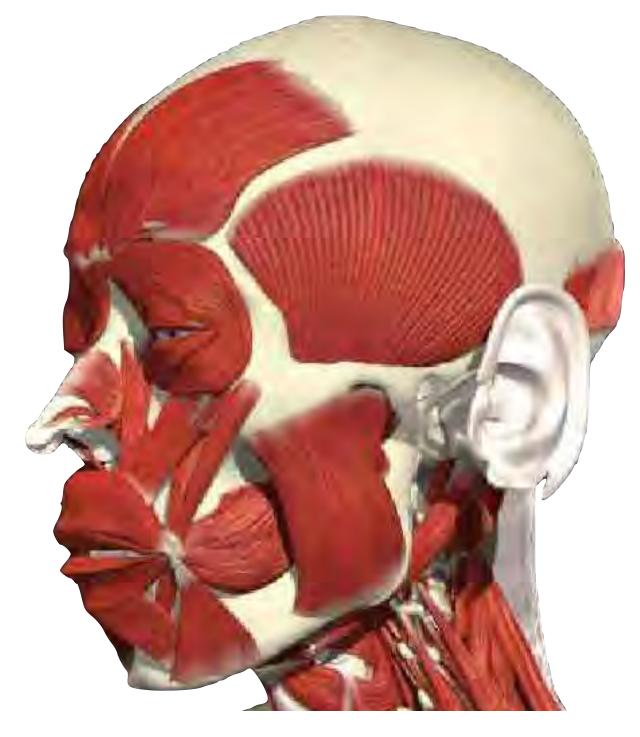
The permissive splints allow the teeth to glide unimpeded over the biting or contact surface. These include bite planes (anterior deprogrammer, Lucia jig, anterior jig) and stabilization splints (Tanner, centric relation, flat plane, and superior repositioning)

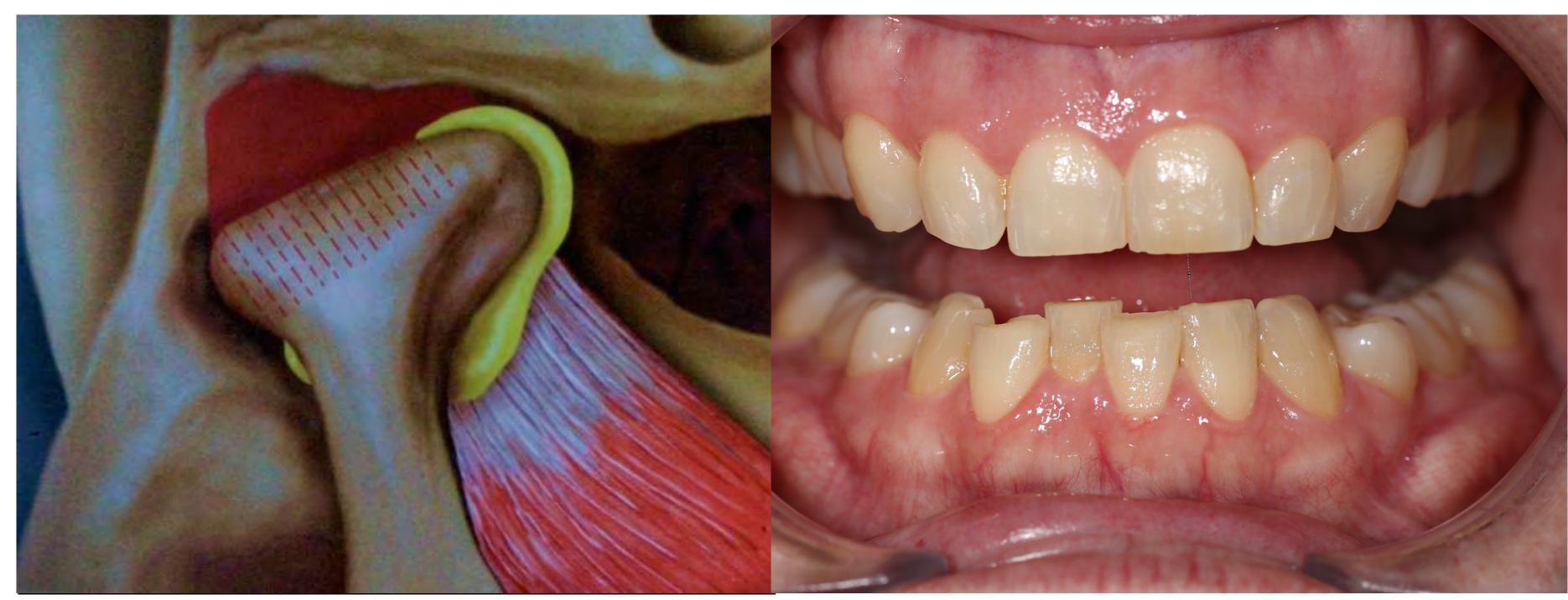
The nonpermissive splints have ramps or indentations that limit the movement of the mandible. Examples include an anterior repositioning appliance (ARA) and a mandibular orthotic repositioning appliance (MORA)

Soft rubber splints and hydrostatic splints (Aqualizer, Jumar Corp) function by separating the teeth. Soft rubber splints, however, do not provide the characteristics necessary for successful splint therapy. These splints can exacerbate bruxism, possibly due to premature posterior contacts related to the fact that these splints cannot be balanced.

What Are You Treating

Muscles Joint





Is it a single dysfunction or a combination

How does this affect the airway

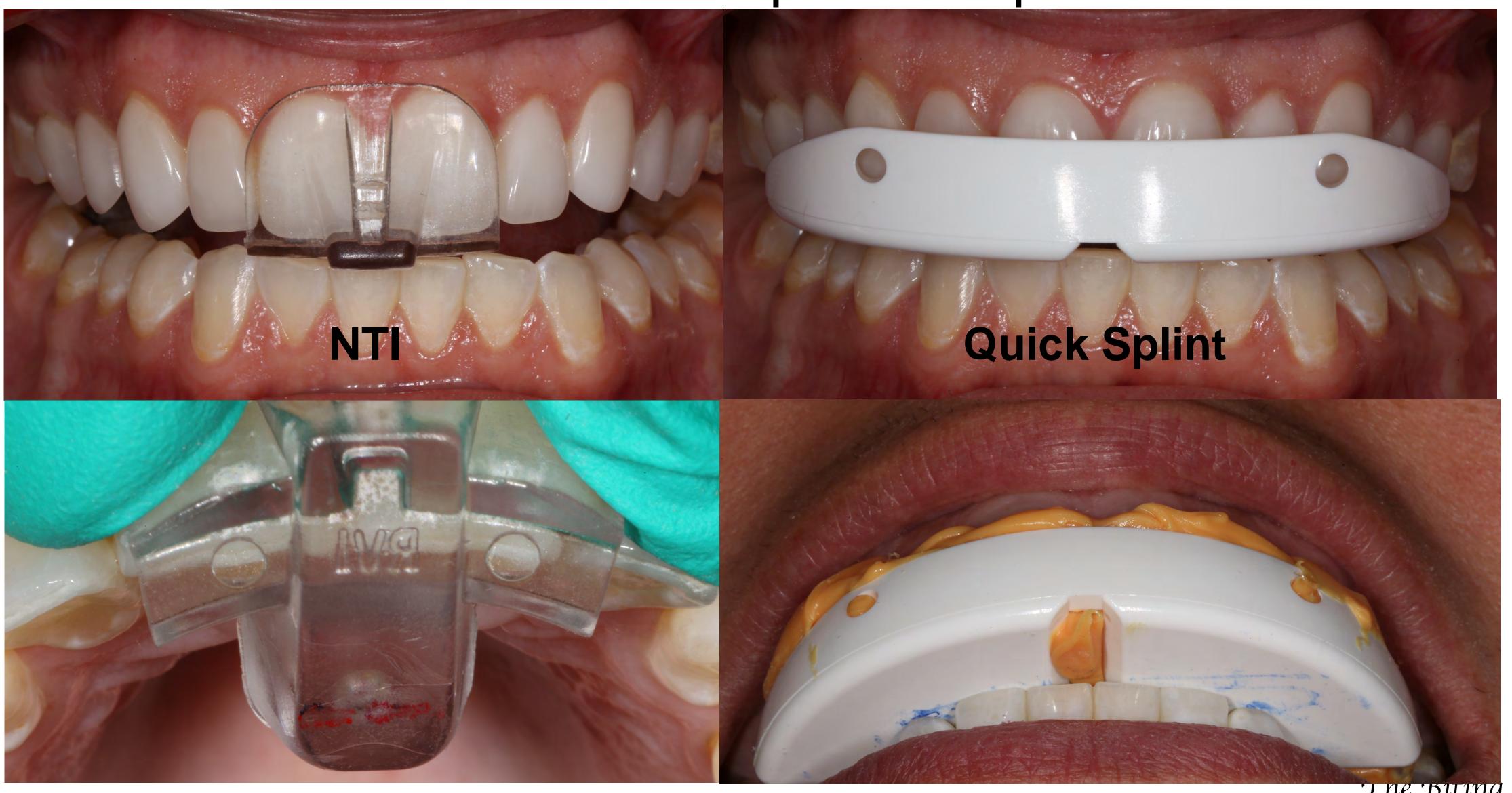
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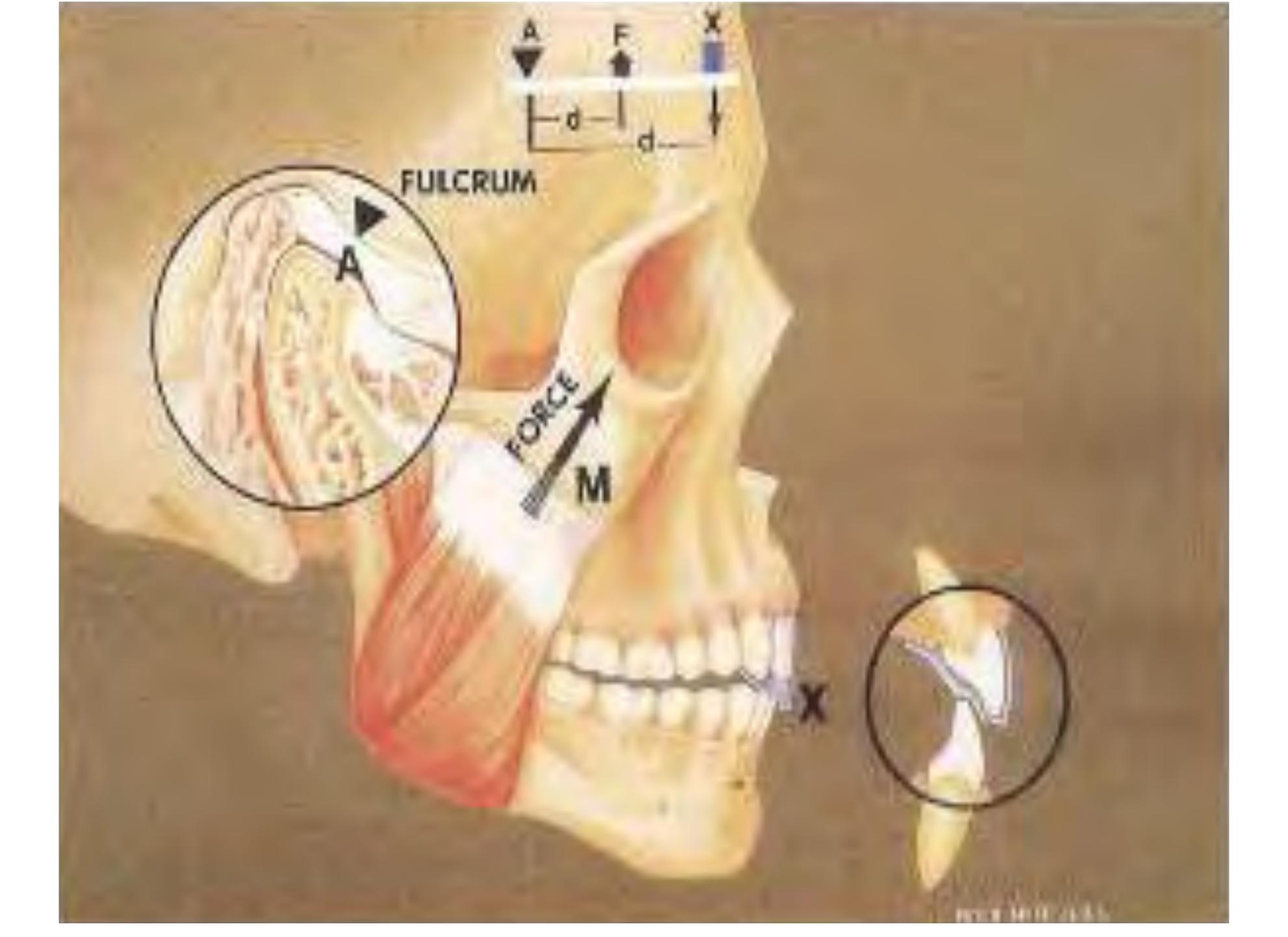
Muscle

- Occlusal muscle imbalance pain causes the majority of the patients to seek treatment.
- Hyper active muscle initiation:
 parafunction, clenching, hit and slide imbalances, sore painful teeth,
 structural influences, referral pain, occlusal avoidance, extended
 disclusion time, certain medications, upper airway resistance syndrome

Temporary Chairside Appliances Anterior Midpoint Stop



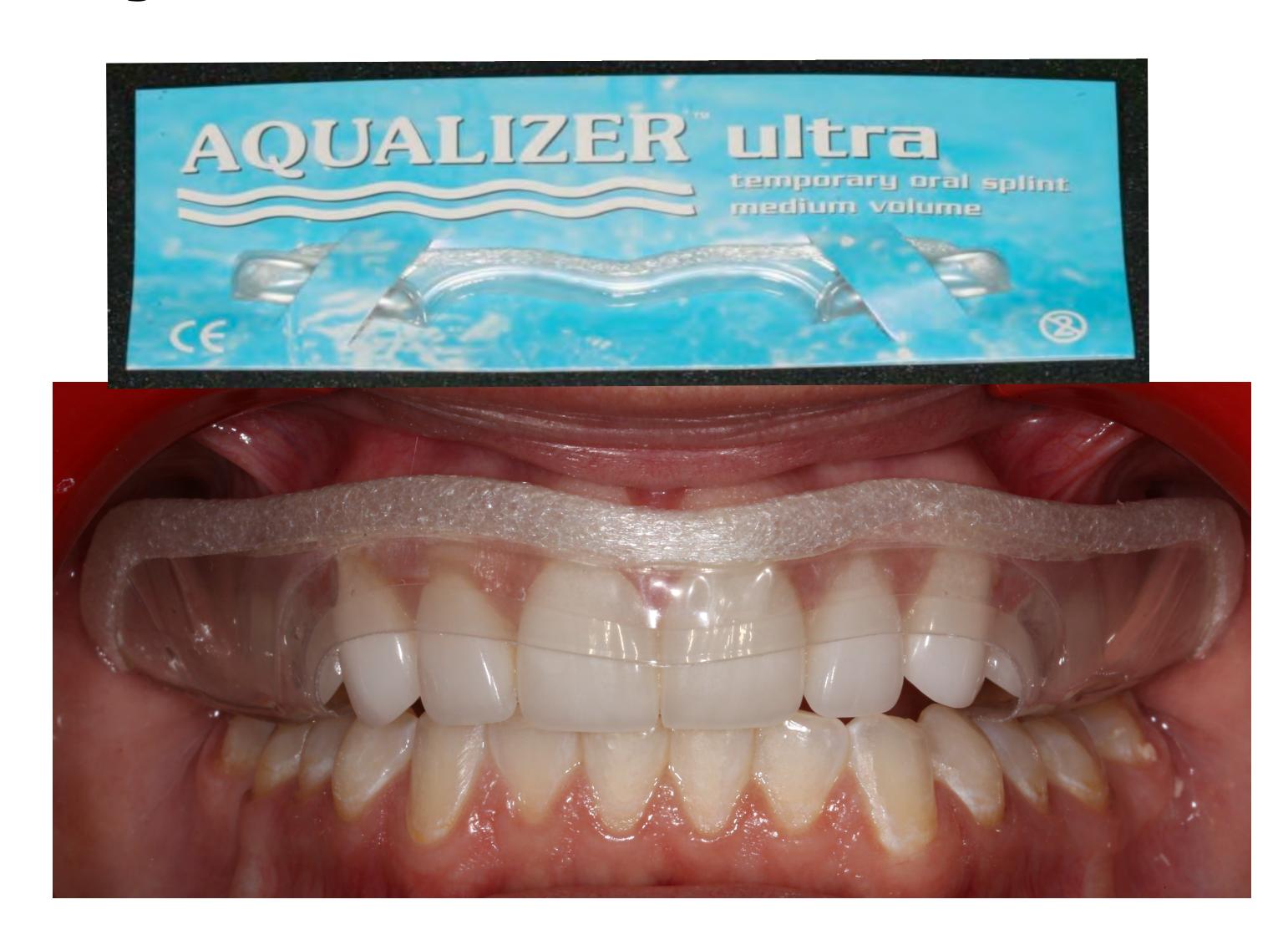
7 ne Biting Edge™



Temporary Appliances



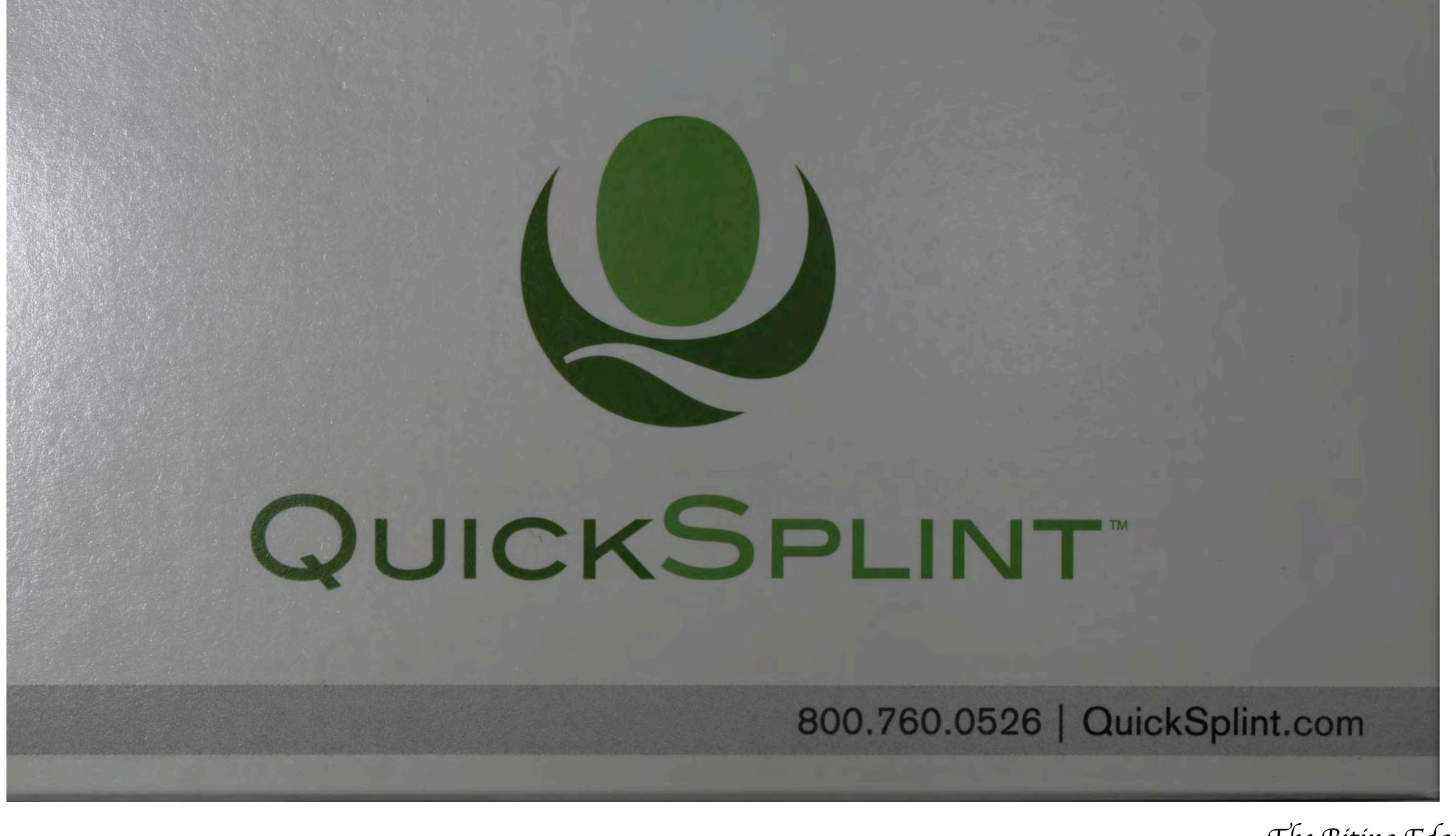




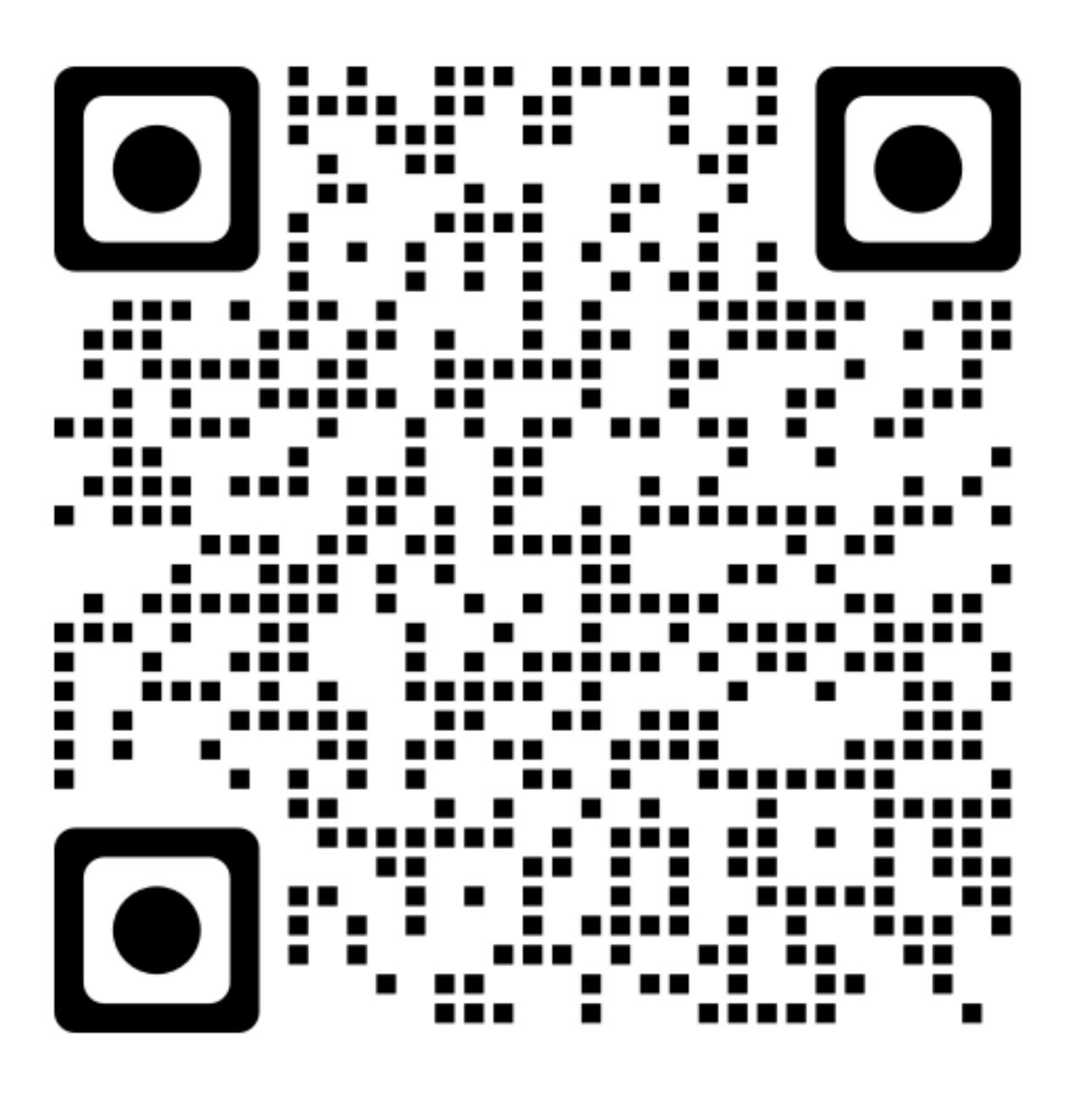
Why a temporary appliance

- Immediately address the Chief Complaint of PAIN, Muscle
- Differential Diagnosis
- Decrease inflammation
- Quantify parafunction
- Promote protection
- Reduce spasm, restore ROM
- Use as a testing tool
- Value and confidence WIN WIN





https://quicksplint.com/mike-smith



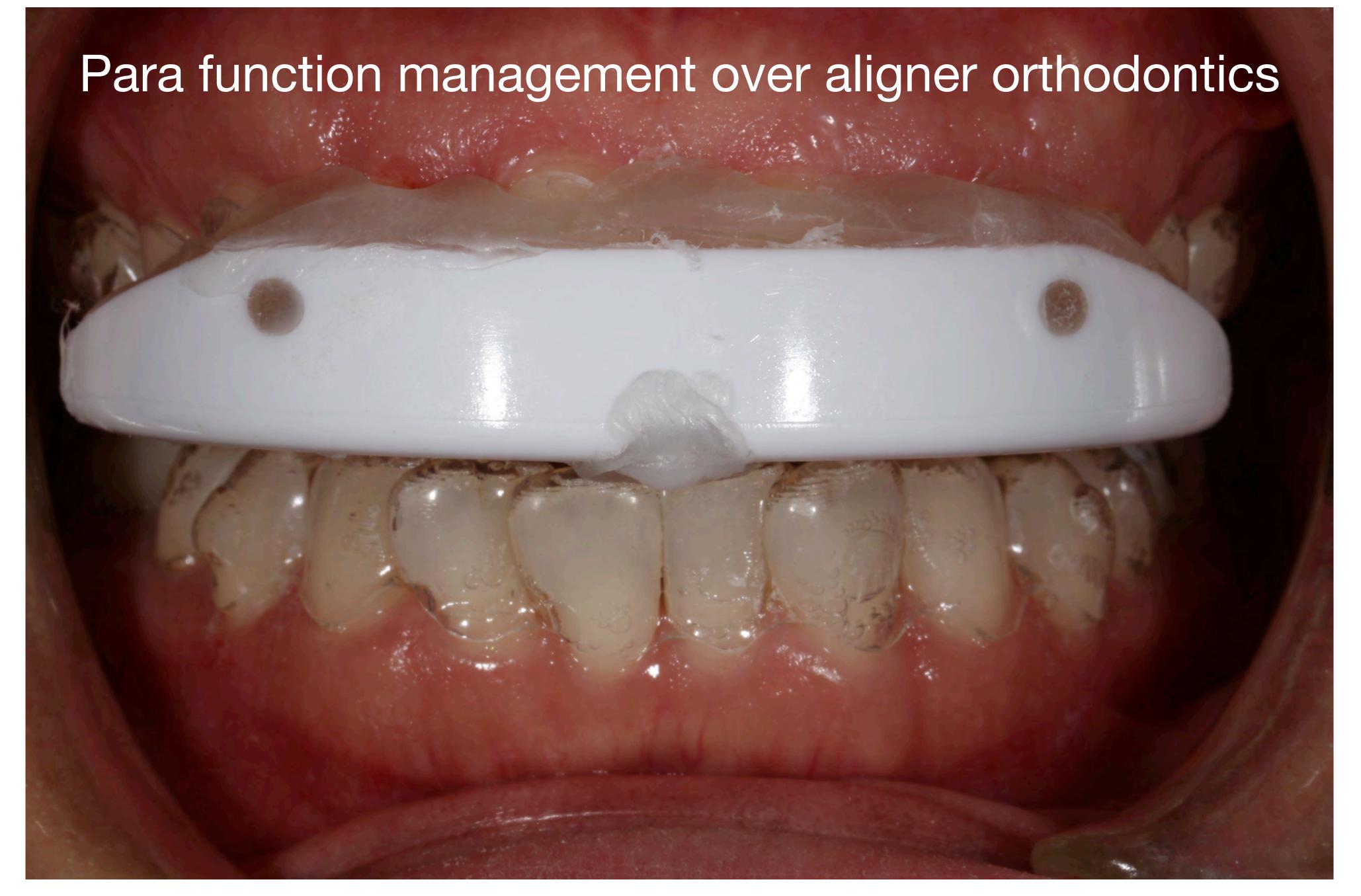
Temporary Appliance or Deprogrammer NTI Quick Splint



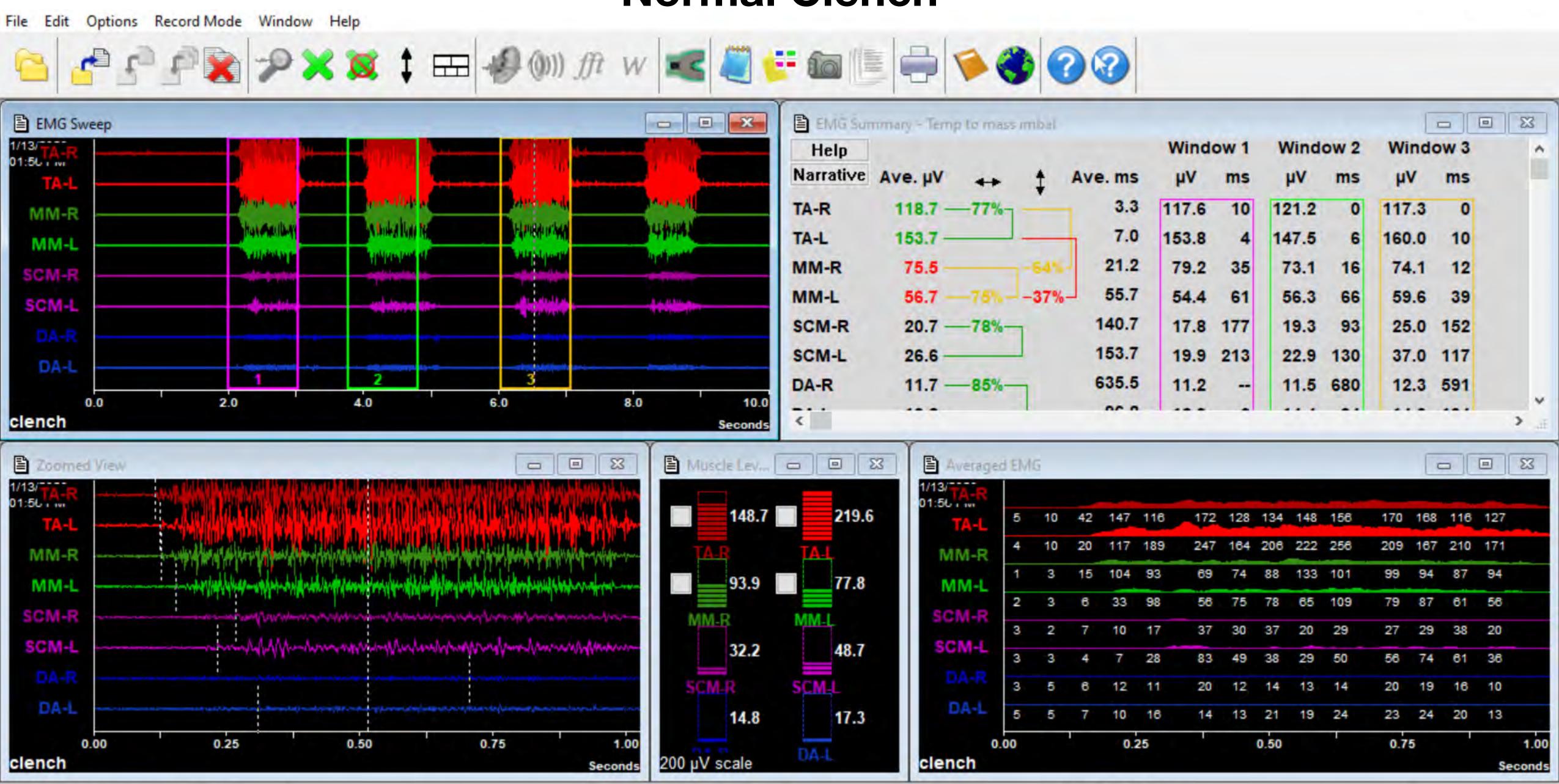


Reposition can be done as a test to check if vertical and mandibular movement is needed with your diagnostic testing





Normal Clench

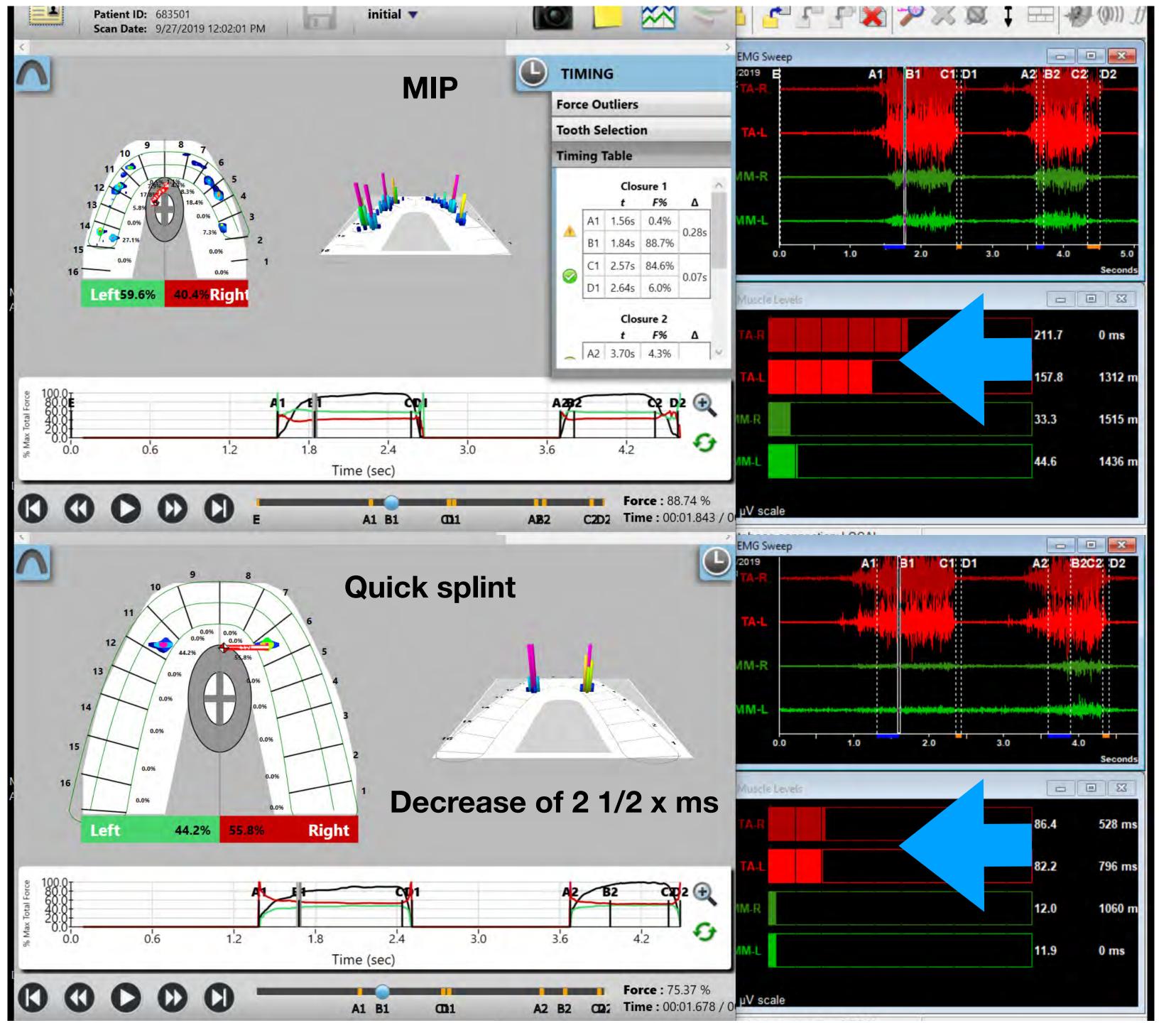


The Biting Edge

Quick Splint Reduction Test Options Record Mode Window Help EMG Sweep - - X EMG Summary - QS reduction 0 23 Window 3 Window 1 Help 01:55 i ivi Narrative Ave. µV Ave. ms TA-R 28.8 39.8 30.2 39.0 36.3 MM-R 29.5 52.3 TA-L 49.2 42.5 52.8 MM-L MM-R 47.8 55.4 56.4 SCM-R 9.2 MM-L 37.9 49.6 SCM-L 234.3 SCM-R 11.4 11.0 349 10.0 114 13.3 240 327.8 SCM-L 11.4 --- 99%-11.1 9.2 424 13.8 139 DA-L 391.0 DA-R 7.2 391 8.0 8.0 2.0 4.0 6.0 clench with quick splint Seconds Averaged EMG Toomed View 0 Muscle Lev... -01:55 i w 01:55 i ivi 66.3 87.8 MM-R MM-R 74.3 86.8 MM-L MM-L SCM-R SCM-R SCM-L SCM-L 17.8 18.4 13 DA-L DA-L 11 14 11 13 10 12.7 11.2 0.75 0.75 1.00 0.50 0.25 0.25 0.50 1.00 0.00 0.00 DA-L clench with quick splint 200 μV scale clench with quick splint

Seconds

Seconds



The Biting Edge

Follow Up Post Op

- 2 Weeks
- Evaluate changes, concerns, improvements, or new symptoms
- Use this as a diagnostic tool not as an end all to treatment
- This can be used as a crutch until the definitive treatment orthotic is fabricated and delivered
- It may not reduce optimal muscle contraction but it will decrease them
- I have seen charges from \$0 \$450 You decide your methods

Jaw Joint and Muscle Sprain/Strain

JAMSS is one of the most common sequelae to dental procedures

Trauma during dental care may occur after local anesthetic injections, hyperextension from opening the mouth too wide or for too long a period, or placing excessive force on the jaw during a dental procedure. Especially relevant is that more than 50% of patients with temporomandibular disorders (TMDs) report that the initial onset of pain was a direct result of dental care. Other causes of JAMSS include car accidents, intubation during general anesthesia, yawning, a blow to the jaw, vigorous chewing, acute bruxism, or similar types of events. JAMSS injuries can be minor or quite severe, and may be complicated by a number of other health issues.

Chronic TMD Initiated By Dental Treatment

- In one Study of 164 patients with TMD, trauma was the initiating factor in 51% of the cases, 31% of the total cases initiated from trauma during dental treatment.
 - Friction J, Kroening R, Haley D, Siegert R. Myofacial pain and dysfunction of the head and neck: a review of clinical characteristics of 164 patients. Oral Surg Oral Med Pathology. 1985;60(6):615-623.

Symtoms

What are symptoms of JAMSS? (some or all may occur; no prior history)

- Acute jaw, face, ear, and/or head pain
- Limited, pain-free range of motion, less than 40 mm incisal to incisal edge
- Tenderness of jaw muscles and ligaments
- Dysfunction (difficulty chewing, opening or closing mouth)
- Inflammation with swelling and tenderness of joint
- Localized pain

HOW

What causes JAMSS?

- Direct trauma to the jaw muscles or joints (including injections)
- Sustained or forceful contraction of the masticatory muscles
- Hyperextension of the masticatory muscles and temporomandibular joints
- Prolonged stretching of the masticatory muscles and joints, ligaments and tendons

Speed-to-Treat JAMSS TEAM Protocol

- Like in orthopedics, same day speed-to-treat protocol improves success in reducing pain and dysfunction at the acute stage
- Use examination and imaging to rule out fracture or 3rd degree muscle or tendon tears (avulsion) since they may require surgery and inter-maxillary fixation
- Use TEAM Protocol to quickly manage pain and inflammation
- Failure to provide treatment promptly can lead to chronic pain
- Failure to identify JAMSS within the 4 weeks results in over 50% of patients with chronic pain 5 years later

Patient Timeline

Initiating factors: trauma, extended duration, perpetuating and aggravating behaviors

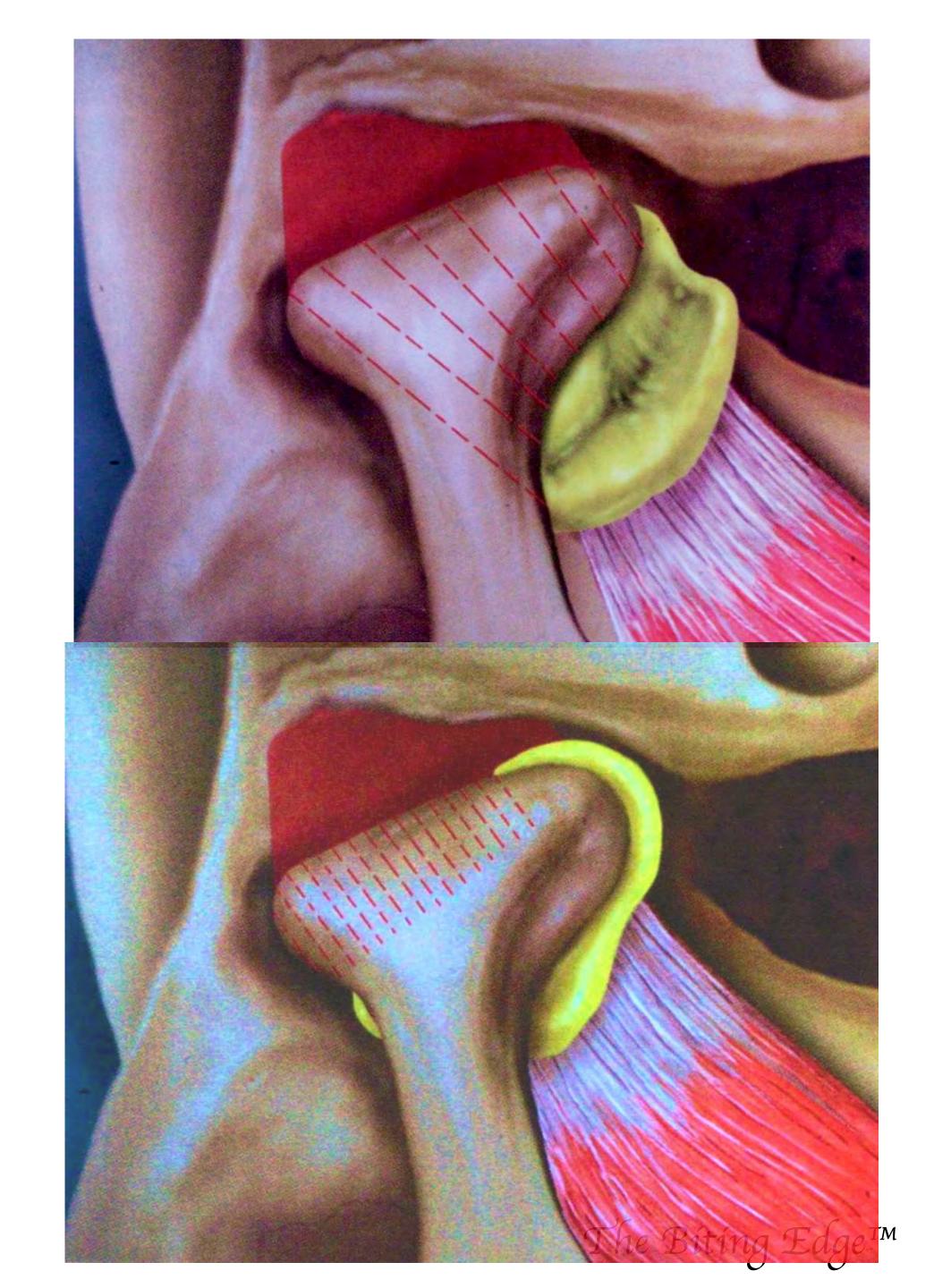
Symptom onset: Speed-to-treat JAMSS Protocol

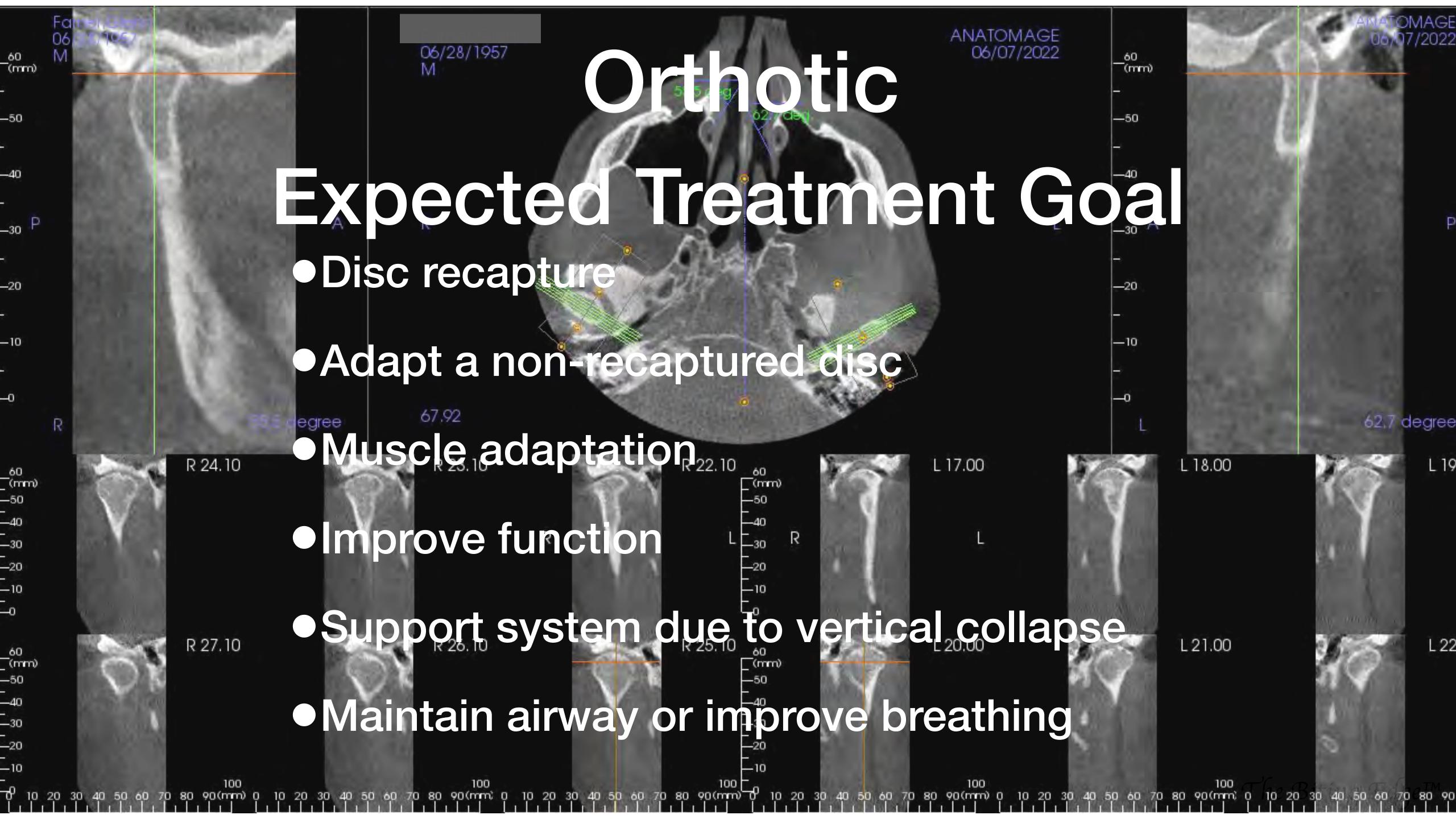
- Follow-up at 1-week from initial visit
- Weeks 1-4 Directed JAMSS self-care
- Follow-up at 4-weeks

If at anytime the patient's condition worsens over the 4-week period, immediate referral to a specialist is appropriate

Treatment Conditions Joint Conditions

- Piper 2- Laxity, capsulitis,
 Perforation
- PDDR 3a
- PDD 3b
- DDR 4a
- DD 4b
- 5 alb



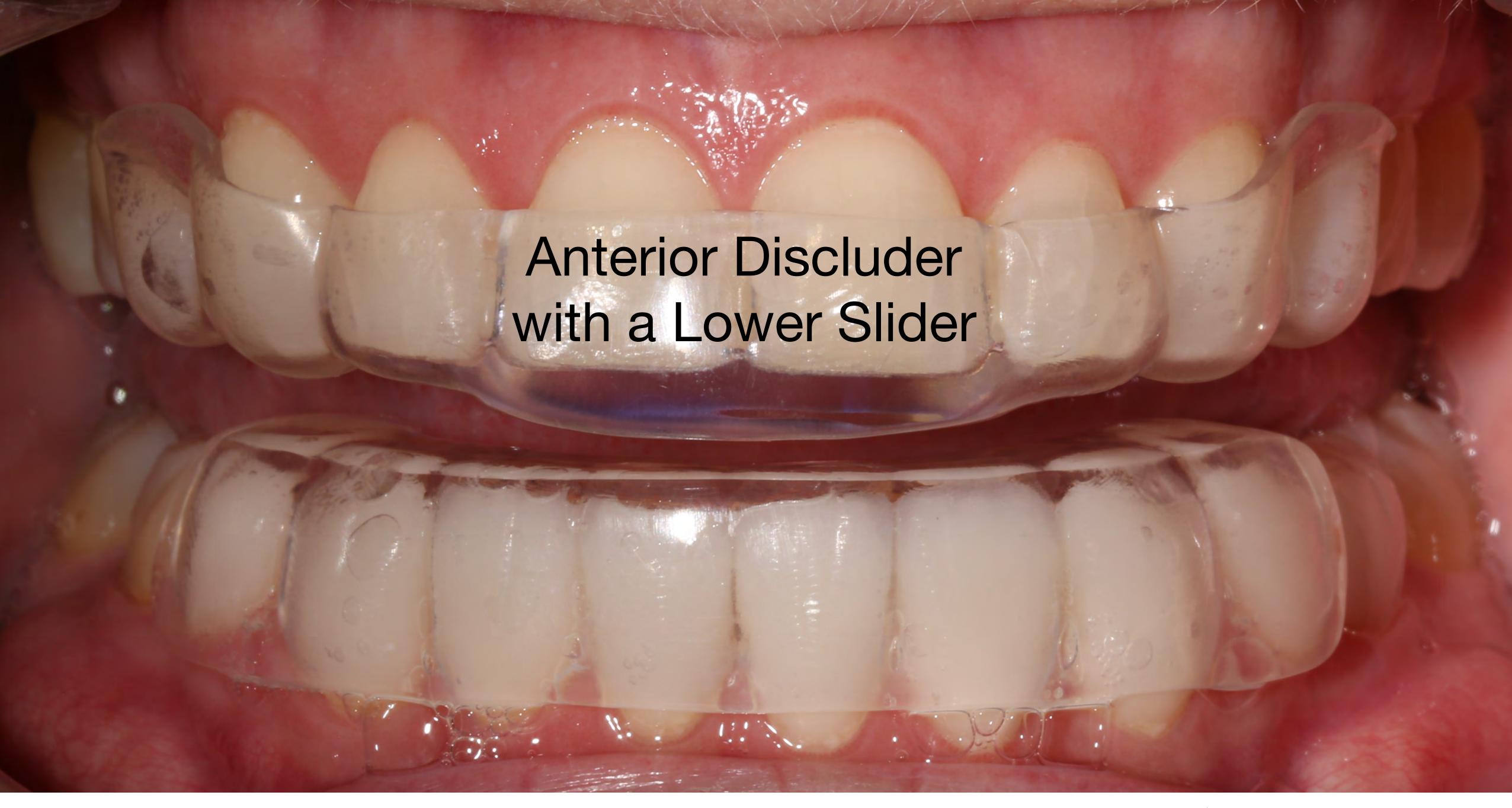


Control Parafunction "Night Guard"

- Any permissive type splint
- Full arch flat plane with canine guidance. Needs to be adjusted for occlusal balance and optimal lateral clearance in working and non working movements
 - It will need to be adjusted to allow condylar seating
 - Inflammation can cause positional changes
 - Full Arch appliance may recruit more muscles if primary clenching
 - This may not be the best appliance for muscles



We have a better way

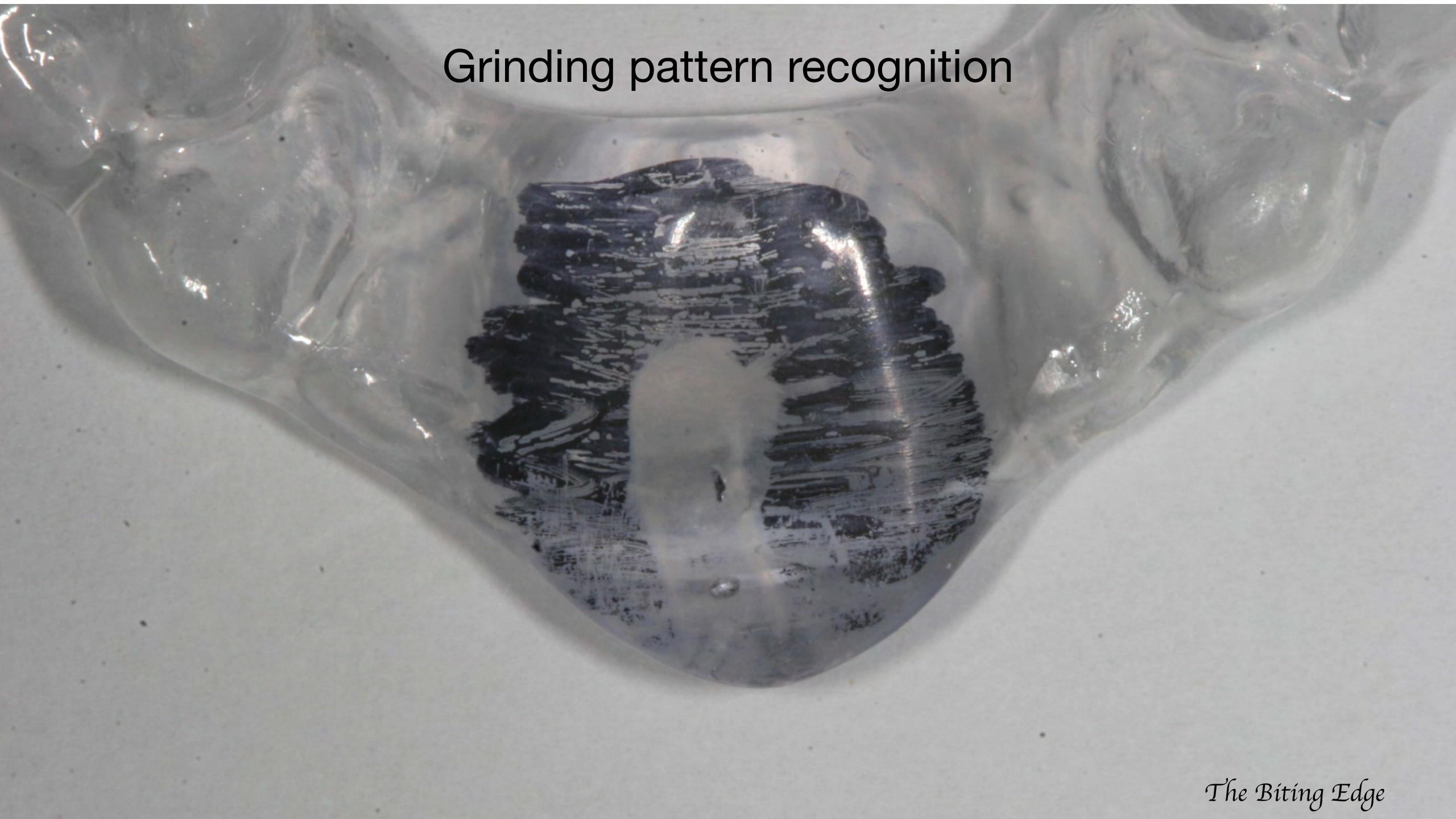


The Biting Edge

Anterior Midpoint Stop Appliance

Anterior Discluder





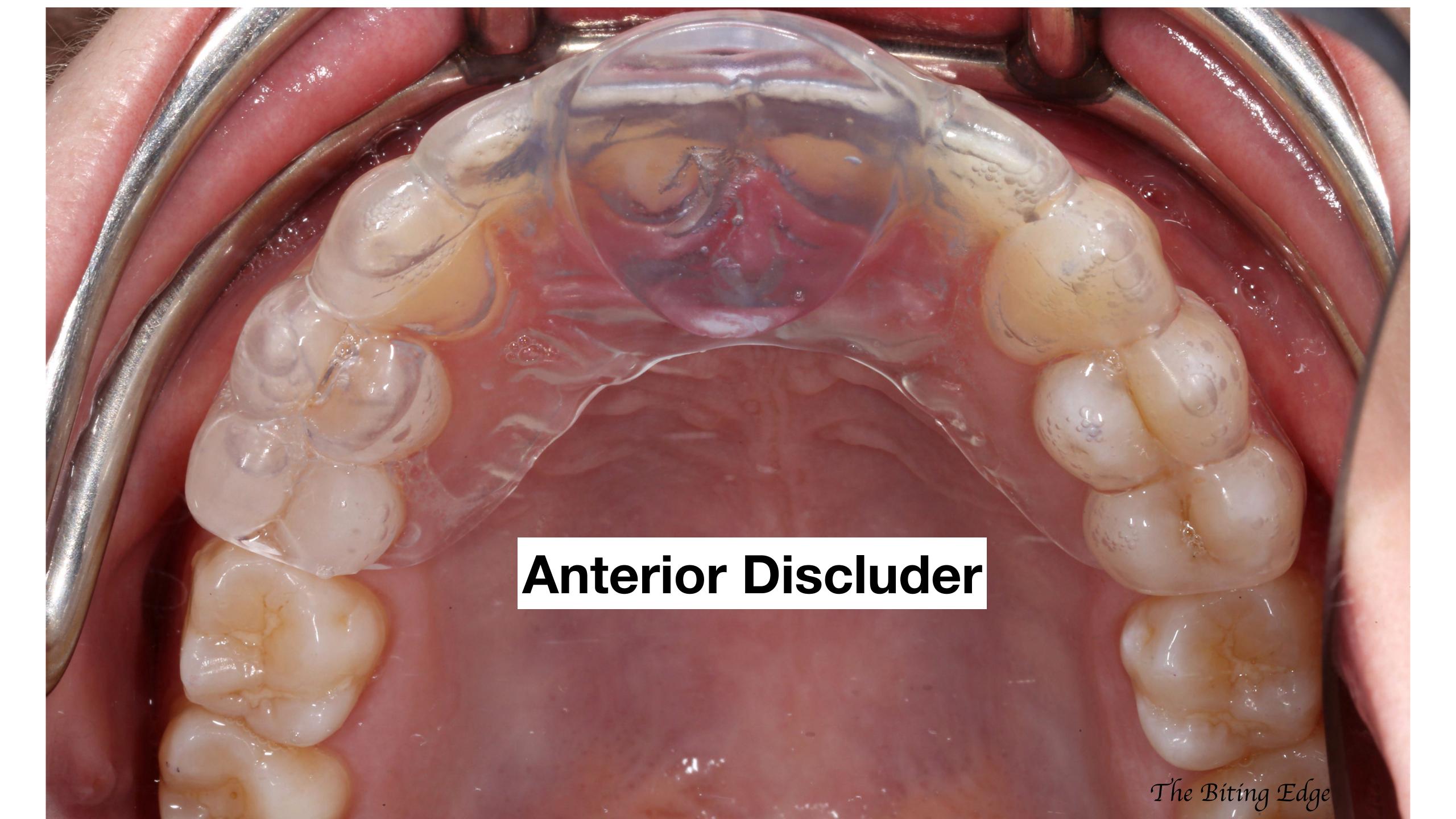
Matte finish parafunction grinding recognition

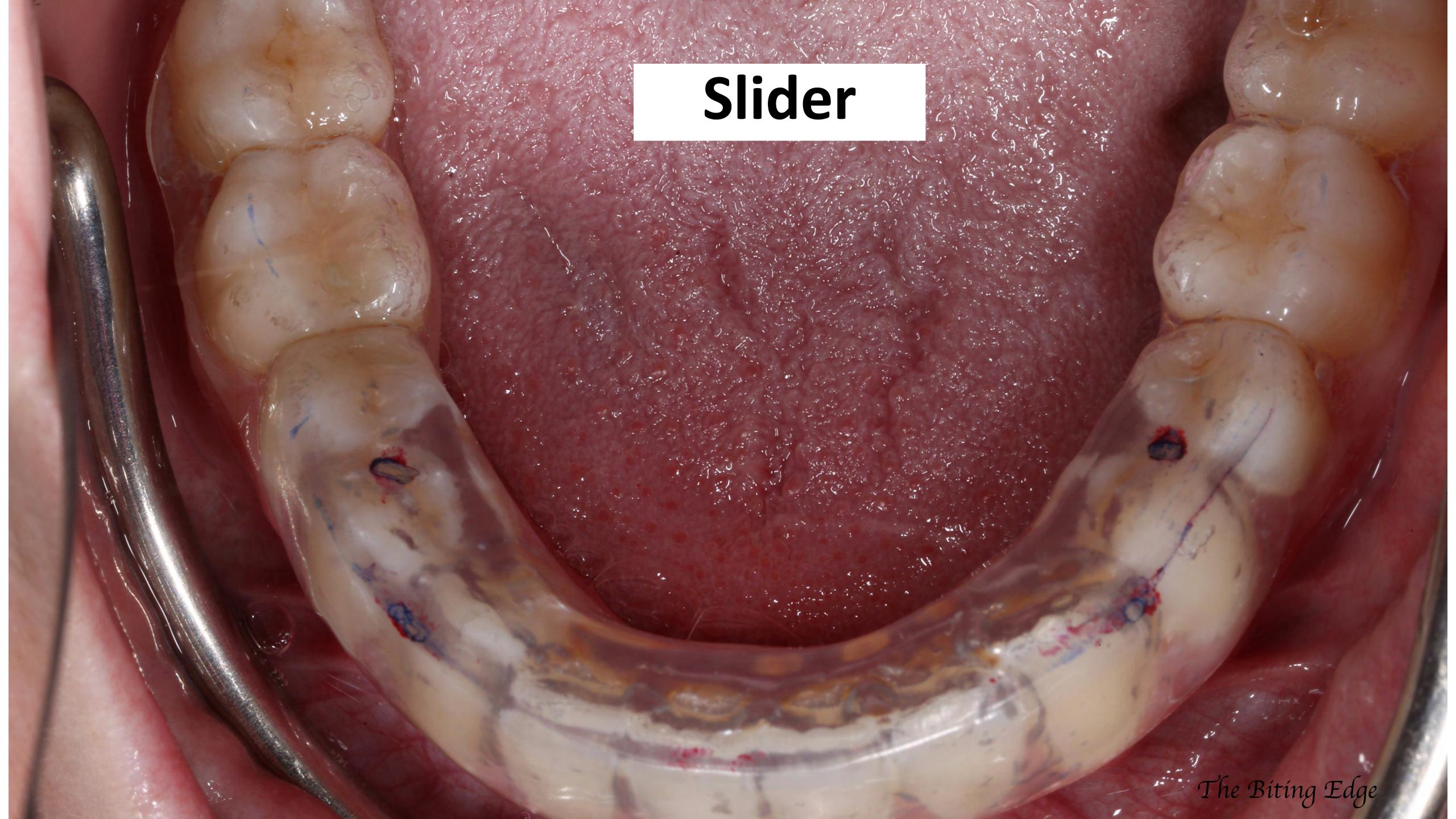


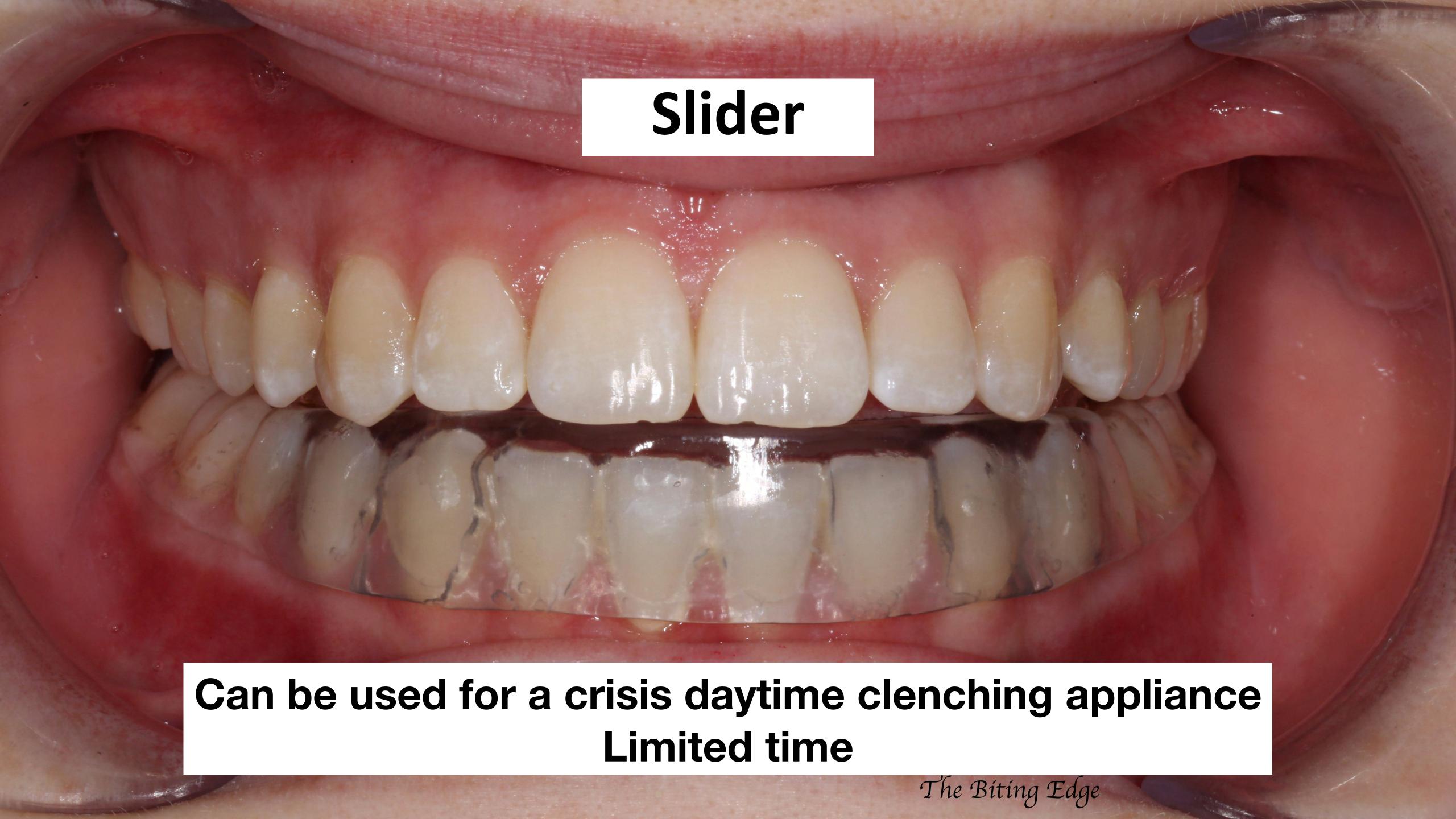


Ultimate Parafunction Control

- Night time Anterior Discluder
 - Maxillary arch anterior stop appliance
- Lower Slider Appliance
 - Designed to be worn at night to reduce clench force from lower anterior nerve proprioception
 - Day time crisis built into bilateral contact and immediate canine guidance
 - Easy function test







Post Op Parafunction 11/4/2020 15:49 PM

Management for Muscles

After Deprogramming and joint inflammatory control

Occlusal Refinement may be needed

- · Hit and slide removal with occlusal treatment
- Optimizing occlusion may be necessary to remove improper load and improve occlusion and disclusion time
- If chronic daytime clenching, Botox can be (sec) utilized to shut down muscles with great 79.47 % success

Joint Conditions

The Expanded Piper Disc Classification

TMJ Damage

Normal Healthy Disc, Ligament and Cartilage

2 Normal Disc Position but damage:

Ligaments damage

Cartilage Fibrillation

Disc Distortion

Perforation of Disc

Disc unstable due to contralateral TMJ damage

3ae Early Partial disc subluxation, with reduction

3a Partial disc subluxation, with reduction

3b Partial disc subluxation, non-reducing

4ae Early Complete disc dislocation, with reduction

4a Complete disc dislocation, with reduction

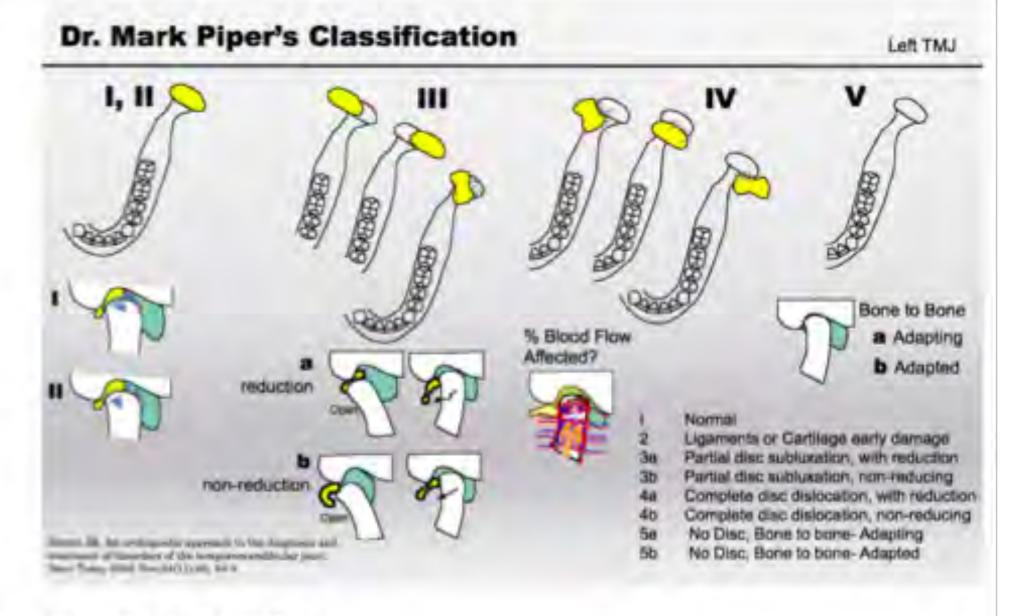
4 adh Adhesed disc to eminence

4b Complete disc dislocation, non-reducing

4b/a Complete disc dislocation, non-reducing in function

5a No Disc, Bone to bone- Adapting- OA Active

5b No Disc, Bone to bone- Adapted- OA adapted



4a/4b Qualifiers

Disc Size- small, medium, large

Direction of dislocation-

Anterior, Medial, Lateral, Distal

Thickness of posterior band

Distance posterior band in front of condyle

Conforming of dislocated disc to eminence

Perforation of Pseudo-disc

Subluxation of Pseudo-disc

OA Active without perforation of Pseudo-disc

OA Adapted without perforation of Pseudo-disc

Daytime Orthotics Permissive

Poor adapted / non full recapture / PDDR / Type 3 cases Click / pop in rotation with minimal < 3mm rom deviation

- Built to Apex of force or a "CR" type position
- Permits the condyle to seat to the upper most superior position or braced condylar position "Apex of Force"
- Requires routine adjustments to allow for "seating " and inflammatory changes
- Mandibular or maxillary full coverage usually flat plane type with canine guidance. (If day wear Mandibular is better)
- Many names; Michigan, Dawson, Tanner, Pankey,

Day Orthotics Non-Permissive

DDR Recapturing Discs / Piper Type 4 cases

Pop in translation usually > 3mm rom deviation Can have lateral motion limitation

- Directive or decompression (you dictate the position)
- Has ramps and indexing to move the joint to a desired position this can be for unilateral or bilateral decompression
- Can recapture disc's, decompress RDT, re-positions the joint to a physiological directed position
- Bite records needs to be decompressive, or phonetic
- Many names "anterior repositioned, MORA mandibular repositioning appliance, Olmos OD3, MDA(mandibular decompression appliance) The Biting Edge™



Anatomic

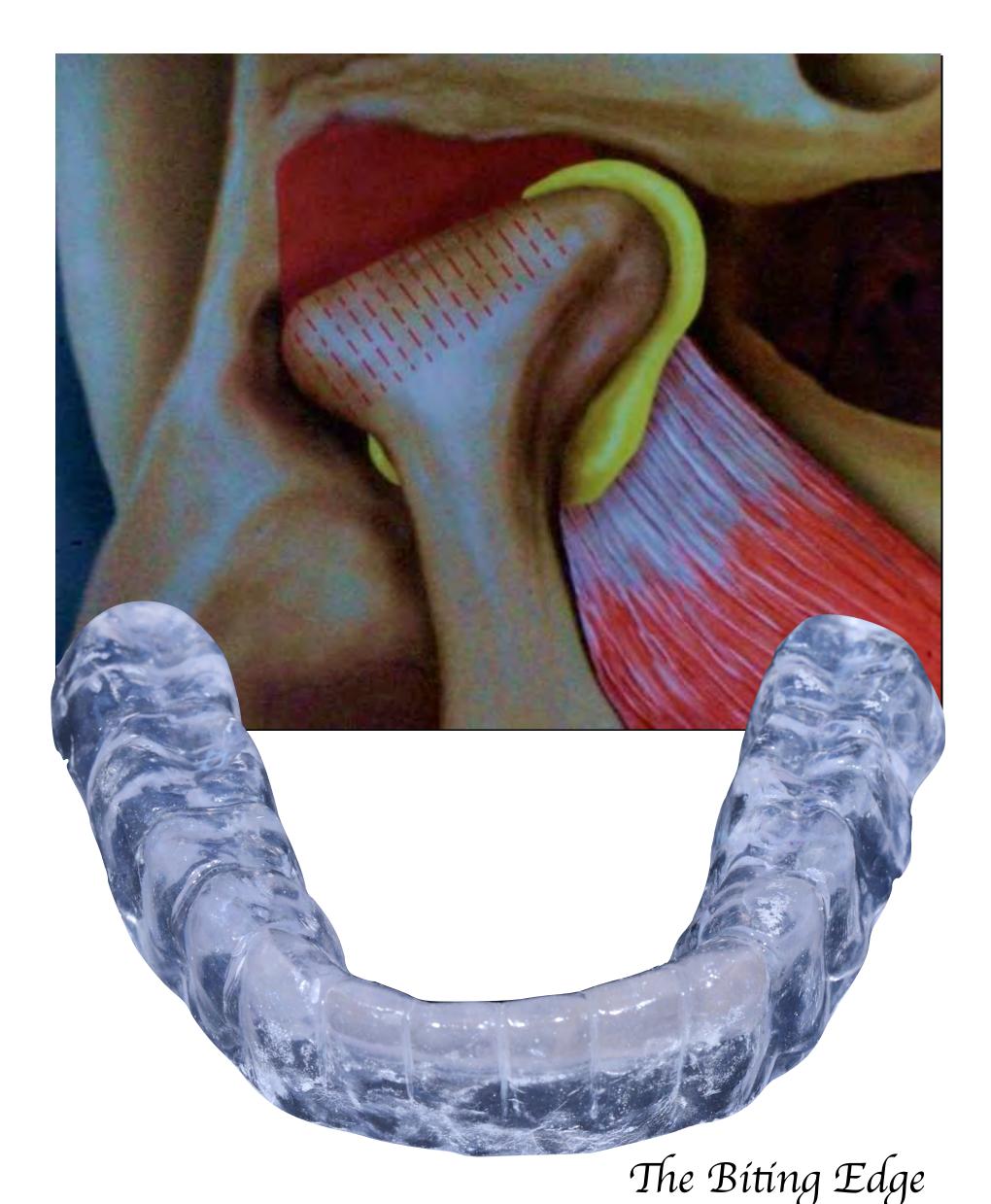
Musculoskeletal Positioning Appliance (MSPA)

Non/ Permissive appliance made to a deprogrammed apex of force joint position. These orthotics are designed on the mandibular arch and are also commonly called Anatomic appliances since they have anatomy indexing with canine guidance and anterior coupling. These are generally used when the joint inflammation is reduced and for treating recapturable partial disc displacements. The main reason for these orthotics are to resolve major CR/CO slides that result in daily muscle/joint discomfort and to test out vertical changes prior to reconstruction.

Partial Disc Displacement PDD3a,b

Type 3 case type

- Muscle pain, possible joint pain on lateral pole and/or posterior capsulitis
- Night time (ADS) anterior discluder maxillary lower slider mandibular
- Day time
 - If recapture at APEX/CR on test
 - any permissive lower full arch with canine guidance
 - If non recapture at APEX/CR
 - MSPA musculoskeletal positioning appliance built at deprogramed decompression bite
 - Needs to be adjusted for inflammation changes
 - Daytime treatment 12-16 weeks determine MMI
 - Phase 2 dependent on wear and wean
 - options: occlusion, ortho, addition, combination



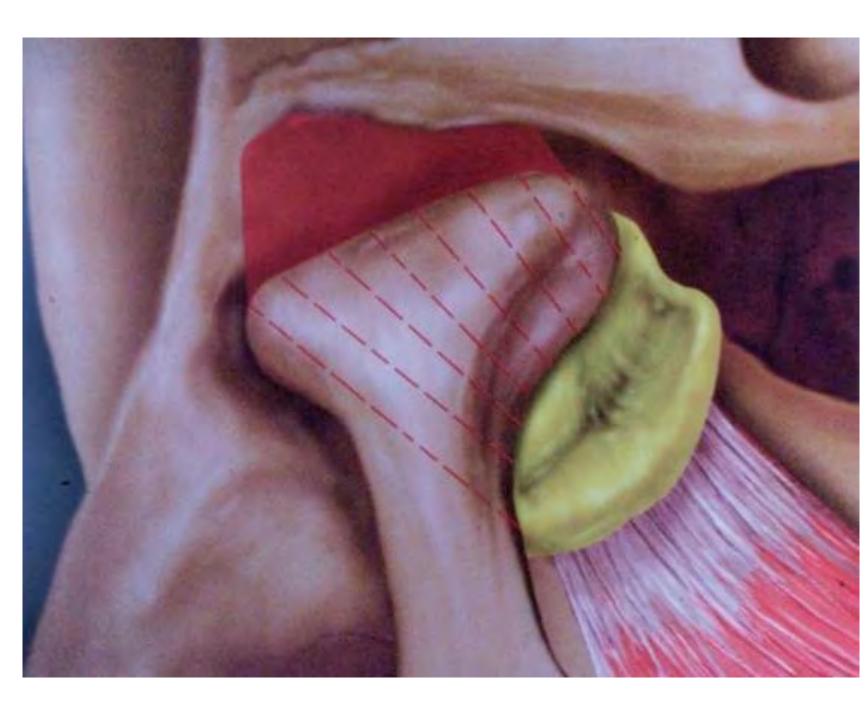
Complete Disc Displacement with Reduction

Type 4 case type

No wear into dentin

- · Permissive/non-permisive nighttime parafunction appliance
 - Anterior Discluder- slider (ADS), Positional or non depending on Biometrics and diagnostic of recapture on testing
- Non Permissive day therapy
 - Mandibular Decompression Appliance MDA
 - · (Phonetic bite or decompression bite)
 - verify periodic or full recapture at position on registration
 - Daytime treatment 16-20 weeks determine MMI for phase 2
 - Wean determines Phase 2
 - Orthodontics to corrected position, occlusal management
 - Possible regeneration joint injections Prolo therapy
 - Stem cells

DDR 4a



TMD Progress Report

atio	itient:	Date:											
1.	. What has been the level of your jaw, head, or facial pain since your last visit? Please Circle Below:												
	Lowest 0 1 2 3 4 5 6 7 8	9	10	Highest									
2.	2. What has improved since your last visit?												
3.	3. Have you developed any new symptoms? If so, what?												
4.	4. Do you have other areas of continued body pain? If so, where?												
5.	5. Since your LAST visit, what is your chief complaint:												
6.	6. What medications do you take for pain relief?												
7.	7. Do you fall asleep easy? Yes No Do you wake during the night? Yes No												
8.	3. Do you feel rested when you wake in the morning? Yes No												
8.	8. On average, I wear my appliances: Hrs/day		Hrs/r	night									
9.	9. When do you remove your appliances?												
10.	0. Do you feel our treatment is helping? Yes No												
11.	11. Are you seeing a chiropractor, massage therapist, or physical therapist: Yes No												
12.	2. Do you feel their treatment is helping? Yes No												
	Patient Signature			Date									

OFFICE USE BELOW

ROM with Day O	rthotic	ROM with Night Orthotic			ROM without Orthotic				
Inter-incisal Opening	mm	Inter-incisal Opening		mm	Inter	·-incisal O	pening		mm
Lateral Excursion RT	mm	Lateral Excursion RT		mm	Lateral Excursion RT				mm
Lateral Excursion LT	mm	Lateral Excursion LT		mm	Late	ral Excurs	sion LT		— mm
Deviation/Deflection	mm	Deviation/Deflection		— mm	Dev	ation/Defl	ection		mm
Ch	nief Complaints:			_	Res	sults and	d Status:		
1.			1.						
2.			2.						
3.			3.						
4.			4.						
5.			5.						
6.			6.						
Bio	Metric Results		Able to we	an Y	es N	l o	Date:		
JVA w/o Orthotic			Orthotic	Y	es N	10	Note:		
JVA with Orthotic			Referral	Y	es N	10	Note:		
Adapted Yes	No Date:		Overall Imp	oroveme	nt: %	6			
Notes:		•							TM
							The E	Biting Edg	

Injections

Laser

Modalities:

SphenoCath

...e Biting Edge™

Phase 2 Determination

What do you need to resolve and maintain the adapted position How do you decrease improper torque and excessive force Joints, Muscles, Teeth Airway

Is the patient Happy with their smile

Wear assessment, type, pattern

Determine adequate guidance at MIP and function, lateral, protrusive, chewing

Is dentin exposed, existing defective restorations

Excessive crowding

Airway and tongue space

Phase 2 determination What was your Phase 1 Treatment?

Permissive Orthotic Therapy Non Permissive Orthotic Therapy

The position you treat your phase 1 will dictate how you need to treat your phase 2

Permissive - is already a braced Apex position so vertical is your determinant

Non Permissive - is a decompressed position so joint functional position needs to be established back to an Apex position along with the corrected vertical

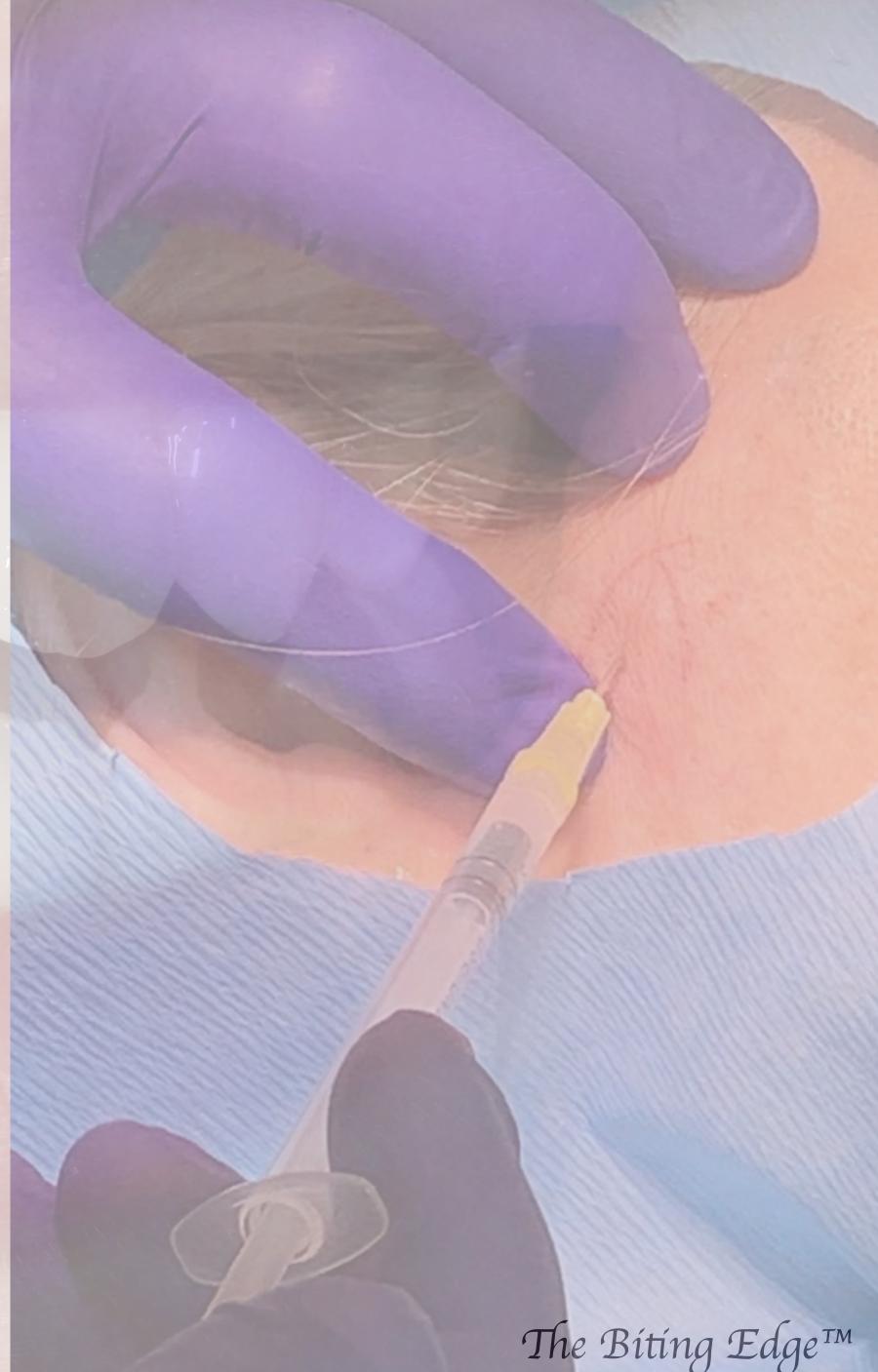
Regeneration Is Possible

Think outside the box what is possible now and in the future to develop continued health

Blending the old with the new

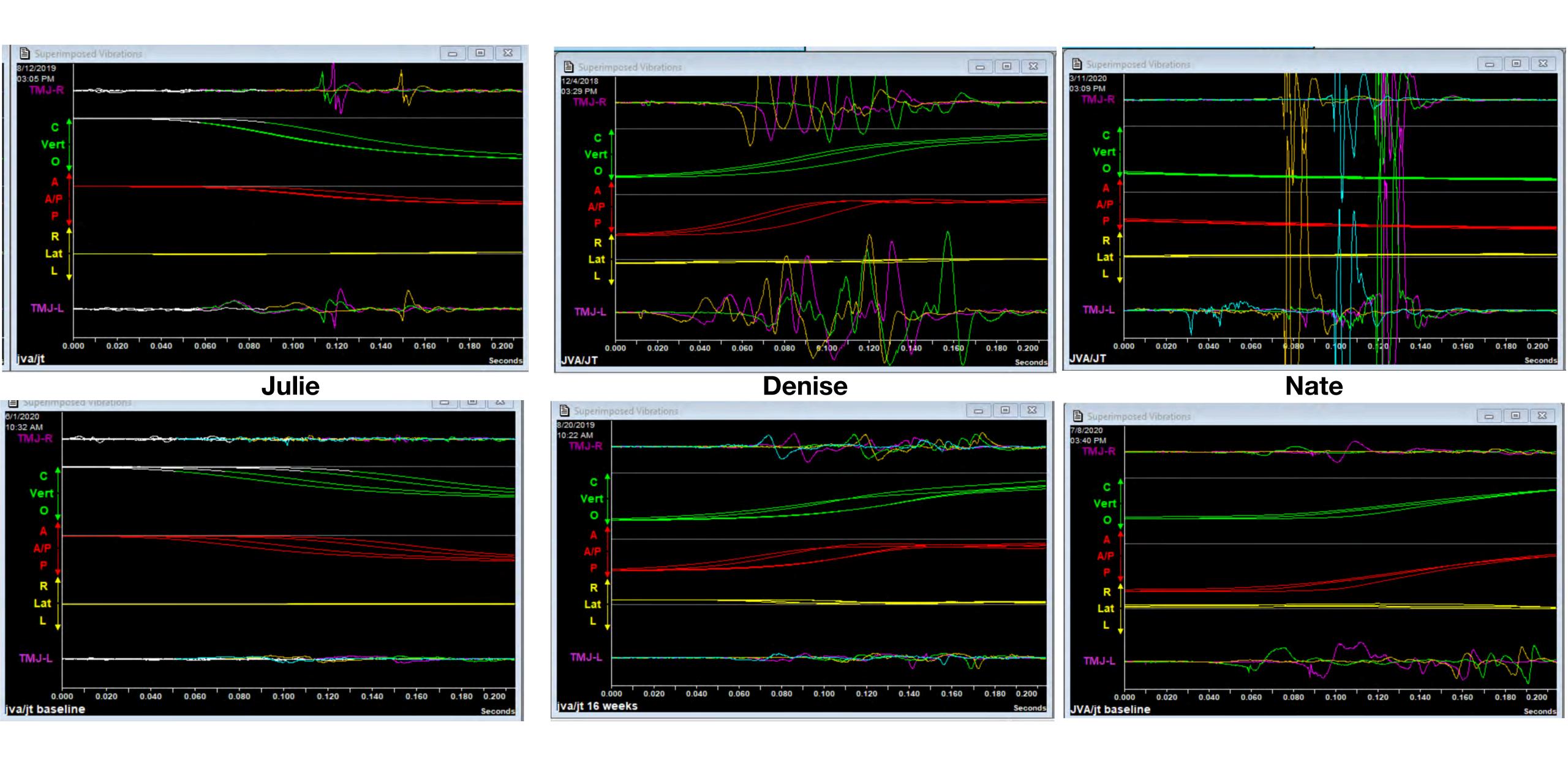
Quantify your results
What can you do better to maximize positive results





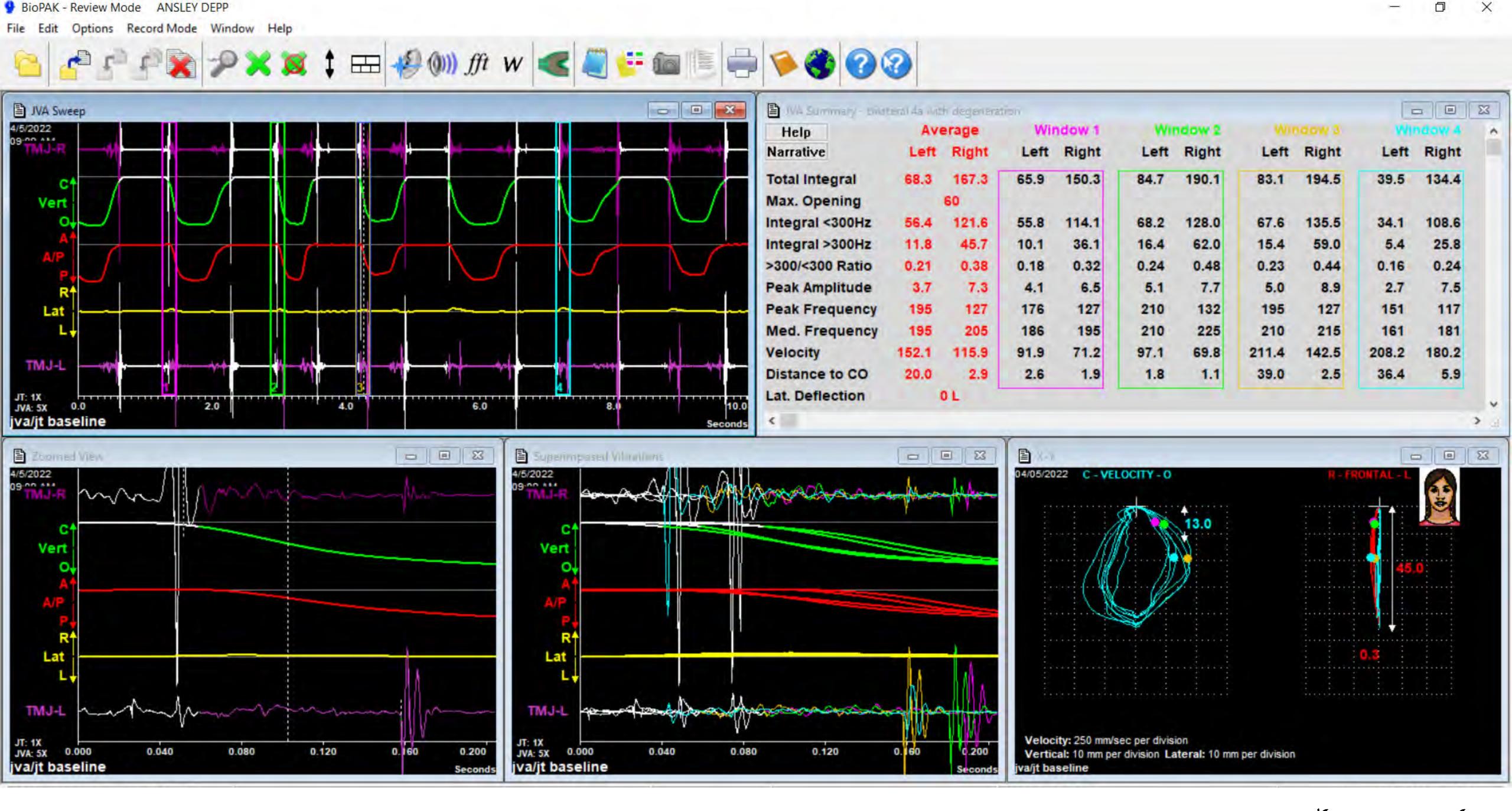


Wave Comparison of Combined Therapy for Regeneration

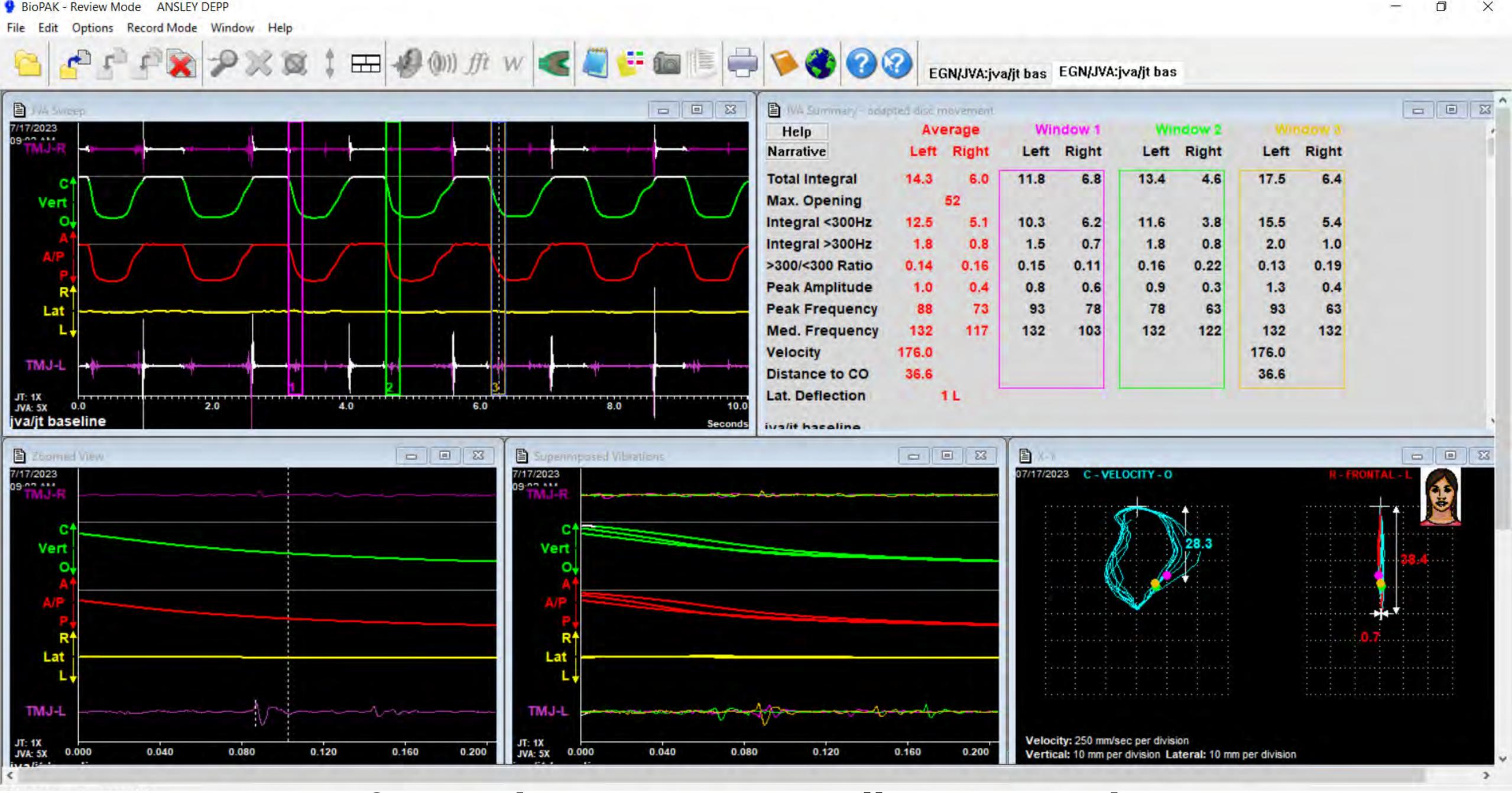


The Biting $\mathbb{E} dge^{TM}$





The Biting Edge™



12 months post stem cell regeneration



MICHAEL A. SMITH, DMD

The Biting Edge, PC Family Dentistry Biting Education, PLC



Smiles Bring Joy,
We Create Smiles

The Biting Edge

drmike@bitingeducation.com

721 W. Glendale Avenue Phoenix, Arizona 85021 602 279 7312 Office 602 618 4852 Cell

Mentorship INFORMATION

Case mentoring is a one on one diagnostic breakdown of your patient's conditions. The better the data, the more in depth we can go with understanding a diagnosis and developing an active treatment plan to establish a healthy environment for your patient.

Basic Records:

Dental/Medical History
Full mouth series of radiographs
CBCT Images
Full Series of Photos
Bite Record (CR, Phonetic, NM)
Facebow Photo

Diagnostic Models
Range of Motion

Maximum Opening and Maximum Opening with Stretch

Right, Left Lateral and Protrusive Movement

Deviations or Deflections

Pain/Function/Findings

Muscle & Joint Assessment Form

Biometric Data (JVA, JT, EMG, ROM, T-Scan)

Meeting Times:

As my schedule permits, Fridays are best since I don't typically treat patients on Fridays.

During the week, end of day works best to secure individual time without interruptions.

I am on Arizona Mountain Time.

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Option 1 - \$500

Individual Case Review

1 Hour Virtual Meeting on Teams through Outlook - \$500 Follow up - \$250 per 30 minutes

This can be a specific patient review and diagnosis or general steps, guidelines and protocols for TM, occlusion or full mouth rehabilitation.

Option 2 - \$2500

TM Start to Finish

Includes:

Initial phone conversation - 30 minutes
Determine patient objective and treatment options

Virtual meeting on Teams through Outlook - 1 hour Collaborative review of all records Diagnosis review and determination of TM treatment plan

Virtual meeting on Teams through Outlook - 30 minutes Pre-appliance delivery consultation

Virtual meeting on Teams through Outlook - 1 hour 1 Month post-appliance delivery consultation

Virtual meeting on Teams through Outlook - 30 minutes 2 Month progress and findings

Virtual meeting on Teams through Outlook - 30 minutes 3 Month progress and findings

Virtual meeting on Teams through Outlook - 1 hour MMI (Maximum medical improvement) Weaning evaluation and next steps

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Option 3 - \$5000

TM Start to Finish to Rehabilitation Phase II Joint Centered Reconstruction

Includes:

All of Option 2 plus the following:

Virtual meeting on Teams through Outlook - 1 hour Determine reconstruction plan

Virtual meeting on Teams through Outlook - 1 hour Planning for records on joint centered reconstruction. VDO mock up wax up. Lab communication

Virtual meeting on Teams through Outlook - 30 minutes Prep and plan review prior to treatment

Virtual meeting on Teams through Outlook - 30 minutes Temp review, records for lab RX and case communication

Virtual meeting on Teams through Outlook - 1 hour Cement and case delivery planning, ceramic review with cementing protocols

Virtual meeting on Teams through Outlook - 30 minutes Post op plan, occlusal refinement and finishing. Case protection determination.

Virtual meeting on Teams through Outlook - 30 minutes
Case finishing with limited occlusal refinement, post op appliance delivery

In Office Mentoring

Additional Costs

Travel expenses including airfare and hotel, travel to and from hotel, travel to and from office.

In office coaching can only be done on Fridays & Saturdays

In office \$4000 per day <u>plus</u> Option 2 In office \$4000 per day <u>plus</u> Option 3 In office without Option 2 or 3 \$6000 per day

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Sleep Dentistry: Complete Implementation Hands On

Dates: Nov 17, 18th
Location: Dallas
Clinical Mastery
Campus



MIKE SMITH



DREW CARRELL



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AESTHETIC, CONTEMPORARY RESTORATIVE,
ORTHODONTICS & COSMETIC REHABILITATION
THREE GENERATIONS IN ARIZONA

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You only know what you think you know

Until you learn what you really don't know!

Keep up with your constant search for Excellence and the Journey to Higher knowledge

See you at the next class

Thank you



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