

TMD for the GP

John R Droter DDS
Annapolis, Maryland

Annapolis, Maryland
John R Droter DDS

www.jrdroter.com



Hello. I am:

**John R Droter DDS
Annapolis, Maryland**

*Annapolis, Maryland
John R Droter DDS*

Milestones



Visiting Faculty Spear Education 2013

Visiting Faculty LD Pankey Institute 2008

Visiting Faculty Orthodontic Program
Washington Hospital Center 2000

On staff AAMC: Orthopedic Rounds
In OR for TMJ Surgery

Devoted Facial Pain Practice 1996
(No Hygiene to Check!!)

CT and MRI Imaging Joints 1992
Guy Haddix, DDS: Mentor
(3,100 images and rising)

Post Grad CE- GPR, LD Pankey Institute, Dawson, Mahan, Gremillion, Spear, Kois



TMD Therapies: (70 therapies)

Physical

Ice
Hot Cold Hot
Cold Laser
TENS in office
TENS home use
Range of motion exercises
Active Stretching: Manual, Tongue Blades, Dynasplint
Refer to Physical Therapy: Rocabado mobilization
Refer to Physical Therapy: Postural Restoration Therapy
Refer to Physical Therapy: Various Muscle Therapies
Refer to Chiropractic: Atlas Orthogonist
Refer to Osteopathic MD: Body alignment
Breathe, Walk , Exercise

Dental Orthotics

In Office Trial Anterior Stop
Diagnostic Palatal Anterior Stop
Brux Checker
Lower full coverage CR
BiArch Posterior Deprogrammer
Upper full coverage hard CR guard
Temporary home use anterior stop
Myobrace

Aqualizer
Lower Soft Sectional
Lower posterior deprogrammer
Lower TMJ Rehab flat plane
Lower postured indexed
Lower CR Indexed
Mandibular Advancement Device
Lateral Bruxing Device

Medicinal

Anti Inflammatory:
NSAIDs,
Doxycycline low dose
CBD Topical
Glucosamine/Chondroitin MSM
Vitamins: Vit C, Vit D, Vit B12
Minerals: Magnesium, Electrolytes
Minerals: Iron
Refer to MD for Lyme therapies
Refer to MD Rheumatoid Arthritis therapies
Refer Botox Masseter injections
Refer Botox Lateral Pterygoid Injections
Food

Sleep/ Fatigue

Mouth taping
Diet Modification
Positional Therapy
Vitamins: Vitamin D, Vitamin B12, Vit C
Minerals: Magnesium, Iron
Lateral Bruxing Device guided plane
Lateral Bruxing Device Elastomeric
Mandibular Advancement Device
CPAP

Occlusal Orthopedic

Lingual Light Wire
Lower soft sectional orthotic
Condylar distraction
Sectional orthodontics
Expansion orthopedics/ orthodontics
Restorative Dentistry
Occlusal Adjustment with DTR, TekScan

Tongue Parafunction

Refer for Cervical Alignment/ Stabilization
Myobrace
Upper Lingual light wire
Clear Brux Checker
Frenectomy
Myofunctional therapy

Surgical

Refer: Arthrocentesis w/ PRP
Refer: Discectomy w/ Fat Graft
Refer: Total Joint Replacement
Refer: Orthognathic Surgery

Disclosures:

Atomic Skis- Sponsored.
I got stuff

LD Pankey Institute- I am paid
a small honorarium for lectures

Spear Education- Paid
honorarium for lectures

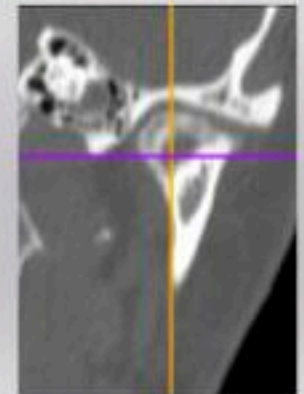
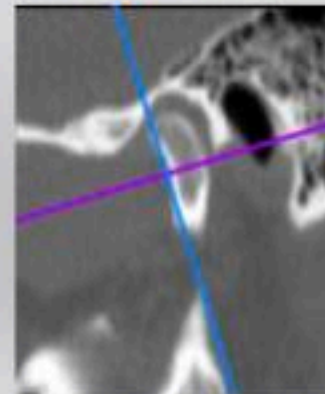
Patent on sleep device: LatBrux
Co-Owner of ArrowPath Sleep



All of my slides have been altered with
respect to cropping and exposure.
None have been "photoshopped" to misrepresent reality

I have chosen the most representative slice of and MRI and CT
scans to best represent what you would see if viewing all images

Ski Coach for National Ski Patrol
Level 3 Certified Professional Ski Instructors of America



TMD 1 Hands on: John, Herb, and Matt

March 24, 25, 26, 2022

Annapolis, Maryland

John Droter DDS
Herb Blumenthal DDS
Matt Stensrud PT

2nd date:

June 9, 10, 11 2022

Annapolis, Maryland



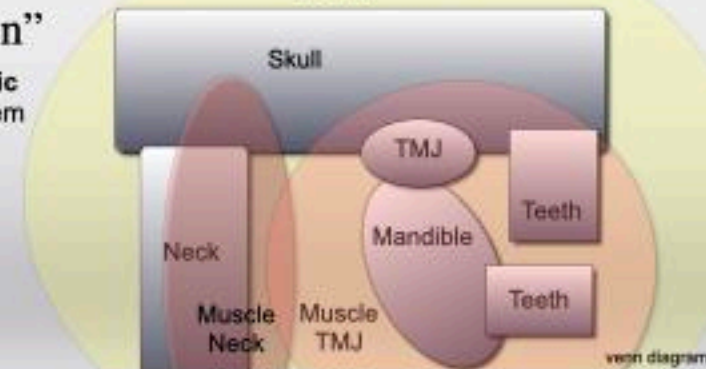
Class size limited to 12
Send email or call Amber
jdroter@mac.com
301-805-9400

Stomatognathic System Interrelationship

A change in any one area
will affect the others

“Adaptation”

This is a **dynamic**
orthopedic System



John R Droter, DDS

To get today's lecture slides:
go to www.jrdroter.com

Spear TMD

John R. Droter, DDS

HOME PATIENT DOWNLOADS NEW PATIENT EXAMS ABOUT TMD **SEMINAR DOWNLOADS** CONTACT

SEMINAR DOWNLOADS

Upcoming Seminars

July 20, 2016 D-PAS Hand on- In Office, Annapolis MD
July 21-23 2016 Droter Hands on- In office, Annapolis MD
Call Kim 301-805-9400

Pankey TMD Week, Key Biscayne FL
October 23-27, 2016
October 22-26, 2017
Call LD Pankey Institute 305.428.5500

Spear TMD Course 1 with Dr Herb Blumenthal
Aug 11-13, 2016, Scottsdale Arizona
Call Spear Education (866) 781-0072

Most Popular and Common Downloads

TMD Supersheet Download
[SuperTMDQx12.11](#)

Brux supersheet Download

TMD Therapies

John R Droter DDS
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TMDs- What are the choices? (190 Diagnoses, 7 Categories)

1. TMJ Damage

Adhesions and ankylosis of temporomandibular joint
Avascular Necrosis Mandibular Condyle
Cartilage Fibrillation, Mandibular Condyle, Fossa
Closed Lock, Jaw Cartilage, Acute
Closed Lock, Jaw Cartilage, Chronic
Closed Lock, Jaw Cartilage, Intermittent, Mechanically dysfunctional
Crush Injury Mandibular Condyle
Crystal arthropathy, unspecified, TMJ
Dislocation jaw cartilage due to injury, Sequela
Dislocation jaw cartilage with reduction, favorable adaptation, TMJ
Dislocation jaw cartilage without reduction, favorable adaptation, TMJ
Effusion, TMJ

Impingement Retrodiscal Tissue
Inflammatory Tissue Bone Resorption, TMJ Condyle
Loose Body (Joint Mice), TMJ
Malignant neoplasms of bones of skull and face
Open Lock TMJ, Recurring
Osteoarthritis TMJ, active degeneration
Osteoarthritis- inactive
Osteochondritis Dissecans TMJ
Osteolysis Mandibular Condyle, Active
Perforation Meniscus, TMJ
Psoriatic Arthritis TMJ
Rheumatoid Arthritis Sero Negative TMJ

2. Muscles of the TMJ

Dystonia
Habitual posture forward mandible
Hemifacial Muscle spasm
Inhibitory Reflex Dysfunction, Periodontal Ligament Masseter Muscle
Muscle Atrophy, TMJ
Muscle Bracing Neck Stabilization
Muscle Bracing Pain Avoidance
Muscle Bracing TMJ stabilization
Muscle Bracing Airway Patency (with Tongue)
Muscle Contracture Fibrosis Lateral Pterygoid
Muscle Contracture Fibrosis Masseter, Medial Pterygoid, Temporalis
Muscle Fatigue Overuse
Muscle Hypertrophy TMJ Muscles

3. Cranial Alignment/Occlusion

Cranial Distortion / Misalignment
Hemifacial Hypoplasia
Hyper Occlusal Awareness
Idiopathic Orthotic Damage
Malocclusion Anterior Open Bite
Malocclusion Centric occlusion Mx/C discrepancy
Malocclusion Deep Bite
Malocclusion due to mouth breathing
Malocclusion due to TMJ bone loss
Malocclusion due to tongue, lip or finger habits
Malocclusion insufficient anterior occlusal guidance
Malocclusion lack of posterior occlusal support
Malocclusion Posterior Openbite Bilateral
Malocclusion Posterior Openbite Unilateral
Malocclusion unspecified

Malposition/Misalignment: Maxilla, Temporal Bone, Mandible
Mandibular asymmetry
Mandibular hyperplasia
Mandibular hypoplasia
Mandibular Retrognathia
Maxillary asymmetry
Maxillary hyperplasia
Maxillary hypoplasia
Maxillary Retrognathia
Occlusal Adaptation, Favorable
Occlusal Dependency for Joint Stabilization/ Proprioception
Tooth Intrusion
Tooth Supereruption

4. Cervical Damage

Cervical Vertebrae Alignment Dysfunction
Cervicocranial Syndrome
Muscle Guarding due Neck Instability
Trigger Point Neck Muscle with Referred Pain
Trigger Point Neck Muscle, Localized Pain

5. Parafunction

Excessive Tooth Wear, Damage
Hypersensitive Occlusion
Parafunctional Clenching Teeth, Awake
Parafunctional Clenching Teeth, Sleep
Parafunctional Grinding Teeth, Awake
Parafunctional Grinding Teeth, Sleep
Parafunctional Clench/Grind Wiggle
Parafunctional Tongue Bracing avoiding uncomfortable tooth contact
Parafunctional Tongue Bracing Neck stabilization
Parafunctional Tongue Bracing to maintain Airway
Parafunctional Tongue Bracing unknown cause

6. Whole Body / Systemic

Lyme Disease Arthritis
Magnesium Deficiency
Obstructive Sleep Apnea
Osteoporosis without current pathological fracture
Pathological Habitual Movement Pattern
Postural Deformity Standing
Postural Deformity Walking
Postural Forward Head Position
Upper Airway Resistance, UARS

7. Other

Nerve Entrapment Masseteric Nerve due to Masseteric hypertonicity
Neurosensory Trigeminal Nerve
Obsessive-Compulsive Personality Disorder
Other
Otitis Ear Infection
Pain disorder exclusively related to psychological factors, Somatiform pain disorder
Pain disorder with related psychological factors
Peripheral Sensitization

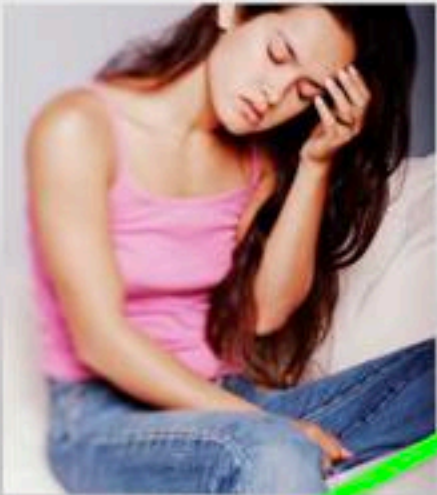
TMD Symptoms

- Sore TMJ muscles
- TMJ clicking
- TMJ pain
- Jaw locking
- Limited opening
- Difficulty open jaw
- Difficulty closing jaw
- Difficulty chewing
- Headaches
- Eye pain
- Ear pain
- Facial Pain



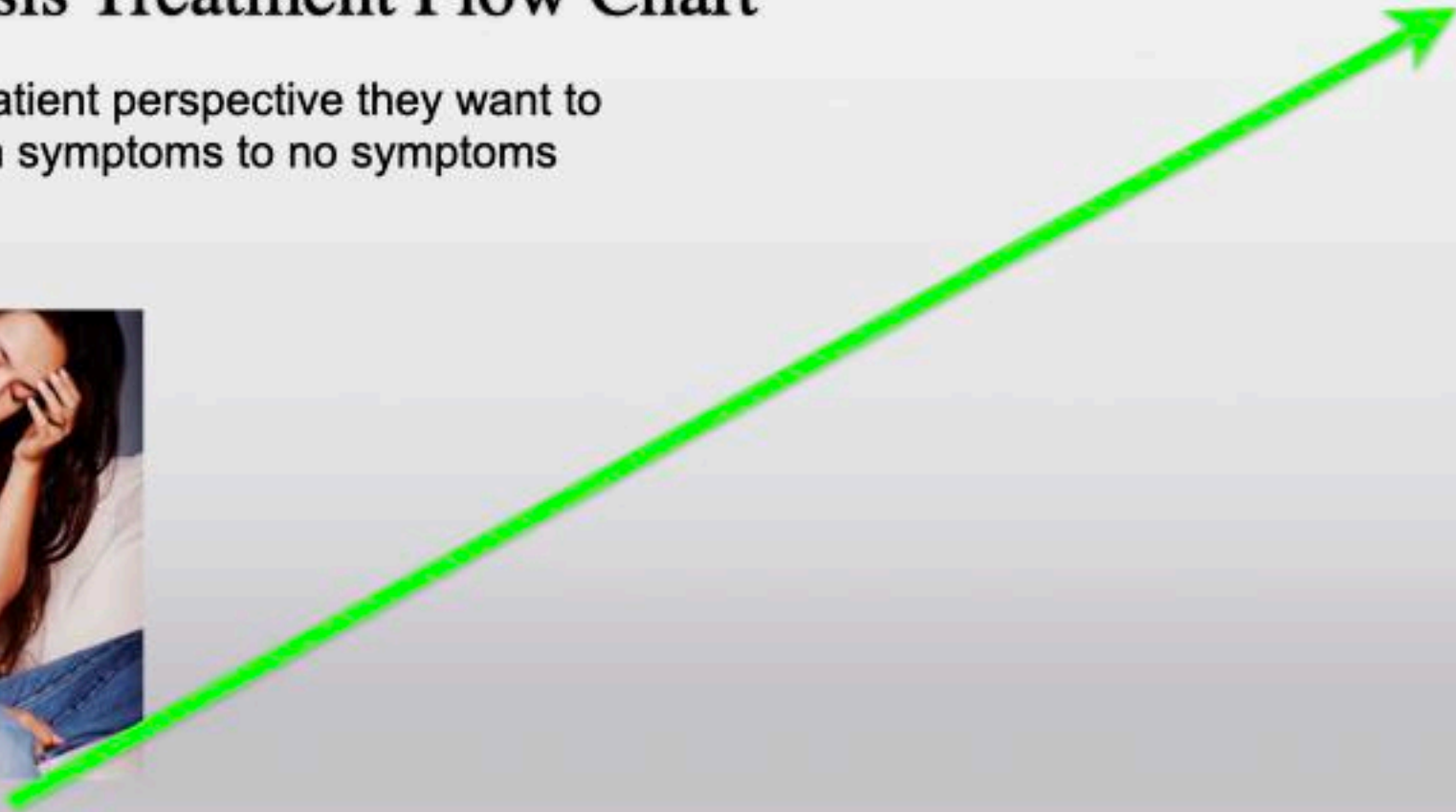
Diagnosis Treatment Flow Chart

From a patient perspective they want to go from symptoms to no symptoms



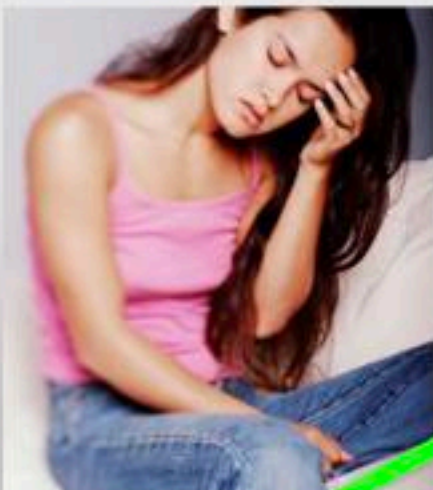
Symptoms

No Symptoms



Diagnosis Treatment Flow Chart

From a patient perspective they want to go from symptoms to no symptoms



Symptoms

History

Signs

Doctor Exam

Differential Diagnosis

Diagnostic Tests

Specific Working Diagnosis

Treatment

No Signs

No Symptoms
Final Dx

Doctor Re-Exam

If not resolved

Symptom Dx

Tooth Pain
Arthralgia

vs
vs

Specific Dx

Irreversible Pulpitis
Osteoarthritis

Diagnosis Treatment Flow Chart

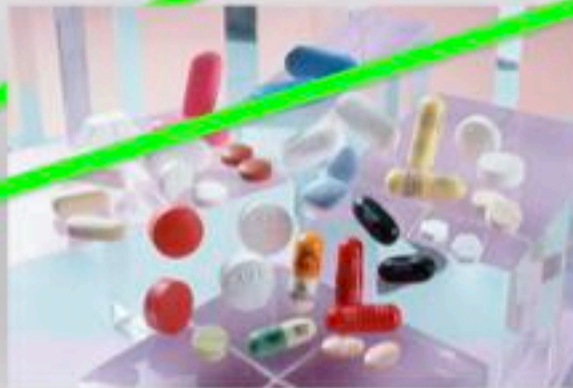
From a patient perspective they want to go from symptoms to no symptoms

No Symptoms

Less Symptoms



Symptoms



If you skip the exam, diagnostic tests, and diagnosis, you can give a therapy directed at symptoms. If you dull the symptoms the patient will perceive a benefit.

**TMD: If only one Diagnosis,
only need one Treatment**

**If only one Treatment,
only need one Diagnosis**



TMD is a symptom based (generalized) diagnosis

Different Diagnoses have Different Therapies

Specific Diagnosis

TMDs- What are the choices? (190 Diagnoses, 7 Categories)

1. TMJ Damage

Arthritis
 Ankylosis
 Dislocation
 Erosion
 Fracture
 Infection
 Injury
 Malocclusion
 Osteoarthritis
 Osteomyelitis
 Osteoporosis
 Periapical abscess
 Periodontitis
 Proliferative synovitis
 Rupture
 Trauma
 Tumor

Arthritis
 Ankylosis
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2. Muscles of the TMJ

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 Ankylosis
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 Infection
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3. Cranial Alignment/Occlusion

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4. Cervical Damage

Arthritis
 Ankylosis
 Dislocation
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 Fracture
 Infection
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 Malocclusion
 Osteoarthritis
 Osteomyelitis
 Osteoporosis
 Periapical abscess
 Periodontitis
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 Rupture
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 Tumor

5. Parafunction

Arthritis
 Ankylosis
 Dislocation
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 Fracture
 Infection
 Injury
 Malocclusion
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 Osteoporosis
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 Periodontitis
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6. Whole Body / Systemic

Arthritis
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 Injury
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 Osteoporosis
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 Periodontitis
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 Rupture
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 Tumor

7. Other

Arthritis
 Ankylosis
 Dislocation
 Erosion
 Fracture
 Infection
 Injury
 Malocclusion
 Osteoarthritis
 Osteomyelitis
 Osteoporosis
 Periapical abscess
 Periodontitis
 Proliferative synovitis
 Rupture
 Trauma
 Tumor

TMD Therapies: (70 therapies)

Physical

Ice
 Hot Cold/Hot
 Cold Laser
 TENS in office
 TENS home use
 Range of motion exercises
 Active Stretching: Manual, Tongue Blades, Dynasplint
 Refer to Physical Therapy: Root canal mobilization
 Refer to Physical Therapy: Various Muscle Therapies
 Refer to Chiropractic: Atlas Orthogonal
 Refer to Osteopathic MD: Body alignment
 Breathe, Walk, Exercise

Medicinal

Anti-inflammatory:
 NSAIDs,
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 CBD Topical
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 Vitamins: Vit C, Vit D, Vit B12
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 Mandibular Advancement Device
 Lateral Bracing Device

Sleep/ Fatigue

Mouth taping
 Diet Modification
 Positional Therapy
 Vitamins: Vitamin D, Vitamin B12, Vit C
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 Lateral Bracing Device guided plane
 Lateral Bracing Device Elasticomeric
 Mandibular Advancement Device
 CPAP

Surgical

Refer: Arthrocentesis w/ PRP
 Refer: Discectomy w/ Fat Graft
 Refer: Total Joint Replacement
 Refer: Orthognathic Surgery

Occlusal Orthopedic

Lingual Light Wire
 Lower soft sectional orthotic
 Condylar distraction
 Sectional orthodontics
 Expansion orthodontics/ orthodontics
 Restorative Dentistry
 Occlusal Adjustment with OTR, TestScan

Tongue Parafunction

Refer for Cervical Alignment Stabilization
 Myofascial
 Upper Lingual light wire
 Clear Brux Checker
 Frereactory
 Myofunctional therapy

Specific Therapy

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Breathe, Walk , Exercise

TMD Therapies

Physical

Ice Hot Cold Hot

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- Breathe, Walk, Exercise

Wet Towel in Microwave
3 Min Hot
3 Min Hot



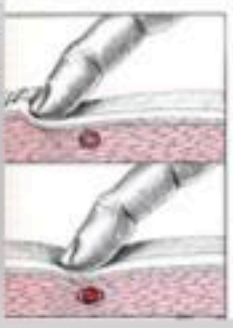
3 Min Cold

Ice Pack
 15 min 3-5x a day



ThermoSafe
 U-Tek Cold Pack
 -23° C

Triggerpoint
 in muscle



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Breathe, Walk, Exercise

Cold laser for sore joints, inflammation,
muscle triggerpoints

3x week for 3 weeks



BioResearch MLS Laser 808, 905 pulsed Diode



Handheld TENS
Acupuncture Pen

Past Dry Needling and
ischemic Pressure

BioResearch
QuadraTENS



MLS Laser: BioResearch

Multiwave Locked System Laser

808 nm Continuous, 905 nm Pulsed

Stimulates metabolic processes in cells
Decrease inflammation
Pain Reduction
Faster Healing



Diode Laser

TMD Therapies

Physical

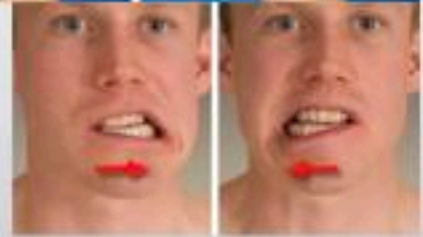
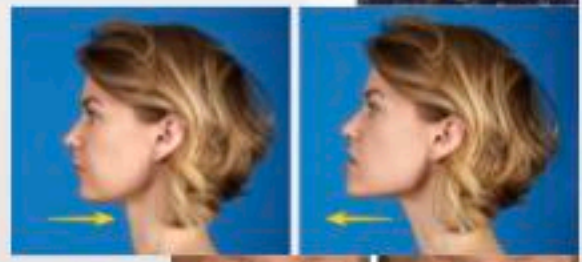
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- TENS home use

Range of motion exercises

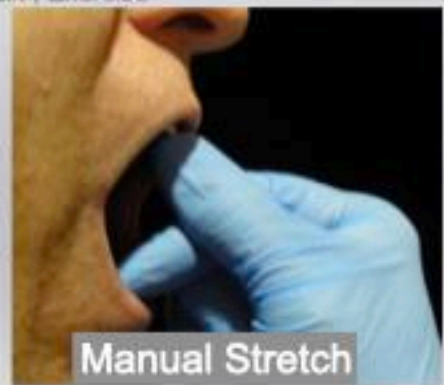
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20 reps, 5x a day, non painful
Open close, side to side, front to back



Danger,
Danger,
Danger.



Manual Stretch



Tongue Blade



DynaSplint

Must have MRI for all active stretches. You will be irreversibly tearing/stretching ligaments.

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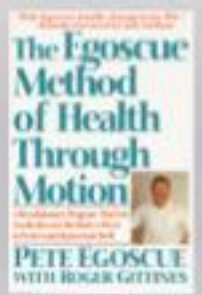
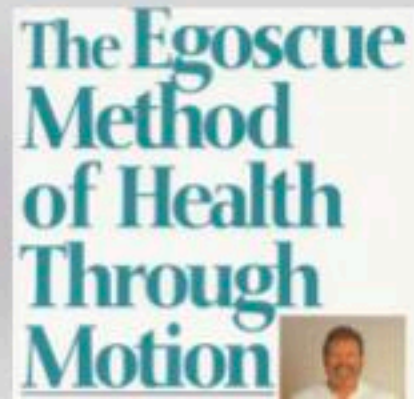
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Postural
Restoration
Therapy



Dr Mariano Rocabado

If no access to professionals.
 Do it yourself PT.
 Strengthen weak opposing muscles



TMD Therapies

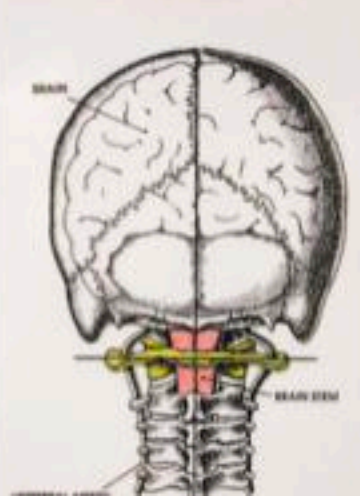
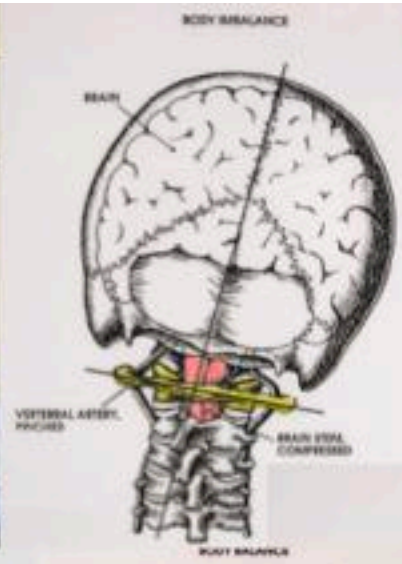
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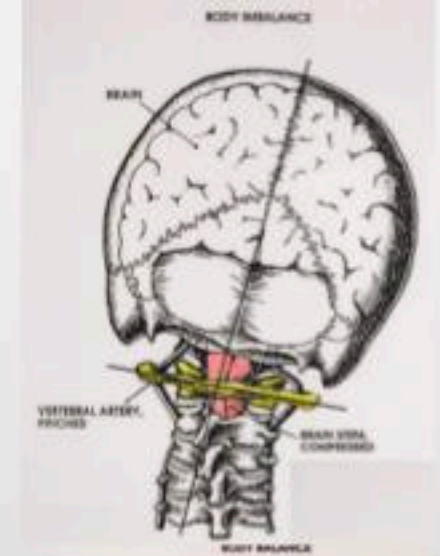
Atlas Alignment



Atlas Orthogonist
Branch of Chiropractic Medicine



Uses sound wave to move atlas,
disrupts muscle bracing



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Breathe, Walk , Exercise

Postural Restoration PT addresses these



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Lower soft sectional orthotic
Sectional orthodontics
Expansion orthopedics/ orthodontics
Restorative Dentistry
Occlusal Adjustment with DTR, TekScan
Condylar distraction

Tongue Parafunction

Refer for Cervical Alignment/ Stabilization
Myobrace
Upper Lingual light wire
Clear Brux Checker
Frenectomy
Myofunctional therapy

Surgical

Refer: Arthrocentesis w/ PRP
Refer: Discectomy w/ Fat Graft
Refer: Total Joint Replacement
Refer: Orthognathic Surgery

TMD Therapies

Medicinal

Anti Inflammatory:

NSAIDs,

Doxycycline low dose

CBD Topical

Glucosamine/Chondroitin MSM

Vitamins: Vit C, Vit D, Vit B12

Minerals: Magnesium, Electrolytes

Minerals: Iron

Refer to MD for Lyme therapies

Refer to MD Rheumatoid Arthritis therapies

Refer Botox Masseter injections

Refer Botox Lateral Pterygoid Injections

Food

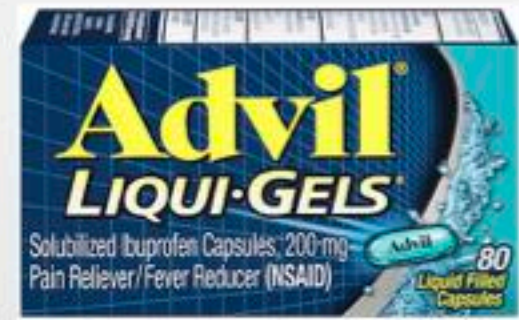
TMD Therapies

Medicinal

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- Refer to MD Rheumatoid Arthritis therapies
- Refer Botox Masseter injections
- Refer Botox Lateral Pterygoid Injections
- Food

Meloxicam 15mg qd
 Doxycycline 20mg bid
 Need Blood work CMP



No Sulfur Allergy



No women pre-menopause

TMD Therapies

Medicinal

Anti Inflammatory:
NSAIDs,
Doxycycline low dose

CBD Topical Glucosamine/Chondroitin MSM

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Minerals: Iron
Refer to MD for Lyme therapies
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Refer Botox Lateral Pterygoid Injections
Food

Shea Brand CBD



No Shellfish allergy



Vegan

Treatment OA

Osteoarthrosis

Minimize parafunction:

If sleep grinding due to airway:

CPAP or Dental Airway Device

Glucosamine 1500mg /Chondroitin 600 mg



Shea Brand CBD

Osteoarthritis

All of the above plus eliminate inflammation.....

NSAIDs

Cold Laser

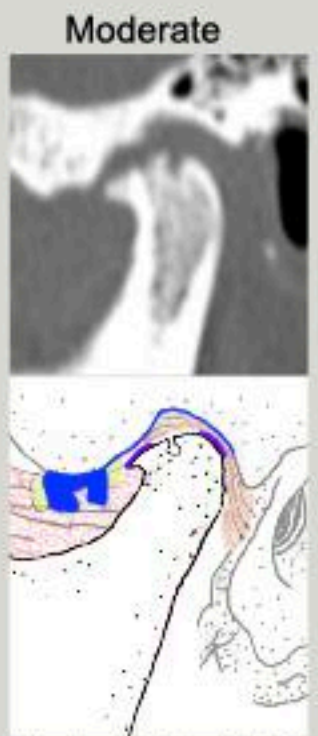
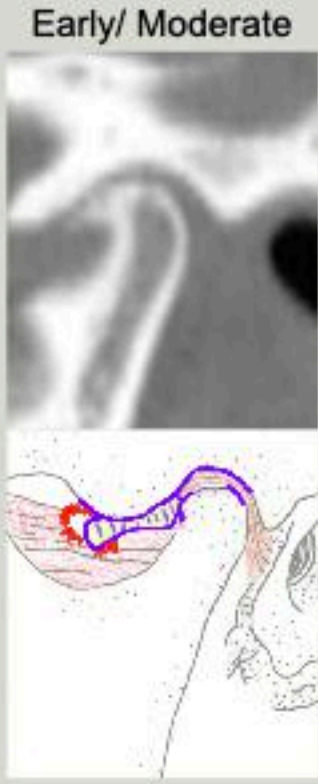
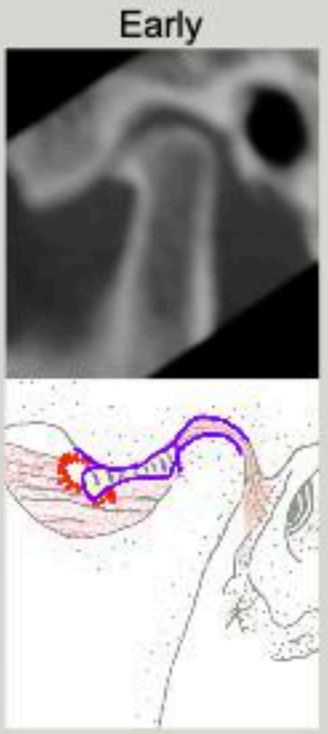
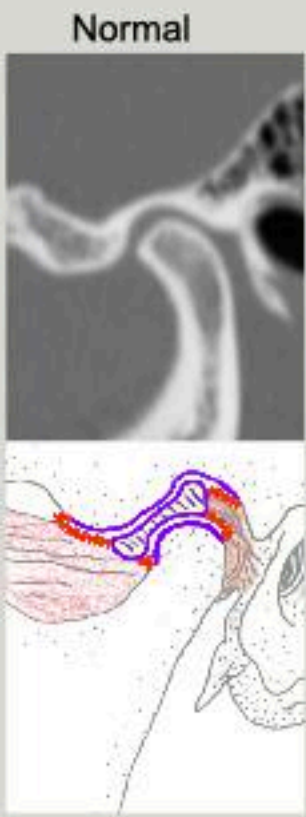
If still inflamed arthrocentesis with
Platelet Rich Plasma (PRP)



MLS Laser
3x week for 3 weeks

Osteoarthrosis/Osteoarthritis

Healthy joints have no friction or wear.
 Damaged joints have Friction. Friction causes wear.
 OA is a wearing out of a joint which starts in cartilage.
Parafunction increases wear.



Representative examples of OA in different patients

Drawings by Gretta Tomb DDS and John Droter DDS

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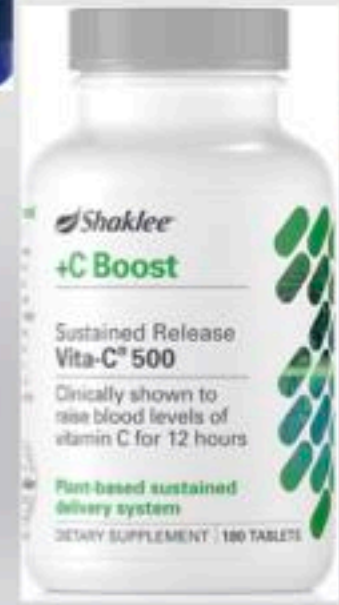
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Refer to MD Rheumatoid Arthritis therapies
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Food

Mother Earth Ionic Angstrom
Magnesium 2 oz bottle
0.5 teaspoon sublingual



Women
add iron

Vit C 1,500 mg
before exercise



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- Food



MRI STIR
Disc Lysis
Joint infection

Spikey = Rheumatoid Arthritis

TMD Therapies

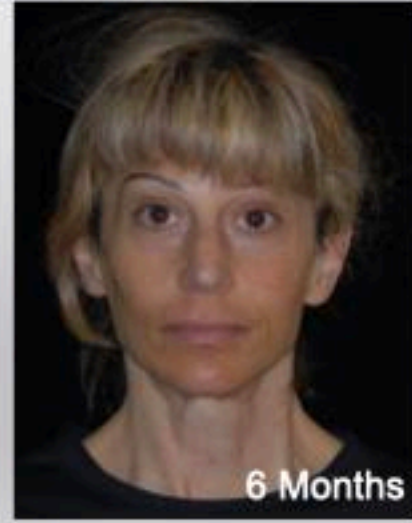
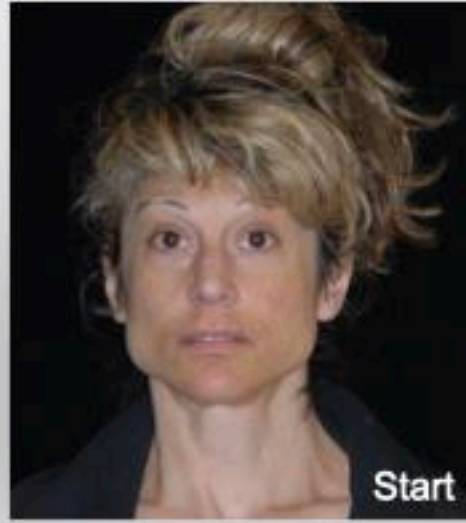
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Refer Botox Masseter injections

- Refer Botox Lateral Pterygoid Injections
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Botox for Hypertrophic Masseters from chronic clenching



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Food

Anti- Inflammatory Diet



TMD Therapies: (70 therapies)

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Hot Cold Hot
Cold Laser
TENS in office
TENS home use
Range of motion exercises
Active Stretching: Manual, Tongue Blades, Dynasplint
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Refer to Physical Therapy: Various Muscle Therapies
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Refer to Osteopathic MD: Body alignment
Breathe, Walk , Exercise

Dental Orthotics

In Office Trial Anterior Stop
Temporary home use anterior stop
Myobrace
Aqualizer
Diagnostic Palatal Anterior Stop
Lower full coverage CR
Lower posterior deprogrammer
Lower TMJ Rehab flat plane
Lower Indexed

Brux Checker
Upper full coverage hard CR guard
BiArch Posterior Deprogrammer
Mandibular Advancement Device
Lateral Bruxing Device

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Sleep/ Fatigue

Mouth taping
Diet Modification
Positional Therapy
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Minerals: Magnesium, Iron
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Lateral Bruxing Device Elastomeric
Mandibular Advancement Device
CPAP

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- Lateral Bruxing Device

Dental Orthotics

Diagnostic



ArrowPath Sleep
Anterior Stop

Management



Posterior Stop Night Guard

Therapeutic



Indexed Orthotic

Protective



Upper Hard Centric
Relation Night Guard



D-PAS



D-PAS



Centric Relation Orthotic

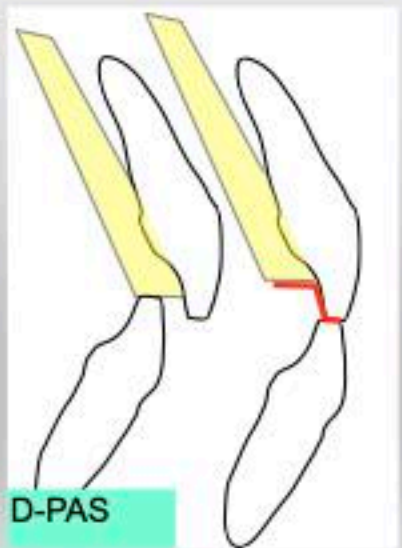
TMD Therapies

Dental Orthotics

- In Office Trial Anterior Stop
- Temporary home use anterior stop
- Myobrace
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Diagnostic Palatal Anterior Stop

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D-PAS

Diagnostic Palatal Anterior Stop

D-PAS Test: Wear 3 nights, then 2 days

Better- Decrease Symptoms

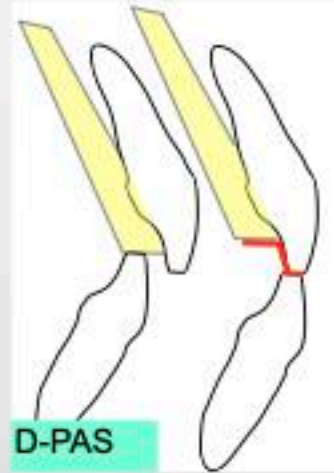
Sleep Clenching: Wear D-PAS as night guard
Occlusal Muscle Disharmony: Occlusal Adjust

Worse- Increase Symptoms

Mechanically Unstable TMJ, joint subluxation
Intracapsular Problem TMJ

Stays the Same- No Change in Symptoms

Damaged TMJ are mechanically stable
Pain not related to occlusion



TMD Therapies

Dental Orthotics

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Lower full coverage CR

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Dots in the back,
line in the front

3-6 weeks trial of an ideal occlusion



3D Print Keysplint Soft with
durasplint added to anterior

TMD Therapies

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Lateral Bruxing Device

Brux Checker Great Lakes Orthodontics

0.1mm Mylar: Same as mylar strip for composite

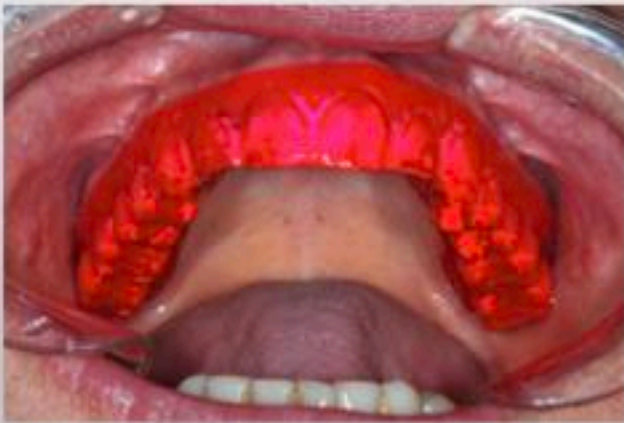


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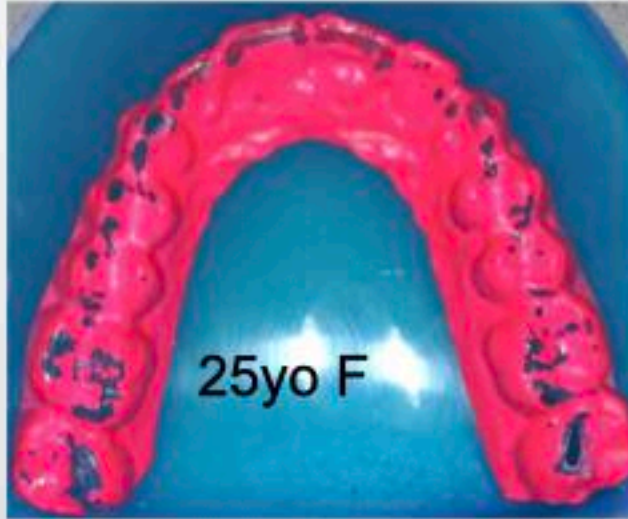
Does grinding occur awake or asleep?

Brux Checker
Great Lakes Orthodontics

0.1mm Mylar



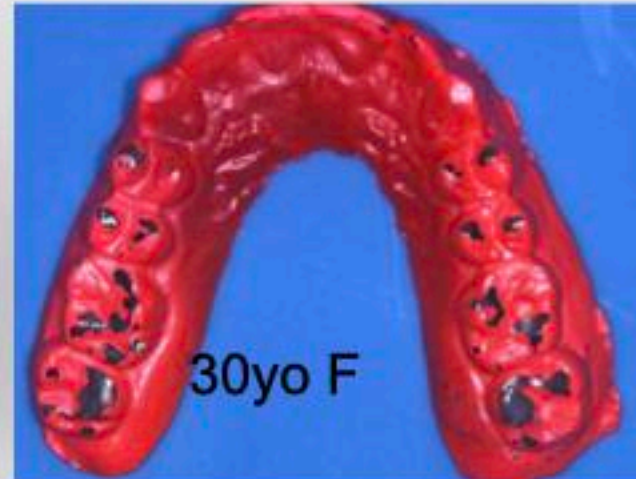
Made on Biostar Machine



25yo F



29yo F



30yo F

TMD Therapies

Dental Orthotics

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- Temporary home use anterior stop
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Brux Checker

- Upper full coverage hard CR guard
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- Lateral Bruxing Device

Clear Brux Checker
Treats Daytime Clenching
Increases awareness to break habit
Takes 6 weeks

Very thin: Similar to mylar used for composites



Great Lakes Orthodontics
Biostar Platzhalterfolie Item Ref 3202.1

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- Upper full coverage hard CR guard

Posterior Stop Night Guard

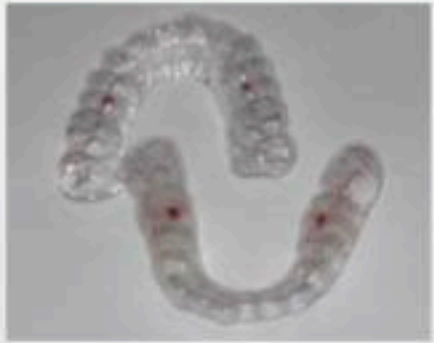
- Mandibular Advancement Device
- Lateral Bruxing Device



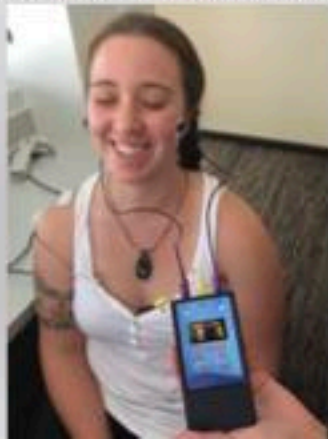
TMD Therapies

Dental Orthotics

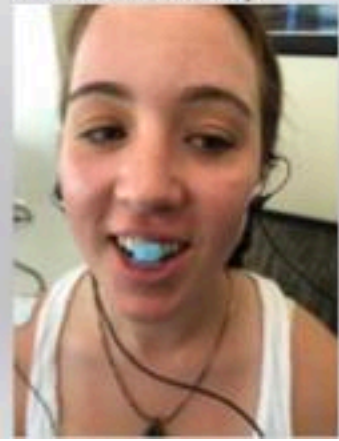
Posterior Stop Night Guard



Clench back teeth



Clench anterior stop



Can place moderate force on front teeth

Clench
Back teeth +250 μ v
Front teeth +121 μ v

M-Scan



TMD Therapies

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- Mandibular Advancement Device

Lateral Bruxing Device



APS Lat-Brux Anterior Stop Elastomers



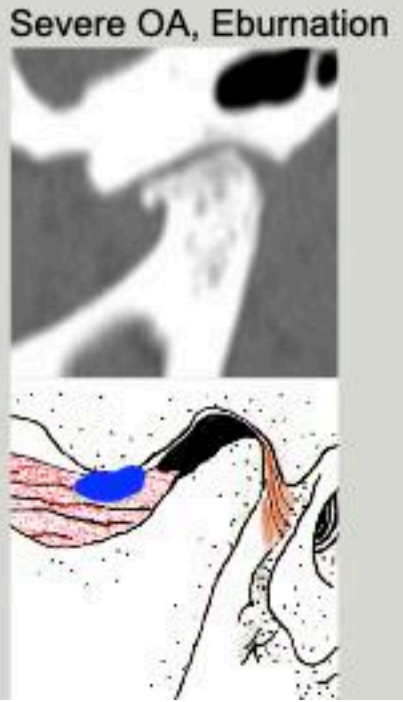
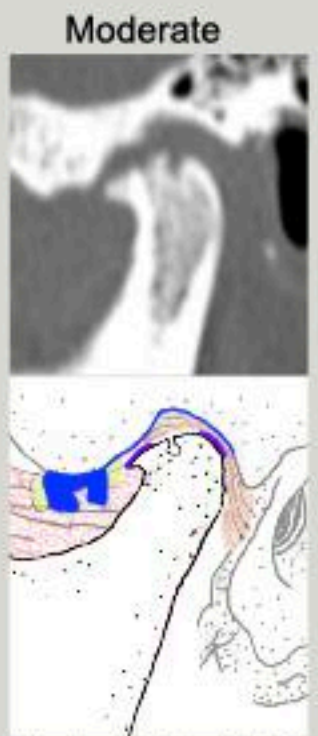
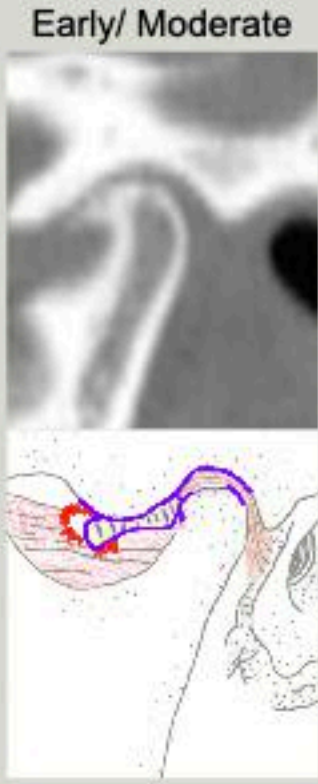
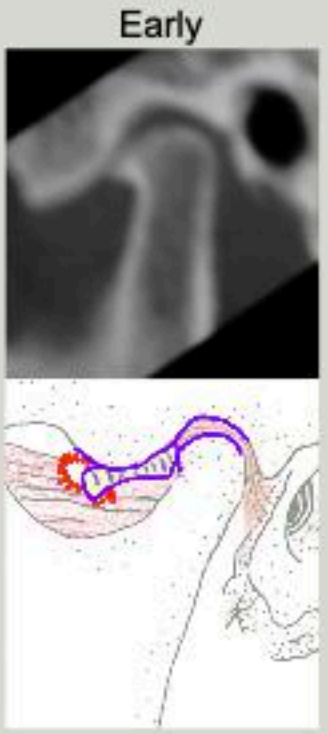
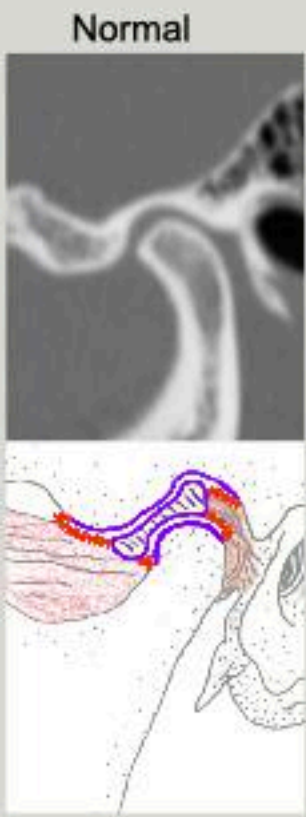
APS Lat-Brux Guide Plane

Add upper essix if not expanding upper arch

APS Lat-Brux Posterior Stop Elastomers

Osteoarthrosis/Osteoarthritis

Healthy joints have no friction or wear.
Damaged joints have Friction. Friction causes wear.
OA is a wearing out of a joint which starts in cartilage.
Parafunction increases wear.



Representative examples of OA in different patients

Drawings by Gretta Tomb DDS and John Droter DDS

TMD Therapies: (70 therapies)

Physical

Ice
Hot Cold Hot
Cold Laser
TENS in office
TENS home use
Range of motion exercises
Active Stretching: Manual, Tongue Blades, Dynasplint
Refer to Physical Therapy: Rocabado mobilization
Refer to Physical Therapy: Postural Restoration Therapy
Refer to Physical Therapy: Various Muscle Therapies
Refer to Chiropractic: Atlas Orthogonist
Refer to Osteopathic MD: Body alignment
Breathe, Walk , Exercise

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Lower Indexed

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Upper full coverage hard CR guard
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Mandibular Advancement Device
Lateral Bruxing Device

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Anti Inflammatory:
NSAIDs,
Doxycycline low dose
CBD Topical
Glucosamine/Chondroitin MSM
Vitamins: Vit C, Vit D, Vit B12
Minerals: Magnesium, Electrolytes
Minerals: Iron
Refer to MD for Lyme therapies
Refer to MD Rheumatoid Arthritis therapies
Refer Botox Masseter injections
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Sleep/ Fatigue

Mouth taping
Diet Modification
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Lateral Bruxing Device Elastomeric
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Occlusal Orthopedic

Lingual Light Wire
Lower soft sectional orthotic
Sectional orthodontics
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Restorative Dentistry

Pathological Occlusion

??Airway Related Bruxing?



Restore Function

Composite Trial Occlusion

AHI + 26 CPAP



Anterior guidance
or group function?



TMD Therapies

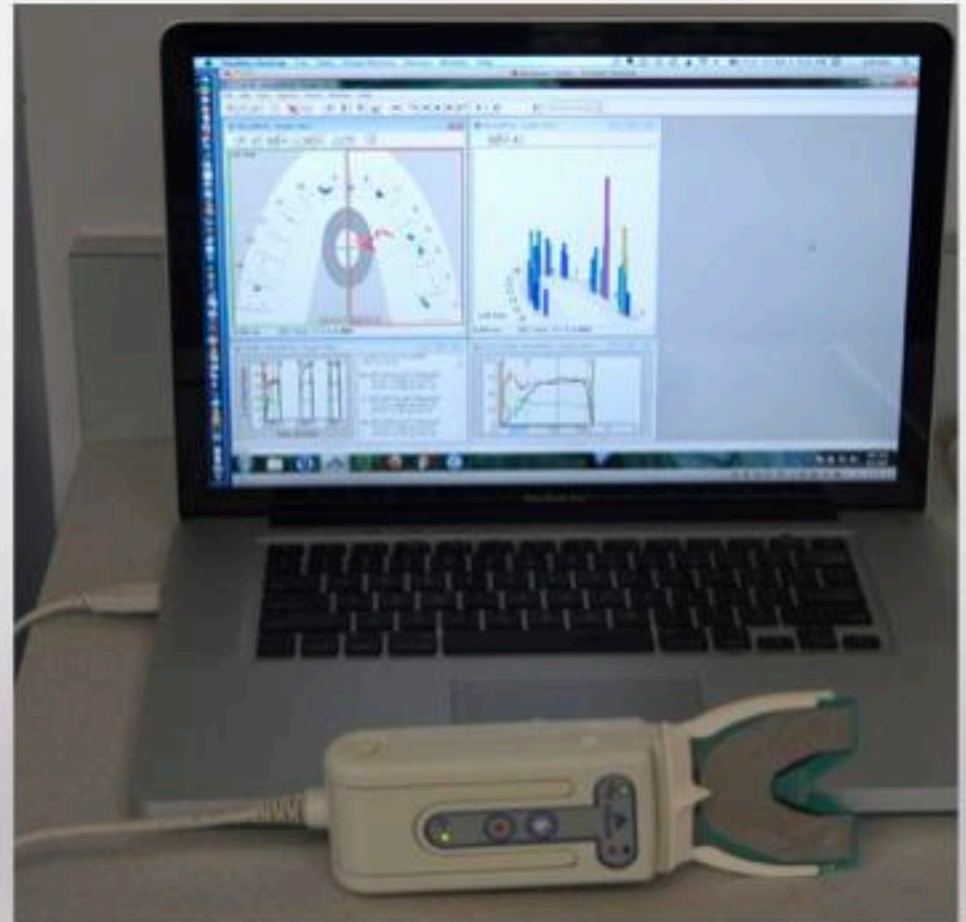
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Occlusal Adjustment with DTR, TekScan

Condylar distraction

Disclusion Time Reduction with TekScan
is more precise and more objective
than occlusal adjusting with articulating
paper/ribbon/film alone.



Occlusal Sculpting Tools, including Zirconia



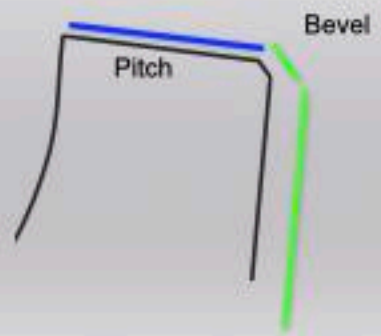
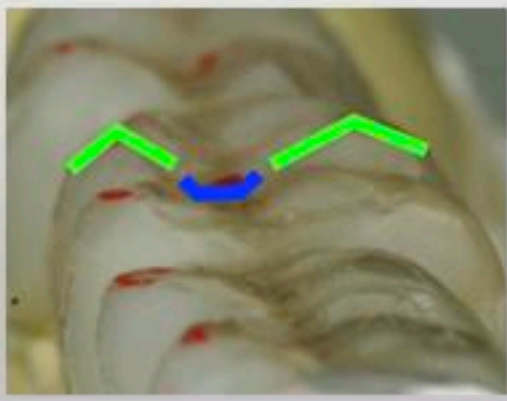
Wheel
 Create Cusp Landing Zone
 Flatten Incisal edges
 Bulk reduction of inclines



Move and Shape Cusps,
 Inclines, Facial Surfaces



Brassler Brio Shine
 FLBCER-1
 FLBF-2



Premier 860.9 F Wheel Diamond
 Premier 230 F Barrel Diamond
 Neodiamond 1118.7F Roundend taper
 Dedco Green Stone
 White Arkansas stone
 Filtek Supreme- B1B

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Condylar distraction

Orthopedically move the Maxilla



Anterior Openbite Non Surgical Treatment: Moving the Maxilla

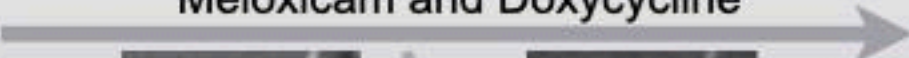


Anterior Openbite with Active TMJ Bone Loss

Non Surgical Therapies



Condylar Distraction
Meloxicam and Doxycycline



TMD Therapies: (70 therapies)

Physical

Ice
Hot Cold Hot
Cold Laser
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TENS home use
Range of motion exercises
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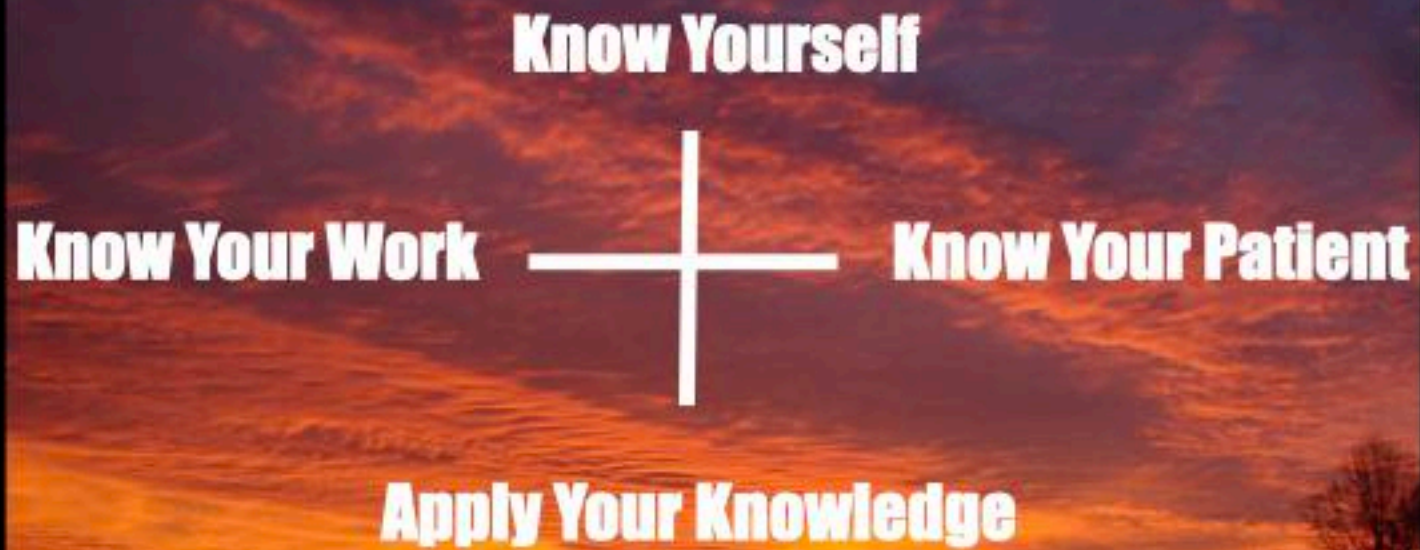
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Refer: Total Joint Replacement
Refer: Orthognathic Surgery



LD Pankey Institute

Write your Dream

TMD 1 Hands on: John, Herb, and Matt

March 24, 25, 26, 2022

Annapolis, Maryland

John Droter DDS
Herb Blumenthal DDS
Matt Stensrud PT

2nd date:

June 9, 10, 11, 2022

Annapolis, Maryland



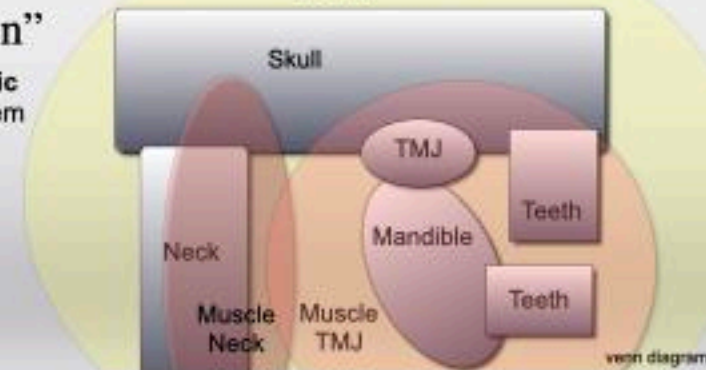
Class size limited to 12
Send email or call Amber
jdroter@mac.com
301-805-9400

Stomatognathic System Interrelationship

A change in any one area
will affect the others

“Adaptation”

This is a **dynamic**
orthopedic System



TMD Symptoms

- Sore TMJ muscles
- TMJ clicking
- TMJ pain
- Jaw locking
- Limited opening
- Difficulty open jaw
- Difficulty closing jaw
- Difficulty chewing
- Headaches
- Eye pain
- Ear pain
- Anterior Open Bite



TMD Symptoms

Difficulty chewing

Pattern:

Jaw gets tired when chewing
chewy foods

Diseases to consider and rule out:

Occlusal Muscle Dysfunction

Arthralgia- Painful TMJ

Temporal Arteritis

Other

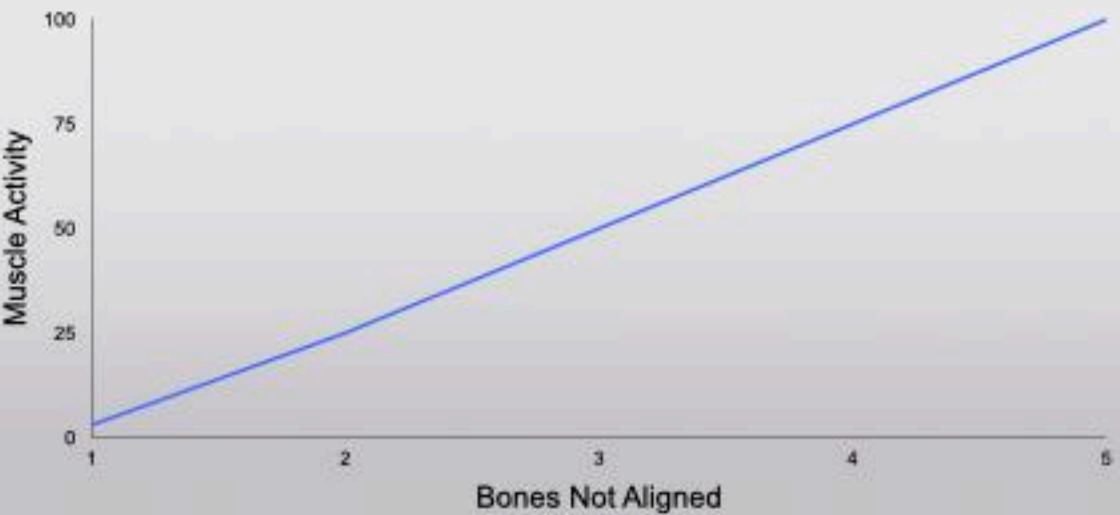


Acute vs Chronic

Orthopedic Medicine- Optimal Load Bearing Position

Every joint has an optimal load bearing position-
Most Bone Support/ Least Muscle Bracing when Loaded

Centric Relation- Optimal Load bearing position of the TMJ-
Most Bone Support/ Least Muscle Bracing when Loaded



Which position can you hold the longest?



Nemeth G, On hip and lumbar biomechanics. A study of joint load and muscular activity, Scand J Rehabil Med Suppl. 1984;10:1-35.

Occlusal Muscle Disharmony

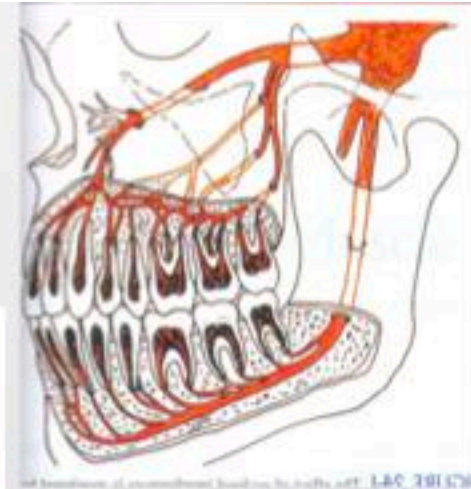
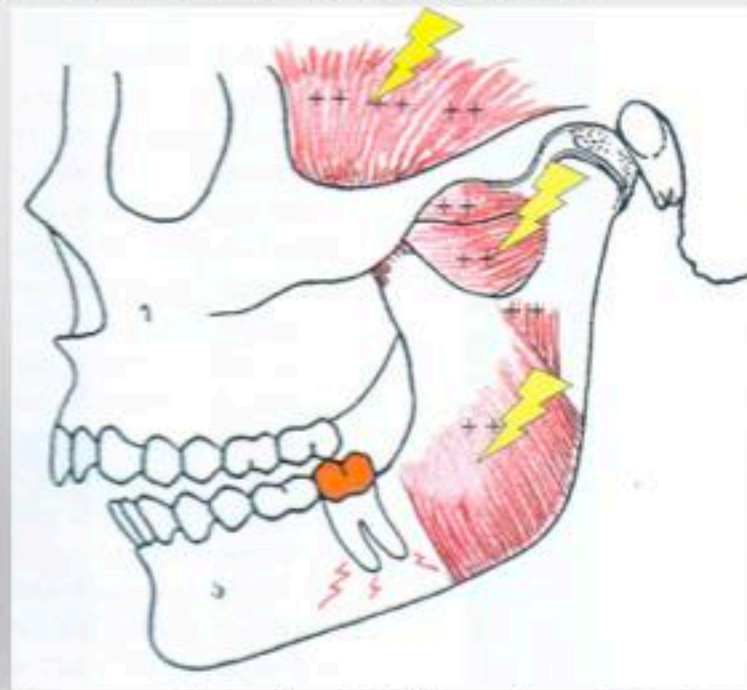
Uneven tooth contact with condyles fully seated triggers muscle activity

Lateral pterygoid fires out of sequence to create even tooth contact on closure

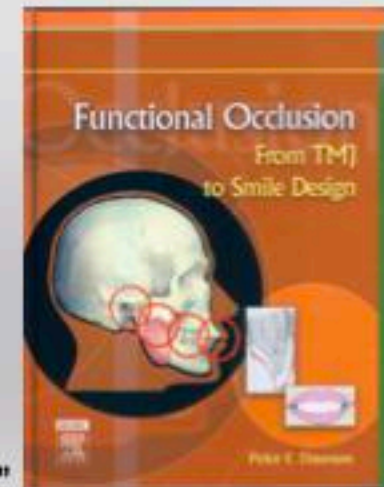
Disharmony in all muscles: Splinting/Bracing

Muscles sore from overuse

Muscles do not think- CNS input



from Dawson's Textbook, "Functional Occlusion"



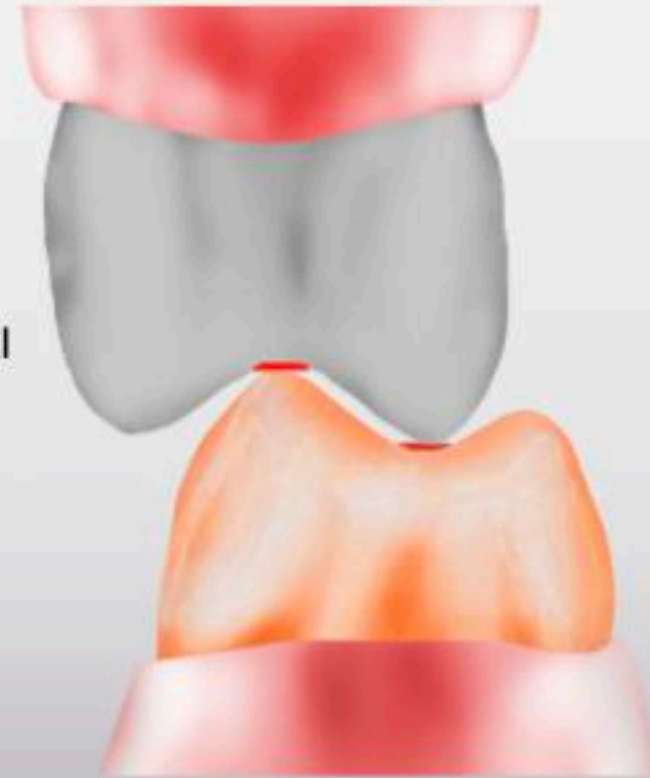
LD Pankey's 3 Rules of Occlusion

(Clyde Schuyler)

1. With the condyles fully seated in the fossa, all the posterior teeth touch simultaneously and even, with the anterior teeth lightly touching.
2. When you squeeze, neither a tooth nor the mandible moves (in a lateral direction).
3. When you move the mandible in any excursion, no back tooth hits before, harder than, or after a front tooth.

Bonus Rule- Harmonious Anterior Guidance. Cuspid guidance directs the mandible slightly forward, not backward, with smooth cross over from cuspid to anterior teeth. Protrusive contact even on both central incisors.

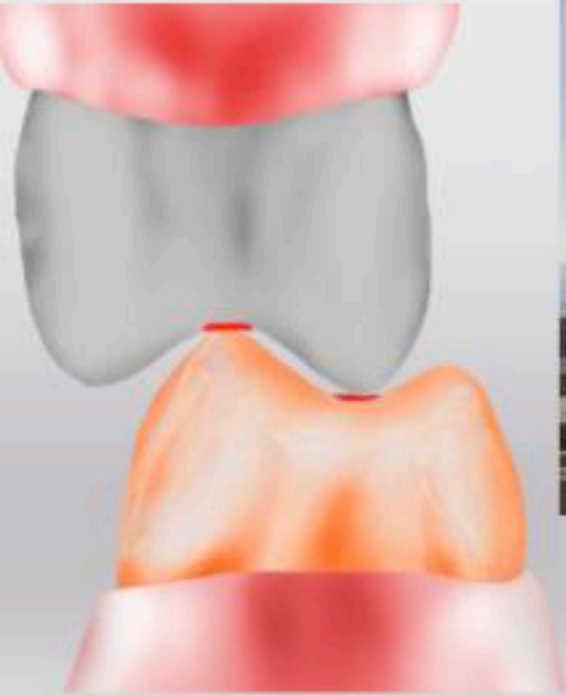
Bonus Observation- All the above work much better the closer the teeth are to being on the Curve of Spee and Curve of Wilson



Drawing by Dr Jim Kessler

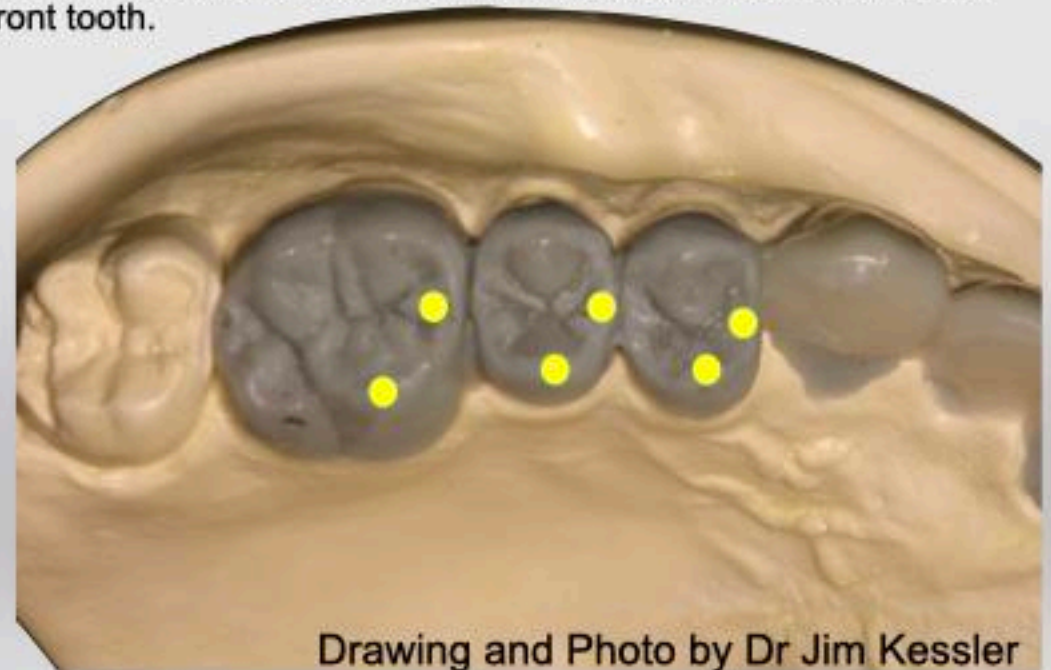
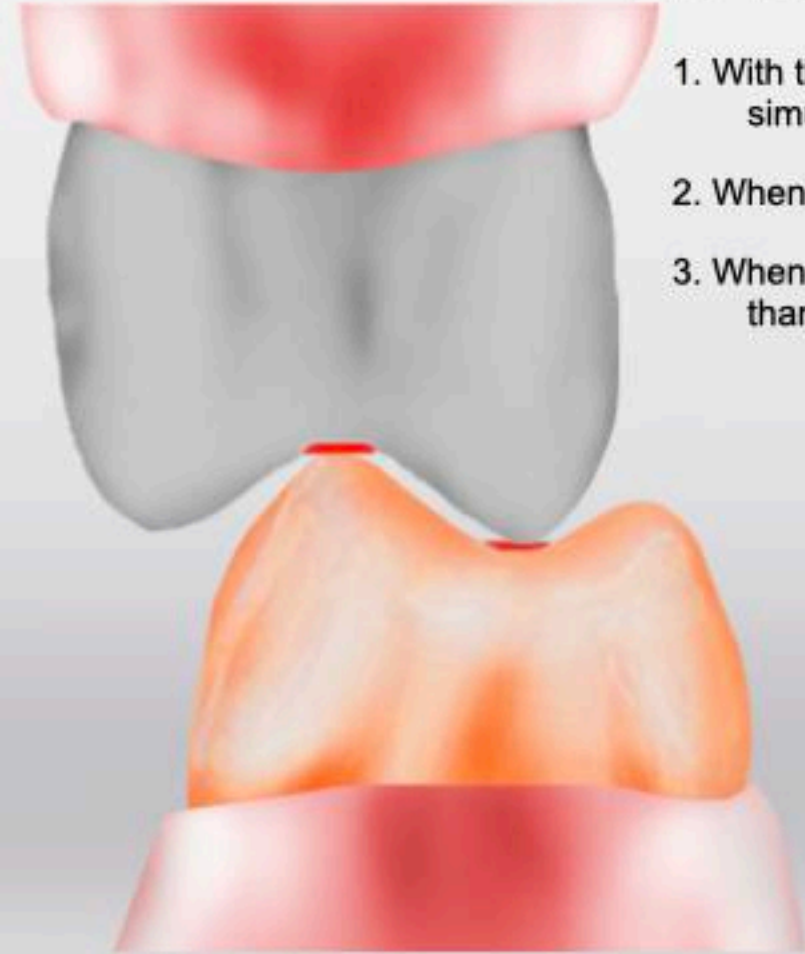
2. When you squeeze, neither a tooth nor the mandible moves (in a lateral direction).

Rule #2 = Flat Landing Area



LD Pankey's 3 Rules of Occlusion (Clyde Schuyler)

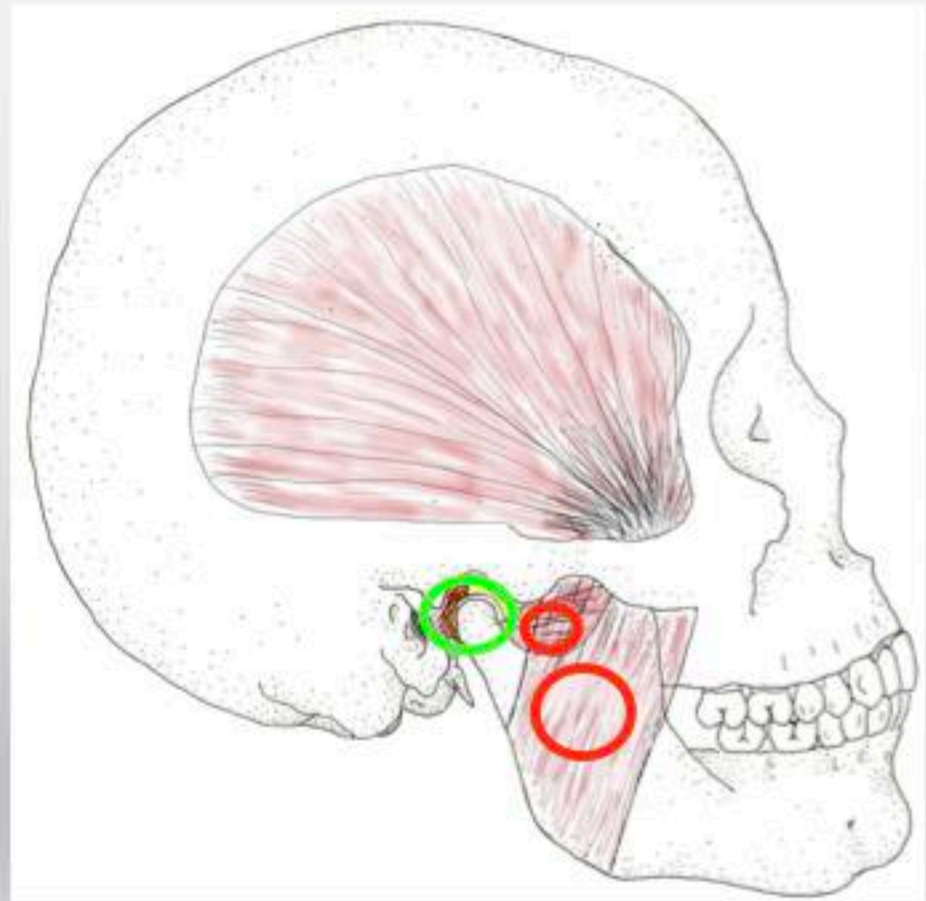
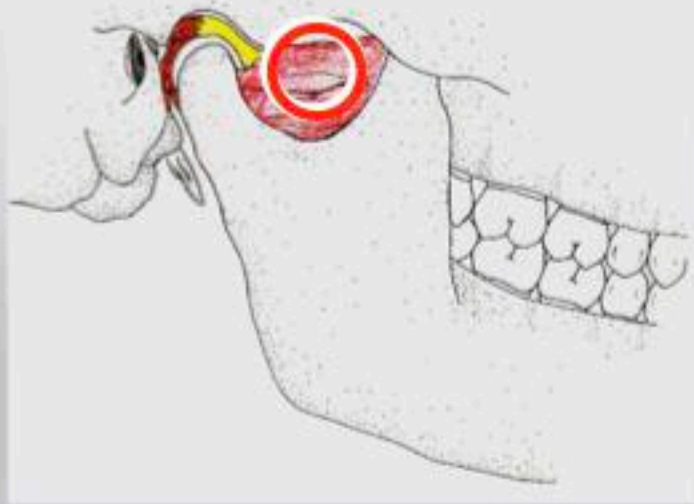
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Drawing and Photo by Dr Jim Kessler

Occlusal Muscle Dysfunction Pattern

Sore muscles when chewing
Sore Lateral Pterygoid
TMJ is not sore
Day orthotic relieves symptoms



Drawings by Gretta Tomb DDS and John Droter DDS

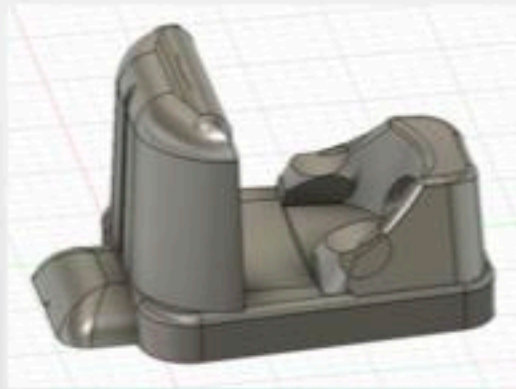
Anterior Stop Orthotic In Office Diagnostic Test



Reline with Parkell Blu-Mousse Super Fast

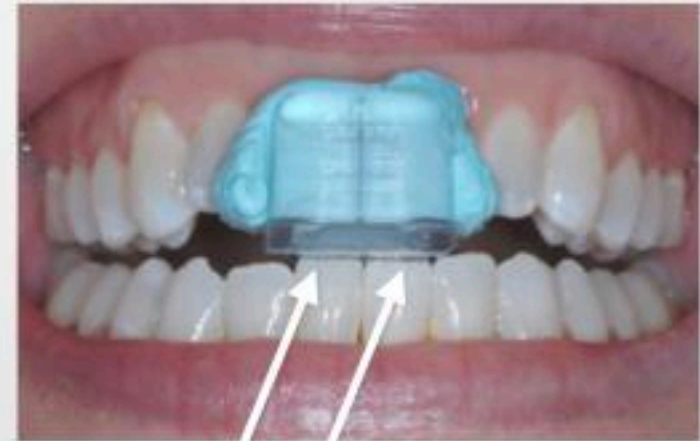


Can do 2nd reline over top of the first if needed

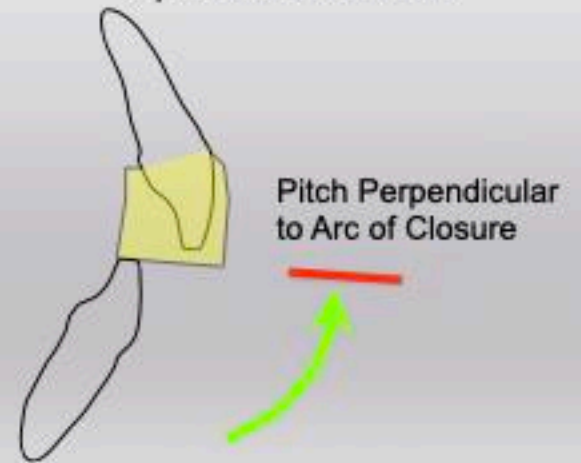


APS Anterior Stop 2.5mm

Easy to hold and align
Built in undercuts
Long enough for class 2 and class 3
Is bondable to composite



2 points of contact



Anterior Stop Orthotic In Office Diagnostic Test



ArrowPath Sleep
Anterior Stop



Deprogram Muscle Engrams

If pain reduces, Occlusion/ Cranial Alignment and/or Muscle Engrams are part of the problem

With anterior stop in place:

5-10x wide open solid tap, open tap far left, open tap far right

2nd round same except Dr unexpectedly accelerates closing a few times

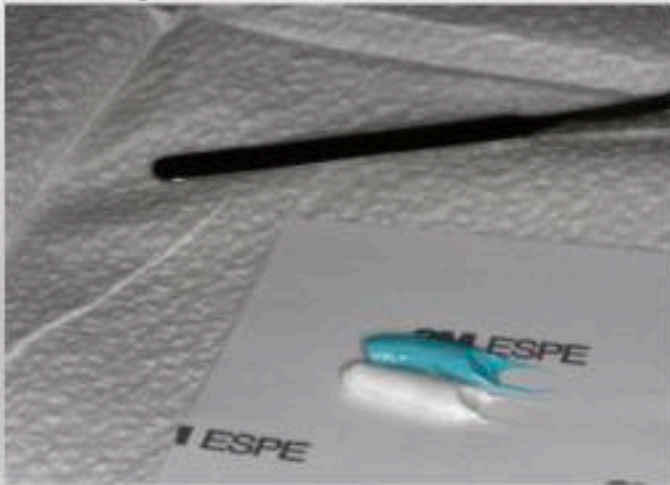
Occipital Lift with 3 deep breaths. Posterior neck opening muscle massage.

3rd round same as first except less taps each position

Office USE ONLY Do not send home with patient

Anterior Stop Orthotic In Office Diagnostic Test

Can do 2nd mix to
overlay 1st if needed



Anterior Stop Orthotic In Office Diagnostic Test

Does the occlusion, cranial alignment, and/or muscle bracing have anything to do with the dysfunction or pain?

Are the TMJ muscles inhibited from full contraction with anterior only tooth contact?



ArrowPath Sleep
Anterior stop 2.5 mm

>30% of headaches have an occlusal component

Occlusal adjustment in patients with craniomandibular disorders including headaches. A 3- and 6-month follow-up. Vallon D, Ekberg E, Nilner M. Acta Odontol Scand. 1995

Response to occlusal treatment in headache patients previously treated by mock occlusal adjustment. Forssell H, Kirveskari P, Kangasniemi P. Acta Odontol Scand. 1987

Centric Relation Orthotic

Trial of Harmonious Occlusion 24/7

LD Pankey Rules of Occlusion

Condyles fully seated

Dots in the Back

Lines in the Front

OMD is a daytime problem. Wear 24/7.

Patient gets to experience a full, solid, harmonious bite 24/7.

Doctor gains experience in setting up a harmonious bite in this particular patient

See patient at week # 1, 2, 4. Done in 3- 6 weeks.

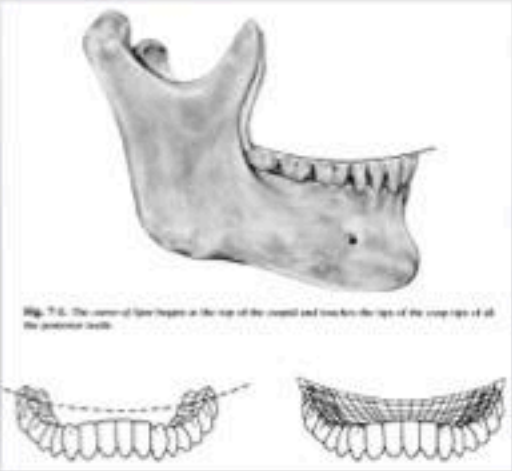
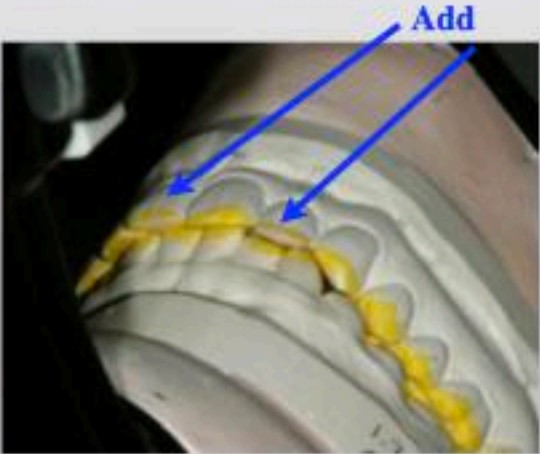


Must not rock or be squishy

Occlusal Adjusting is an Esthetic Procedure Form Follows Function



Before



After

Occlusal Sculpting Tools, including Zirconia



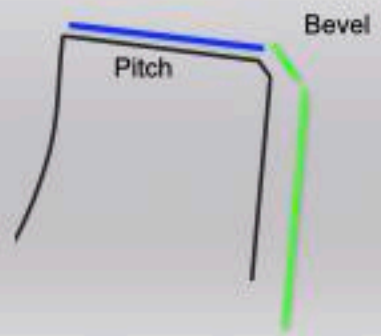
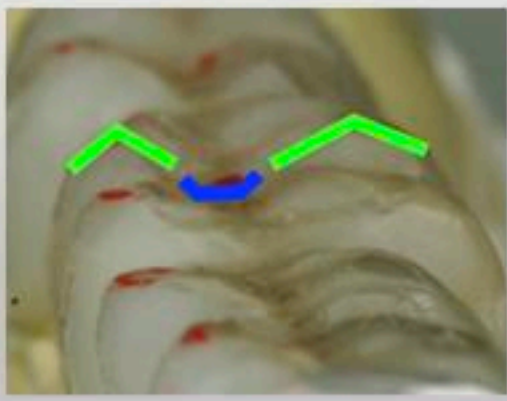
Wheel
 Create Cusp Landing Zone
 Flatten Incisal edges
 Bulk reduction of inclines



Move and Shape Cusps,
 Inclines, Facial Surfaces



Brassler Brio Shine
 FLBCER-1
 FLBF-2



Premier 860.9 F Wheel Diamond
 Premier 230 F Barrel Diamond
 Neodiamond 1118.7F Roundend taper
 Dedco Green Stone
 White Arkansas stone
 Filtek Supreme- B1B

Start Age 50



Lingual Light Wire w/ Sectional Ortho

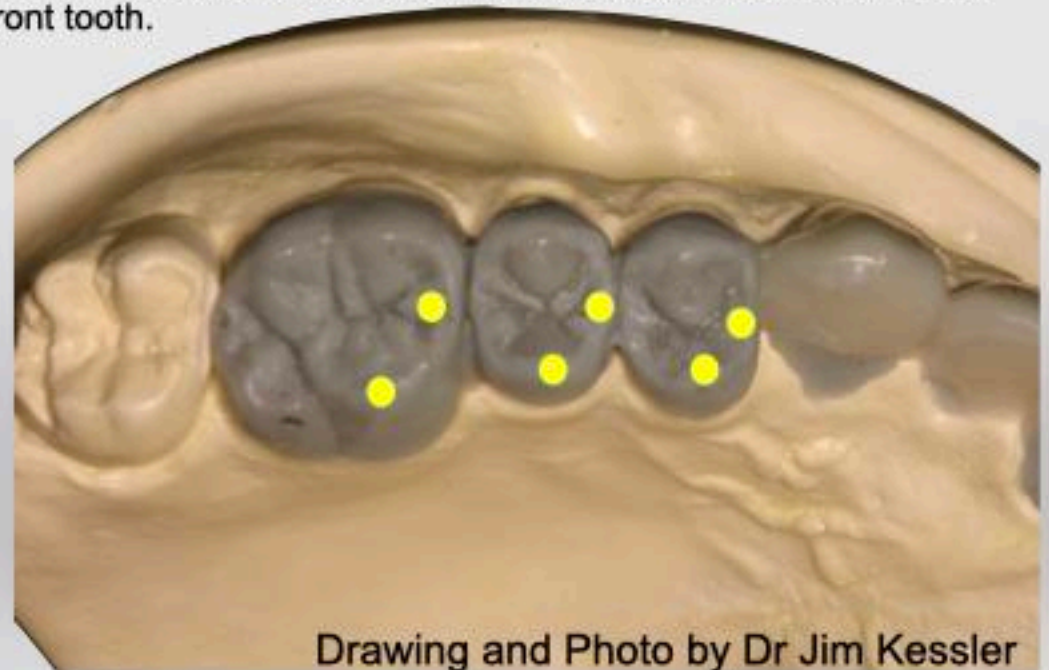
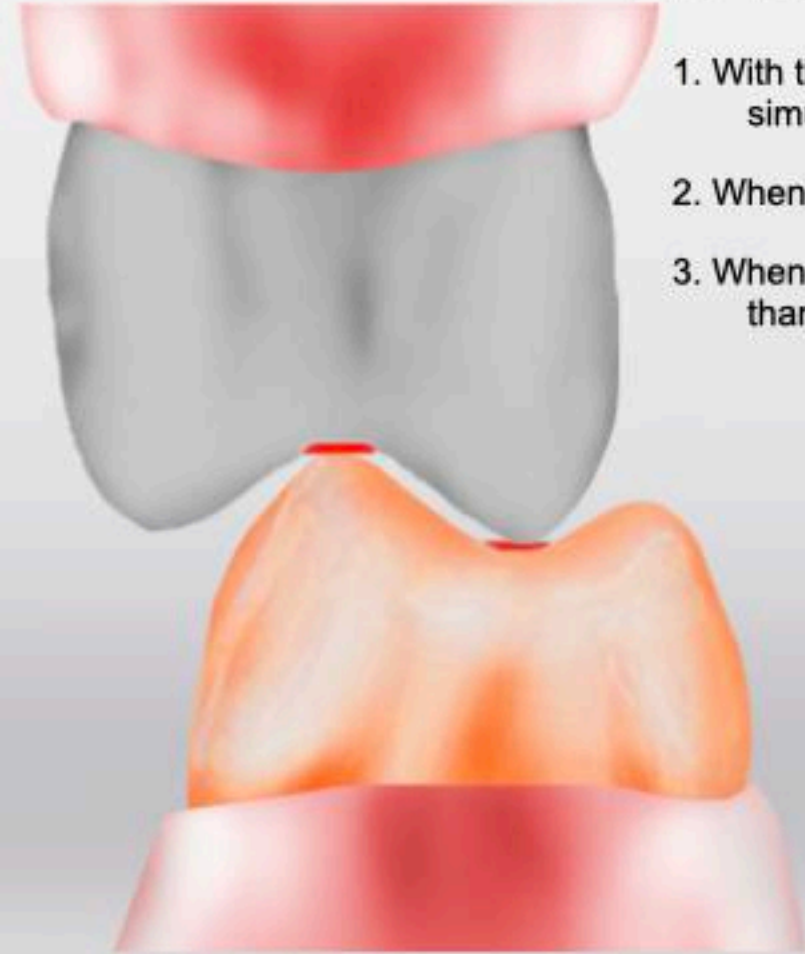


Post Occlusal Reshaping



LD Pankey's 3 Rules of Occlusion (Clyde Schuyler)

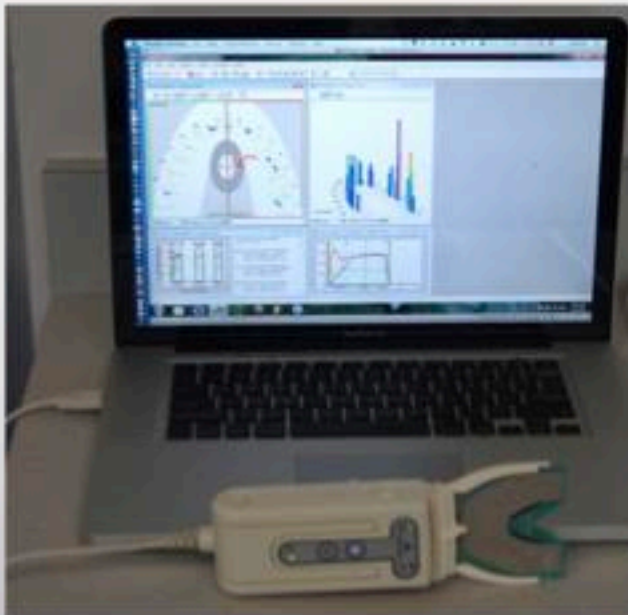
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Drawing and Photo by Dr Jim Kessler

T-Scan Computerized Occlusion

Measures Timing: Disclusion Time



Articulating Paper leaves evidence after the events

Not Live

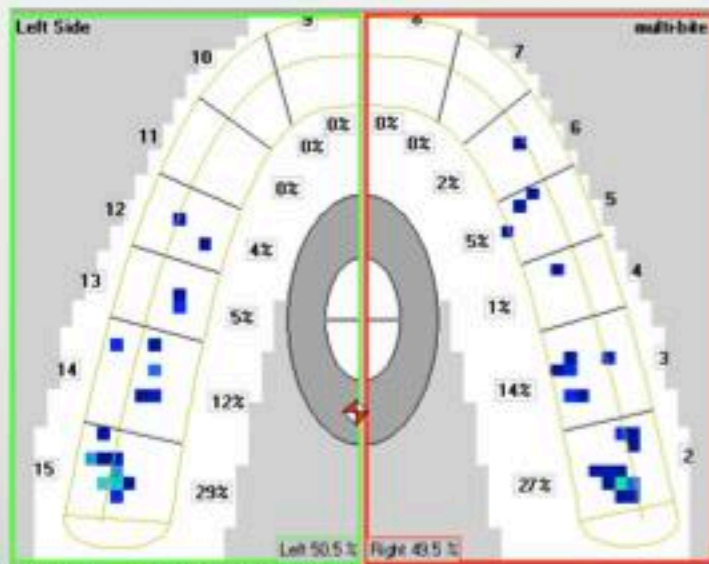
All events lumped together

Using Since 1999

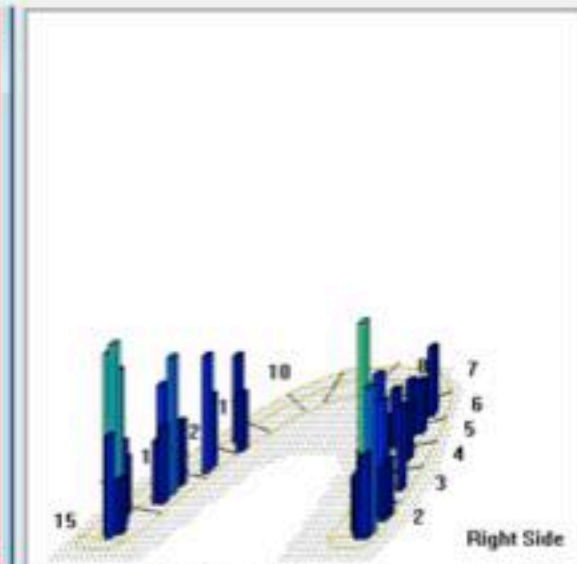


Time Force Graphic Representation of the Occlusion

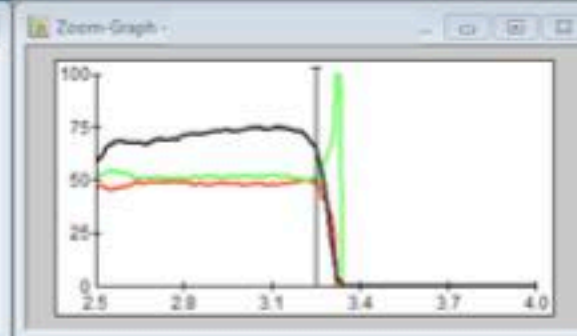
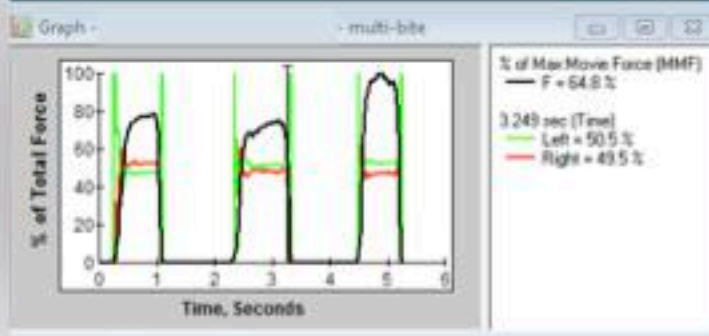
T-Scan Gives you:
 Timing
 Intensity
 Location
 Distribution



3.249 sec | Force: 64.8 % of MMF | Left 50.5 % | Right 49.5 %

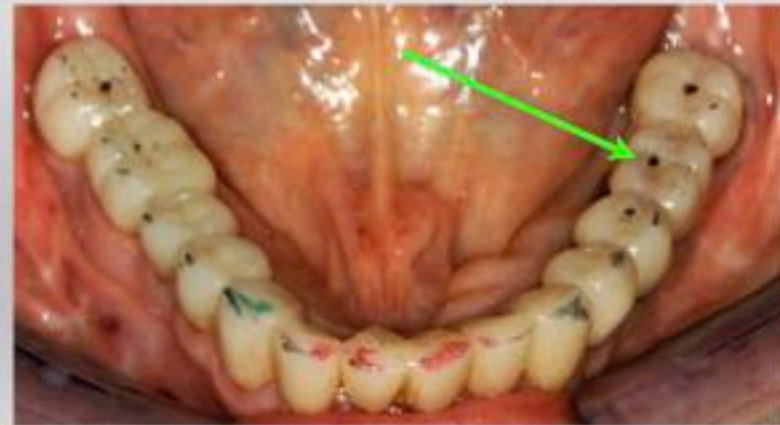
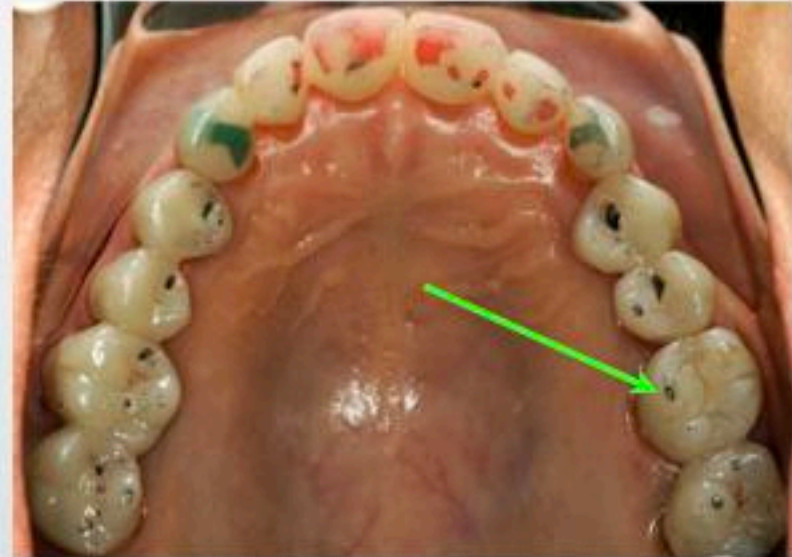
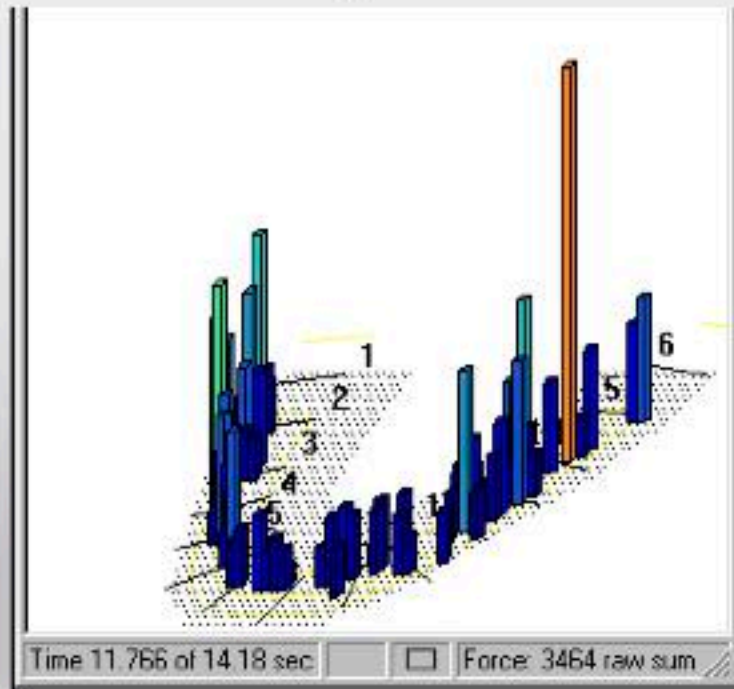


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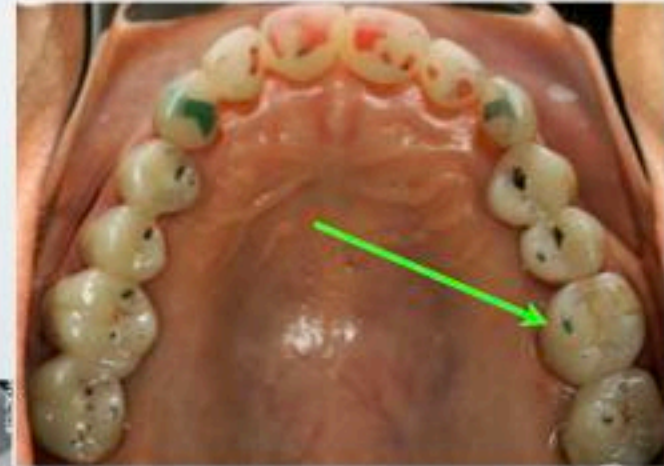
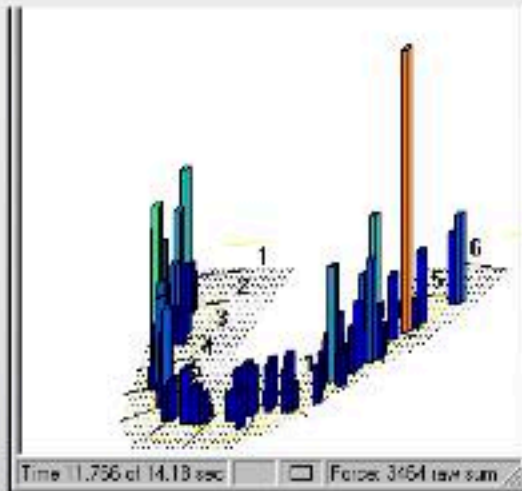
“Occlusion in Slow Motion”
 Regular 10 msec intervals
 Turbo 2.5 msec

Which dot on temps is heavy?



Implant Occlusion

Implants not moving in occlusion is incorrect

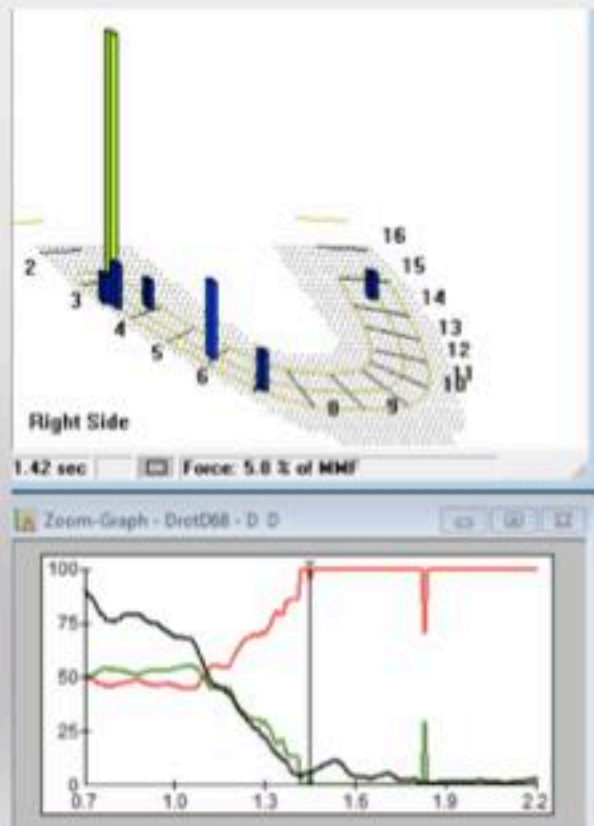


Implants and teeth will both compress bone.

Implants need to come into contact after the PDL compression phase and then they will behave the same as teeth in the bone compression phase.


The indispensable value of T-Scan is not in finding heavy CR contacts, but working and nonworking interferences.

Is that a smudge or a muscle activating interference?



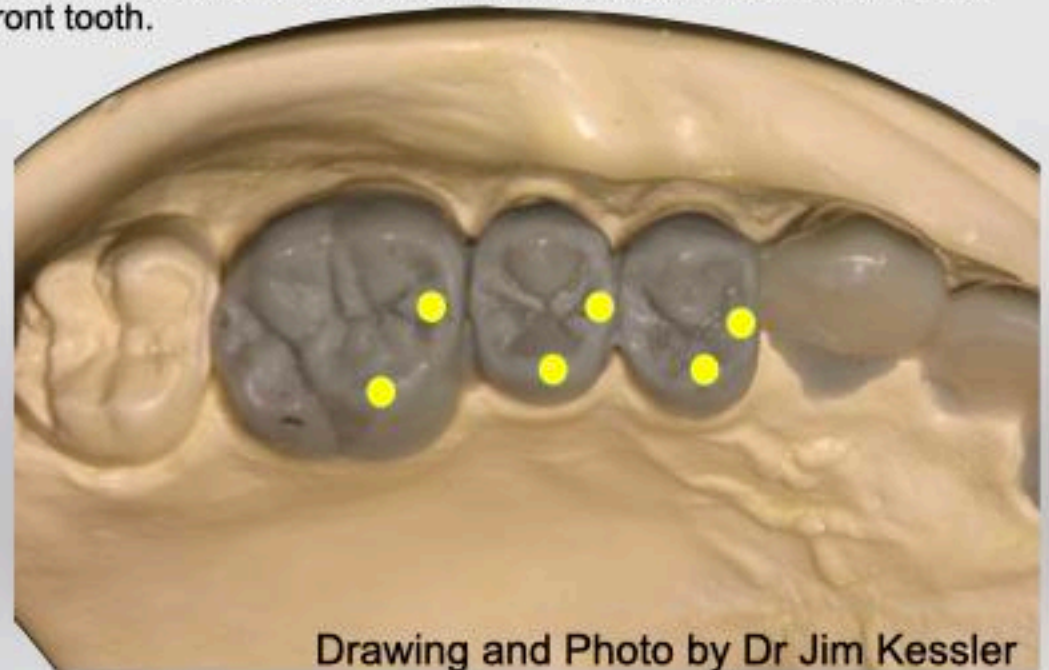
Remove too much and you decrease the ability to chew, especially lettuce. Chewing lettuce requires posterior inclines coming close enough to chew, but far enough apart to not touch and activate muscle.

LD Pankey's 3 Rules of Occlusion (Clyde Schuyler)



Most Crowns are not made like this

1. With the condyles fully seated in the fossa, all the posterior teeth touch simultaneously and even, with the anterior teeth lightly touching.
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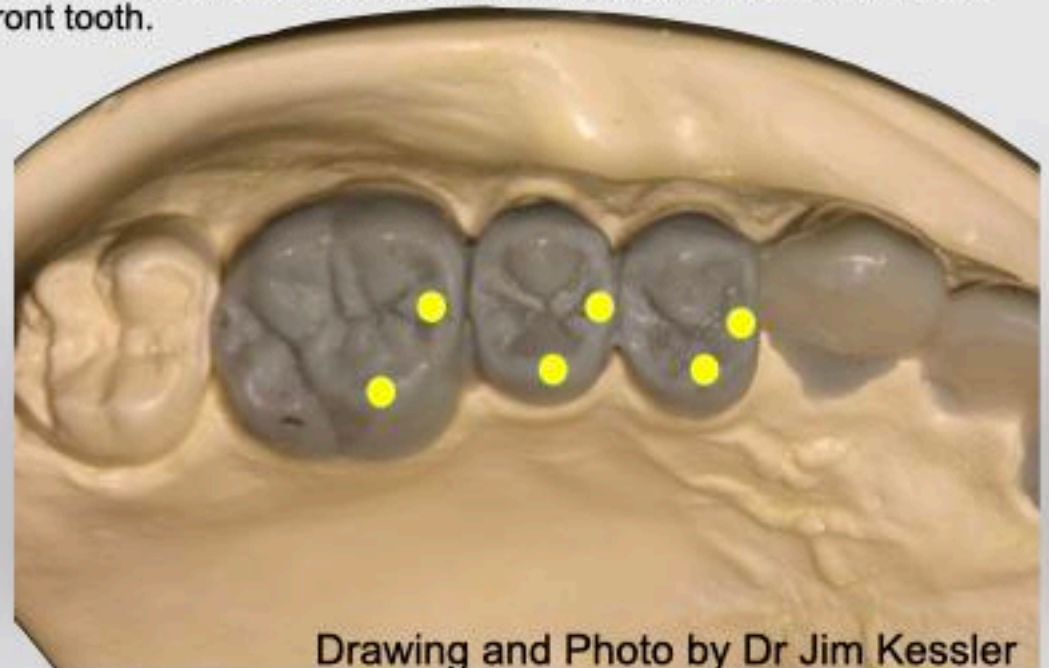


Drawing and Photo by Dr Jim Kessler

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Most Crowns are either like this

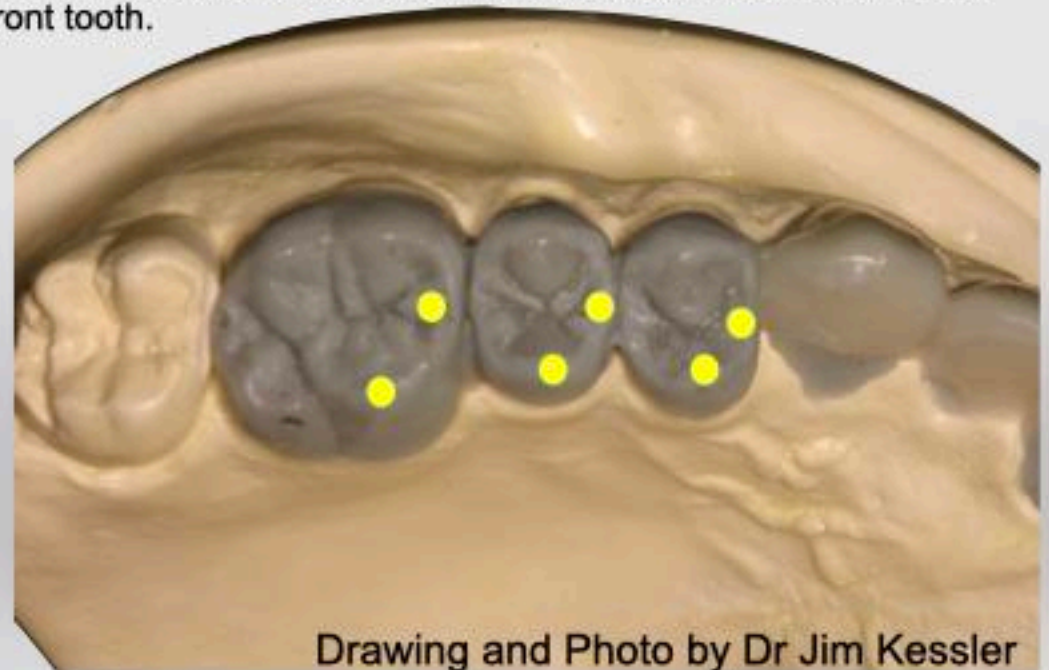


Drawing and Photo by Dr Jim Kessler

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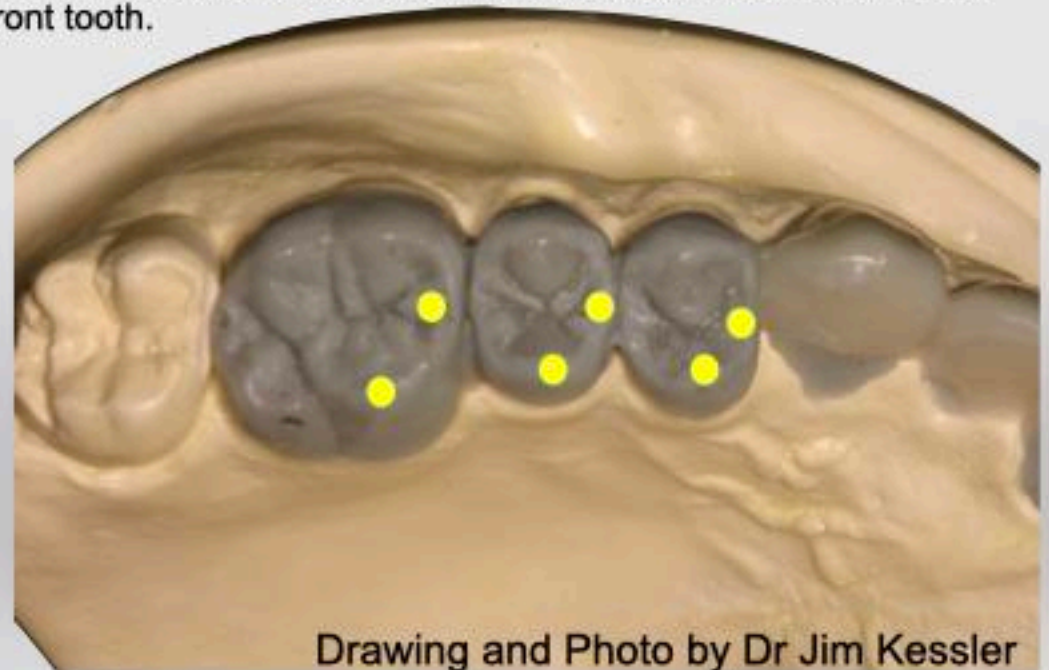
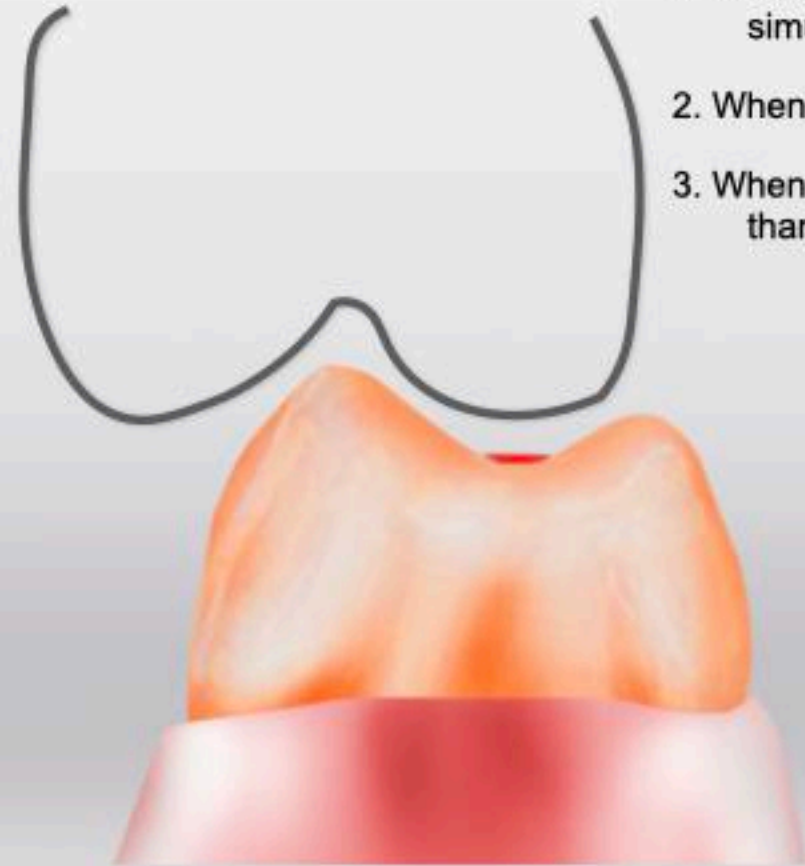
or this



Drawing and Photo by Dr Jim Kessler

LD Pankey's 3 Rules of Occlusion (Clyde Schuyler)

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Drawing and Photo by Dr Jim Kessler



www.Despair.com

MEDIOCRITY

IT TAKES A LOT LESS TIME
AND MOST PEOPLE WON'T NOTICE THE DIFFERENCE
UNTIL IT'S TOO LATE.



Dr. Glenn Kidder 2015

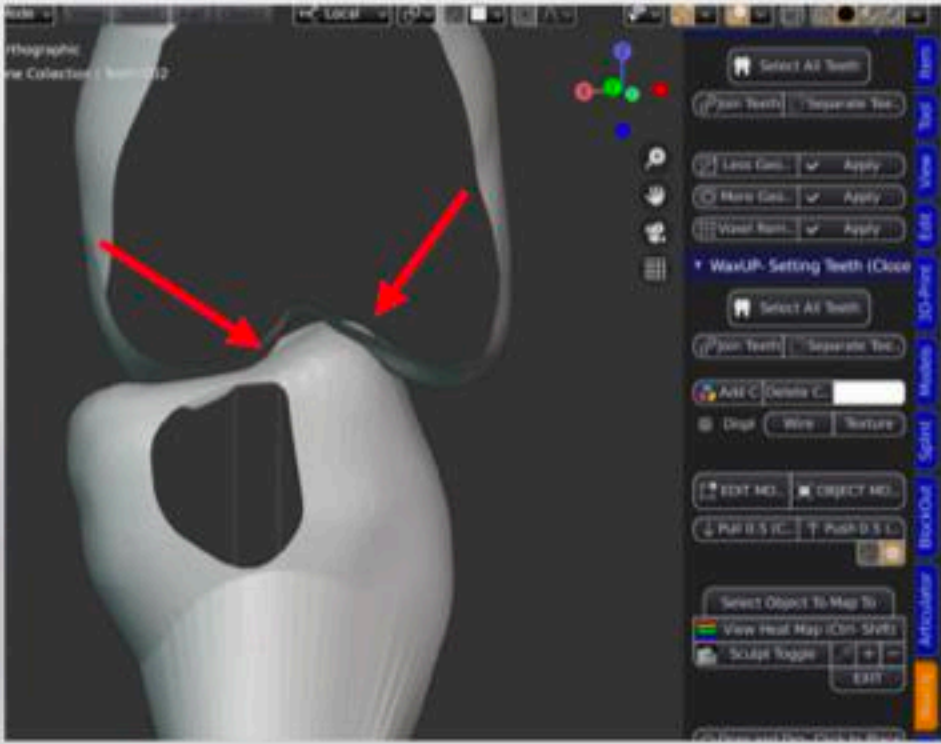
90 Consecutive New Patients

84 / 100 crowns done in past year
were out of occlusion, did not hold
12 μ shim stock



3D Design places contacts on inclines

Then moves it out of occlusion
There is a setting for how far out of occlusion



Diagnostic Design with flowable composite on 3D printed models



Which tooth is a crown?



Which tooth is a crown?

Challenge yourself to create perfect form and function on a single tooth.
Occlusal contact holds 12 μ m Almore shimstock.



TMD Symptoms

Sore TMJ muscles

TMJ clicking

TMJ pain

Jaw locking

Limited opening

Difficulty open jaw

Difficulty closing jaw

Difficulty chewing

Headaches

Eye pain

Ear pain

Anterior Open Bite



Occlusal Muscle Dysfunction



Facial Pain: Not always OMD

CC: Sharp Shooting Nerve Pain Right Face

Dx: Class 2 Malocclusion

Tx: Orthognathic Surgery. Still Facial Pain.

Dx: OMD

Tx: Multiple Occlusal Adjustment over a year
Still Pain

Dx: CT scan reveals Parotid Cancer, Stage 4.



7 Rules for Dx Facial Pain:

1. Listen to the patient, oral and written
2. Patients can have more than one disease
3. Develop a Differential Diagnosis
4. Run tests that increase or decrease the pain
5. Develop a Working Diagnosis
6. Diagnosis Confirmed after Tx
7. Do not chase a diagnosis too long before you rule out cancer.



Rule cancer out early, rule it out often.

TMDs- What are the choices? (190 Diagnoses, 7 Categories)

1. TMJ Damage

Adhesions and ankylosis of temporomandibular joint
Avascular Necrosis Mandibular Condyle
Cartilage Fibrillation, Mandibular Condyle, Fossa
Closed Lock, Jaw Cartilage, Acute
Closed Lock, Jaw Cartilage, Chronic
Closed Lock, Jaw Cartilage, Intermittent, Mechanically dysfunctional
Crush Injury Mandibular Condyle
Crystal arthropathy, unspecified, TMJ
Dislocation jaw cartilage due to injury, Sequela
Dislocation jaw cartilage with reduction, favorable adaptation, TMJ
Dislocation jaw cartilage without reduction, favorable adaptation, TMJ
Glossitis, TMJ

Impingement Retrodiscal Tissue
Inflammatory Tissue Bone Resorption, TMJ Condyle
Loose Body (Joint Mice), TMJ
Malignant neoplasms of bones of skull and face
Open Lock TMJ, Recurring
Osteoarthritis TMJ, active degeneration
Osteoarthritis- inactive
Osteochondritis Dissecans TMJ
Osteolysis Mandibular Condyle, Active
Perforation Mandibular TMJ
Perforation Pseudodisc, TMJ
Psoriatic Arthritis TMJ
Rheumatoid Arthritis Seronegative TMJ

4. Cervical Damage

Cervical Vertebrae Alignment Dysfunction
Cervicocranial Syndrome
Muscle Guarding due Neck Instability
Trigger Point Neck Muscle with Referred Pain
Trigger Point Neck Muscle, Localized Pain

5. Parafunction

Without ruling out occlusal problems and parafunction it is hard to figure out the rest.

Muscle Bracing Pain Avoidance
Muscle Bracing TMJ stabilization
Muscle Bracing Airway Patency (with Tongue)
Muscle Contracture Fibrosis Lateral Pterygoid
Muscle Contracture Fibrosis Masseter, Medial Pterygoid, Temporalis
Muscle Fatigue Overuse
Muscle Hypertrophy TMJ Muscles

3. Cranial Alignment/Occlusion

Cranial Distortion / Misalignment
Hemifacial Hypoplasia
Hyper Occlusal Awareness
Idiopathic Orthotic Damage
Malocclusion Anterior Open Bite
Malocclusion Centric occlusion Max/C discrepancy
Malocclusion Deep Bite
Malocclusion due to mouth breathing
Malocclusion due to TMJ bone loss
Malocclusion due to tongue, lip or finger habits
Malocclusion insufficient anterior occlusal guidance
Malocclusion lack of posterior occlusal support
Malocclusion Posterior Openbite Bilateral
Malocclusion Posterior Openbite Unilateral
Malocclusion unspecified

Malposition/Misalignment: Maxilla, Temporal Bone, Mandible
Mandibular asymmetry
Mandibular hyperplasia
Mandibular hypoplasia
Mandibular Retrognathia
Maxillary asymmetry
Maxillary hyperplasia
Maxillary hypoplasia
Maxillary Retrognathia
Occlusal Adaptation, Favorable
Occlusal Dependency for Joint Stabilization/ Proprioception
Tooth Intrusion
Tooth Supereruption

6. Whole Body / Systemic

Lyme Disease Arthritis
Magnesium Deficiency
Obstructive Sleep Apnea
Osteoporosis without current pathological fracture
Pathological Habitual Movement Patterns
Postural Disharmony Standing
Postural Disharmony Walking
Postural Forward Head Position
Upper Airway Resistance, UARS

7. Other

Nerve Entrapment Masseteric Nerve due to Masseteric hypertonicity
Neuronal Trigeminal Nerve
Obsessive-Compulsive Personality Disorder
Other
Otitis Ear Infection
Pain disorder exclusively related to psychological factors, Somatoform pain disorder
Pain disorder with related psychological factors
Sarcoidosis

Case CC



LD Pankey Institute

Write your Dream

TMD Symptoms

Limited Opening

Diseases to consider and rule out:

- Pain Avoidance Sore Joint
- Pain Avoidance Sore Muscle
- Hematoma
- Muscle Spasm
- Masseteric Space Infection
- Nonreducing Disc (4b,3b Acute)
- Joint Fibrosis, Muscle Fibrosis
- Other





Rotate
Slide
Pivot

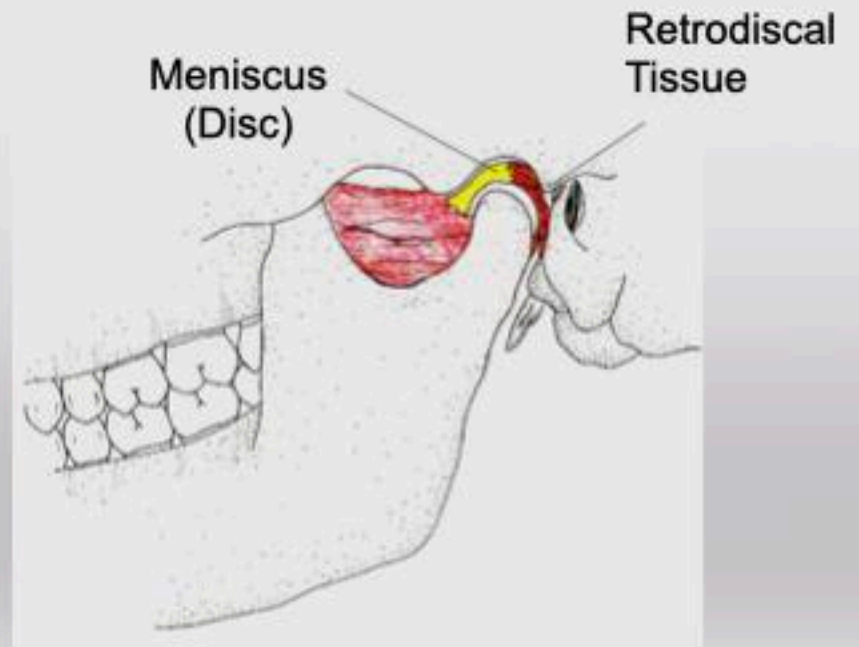
Solid end point closing
Ligamentous end point opening

A joint joins two bones that allows movement between the two bones

TMJ has 2 Joint Compartments:

Upper- Translation

Lower- Rotation

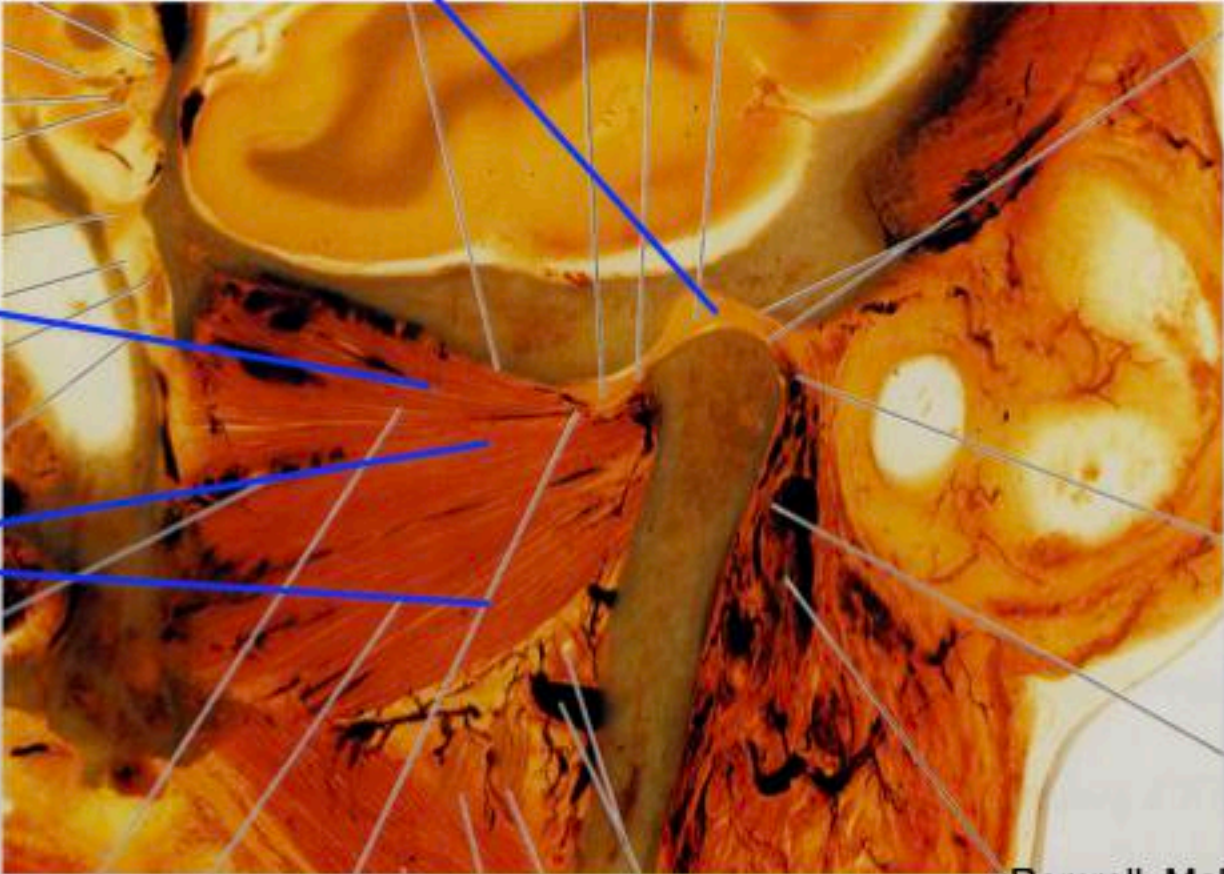


Disc: Thick-Thin-Thick

Oblique Sagittal View

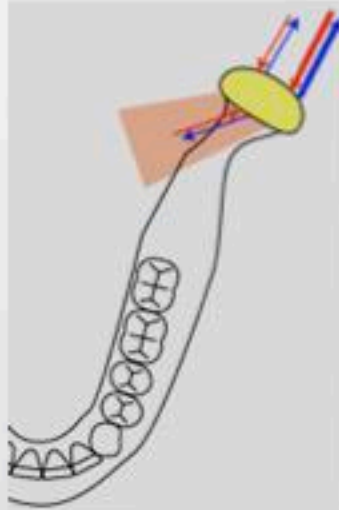
Lateral Pterygoid
Superior Head

Lateral Pterygoid
Inferior Head



Romrell, Mahan

Axial View



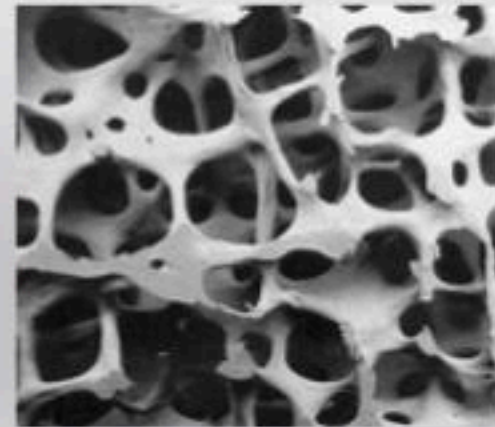
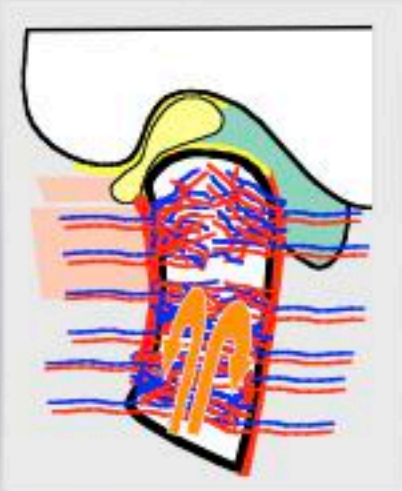
Normal TMJ Blood Flow, Marrow

Condylar head limited collateral circulation
Epiphyseal growth center

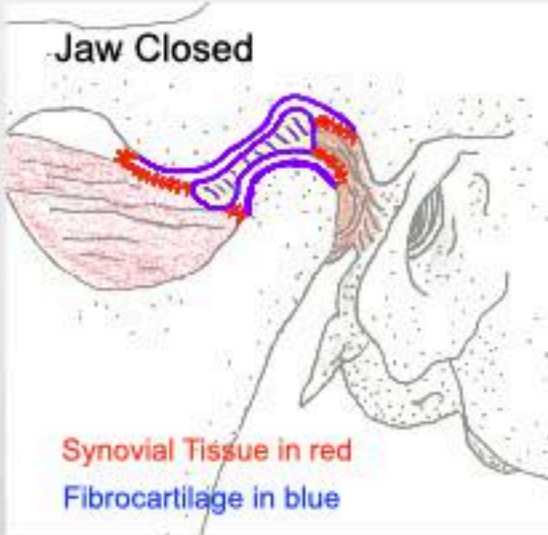
Marrow is fatty tissue with blood vessels, containing the precursor for blood cells

No Blood vessel inside joint

Closed
Sagittal

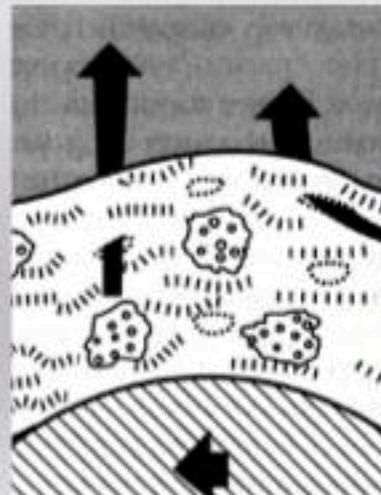
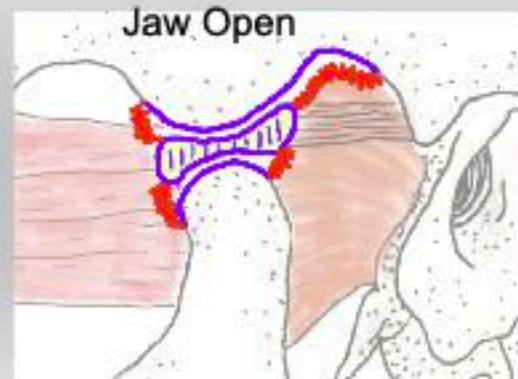
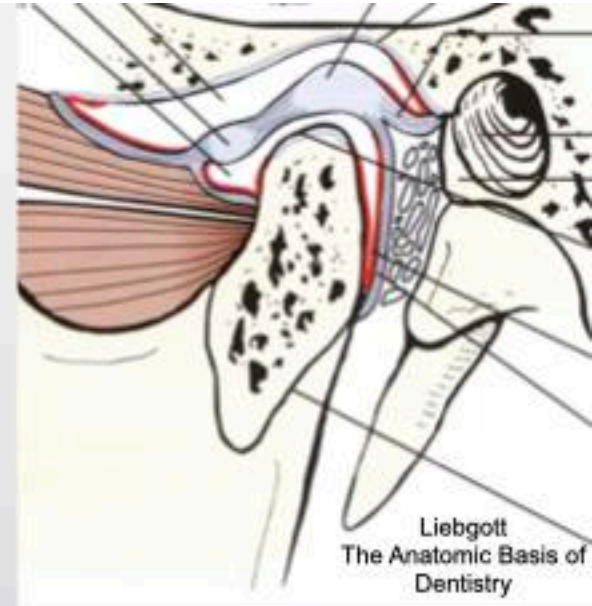


Normal TMJ- Synovium, Cartilage



Fibrocartilage-
Slope of Eminence
Disc
Top of Condyle

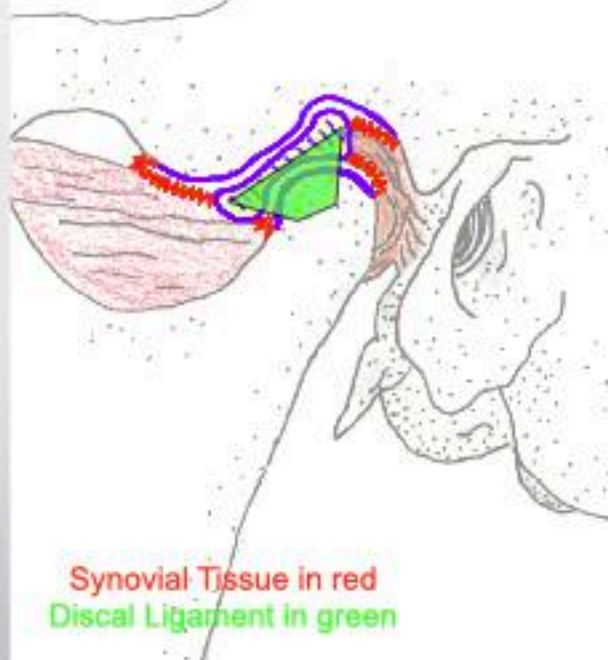
Synovial Tissue makes Synovial Fluid
No blood vessels in a health joint
Nutrition to the cartilage cells
Lubrication- Hyaluronic Acid and Lubricin



Fibrocartilage surface covered in fluid
Cartilage is hydrophilic
Proteoglycan negative charge
Surface Active Phospholipids
Fluid slides against fluid
5x slipperier than ice

Normal TMJ

Jaw Closed



Discal Ligaments attach Disc to
Condyle

Synovial Tissue

- Covers Front , Back and Sides
- Collapsed due to negative joint pressure

Disc viewed from above

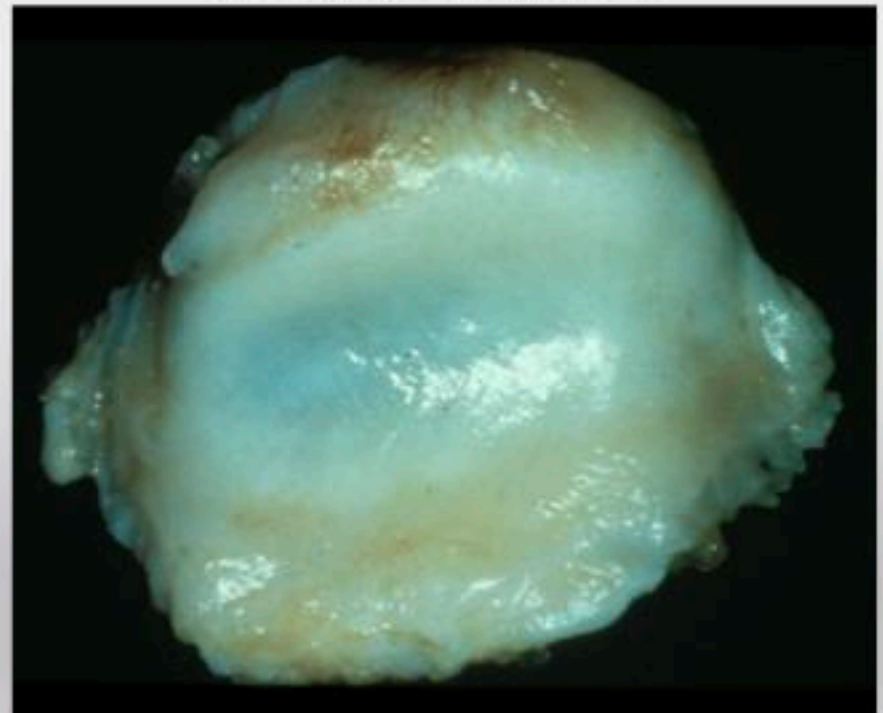
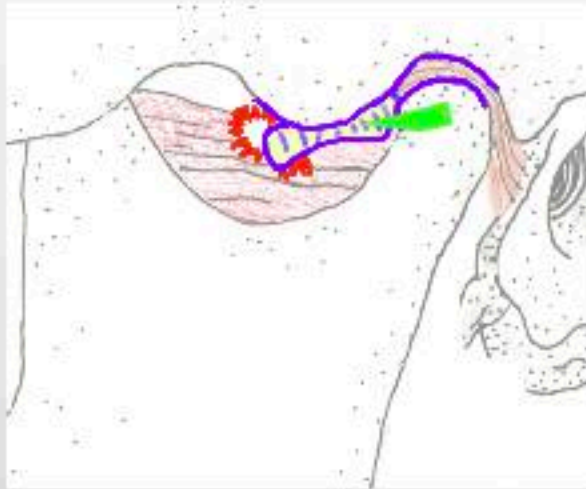


Photo Courtesy of Dr Henry Gremillion

Damaged TMJ- Anteriorly Dislocated Disc



Torn or stretched Meniscal ligaments

Anterior Dislocated Disc

Damaged Synovium

Retrodiscal Tissue pulled up and over the condyle

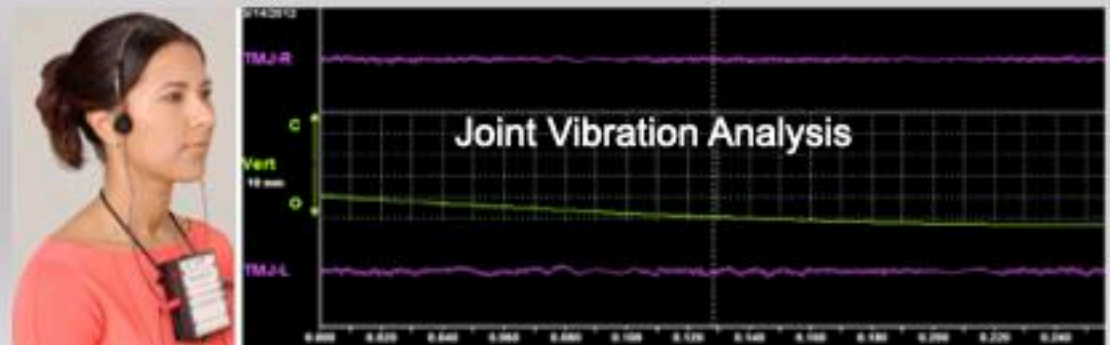
Retrodiscal tissue in direct contact with fibrocartilage

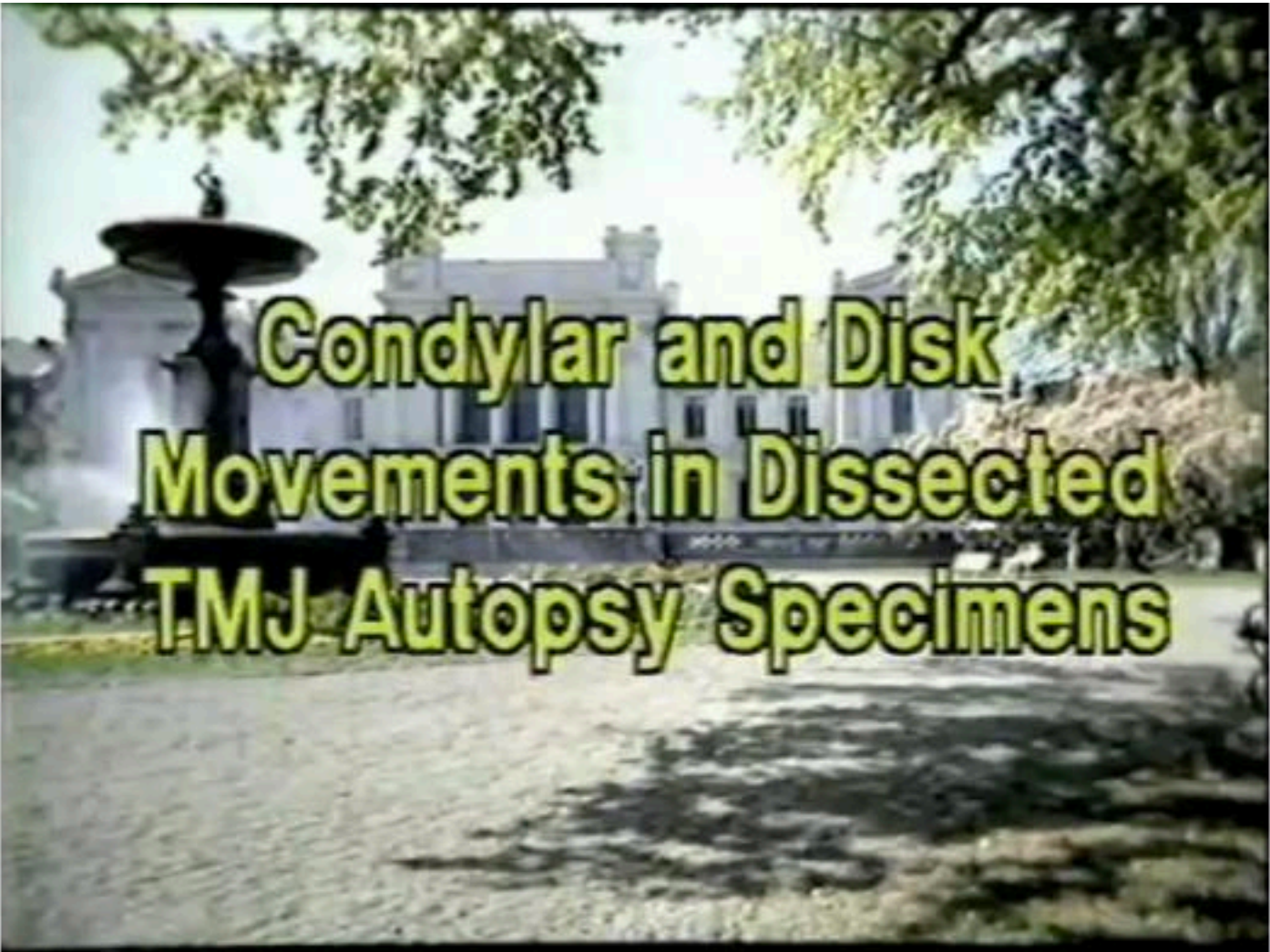
Major Increase in friction

Retrodiscal tissue adapts into fibrous "pseudodisc"

85% of all damaged joints adapt favorably without treatment

Cartilage sliding on tissue creates vibrations that can be detected

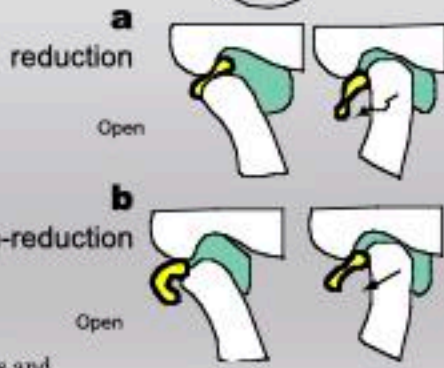
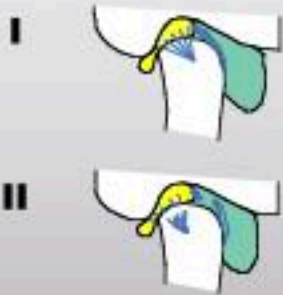
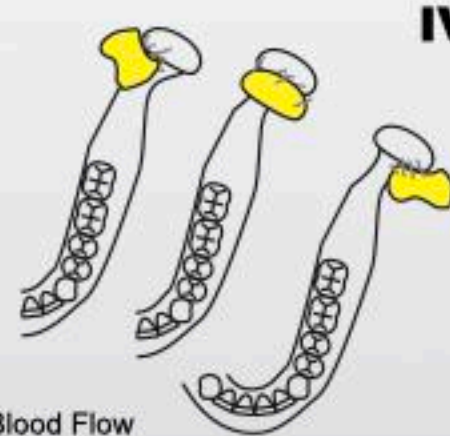
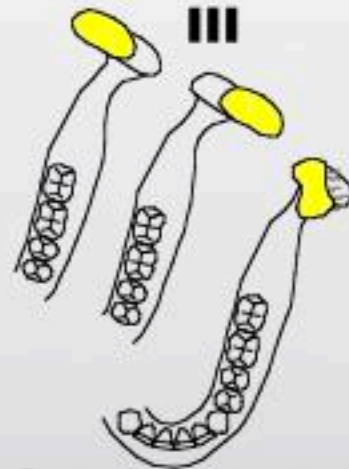
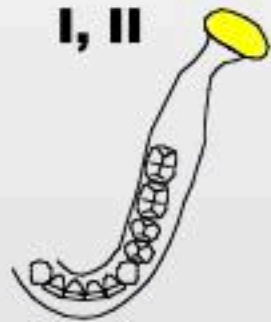




**Condylar and Disk
Movements in Dissected
TMJ Autopsy Specimens**

Dr. Mark Piper's Classification

Left TMJ



% Blood Flow Affected?



Bone to Bone
a Adapting
b Adapted

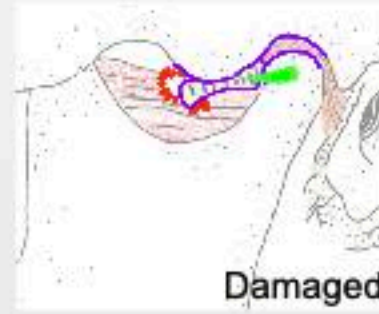
- I Normal
- 2 Ligaments or Cartilage damage
- 3a Partial disc subluxation, with reduction
- 3b Partial disc subluxation, non-reducing
- 4a Complete disc dislocation, with reduction
- 4b Complete disc dislocation, non-reducing
- 5a No Disc, Bone to bone- Adapting
- 5b No Disc, Bone to bone- Adapted

Droter JR, An orthopaedic approach to the diagnosis and treatment of disorders of the temporomandibular joint. Dent Today 2005 Nov;24(11):82, 84-8

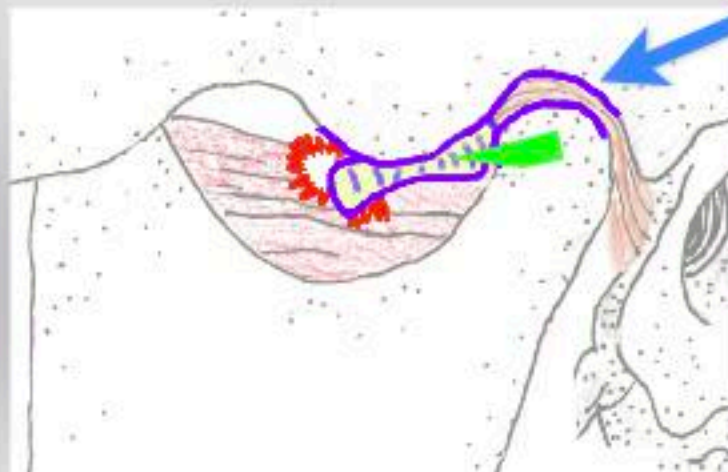
Basic Orthopedics

Joints are either
Healthy or
Damaged

If damaged, joints will be either:
Actively Breaking Down
Adapting
Adapted
Structurally, Mechanically
Favorably, Unfavorably



Majority of damaged
TMJs adapt favorably



Posterior ligament, synovium,
and retrodiscal tissue adapt to
form a
Pseudo-disc

Tissue Fibrosis

Differential Diagnosis: Limited Joint Motion

Muscle Spasm

Painful to Move
Joint Pain
Muscle Pain

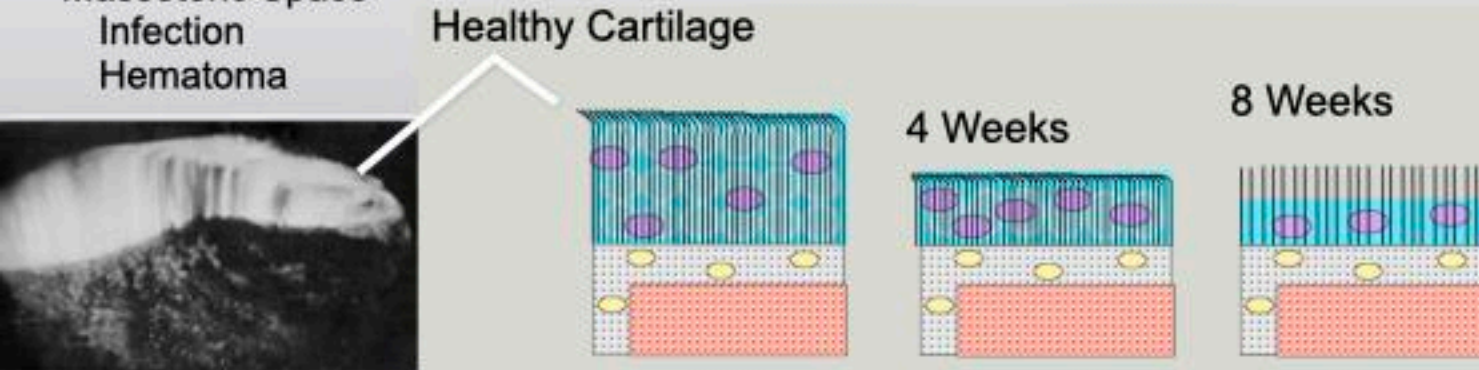
Mechanically Blocked
4b Acute
Adhesion

Masseteric Space
Infection
Hematoma

Lose 50% height of cartilage
Proteoglycans not being produced by Chondrocytes
Loss of 50% proteoglycans and water
Collagen still intact
Process is reversible

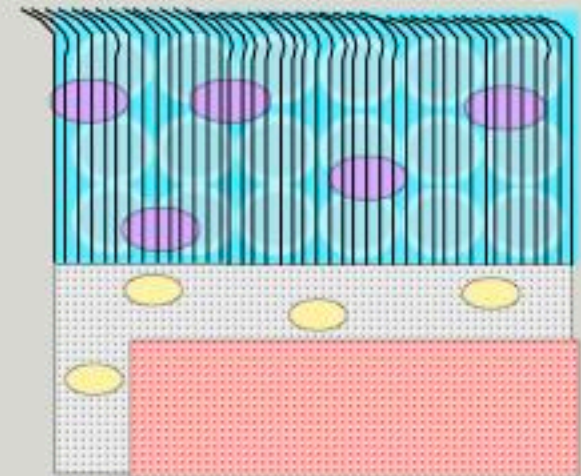
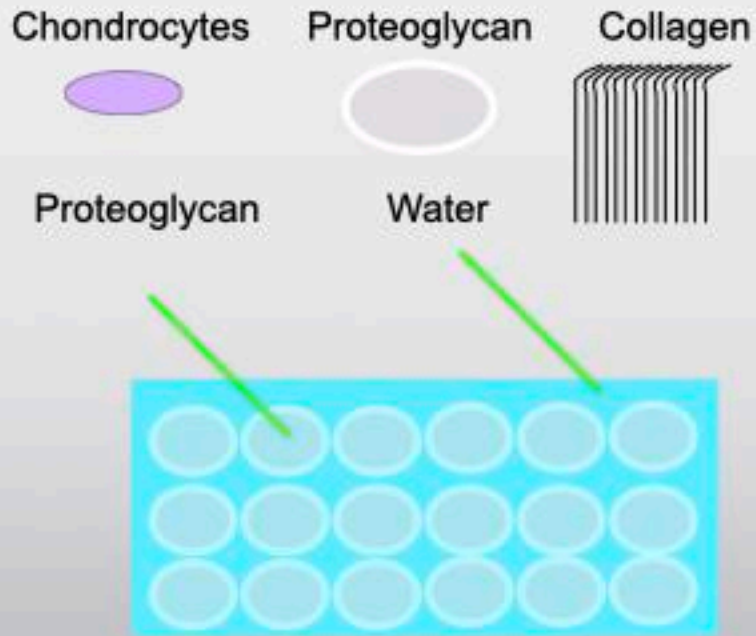
Move joint with light force/repetitive motion next 30 days

You have 6-8 weeks to get jaw moving
before cartilage is irreversibly damaged,
independent of the cause of the
immobilization



E.B. Evans, GWN Eggers, J.K. Butler, and J. Blumel, Experimental immobilization and remobilization of rat knee joints, J Bone Joint Surg Am, 1960 vol. 42 (5) pp. 737-758
Enneking WF, Horowitz M. The intra-articular effects of immobilization on the human knee. J Bone Joint Surg Am. 1972 Jul;54(5):973-85. PMID: 5068717

Healthy Cartilage



Enneking WF, Horowitz M. The intra-articular effects of immobilization on the human knee. *J Bone Joint Surg Am.* 1972 Jul;54(5):973-85. PMID: 5068717

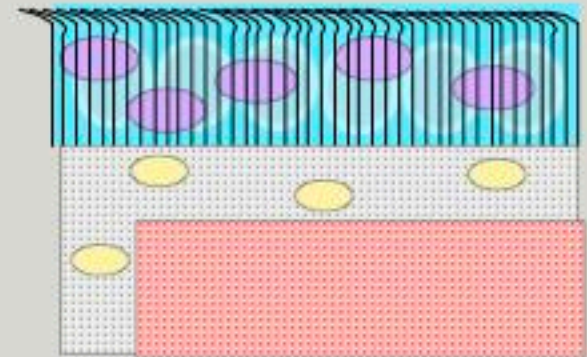
Immobilization 4 weeks

Proteoglycans not being produced by Chondrocytes
Collagen still intact
Process is reversible at 4 weeks

Move joint with light force/repetitive motion next 30 days

Half as many "Balloons"
Still have "Ropes"

Half as many proteoglycans so
half as much water so
half as much cartilage height



Enneking WF, Horowitz M. The intra-articular effects of immobilization on the human knee. J Bone Joint Surg Am. 1972 Jul;54(5):973-85. PMID: 5068717

Immobilization 8 weeks

“Ropes” Degenerate

Permanent joint damage in previous healthy joints

The cartilage is irreversible damaged

Collagen is irreversible damaged.

The proteoglycans have no way to attach in the cartilage matrix

Adhesions form between the joint surfaces

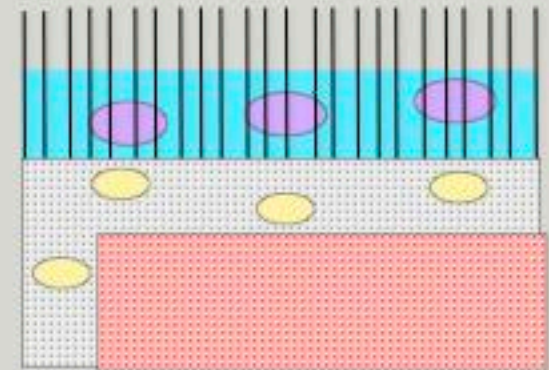
Connective tissue proliferates into the joint

Fibrous contracture of the muscles and joint capsule

Key Point:

In a patient with limited opening, you have
4 weeks to get the jaw moving.

At 8 weeks, there is permanent damage to
the TMJ, even if it was not the original
cause of the limited opening



Differential Diagnosis: Limited Joint Motion

Muscle Spasm

Painful to Move
Joint Pain
Muscle Pain

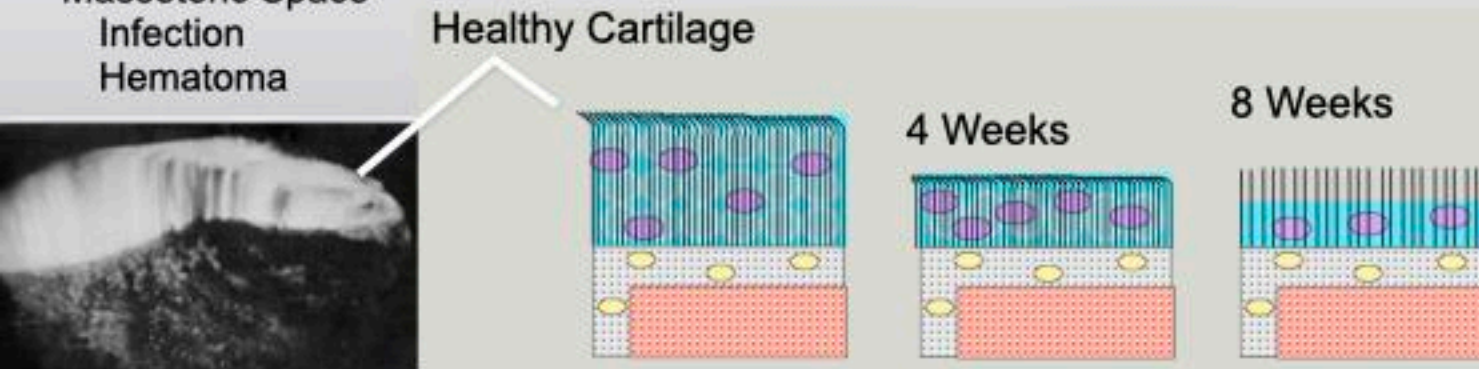
Mechanically Blocked
4b Acute
Adhesion

Masseteric Space
Infection
Hematoma

Lose 50% height of cartilage
Proteoglycans not being produced by Chondrocytes
Loss of 50% proteoglycans and water
Collagen still intact
Process is reversible

Move joint with light force/repetitive motion next 30 days

You have 6-8 weeks to get jaw moving
before cartilage is irreversibly damaged,
independent of the cause of the
immobilization



E.B. Evans, GWN Eggers, J.K. Butler, and J. Blumel, Experimental immobilization and remobilization of rat knee joints, J Bone Joint Surg Am, 1960 vol. 42 (5) pp. 737-758
Enneking WF, Horowitz M. The intra-articular effects of immobilization on the human knee. J Bone Joint Surg Am. 1972 Jul;54(5):973-85. PMID: 5068717

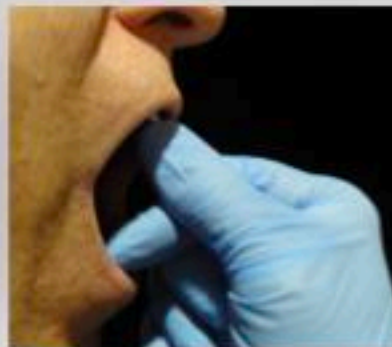
Limited Opening Algorithm

Differential Diagnosis Limited Opening:

- Pain Avoidance Sore Joint
- Pain Avoidance Sore Muscle
- Hematoma
- Muscle Spasm
- Masseteric Space Infection
- Nonreducing Disc (4b,3b Acute)
- Joint Fibrosis, Muscle Fibrosis
- Other

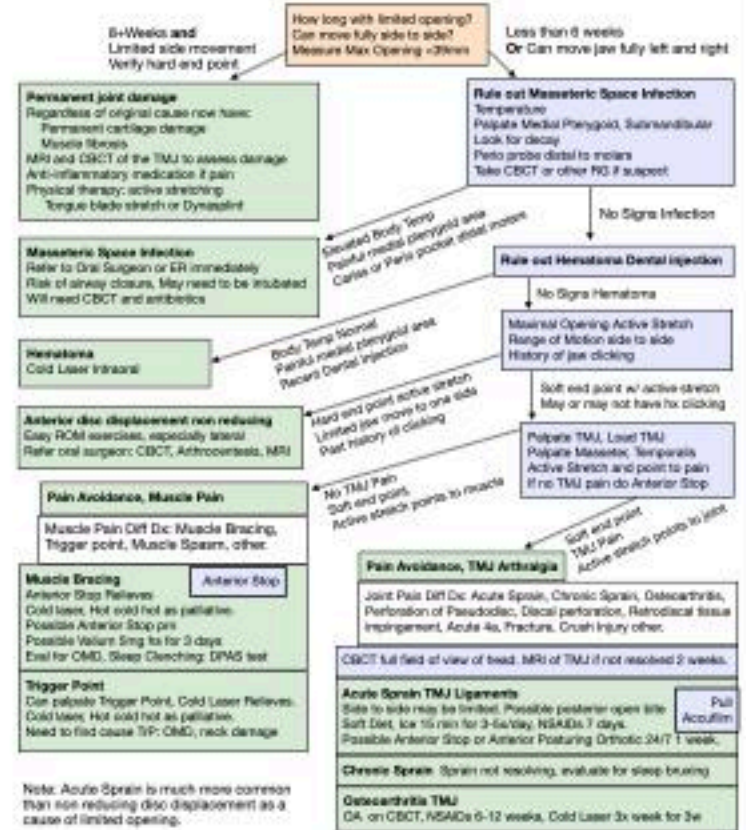
Diagnostic Tests:

- History: How long limited
- Body Temperature
- Caries Exam, Perio exam
- ROM open, side to side
- Gentle Active stretch
- Point to area of pain
- Anterior Stop
- If needed CBCT, MRI



Dr Droter's Limited Opening Algorithm

Differential Diagnosis Limited Opening (Less than 20mm): Pain Avoidance Sore Joint, Pain Avoidance Sore Muscle, Muscle Spasm, Masseteric Space Infection, Nonreducing Disc (4b,3b Acute), Joint Fibrosis, Muscle Fibrosis, other.



Note: Acute Sprain is much more common than non-reducing disc displacement as a cause of limited opening.

Subjective:

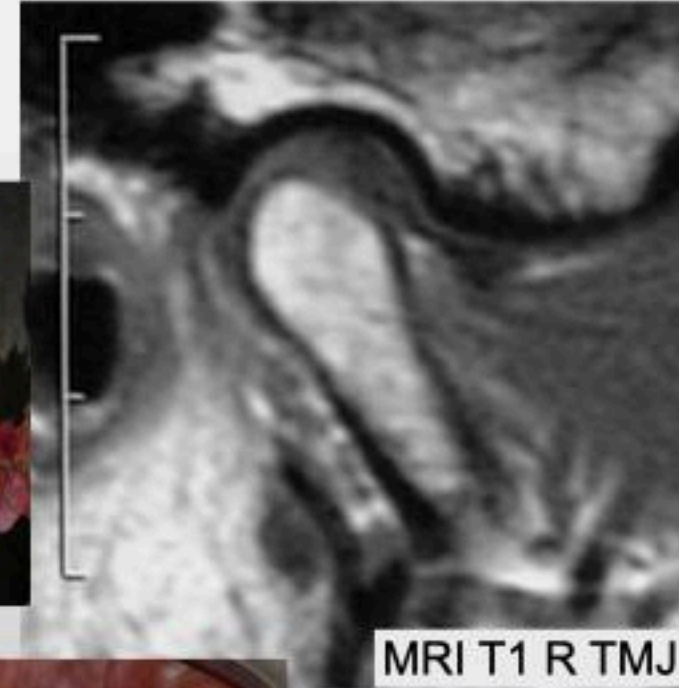
Dentist doing crown prep #30 1 week ago
Severe pain Right TMJ after moving jaw at end of appt
Constant deep pain Right TMJ
Limited opening

Objective:

Limited opening 32mm, Mandible shifts Left
Normal side to side motion
98 temp, normal perio probe 2nd molars, no caries
No pain palpation RL Medial Pterygoid
Soft end point on active stretch, 45mm, R TMJ pain
Right TMJ pain to palpation, Left TMJ normal
Posterior openbite Right, does not hold Accufilm

Assessment:

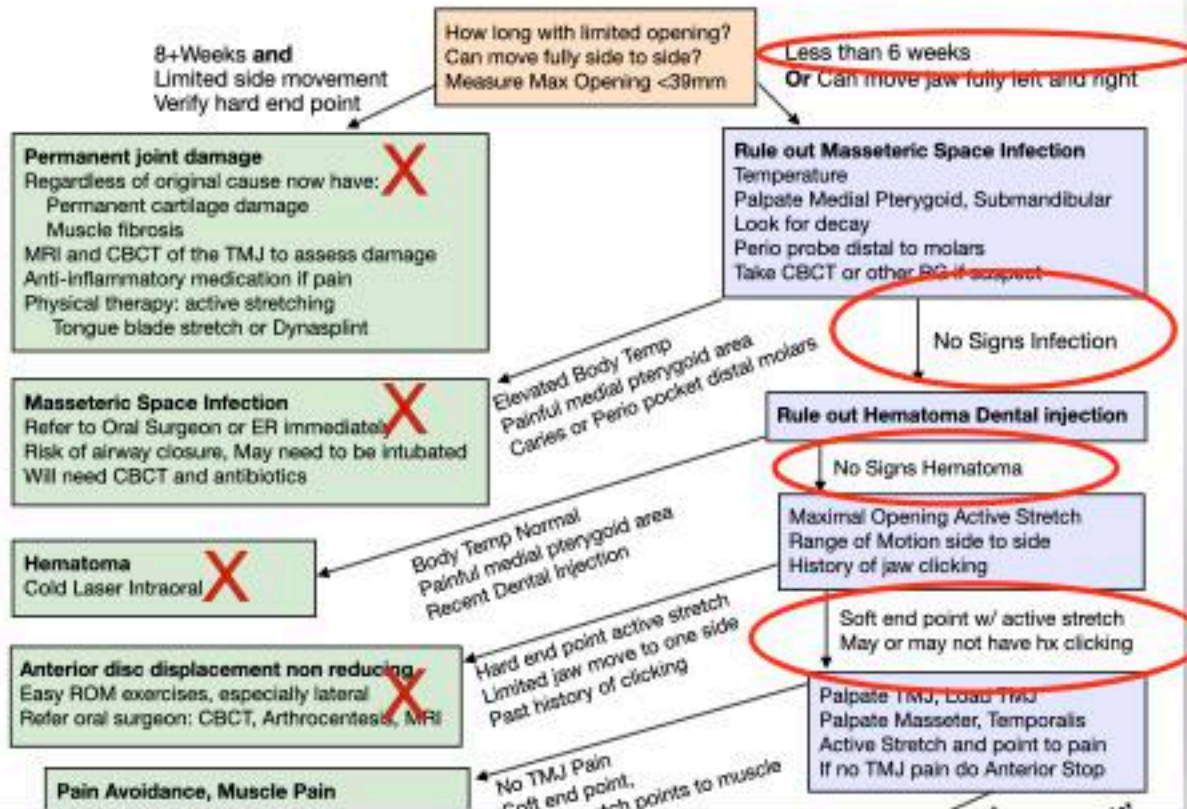
Limited opening due to Right TMJ pain avoidance
Acute Sprain Right TMJ Ligaments



Dr Droter's Limited Opening Algorithm

19.5

Differential Diagnosis Limited Opening (Less than 39mm): Pain Avoidance Sore Joint, Pain Avoidance Sore Muscle, Muscle Spasm, Masseteric Space Infection, Nonreducing Disc (4b,3b Acute), Joint Fibrosis, Muscle Fibrosis, other.



Objective:

Limited opening 32mm, Mandible shifts Left

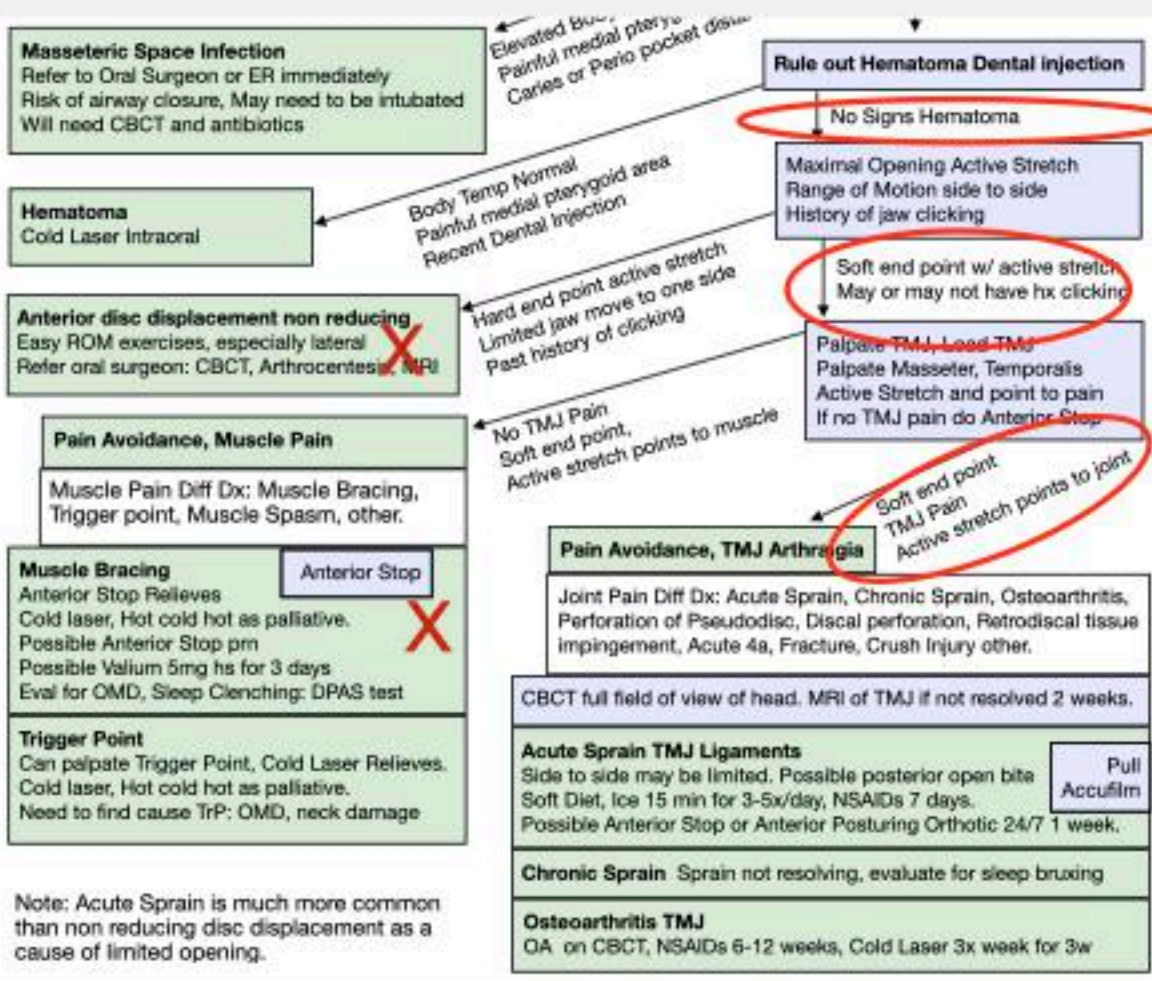
Normal side to side motion
98 temp, normal perio probe 2nd molars, no caries

No pain palpation RL Medial Pterygoid

Soft end point on active stretch, 45mm, R TMJ pain

Right TMJ pain to palpation, Left TMJ normal

Posterior openbite Right, does not hold Accufilm



Objective:

- Limited opening 32mm, Mandible shifts Left
- Normal side to side motion
- 98 temp, normal perio probe 2nd molars, no caries
- No pain palpation RL Medial Pterygoid
- Soft end point on active stretch, 45mm, R TMJ pain
- Right TMJ pain to palpation, Left TMJ normal
- Posterior openbite Right, does not hold Accufilm

Pain Avoidance, TMJ Arthralgia

TMJ +
Active stre...

Joint Pain Diff Dx: Acute Sprain, Chronic Sprain, Osteoarthritis, Perforation of Pseudodisc, Discal perforation, Retrodiscal tissue impingement, Acute 4a, Fracture, Crush Injury other.

CBCT full field of view of head. MRI of TMJ if not resolved 2 weeks.

Acute Sprain TMJ Ligaments

Side to side may be limited. Possible posterior open bite
Soft Diet, Ice 15 min for 3-5x/day, NSAIDs 7 days.
Possible Anterior Stop or Anterior Posturing Orthotic 24/7 1 week.

Pull
Accufilm

Chronic Sprain Sprain not resolving, evaluate for sleep bruxing

Osteoarthritis TMJ

OA on CBCT, NSAIDs 6-12 weeks, Cold Laser 3x week for 3w

Objective:

Limited opening 32mm, Mandible shifts Left

Normal side to side motion

98 temp, normal perio probe 2nd molars, no caries

No pain palpation RL Medial

Pterygoid

Soft end point on active stretch, 45mm, R TMJ pain

Right TMJ pain to palpation, Left TMJ normal

Posterior openbite Right, does not hold Accufilm

Treatment:

Ice 15-20 minutes for 3-5x 2 days only

Anterior repositioning orthotic 24/7 one week

NSAID for 5 days- 800mg Advil Liquid gel caps, q8h

Sleep with head elevated first week

Soft chew diet

At 1 week Anterior repositioning orthotic sleep only for second week

Week 3, no orthotic, reintroduce harder foods



Verify Orthotic does not rub
lingual tissue of mandible

At 4 weeks patient had full ROM
No clicking

New addition to protocol
Cold Laser (MLS Laser- 1500 hz 15
seconds, 10 hz 30 seconds)



MLS Laser: BioResearch

Multiwave Locked System Laser

808 nm Continuous, 905 nm Pulsed

Stimulates metabolic processes in cells
Decrease inflammation
Pain Reduction
Faster Healing



Diode Laser

Ms MY



LD Pankey Institute

Write your Dream