

October 12, 2024
New Orleans, LA



Temporomandibular Joint (TMJ) Syndrome and Facial Pain



October 12, 2024
New Orleans, LA



TMJ is Not a Diagnosis





Rich Hirschinger, DDS, MBA

Diplomate American Board of Orofacial Pain

Fellow American Academy of Orofacial Pain

Lecturer UCLA Orofacial Pain and Dental Sleep Medicine Residency



Inventor of the gentle jaw®

Design patent granted October 8, 2019

Utility patent granted February 25, 2020

Launched www.gentlejaw.com March 2020



No other disclosures with any other meds,
products, and/or labs mentioned
during presentation.

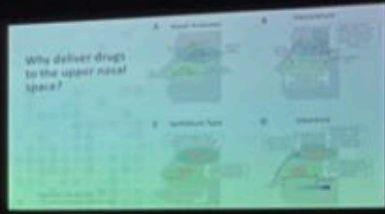
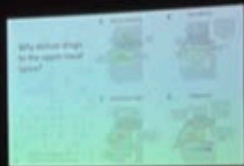
Trudhesa® Speaker Education Event

October 1, 2022
Rosemont, IL



Impel®
PHARMACEUTICALS





Tulane University 1981







Ostrow School of Dentistry 1985

USC



Marshall School of Business

2001

USC



UCLA Orofacial Pain and Dental Sleep Medicine Residency 2012



Orofacial Pain

12th Recognized Specialty of the American Dental Association

- March 2020
- May 2022 ABOP recognized as the national certifying board for the specialty
- 2-year residency is required
- Board certification requires a written exam
- Oral exam one year after passing the written exam

THE **INVULNERABLE** FIVE

- Myofascial pain 80%
- Headaches 70%
- Neuropathic pain 10%
- Sleep apnea 10%
- TMJ disorders 2%

Course Objectives



- What TMJ is and is not
- Identify the muscle referral patterns of the head and neck
- Understand why most TMJ pain is not related to the joint
- Why the site and source of pain in orofacial pain patients is rarely the same
- Protocol for trigger points and Botox
- Recognize the signs and symptoms of trigeminal neuralgia, glossopharyngeal neuralgia, and nervus intermedius



Simplicity is a great virtue but it requires hard work to achieve it and education to appreciate it. And to make matters worse: complexity sells better.

— *Edsger Dijkstra* —



SMILECON

NEW ORLEANS 2024

ADA



Presentation(s):

(5202) Evidence-Based Management of Temporomandibular Disorders (TMD)

Thursday, October 17, 2024

1:00 PM – 4:00 PM CT

(6204) Dental Sleep Medicine and Mandibular Advancement Devices

Friday, October 18, 2024

8:30 AM – 11:30 AM CT

(6213) Dental Sleep Medicine and Mandibular Advancement Devices

Friday, October 18, 2024

1:00 PM – 4:00 PM CT

(7203) Evidence-Based Management of Temporomandibular Disorders (TMD)

Saturday, October 19, 2024

8:30 AM – 11:30 AM CT



Most orofacial pain
can't be seen...

...which is why I like to say,
“Orofacial pain specialists
only treat invisible pain.”

Why don't
orofacial pain
specialists do any
dental procedures?

Because we are treating
patients with medical
conditions using medical
procedures.

Thank you Richard
What am I missing with
these two patients?

You are trying to treat a
medical condition with
dental procedures.

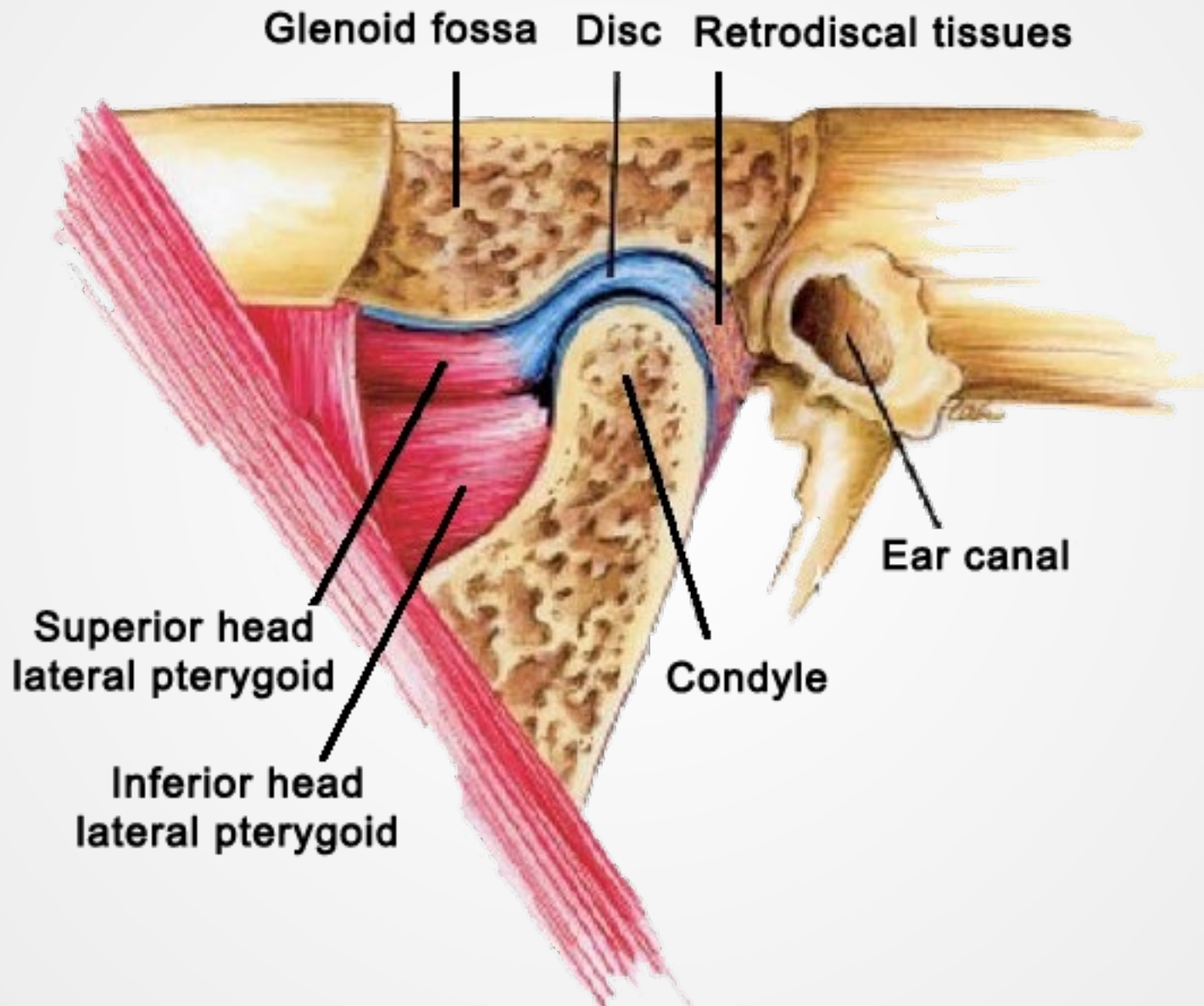
What is and What is Not “TMJ?”

- “TMJ is not a diagnosis.”
- You do not go to an orthopedic surgeon and say, “I have knee.”
- Have patients point with one finger where their pain is.
 - They will almost always point to a muscle.
- Closed lock, open lock, and osteoarthritis are related to the temporomandibular joint.

The TMJ is a Ginglymoarthrodial Joint

- Ginglymoid: the joint hinges
- Arthrodial: the joint glides
- Two unique features of the joint
 - Only joint in the human body with two distinct movements
 - Only joint in the human body that requires bilateral movements
- Compound joint since it has three or more articulation surfaces
 - Condyle
 - Temporal bone
 - Articulating disc

TMJ Anatomy



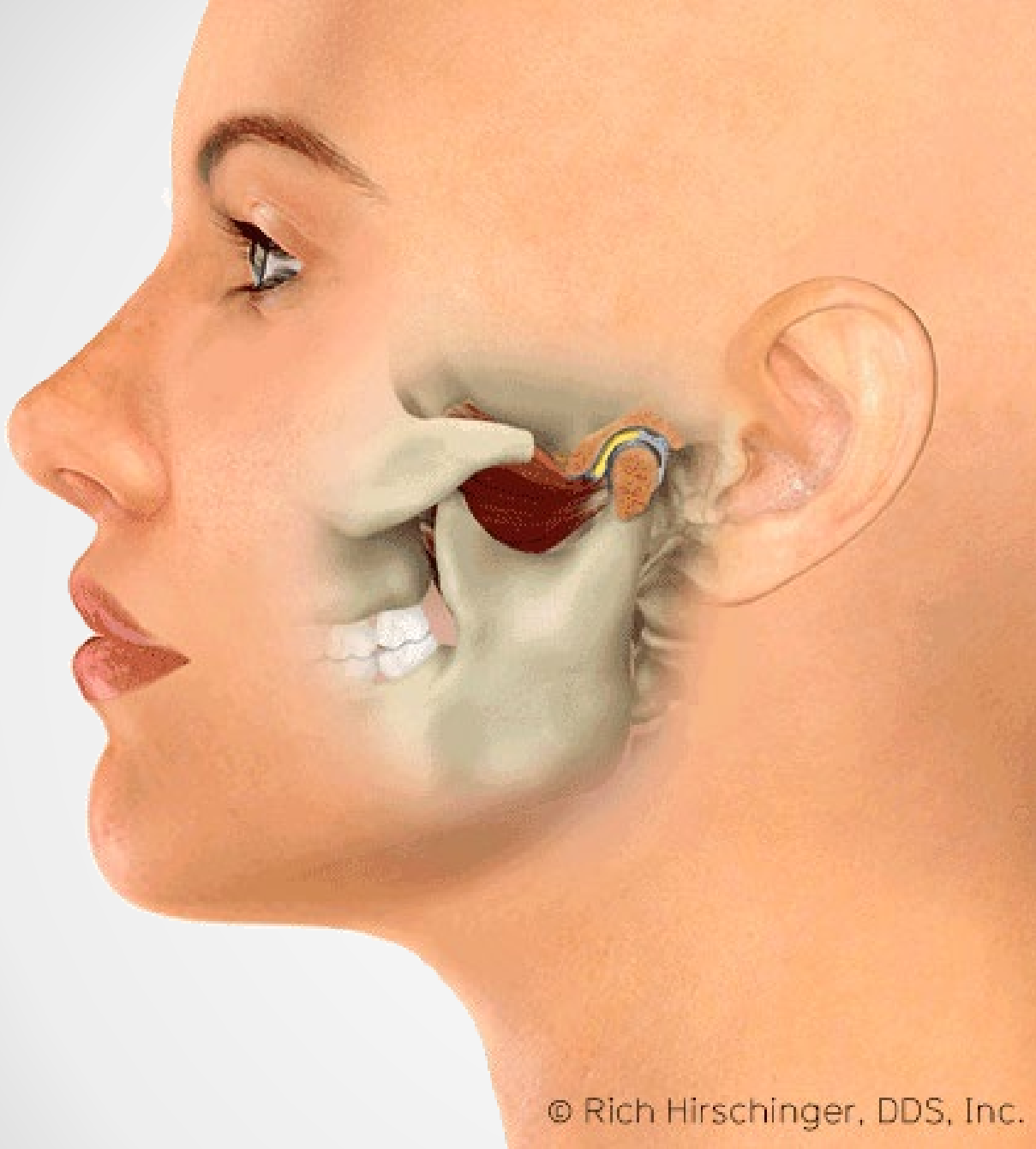
TMJ Exam

- Infant stethoscope to auscultate the joint
- Pop/click or grinding/grating?
 - Pop/click = anterior disc displacement with reduction
 - Grinding/grating needs CBCT to rule out osteoarthritis
 - Ask the patient if they hear “rice crispies,” or a sandy sound.
- Palpate the lateral and dorsal capsule of the temporomandibular joint



TMJ Normal Function

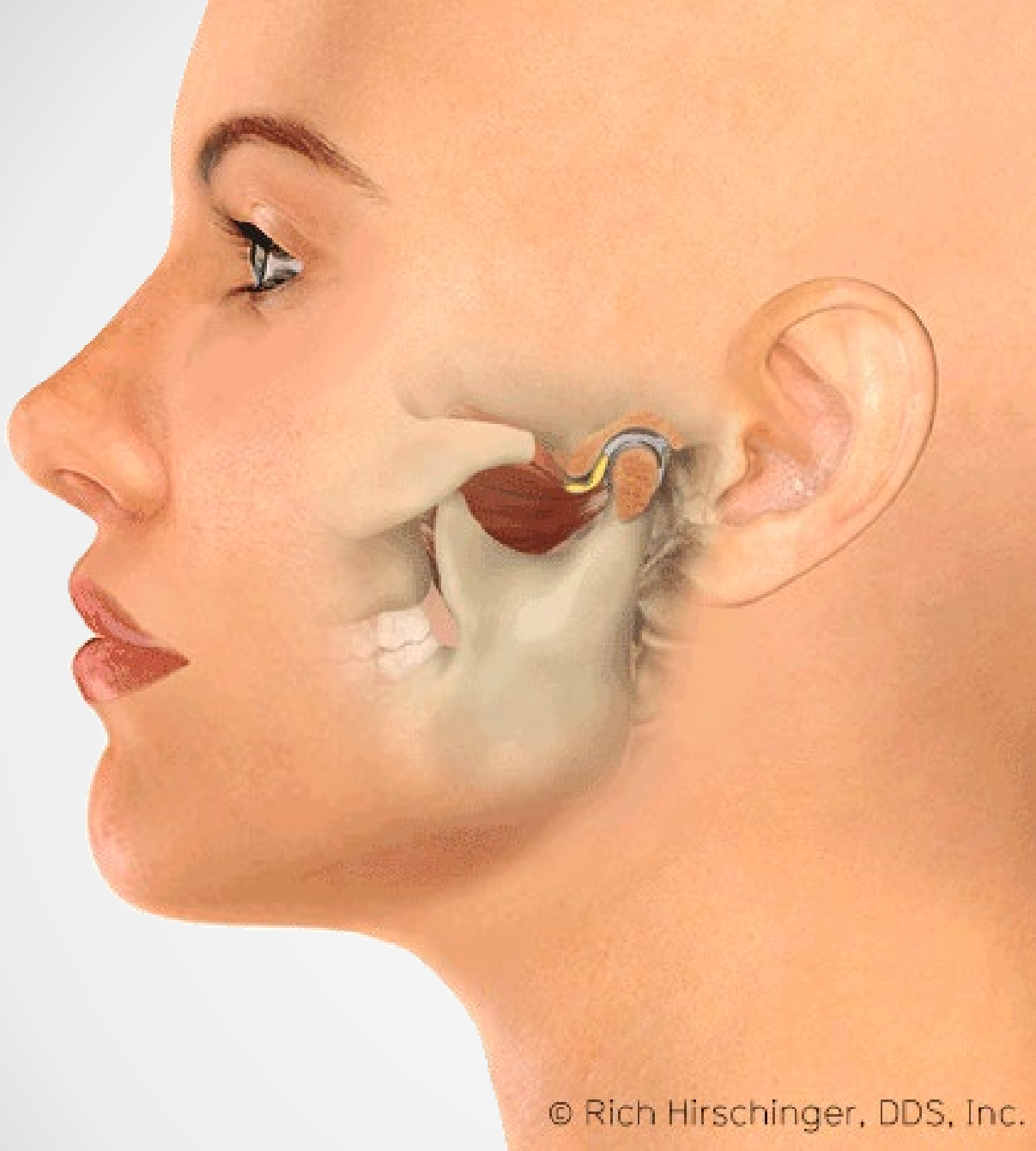
Normal range of
opening is
between 40-60
mm



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TMJ

ADD w/ R



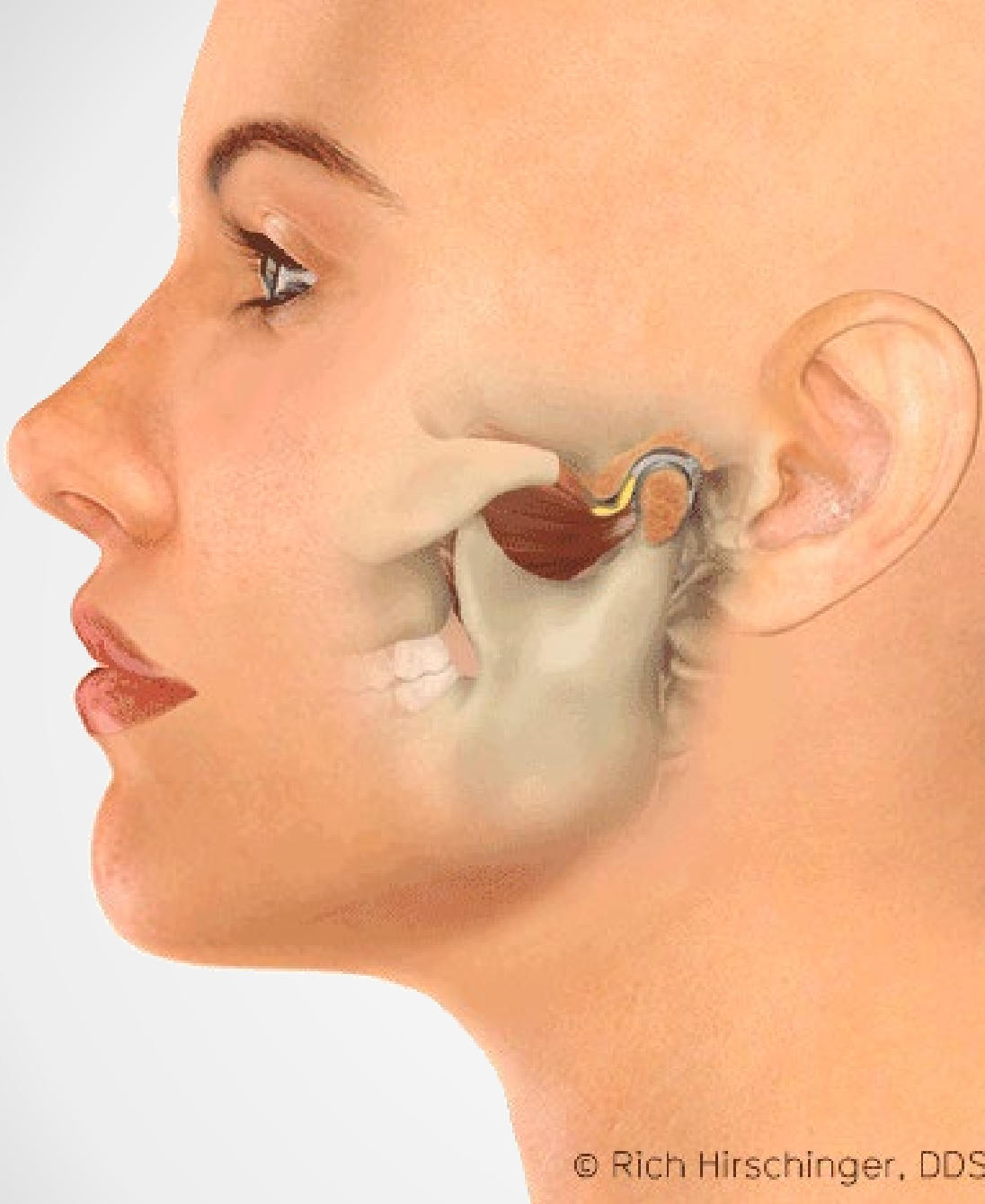
- Anterior disc displacement with reduction:
- Disc is displaced anteriorly.
- On opening, a "pop" or "click" can sometimes be heard
- Upon closing, the condyle will slide off the back of the disc
- There is usually full range of motion.

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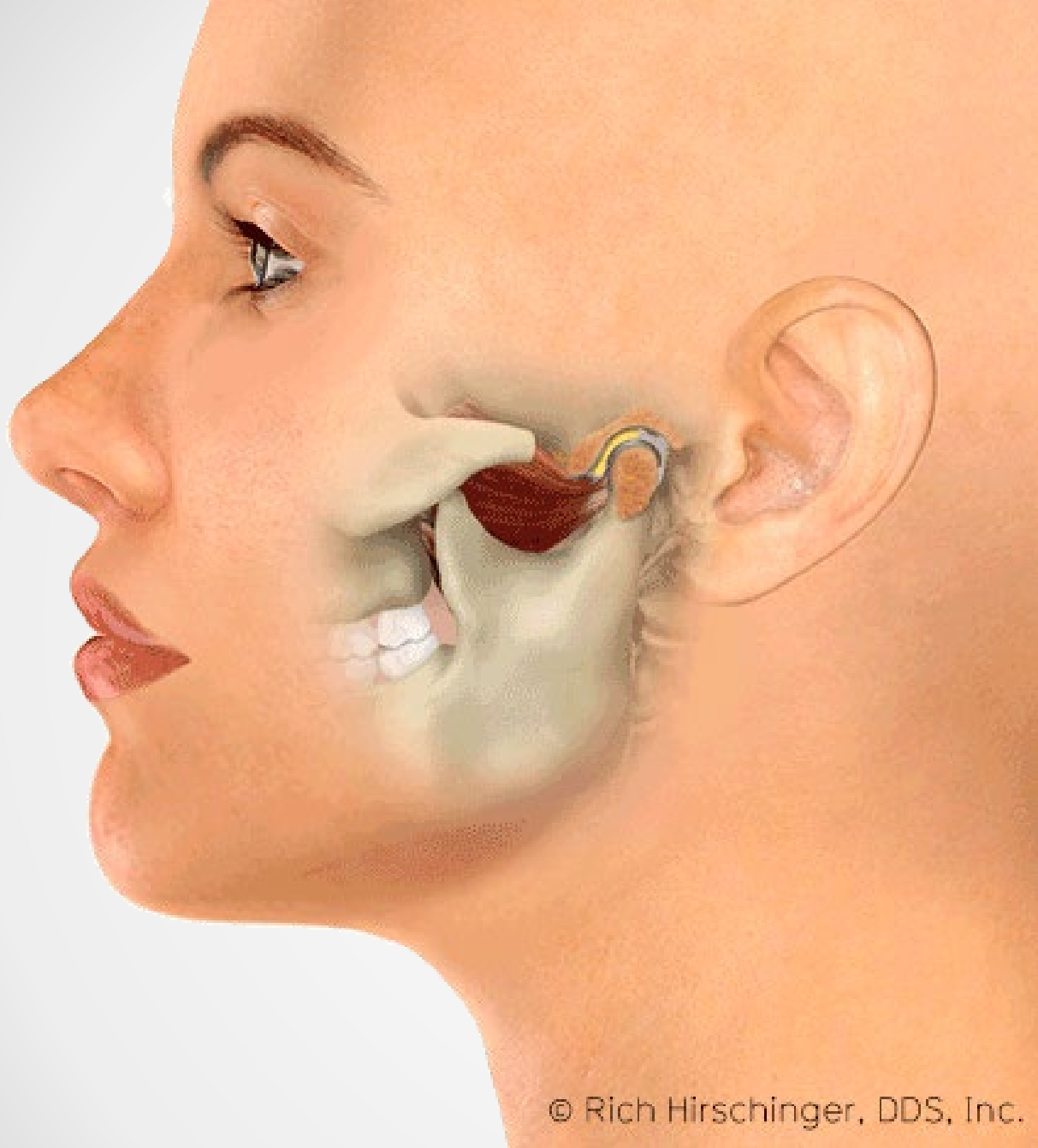
TMJ

ADD w/o R

- Anterior disc displacement without reduction:
- The disc stays anterior to the condylar head upon opening.
- Mouth opening is limited and there is no "pop" or "click" sound on opening.
- Usually less than 30 mm opening



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TMJ

Subluxation

- Closed lock
- The condyle goes past the articular eminence
- It can resolve
- If not, place your fingers on the mandibular second molars and push down and back to get the condyle back in the glenoid fossa
- High association with EDS

Osteoarthritis

- Grinding, grating sounds on opening and/or closing.
- CBCT to assess severity
- Panoramic radiographs are not diagnostic
- PRP treatment is promising when indicated
- Sometimes you can get great results with very conservative treatment

Normal Appearance

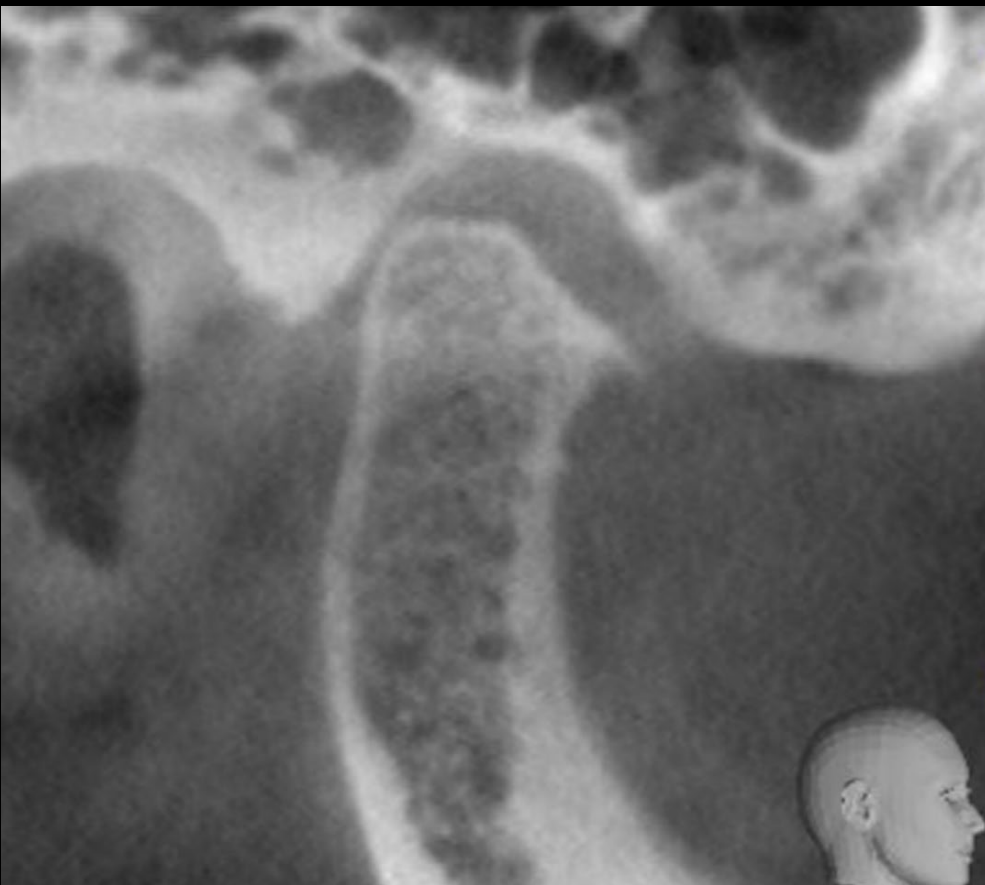


Sagittal



Frontal

Osteoarthritis Mild

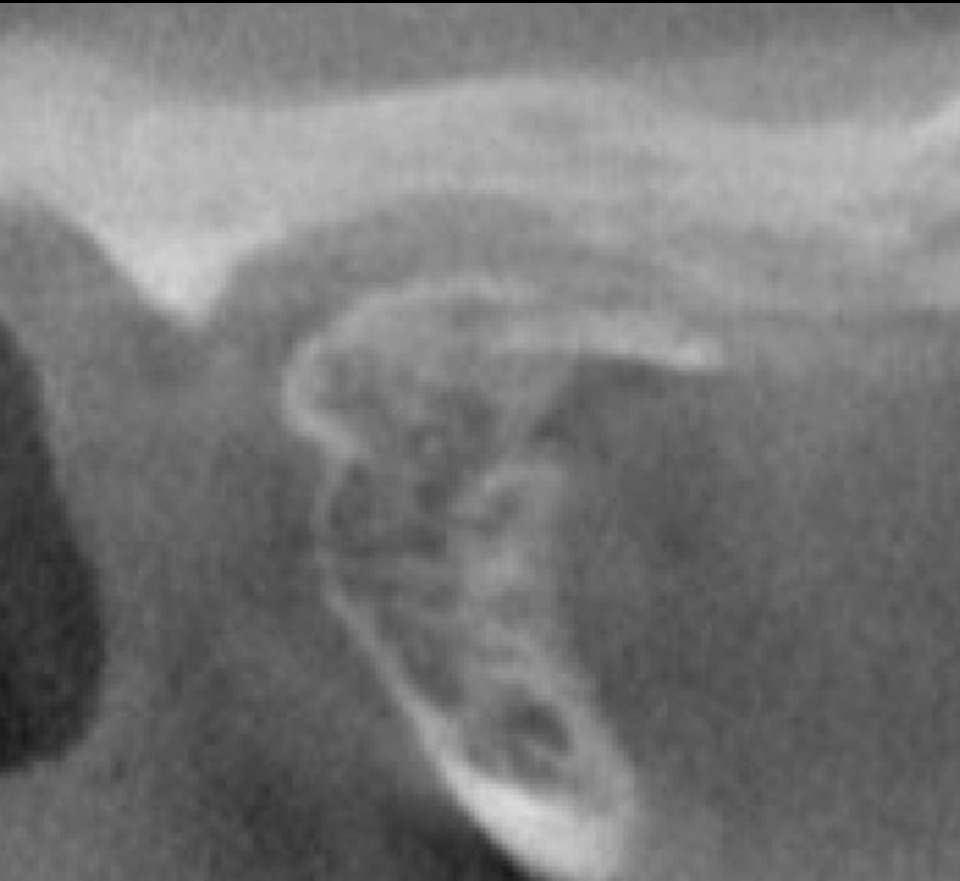


Sagittal

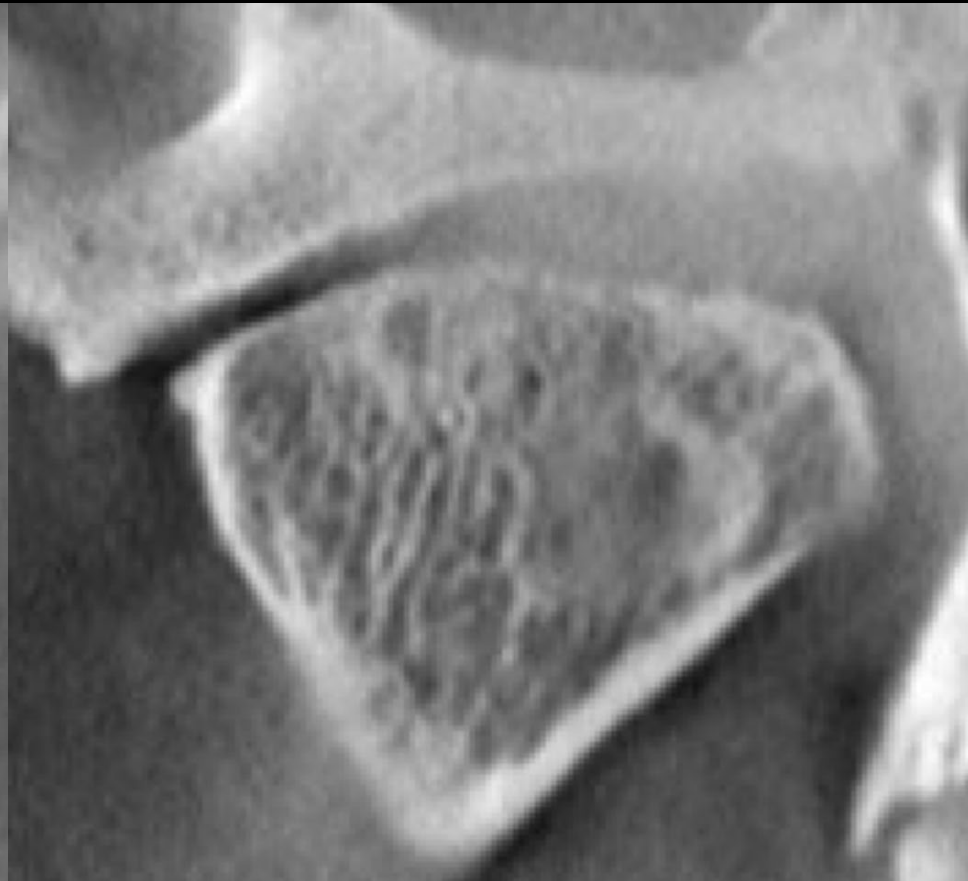


Frontal

Osteoarthritis Moderate



Sagittal



Frontal

Osteoarthritis Severe



Sagittal



Frontal

So...if TMJ is Not a Diagnosis...

- ...what are most patients complaining about?
- Myofascial pain
 - Pain that can refer outside the area of the muscle
 - Caused by clenching, grinding, stress, chewing gum, biting nails, pens, salads, steaks, oral habits, etc.

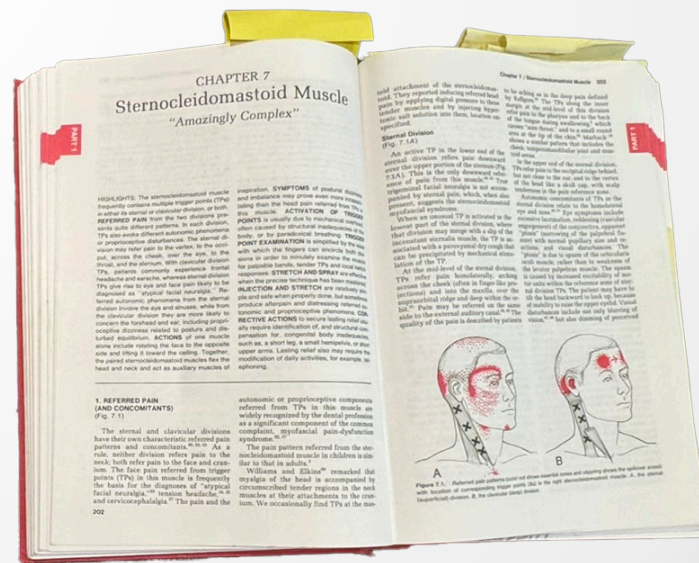
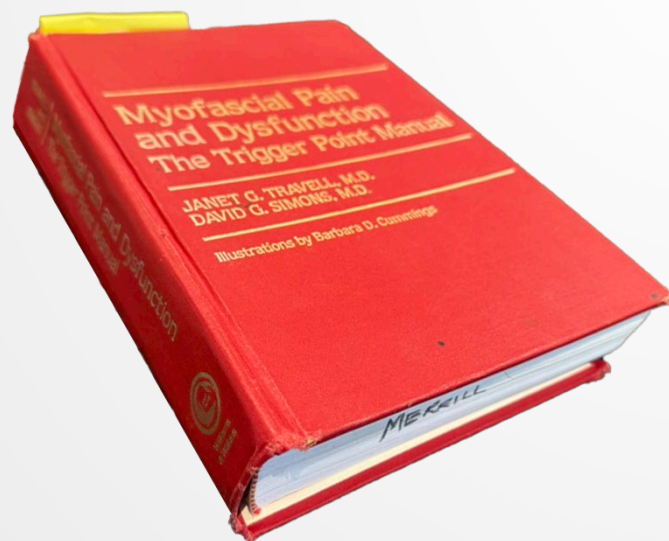
Life is Better Knowing the Muscle Referral Patterns MRPs

- Observe patients and their posture
- Are they clenching during the day
- Cell phones are a huge culprit of forward head posture



Muscle Referral Patterns

- Travell and Simons' Myofascial Pain and Dysfunction: The Trigger Point Manual; Vol. 1. The Upper Half of Body
- Travell's treated JFK's back pain with trigger points and treatment of John F. Kennedy's back pain
- First, and only, female personal physician to a US President

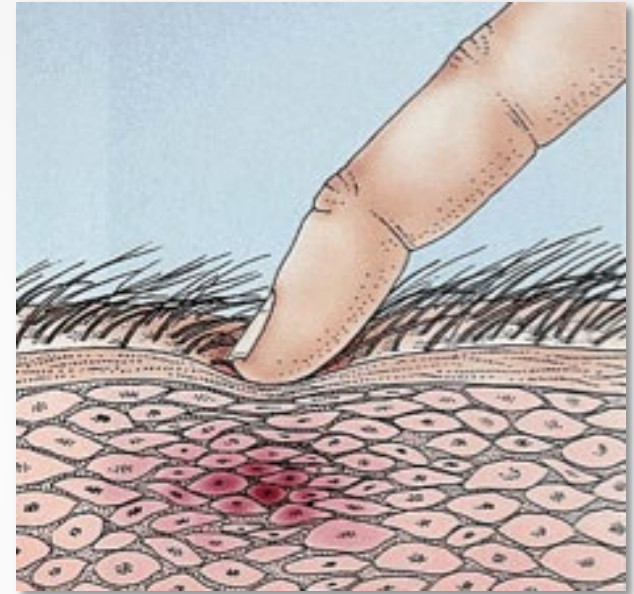


Myofascial Palpation Exam

- Palpate muscles caudal to cranial
 - Referred pain in the head and neck usually refers up
- Hold for 5-20 seconds using 0.5-4 kg/cm² pressure
 - Your finger should blanch
 - *It is going to hurt*
- Mild, moderate, or severe?
- Is pain under my fingers or is it moving?
- If pain refers then point with one finger and trace it
- *Is it like the pain that brought you in?*
 - aka: did I replicate the chief complaint?

Trigger Points

- Described as hyperirritable spots in skeletal muscle that are associated with palpable nodules in taut bands of muscle fibers.
- Myofascial pain without referral
 - site and source are the same
- Myofascial pain with referral
 - referral to different location
 - site and source are different



New Frontiers in the Pathophysiology of Myofascial Pain- Shah et al The Pain Practitioner Summer 2012
Comparison of injection methods in myofascial pain syndrome: Ay et al Clinical Rheumatology Jan 2010
Management of Masticatory Myofascial Pain Friction Seminars in Orthodontics 1995

Palpation of Masticatory and Cervical Muscles

- Trapezius anterior, middle, and posterior
- Splenius capitis
- Sternocleidomastoid: clavicular and sternal heads
- Superficial masseter
- Deep masseter
- Temporalis
- Medial pterygoid
- Lateral pterygoid - cannot palpate but can test against resistance

Muscle Referral Patterns of the Teeth and Jaw

Muscle Referral Patterns of the Mandibular Molars, Premolars, and Jaw

Superficial Masseter



Lower Superficial Masseter Muscle

Trapezius



Trapezius Muscle

Muscle Referral Patterns of the Maxillary Molars, and Second Premolar

Superficial Masseter



Upper Superficial Masseter Muscle

Posterior Temporalis



Posterior Temporalis Muscle

Muscle Referral Patterns of the Maxillary Central and Lateral Incisors

Anterior Temporalis



Anterior Temporalis Muscle

Muscle Referral Patterns of the Maxillary Canine and First Premolar

Middle Temporalis



Middle Temporalis Muscle

Temporalis Can Refer to All Maxillary Teeth

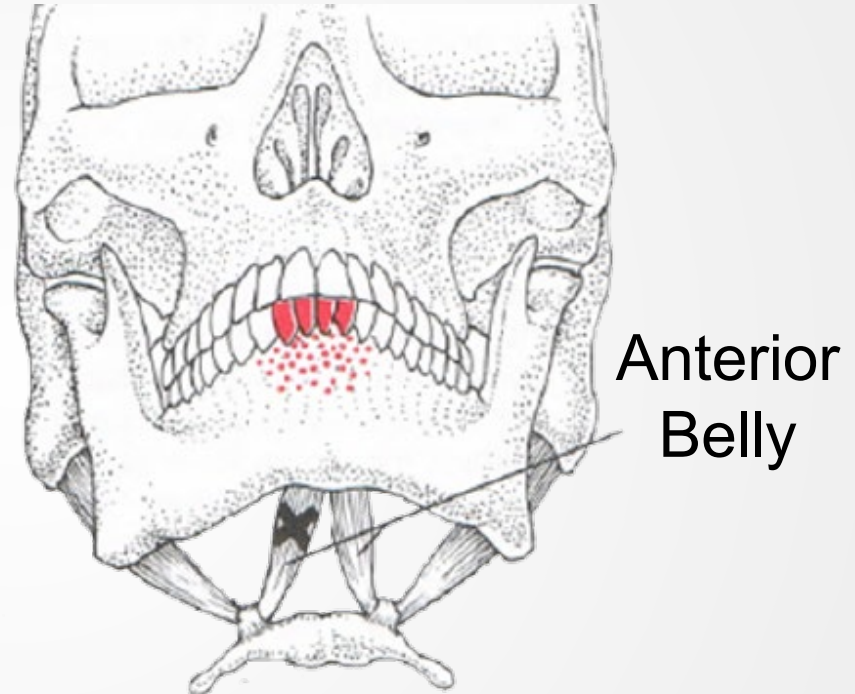


Temporalis Muscle

Muscle Referral Patterns of the Mandibular Central and Lateral Incisors

Anterior Belly of the Digastric

- Pain is a rare occurrence since it is an opening muscle.
- Does occur in performers such as opera singers.
- Also occurs in anyone who keeps their mouth open for an extended period of time.



Muscle Referral Patterns to the Temporomandibular Joint/Ear

Deep Masseter



Deep Masseter Muscle

Sternocleidomastoid

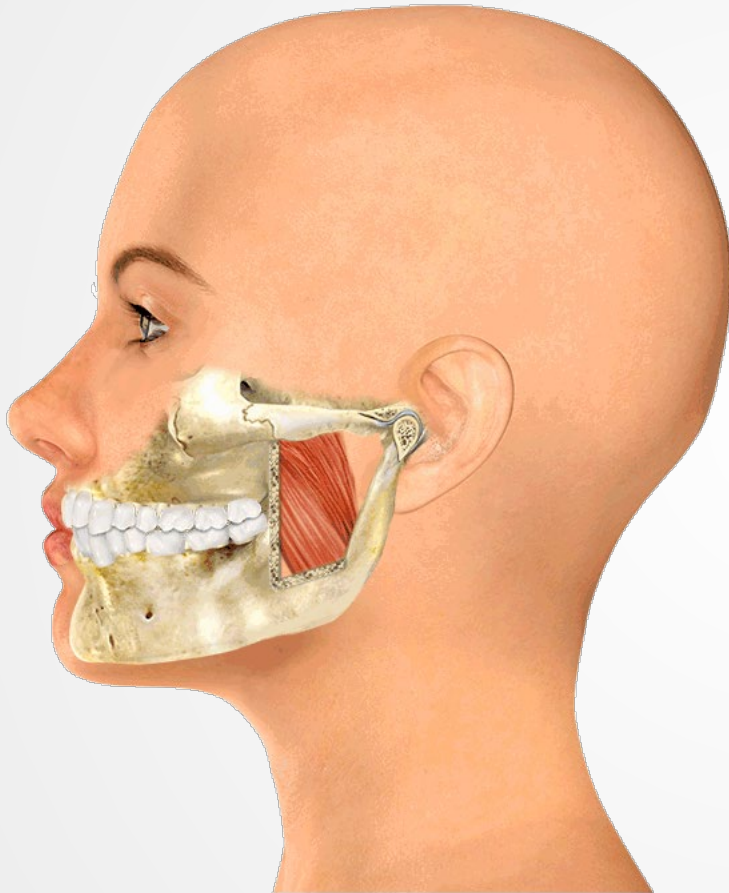


Sternocleidomastoid Muscle: Clavicular Head

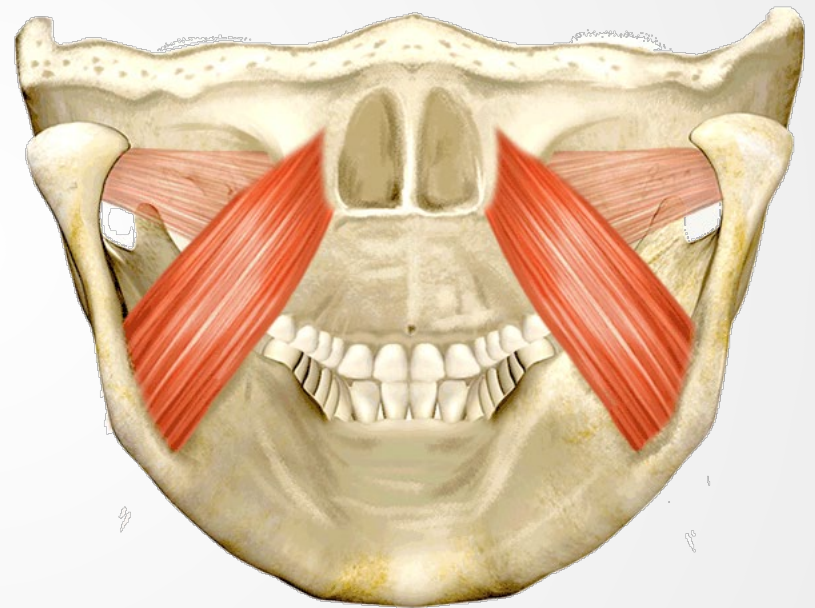


Sternocleidomastoid Muscle: Sternal Head

Medial Pterygoid

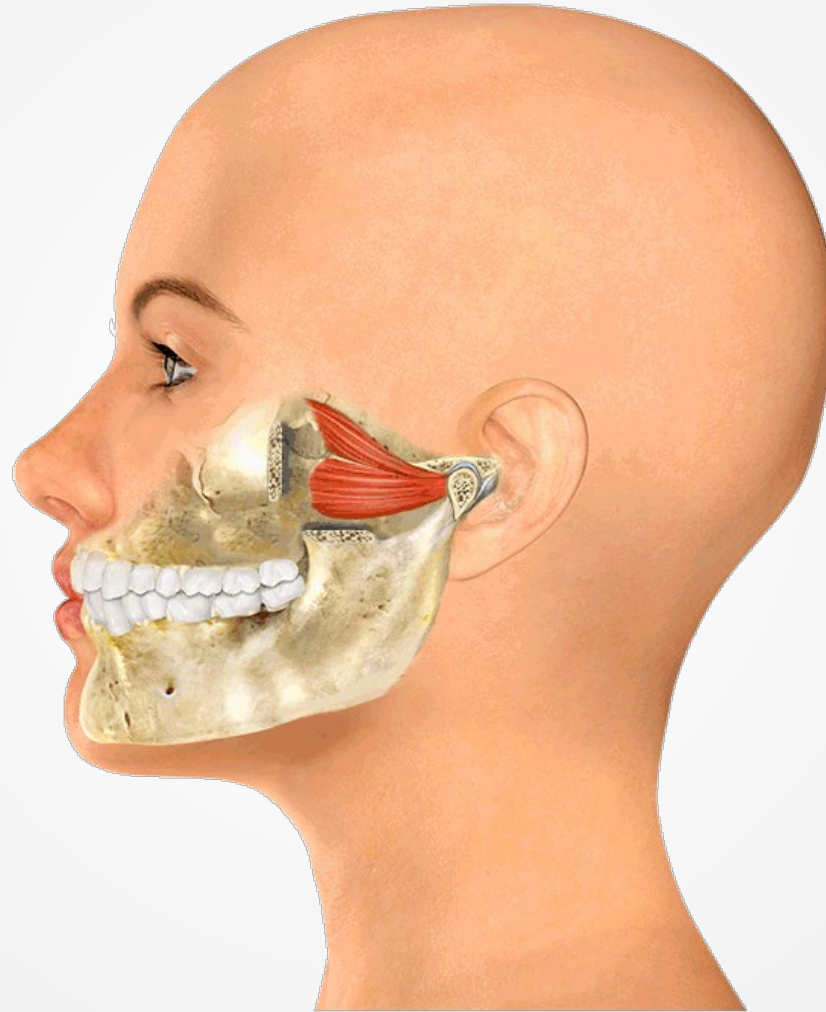


Medial Pterygoid Muscle



Medial Pterygoid Muscle

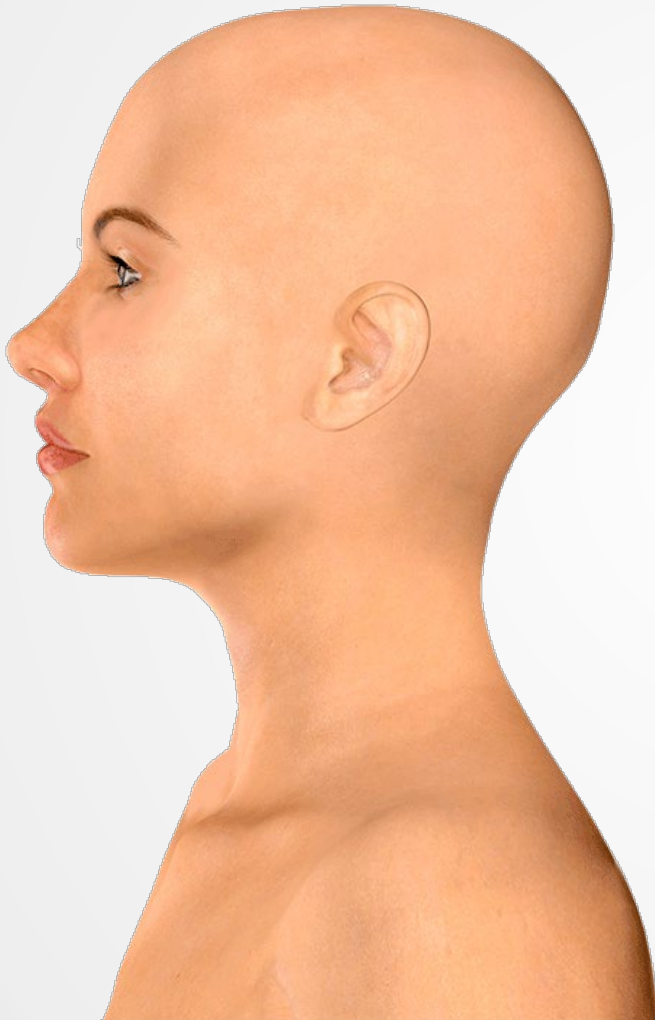
Lateral Pterygoid



Lateral Pterygoid Muscle

Muscle Referral Patterns to the Top of the Head

Splenius Capitis and Sternal Head SCM



Splenius Capitis Muscle



Sternocleidomastoid Muscle: Sternal Head

Forward Head Posture

- Have your patients' pay attention to their posture





12 lb.



32 lb.



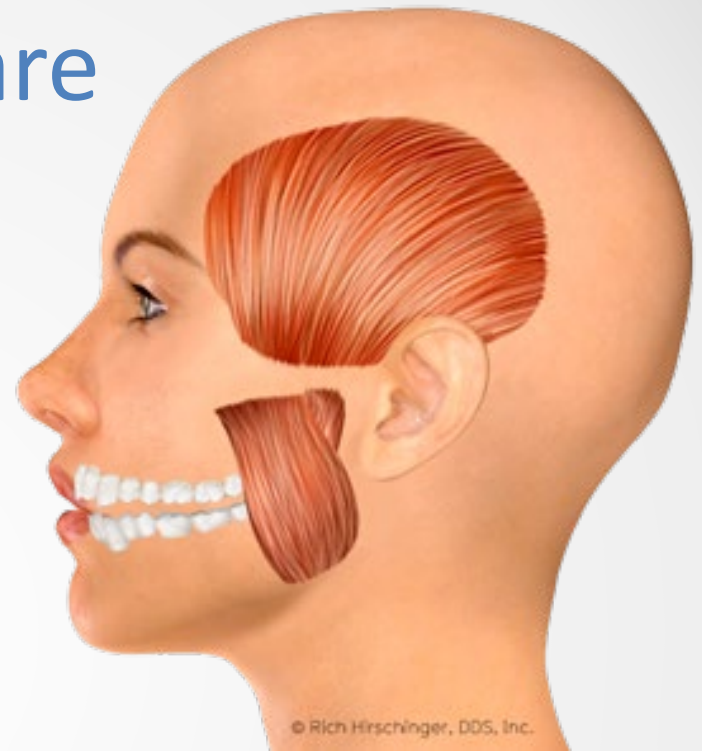
42 lb.

Speaking of Muscles – tongue scalloping is a sign of clenching



Daytime Care

- N-rest position
 - Say the letter “N”
- Teeth apart, lips together
- Stop it!
 - I send this video to almost every patient





Daytime Care: Passive Jaw Stretching



- Stretching options:
 - fingers
 - corks
 - tongue blades
 - gentle jaw
 - Therabite/Orastretch
- How long:
 - 30 seconds, 6 times a day
- Penalty stretching
 - 30 seconds if they catch themselves clenching

Side-by-side-by-side Showdown

They all work



Cork



Tongue blades



gentle jaw

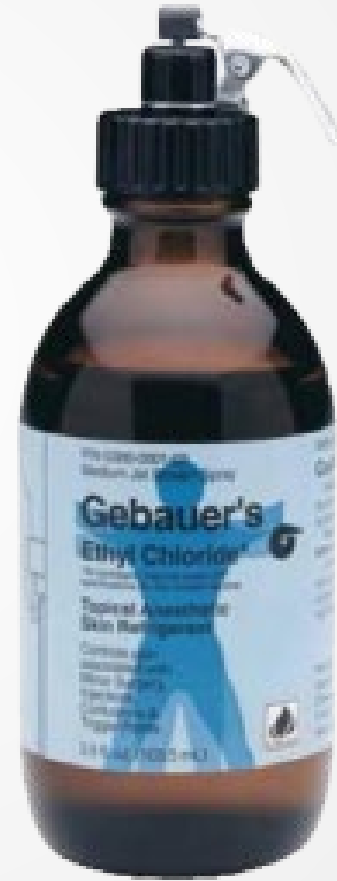
Daytime Care



- Ethyl chloride or ice
- Voltaren gel 1%
 - OTC NSAID
 - Diclofenac sodium
- Over-the-counter pain medication time contingent
 - Aleve 440 mg BID
 - Boswellia 300 mg TID if NSAIDs are contra-indicated
- Moist heat
 - At home - place a wet towel in the microwave for 5 minutes. Wrap the second towel around first.

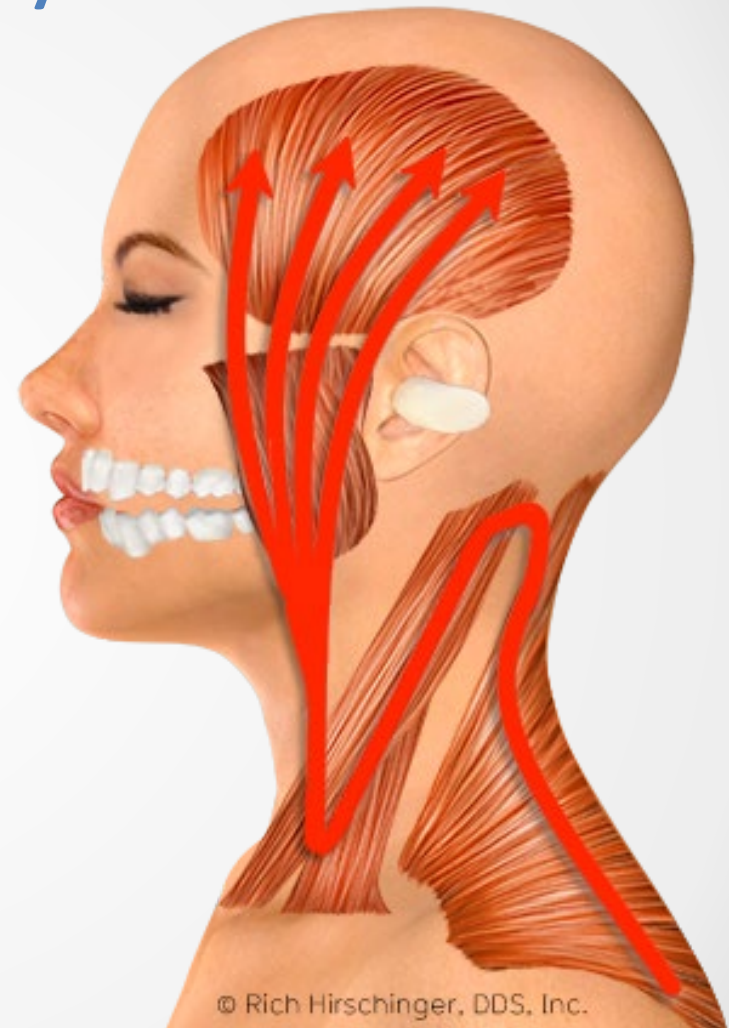
Ethyl Chloride

- Liquid vapocoolant
- Works by resetting the gate
- Flammable



Ethyl Chloride Spray Pattern

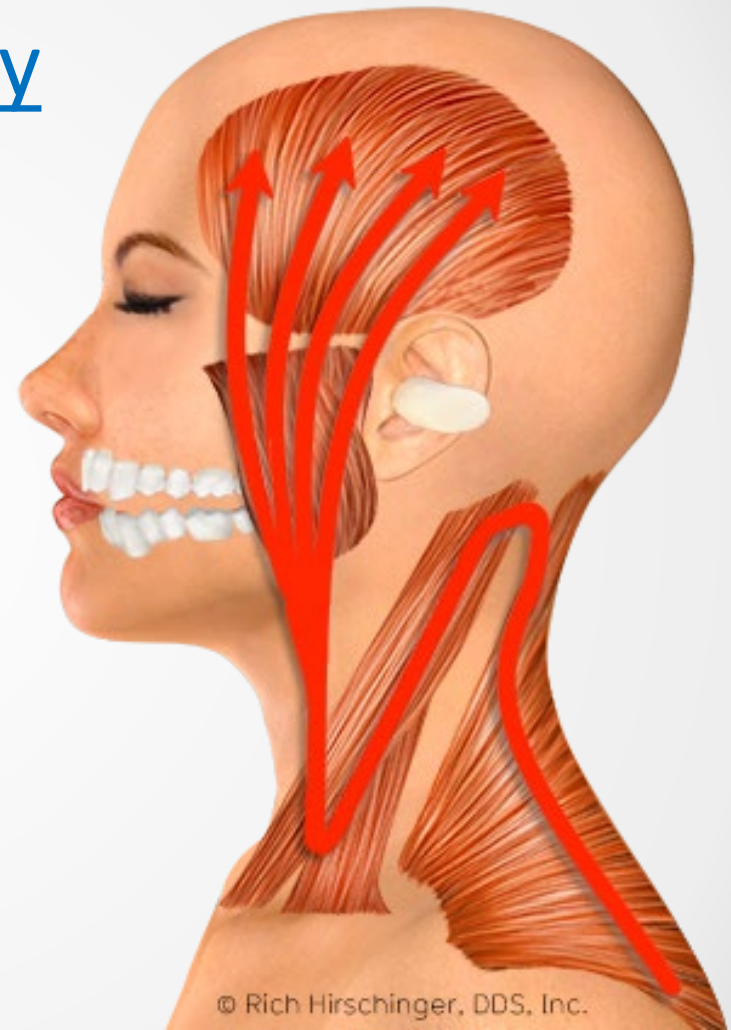
- Spray caudal to cranial
- Hold 12-18" away from area
- Each pattern takes about 4 secs
- Trapezius
- SCM
- Superficial Masseter
- Deep Masseter
- Temporalis
- Repeat same pattern but fan out to get all temporalis fibers



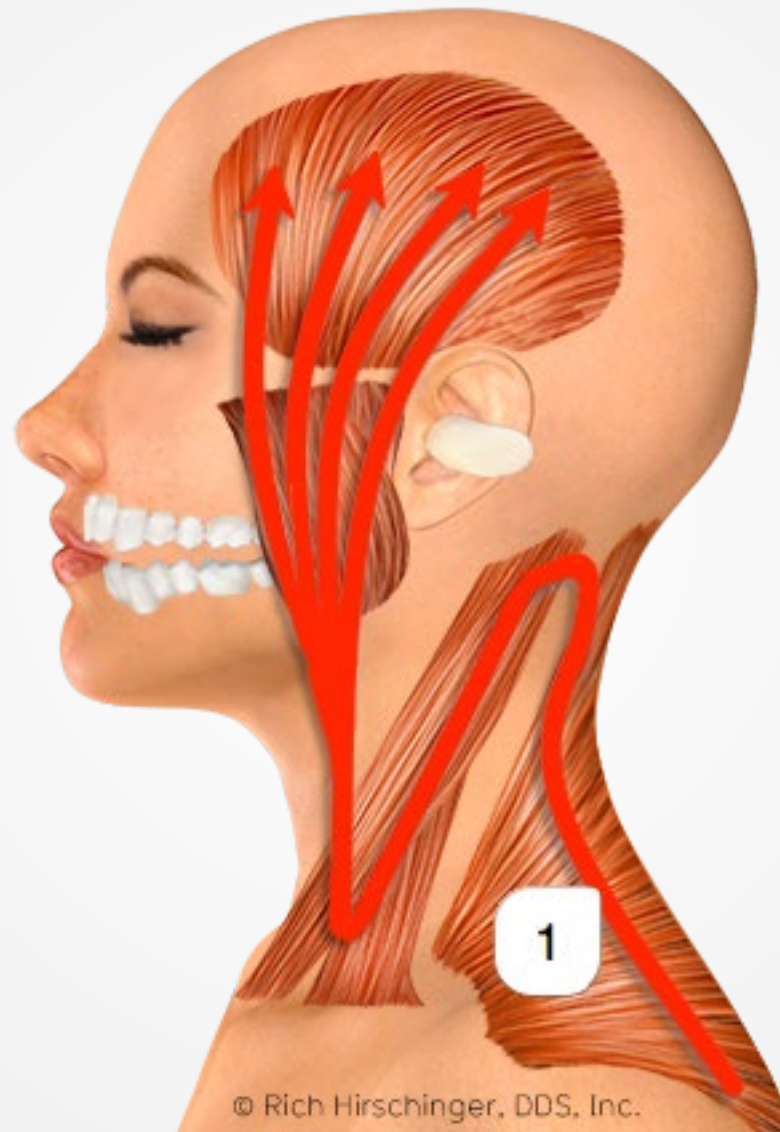
Ethyl Chloride Spray Pattern

www.facepaindr.com/spray

- Teeth apart
- Eyes closed
- Cotton ball/roll in ear

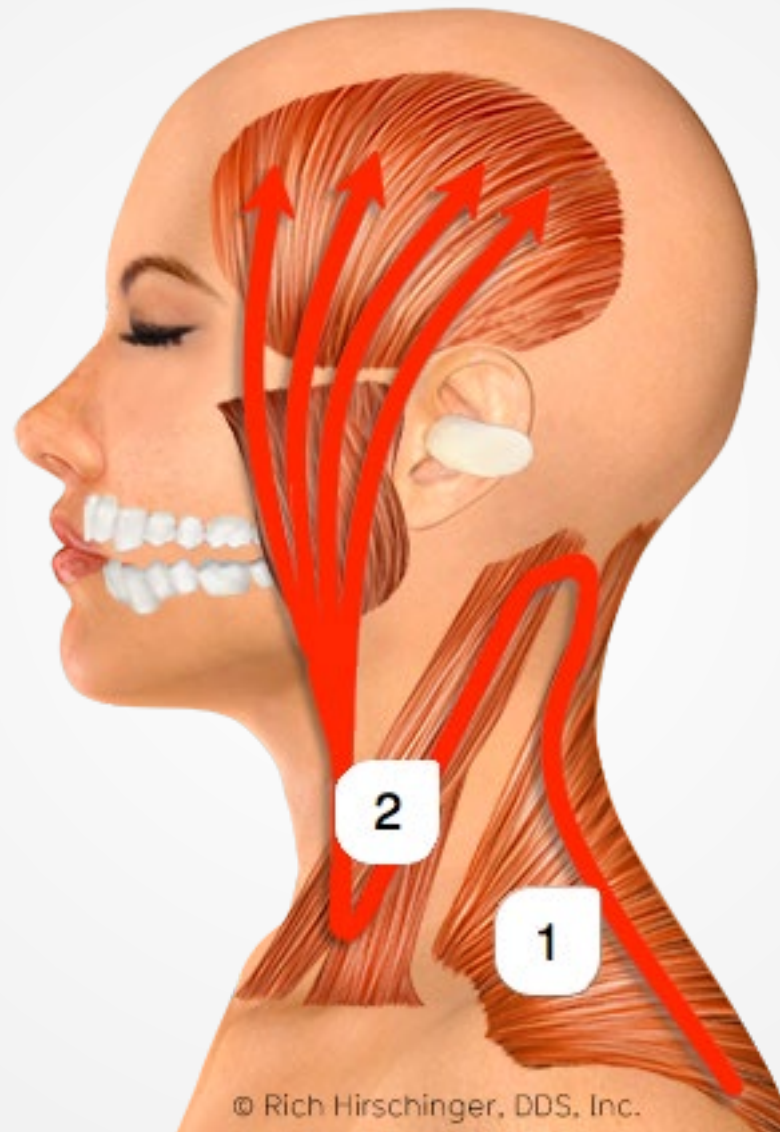


Ethyl Chloride Spray Pattern - Trapezius

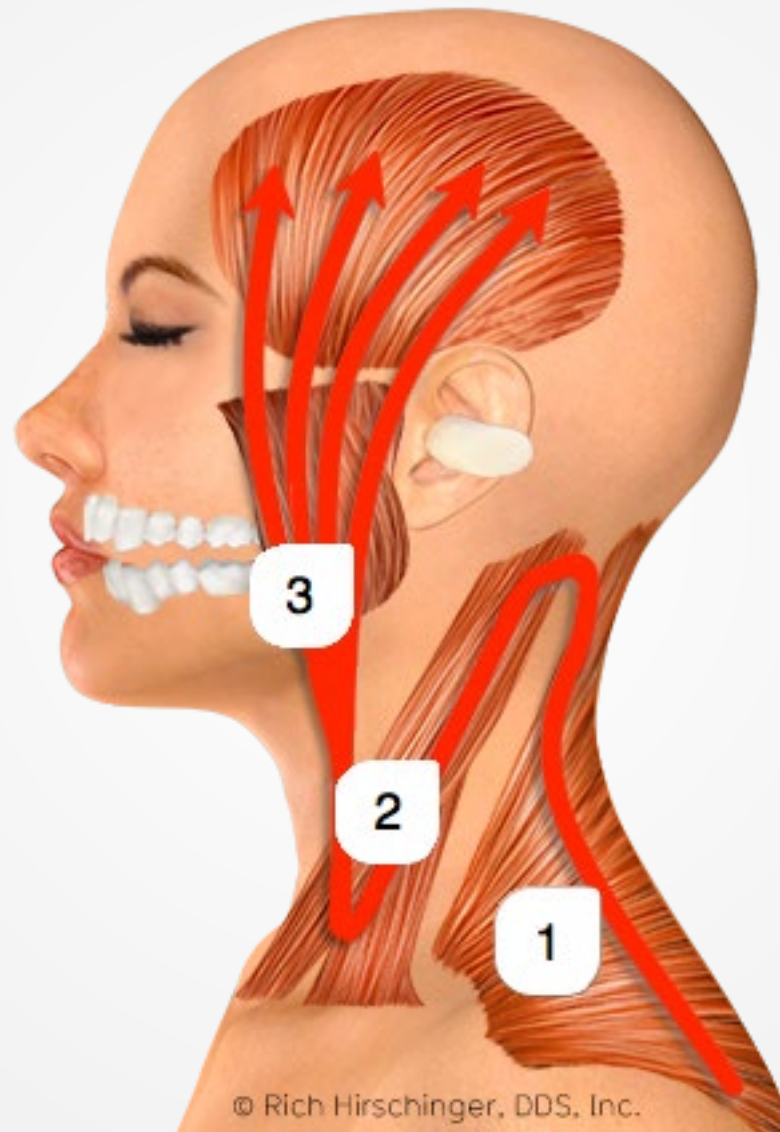


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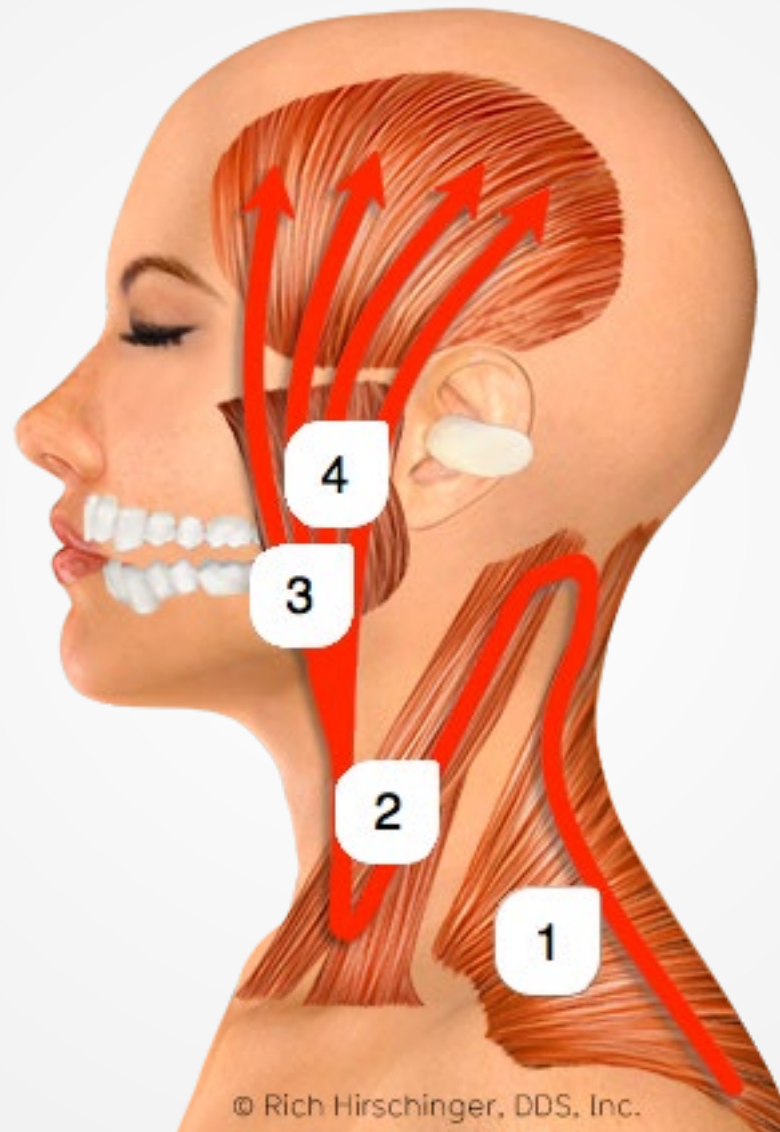
Ethyl Chloride Spray Pattern - SCM



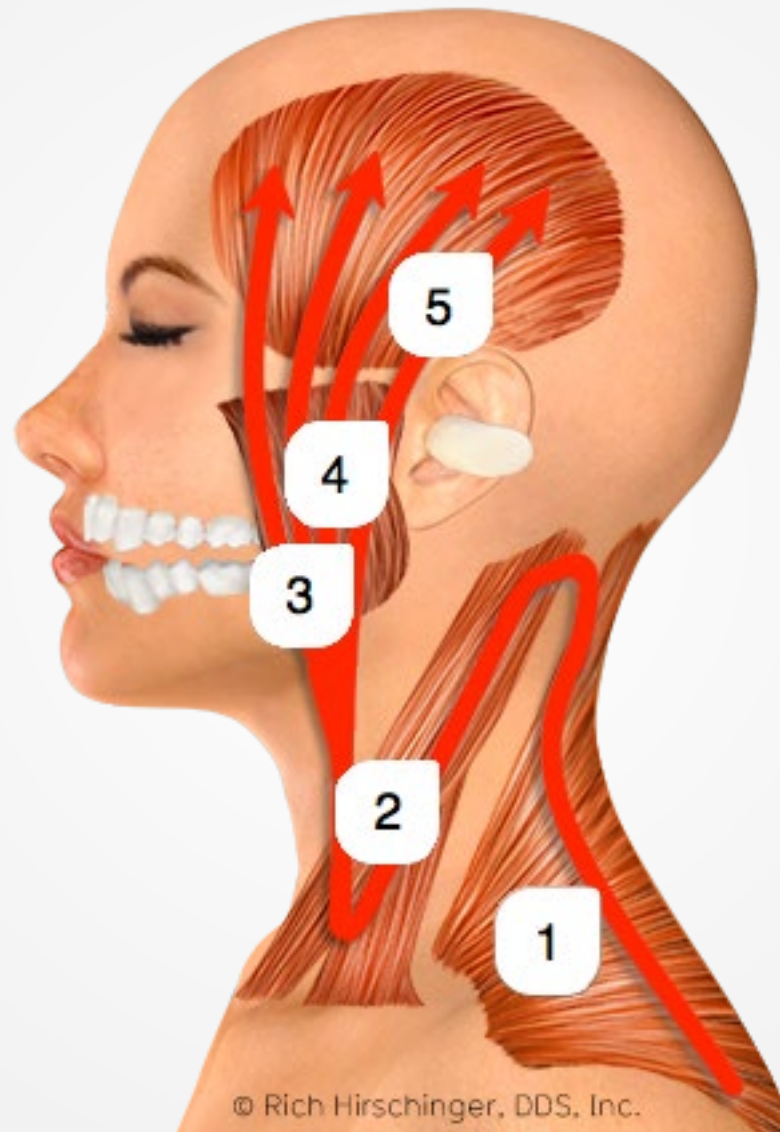
Ethyl Chloride Spray Pattern Superficial Masseter



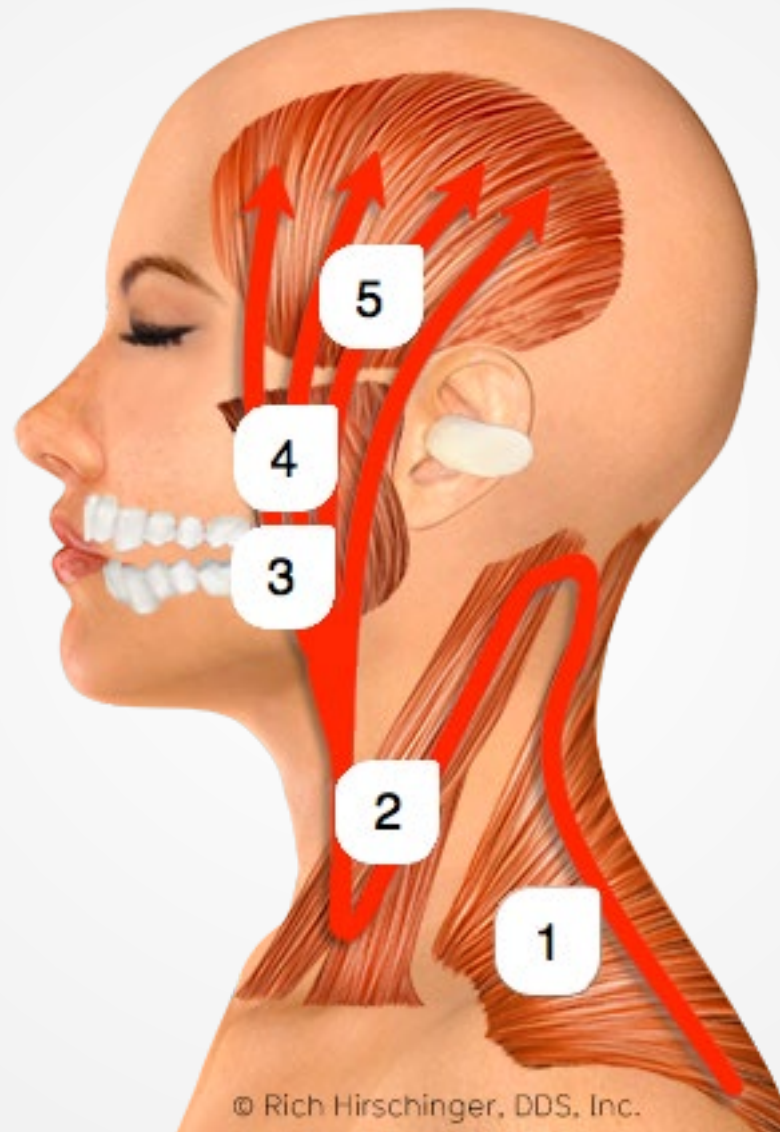
Ethyl Chloride Spray Pattern Deep Masseter



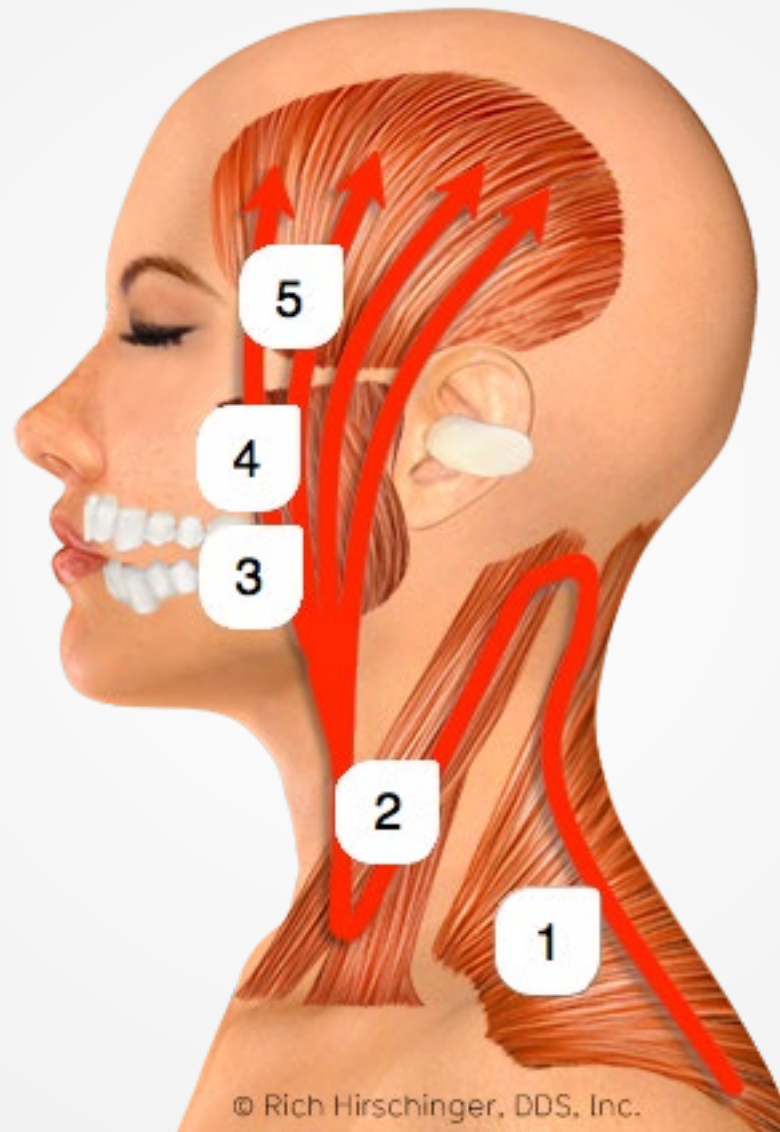
Ethyl Chloride Spray Pattern Temporals



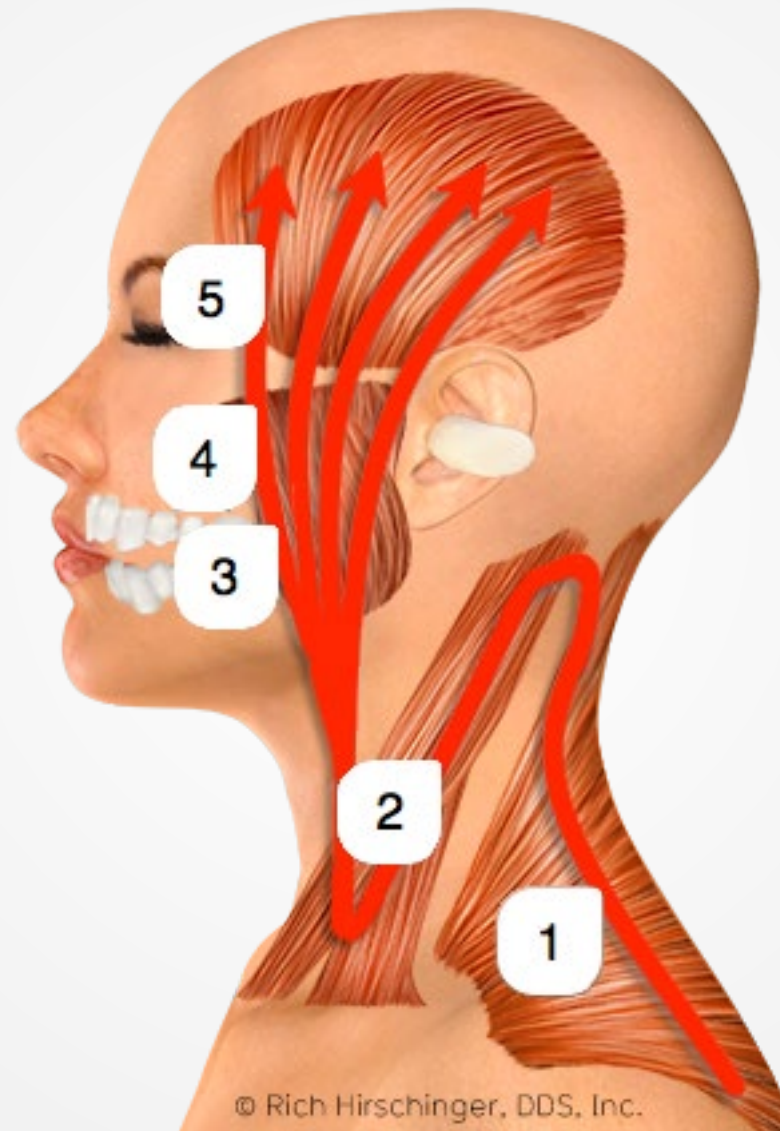
Ethyl Chloride Spray Pattern



Ethyl Chloride Spray Pattern



Ethyl Chloride Spray Pattern



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Nighttime Appliances



Stabilization Appliances

- Single arch
 - Mandibular
- Dual arch
 - Dual flat plane appliances

Single Appliance Stabilization Orthotic Nightguard

- Mandibular hard full coverage
 - Smaller
 - More comfortable
 - Does not take up tongue space
 - Does not take up airway
- Made from Astron, a hard composite material
 - Gluten free
- Do not want to change the patient's bite

Dual Flat Plane Appliances

- For severe grinders
 - Patients with existing holes/cracks in their appliance
 - Patients on SSRI's
 - Patients with excessive attrition
- Act as dual retainers
- Take the teeth out of the equation
- These appliances last a very long time



SSRI Side Effect: Bruxism

Citalopram-induced bruxism
The British Journal of Psychiatry Volume
178, Issue 2 February 2001, p. 182

How to Tell if a Patient Grinds

No. Canines are pointy.



How to Tell if a Patient Grinds

Yes. Canines are flat.



Mandibular Single Appliance

- Perfect candidate for a single appliance
- This patient only clenches since there are no excursive patterns



Dual Flat Plane Orthotic: Holes in Appliance



Dual Flat Plane Orthotic: Cracked Appliance



Dual Flat Plane Orthotic: Cracked Appliance



Dual Flat Plane Orthotic: Severe Bruxer



Dual Flat Plane Orthotic: Severe Bruxer



Dual Flat Plane Appliances

Equal opportunity grinder

Wears retainers



Dual Flat Plane Appliances: 2 year follow up



Dual Flat Plane Appliances: 4 year follow up





What About Soft or Hard/Soft Appliances?

- Not for sleep
- Tend to make patients chew on appliance
- Brain thinks it is a gummy bear

I Tried All That. What are the Other Options?

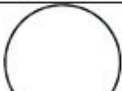
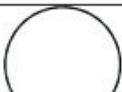


Muscle Relaxer Prescription – only for sleep

- A. Cyclobenzaprine (Flexeril is no longer manufactured)
- 5 mg HS for under 140 pounds
 - 10 mg HS for 140 pounds and higher
 - If too tired in morning, take one hour earlier the next night.
 - If still too tired, reduce dose by half
 - Use caution for patients 60 years and older
- B. Tizanidine (Zanaflex is the brand)
- 2 to 4 mg HS
 - Can increase by 2 mg to 8 mg HS
 - When you wake in the morning, get up slowly, place your feet on the floor, and if you feel fine, then stand holding onto a nightstand. If you feel fine, then you are good to go.

Medrol Dosepak Prescription

START HERE ↓

DAY 1						
	Before Breakfast	Before Breakfast	After Lunch	After Dinner	At Bedtime	At Bedtime
DAY 2						
	Before Breakfast	After Lunch	After Dinner	At Bedtime	At Bedtime	
DAY 3						
	Before Breakfast	After Lunch	After Dinner	At Bedtime		
DAY 4						
	Before Breakfast	After Lunch	At Bedtime			
DAY 5						
	Before Breakfast	At Bedtime				
DAY 6						
	Before Breakfast					

NDC 0009-0056-04
Medrol® Dosepak™
 (methylprednisolone) tablets, USP
4 mg

Distributed by Pharmacia & Upjohn Co.
 Division of Pfizer Inc, NY, NY 10017

Unless otherwise directed by your physician, all six (6) tablets in the row labeled DAY 1 should be taken the day you receive your prescription, even though you may not receive it until late in the day.
 All six (6) tablets may be taken immediately as a single dose, or may be divided into two or three doses and taken at intervals between the time you receive the medicine and your regular bedtime.

Rx only
 00300090056049
 LOT: XXXXXX EXP: YYYY MMM

**Package Not Child-Resistant.
 Keep Out of Reach of Children.**

Trigger Points

It is not usually possible to see the
benefits of trigger points

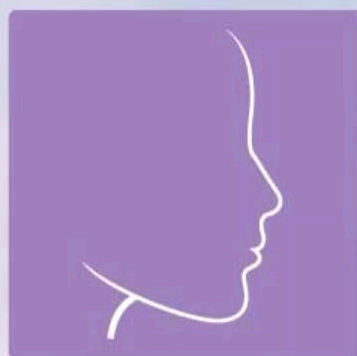
But here is one of my former residents. 😊







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Caring for Head Pain and Sleep Apnea

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rich@FacePainDr.com

888.981.8981

Trapezius Muscle Twitch Response

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Trigger Point Injection Protocol

- 1 cc 1% plain Lidocaine into each muscle that replicates the chief complaint
 - treatment can be unilateral
- Pain resolved after one week? No
- Repeat 1 cc 1% plain Lidocaine into each muscle that replicates chief complaint
- Pain resolved after one week? No
- Botox – typically 100 units with 5 units injected per site
 - Botox treatment should be bilateral even if pain is unilateral since it can cause muscles to atrophy

Botox 100 units

5 units per site bilaterally



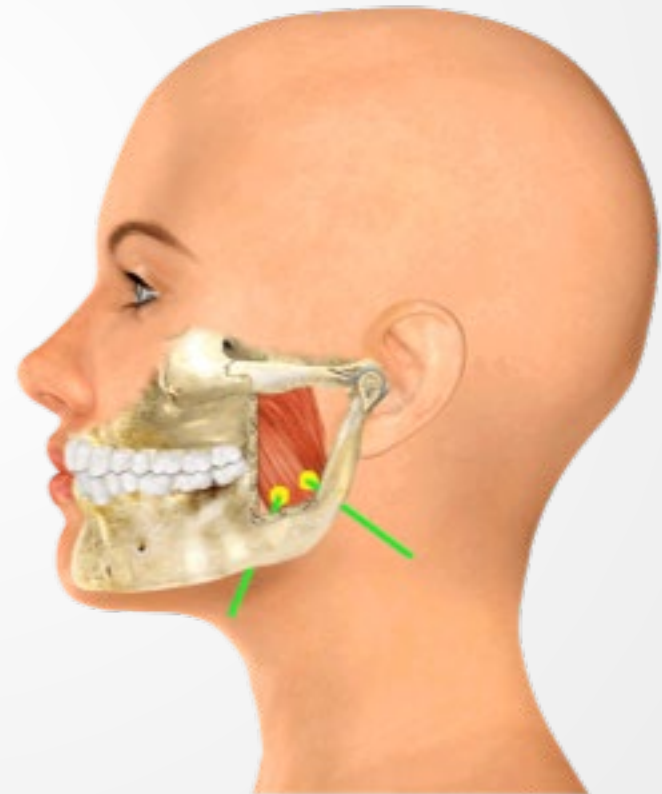
- Option 1 without medial pterygoid pain
 - 30 units superficial masseter and deep masseter in six sites
 - 20 units temporalis in four sites

Botox 100 Units
5 Units per Site
50 Units
Bilaterally

- Option 2 with medial pterygoid pain
 - 25 units superficial masseter and deep masseter in five sites
 - 15 units temporalis in three sites
 - 10 units in medial pterygoid in two sites



Temporalis, Superficial and Deep Masseter Muscles



Medial Pterygoid Muscle

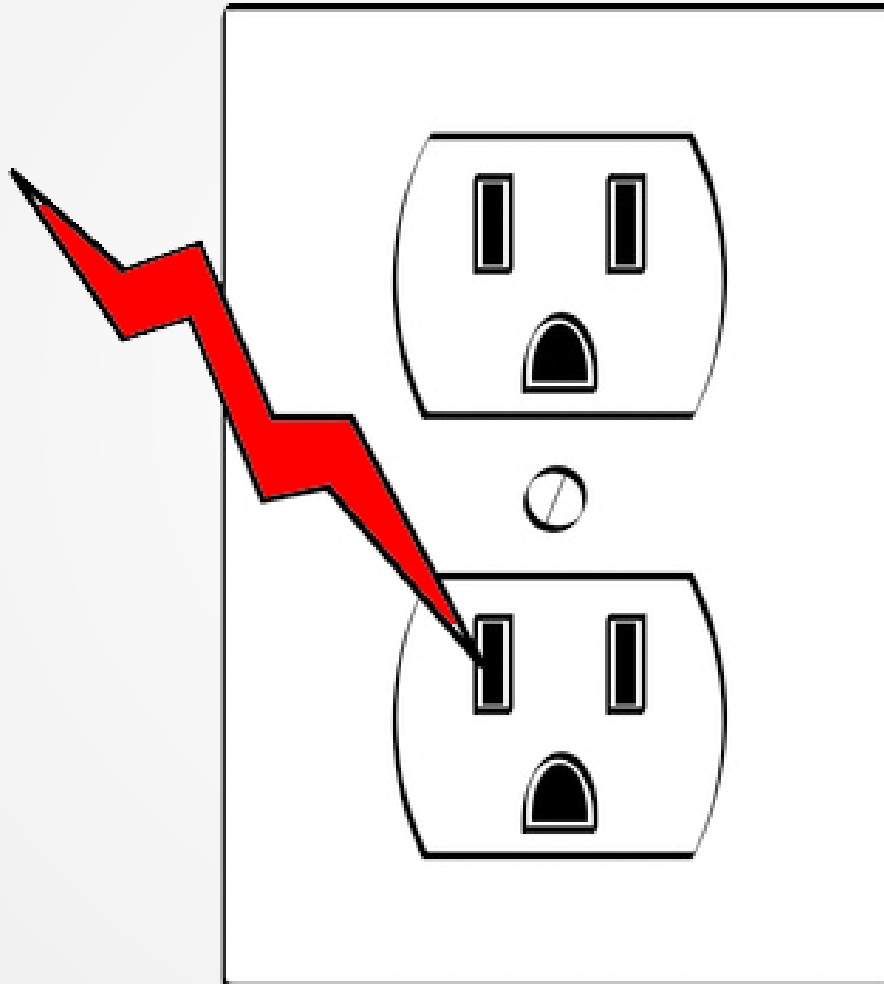
Botox



Botox

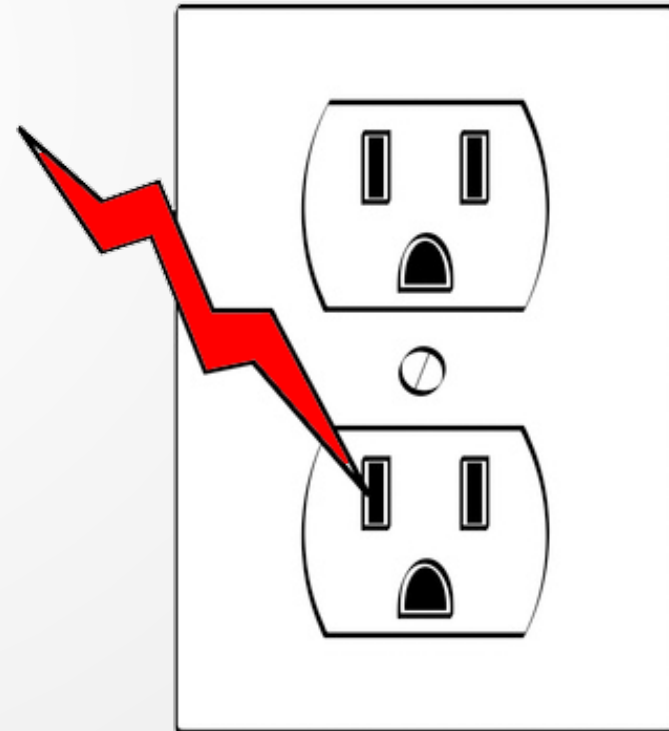


Neuropathic Pain



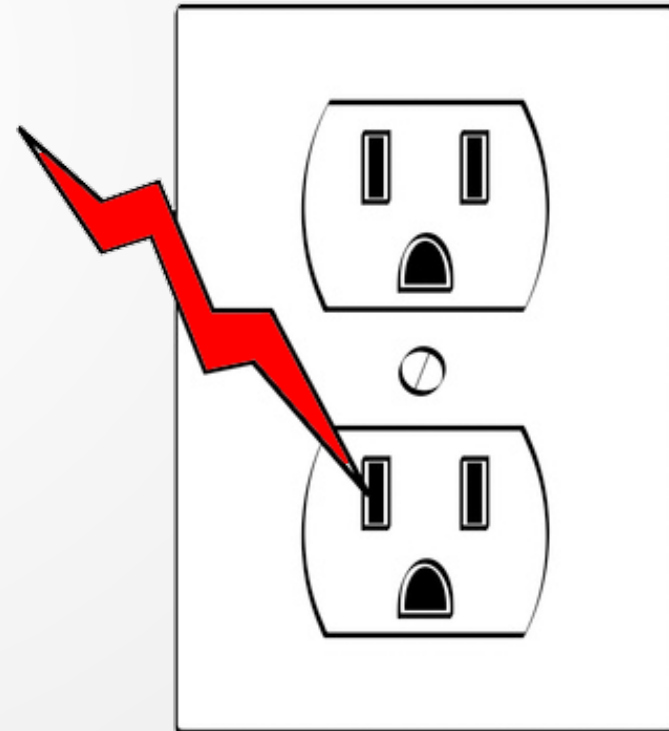
Trigeminal Neuralgia

- *Sharp, shooting, and/or electrical* pain that last a few seconds or minutes
- Typically stays *quiet at night*
- Typically age 40 and older
- Unilateral
- Pain may be triggered by touch, chewing, speaking, swallowing
- Pain is blockable with topical or infiltration



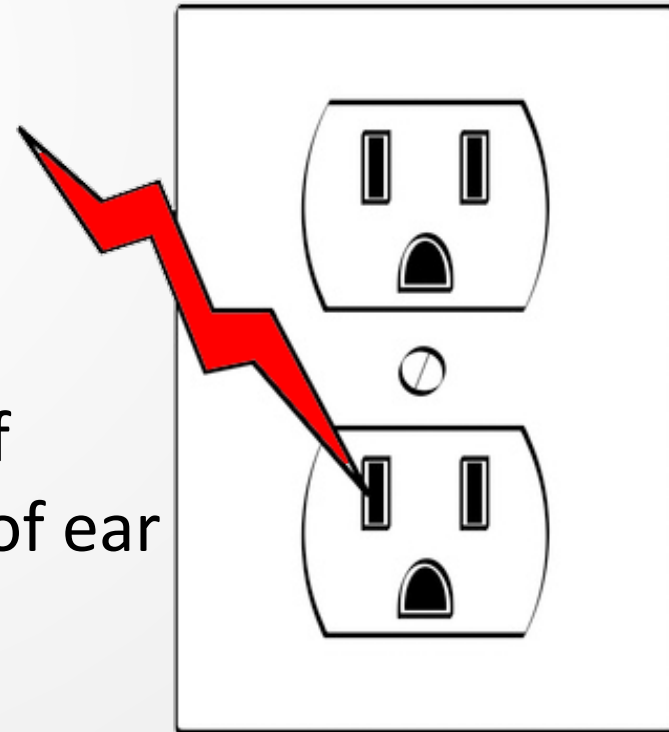
Glossopharyngeal Neuralgia

- *Sharp, shooting, and/or electrical* pain that last a few seconds or minutes
- Typically stays *quiet at night*
- Typically age 40 and older
- Unilateral
- Pain may be triggered by touch, chewing, speaking, swallowing
- Pain is blockable with topical or infiltration



Nervus Intermedius Neuralgia

- *Sharp, shooting, and/or electrical* pain that last a few seconds or minutes
- Typically stays *quiet at night*
- Typically age 40 and older
- Unilateral in ear
- Pain may be triggered by touch, chewing, speaking, swallowing
- Pain is replicable with insertion of Q-tip bent toward posterior wall of ear



MRI Prescription for Trigeminal Neuralgia

- High-resolution MRI with and without contrast of the brain and brain stem with thin cuts through the posterior cranial fossa, with attention to the trigeminal nerve, using Fiesta images with **vascular loop protocol**. Rule out space-containing lesions, multiple sclerosis, acoustic neuroma, trigeminal neuralgia, etc. Please rule out contact of the superior cerebellar and anterior inferior cerebellar arteries with the right and left trigeminal nerve.

The Treatment Menu

Daytime Options

Stretching

Keeping your teeth apart

Soften your diet

Medications for headaches

Topical medications

Nighttime Options

Appliances

Medications

Procedure Options

Botox

Trigger point injections

Nerve blocks

Course Objectives



- What TMJ is and is not
- Identify the muscle referral patterns of the head and neck
- Understand why most TMJ pain is not related to the joint
- Why the site and source of pain in orofacial pain patients is rarely the same
- Protocol for trigger points and Botox
- Recognize the signs and symptoms of trigeminal neuralgia, glossopharyngeal neuralgia, and nervus intermedius

TMJ Syndrome and Facial Pain

I hope I made some
light bulbs go on

Thank you! Questions?

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