

“TMJ”: What Sleep Medicine Needs To Know

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BOARD OROFACIAL PAIN

FELLOW OROFACIAL PAIN

BOARD DENTAL SLEEP MEDICINE

FELLOW INTERNATIONAL COLLEGE OF DENTISTS



Children's National.



School of Medicine
& Health Sciences

Conflict of Interest Disclosure

1. I do not have any potential conflicts to disclose.
2. I wish to disclose the following potential conflicts of interest:

Type of Potential Conflict	Details of Potential Conflict
Grant/Research Support	DYNAFLEX CORPORATION
Consultant	
Speakers' Bureaus	
Financial Support	
Other	

3. The material presented in this lecture has no relationship with any potential conflicts.

MAIN POINTS OF MY PRESENTATION

1. THE TEMPOROMANDIBULAR JOINT IS THE MOST COMPLEX JOINT IN THE BODY IN TERMS OF FUNCTIONALITY, CONSTRUCTION , NEUROLOGICAL INNERVATION AND VASCULARITY.
2. DUE TO THE NATURE OF ITS CONSTRUCTION AND FUNCTION, THE TMJ IS HIGHLY SUCCEPTIBLE TO DAMAGE.
BUT IT HAS THE MOST POTENTIAL FOR ADAPTATION OR REPAIR.
3. HOW THESE FEATURES AFFECT THE SELECTION OF PATIENTS FOR ORAL DEVICES AND THEIR USE IN TREATMENT OF OSA.
4. “TMJ”, BRUXISM AND OSA: IS THERE A CONNECTION?

TMJ TMD TMJD CMD

NEWS FLASH

NONE OF THESE ARE MEDICAL DIAGNOSIS
DO YOU STILL USE THESE TERMS ?

PYORRHEA, HARE LIP, BRUXOMANIA, PUS, GUMS, TRENCH MOUTH

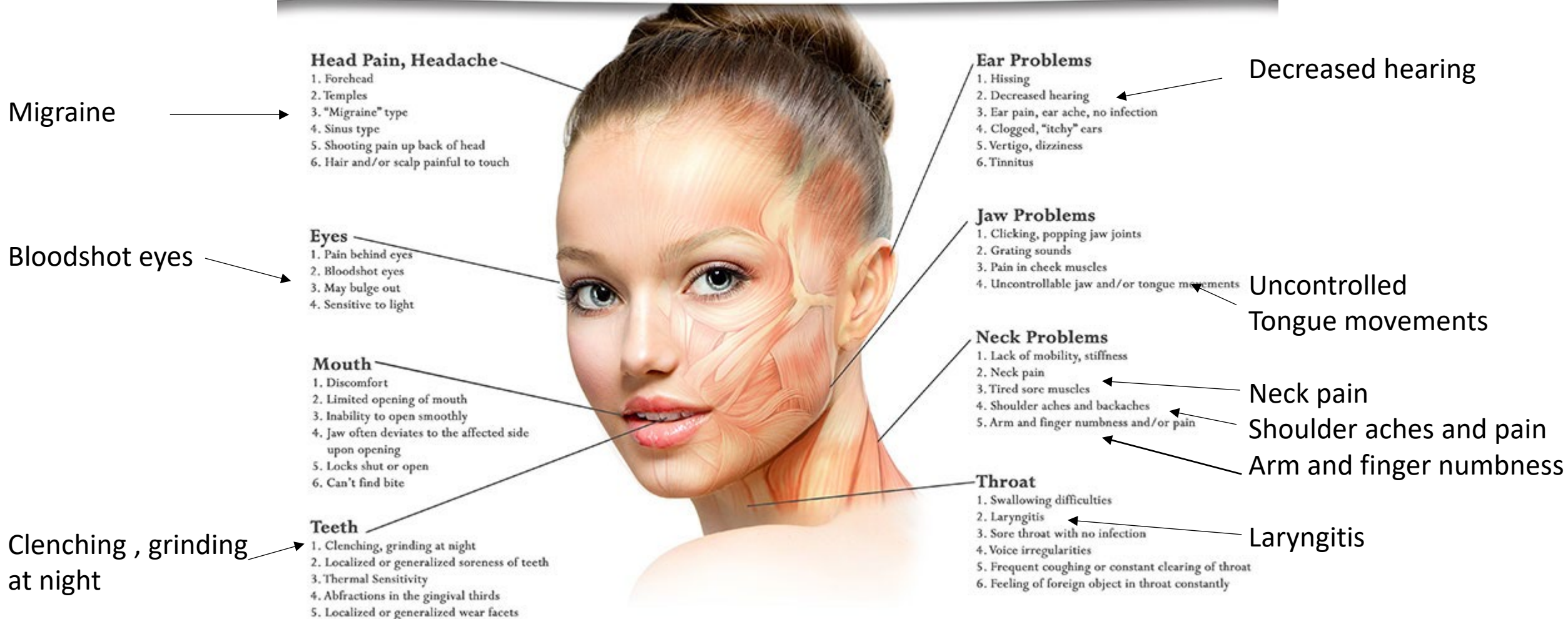
ICD CODES (MEDICAL DIAGNOSTIC CODES) :

M 79.1 = Is used now for myalgia, myofascial pain, myofascial tender points as one diagnosis.

M 26.63 = disk displacement with reduction or non reduction

BELIEFS OF THE TEMPOROMANDIBULAR JOINT

TMD SIGNS & SYMPTOMS



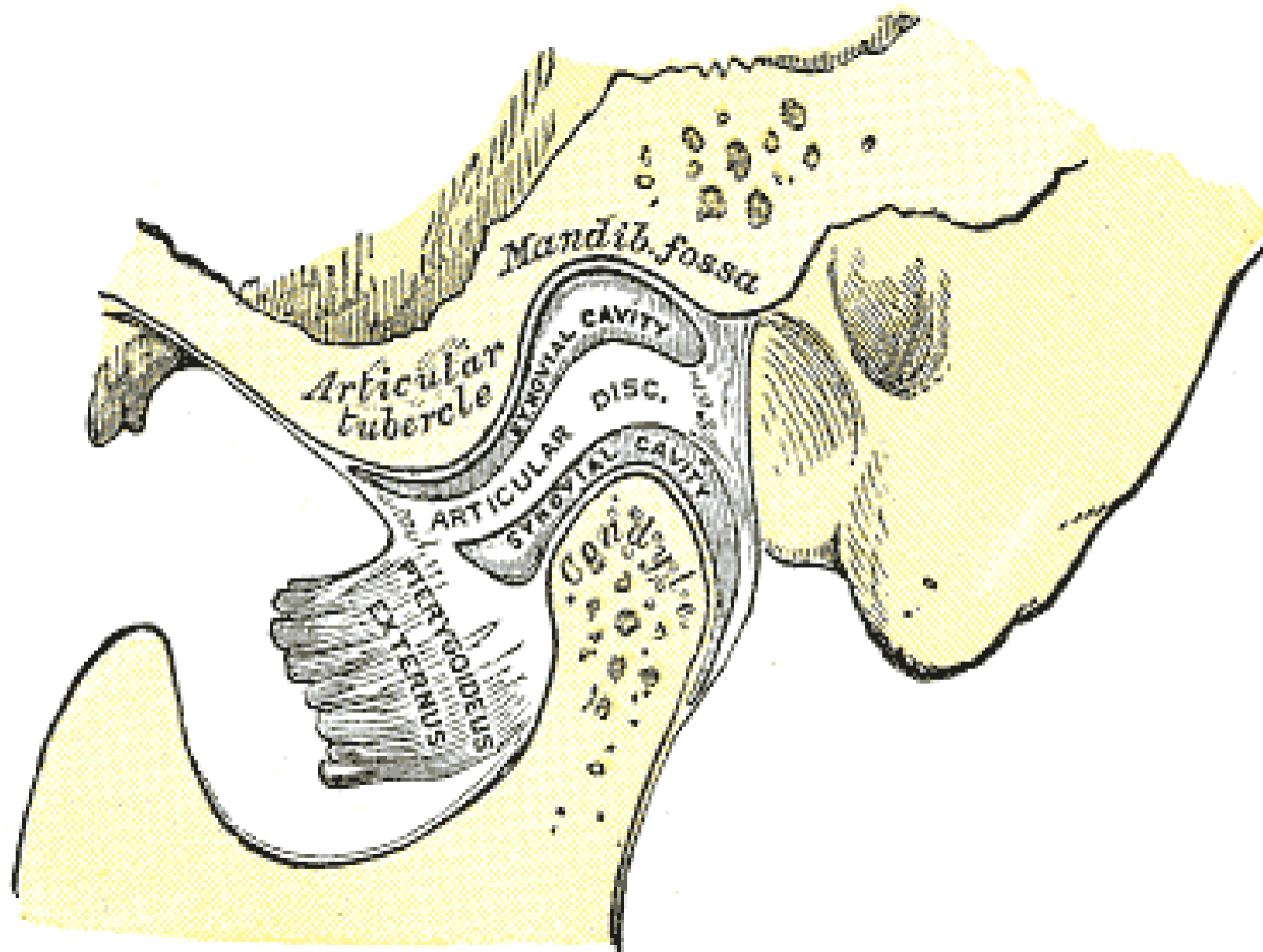
NONE OF THESE HAVE TO DO WITH THE JOINT ITSELF OR ITS FUNCTION

Temporomandibular Joint

- Synovial joint
- Has a disk not a meniscus like the knee
- Compound joint (joint articulates with two bones)
- Biting force =100 to 150 pounds per square inch
- Covered in dense fibrous connective tissue, not hyaline cartilage
- Connective tissue is type 1 compared to knee type 2
- The TMJ disk is avascular as opposed to knee meniscus
- However, the TMJ is the most vascular of all joints
- Ginglymoarthrodial joint (rotates and slides)

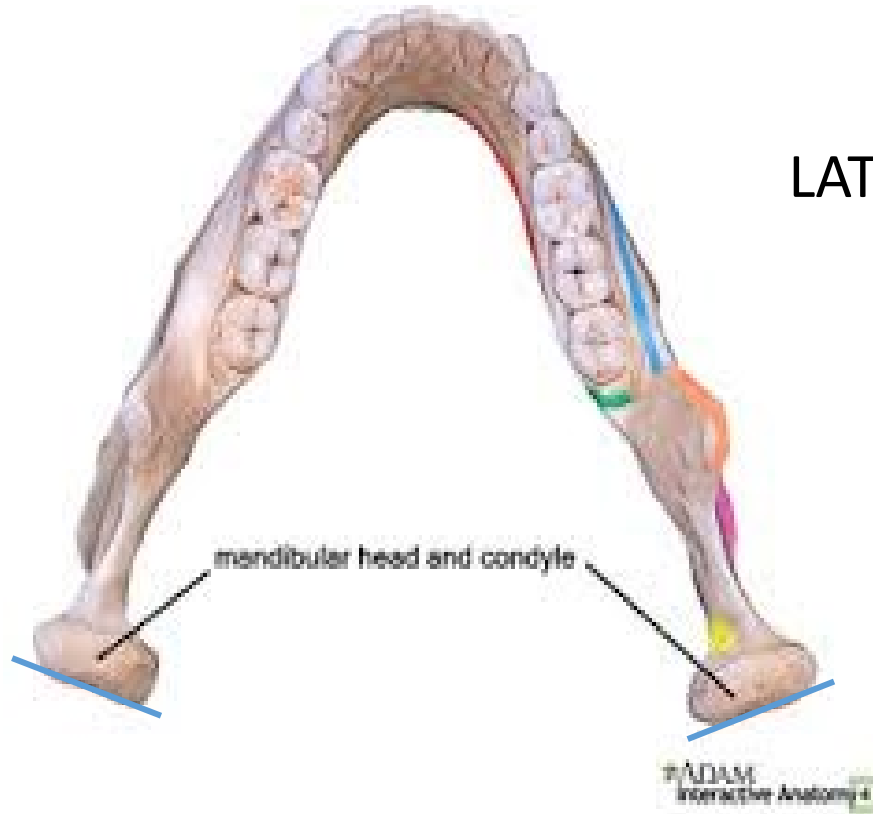
PRE 1960'S TEXTBOOK ILLUSTRATION OF TMJ

"Gray's Anatomy of the Human Body,"



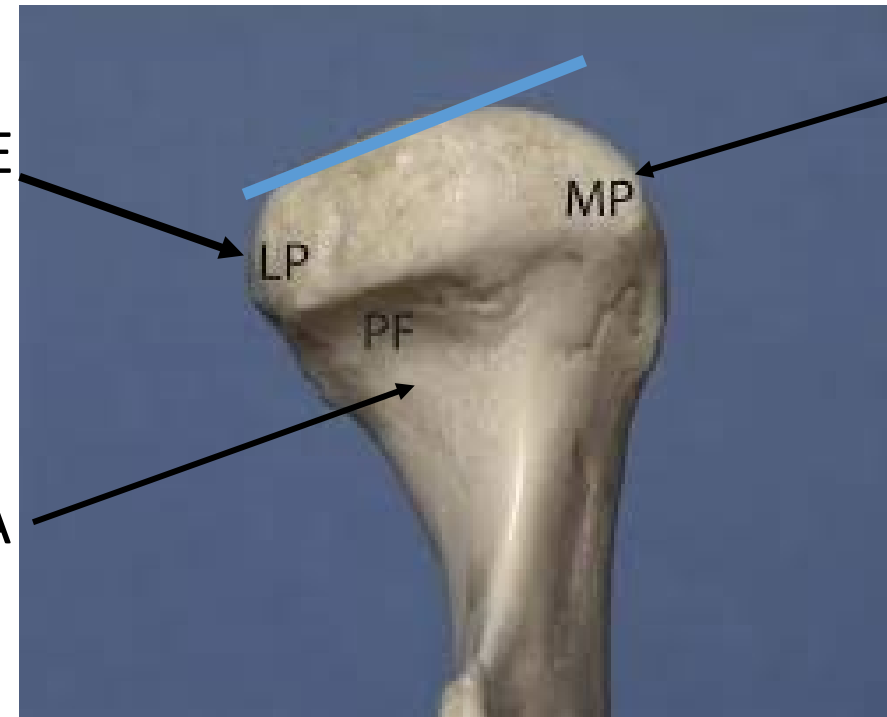
WHAT DOES THE CONDYLE REALLY LOOK LIKE

ITS NOT EVEN LEVEL !



LATERAL POLE

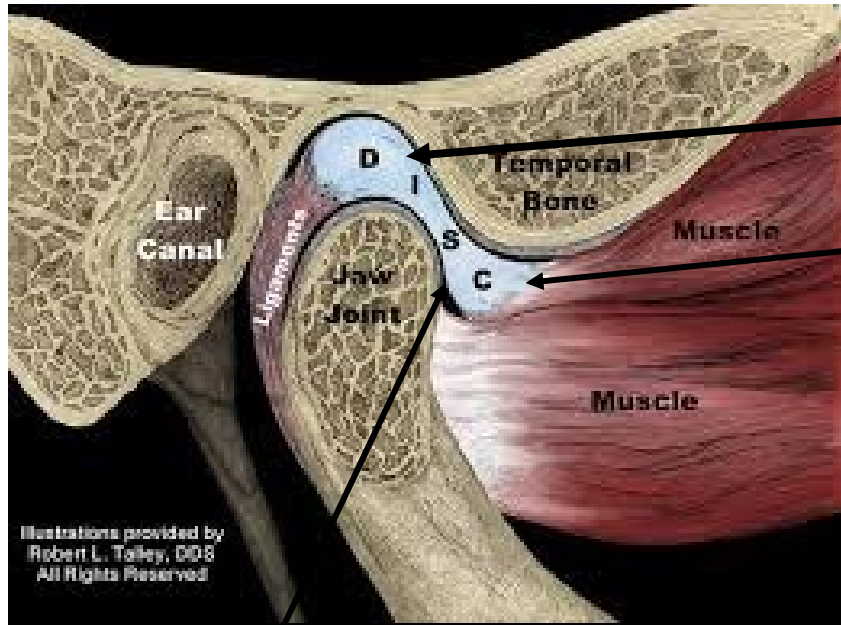
FOVEA



MEDIAL POLE

TMJ IS THE ONLY EXAMPLE OF TWO JOINTS CONNECTED BY ONE BONE

Anatomy of the Temporomandibular Articulating Disk



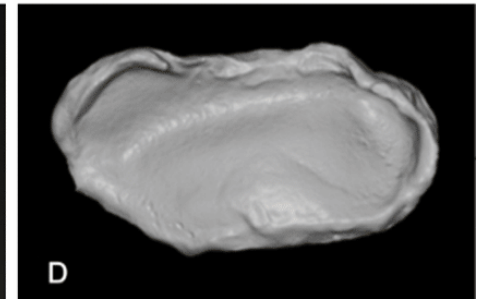
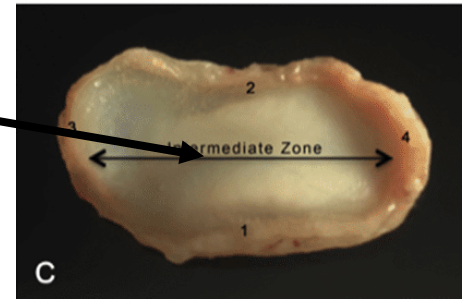
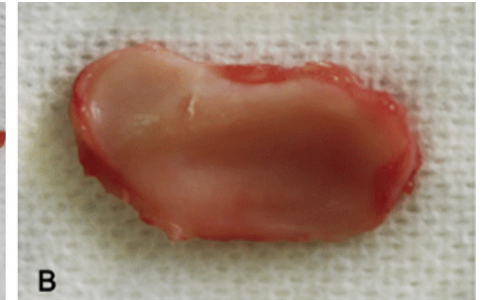
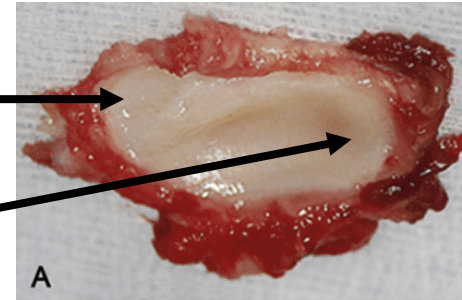
Posterior band

Anterior band

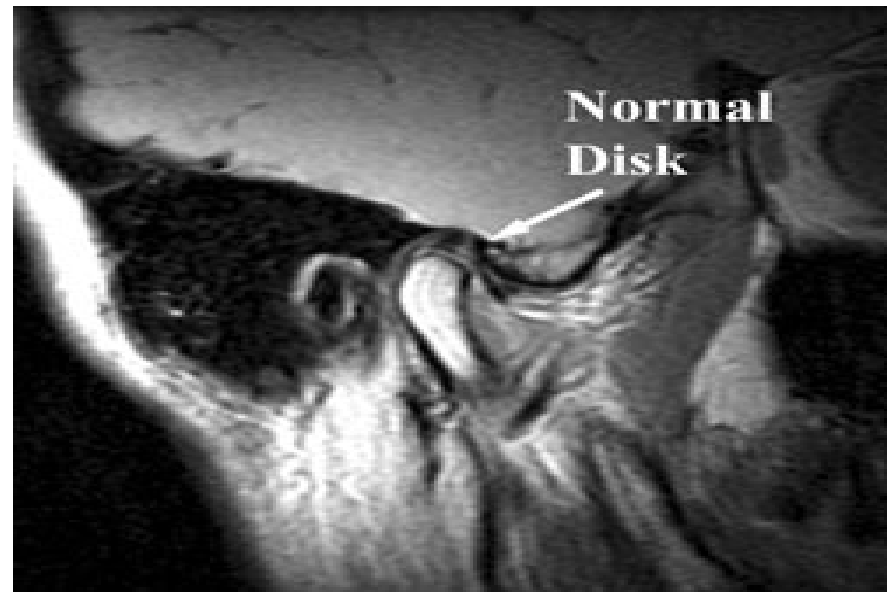
Intermediate zone

Avascular

No innervation



Note position of disk in "2 o'clock position"



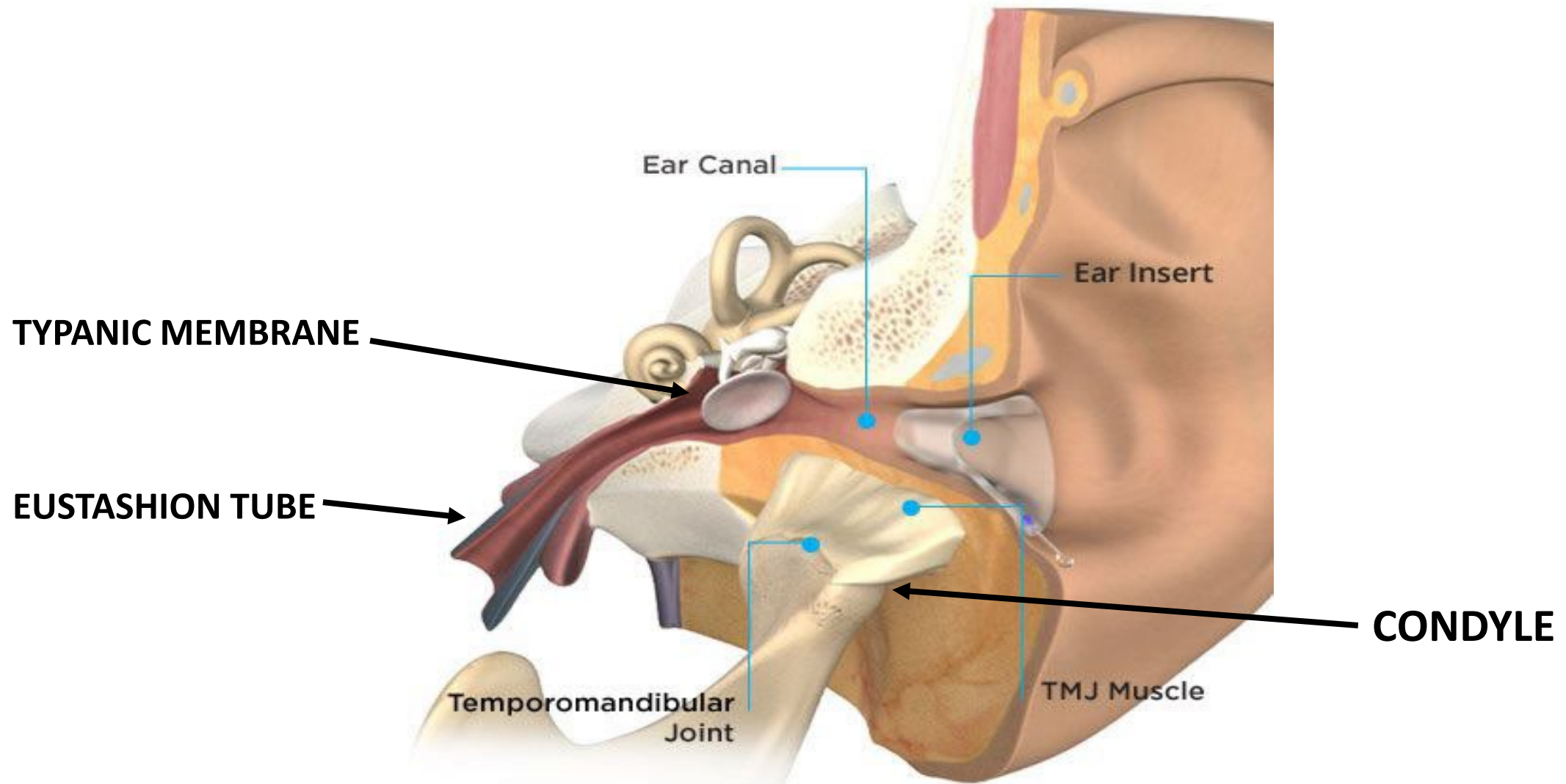
Bow Tie Appearance



NOT LIKE THE TEXTBOOKS



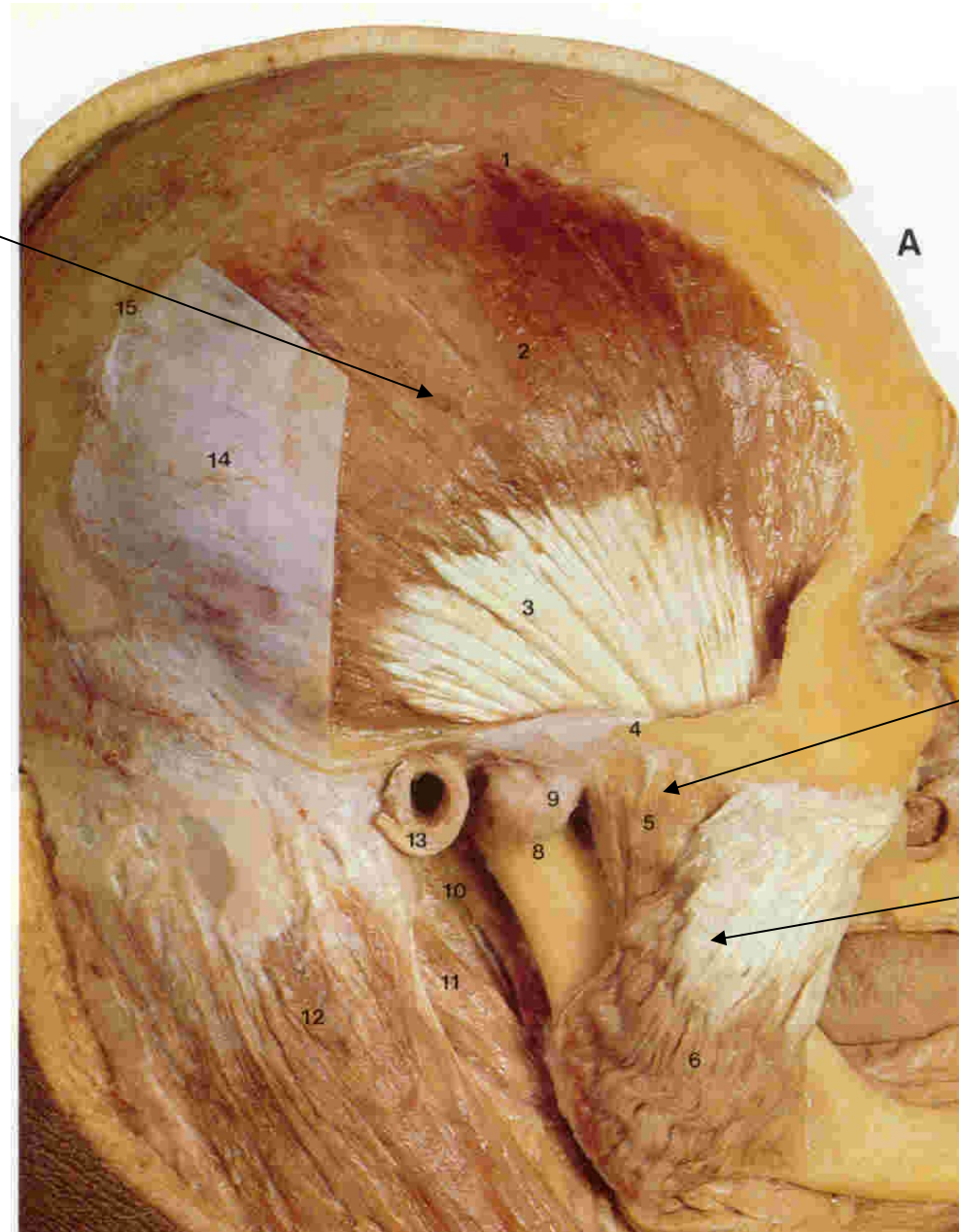
RELATION OF TMJ TO OTHER STRUCTURES



CLOSING MUSCLES OF MASTICATION

Temporalis

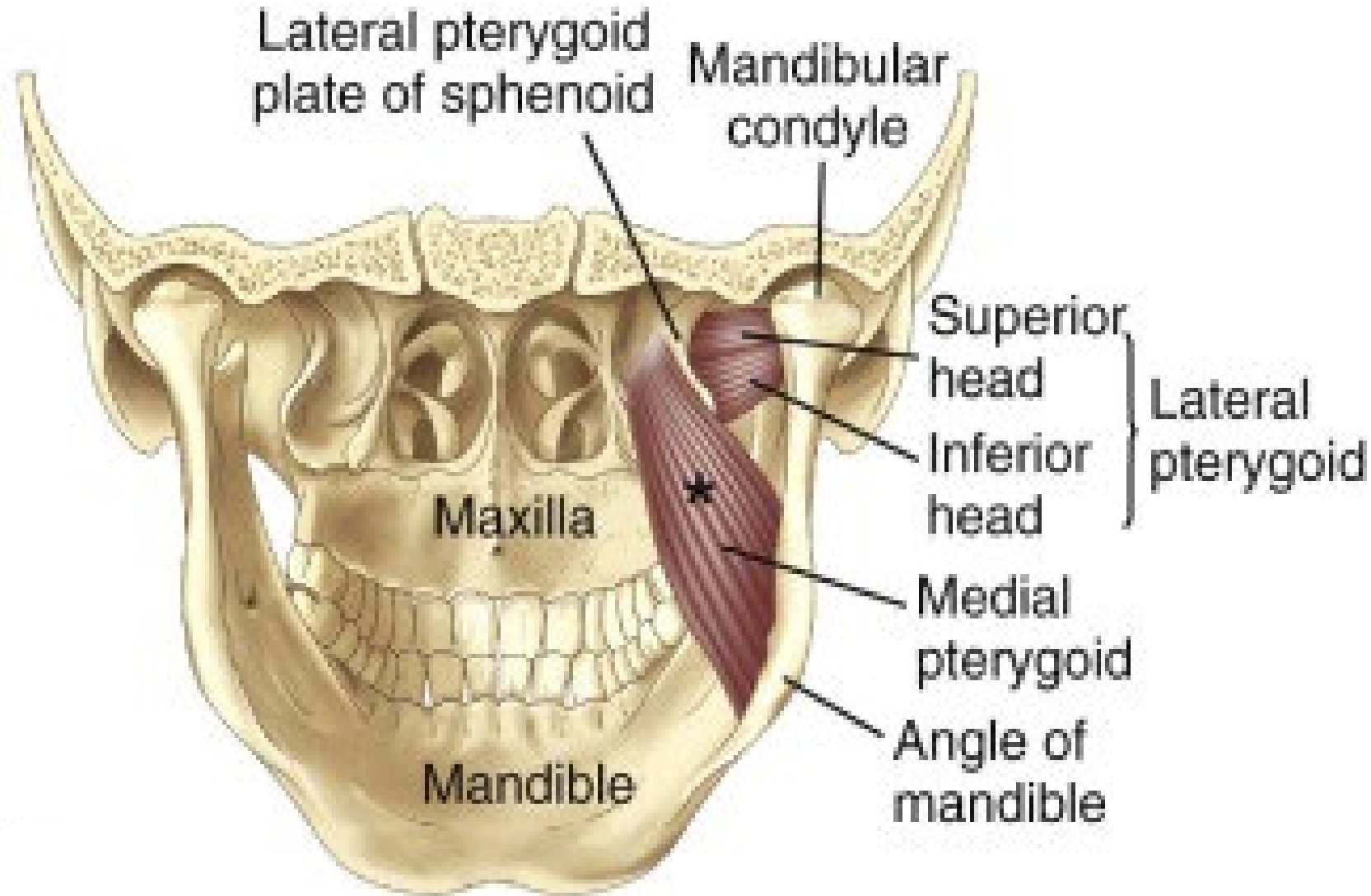
**Attaches to Coronoid
Process of the
Mandible**



Deep Masseter

**Superficial
Masseter**

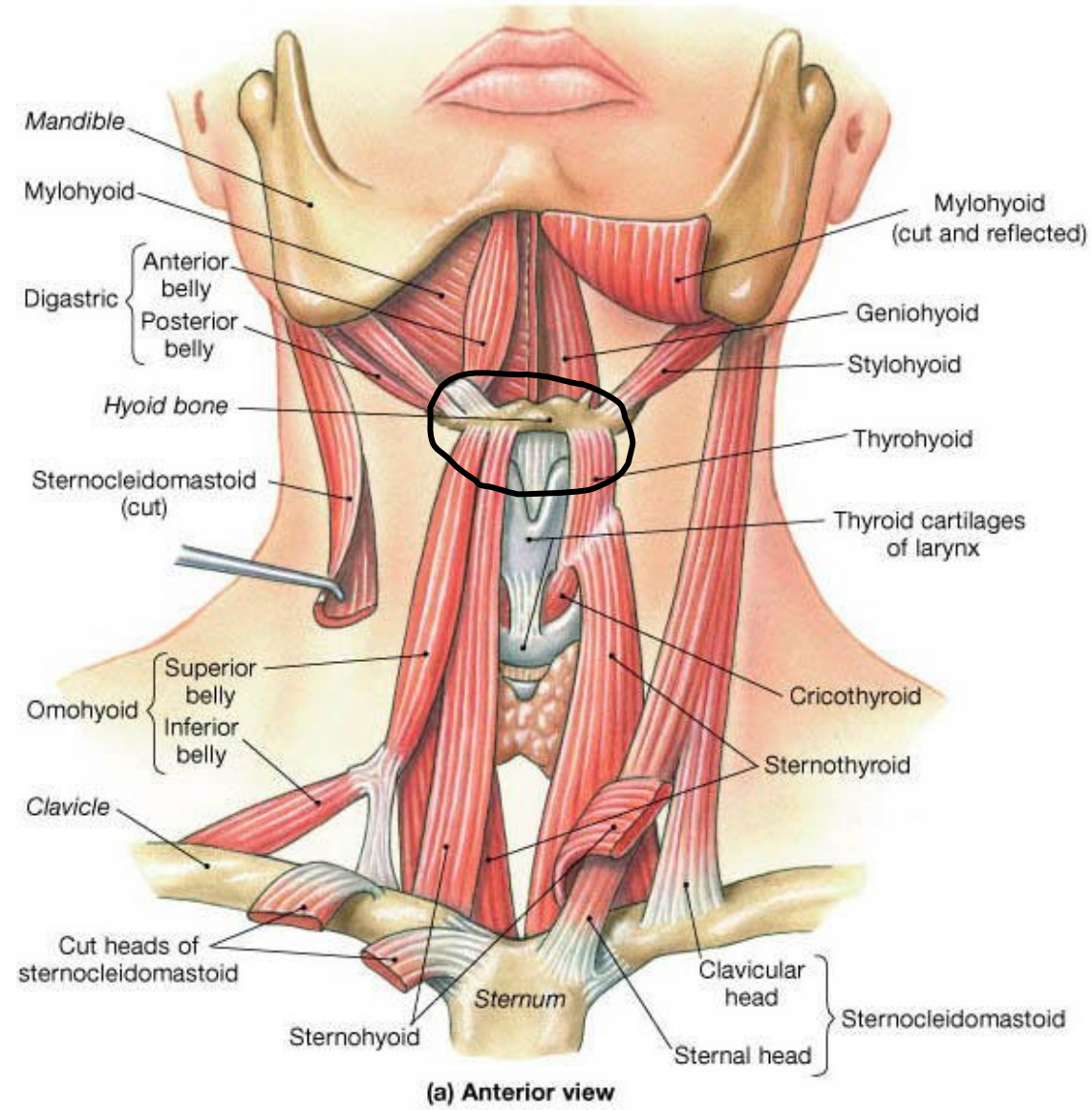
Lateral Pterygoid (protrusion and lateral excursion)



Opening Muscles of Mastication

- Depressors
 - Digastrics
 - Mylohyoid
 - Accessory infrahyoid musculature

28 ATTACHMENTS TO THE HYOID BONE



11 PAIRS OF MUSCLES

3 PAIRS OF LIGAMENTS:

STYLOHOID / THYROHYOID/ HYOEPIGLOTTIS

Ligaments of the TMJ

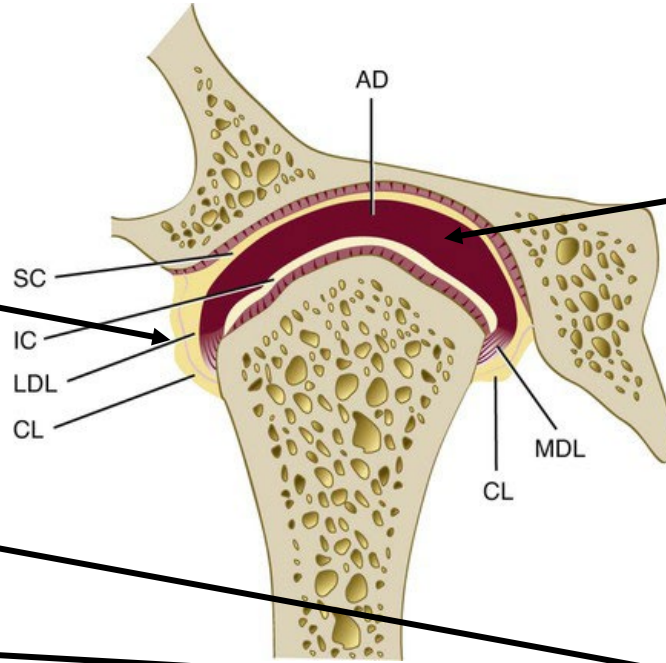
Lateral & Colateral Ligaments

Lateral

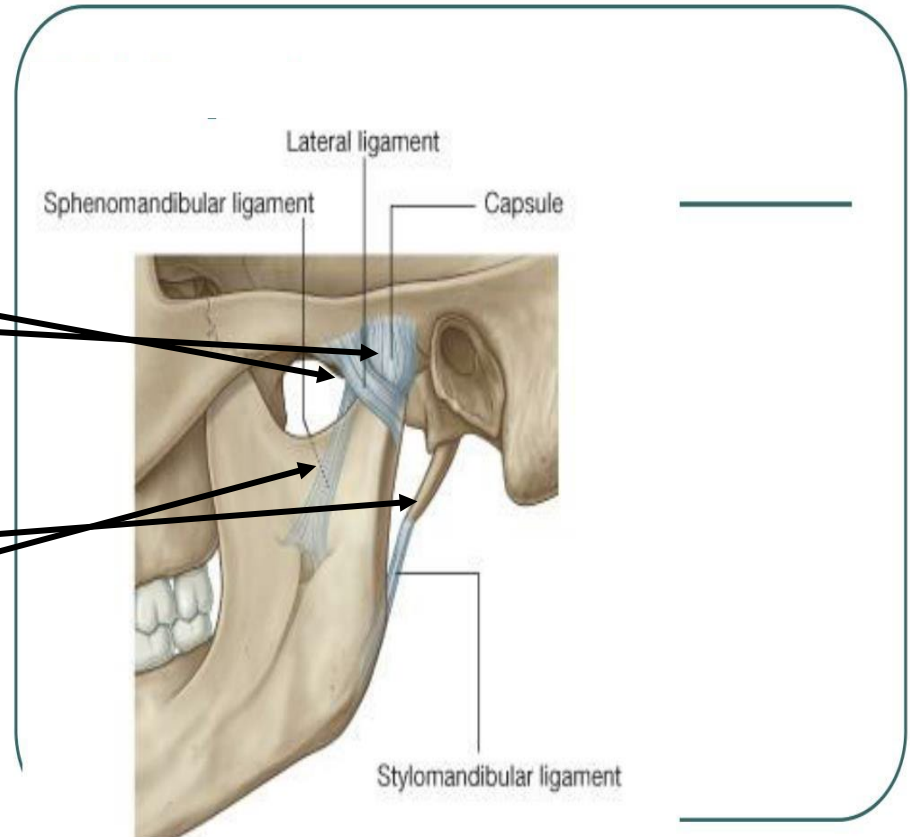
Capsule

Stylomandibular

Sphenomandibular



Articular Disk





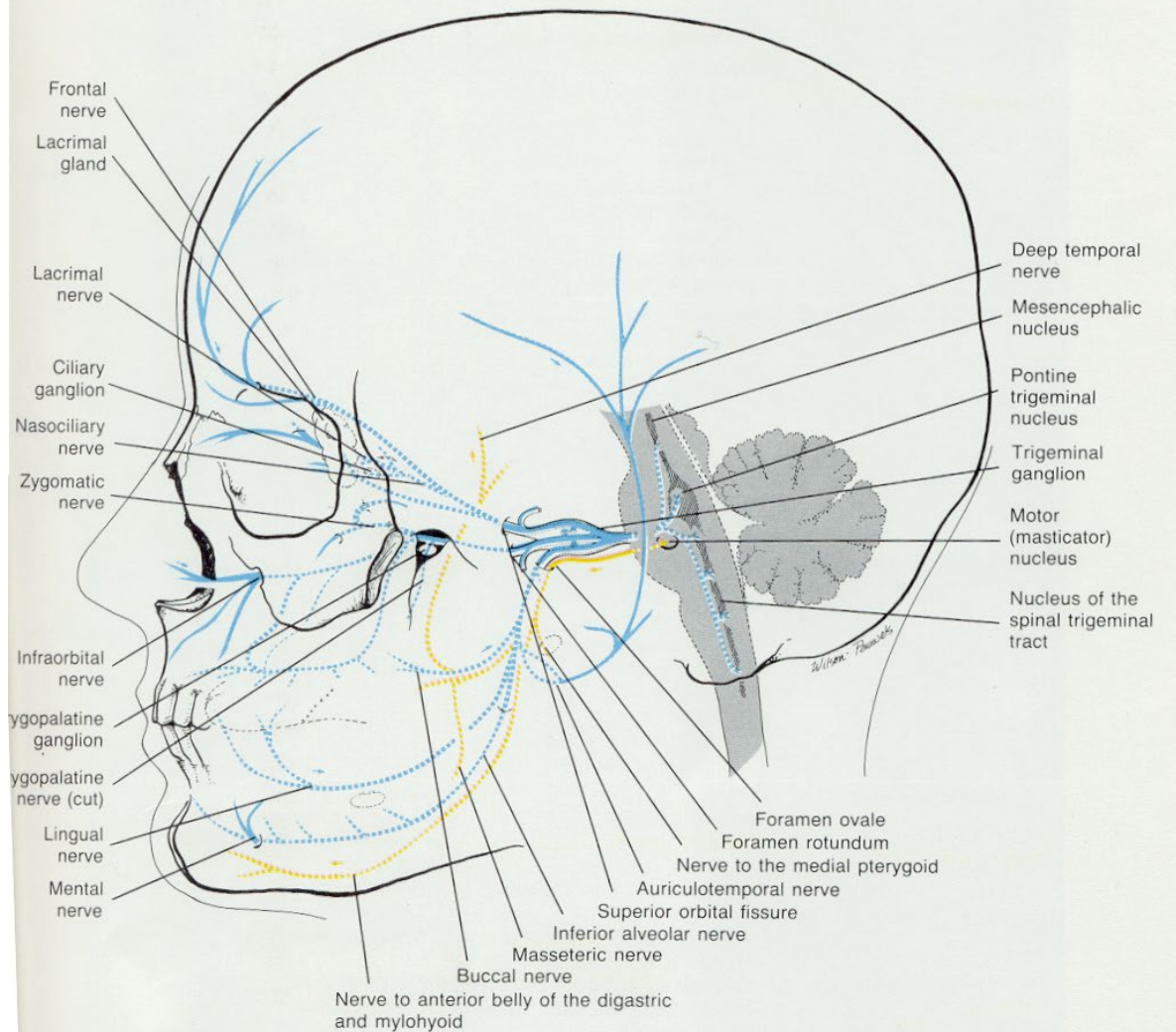
Trigeminal Nerve

Fifth Cranial Nerve “Three Twins”
(Ophthalmic, maxillary and mandibular)

Cranial nerve with most cell bodies
outside the brain and spinal cord

Motor and sensory unit

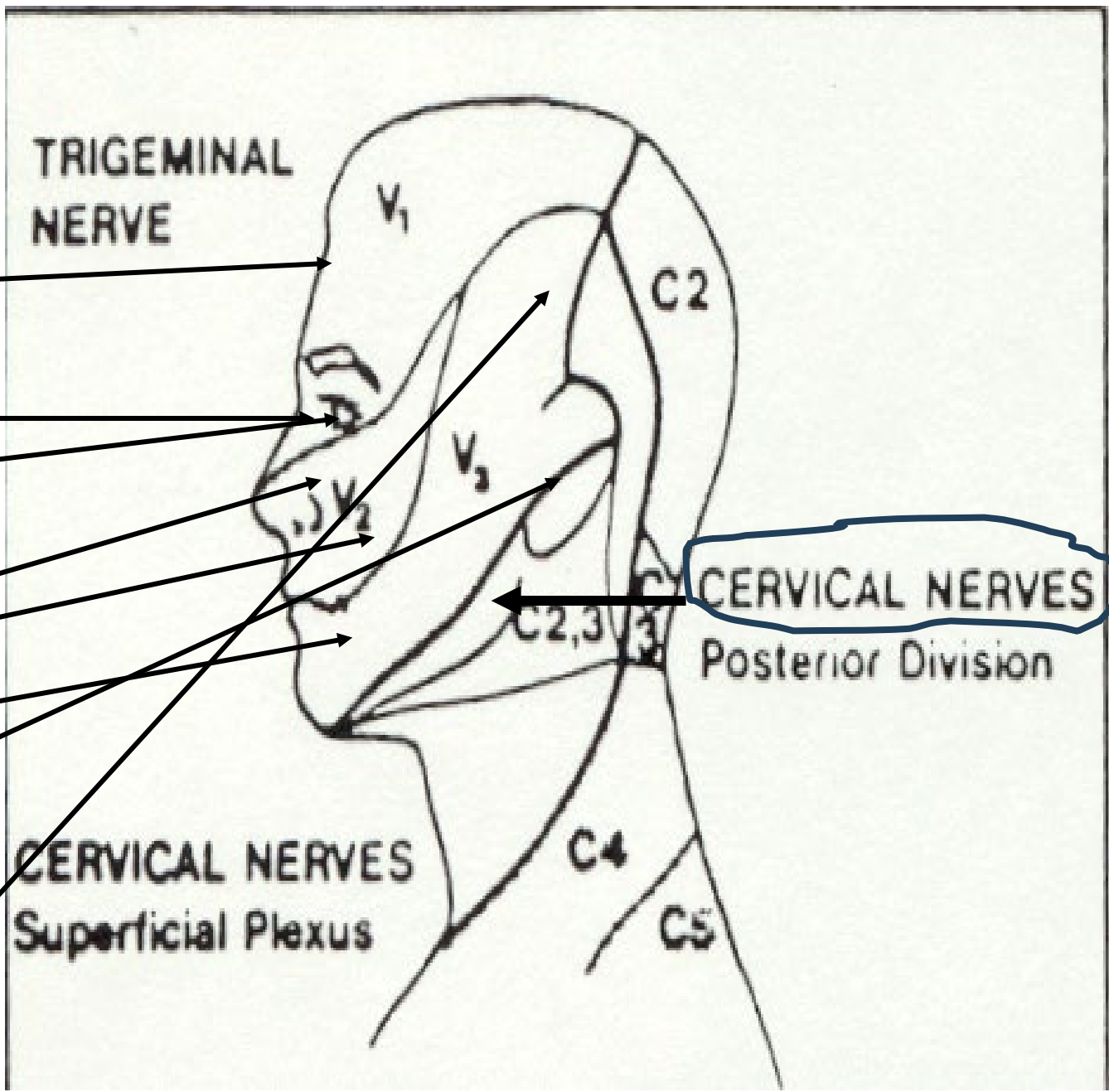
Associated sympathetic fibers and
parasympathetic ganglia



Trigeminal Nerve

Sensory Unit

- Face includes scalp to top of head
- Conjunctiva
- Bulb of eye
- Paranasal sinuses and Nasal cavity
- Oral cavity
- TMJ
- Tympanic membrane
- Meninges of anterior and middle cranial fossa



Trigeminal Nerve

Motor Unit of V3 (mandibular division)

- Elevator muscles of mastication
- Mylohyoid
- Anterior belly of digastric
- Tensor tympani
- Tensor [velli] palatini

Parasympathetics [associated ganglia]

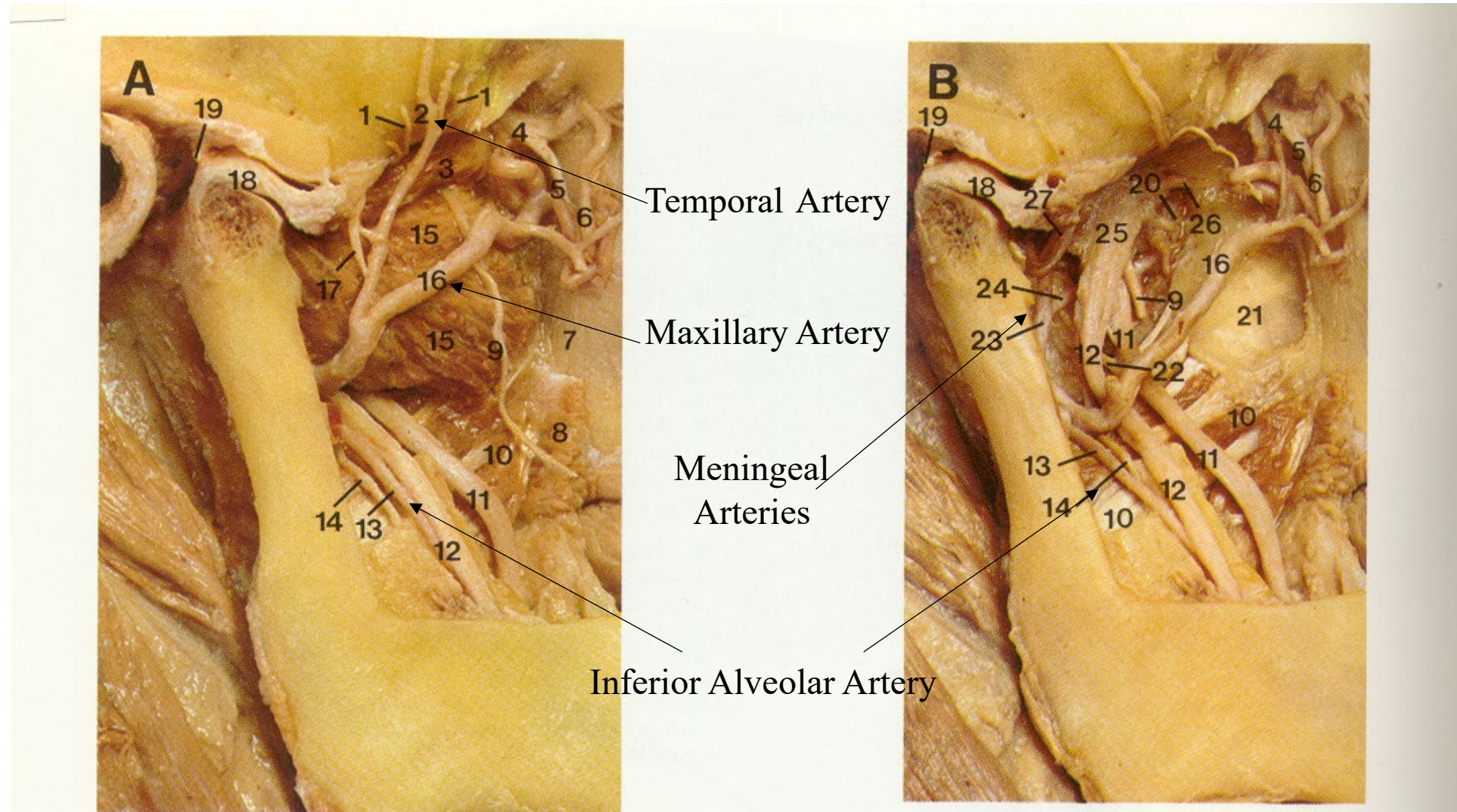
Ciliary	= III	<>	V1=Ciliary muscles (eye)
Sphenopalatine	= VII	<>	V2=Lacrima & nasal
Submandibular	= VII	<>	V3=Submandibular & sublingual
Otic	= IX	<>	V3=Parotid

Sympathetic [thoracic lumbar]

Glands & blood vessels of palate, nasal fossa, pharynx, eye & oral cavity

Vascular supply to and around TMJ

Main supply is external carotid and maxillary



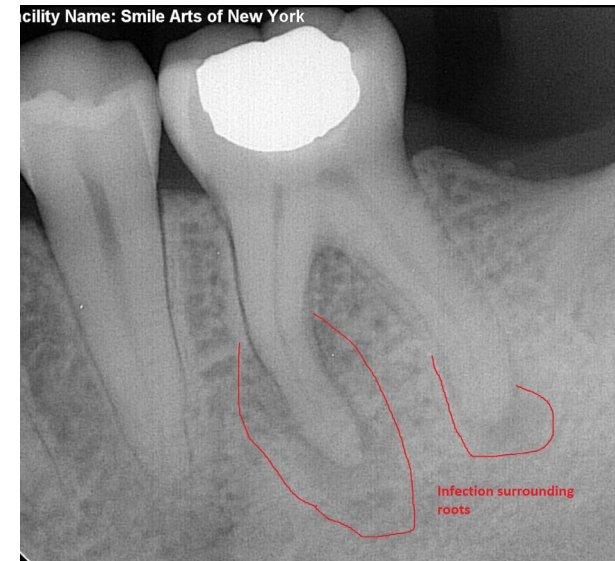
HOW TO SELECT OR DESELECT A PATIENT FOR A MANDIBULAR ADVANCEMENT DEVICE

**“Listen to your patient; he
is telling you the diagnosis.”**

DR. WILLIAM OSLER
19TH CENTURY PHYSICIAN
ONE OF JHU FOUNDERS

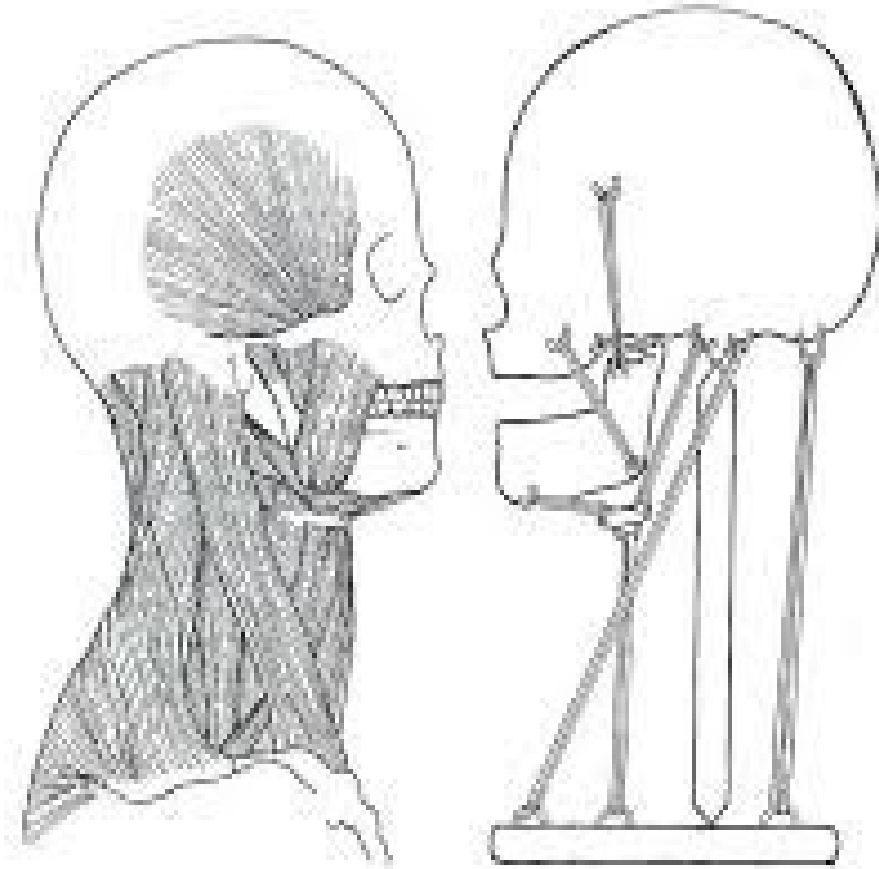


"I HAVE A TMJ PROBLEM"



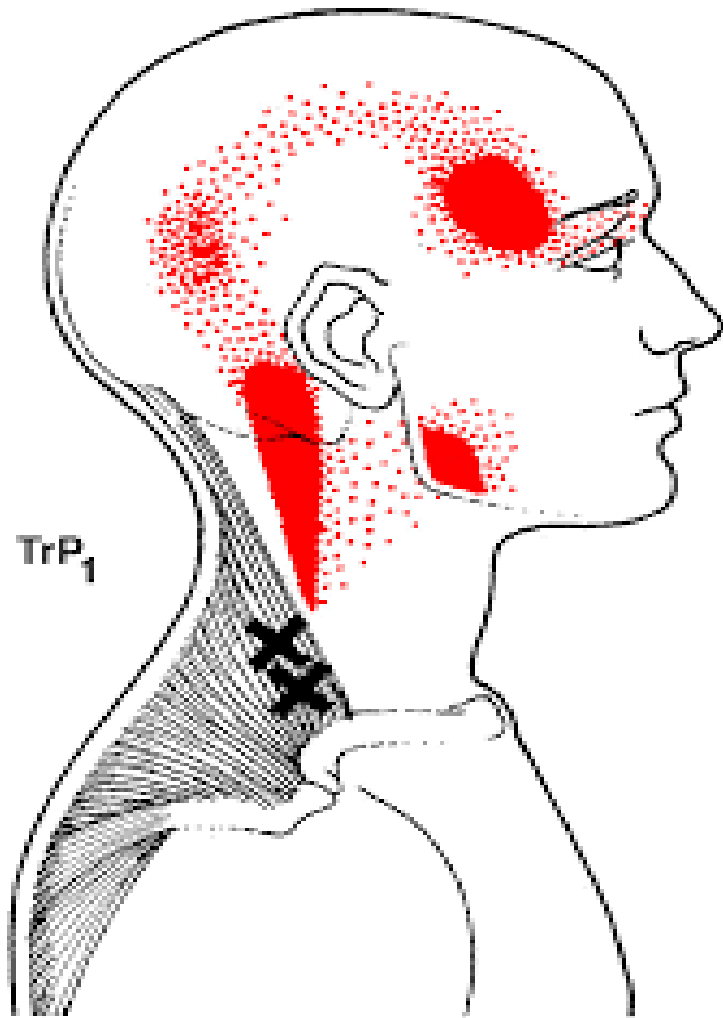
SOMETIMES
IT IS THE
TOOTH!

Head bone is connected to the neck bone

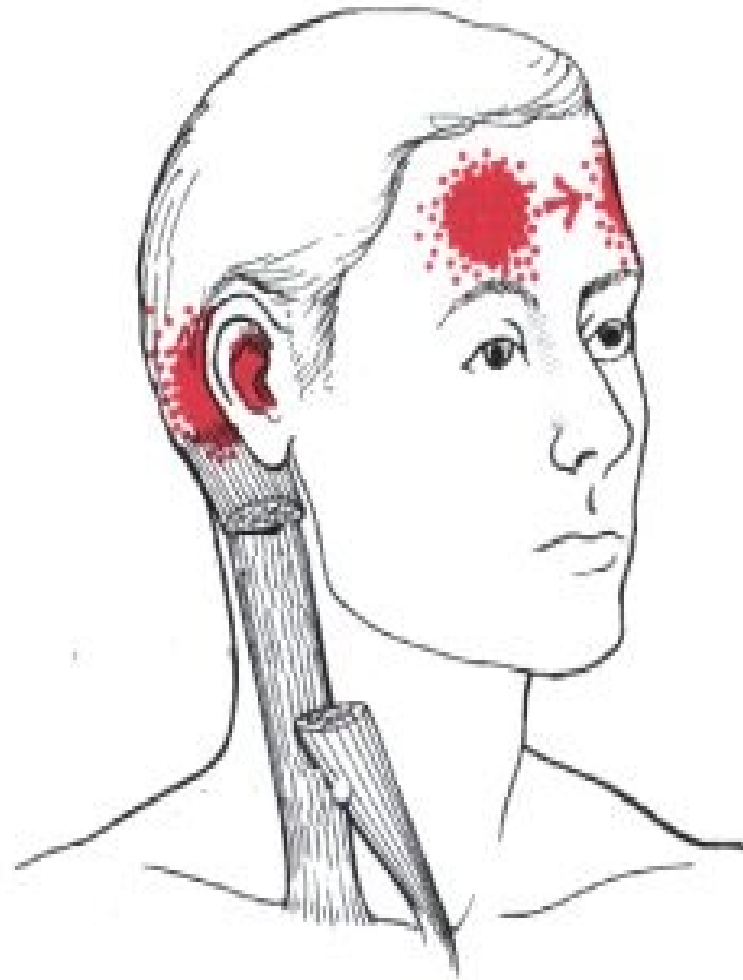


PAIN ORIGIN MAY NOT BE WHERE YOU THINK IT IS

Trigger Points Referral Pattern in Neck



UPPER TRAPEZIUS



SCM CLAVICULAR HEAD



Dr Janet Travell, left,
and Dr David Simons

THE "BITE" AND THE TMJ A NEVER ENDING BATTLE



Centric relation : is the mandibular jaw position in which the head of the condyle is as far anterior and superior as possible within the mandibular fossa.

It is a repeatable and reproducible position.

Centric relation :

A historical and contemporary orthodontic perspective

Rinchuse, DJ, et al. PRACTICAL SCIENCE 137 (4), P494-501, **APRIL 2006**

CROSS REFERENCED IN JADA

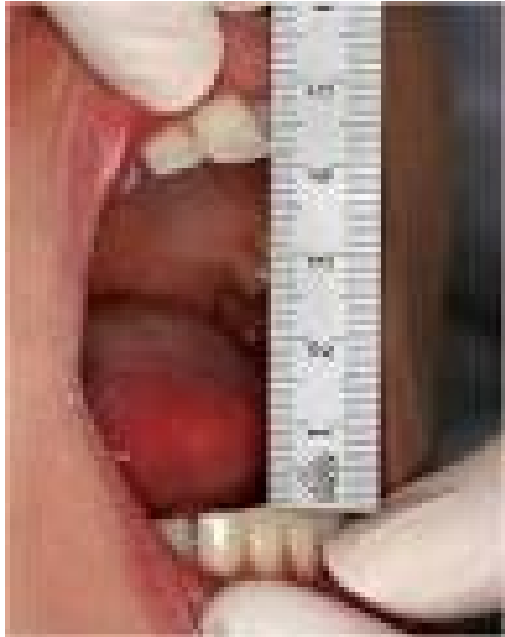
“There appears to be little to no benefit of using gnathologic records and articulator-mounted dental casts to discern discrepancies in maximum intercuspation of the teeth coincident with TMJ condyles in an anterior-superior CR position in orthodontic patients.”

SCREENING FOR A MAD

Mouth Opening

What to Look for and Why

ACTIVE OPENING



Hard or soft end feel

PASSIVE OPENING



DISK DISPLACEMENT W REDUCTION



Deviation

NONREDUCING DISK



Deflection

Simple rotation of the condyle in the glenoid fossa is the first 25 mm of opening.

Basic Areas to Palpate

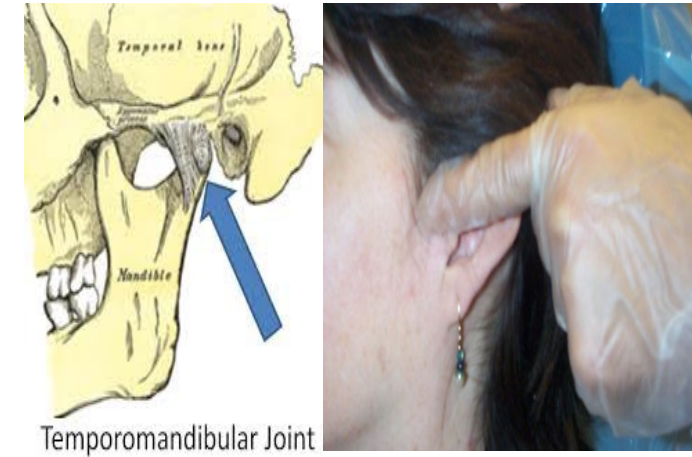
ANTERIOR TEMPORALIS



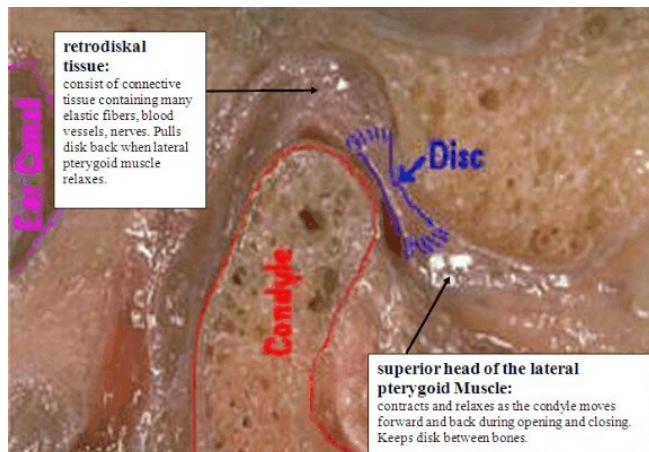
MASSETER DEEP AND SUPERFICIAL



CAPSULE OF TMJ



RETRODISDAL AREA OF TMJ



NEVER PUT YOUR FINGER IN THE EAR

RETRODISDAL AREA OF TMJ



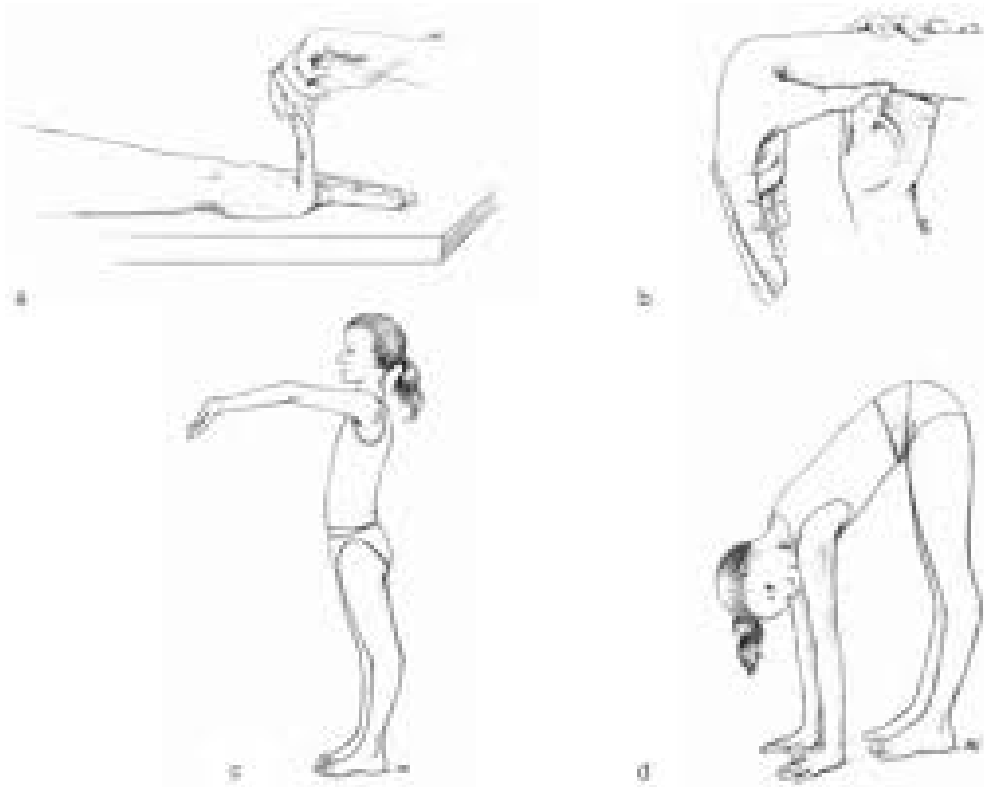
LATERAL PTERYGOID/ TEMPORAL TENDON



Hypermobility and the TMJ

Joint hypermobility disorder is inherited in 10% -15% of population.
85-90% are females.

Hypermobility



Beighton Index

Table 1 The nine-point Beighton hypermobility score (Beighton¹⁴)

The ability to:	Right	Left
(1) Passively dorsiflex the fifth metacarpophalangeal joint to $> 90^\circ$	1	1
(2) Oppose the thumb to the volar aspect of the ipsilateral forearm	1	1
(3) Hyperextend the elbow to $> 10^\circ$	1	1
(4) Hyperextend the knee to $> 10^\circ$	1	1
(5) Place hands flat on the floor without bending the knees	1	
Total	9	

Score: one point may be gained for each side for manoeuvres 1-4, so that the hypermobility score will have a maximum of nine points if all are positive.

Protrusion Against Resistance

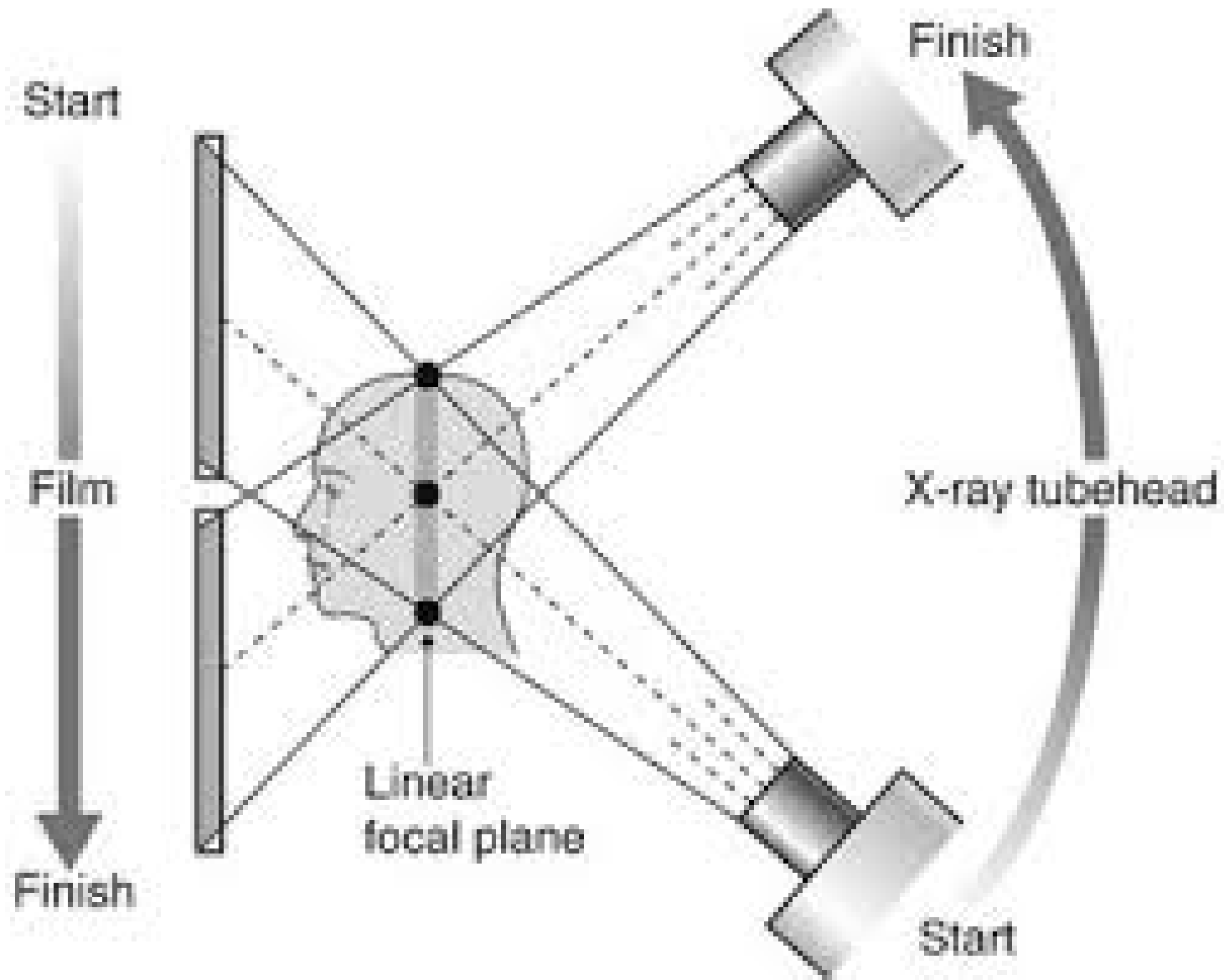


with How to Treat Temporomandibular Joint Disorder (TMJ) with Low Back Pain

BAGEL TEST FOR TMJ



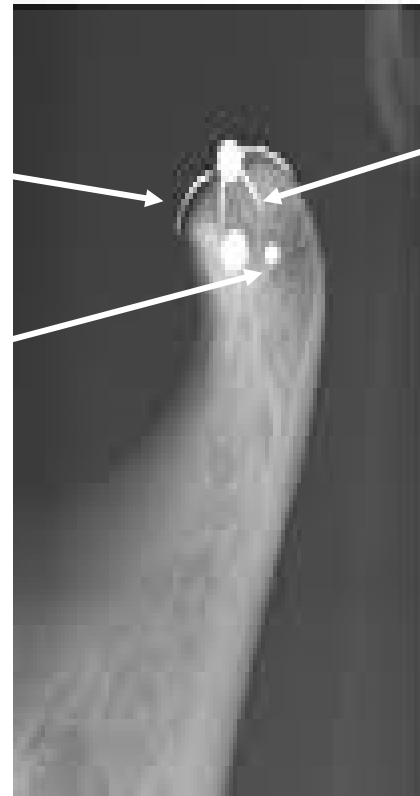
IMAGING OF TMJ WITH PANORAMIC VIEW DIAGNOSTIC?



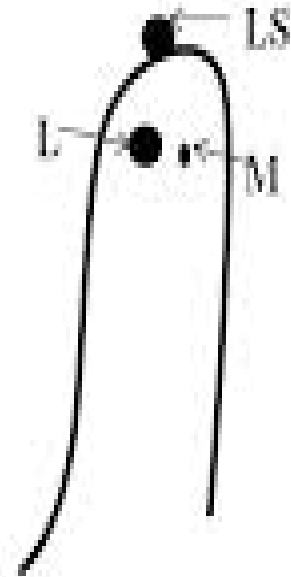
WHAT DO YOU REALLY SEE ?

Lateral Surface

Medial surface

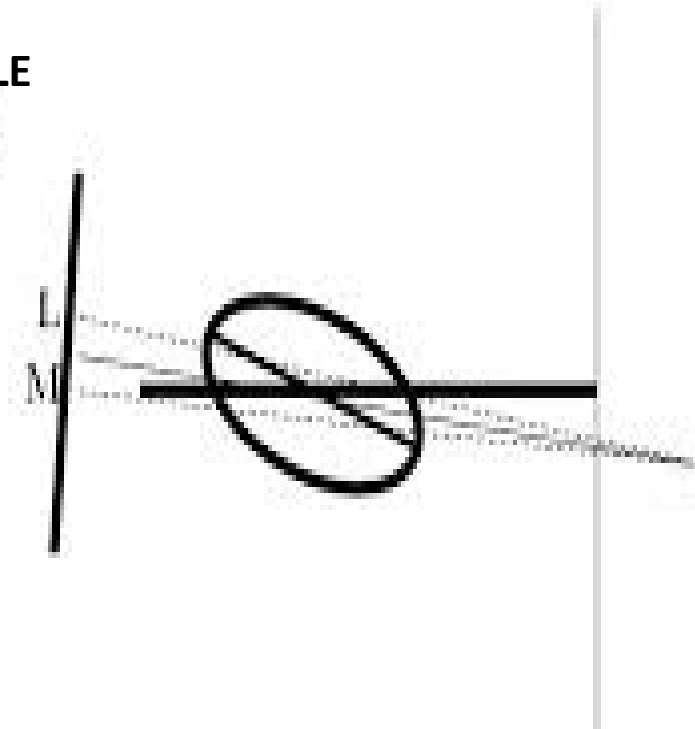


TOP OF CONDYLE



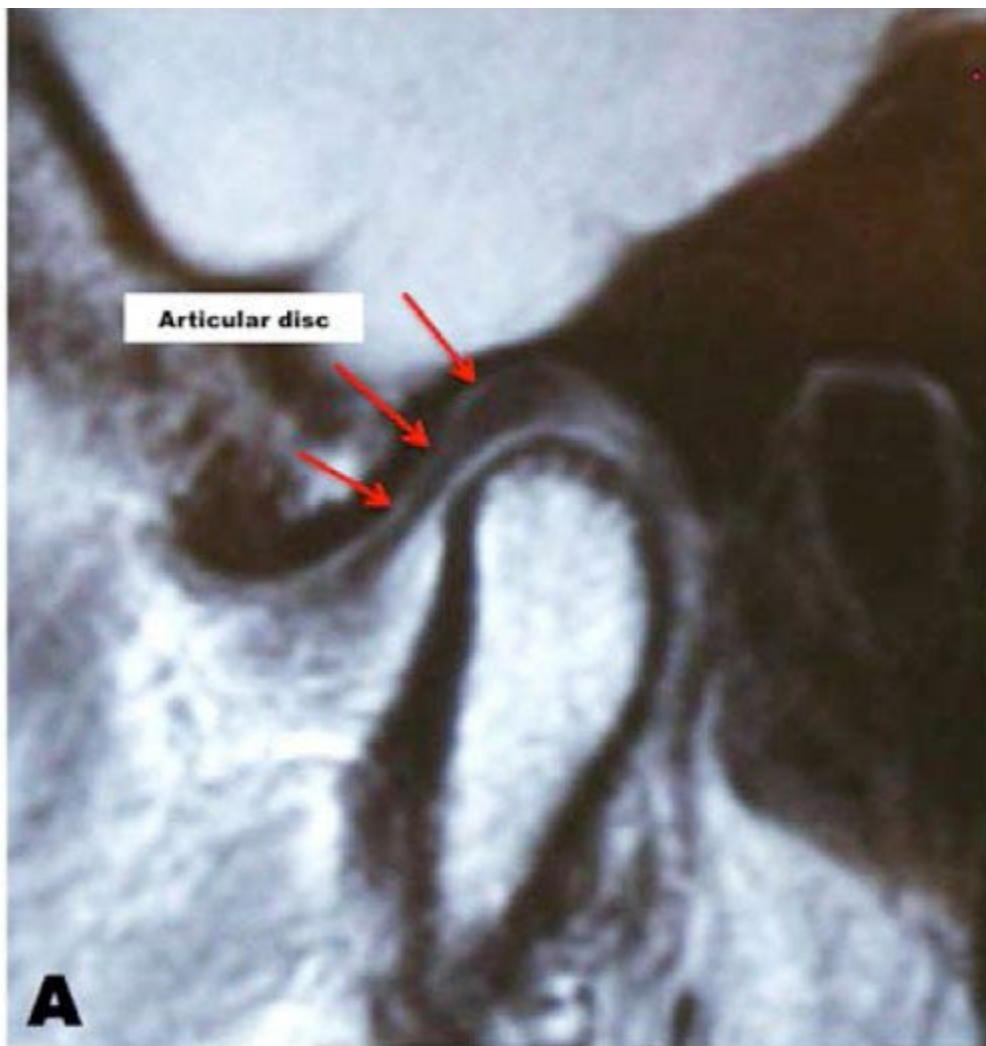
Anterior

Midline

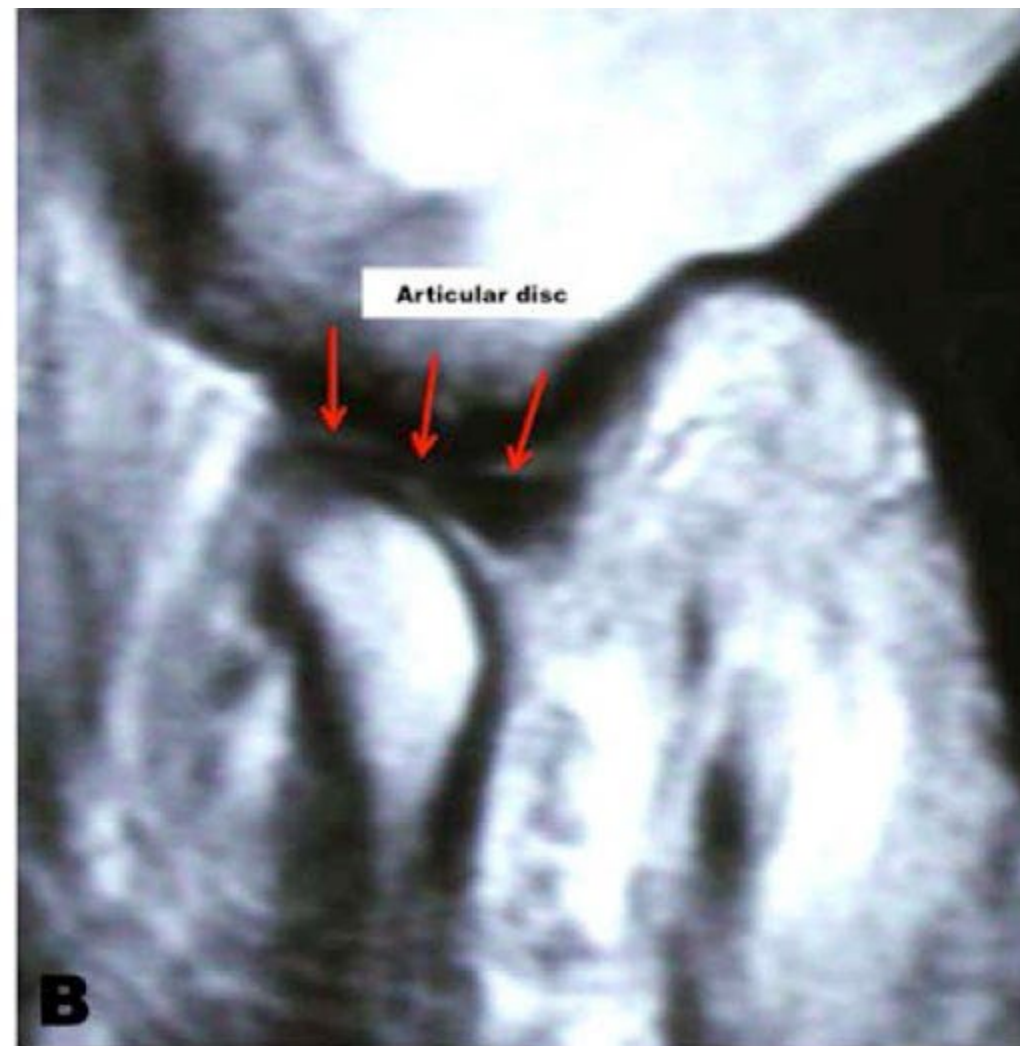


MRI OF THE TEMPOROMANDIBULAR JOINT

ONLY WAY TO VISUALIZE DISK WITHOUT SURGERY



CLOSED POSITION



OPEN POSITION

Magnetic resonance imaging predictors of temporomandibular joint pain

Emshoff, R. et al JADA Vol 134 2003 pp. 705 -713

118 subjects with TMD vs 46 without TMD subjected to MRI open and closed

Criteria: Internal derangement/osteoarthritis/effusion/bone marrow edema

Results: MRI diagnosis did not contribute to the risk of TMJ pain including disk displacement with reduction and effusion.

However those with disk displacement without reduction did have pain

Conclusion: MRI diagnosis may not be considered unique or dominant factor in defining TMJ disorder populations.

Therapy for TMJ based on morphologic changes whether prophylactically or as treatment may not be warranted.



CK = SLEEP PATIENT / NO PAIN
Maximum Opening = 37mm
Protrusion = 8mm
L and R lateral = 8mm
No deviations or deflection
No noises and no pain

Sounds Produced by the Mandibular Joint in a Sample of Healthy Workers

Pollmann, Ludwig, J. Orofacial Pain 7:4; 359-360 1993

6740 Healthy Workers = No complaints of Head or Facial Pain

Age : 16-46 years

2/3 male and 1/3 Female

Self report = 20%

Palpation = 12.2 % clicking, crepitus sounds

Stethoscope = 72.5% TMJ sounds

Phonographic testing (Doppler) = (Selected out 106 persons) 84% joint sounds

Technological devices in the diagnosis of temporomandibular disorders.

Gonzalez YM¹, Greene CS, Mohl N D .Oral Maxillofac Surg Clin North Am. 2008 May;20(2):211-20,

“Claims for the use of sonography and vibratography machines to discriminate between various intracapsular TMJ conditions have not been substantiated by well-designed research.

...these diagnostic devices cannot be relied on as aids in differential diagnosis or in clinical decision making in the TMD field.”

RELATION OF BRUXISM AND OSA

1. Relationship Between Bruxism and Obstructive Sleep Apnea: A Systematic Review of the Literature

Doblado ,N G. et al.. J. Clin. Med. 2025, 14, pp. 1-15

“found Sleep Bruxism in 49.7% of adults with OSA, far above the general prevalence (8–13%).”

2. Prevalence of bruxism in obstructive sleep apnea syndrome (OSAS) patients: A systematic review

Alsharani, A A. et al. J Oral Rehab Volume 50 (11) 2023 1167-136

“The assessment showed a definite association of bruxism in OSA affected patients ...”

3. Relationship between sleep bruxism and sleep respiratory events in patients with obstructive sleep apnea syndrome

Hosoya, H. et al. Sleep Breath (2014) 18:837–844

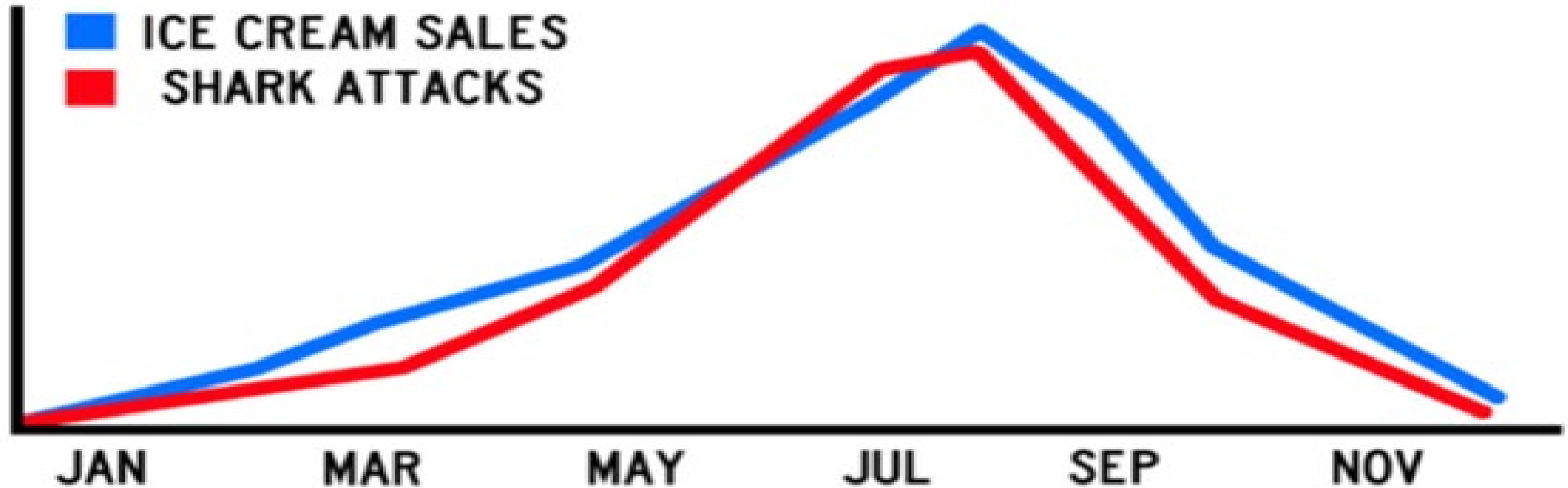
“We found that patients with OSAS have a high risk of Sleep Bruxism.”

4. Possible association between obstructive sleep apnea syndrome and sleep bruxism in adults: an umbrella review

Prerira, K. et al. Sleep medicine, 2026-11, Vol.147, p.109129

“Adults with OSAS may be more likely to exhibit sleep bruxism.”

CORRELATION IS NOT CAUSATION!



Both ice cream sales and shark attacks increase when the weather is hot and sunny, but they are not caused by each other (they are caused by good weather, with lots of people at the beach, both eating ice cream and having a swim in the sea)

RELATION BETWEEN BRUXISM AND SLEEP APNEA

Is there a link ?

Some dentists think so

Westlake Dental Care journal — Sterling, Virginia

Understanding the Relationship Between Obstructive Sleep Apnea and Bruxism

“Shared Risk Factors: Both OSA and bruxism share common risk factors such as **stress, anxiety**, and certain anatomical features. For instance, a misaligned jaw or airway obstruction can predispose individuals to both conditions.”

TEND

NYC, DC, Boston, Atlanta , Connecticut and Nashville

Teeth Grinding at Night? It Could Be Linked to Sleep Apnea

“If grinding is related to sleep apnea, a night guard alone may not reduce how often you grind. It only limits the damage to your teeth.”

“...sleep screening or at-home testing may be recommended to get a clearer picture of whether sleep apnea is contributing to your symptom.”

BRUXISM

“ I KNOW IT WHEN I SEE IT”

Dental Erosion Due to Wine Consumption. Mandel, L.
ADA Vol.136 Jan. 2005 71-75

Sipped wine for 3 hours
at night

WEAR TO THE TEETH



Figure 1. Maxillary right side. Loss of occlusal enamel with exposed dentin encircled by peripheral white enamel rim in teeth nos. 5, 6 and 7. Resin-based composite restorations are present in teeth nos. 5, 6 and 7.



Figure 2. Maxillary left side. Loss of occlusal enamel with dentin exposure and presence of peripheral enamel rim in teeth nos. 11 and 13. Note the peephole effect, or "cupping," on the cusps of tooth no. 14.



Figure 3. Mandibular right side. Loss of occlusal enamel and exposure of dentin (teeth nos. 29 and 30). The apparent amalgam projection results from loss of adjacent dental structure in tooth no. 30. Note marked yellow discoloration along buccogingival aspect of teeth nos. 29 and 30.

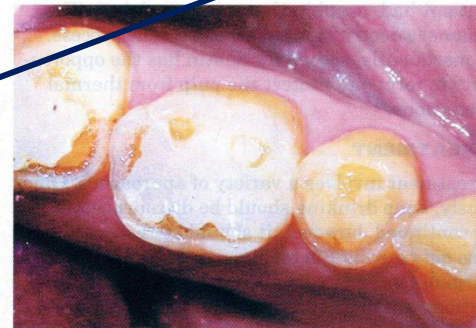


Figure 4. Mandibular left side. Loss of occlusal enamel with dentin exposure and presence of white enamel rim in teeth nos. 18, 19, 20 and 22. Apparent restoration projections are on teeth nos. 18 and 19. Some yellow discoloration of buccogingival surfaces on teeth nos. 19 and 20 can be noted.

Look at the restorations

BRUXISM

“ I KNOW IT WHEN I SEE IT”

CHIPPED / NOTCHED INCISORS



Bobby Pin



CRACKED TOOTH / BROKEN AMALGAM



DEFINITION OF BRUXISM

AAOP 2008

“Diurnal or nocturnal **parafunctional** activity including clenching, bracing, gnashing and grinding of the teeth”

Pain guidelines for current use. 2008;22:190-200

AASM 2014

“An **oroparafunction** characterized by grinding or clenching of the teeth during sleep that is **associated** with an excess(intense) **sleep arousal activity.**”

Satela,MJ.International classification of sleep disorders 3rd ed Chest 2014 Nov 146(5): 1387-94

AASM 2017

“Sleep related **movement disorder**”

Sleep disorders medicine: basic sciences technical considerations and clinical aspects 4th ed S Choksoverty

“INTERNATIONAL
CONSENSUS”

2018

“bruxism should not be considered as a disorder, but rather as a **behaviour**”

Lobbezo F et al International consensus on the assessment of bruxism Oral Rehabil 2018 Nov 2018 (11) 837-844

Unconscious Habit

Bruxism is a habit like sucking your thumb.

Bruxism Unconscious Oral Habit in Everyday Life Genc Demjaha, et al. Open Access Maced J Med Sci v.7(5); 2019 Mar 15

RELATION OF SLEEP BRUXISM AND OSA

1. Sleep bruxism and obstructive sleep apnea: association, causality or spurious finding? A scoping review

Pauletto, P. et al. Sleep 2022 Jul 11;45

Results: 13 studies in adults and 8 studies in children.

Conclusion: “**There is currently insufficient supportive evidence.**”

2. Is there an association between sleep bruxism and obstructive sleep apnea syndrome? A systematic review

da Costa Lopes A J, et al. Sleep & Breath 2020 Sep;24(3):913-921

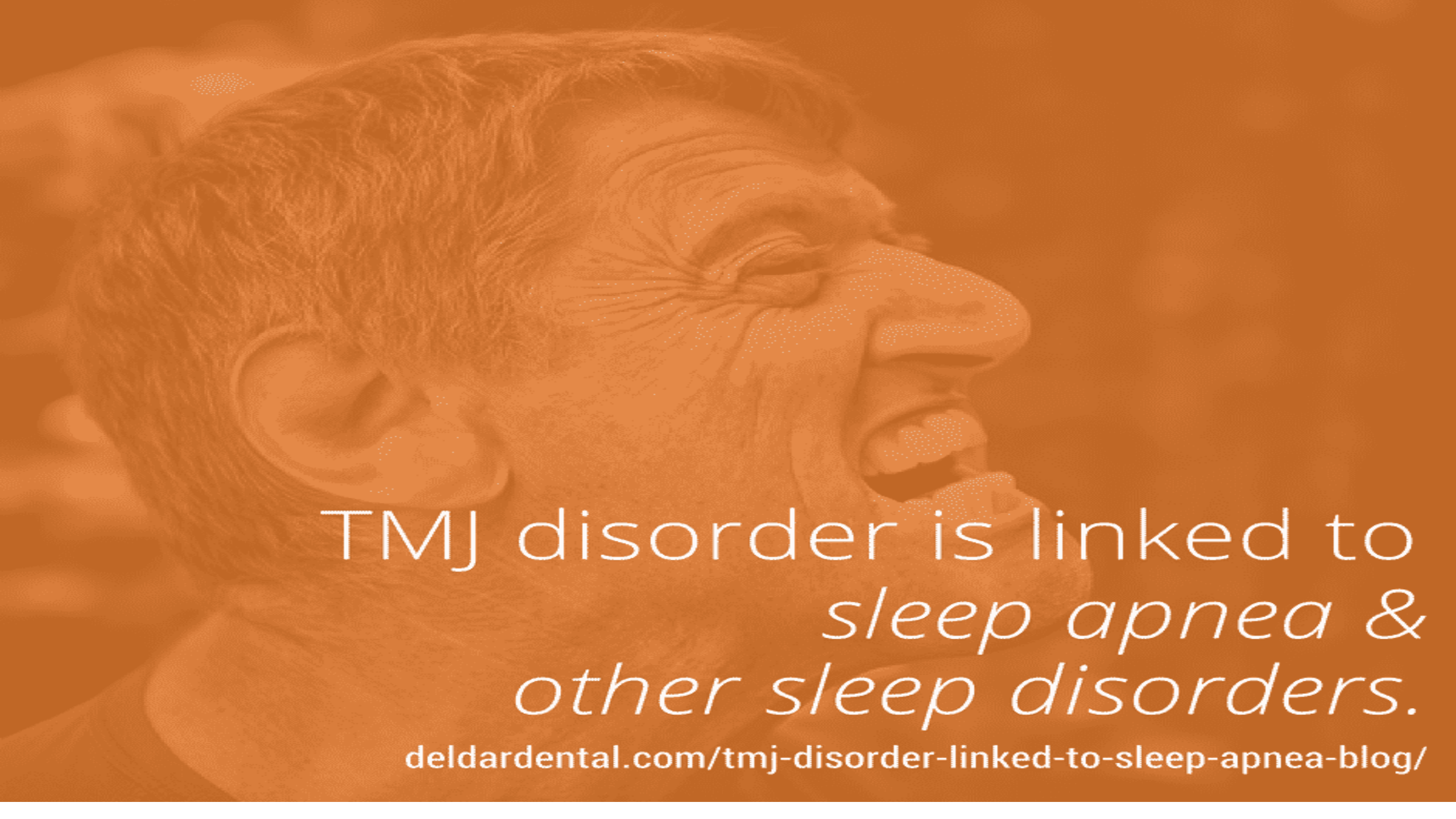
Results: 7 studies: 4 there is an association / 3 there is no association

Conclusion: “**There is no scientific evidence to support a conclusive relationship between SB and OSA.**”

3. Understanding the clinical management of co-occurring sleep bruxism and OSA in adults: A narrative and critical review

Dal Fabbro, C et al J. Prosthodont. 2025;34:46–61. (Giles LaVigne)

Sleep-related bruxism (SRB) is a motor oral behavior reported by 8%–12% of the adult general population and 3% of older individuals. (NOTE: **Bruxism less with older population. OSA greater in older population.**)



TMJ disorder is linked to
*sleep apnea &
other sleep disorders.*

deldardental.com/tmj-disorder-linked-to-sleep-apnea-blog/

THE THREE MOST HARMFUL WORDS IN MEDICINE AND DENTISTRY “IN MY OPINION”



J.B. COSTEN MD

LOST OF VERTICAL DIMENSION
CAUSED EAR AND TMJ SYMPTOMS
BY THE DISK PRESSING ON EUSTACHIAN
TUBE AND/ OR RETRODISCAL TISSUES



JOHN WITZIG DDS

TAKING OUT 4 BICUSPIDS
LEADS TO TMJ PROBLEMS



HAROLD GELB DDS

RECAPTURE THE DISK WITH A MORA
THEN ORTHO OR CROWN & BRIDGE

“Costen’s anatomical concept was later rejected by Sicher, Zimmerman and Christiansen who demonstrated... **could not have occurred** .. . Given the normal morphology and physiology... of the human TMJ.”

Greene and Obrez, Treating temporomandibular disorders with permanent mandibular repositioning. OOOO 2015 119(5)

Simmons, HC . Orthodontic finishing after TMJ manipulation and recapture. Int J Milwaukee.2002;13:7-12

Sicher, H. Temporomandibular articulation and mandibular overclosure. JADA 1948;36:131-139

Zimmerman, AA.Evaluating Costen’s Syndrome from an anatomic point of view. In Sarnat, BG *The Temporomandibular joint*. 1951:82-100

Loss of vertical dimension due to extraction of posterior teeth increase TMJ loading.

These studies were done on skulls and autopsy specimens. Other epidemiological studies showed **no increased risk for TMD’s** or more signs and symptoms due to this loss.

Lunden,TF, et al. Tmj symptoms among denture patients. J Cranio Disorders.1990;4:40-46

Witter, DJ. A 6 year followup study of oral function in shortened dental arches. J oral Rehab.1994;21:353-366

Egermark,I, et al. A 20 year longitudinal study of subjective symptoms tmj disorders from childhood to adulthood. Acta Odon Scand 2001;59:40-48

Not a single study found that orthodontic treatment increased prevalence of TMD.

Kim, MR, et al. Orthodontics and temporomandibular joint disorders. A meta analysis. Am j Orthod Dentofacial Orthop 2002;121:438-446

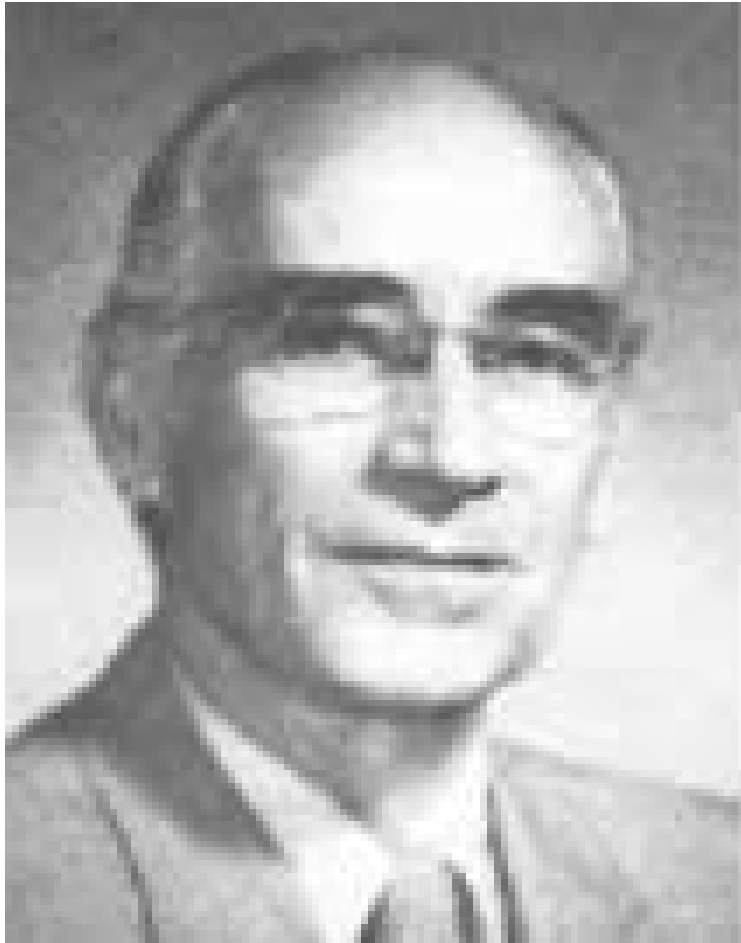
Luther F. et al. Orthodontics for treating TMD. Cochrane Review2010;

“In conclusion, studies ..have shown no...occlusal factors to be consistently associated with TMD onset, and no malocclusion has been found to be a predictor of TMD incidence.”

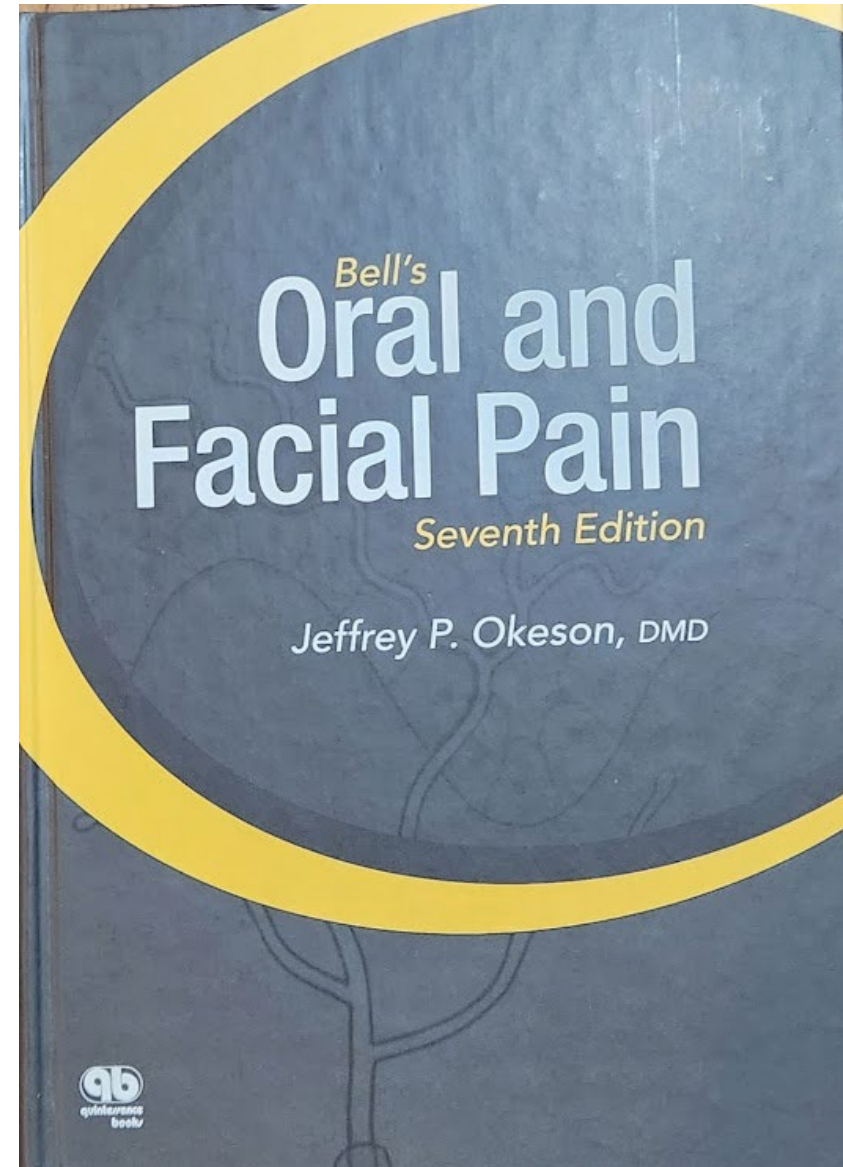
Greene and Laskin. Treatment of TMD. Quintessence p.23 (3 references)

FATHER OF OROFACIAL PAIN

1989



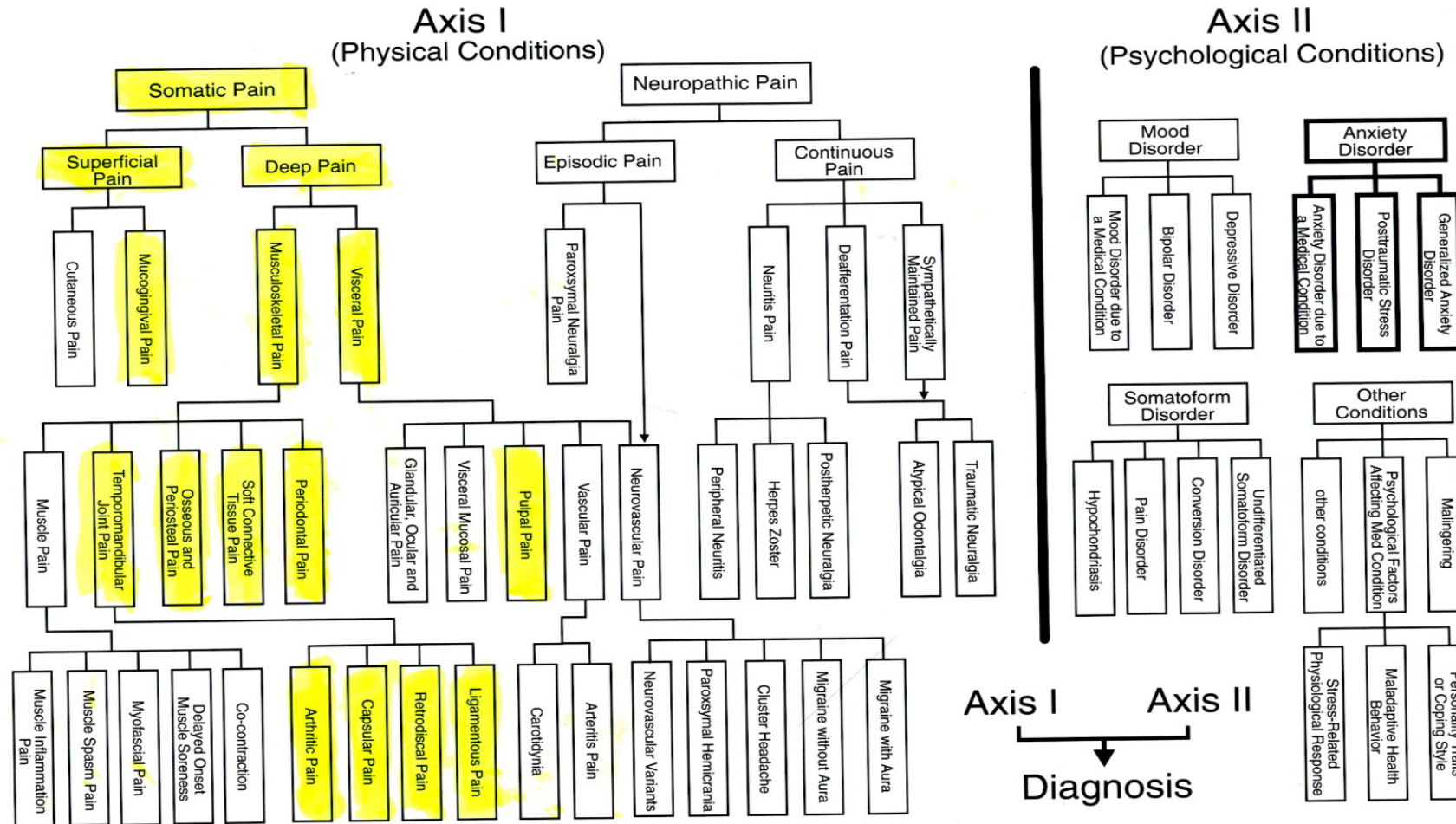
WELDON BELL, DDS



BELL/ OKESON OROFACIAL PAIN TEXTBOOK

DIVIDED FACIAL PAIN INTO SOMATIC NEUROPATHIC AND PSYCHOLOGICAL

Classification of Orofacial Pains



OF THE 55 DIAGNOSIS FOR FACIAL PAIN ONLY THOSE 12 IN YELLOW RELATE TO TEETH OR TMJ

THE ASSOCIATION OF OROFACIAL PAIN

Guidelines for Assessment Diagnosis, and Management

Seventh edition 2023

Occlusal Relationships and TMD (pp.197-198)

“Moreover, it is time for the dental profession and orofacial pain specialty to endorse the robust 21st century literature, supported by solid scientific methodology, which provides evidenced base knowledge on the **nonexisting etiologic role of occlusion.**”

Orofacial Pain declared a specialty by ADA 2020

POSITIVE RELATIONSHIP BETWEEN “TMJ” AND OSA

1. Sleep Disorders and their Association with Laboratory Pain Sensitivity in TMD

Michael T. Smith, et al *SLEEP* 2009;32(6):779-790.

53 TMD patients

High rates of insomnia and sleep apnea highlight the need to refer TMD patients complaining of sleep disturbance for PSG
36% insomnia and 28% OSA . (normal findings in adult population?)

2.The Association between TMD and Sleep Apnea—A Nationwide Cohort Study

Ju-Hui Wu et al. Int. J. Environ. Res. Public Health 2020 13 pages

10,408 suspected SA patients (including 4105 probable SA patients) matched to **10,080 control subjects** (including 41,050 matched to the probable SA patients) in this study.

TMD incidence rate was significantly higher in the Sleep Apnea patients than in the control subjects.

3. Prevalence of temporomandibular disorders in OSA patients referred for oral appliance TX

Cunali,P. et al, J Orofac Pain 2009 Fall;23(4):339-44.

188 patients were included in the **control group**. **104** subjects of the study group

TMD prevalence was 94% among the OSA patients and 28% in the control group

NO RELATIONSHIP BETWEEN “TMJ” AND OSA

1. Evaluation of the Relationship between Backpain, Headache, Obstructive Sleep Apnea, and their Referred Pain Pattern in Patients with TMJ Disorders - A Case-Control Study

Redwin D. et al. J of Indian Acad of Oral Medi & Rad Vol 37 | 2 | April-June 2025 pp 172-175

100 patients with TMJ diagnosis and 100 patient without TMJ diagnosis

“ **Regarding OSA**, both groups had similar numbers of individuals affected, with **no significant differences observed**.
“... **could be due to** a lack of patient awareness and the **absence of** diagnostic methods, **such as PSG**, to properly diagnose OSA.

2. The Link between Sleep Bruxism, Sleep Disordered Breathing and Temporomandibular Disorders: An Evidence-based Review

Balasubramaniam, et al. Journal of Dental Sleep Medicine Vol. 1, No. 1, 2014 pp 27 -37 (GILES LAVIGNE)

“Currently, there is **no evidence to support the association or causality of Sleep Bruxism (TMD) and OSA.** “

3. Prevalence of Temporomandibular Disorders in Obstructive Sleep Apnea Patients and Relationship Between Temporomandibular Disorder Phenotypes and Severity of Sleep Apnea: An Observational Study.

Chakraborty, D. et al. Journal of Pharmacy & Bioallied Science, 2025-12, Vol.17 (Suppl 4), p.S3346-S3348

70 OSA-diagnosed individuals using HST. TMD was assessed through RDC/TMD clinical criteria.

TMD signs/symptoms were found in 8.6% of OSA patients, with myofascial pain being the predominant phenotype

Oral Appliances for the Management of Snoring and Obstructive Sleep Apnea



RELATIONSHIP TO TMJ ,TEETH AND MASTICATORY MUSCLES

MRD Cause Pharyngeal Splinting By:

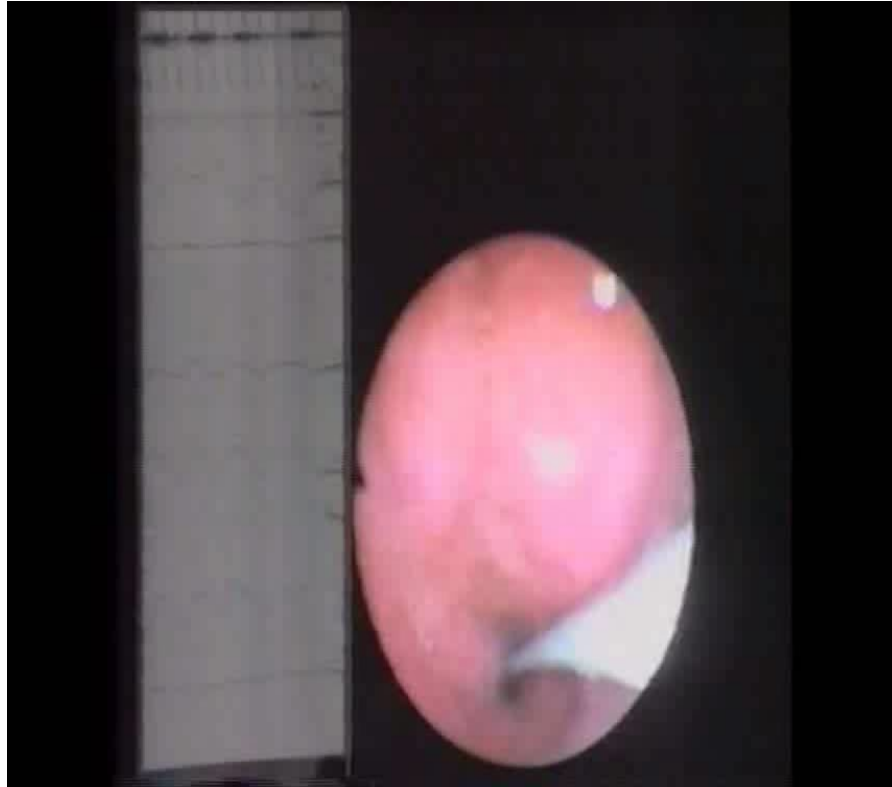
1. Tongue attached to the mandible anteriorly.
2. Soft palate linked to tongue by palatoglossus muscles
3. Palatoglossus linked to palatopharyngeus muscles through palatine aponeurosis.
4. The superior and middle pharyngeal constrictors linked to mandible via insertion on the pterygomandibular raphe.

Result of mandible pulled forward =

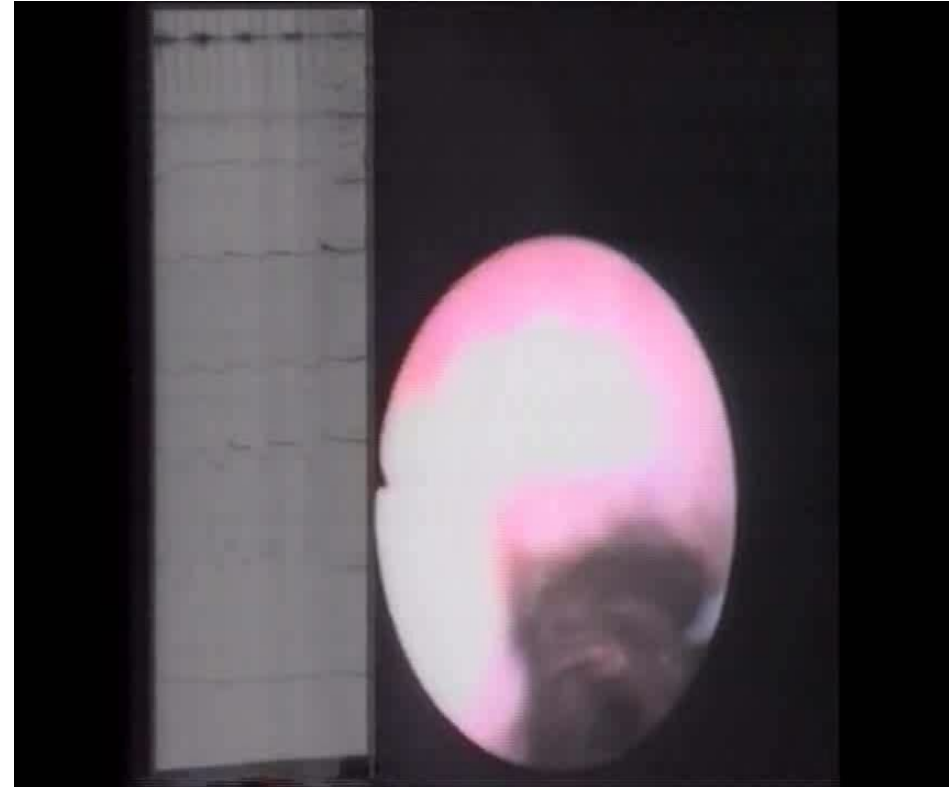
Soft palate pulled by tension on palatoglossus > soft palate tension transferred via palatopharyngeus to the back wall of pharynx > pharyngeal constrictors are elevated off the cervical spine

This results in a lateral splinting of the oropharynx by the tension of palatoglossus and palatopharyngeus

Endotracheal video before and after TAP



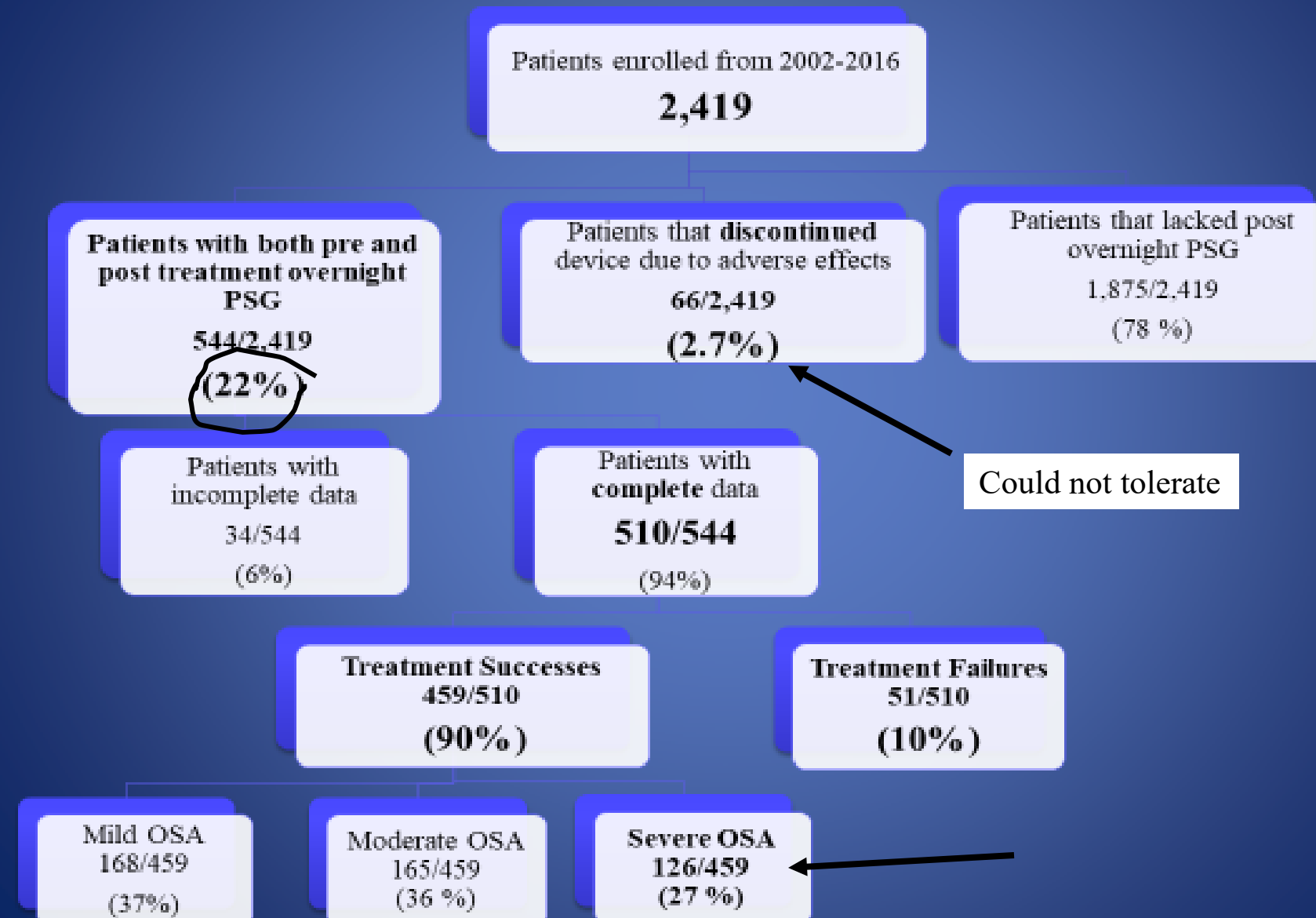
WITHOUT MANDIBULAR REPOSITIONING



WITH ORAL MANDIBULAR REPOSITIONING

The use of oral appliances in obstructive sleep apnea: a retrospective cohort study spanning 14 years of private practice experience (2002 to 2016)

Sylvan S. Mintz, DDS, MSD [Sleep and Breathing](#) May 2018, Volume 22, Issue 2, pp 541-546



Practice Parameters for the Treatment of Snoring and Obstructive Sleep Apnea with Oral Appliances: Update for 2005

An American Academy of Sleep Medicine Report

Summary: These practice parameters are an update of the previously published recommendations regarding use of oral appliances in the treatment of snoring and Obstructive Sleep Apnea (OSA).

Oral appliances (OAs) are indicated for use in patients with **mild to moderate OSA** who prefer them to continuous positive airway pressure (CPAP) therapy, or who do not respond to, are not appropriate candidates for, or who fail treatment attempts with CPAP. Until there is higher quality evidence to suggest efficacy, CPAP is indicated whenever possible for patients with severe OSA before considering OAs. Oral appliances should be fitted by qualified dental personnel who are trained and experienced in the overall care of oral health, the temporomandibular joint, dental occlusion and associated oral structures. Follow-up polysomnography or an attended cardiorespiratory (Type 3) sleep study is needed to verify efficacy, and may be needed when symptoms of OSA worsen or recur. Patients with OSA who are treated with oral appliances should return for follow-up office visits with the dental specialist at regular intervals to monitor patient adherence, evaluate device deterioration or maladjustment, and to evaluate the health of the oral structures and integrity of the occlusion. Regular follow up is also needed to assess the patient for signs and symptoms of worsening OSA. Research to define patient characteristics more clearly for OA acceptance, success, and adherence is needed.

Citation: Kushida CA; Morgenthaler TI; Littner MR et al. Practice parameters for the treatment of snoring and obstructive sleep apnea with oral appliances: An Update for 2005. *SLEEP* 2006;29(2):240-243.

REITERATED IN 2013



- Side effects of salivation, and sore teeth were common but minor
- Occlusal changes detected 12 to 32%. Most were small
- Changes may be progressive
- TMJ complications are rare

Pantin,et.al., Sleep 1999;22:237-240

Fritsch,et.al.,AJRCCM 2001; 164:813-818

Robertson,CJ. Sleep 2001;24:531-537

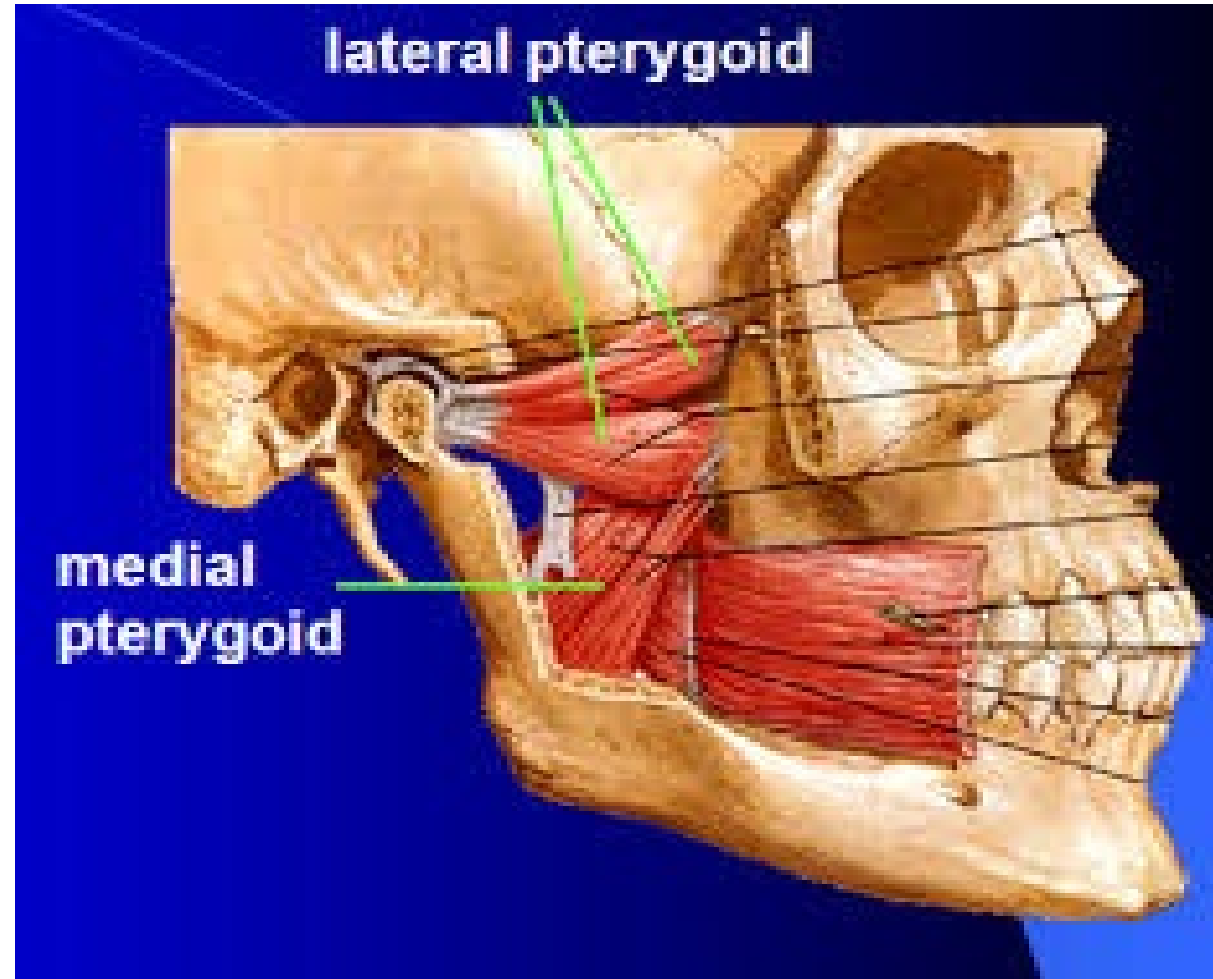
Rose,et.al.,Chest 2002;122:871-877

Hammond,R,et.al. AJDODO 2007;802-814

Function of Lateral Pterygoid:

Lower Head = Brings mandible forward and laterally

Upper Head = 65% attached to TMJ disk to stabilize



Methods to Restore Occlusion



LEAF GAUGE



LOWER INCLINE PLANE (MOG)



AM ALIGNER



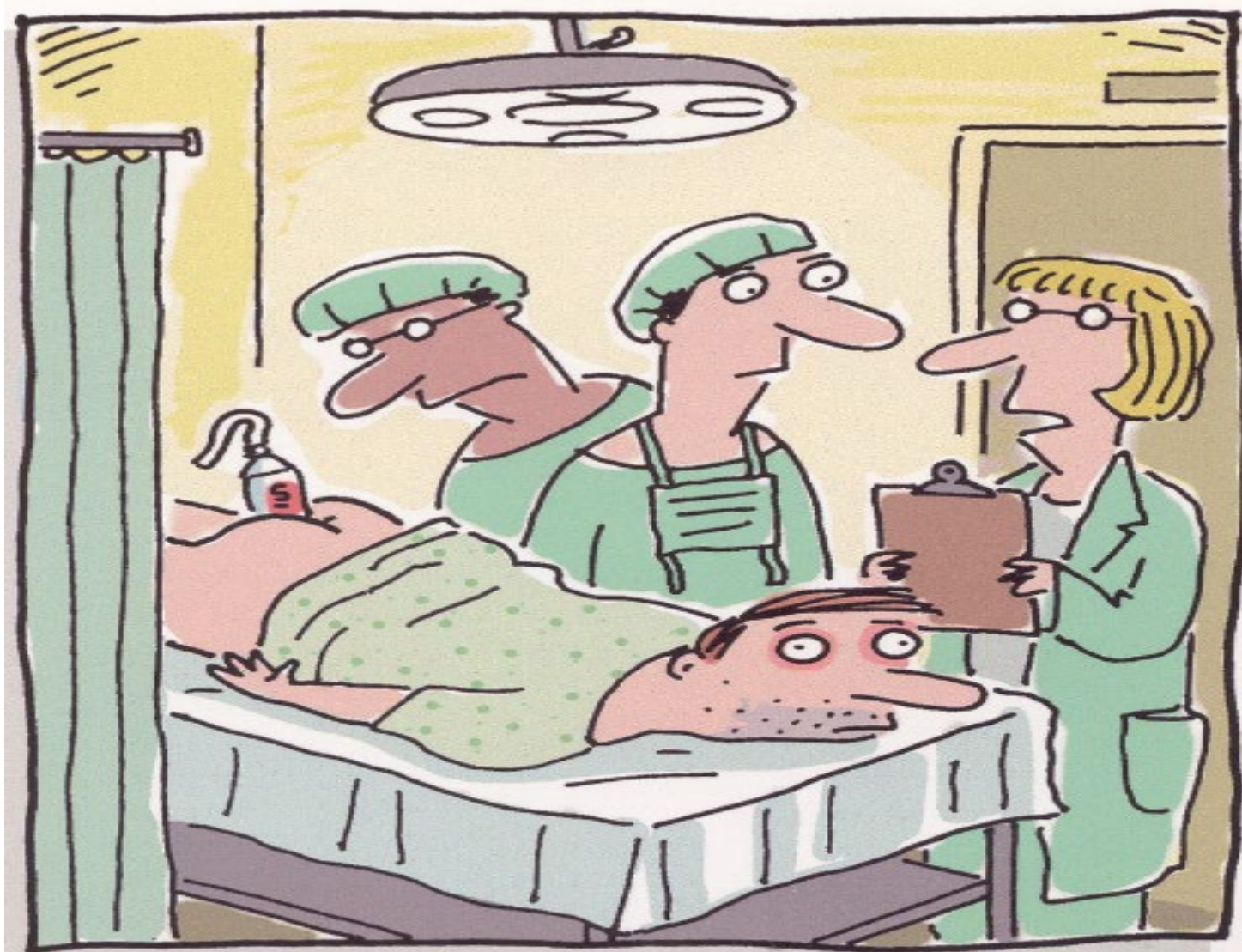
STRONG REPOSITIONER

Thinker Position

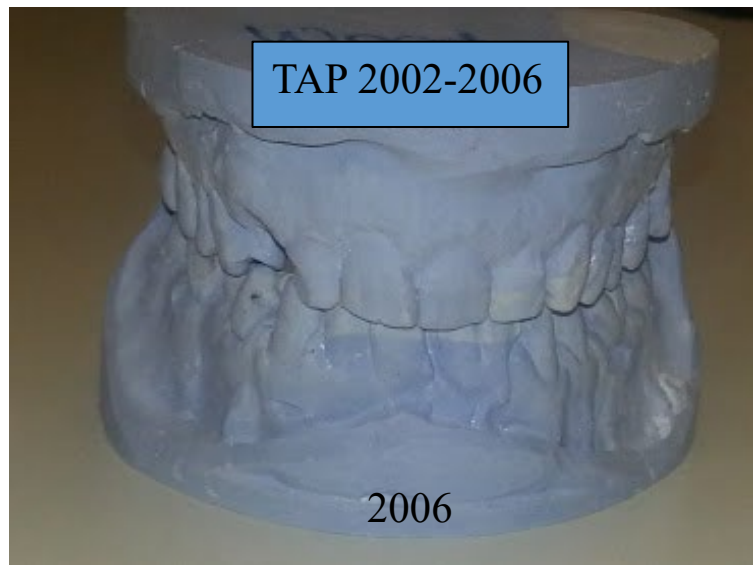


To relax lateral pterygoids

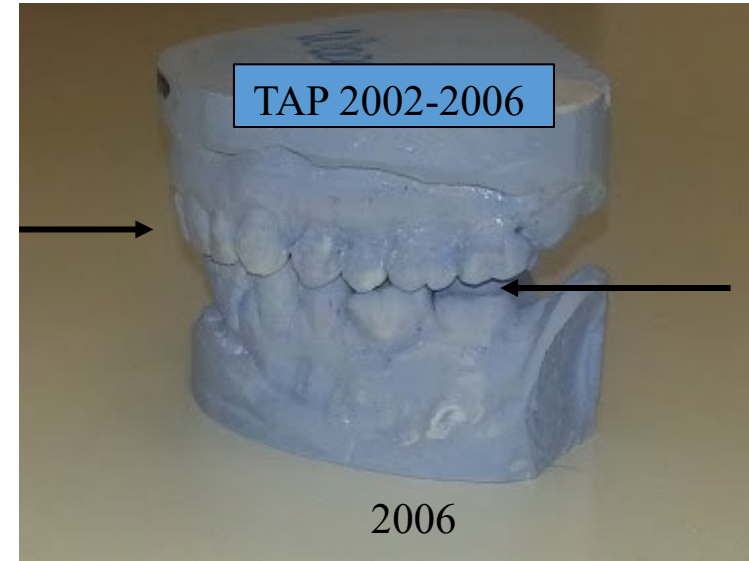
To reduce retrodiscal fluid build up



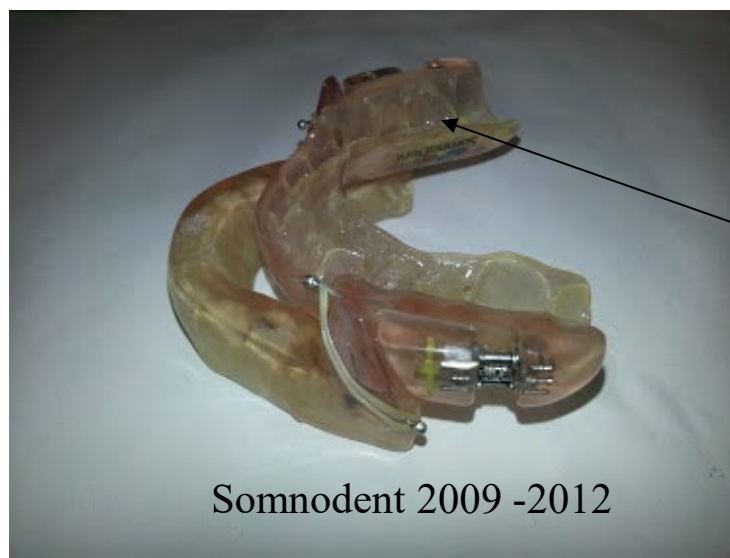
" That's correct, Doctor. He claims that the instructions said to squeeze toothpaste from bottom."



****IT HAPPENS**



THIRD DEVICE



UPPER



SO WHO CARES?



MORE INFORMATION

American Academy of Dental Sleep Medicine

www.aadsm.org

“Find a Dentist”

Board Certified or Qualified



Dr. Mintz' website

www.sleep-tmj.com

Dr. Mintz' email

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