

# Temporomandibular Joint

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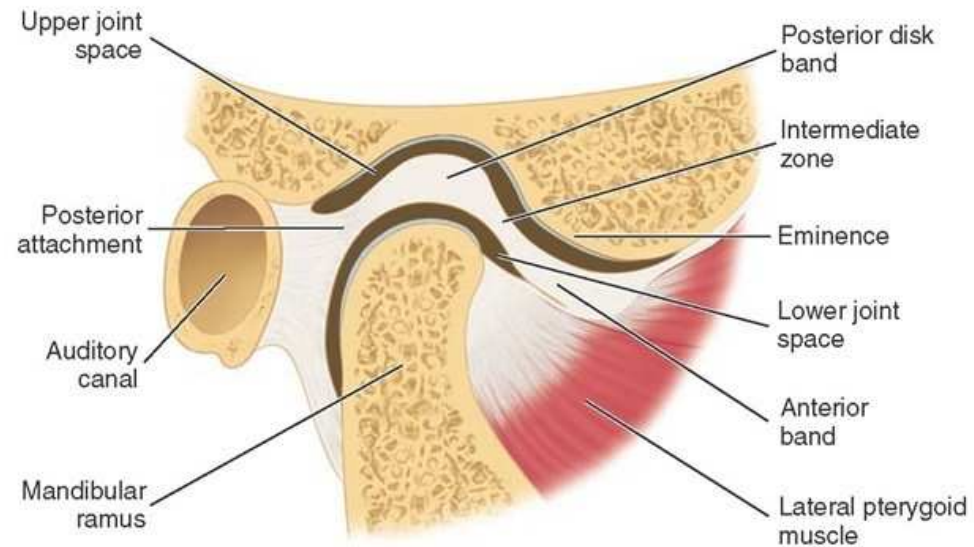
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# Aims

- ▶ Discussion of TMJ anatomy
- ▶ Temporomandibular Joint Disorder versus “Dysfunction”
- ▶ Classification and diagnostic factors of TMD
- ▶ Explore the link between malocclusion and TMD
- ▶ Explore the link between orthodontic treatment and TMD
- ▶ Management of TMJ Disorders

# Temporomandibular Joint Anatomy

- ▶ Ginglymoarthroidal
  - ▶ Ginglymus (hinge): open
  - ▶ Arthroidal (slide): translation
- ▶ Temporal bone and mandible: synovial articulation
- ▶ Articular disc: dense fibrous connective tissue, divides joint capsule
- ▶ Joint capsule has two compartments, filled with synovial fluid
  - ▶ Upper: initial opening and rotation
  - ▶ Lower: late opening and translation



# Temporomandibular Joint Anatomy



# TMJ Disorders

- ▶ DISORDER, not “Dysfunction”
- ▶ 15%+, 20-40 y/o, F>M
- ▶ Etiology: biologic, environmental, social, emotional, cognitive
- ▶ Categories (RDC/TMD classification)
  - ▶ **TMJ:** Internal Derangements such as disc displacement
    - ▶ With reduction (pop/click), without reduction
  - ▶ **Muscles of Mastication:** myofascial pain dysfunction syndrome
  - ▶ **Degenerative:** osteoarthritis, osteoarthrosis, arthralgia
  - ▶ **Less common pathology:** Temporal arteritis, chondrosarcoma, osteosarcoma, giant cell tumour, aneurysmal bone cysts
- ▶ Joint noise, pain, myofascial pain, referred pain (head/ear), limited movement

# Malocclusion, Ortho and TMD

Pollack B: Am J Orthod Dentofacial Orthop. 1988 Oct;94(4):358-60.

## Michigan jury awards \$850,000 in ortho case

- ▶ Damages awarded asserting that orthodontic treatment caused TMD
- ▶ Does malocclusion cause TMD?
- ▶ Does ortho treat TMD?
- ▶ Can ortho cause TMD?
- ▶ Shall we all just go home and cry?

# Malocclusion and TMD

- ▶ McNamara et al (1995), Turp & Schindler (2012), Bilgic & Gelgor (2017), Conti et al (2003) - weak association
  - ▶ Parafunction, Skeletal AOB, OJ 6mm+, RCP/ICP slide 4mm+, loss posterior support, post x-bite
  - ▶ No link ideal occlusion and TMD
  - ▶ TMD causes some occlusal features, not the other way around
- ▶ Caldas et al (2016): no difference between malocclusion/normal in TMD
  - ▶ Malocclusion (early) versus TMD (realised later) : chicken or egg?
  - ▶ Worsening TMD in adolescence (coincide with ortho)
  - ▶ Sudden changes may cause TMD

# Orthodontics and TMD

- ▶ Luther (1998):
  - ▶ treat to functionally optimal occlusion but no evidence it prevents/cures TMD
  - ▶ Functional occlusion is not always stable, removing interferences does not cure TMD
- ▶ Conti et al (2003), Mohlin et al (2007), Ortega et al (2016)
  - ▶ No association between ortho treatment and TMD
  - ▶ Ortho does not cure TMD
- ▶ Need for Cochrane Review / RCT



# Ortho treatment and TMD - your clinical situation

- ▶ ASK: joint noises, locking, pain
- ▶ PALPATE: muscles, TMJ
- ▶ MEASURE: range of motion, opening/closing deviations, deflections, lateral movement
- ▶ LISTEN: for noises when opening and closing
  
- ▶ Do not proceed with ortho in the presence of TMD: specialist referral and management prior to ortho
- ▶ TMD develops in ortho
  - ▶ inform, educate and manage
  - ▶ Parafunction?

# Management

- ▶ Conservative and reversible
- ▶ Lifestyle: resting, avoiding gum chewing, hot compresses, massage, stress reduction
- ▶ Mouth guards
- ▶ Medication: NSAIDs
- ▶ Steroid injections if arthritis
- ▶ Surgery (if all else fails)

# Conclusions

- ▶ Knowledge of TMJ anatomy is important for clinical practice
- ▶ Knowledge of TMD and its etiology is essential
- ▶ Know how to help your patients suffering from TMD
  
- ▶ Does malocclusion cause TMD? **NO**
- ▶ Does ortho treat TMD? **NO**
- ▶ Can ortho cause TMD? **NO**
- ▶ Shall we all just go home and cry? **NO!**
  
- ▶ BUT: make sure you judge your clinical situation right BEFORE you start anything - assessment is key.

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- ▶ Smileworks Liverpool. If you're interested in getting braces from Smileworks then take a look at our braces page at: [Braces Liverpool](#)