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Temporomandibular Joint Disorders



# *Temporomandibular joint:*

Is a synovial joint located between the condylar( head of the mandible) and the glenoid fossa ( inferior surface of the squamous part of temporal bone).

TMJ is similar to the other joints of the body that it composes of osseous and soft tissue components.

**However, the difference that is:**

- ❖ *Double joint in function.*
- ❖ *The function is controlled by other factors like teeth and neuromuscular system.*
- ❖ *The movement of the joint is not bone to fossa, but sliding (from glenoid to the eminence).*
- ❖ *The ossification of the joint is fibrous, while the other are hyaline in nature.*

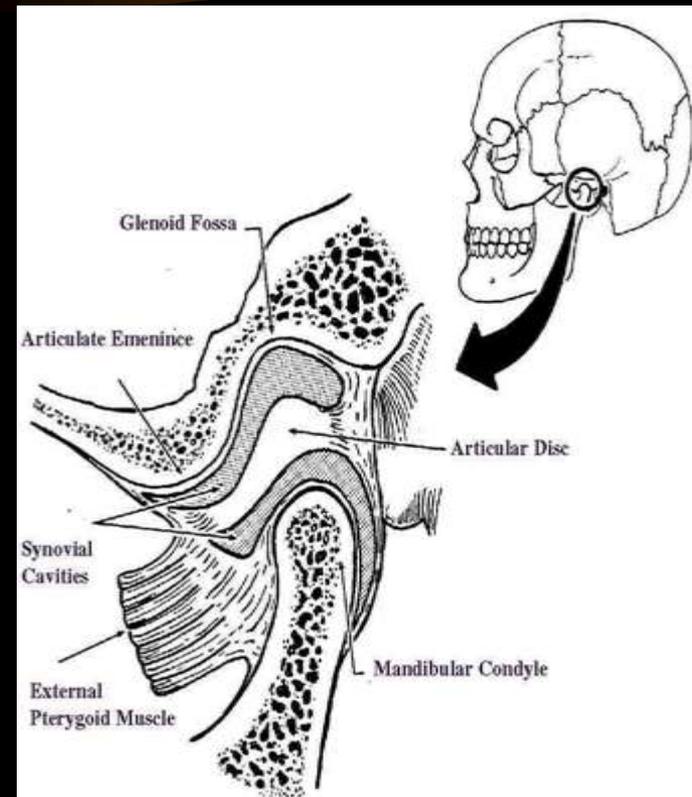
# Anatomy of the Temporomandibular joint



The lower portion is formed by the head and neck of the condyle of the mandible.

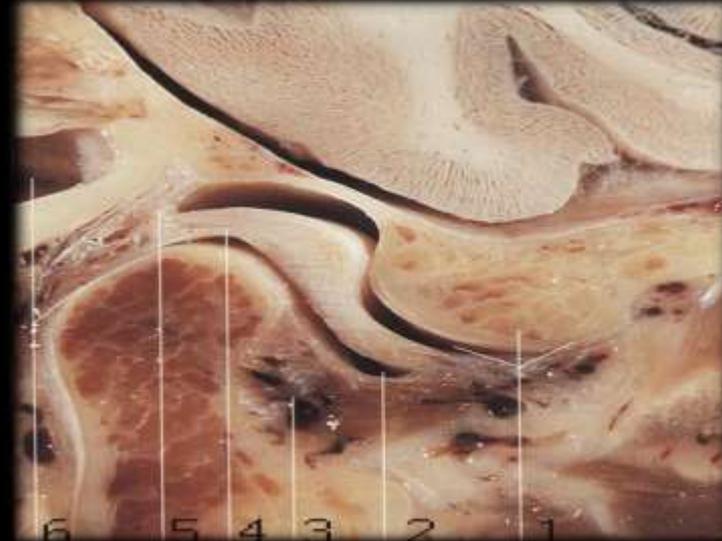
The upper portion contains the squamous portion of the temporal bone, the glenoid fossa and the articular eminence.

The tympanic plate lining the joint posteriorly.



## The articular disc

(meniscus) is formed of dense fibrous C.T located between the head of the condyle and the glenoid fossa (as a cushion between the two surfaces). The disc is biconcave shape with thick bands in the periphery and thin in the middle area. The upper and lower synovial spaces contain synovial fluid. The fluid lubricate, nourishes the joint surfaces and debridement of the waste products.



The four pair muscles of mastication are (masseter, temporalis, medial and lateral pterygoid muscles). In addition, suprahyoids muscles are involved in the joint movement.

Masseter muscle: originate from the inferior border of the zygomatic arch and inserted to the angle of the mandible.

Temporalis muscle: originate from the ridge of the temporal bone and inserted to the coronoid process of the mandible.

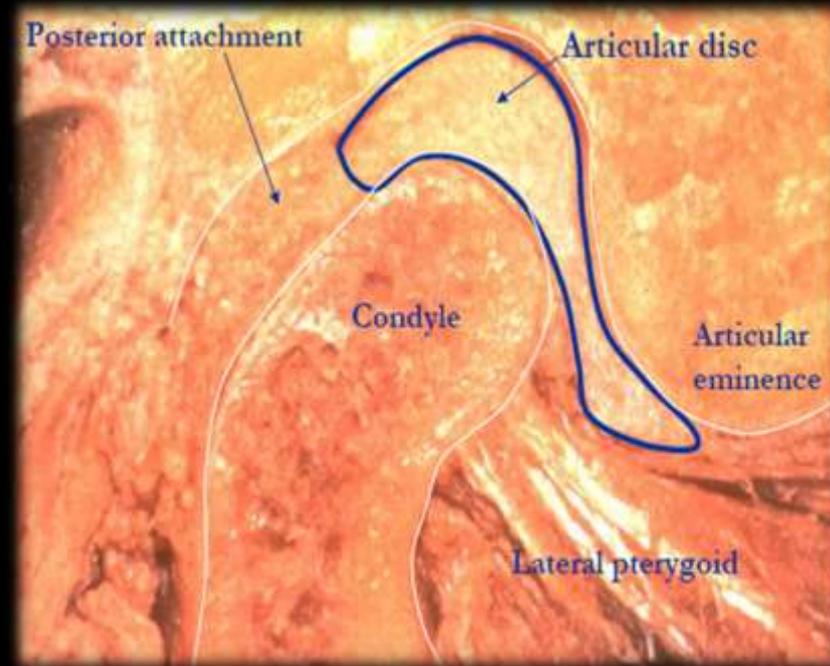




The reciprocal action of the lateral pt. muscle to hold the meniscus in its position by:

**Superior bilaminar zone:** elastic fibers hold the meniscus to the temporal bone.

**Inferior bilaminar zone:** less elastic fibers holding the meniscus to the neck of the condyle posteriorly



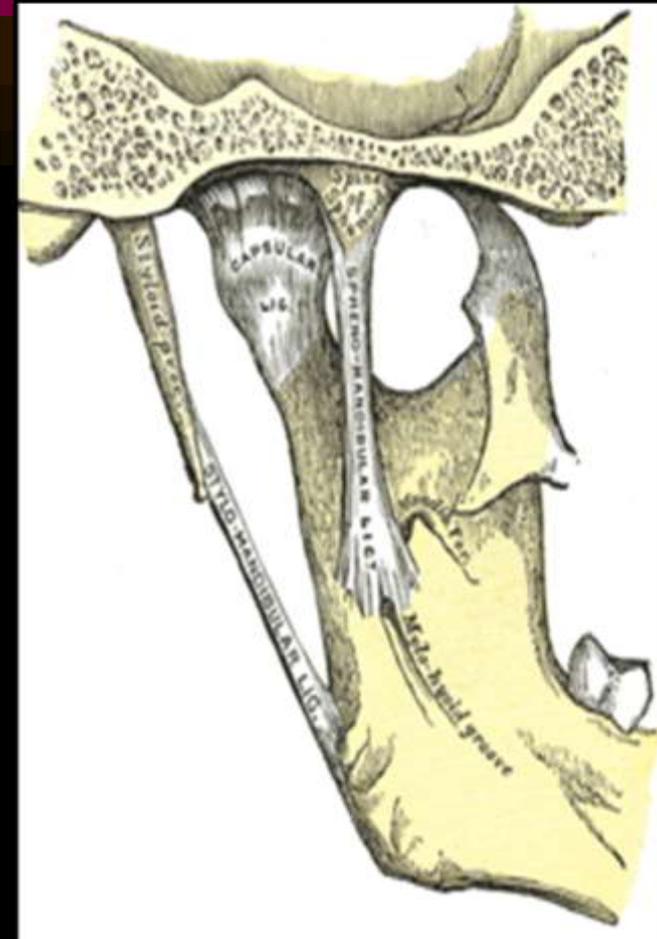


All the structures are surrounded by loose CT with blood vessel and nerves forming the retrodiscal pad (area).

All osseous and soft tissue structures are enclosed in a dense fibrous CT capsule that hold the joint in the infratemporal region and enclosed them firmly in the condylar neck region called Joint Capsule.

## The temporomandibular ligaments

Stylomandibular, sphenomandibular and capsular ligament limits the movement of the mandible beyond the normal limits.



*Causes of  
Temporomandibular Joint  
Disorders*

## *Psychological Factors*



*The patient is unable to deal with stress and responds with facial pain, due to tension and spasm of the muscle of mastication.*

# *Occlusal factors*

*Uncoordinated mandibular movement can be caused by:-*

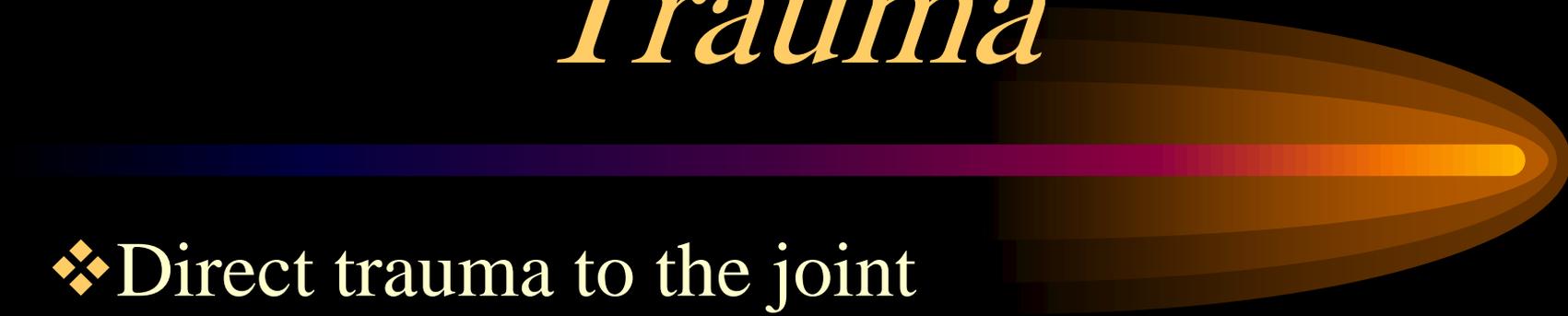
- *Occlusal interference*
- *Loss of posterior support*
- *Cross bite*
- *Deep bite*
- *Increase over jet*
- *Extruded teeth*
- *Poorly constructed prosthesis*

# *Habits involving the TMJ*

## *Habits causing damage to the joints or it's supporting structures*

- *Bruxism*
- *Clenching*
- *Sleeping position*
- *Head resting on hands*
- *Prolong protrusion due to asthetic*
- *Prolong chewing of tobacco, gum, ice...etc.*
- *Pipe smoking*
- *Musical instrument use*

# *Trauma*



- ❖ Direct trauma to the joint

- Accident

- Blow to the joint or mandible

- Straining the joint due to dental work

- ❖ Indirect trauma to the joint

- high spots (incorrect prosthesis, dental filling, orthodontic appliances..etc..)

# *Inflammations and infections*

## *❖ Extra capsular causes like*

*➤ Pericoronitis*

*➤ Parotitis*

*➤ Dental abscess*

*May cause spasm, truisms and limitation in joint movements.*

## *❖ Intra capsular causes like*

*➤ Osteoarthritis, or degenerative bone disease*

*➤ Rheumatoid arthritis*

*➤ Meniscus lesion and internal derangement*

*May cause pain and limitation in joint movements.*

# *Genetic factors*



- ❖ Growth disturbance

- Hypoplasia

- Hyperplasia

- ❑ Can affect one or both joints

- ❑ They may appear at birth or during further development.

# *Tumors*



- ❖ *Benign neoplasms may occur like osteoma.*
- ❖ *Malignant neoplasm like osteogenic sarcoma, chondrosarcoma and metastatic neoplasms to involve the joint.*

# *Systemic factors*



- *Gout*
- *Hyperparathyroidism*
- *Paget's disease*
- *Vitamin D deficiency*
- *Scleroderma*
- *Lupus erythematosus*
- *Behcet's syndrome*



THANK YOU

## *References*

- 1. Greenberg MS, Glick M, Ship J A: Burkett's oral medicine. Eleventh ed. 2008.
- 2. Cawson RA & Odell EW: "Cawson's essential of oral pathology and oral medicine".8th edition Elsevier Science Limited, London 2008.