RU RMT 02
Skeletal Lecture 10
Face

Facial bones

14 Facial bones that form the face:

1. nasal (2)
2. maxilla (2)
3. zygomatic (2)
4. lacrimal (2)
5. palatine (2)
6. inferior nasal conchae (2)
7. vomer
8. mandible

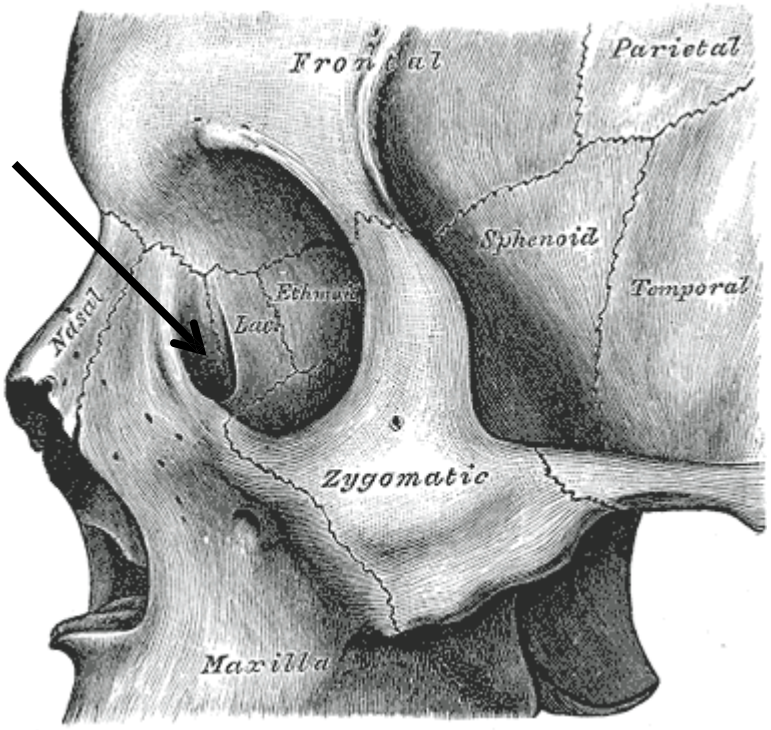
Lacrimal bone

Paired, thin, and smallest bones of face

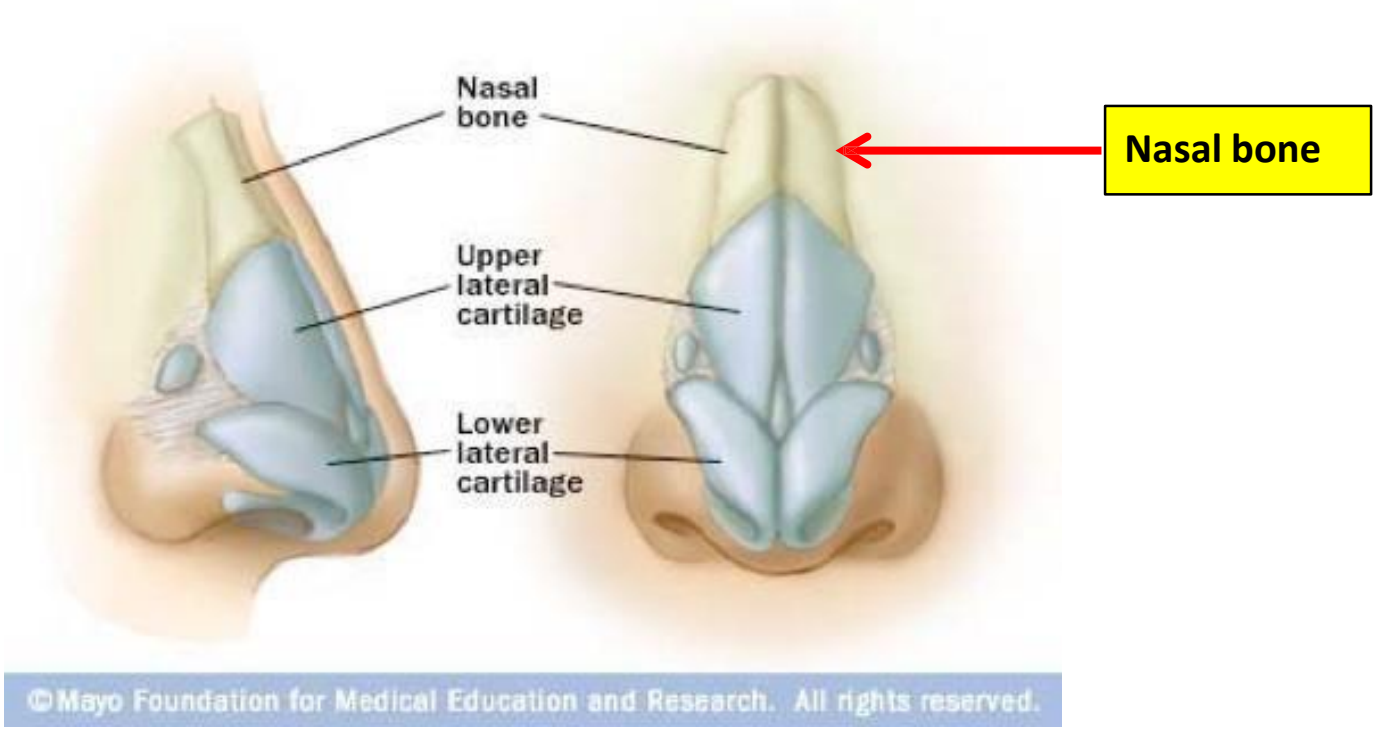
Situated posterolateral to nasal bones, and contributes to medial wall of orbit

Found wedged between maxilla anteriorly and inferiorly, Frontal bone superiorly and Ethmoid posteriorly.

<u>Lacrimal fossa:</u>
A vertical groove formed with the maxilla. It houses the lacrimal sac, a structure that gathers tears and passes them into the nasal cavity



Nasal bone



Paired bones that meet in the midline

Form the bridge of the nose – Posterior 1/3

Rest of the supporting tissue of the nose is formed by cartilage

Wedged between frontal superiorly and maxilla laterally.

Inferior nasal conchae

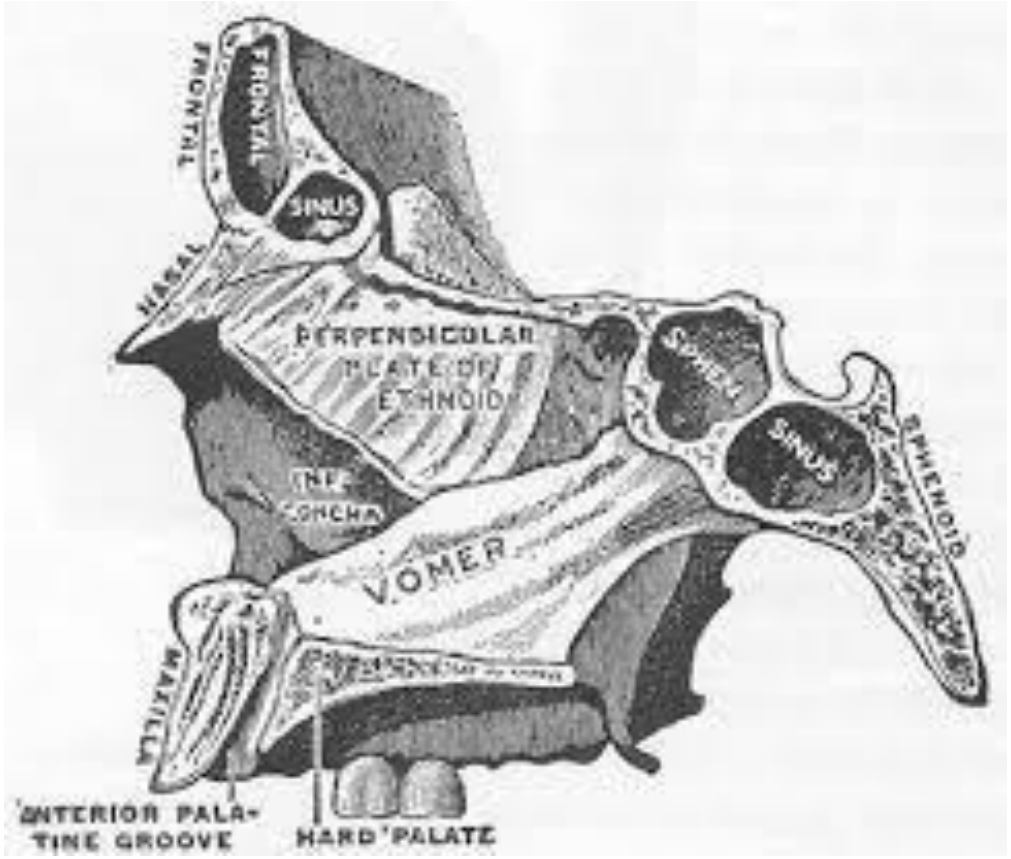
Paired bones situated inferior to middle nasal conchae of ethmoid bone

Form part of the inferior wall of nasal cavity, and project into nasal cavity

It helps to swirl and filter inhaled air before it enters into the lungs

Attached to the maxilla, palatine and lacrimal bones.

Vomer



Triangular bone on the floor of the nasal cavity

Articulates superiorly with perpendicular plate of ethmoid, and inferiorly with both maxillae and palatine bones along the midline

Forms the inferior portion of the nasal septum

Maxilla Bone

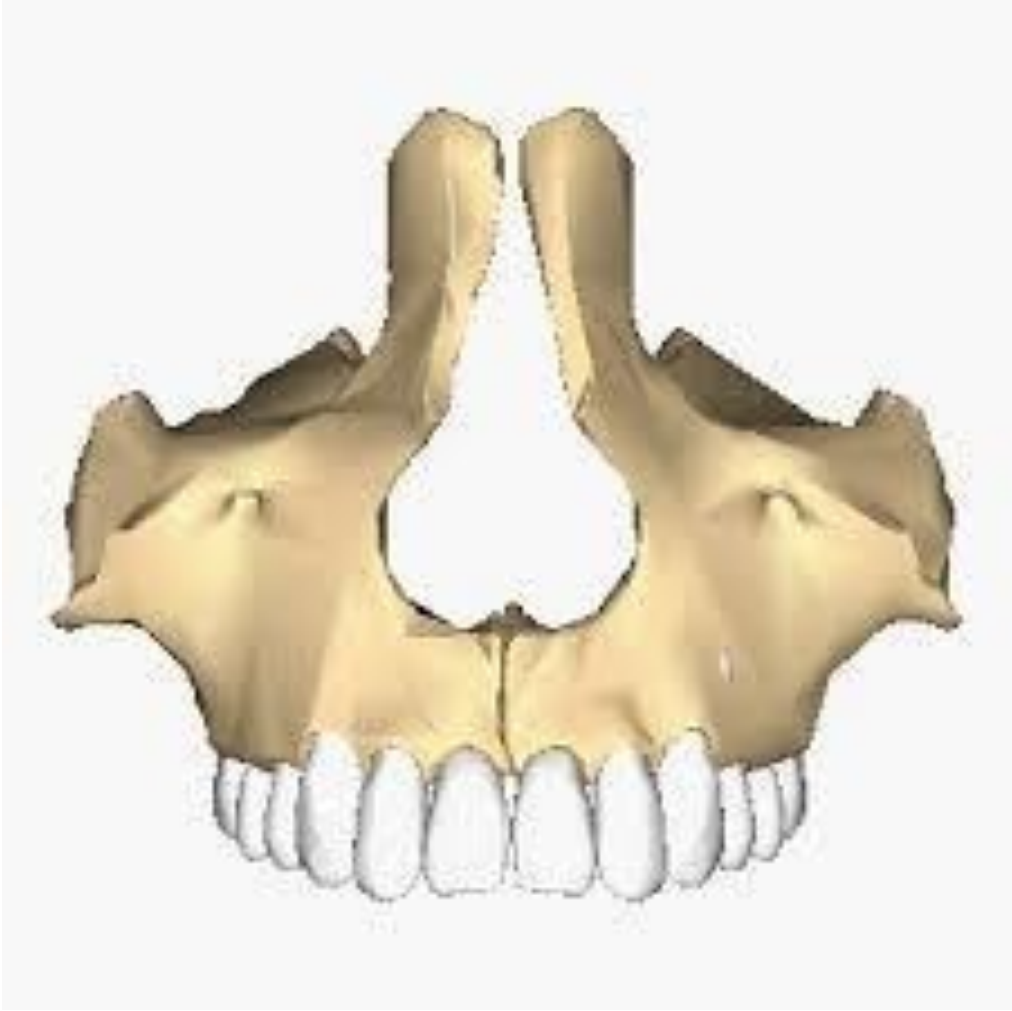
- Processes
  - Frontal
  - Zygomatic
  - Alveolar
  - Palatine
- Foramen
  - Inferior Orbital fissure
  - Infraorbital foramen
- Maxillary Sinuses

Maxillae

Paired bones that unite to form the upper jawbone

Contribute to floor and medial wall of orbit, floor and lateral wall of nasal cavity, and anterior portion of the hard palate (bony roof of the mouth that separates oral and nasal cavities)

Zygomatic Process:
Horizontal projection that forms the base of the “cheek”



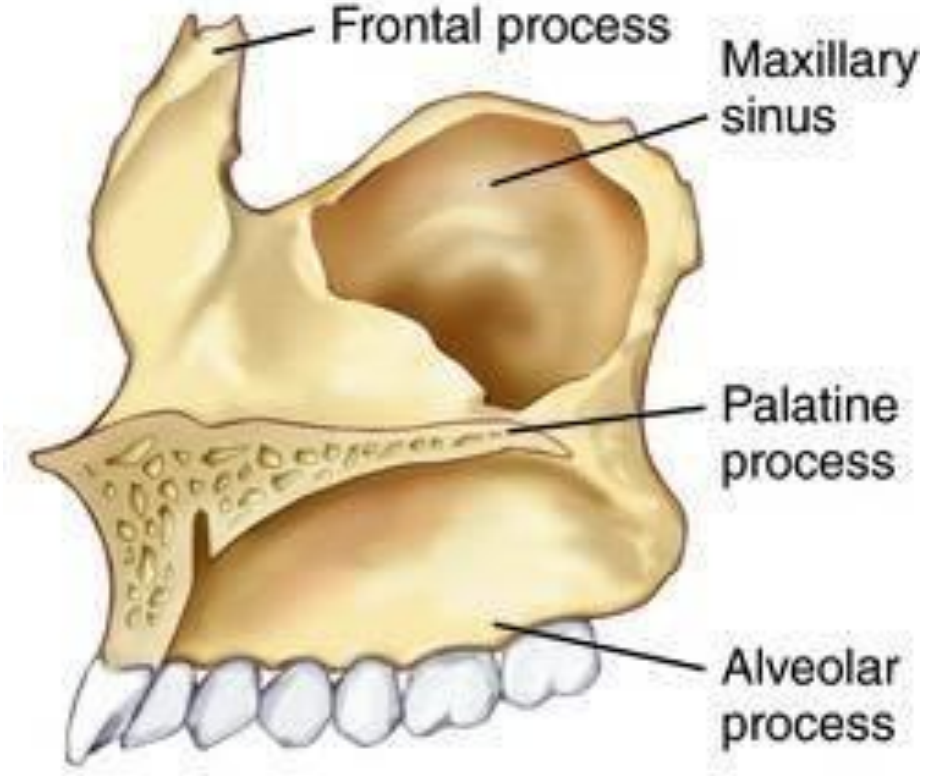
Maxillae

Frontal Process:
Superior projection helps to form the medial border of orbit and anterior border of the nasal cavity.

Palatine Process:
Horizontal projection of maxilla that forms the anterior 3/4 of hard palate

Alveolar Process:
Arch that contains the alveoli (sockets) for the upper teeth

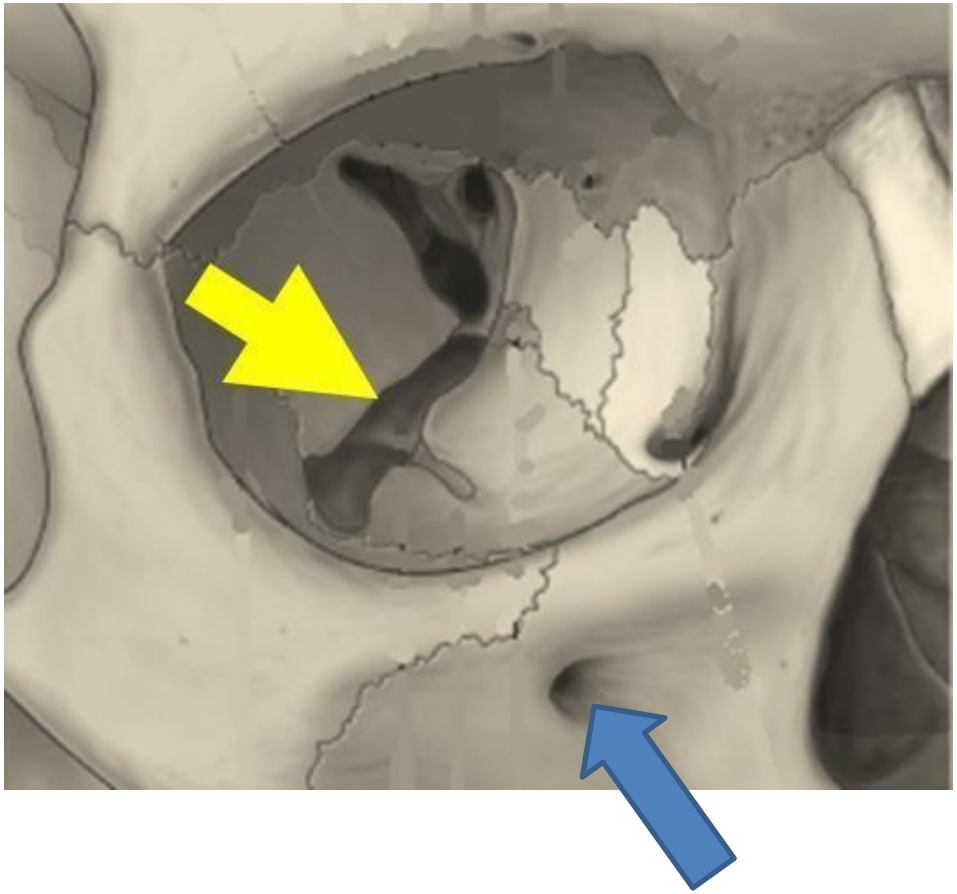
Maxillary Sinus:
Located within each maxilla and empties into nasal cavity



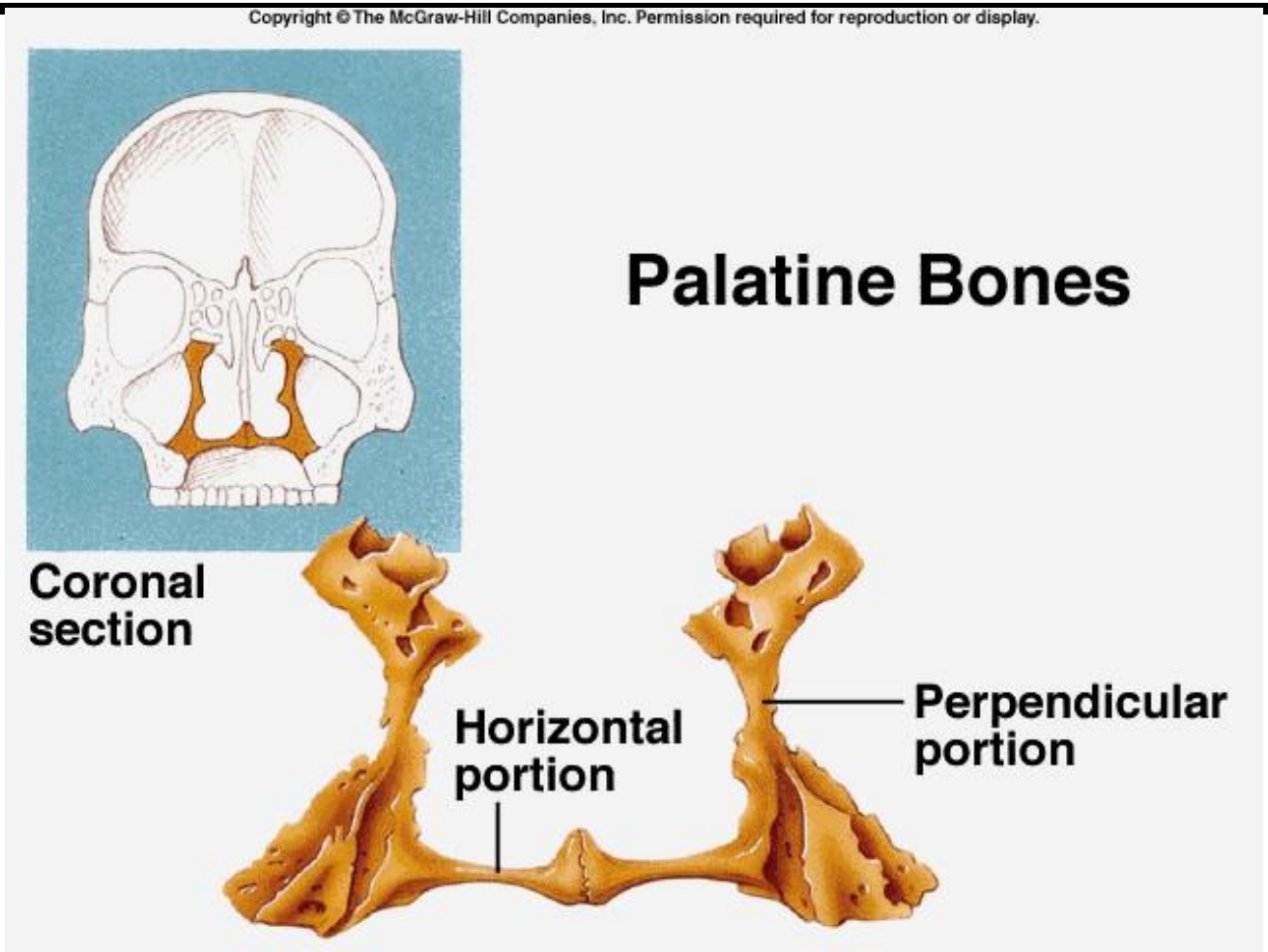
Maxillae

Inferior orbital fissure:
located between sphenoid greater wing and maxilla

Infraorbital foramen:
opening in the maxilla inferior to the orbit. It allows passage of infraorbital nerve and blood vessels



Palatine bone



Paired, L-shaped bones

Form posterior portion of the hard palate, part of the floor and lateral wall of nasal cavity, and a small portion of floor of orbit

Zygomatic bone

Paired bones

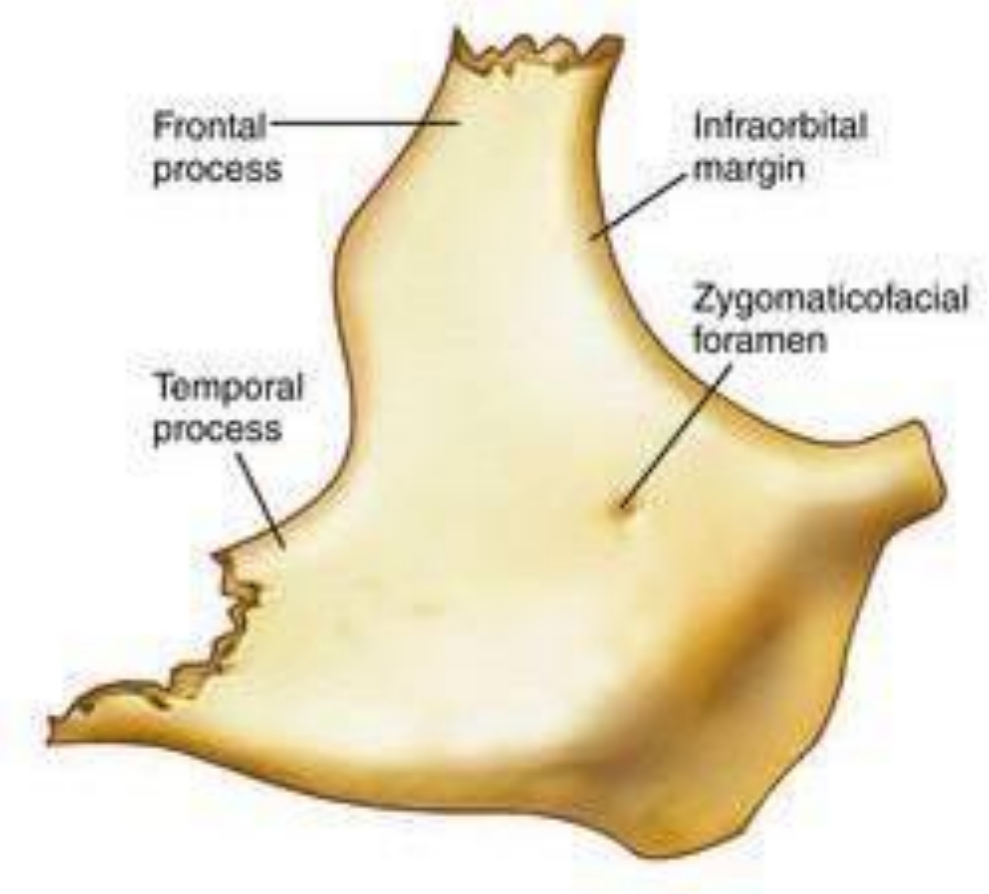
Form prominences of cheeks (cheekbones), and part of the lateral wall and floor of each orbit

Temporal process:

- Projects posteriorly, and articulates with zygomatic process of temporal bone to form zygomatic arch

Frontal Process

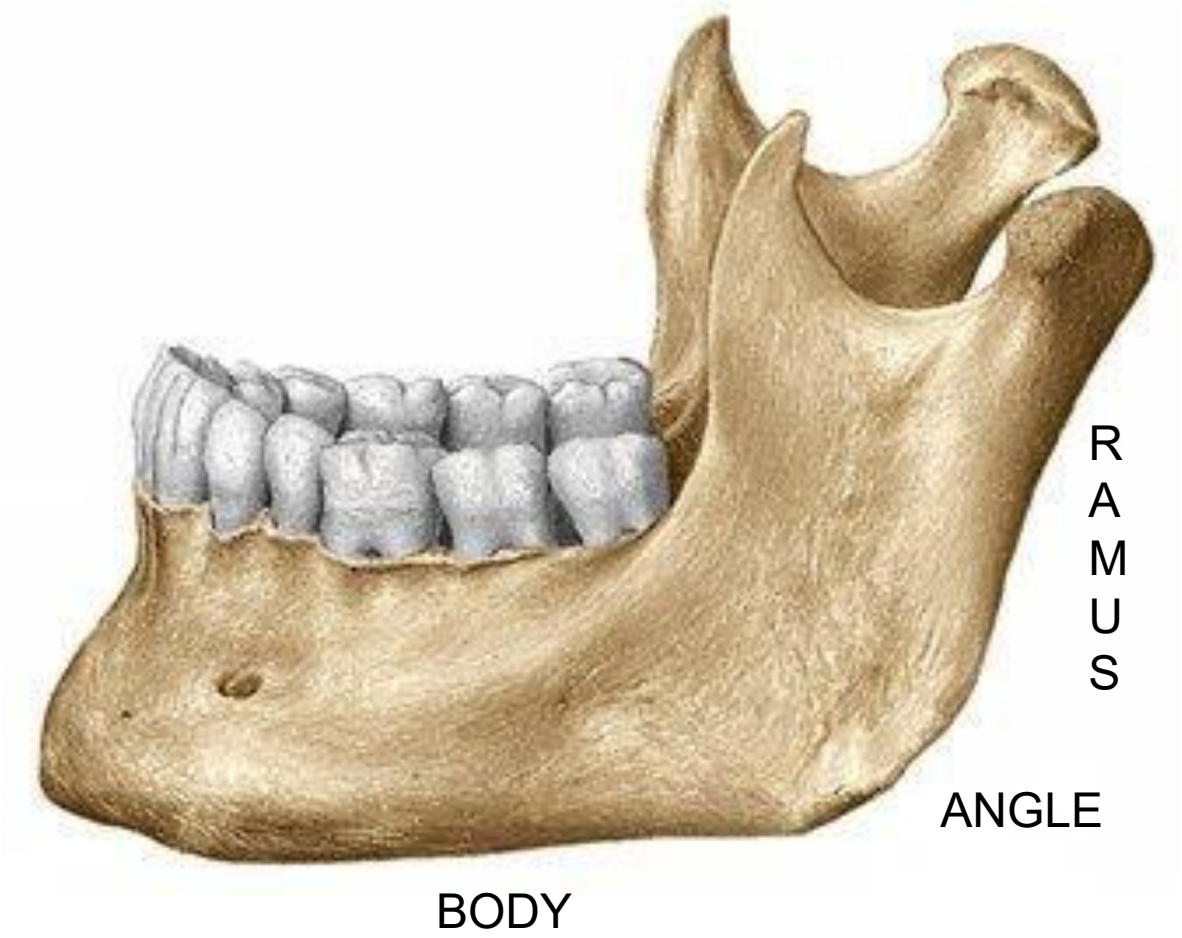
- Projects superior and articulates with zygomatic process of frontal bone



MANDIBLE BONE

- Body
- Ramus
- Angle
- Coronoid process
- Condylar process
- Alveolar Processes
- Mental Foramina x2
- Mental Protuberance (Chin)
- Base of Mandible
- Mandibular Foramen
- Lingula
- Mylohoid Line
- Submandibular Fossa

Mandible



- **Lower jaw bone**
- **Largest and strongest facial bone**

Mandible

Rami:

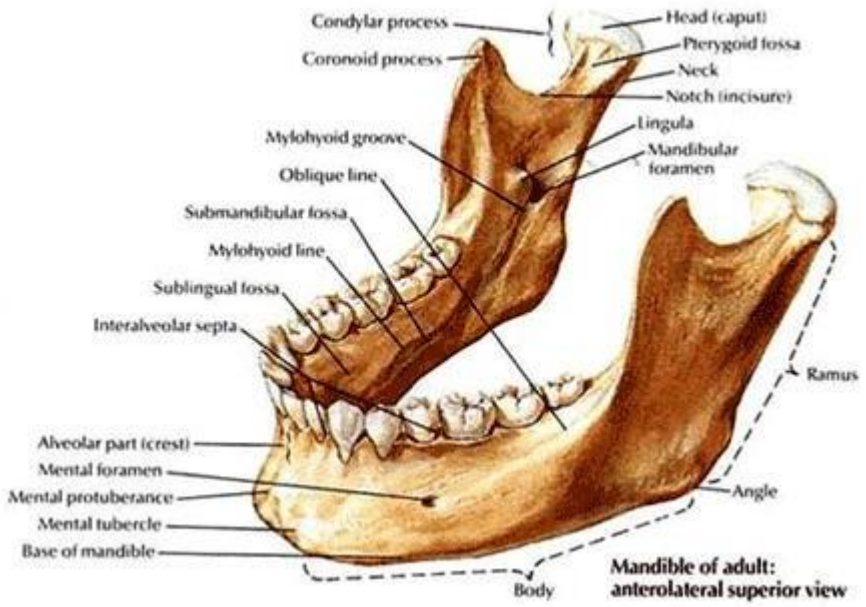
- Consists of 2 vertical processes perpendicular to the body
- Each ramus has a posterior **condylar process** that articulates with the **mandibular fossa** to form the temporomandibular joint (TMJ)
- Each ramus has an anterior **coronoid process** to which the temporalis muscle attaches

- The depression between the coronoid and condylar processes is known as the **mandibular notch**

Body of Mandible

External Features:

- Alveolar Processes
- Mental Foramina x2
- Mental Protuberance (Chin)
- Base of Mandible

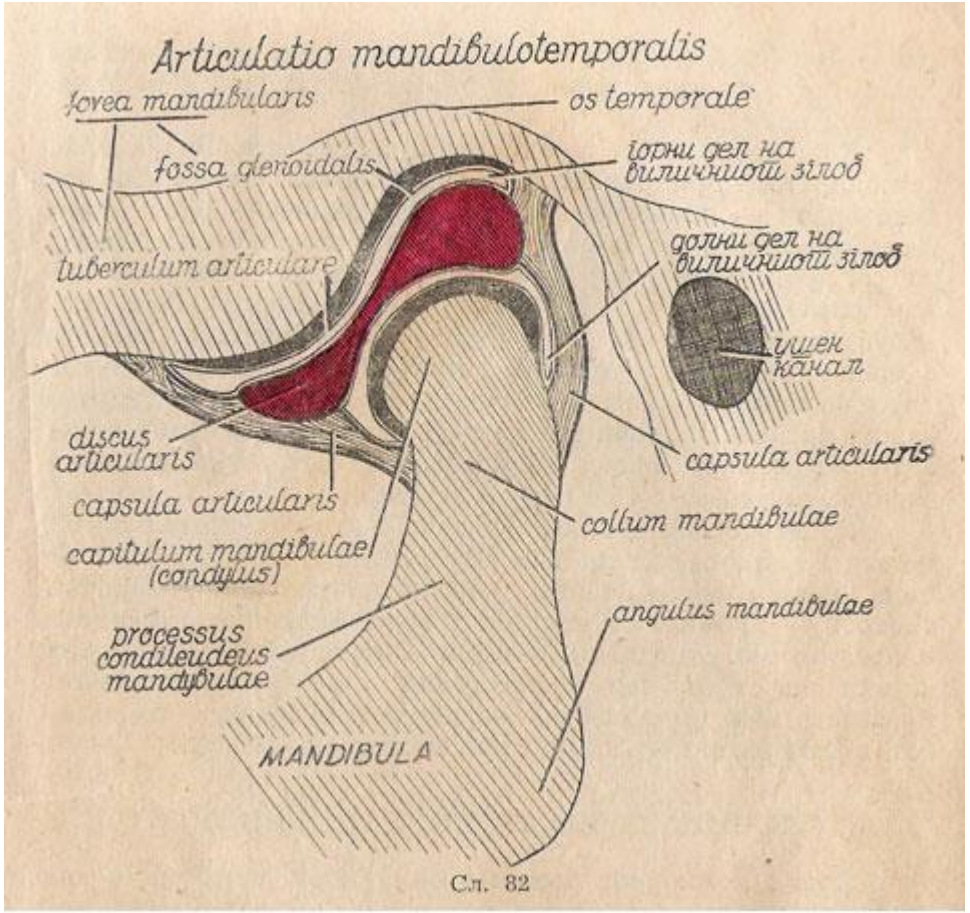


Internal Features:

- Mandibular Foramen
- Lingula (Above Mandibular Fossa – Site for Ligaments)
- Mylohyoid Line (Muscles Attachment)
- Submandibular Fossa (Salivary gland)

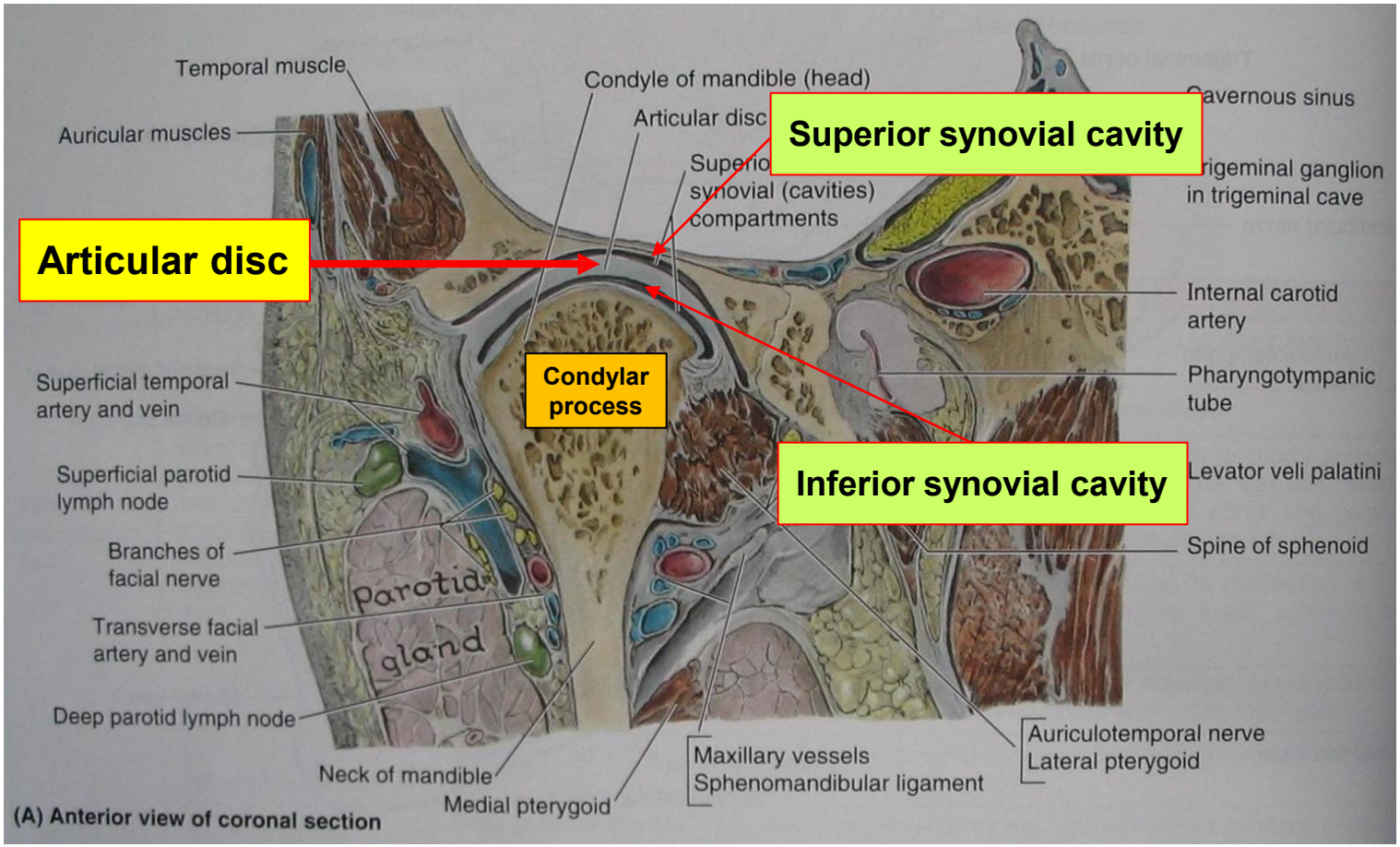
Temporo-Mandibular Joint

- Articular Surfaces
  - Disc
  - Articular Tubercle
  - Mandibular Fossa
  - Mandibular Condyles



"Stomatoloska Protetika"- Prof.Dr. D. Zelezarov, Figure 82, page 87

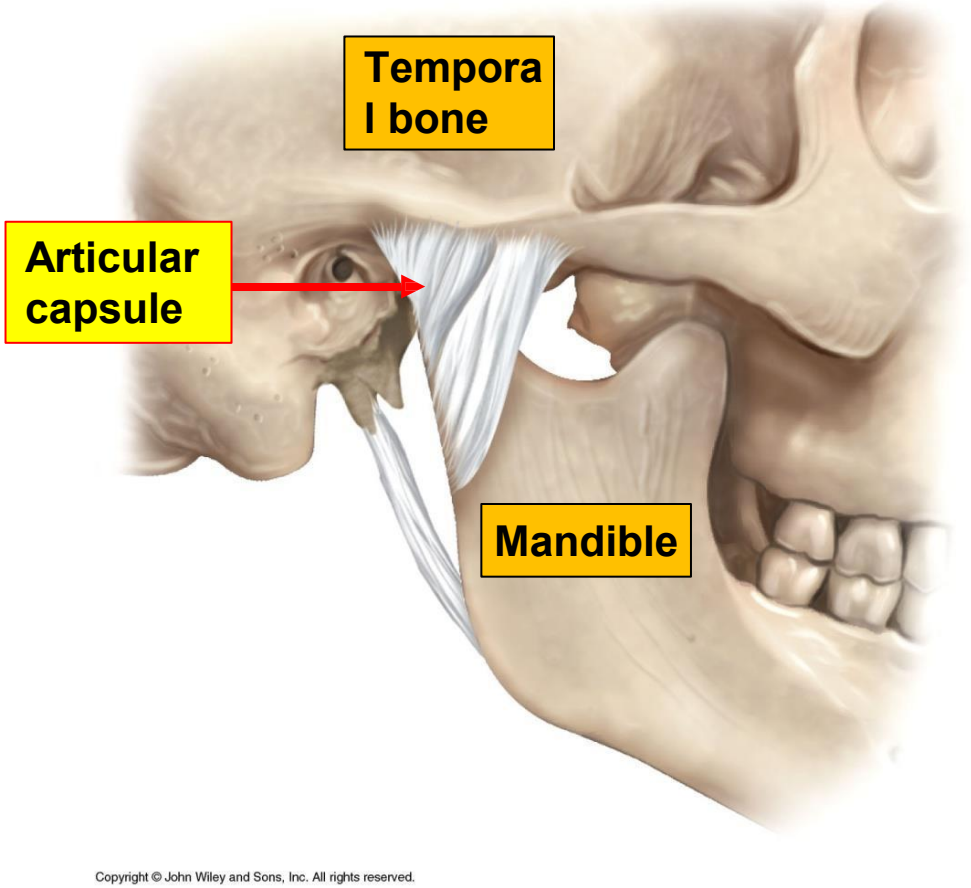
TMJ-articular disc (meniscus)



Fibrocartilaginous disc that separates the joint cavity into superior and inferior compartments each with its own synovial membrane

The superior and inferior compartments are separate both structurally and functionally

TMJ-articular capsule



Articular capsule: loose covering around the circumference of the joint

It attaches to the margins of articular area on temporal bone and around the mandible and it is lined by synovial membrane

Movements of Mandible

Hinge movements: occur in the inferior joint cavity during the early opening and late closing stages of mouth movement

- Elevation (closing of the mouth)
- Depression (opening of the mouth)

Gliding/translation movements: occurs in the superior joint cavity after initial depression of mandible to allow greater opening of mouth

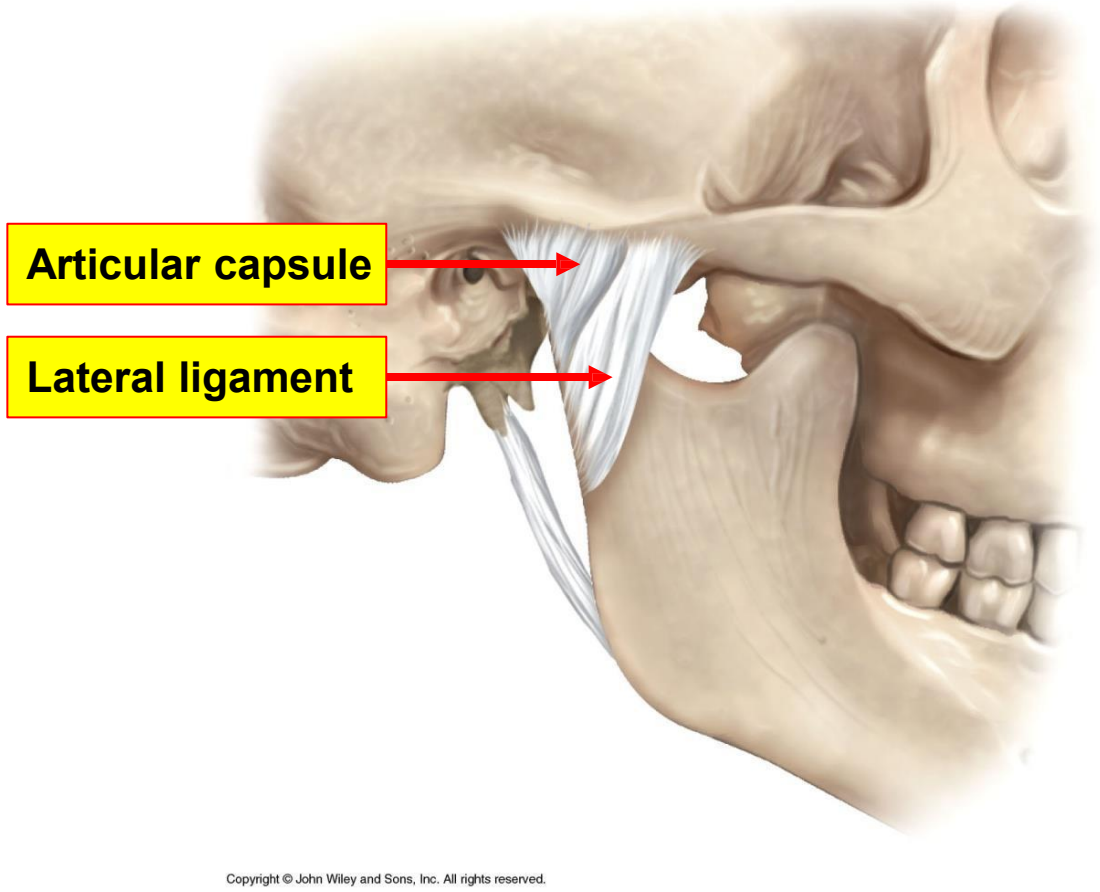
- Protrusion
- Retrusion

TMJ MOVEMENT:

Stage one: rotation of condyle in inferior compartment

Stage two: Slide/glide of disc in superior compartment

TMJ-lateral ligament



It consists of two short bands on the lateral surface of the articular Capsule (intrinsic)

It extends from the border and tubercle of the zygomatic process of the temporal bone to the lateral and posterior aspect of ramus of the mandible

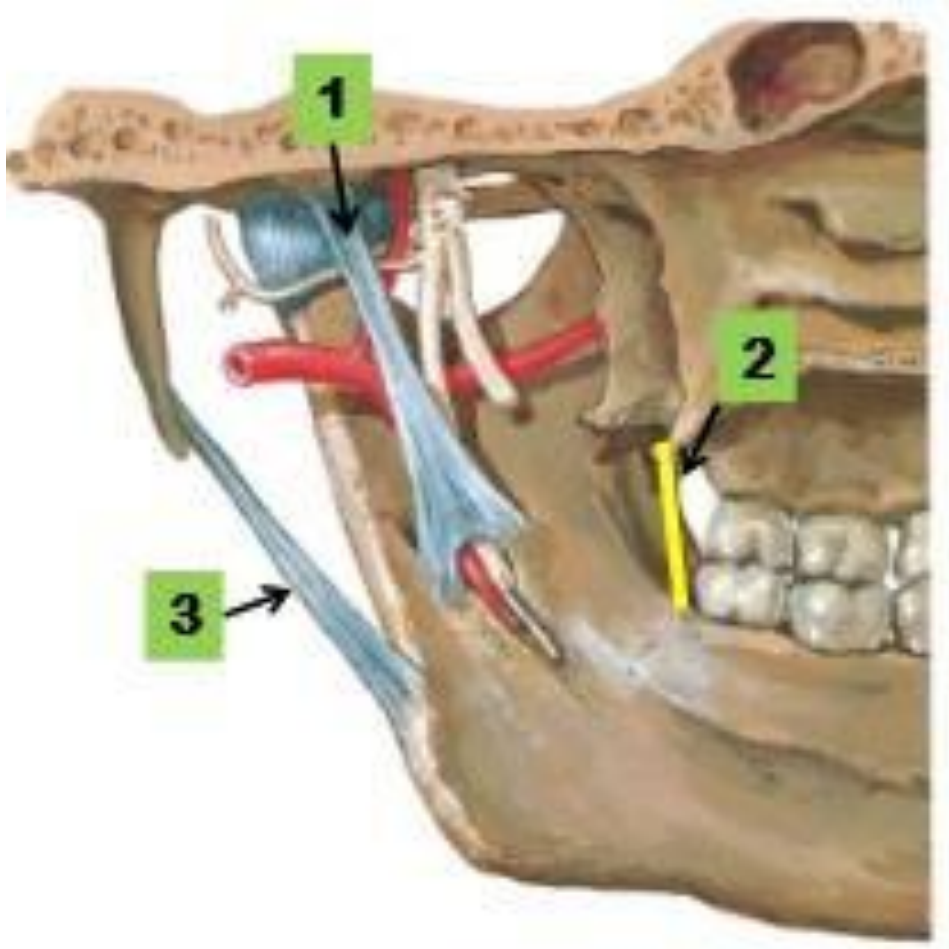
Action: The lateral ligament strengthens the TMJ laterally, and helps prevent posterior dislocation of the mandible

TMJ-Sphenomandibular Ligament

(#1) Supporting, extrinsic ligament

It extends from the greater wing of the sphenoid to the lingula of the ramus of the mandible

It does not contribute significantly to the strength of the TMJ

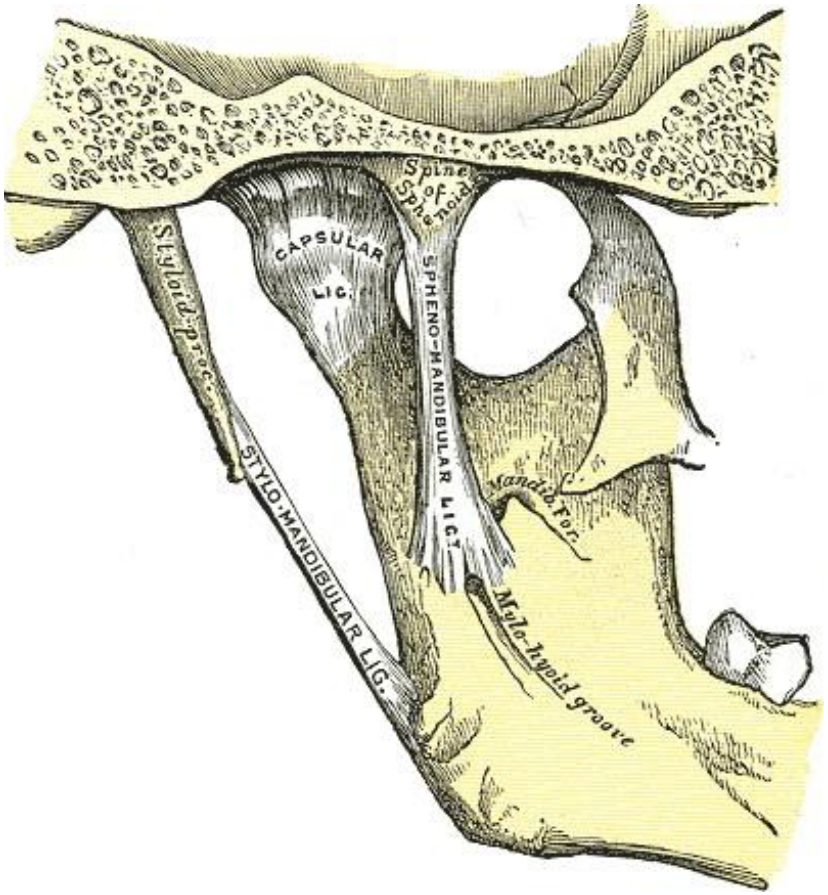


TMJ-Stylomandibular Ligament

Supporting, extrinsic ligament

It extends from the styloid process of the temporal bone to the inferior and posterior border of ramus of mandible

This ligament limits movement of the mandible at the TMJ



Dislocation of TMJ

Dislocation can occur in the TMJ during yawning or taking a large bite when the mandible dislocates anterior to the articular tubercle

A sideways blow to the chin when the mouth is open can dislocate the TMJ on the side that received the blow