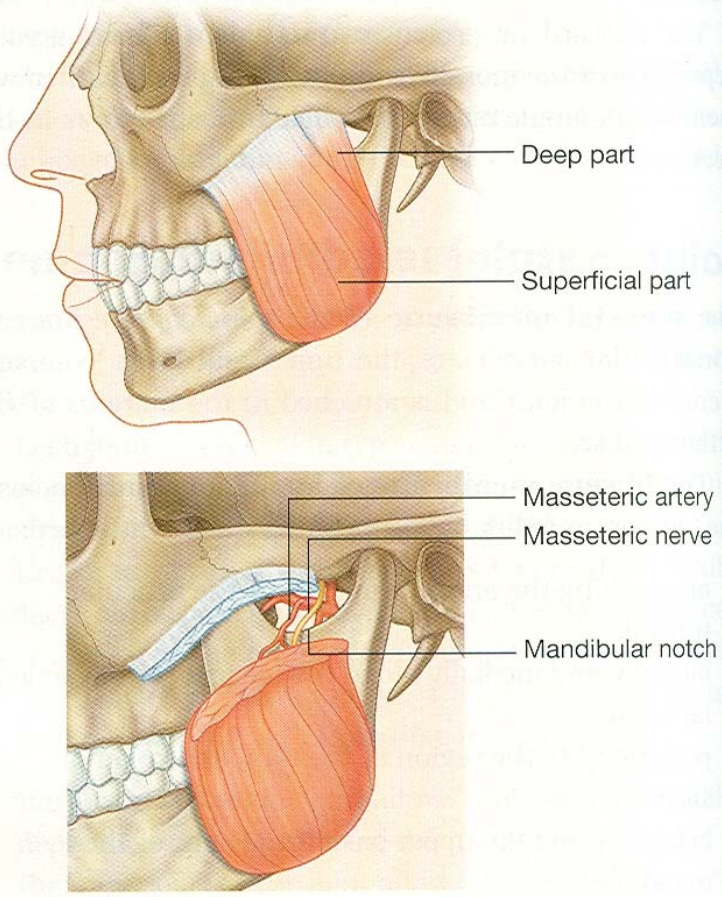


Fig. 8.131 Masseter muscle.

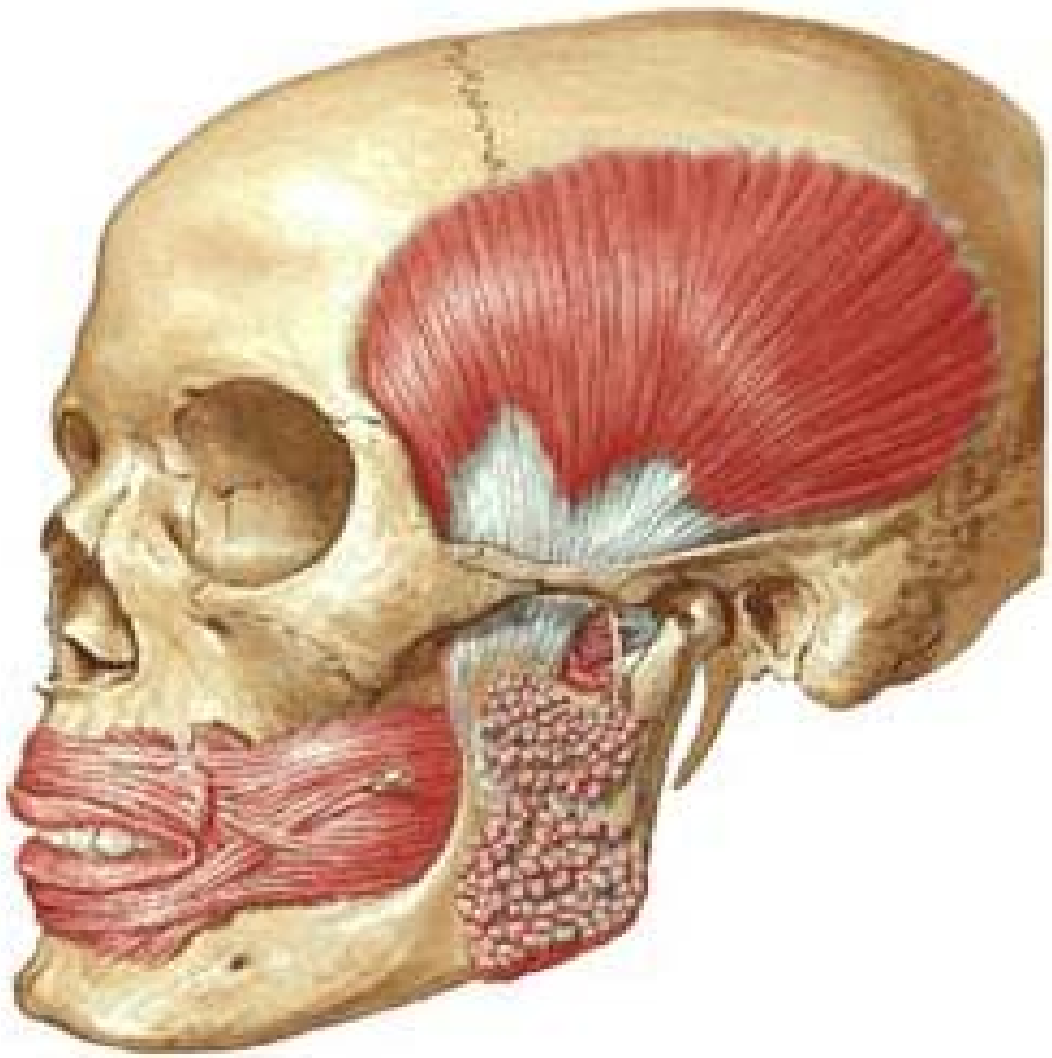
Masseter

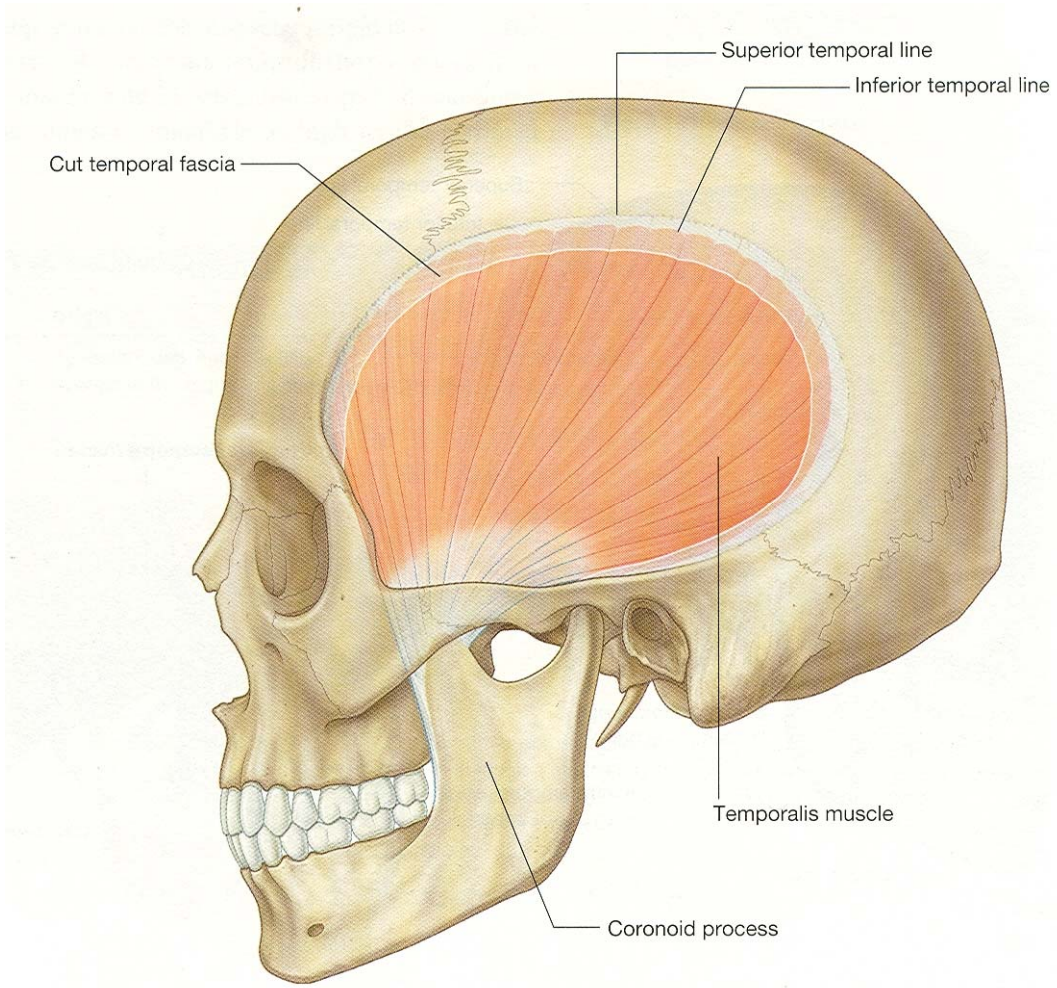
- Origin: three layers

  Superficial: Maxillary process of zygomatic bone & anterior 2/3 of inferior border of zygomatic arch

  Middle: medial aspect of zygomatic arch

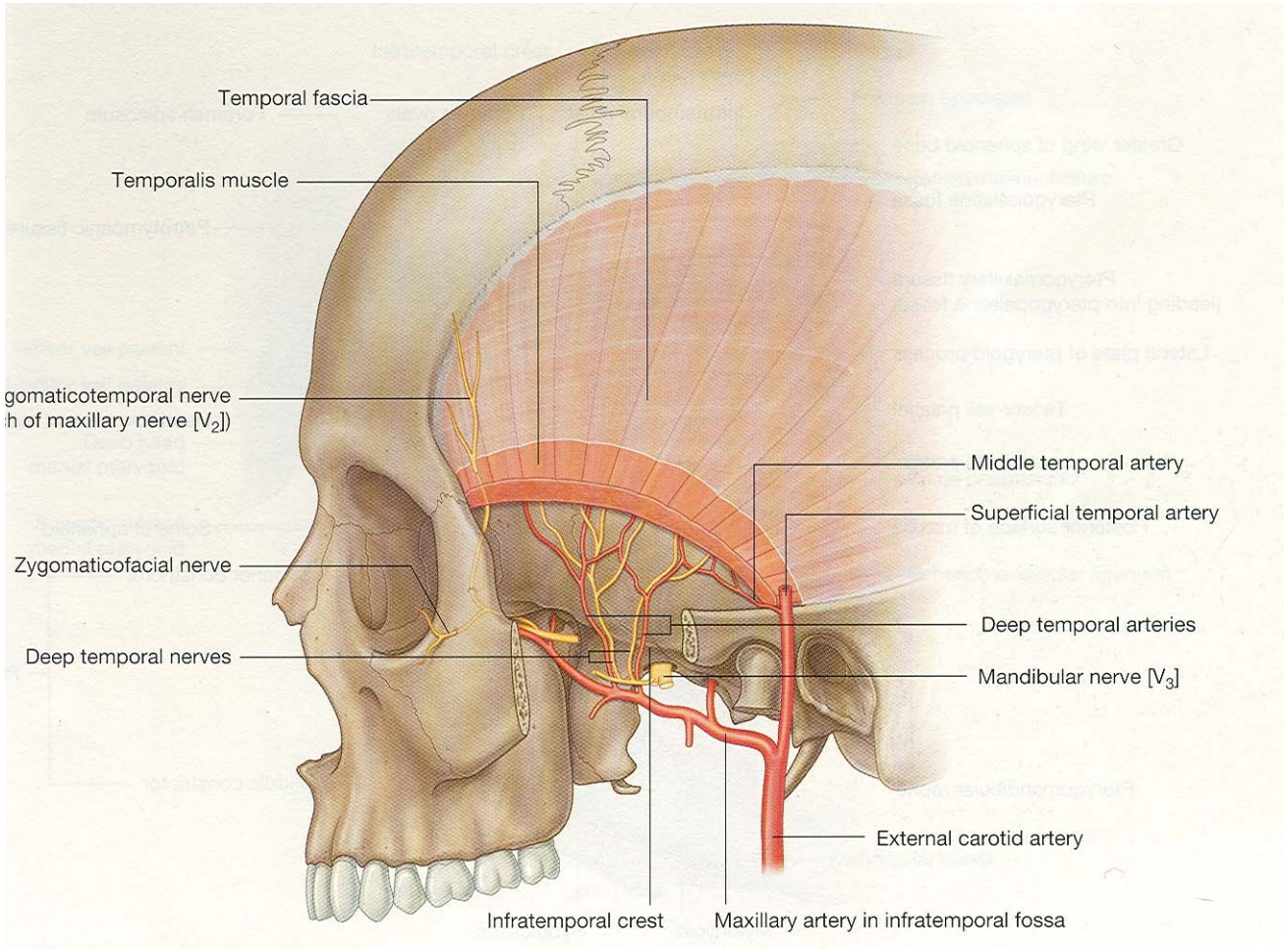
  Deep: deep surface of zygomatic arch
- Insertion: lateral surface of mandibular ramus
- Nerve supply: Nerve to masseter from anterior division of mandibular nerve.
- Action: Elevation & some side to side movement.
- Sub-masseteric space infection.

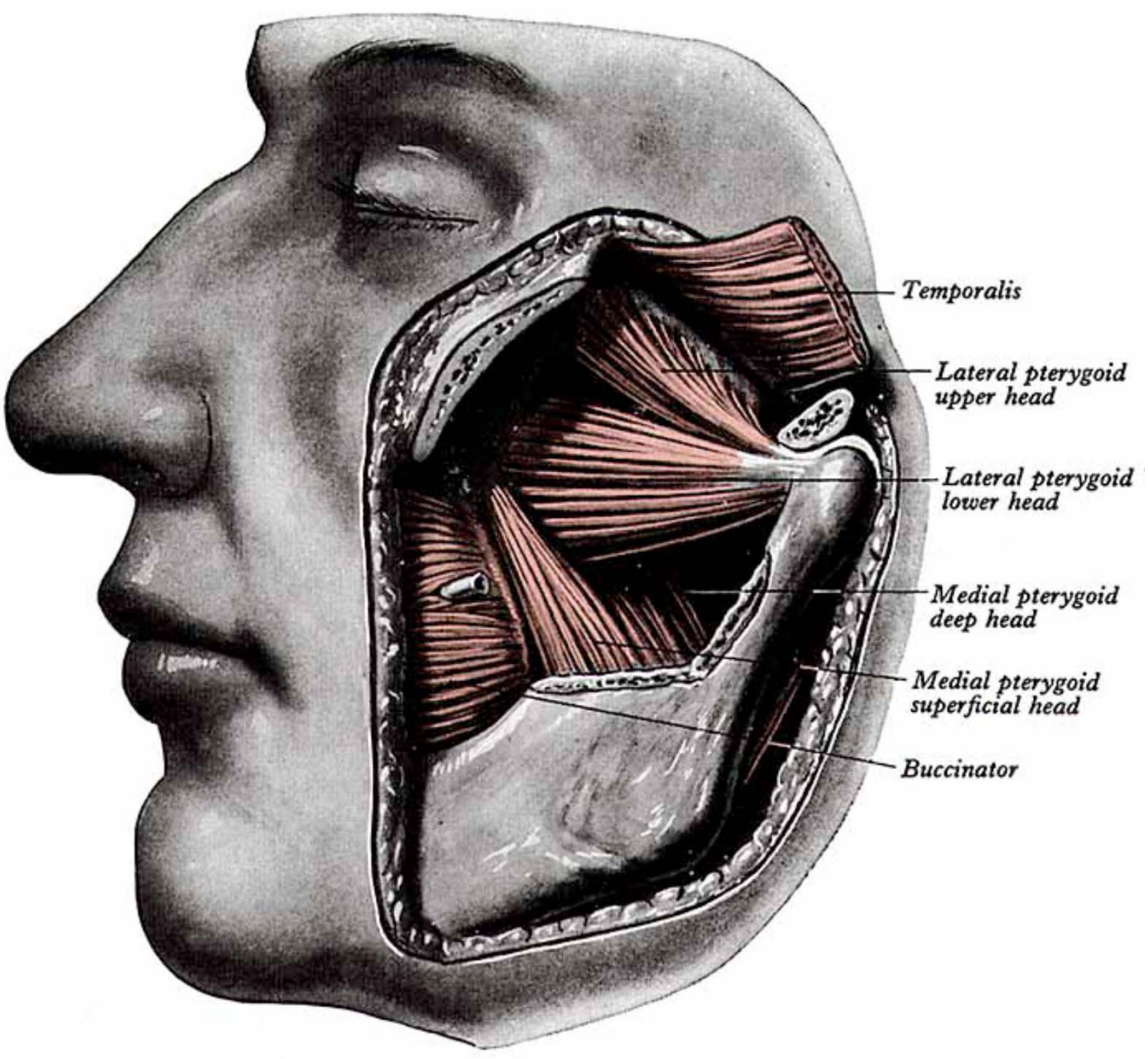



Superior temporal line
Inferior temporal line
Cut temporal fascia
Temporalis muscle
Coronoid process

Temporalis

- Origin: Whole of temporal fossa up to inferior temporal line & temporal fascia.
- Insertion: Medial surface, apex, anterior and posterior borders of coronoid process & to anterior border of mandibular ramus.
- Nerve supply: Deep temporal branches of mandibular nerve.
- Action: Elevation (closure of mouth and approximation of teeth; side to side (grinding) movement; retraction.


Temporal fascia
Temporalis muscle
gomaticotemporal nerve
h of maxillary nerve [V2])
Zygomaticofacial nerve
Deep temporal nerves
Middle temporal artery
Superficial temporal artery
Deep temporal arteries
Mandibular nerve [V3]
External carotid artery
Infratemporal crest
Maxillary artery in infratemporal fossa


Temporalis
Lateral pterygoid upper head
Lateral pterygoid lower head
Medial pterygoid deep head
Medial pterygoid superficial head
Buccinator

Lateral pterygoid

Short thick muscle lying almost horizontally.

- Origin: two heads: upper head from infratemporal surface and crest (of greater wing of sphenoid); lower head from lateral surface lateral pterygoid plate.
- Insertion: Pterygoid fovea on neck of mandible and to capsule and articular disc of TM joint.
- Nerve supply: Nerves to lateral pterygoid from anterior division of mandibular nerve.

Relations:

Superficial: Ramus of mandible

Masseter,

Superficial head of medial pterygoid

Tendon of temporalis

Deep: Deep head of medial pterygoid

Sphenomandibular ligament

Maxillary artery

Middle meningeal artery

Mandibular nerve

Upper border: Deep temporal & masseteric nerves

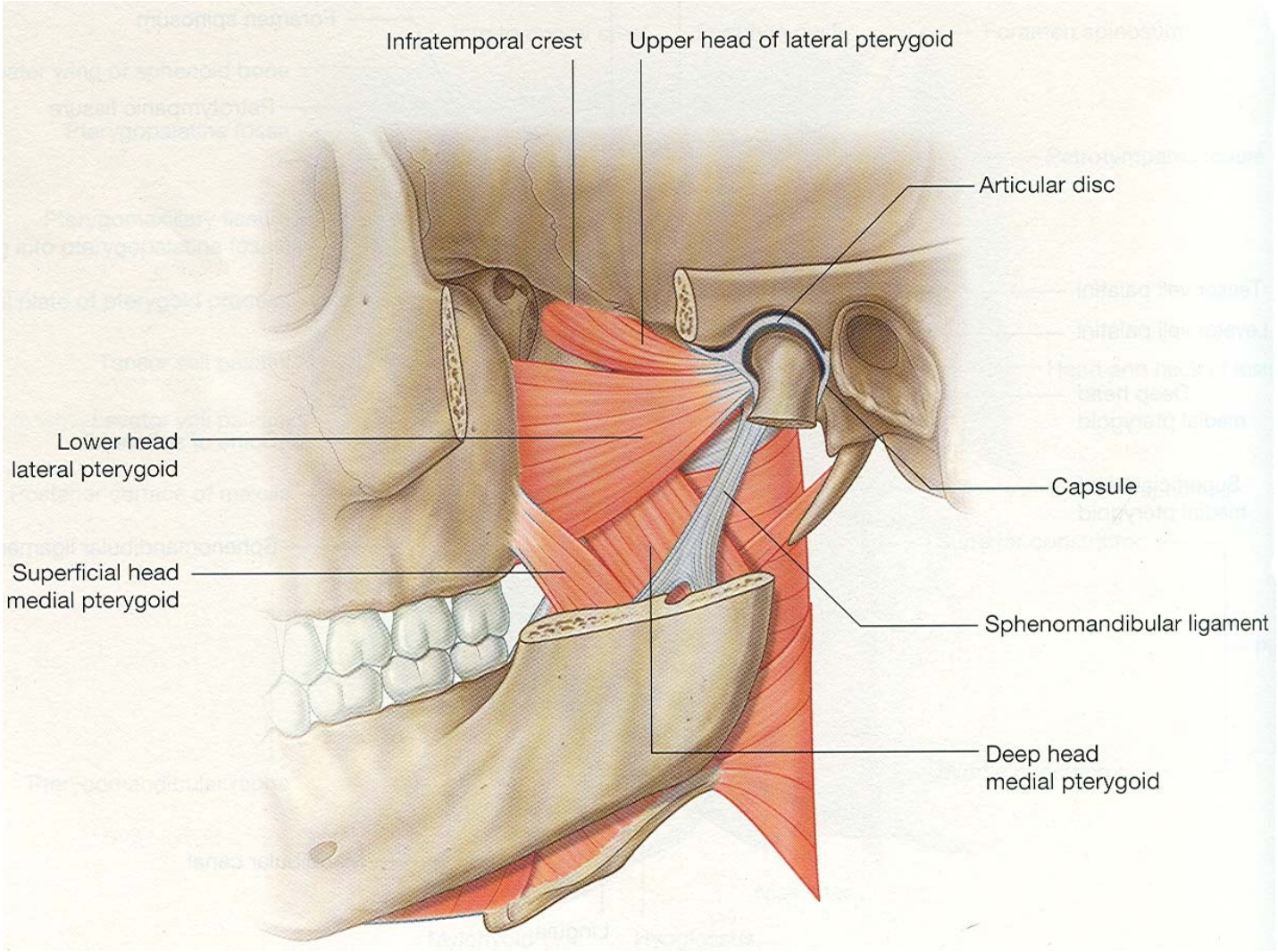
Lower border: Lingual and inferior alveolar nerves

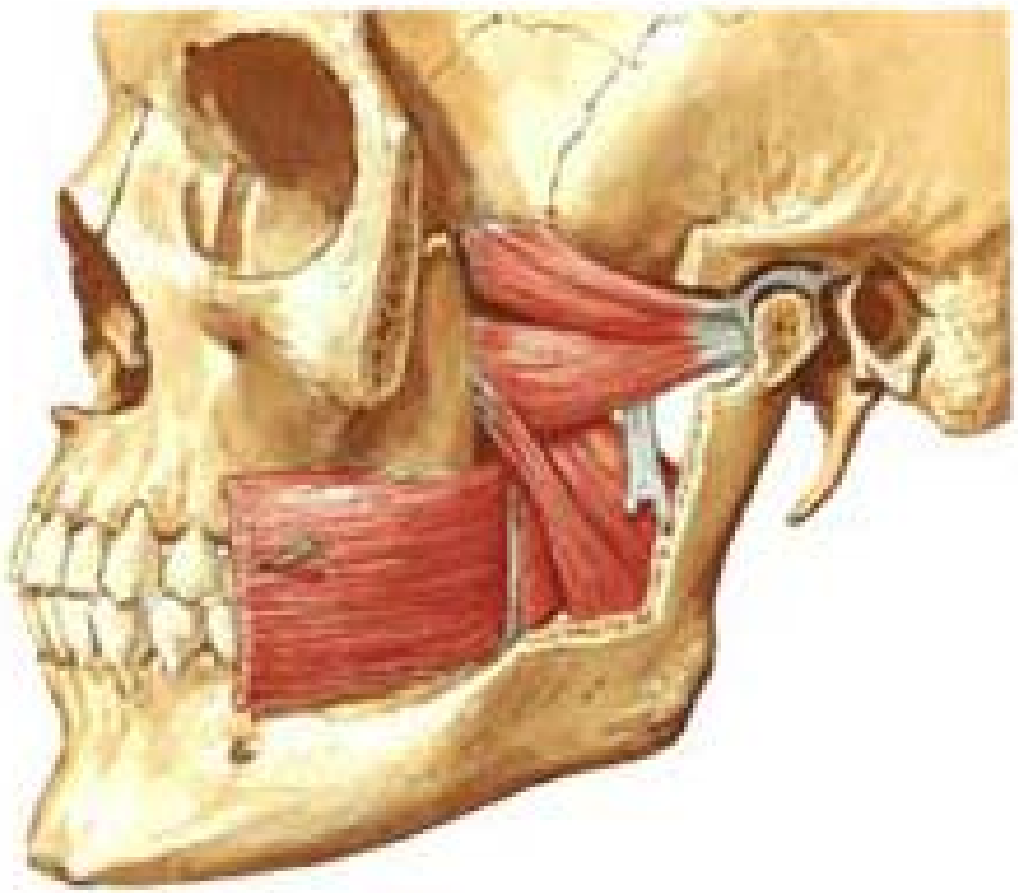
Between two heads of pterygoids:

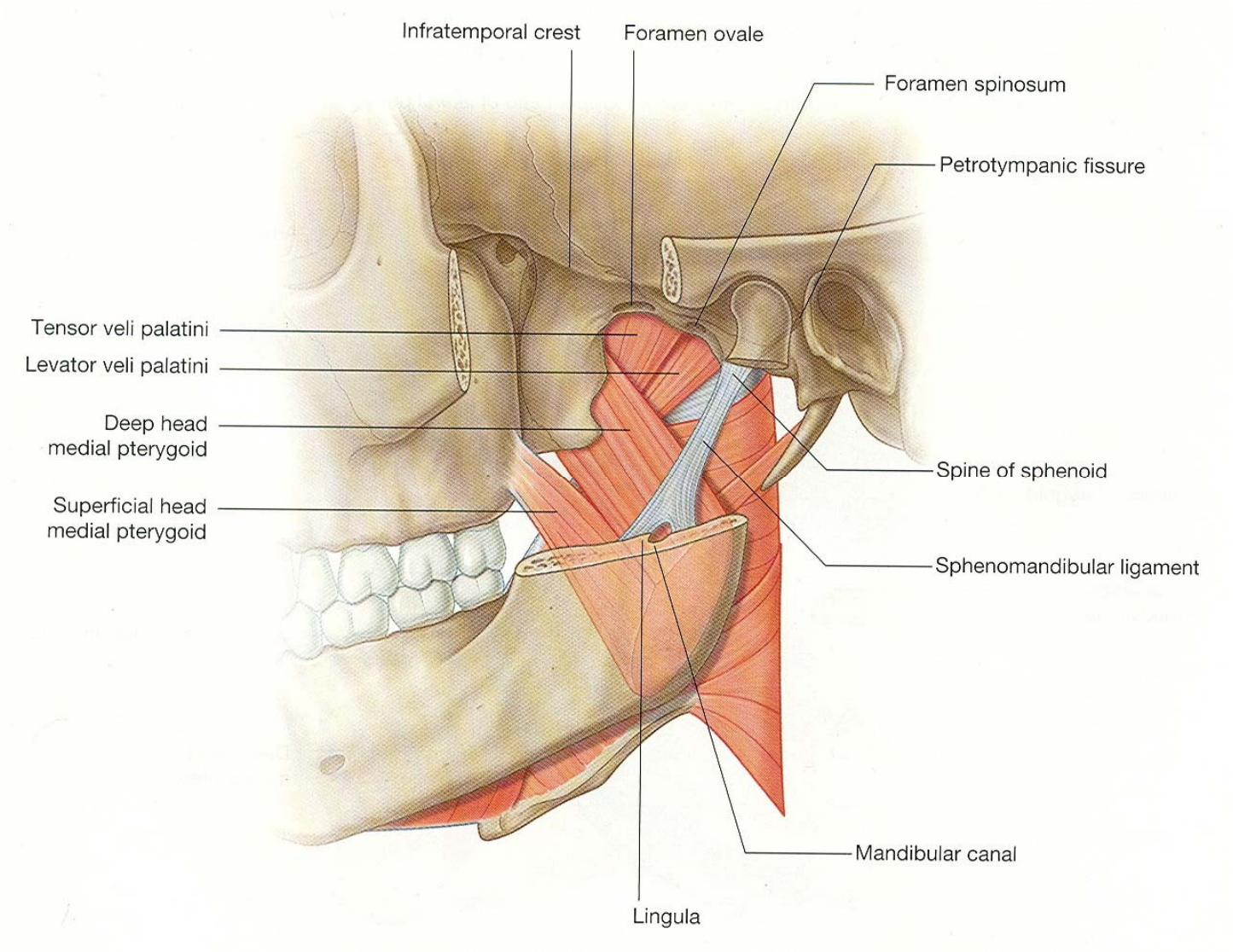
- Buccal nerve
- Maxillary artery
- Pterygoid venous plexus

Actions:

- Little protrusion to assist in opening of jaw, depression along with hyoid muscles
- Grinding (collective action of both pterygoids)


Infratemporal crest
Upper head of lateral pterygoid
Articular disc
Lower head
lateral pterygoid
Capsule
Superficial head
medial pterygoid
Sphenomandibular ligament
Deep head
medial pterygoid




Infratemporal crest
Foramen ovale
Foramen spinosum
Petrotympanic fissure
Tensor veli palatini
Levator veli palatini
Deep head
medial pterygoid
Superficial head
medial pterygoid
Spine of sphenoid
Sphenomandibular ligament
Mandibular canal
Lingula

Medial pterygoid

- Origin: Deep head : Medial surface of lateral pterygoid plate

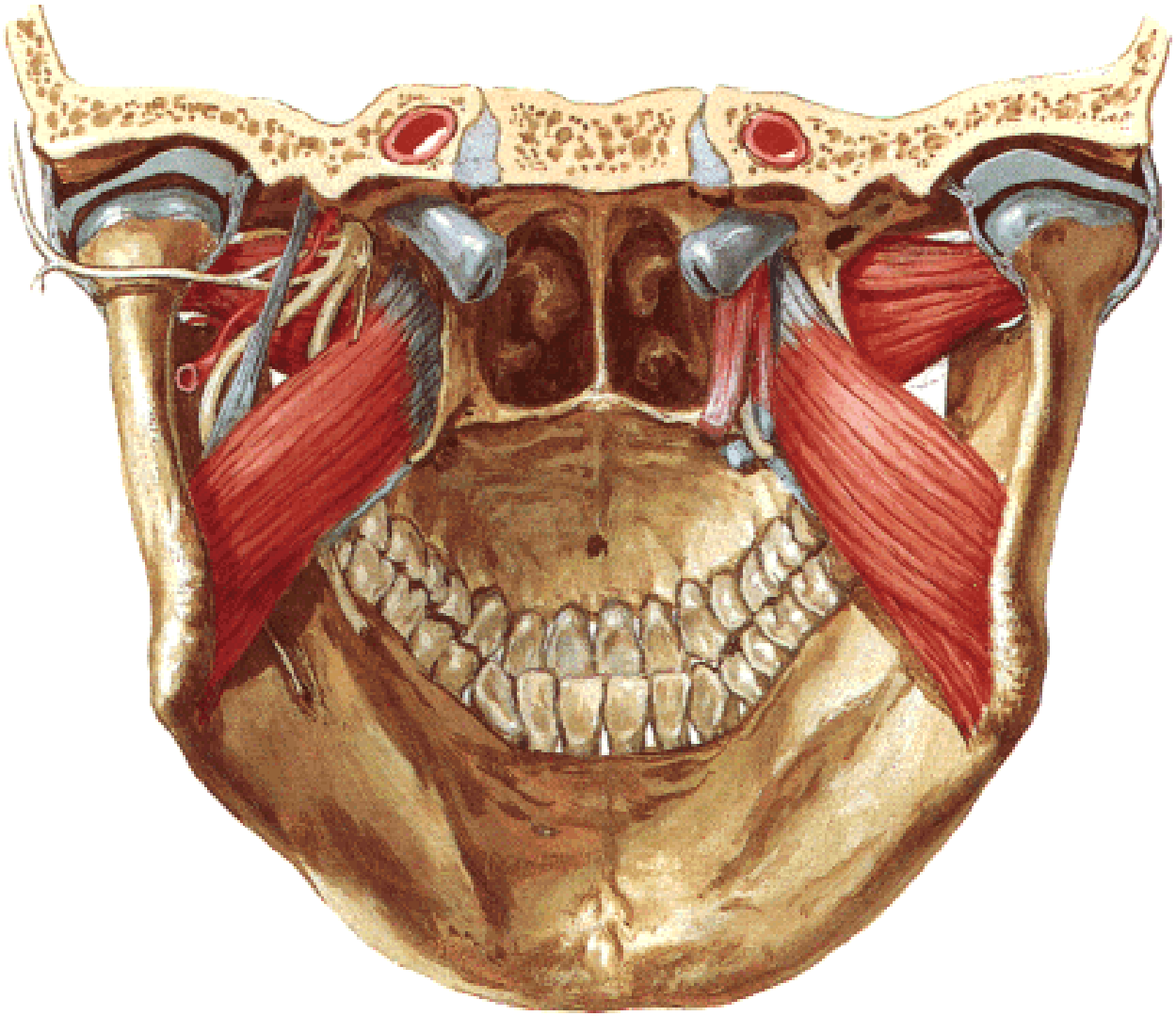
  Superficial head : Maxillary tuberosity

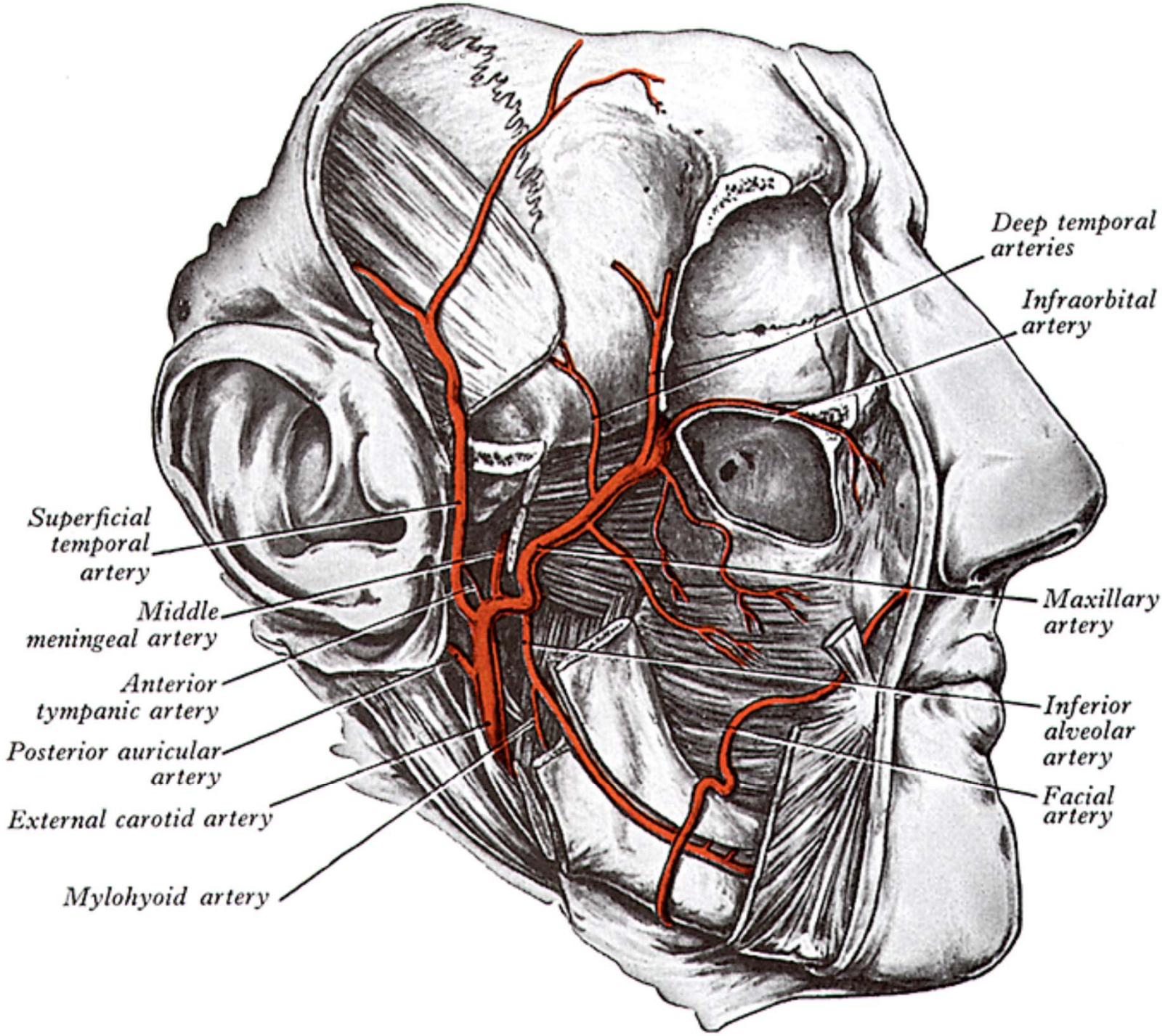
  Pyramidal process of palatine bone
- Insertion :By a strong a tendinous lamina to postero inferior part of medial surface of the ramus and angle of mandible
- Nerve supply :Nerve to medial pterygoid (branch from mandibular nerve

- Relations:

Superficial:	Ramus of mandible
	Lateral pterygoid
	Sphenomandibular ligament
	Maxillary artery
	Inferior alveolar Vs and N
	Lingual nerve
Deep:	Tensor veli palatini
	Superior constrictor of pharynx
	Styloglossus and stylopharyngeus

- Actions: Elevation, protrusion, grinding




Deep temporal arteries
Infraorbital artery
Superficial temporal artery
Middle meningeal artery
Anterior tympanic artery
Posterior auricular artery
External carotid artery
Mylohyoid artery
Maxillary artery
Inferior alveolar artery
Facial artery

Maxillary artery

Terminal branch of external carotid artery

- Course: Origin behind neck of mandible

  Embedded in parotid gland

  Crosses infratemporal fossa to enter pterygopalatine fossa

  Divided into three parts

- Branches : **First part** (mandibular)

  Deep auricular, anterior tympanic, middle meningeal, accessory meningeal, inferior alveolar (all enter bone)

  Second part (pterygoid)

  Muscular – deep temporal, pterygoid, masseteric and buccal)

Temporomandibular joint

Synovial, complex,bicondylar

•Above: Temporal articular surface & anterior part of mandibular fossa.

•Below: Mandibular condyle

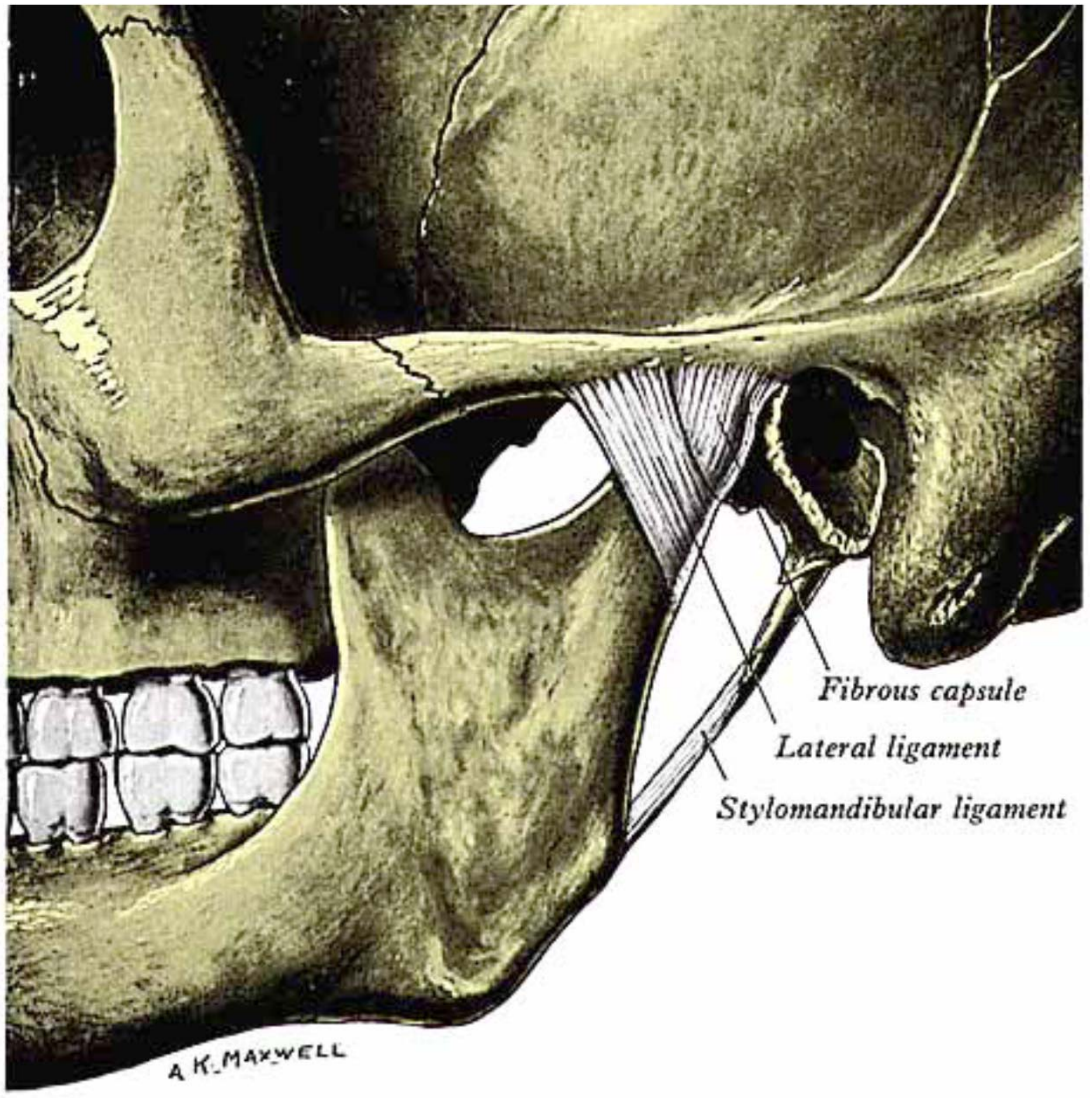
Articular surfaces are covered with fibrocartilage.

•Articular disc: Oval plate of fibrous tissue, like a peaked cap.

Completely divides the cavity
upper surface- concavo-convex
lower surface-concave
blends with the fibrous capsule

anteromedially to the tendon of lateral pterygoid

medially and laterally short strong bands pass to condylar poles


Fibrous capsule
Lateral ligament
Stylomandibular ligament
A K. MAXWELL

- Fibrous capsule : Encloses the joint and is attached to

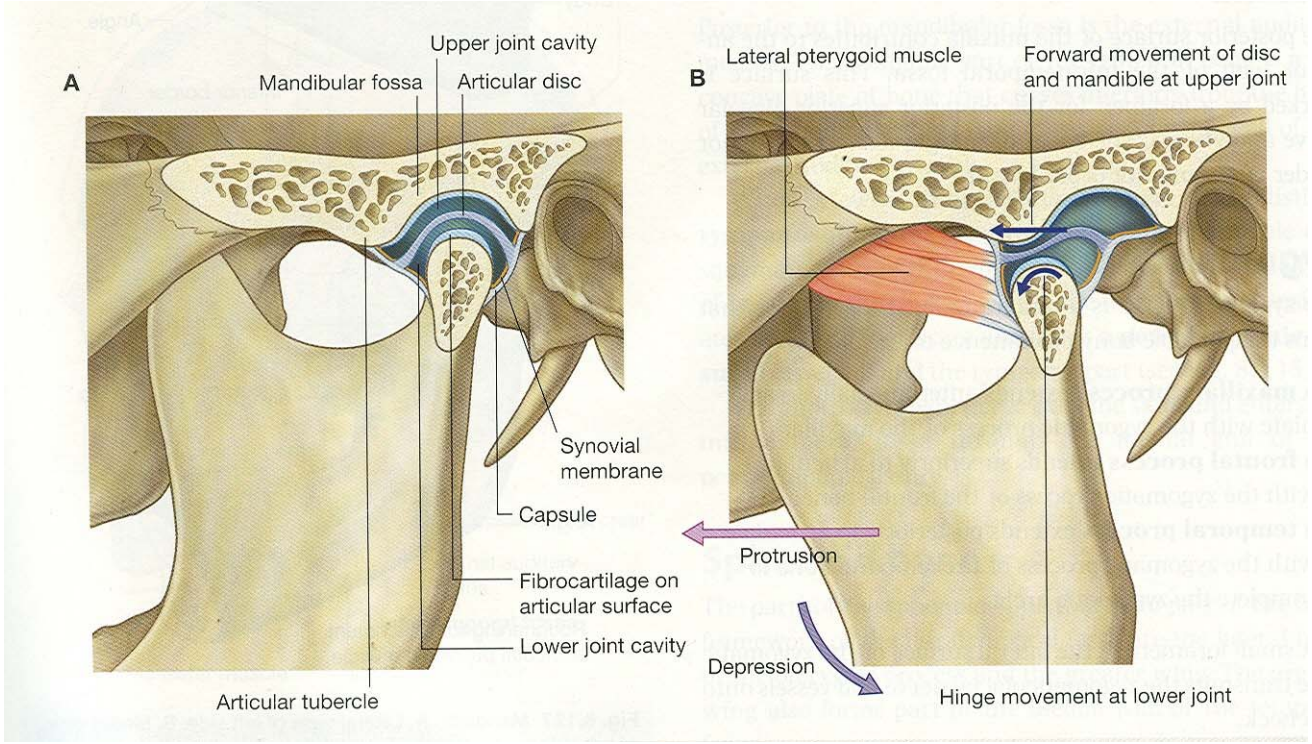
  above along the anterior margin of articular tubercle, posterior to squamo-tympanic fissure, laterally and medially along the margins of articular fossa

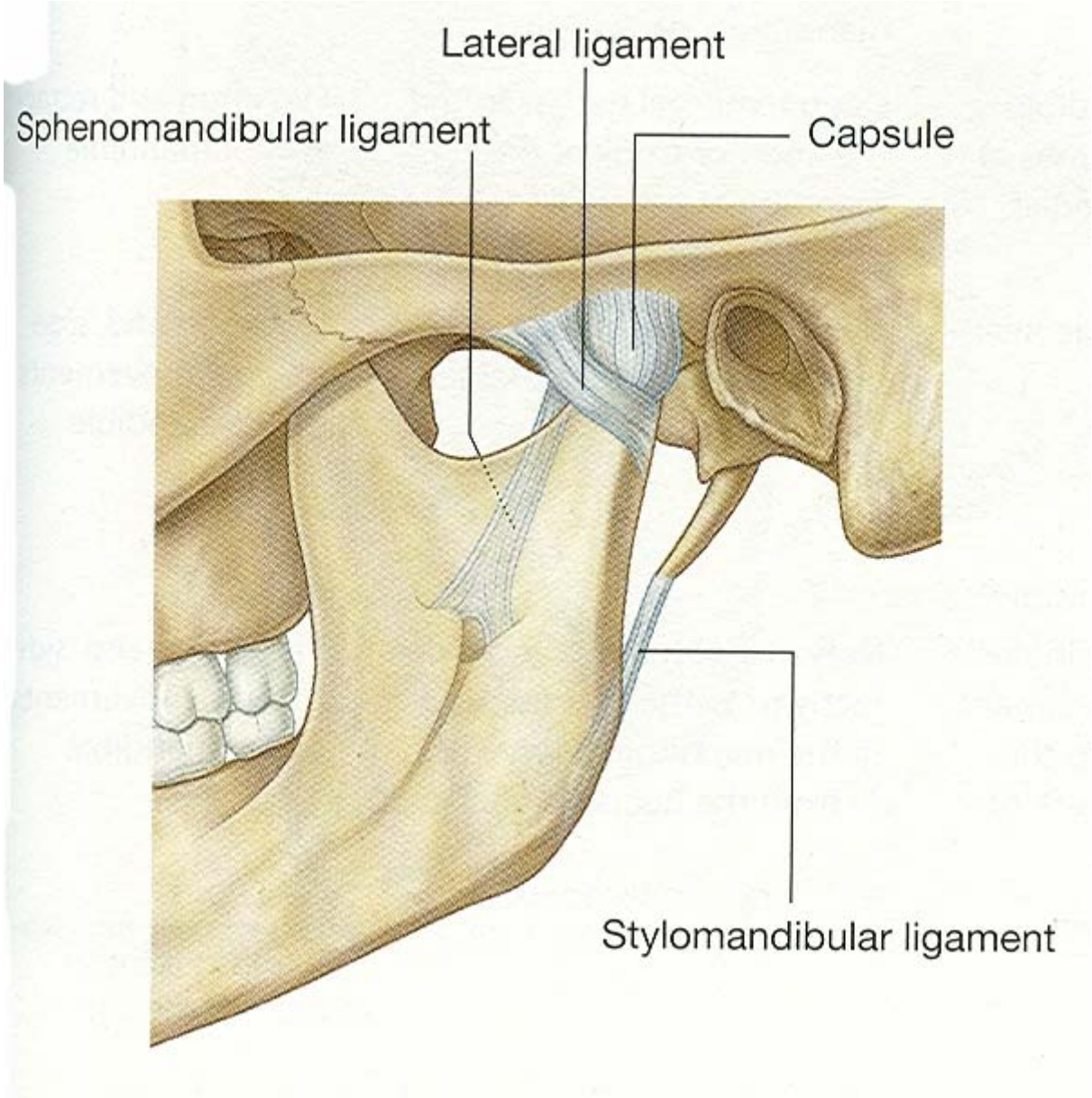
  Below around the upper part of the neck of mandible

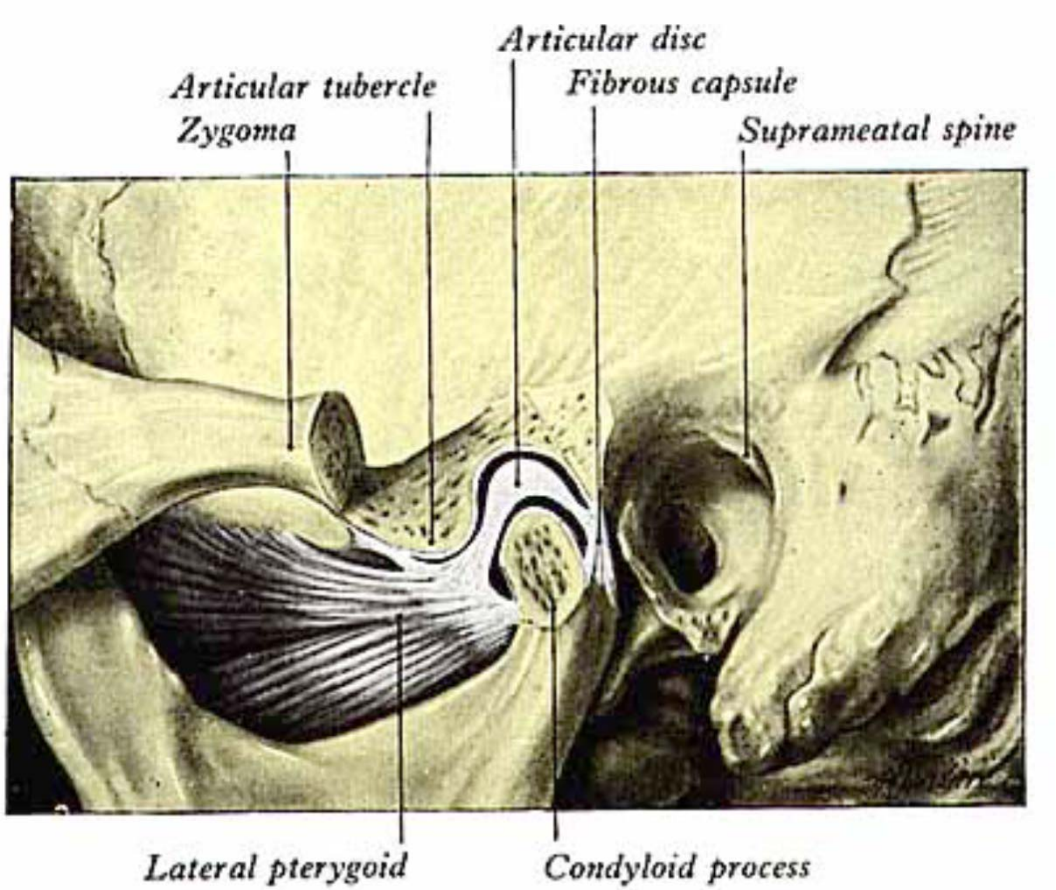
  Loose above the disc but taut below it
- Synovial membrane : Lines the capsule (does not cover disc)

  Lines non articular surfaces of both superior and inferior synovial compartments

  Reflected along the mandible’s neck and lateral pterygoid


A
Upper joint cavity
Mandibular fossa
Articular disc
Synovial membrane
Capsule
Fibrocartilage on articular surface
Lower joint cavity
Articular tubercle
B
Lateral pterygoid muscle
Forward movement of disc and mandible at upper joint
Protrusion
Depression
Hinge movement at lower joint


Lateral ligament
Sphenomandibular ligament
Capsule
Stylomandibular ligament

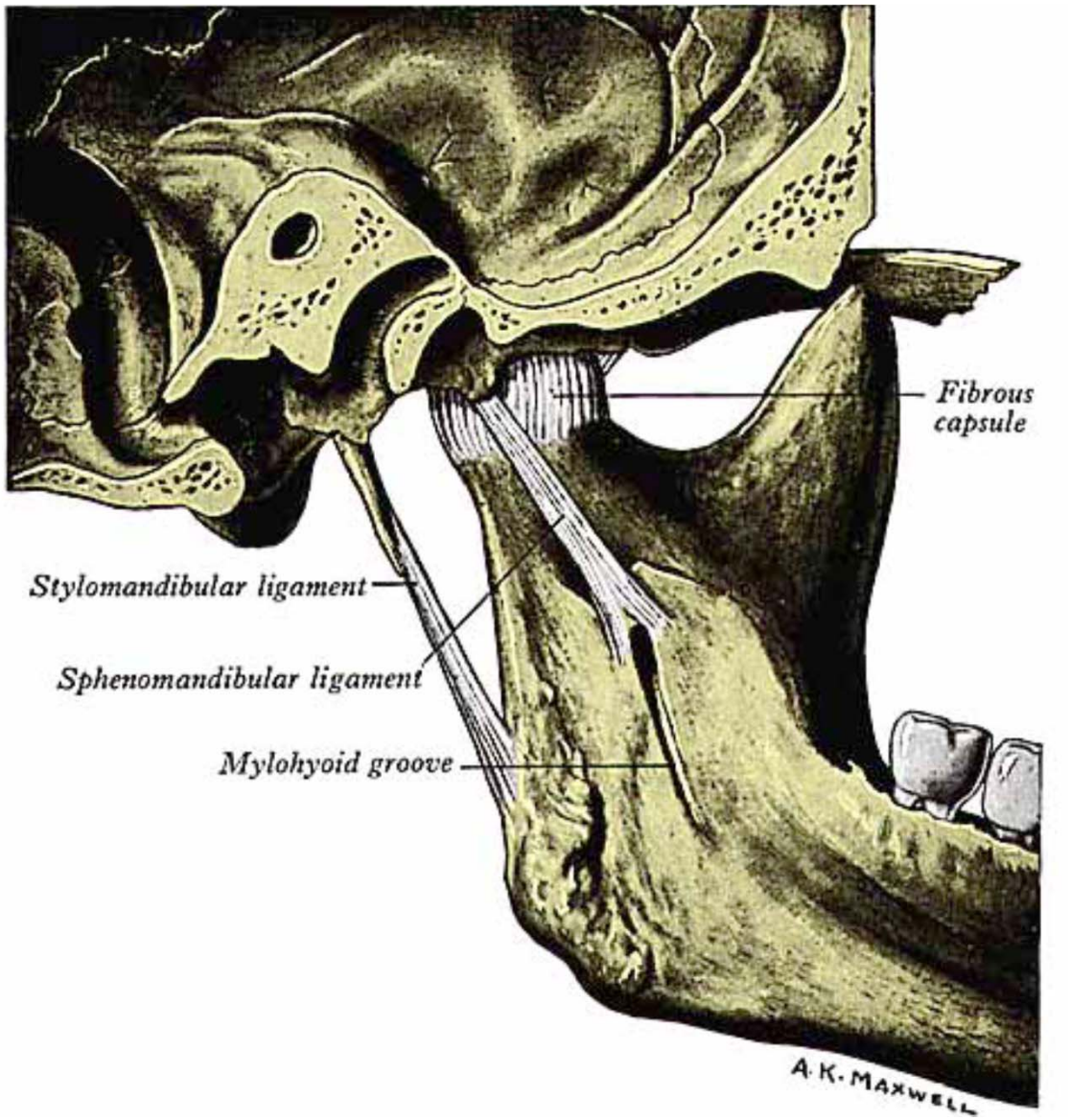

Articular disc
Articular tubercle
Fibrous capsule
Zygoma
Suprameatal spine
Lateral pterygoid
Condyloid process

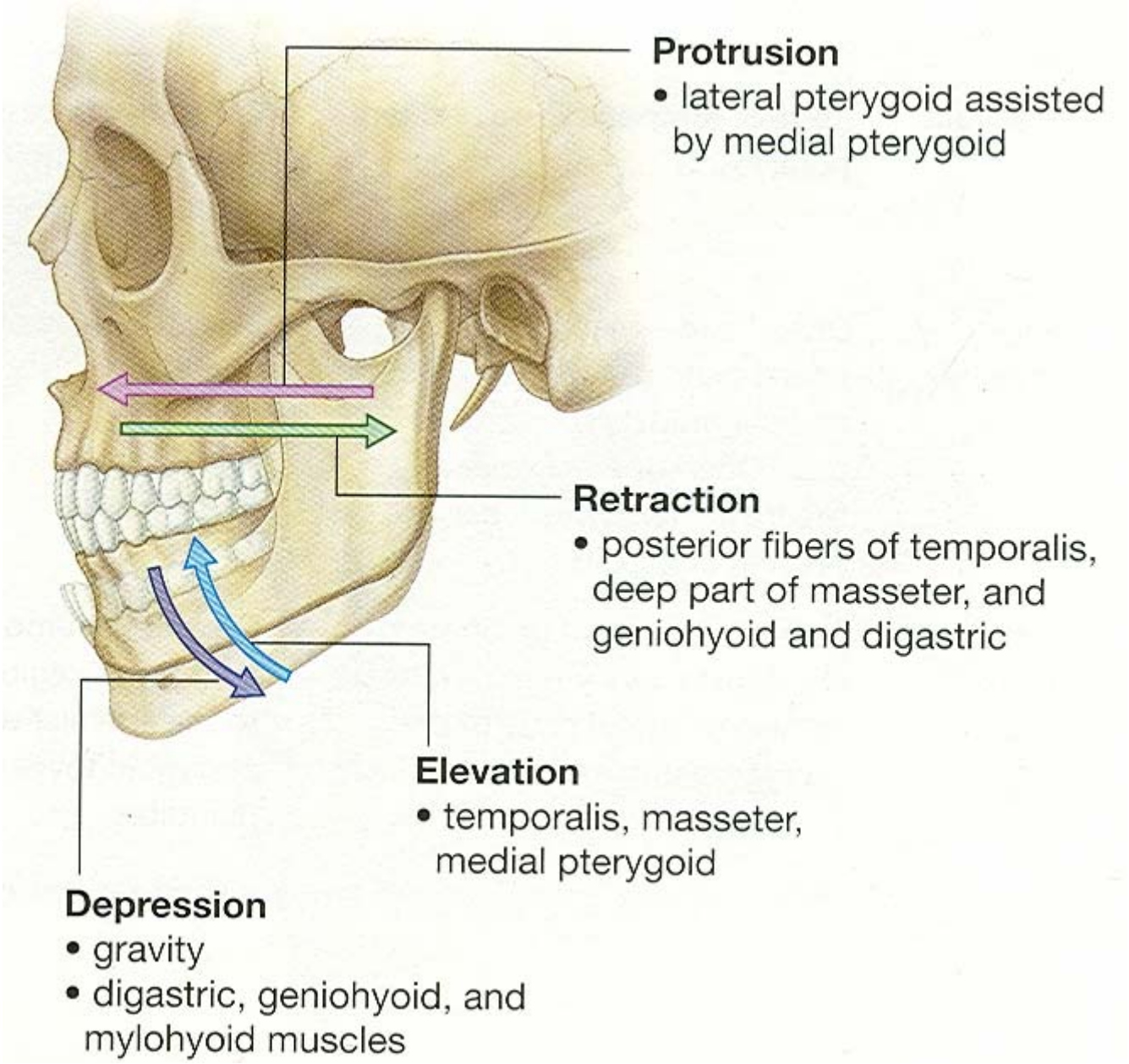
Extra capsular ligaments

- Lateral ligament: Close to the joint runs diagonally backward from the margins of articular tubercle to the neck of the mandible.

  Fibers slope downwards and backwards deep to parotid.

  Prevents posterior dislocation
- Sphenomandibular ligament : Medial to TM joint runs from the spine of the sphenoid bone to the lingula on the medial side of ramus of mandible.
- Stylomandibular ligament : Passes from the styloid process to the posterior margin and angle of mandible.


Fibrous capsule
Stylomandibular ligament
Sphenomandibular ligament
Mylohyoid groove
A. K. MAXWELL


Protrusion
• lateral pterygoid assisted by medial pterygoid
Retraction
• posterior fibers of temporalis, deep part of masseter, and geniohyoid and digastric
Elevation
• temporalis, masseter, medial pterygoid
Depression
• gravity
• digastric, geniohyoid, and mylohyoid muscles

- Blood Supply: Superficial temporal artery
  Maxillary artery
- Nerve supply: Auriculotemporal nerve
  Nerve to masseter
- Movements : Depression / Elevation (lower part)
  Protraction / Retraction (upper part)
  Rotation (gliding, spin, roll)

  Position of rest

  Occlusal position
- Depression: generated by digastric, geniohyoid & mylohyoid of both sides

  assisted by gravity and lateral pterygoid
- Elevation: Powerful movement generated by temporalis, masseter & medial pterygoid.
- Protraction: Forward translocation of head of mandible on to the articular tubercle; mainly achieved by lateral & medial pterygoids.
- Retraction: Backward translocation of head of mandible in to the mandibular fossa; mainly achieved by posterior and deep fibres of temporalis and masseter.

- **Opening of mouth** : Rotation of mandibular condyles on common horizontal axis

  Forwards and downwards gliding

  Contraction of lateral pterygoid

  At full opening condyles articulate with most anterior part of disc and posterior attachment of disc to the temporal bone is fully stretched

Opening involves both depression and protrusion, protrusion allows greater depression by preventing backward movements.

- **Closure of mouth** : Reverse movements

  Head glides backwards and hinges on its disc

  Relaxation of lateral pterygoid – allows disc to glide back up to mandibular fossa.

Clinical Anatomy

- Dislocation: excessive contraction of lateral pterygoid during yawning or a blow to the chin when the mouth is open. (reduction)
- Fracture
- Arthritis: degenerative changes, may result in dental occlusion and joint clicking (crepitus-delayed anterior disc movement)