

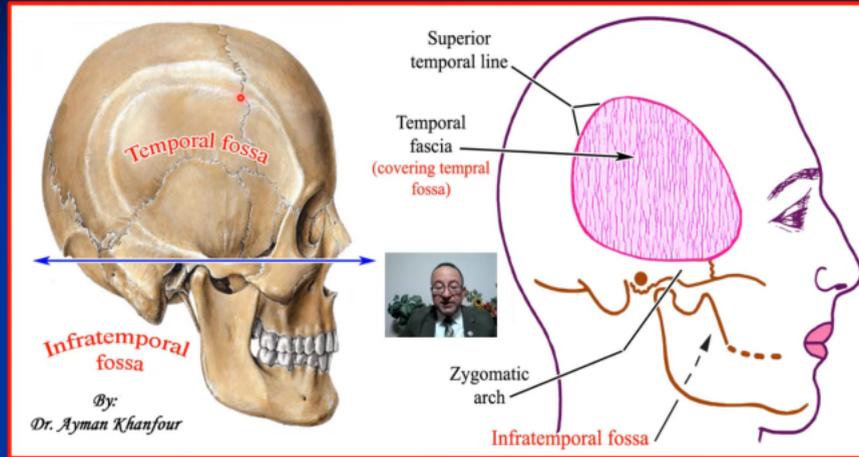
Temporal and Infratemporal Regions

(Part I)

- ✓ Definition
- ✓ Boundaries
- ✓ Contents
 - Muscles of mastication
 - Mandibular nerve
 - Short questions

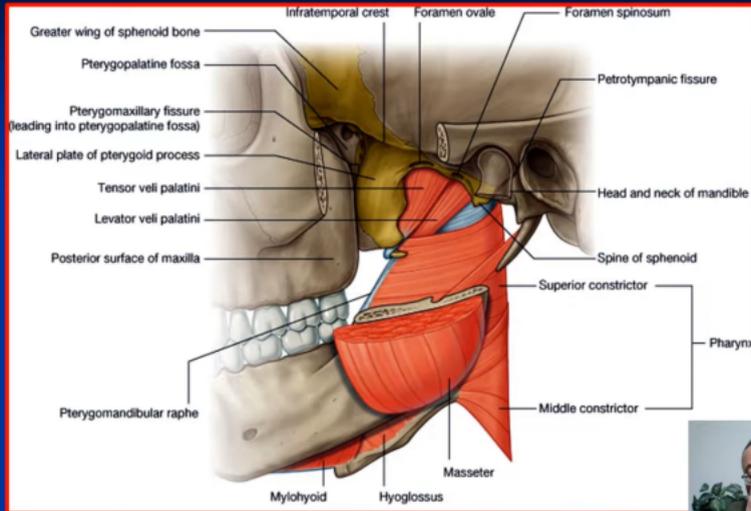


Definition



- The *temporal fossa* is the space that lies **above** the level of the *zygomatic arch*, while the *infratemporal fossa* lies **below** it.
- The temporal and infratemporal fossae are interconnected spaces on the lateral side of the head.

Boundaries of Infratemporal Fossa



- ❑ Lateral ----- Ramus of the mandible.
- ❑ Medial ----- Lateral wall of pharynx and lateral pterygoid plate.

Contents of Infratemporal Fossa

I. Muscles

- Pterygoid muscles (medial and lateral pterygoid)

II. Nerves

- Mandibular nerve.
- Maxillary nerve (part of its course).
- Chorda tympani.

III. Ganglia

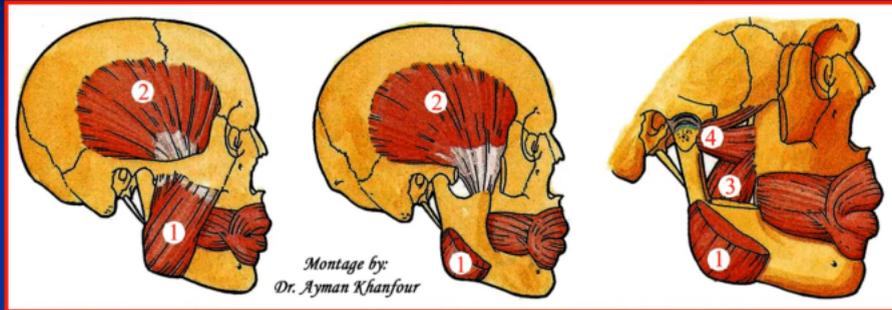
- Otic ganglion.

IV. Vessels

- Maxillary artery (1st and 2nd parts).
- Pterygoid plexus of veins.



❖ What are the main muscles mastication ?



□ They are **4** muscles on each side of the skull:

1. Masseter
2. Temporalis
3. Medial pterygoid
4. Lateral pterygoid



Common Rules for the Main Muscles of Mastication

- ❖ They take origin from skull.
- ❖ They are inserted into the mandible.
- ❖ They act on the temporomandibular joint.
- ❖ Their nerve supply is the mandibular nerve.



❖ What are the movements of the mandible?



I. Elevation and depression



(Elevation)



(Depression)



II. Protraction and retraction



(Protrusion)



(Retraction)



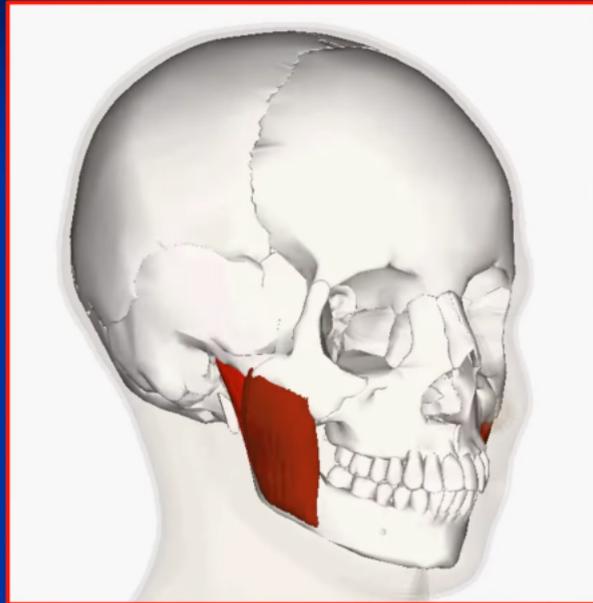
III. Side to side movements



(Side to side movement)



1. Masseter Muscle

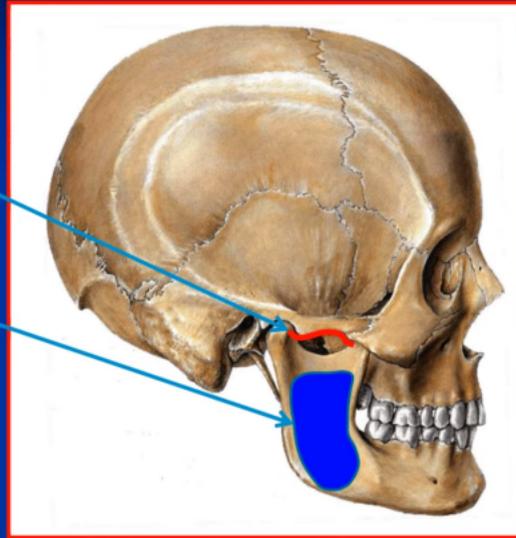


➤ Origin:

From lower border &
inner aspect of
zygomatic arch

➤ Insertion:

Outer surface of
ramus of mandible



➤ Actions:

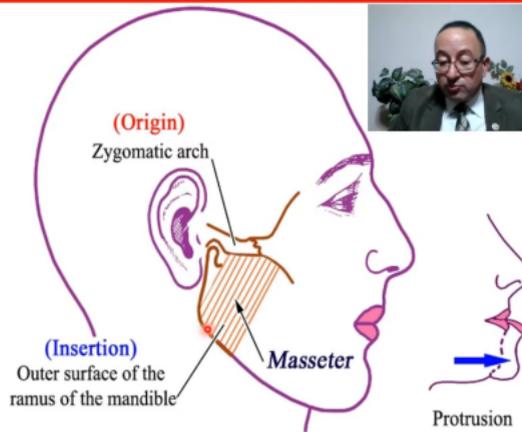
N.B:

- The pulsation of the facial artery can be felt at the antero-inferior angle of masseter against the lower border of the mandible

By:
*Dr. Ayman
Khanfour*

(Actions)

- Elevation.
- Protrusion.



1. Elevation of the mandible (antigravity muscle).
2. Protrusion of the mandible (by the superficial oblique fibers).



(Elevation)



(Temporomandibular joint)
(Actions of masseter & Animation)





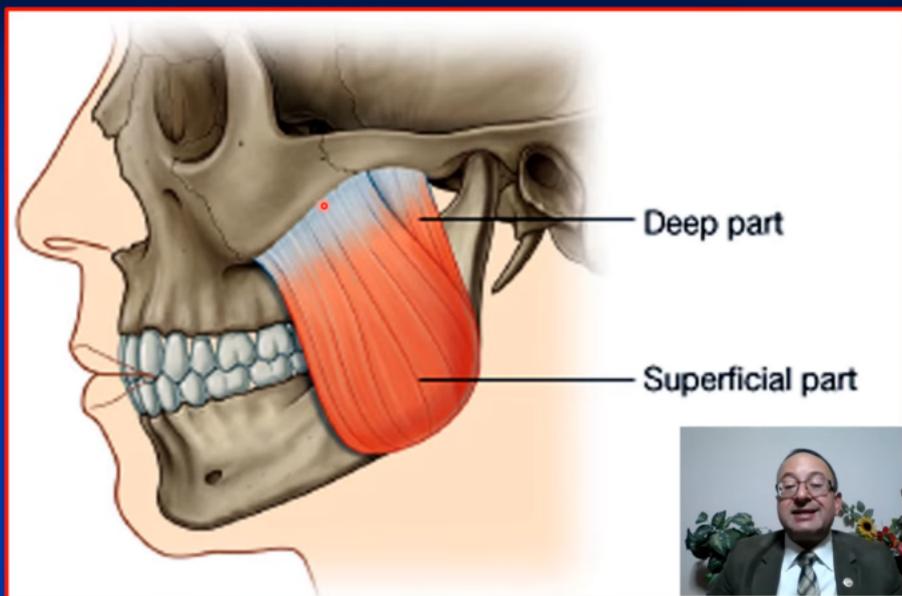
(Elevation)



(Protrusion)

(Temporomandibular joint)
(Actions of masseter & Animation)





(Masseter muscle)

2. Temporalis Muscle

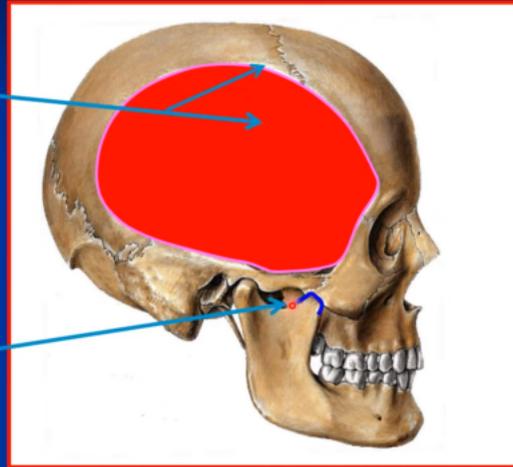


➤ **Origin:**

Temporal fossa, temporal
fascia, inferior temporal line
(3T)

➤ **Insertion:**

Coronoid process
(tip, margins & inner surface)



➤ Actions:

By:

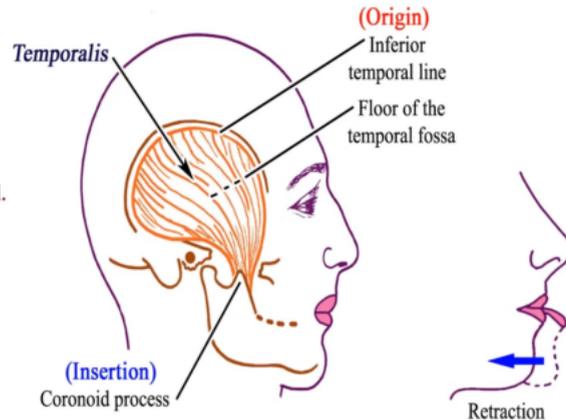
Dr. Ayman Khanfour

N.B:

- The anterior fibers are vertical.
- The middle fibers are oblique.
- The posterior fibers are horizontal.

(Actions)

- Elevation.
- Retraction.



1. Elevation of the mandible (by the anterior fibers) (antigravity muscle).
2. Retraction of the protruded mandible (by the posterior fibers).





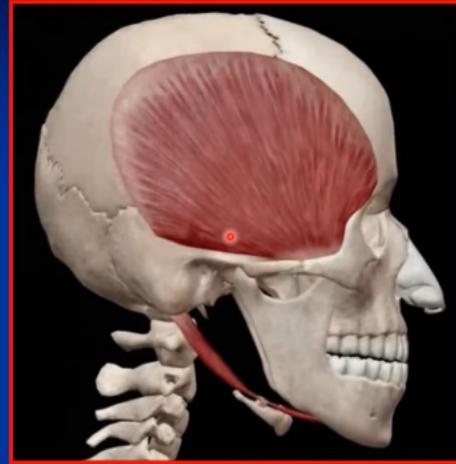
(Temporomandibular joint)
(Actions of temporalis & Animation)





(Temporomandibular joint)
(Actions of temporalis & Animation)

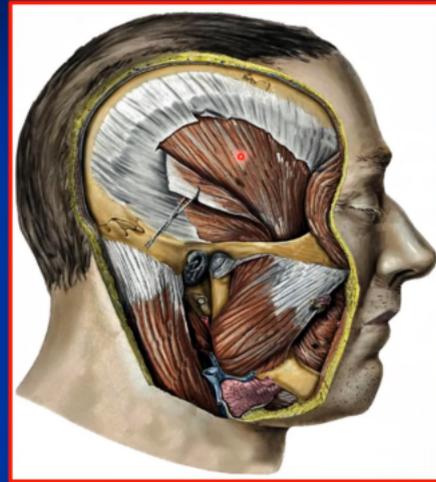
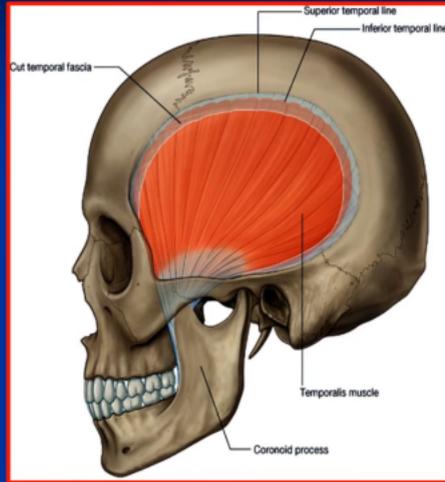




(Elevation)

(Temporomandibular joint)
(Actions of temporalis & Animation)

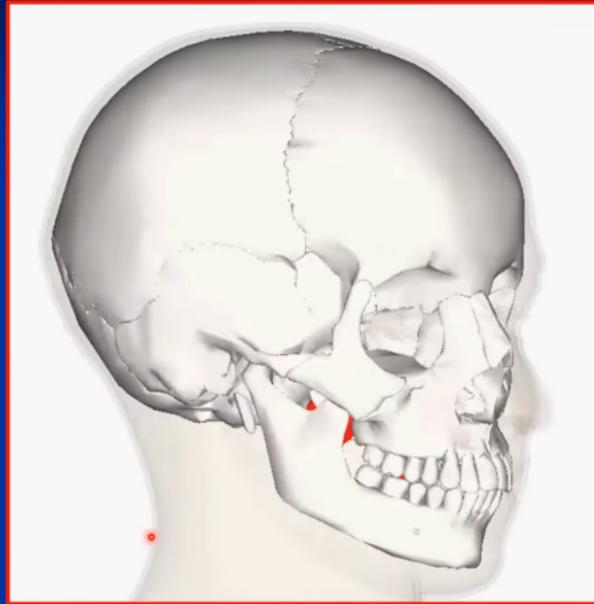




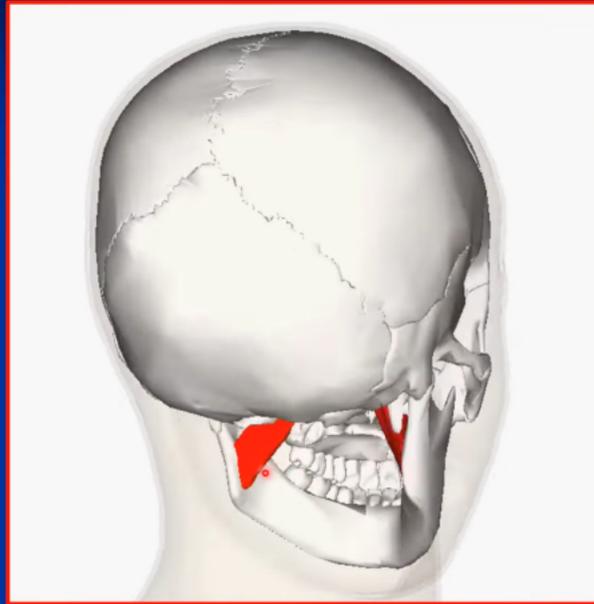
(Temporalis muscle)



3. Medial Pterygoid Muscle



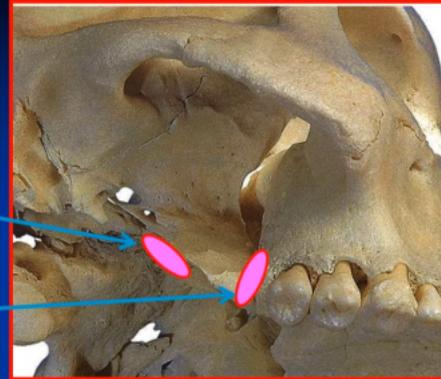
3. Medial Pterygoid Muscle



➤ **Origin:**

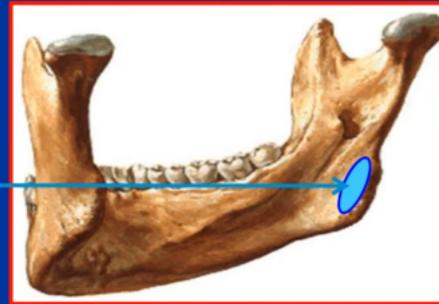
Medial surface of
medial pterygoid plate
(Deep head)

Tuberosity of the
maxilla
(Superficial head)

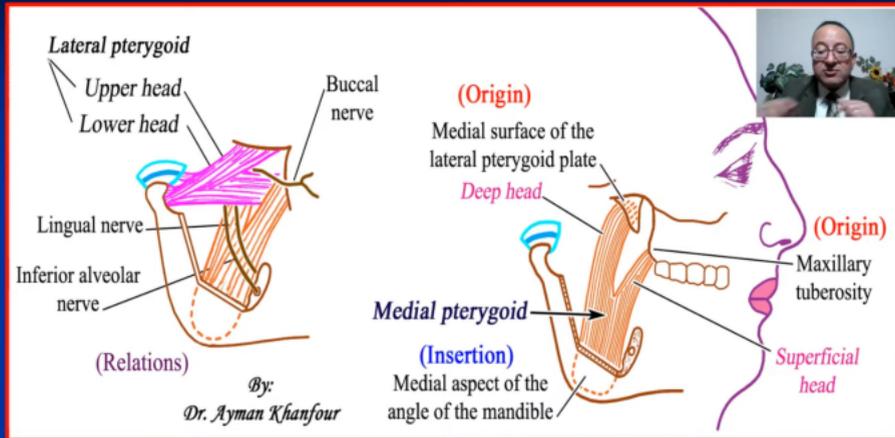


➤ **Insertion:**

Medial surface of the
ramus above the angle



➤ Actions:



1. Elevation of mandible.
2. Protrusion of mandible.
3. Deviation to one side (Alternate contraction of both sides leads to side to side movement).



(Protrusion)

(Acting on both sides)



(Elevation)



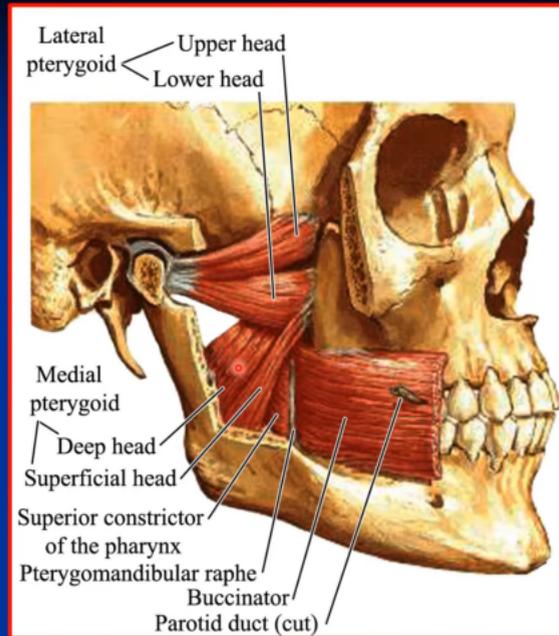
(Deviation to
other side)

(Acting on
one side)



(Alternate
contraction of
both sides)

(Actions of medial pterygoid & Animation)



(Medial and lateral pterygoid muscles)

4. Lateral Pterygoid Muscle

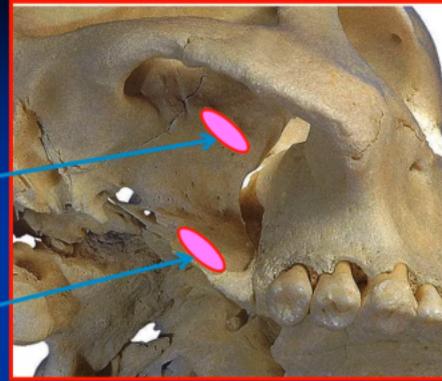


➤ Origin:

Infratemporal crest
(Upper head)

Lateral surface of
lateral pterygoid plate
(Lower head)

Rule (4 L)

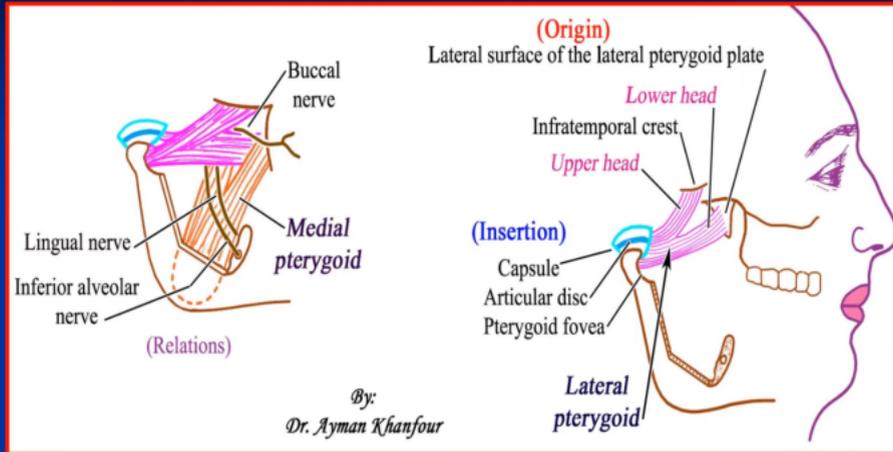


➤ Insertion:

Pterygoid fovea



➤ Actions:



1. Depression of mandible.
2. Protrusion of the mandible.
3. Deviation to one side (Alternate contraction of both sides leads to side to side movement).



(Protrusion)

(Acting on both sides)



(Opening of mouth)



**(Deviation to
side other)**

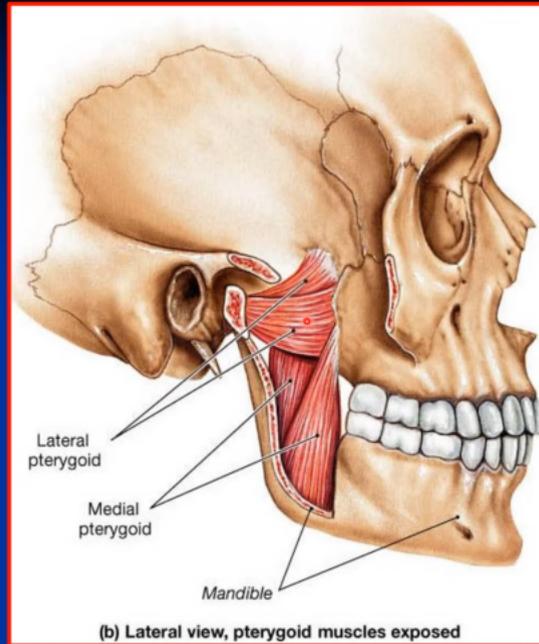
**(Acting on
one side)**



**(Side to side
movement)**

**(Alternate
contraction of
both sides)**

(Actions of lateral pterygoid & Animation)



(Medial and lateral pterygoid muscles)

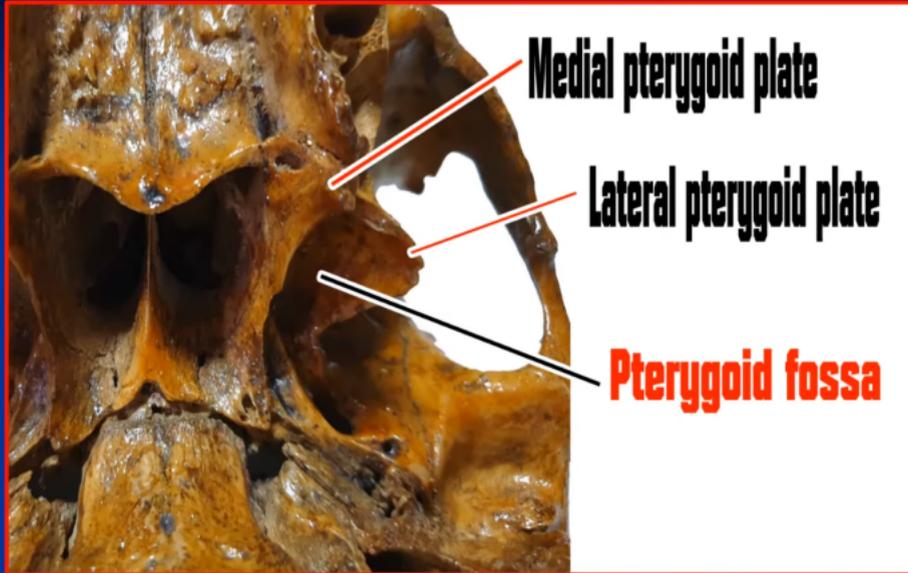


Pterygoid Muscles



(Origin of pterygoid muscles - Animation)

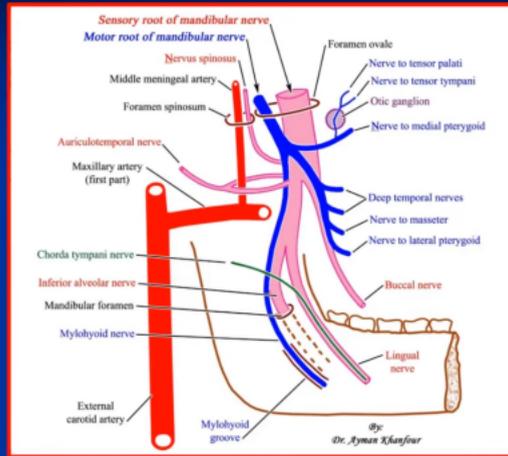




(Origin of pterygoid muscles - Animation)



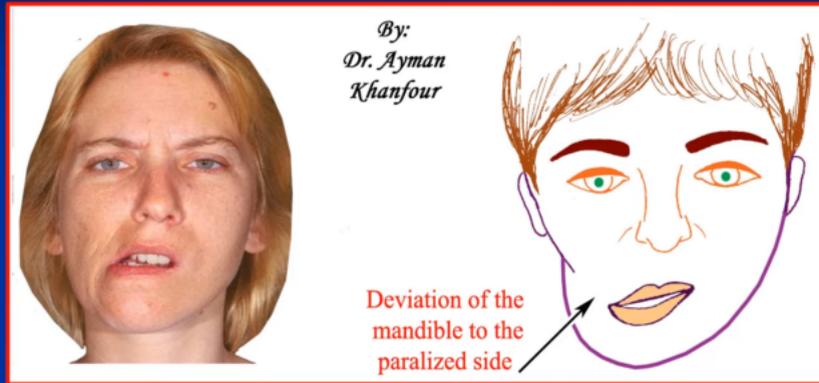
Nerve Supply of Muscles of Mastication



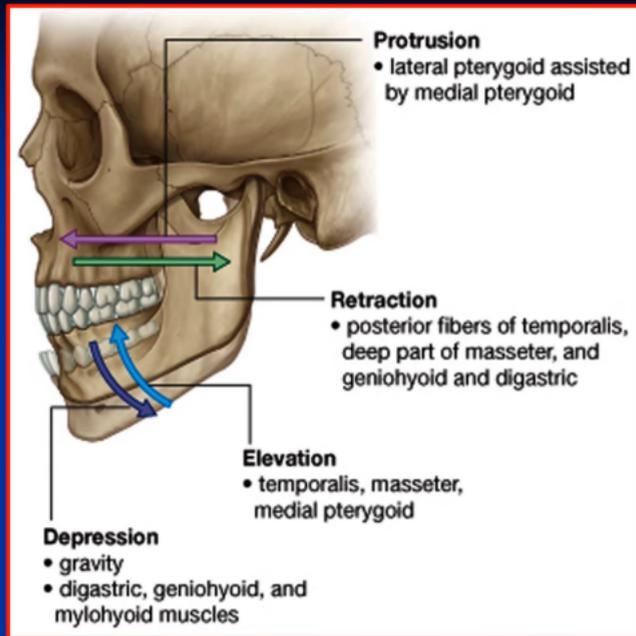
- All the muscles are supplied by the anterior division of the mandibular nerve **EXCEPT medial pterygoid** which is supplied by the **main trunk of the mandibular nerve**.

Applied Anatomy

➤ Injury of mandibular nerve:

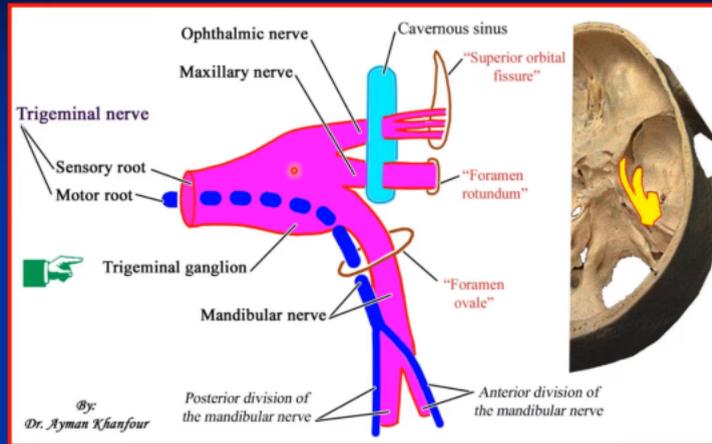


- ❑ Injury of the mandibular nerve leads to paralysis of the muscles of the mastication.
- ❑ This paralysis is manifested by deviation of the mandible to the paralyzed side.

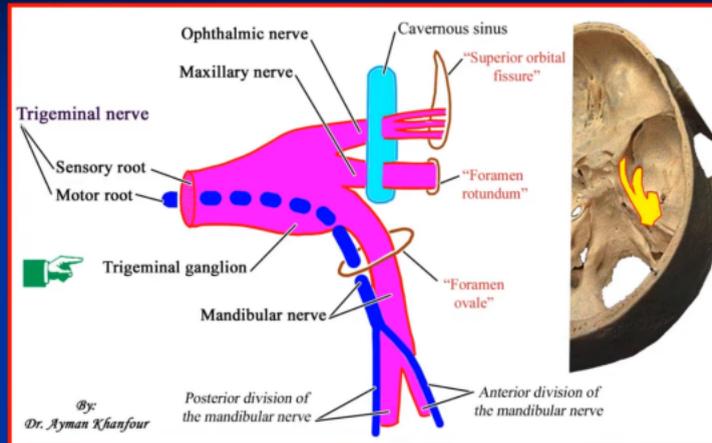


(Actions of the muscles of mastication)

Origin



Origin



- ❑ It is the largest division of the trigeminal nerve.
- ❑ It is a mixed nerve which is formed of two roots: ✌
 1. **Sensory root:** Larger (arises from the trigeminal ganglion).
 2. **Motor root:** Smaller (arises from the trigeminal motor nucleus in the pons).

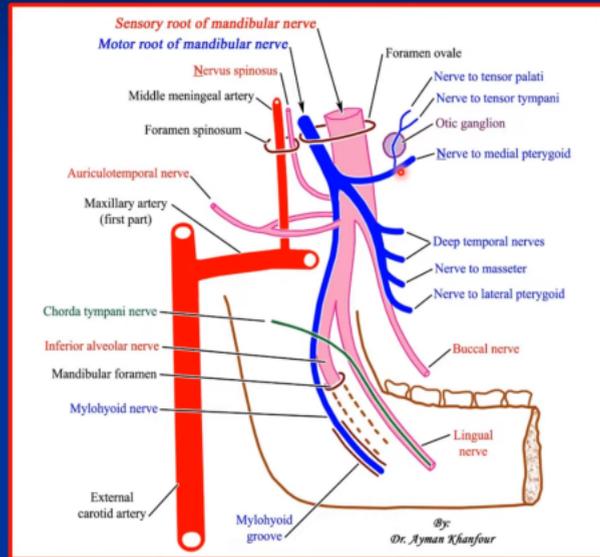


Branches

A. Branches from the trunk: (1 Sensory + 1 Motor = 2N)

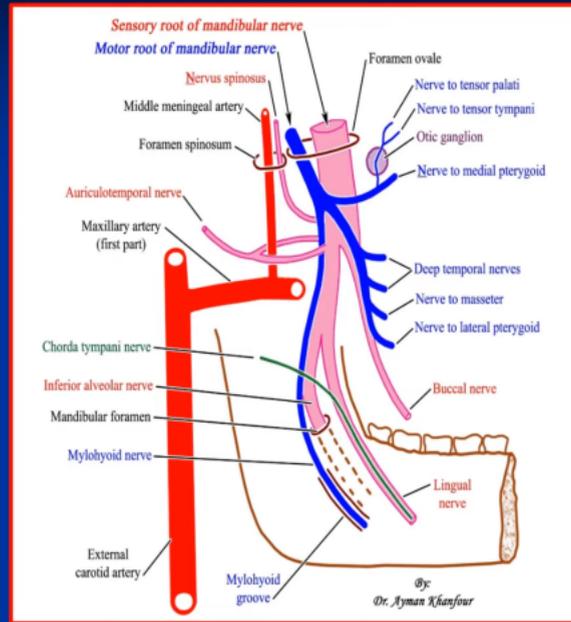
1. Nervus spinosus
(sensory) 🙅

2. Nerve to medial pterygoid
(motor) 🙅



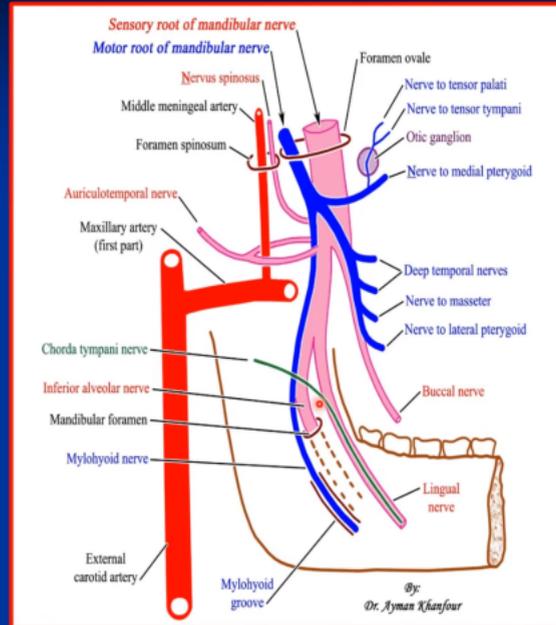
B. Branches from the anterior division: (3 Motor + 1 Sensory)

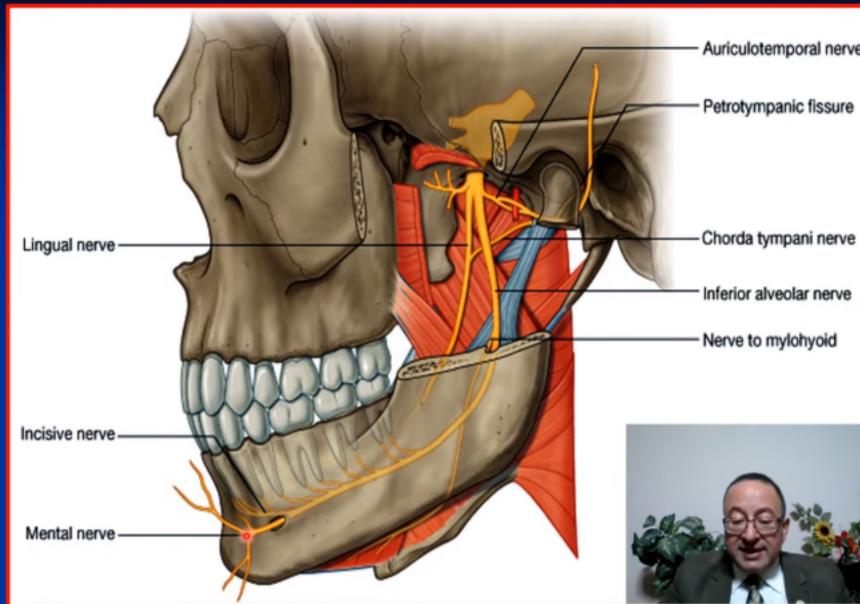
1. Deep temporal nerves
2. Nerve to masseter
3. Nerve to lateral pterygoid
4. Buccal nerve



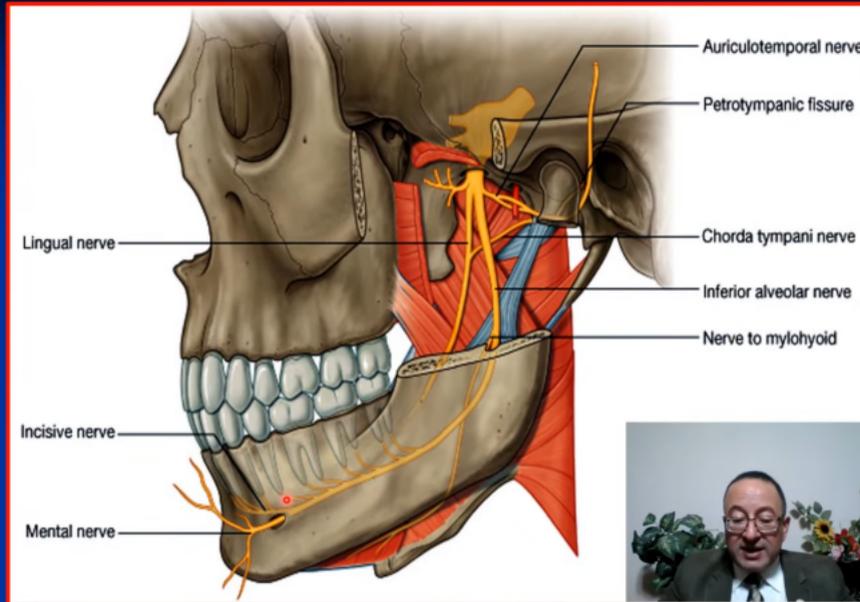
C. Branches from the posterior division: (3 Sensory + 1 Motor)

- 1. Auriculotemporal nerve (sensory)**
- 2. Inferior alveolar nerve (sensory + motor)**
- 3. Nerve to mylohyoid (motor)**
- 4. Lingual nerve (sensory)**

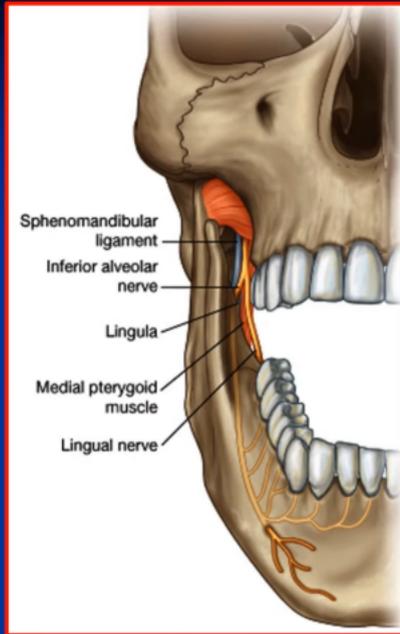




(Inferior alveolar and lingual nerves)



(Inferior alveolar and lingual nerves)



(Inferior alveolar and lingual nerves)