Al-Mustaqbal University

College of Engineering & Technology

Biomedical Engineering Department

Subject Name: Anatomy II

2nd Class, Second Semester

Subject Code: [UOMU01104]

Academic Year: 2024-2025

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Lecture No.: - 6-

Lecture Title: [the scalp]

ANATOMY / 2nd Stage

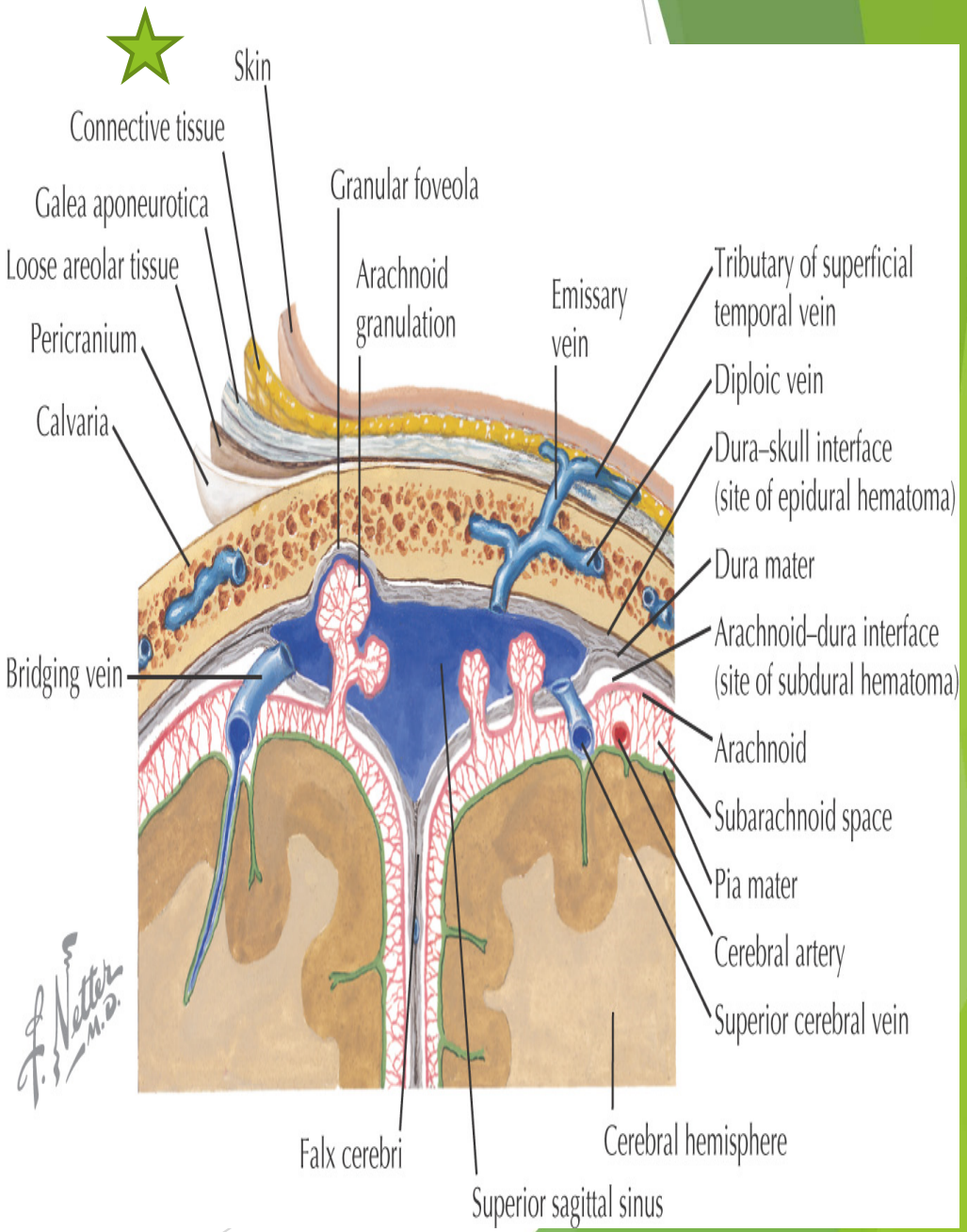
Head and Neck

Lec. 6

The Scalp

The scalp consists of 5 layers

- **S**kin,
- **C**onnective tissue
- **A**poneurosis (epicranial)
- **L**oose areolar tissue
- **P**ericranium, which is the periosteum covering the outer surface of the skull bones.



1- Skin

A. thick and hair bearing

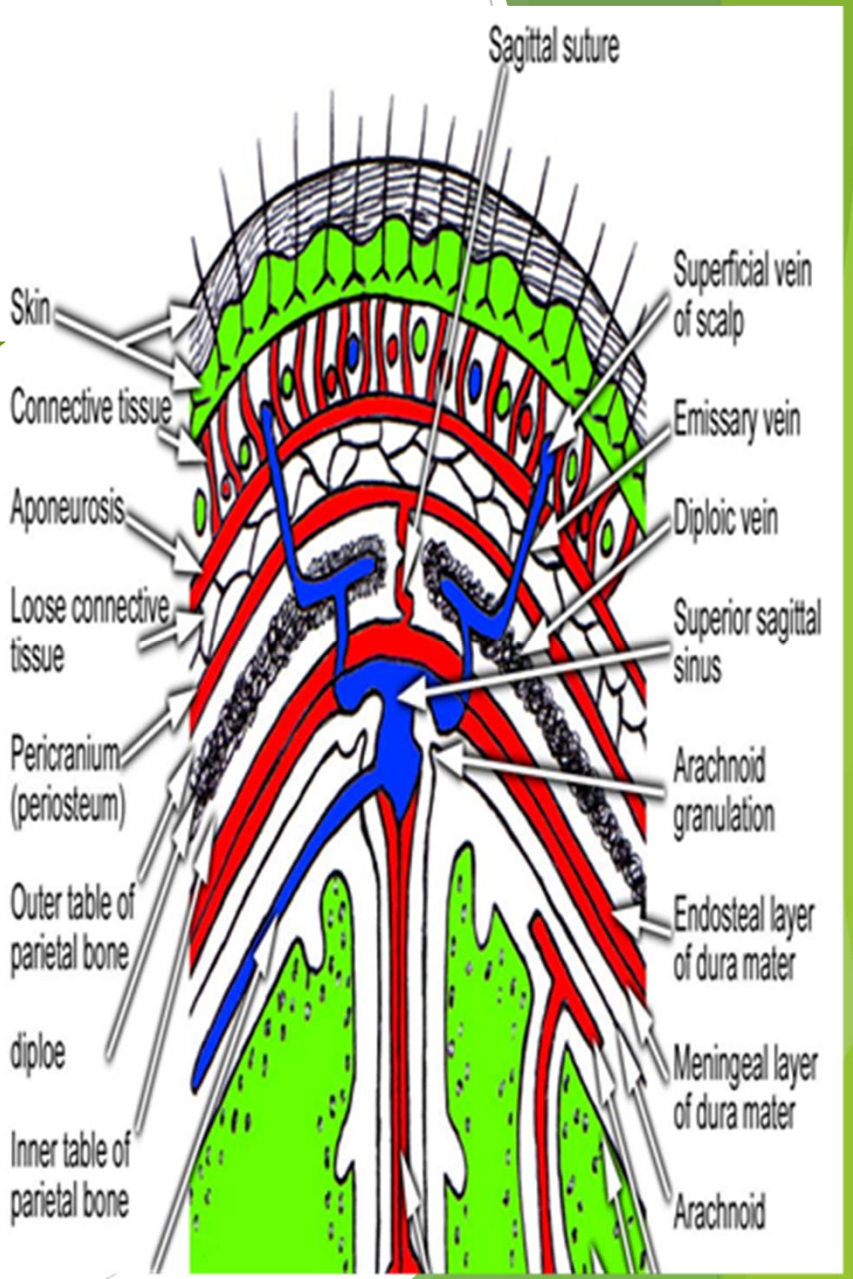
B. contains numerous sebaceous glands

2- Connective tissue

A. fibrofatty.

B. Numerous arteries and veins

are found in this layer. The arteries are branches of the external and internal carotid arteries.



3- Aponeurosis (epicranial)

A. Thin, tendinous sheet

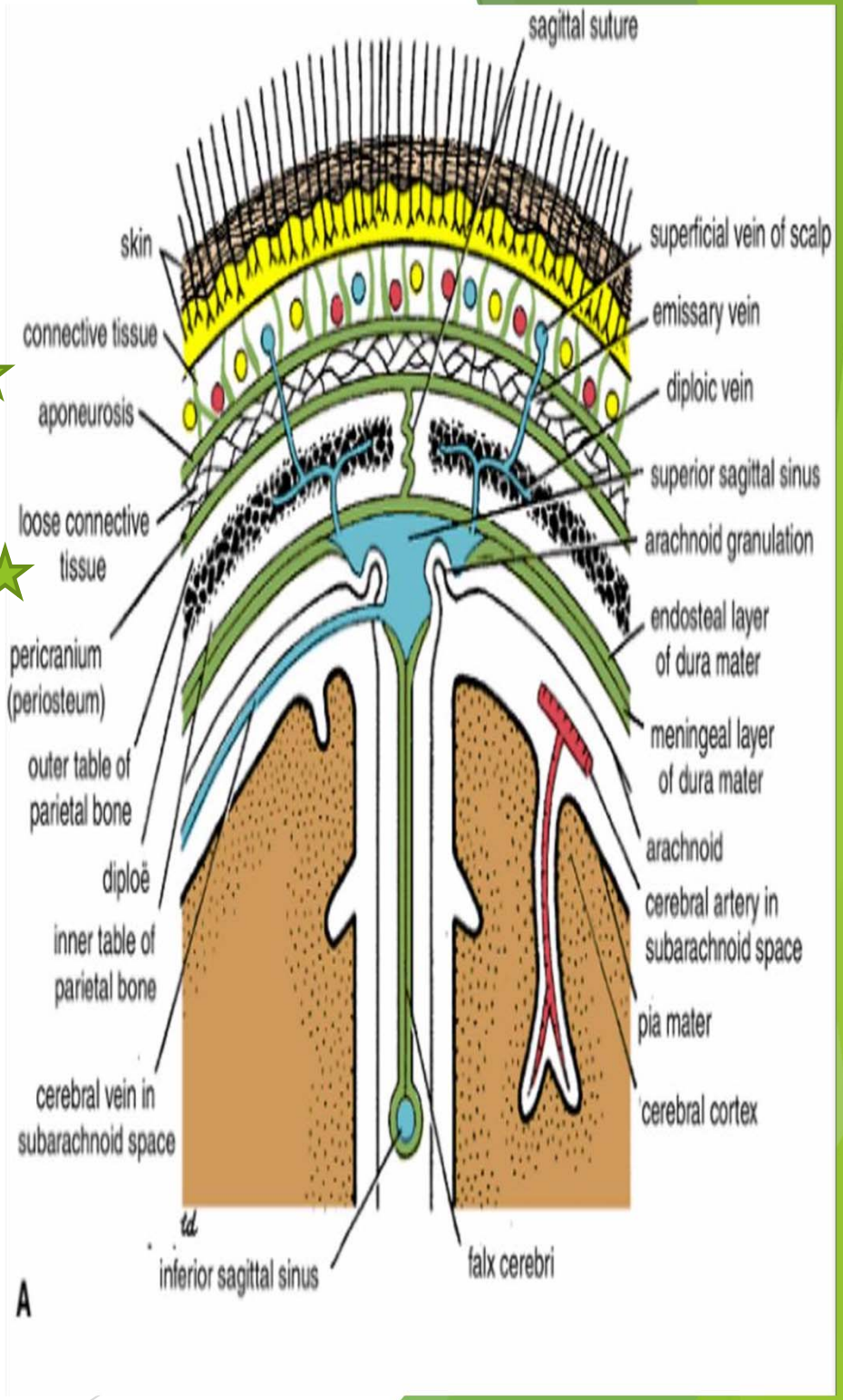
B. Unites the occipital and frontal bellies of the occipitofrontalis muscle.

4- Loose areolar tissue

occupies the subaponeurotic space

5- Pericranium

periosteum covering the outer surface of the skull bones.



Nerve Supply of the Scalp

1.Supratrochlear nerve:
a branch of the ophthalmic division of the trigeminal nerve.

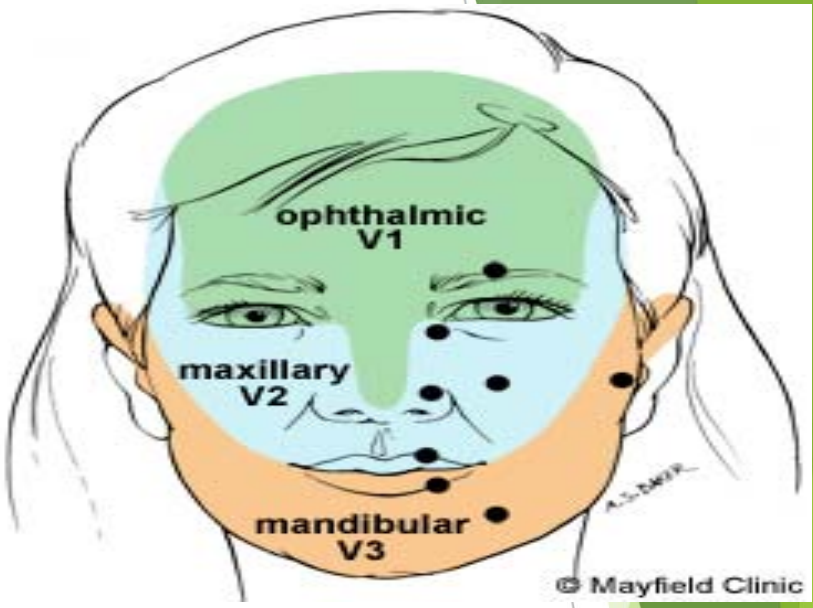
2.Supraorbital nerve:
a branch of the ophthalmic division of the trigeminal nerve.

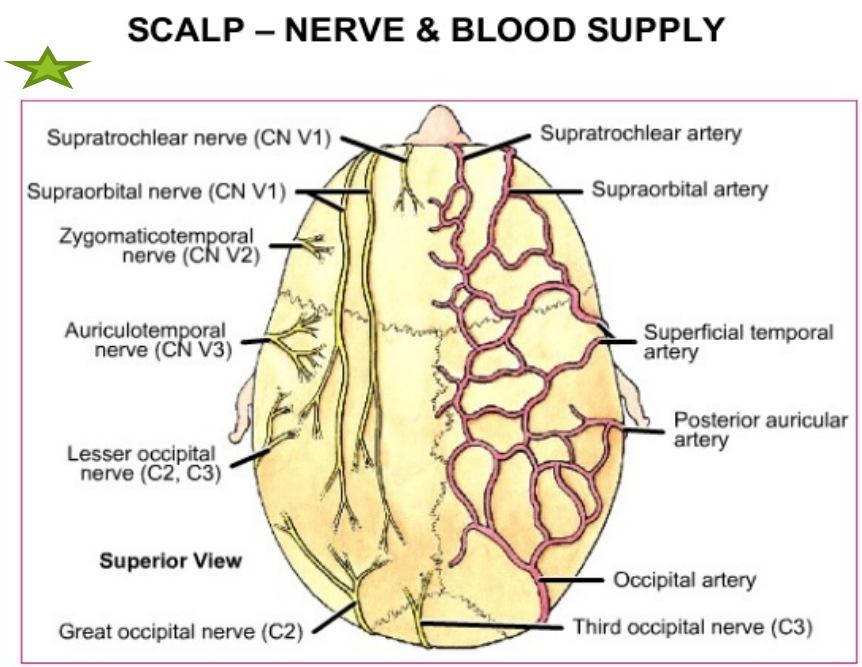
3.Zygomaticotemporal nerve:
a branch of the maxillary division of the trigeminal nerve.

4.Auriculotemporal nerve:
a branch of the mandibular division of the trigeminal nerve.

5.Lesser occipital nerve. (C2)

6.Greater occipital nerve. (C2,C3)





Blood Supply of the Scalp

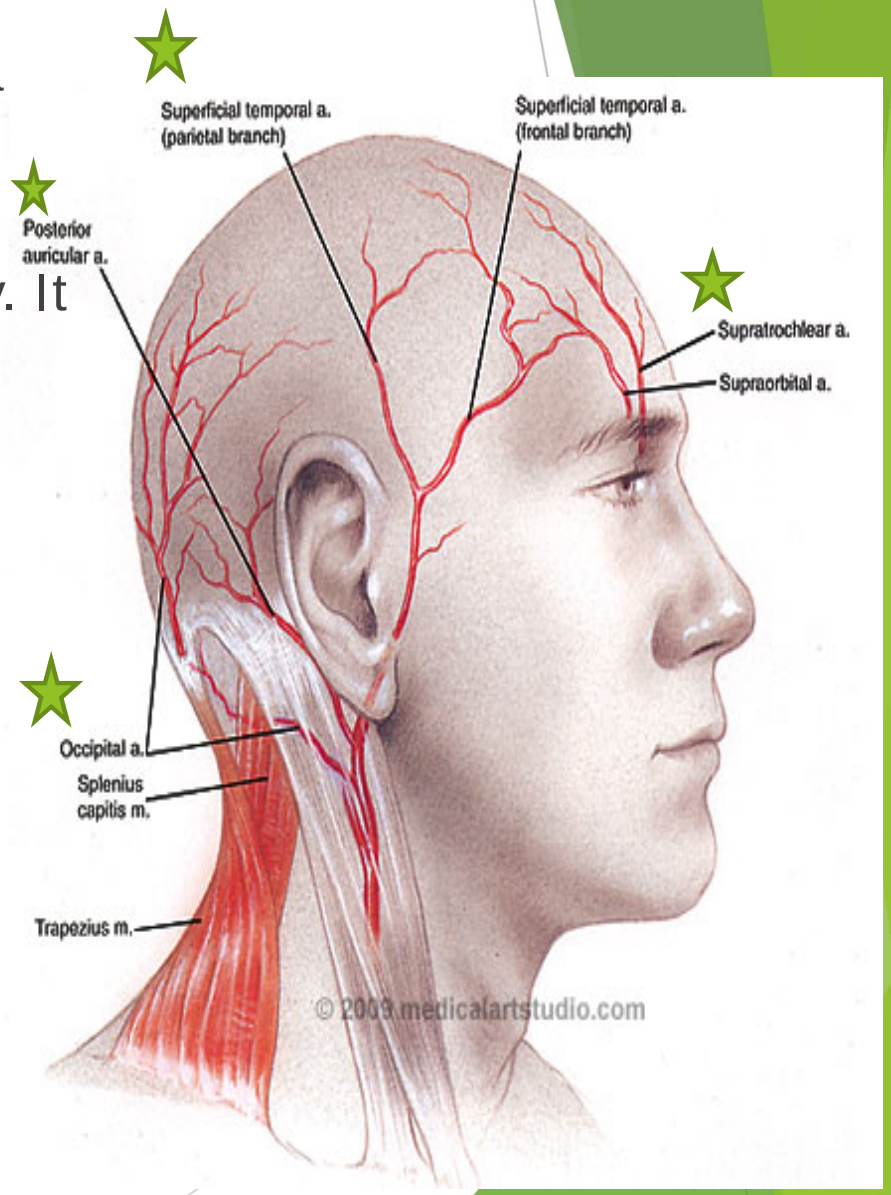
1.Supratrochlear & Supraorbital

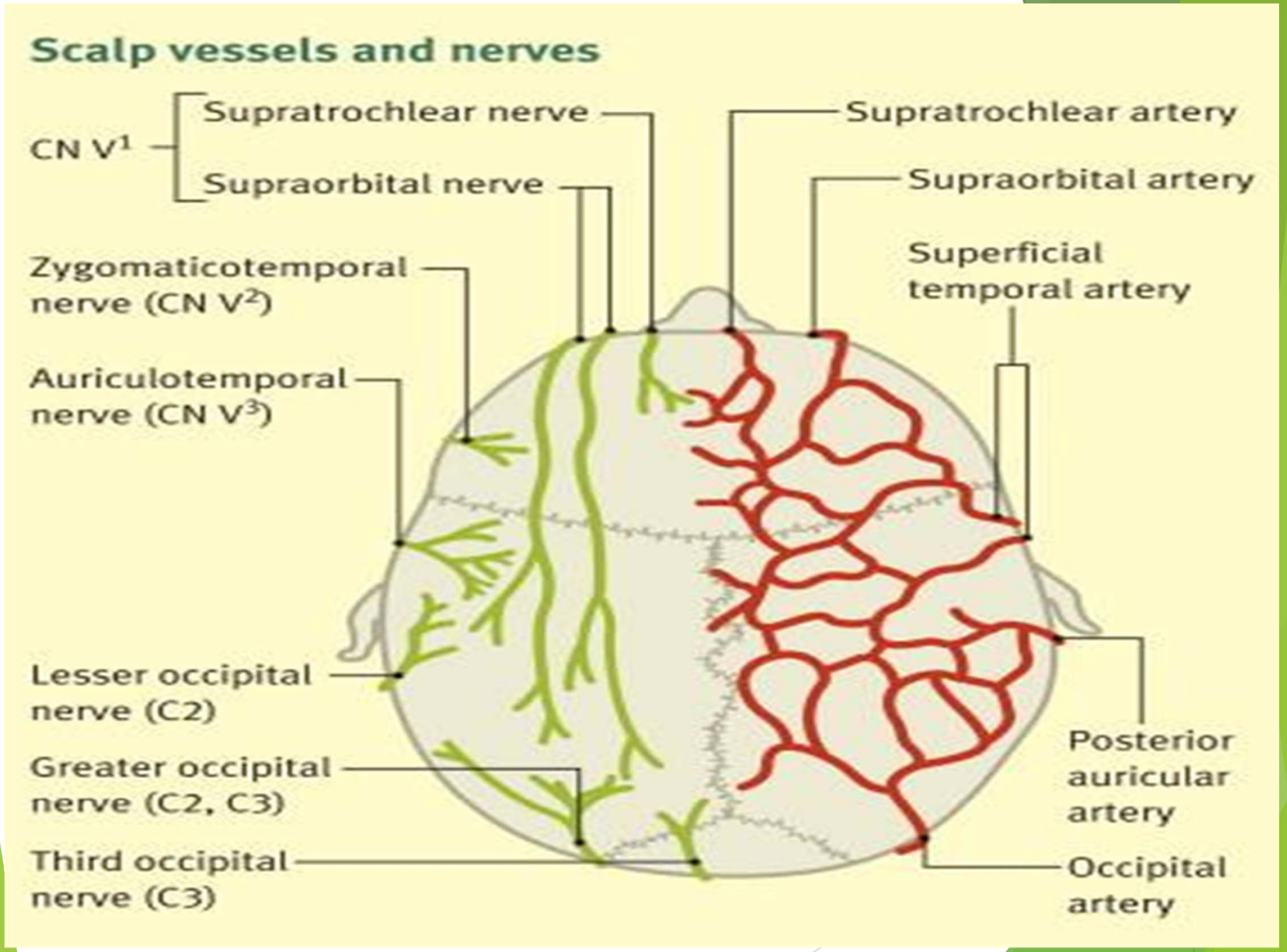
arteries: branches of the ophthalmic artery (a branch of internal carotid artery).

2.Superficial temporal artery: the smaller terminal branch of the external carotid artery. It divides into anterior and posterior branches.

3.Posterior auricular artery: a branch of the external carotid artery.

4.Occipital artery: a branch of the external carotid artery.




Scalp vessels and nerves
CN V1
Supratrochlear nerve
Supraorbital nerve
Zygomaticotemporal nerve (CN V2)
Auriculotemporal nerve (CN V3)
Lesser occipital nerve (C2)
Greater occipital nerve (C2, C3)
Third occipital nerve (C3)
Supratrochlear artery
Supraorbital artery
Superficial temporal artery
Posterior auricular artery
Occipital artery

Muscles of the scalp

1. Frontalis (2Frontal belly)

Origin: Skin of eyebrows and forehead

Insertion: Epicranial aponeurosis

Nerve supply: facial nerve

Action: Raise eyebrows and wrinkles skin of forehead

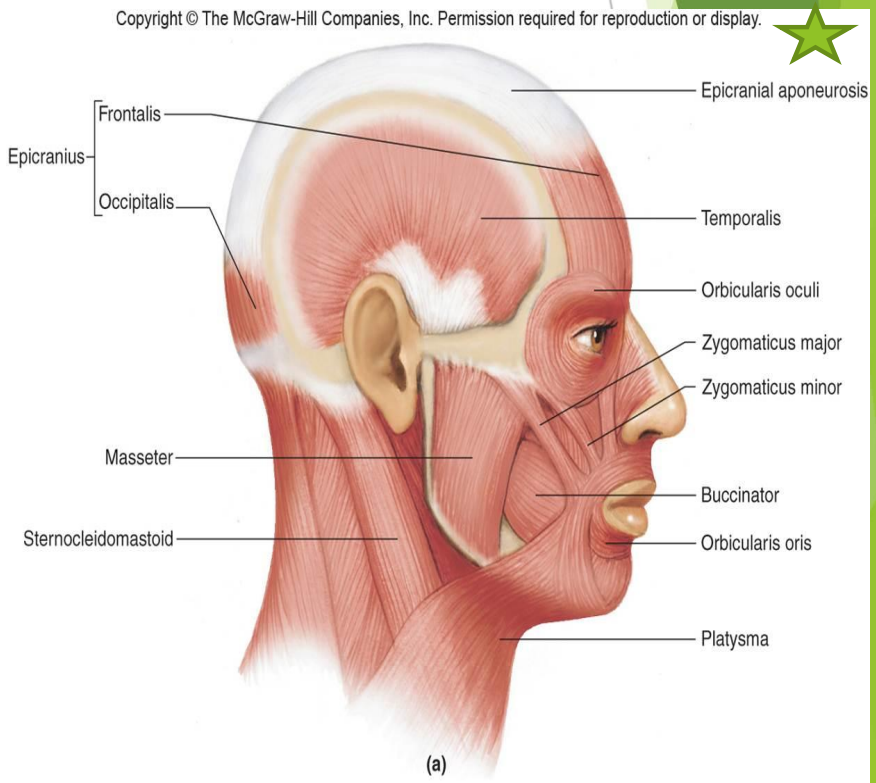
2. Occipitalis (2Occipital belly)

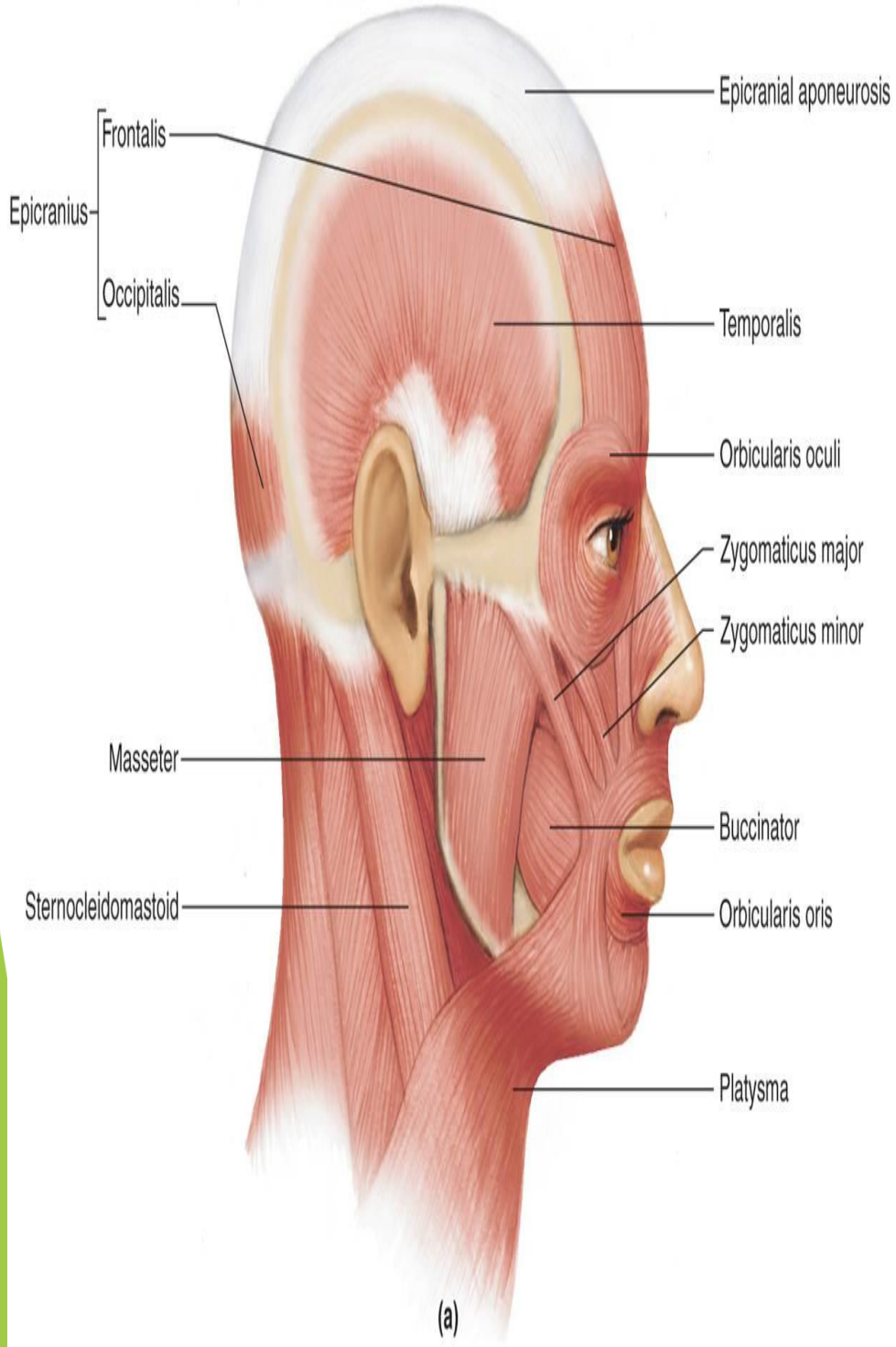
Origin: Highest (superior) nuchal line

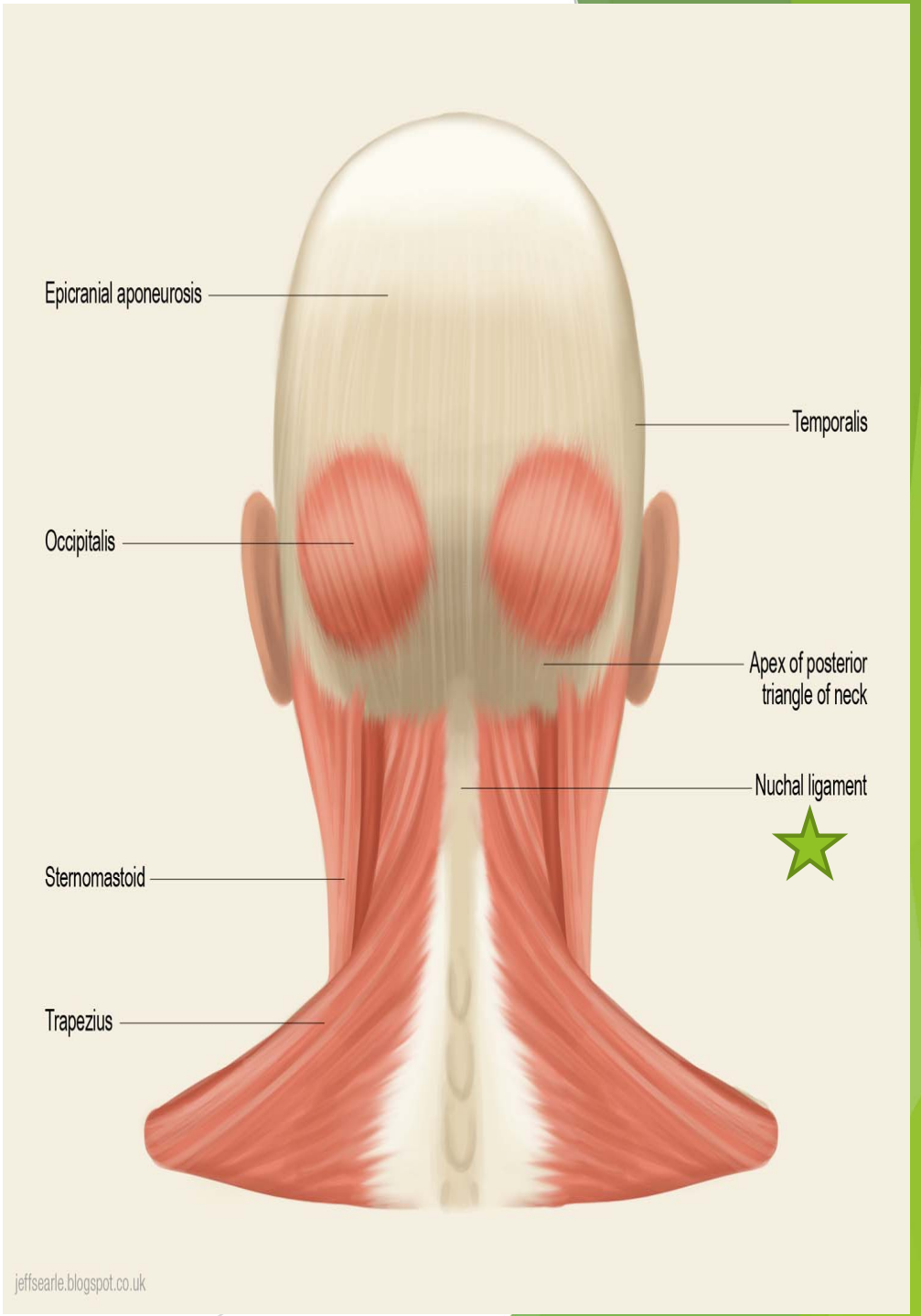
Insertion: Epicranial aponeurosis

Nerve supply: facial nerve

Action: Move scalp backward



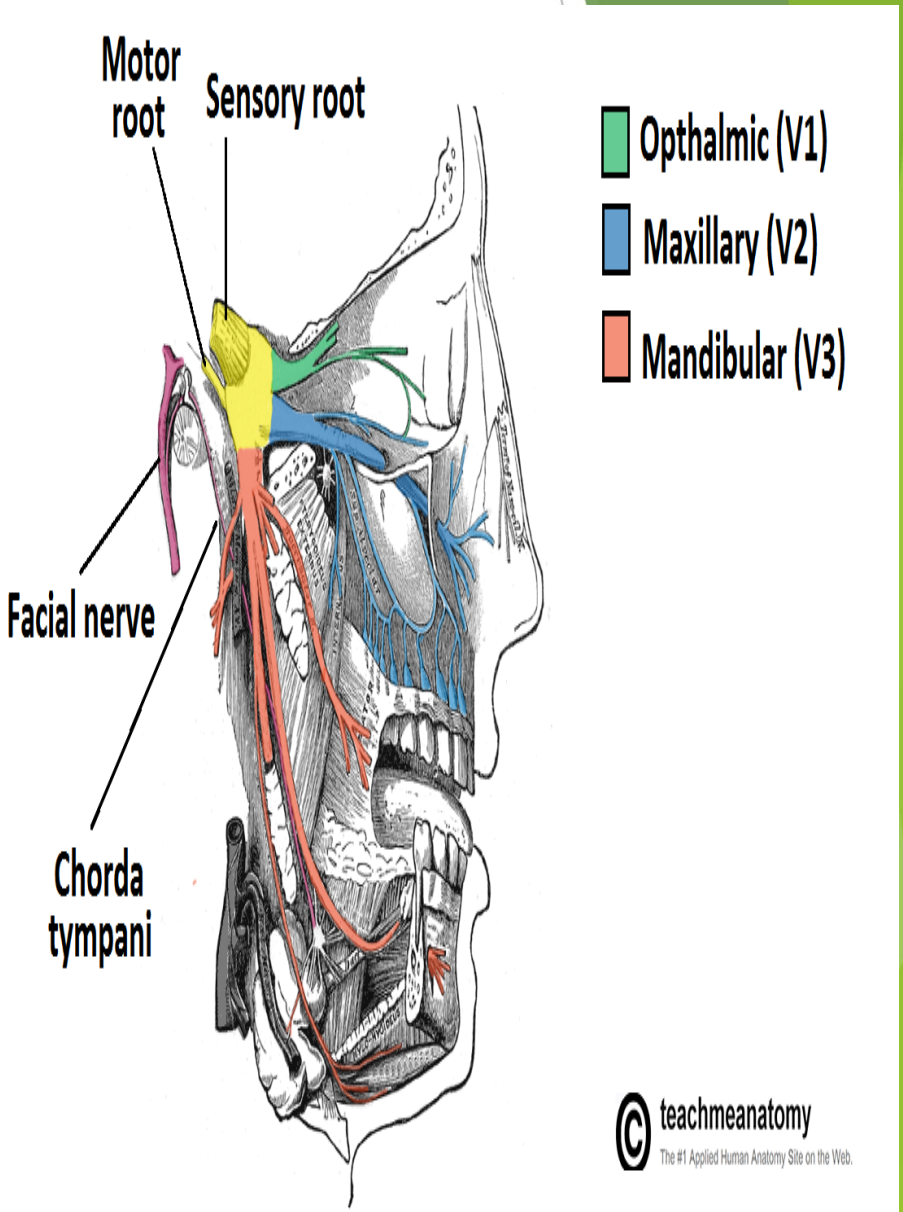


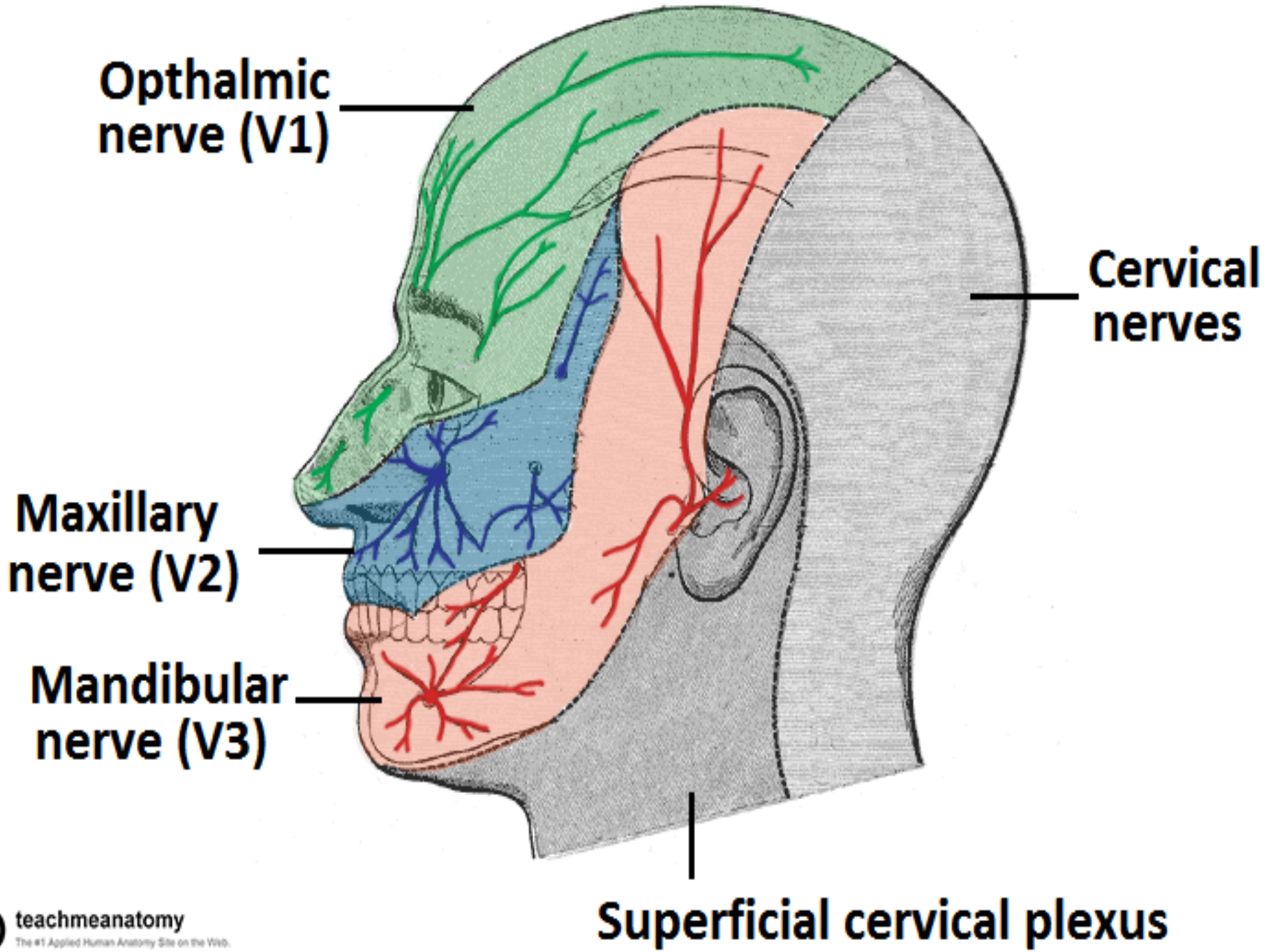


Sensory Nerves of the Face

Branches of the three divisions of the Trigeminal nerve (V)

1. Ophthalmic nerve (V1)
2. Maxillary nerve(V2)
3. Mandibular nerve(V3)




Opthalmic nerve (V1)
Maxillary nerve (V2)
Mandibular nerve (V3)
Cervical nerves
Superficial cervical plexus
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The #1 Applied Human Anatomy Site on the Web.

Muscles of the Face (Muscles of Facial Expression)

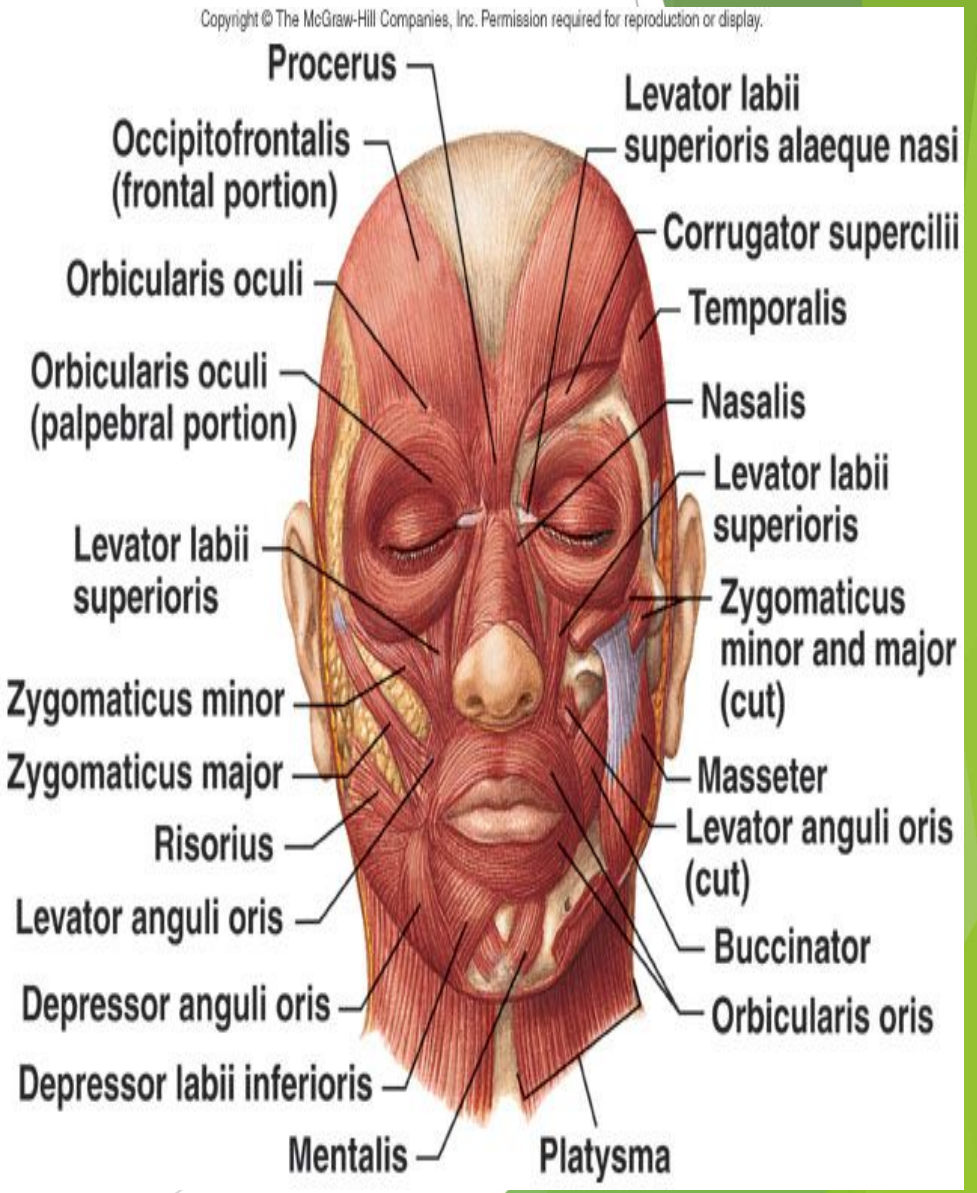
Arise from the bones of the skull and are inserted into the skin.

The orifices of the face, namely, the orbit, nose, and mouth, are guarded by the eyelids, nostrils, and lips, respectively.

Function

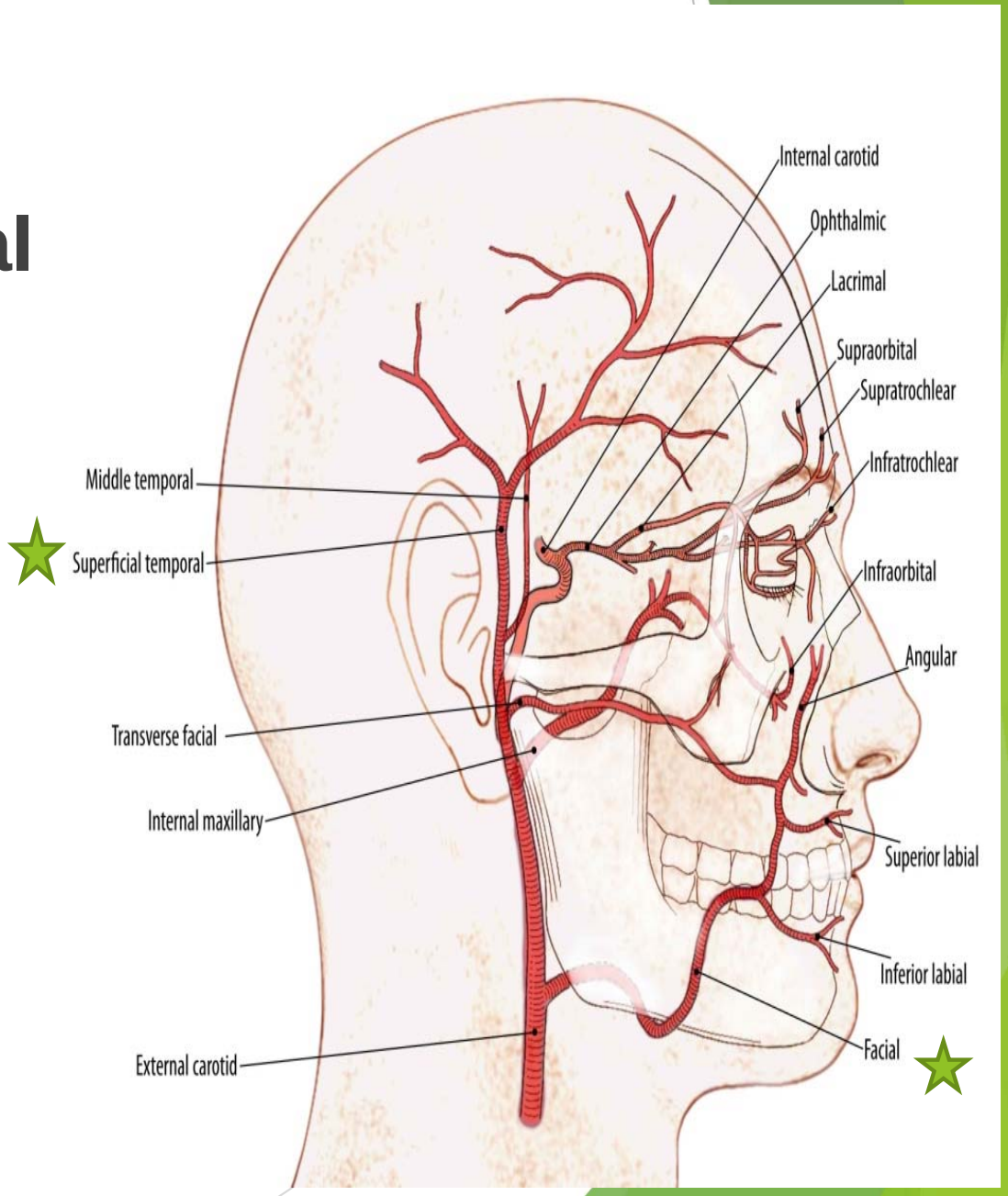
1. dilators of eyelids, nostrils and lips .
2. modify the expression of the face.

N. supply: facial nerve.



Arterial Supply of the Face

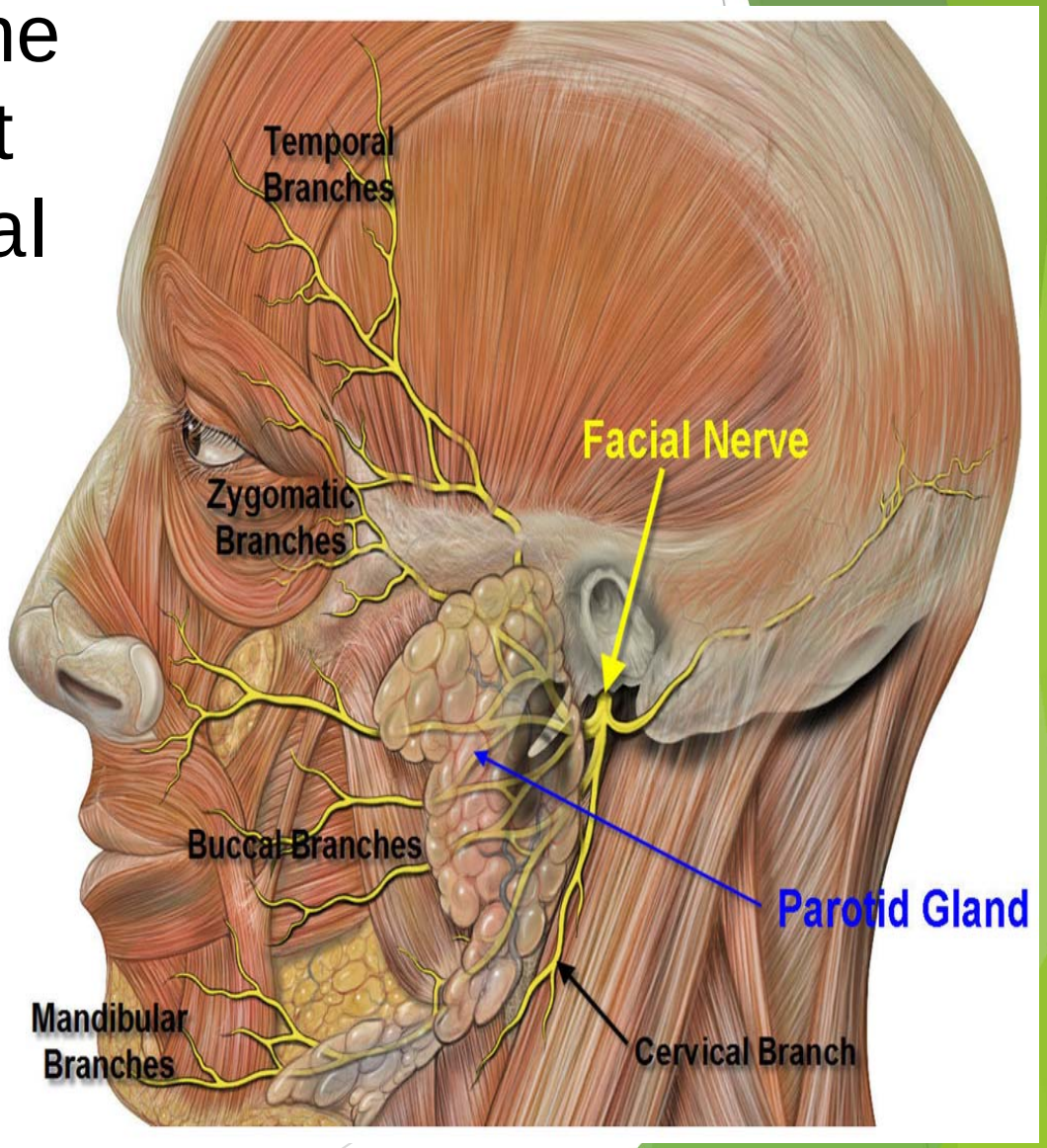
1. **Facial artery**
2. **Superficial temporal artery**



Facial Nerve

It runs forward within the parotid salivary gland, it supplies muscles of facial expression.

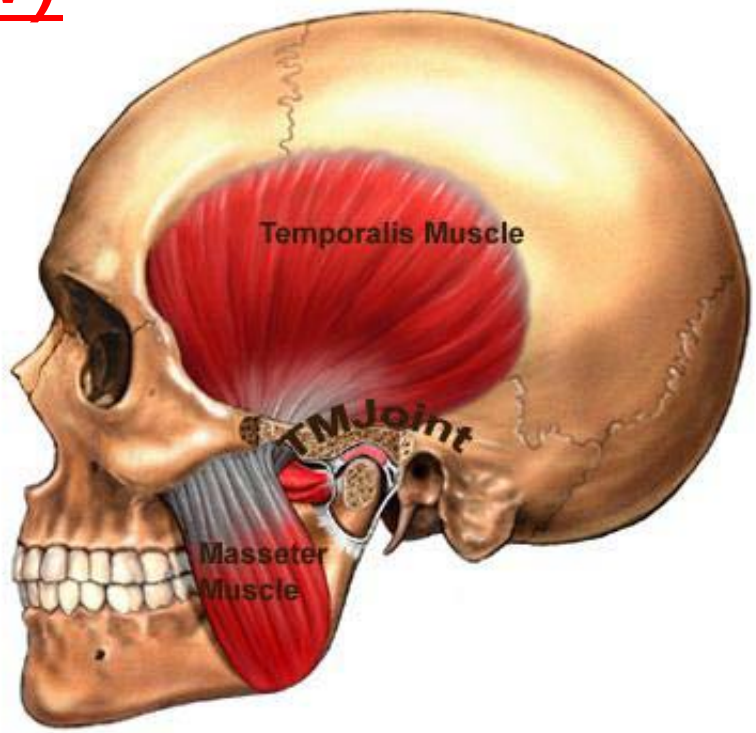
1- Temporal Branches
2- Zygomatic Branches.
3- Buccal Branches.
4- Mandibular Branches.
5- Cervical Branch.



Muscles of Mastication(jaw)

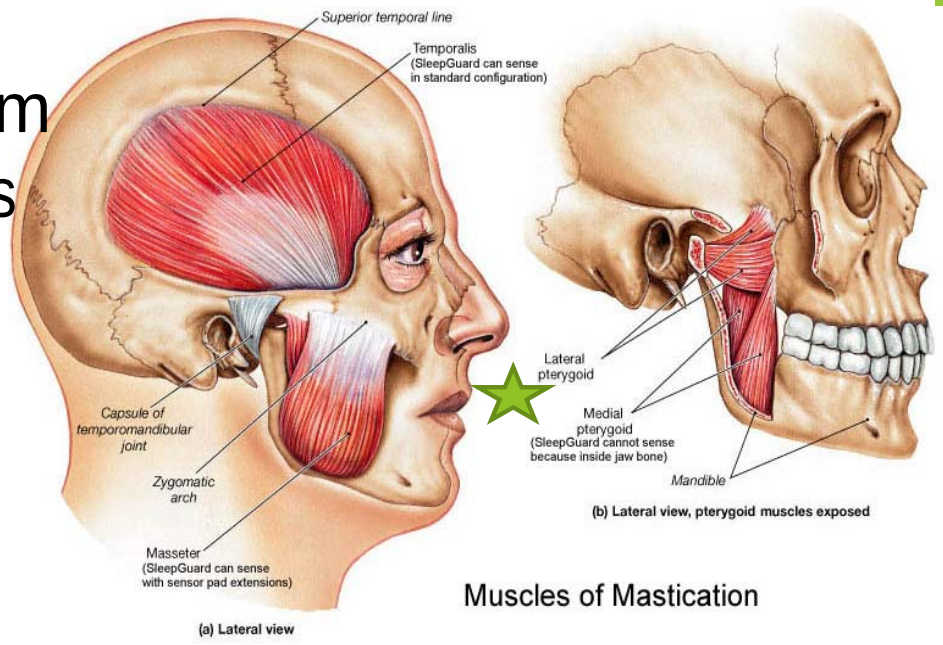
1. Temporalis
2. Masseter
3.Pterygoid Muscles

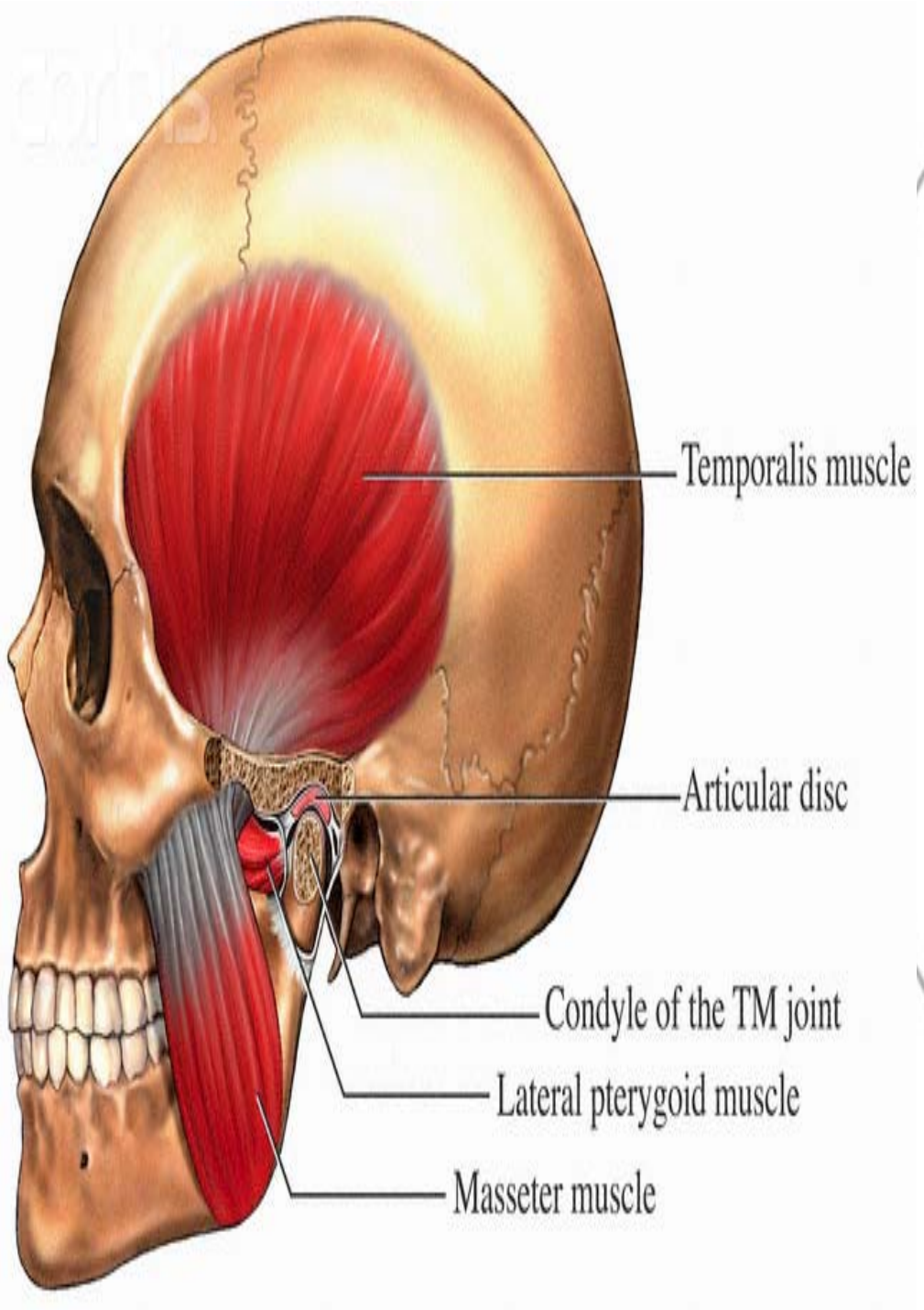
They move the mandible at the: **Temporomandibular Joint (TMJ)**.

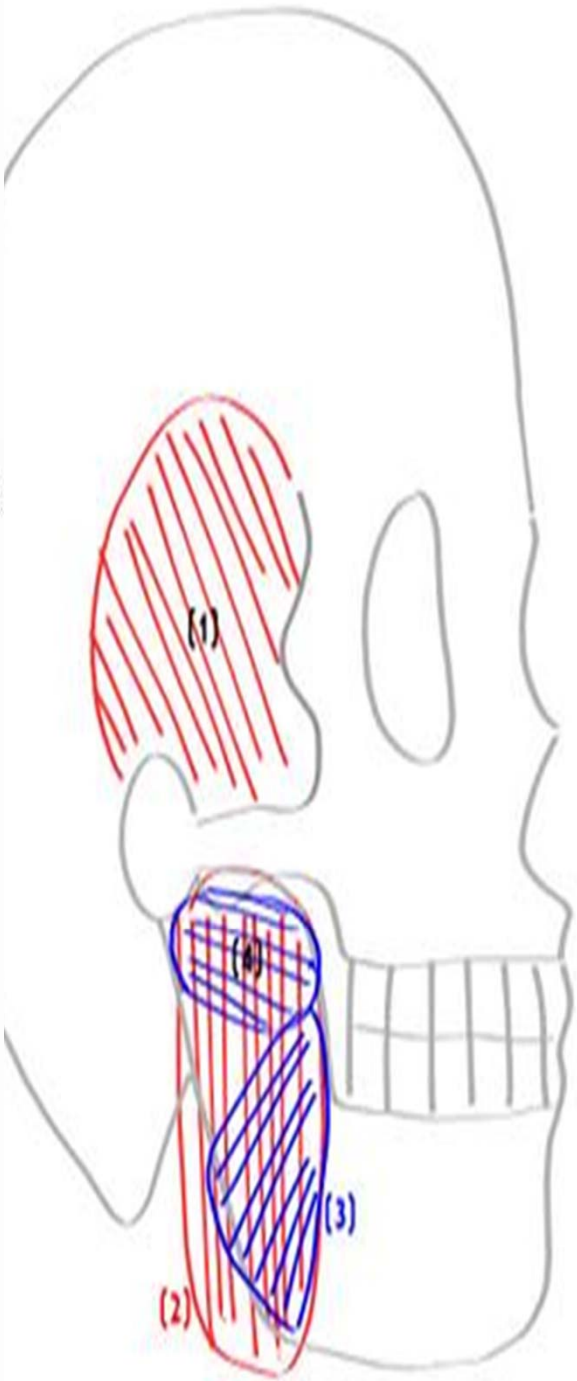


They are responsible for: chewing action, grinding the teeth, moving our mandible from side to side and also assisting us to speak.

They are supplied by the: **mandibular branch of trigeminal nerve**







Muscles of Masticati

Close Mouth:

(1) Temporalis

(2) Masseter

(3) Medial pterygoid

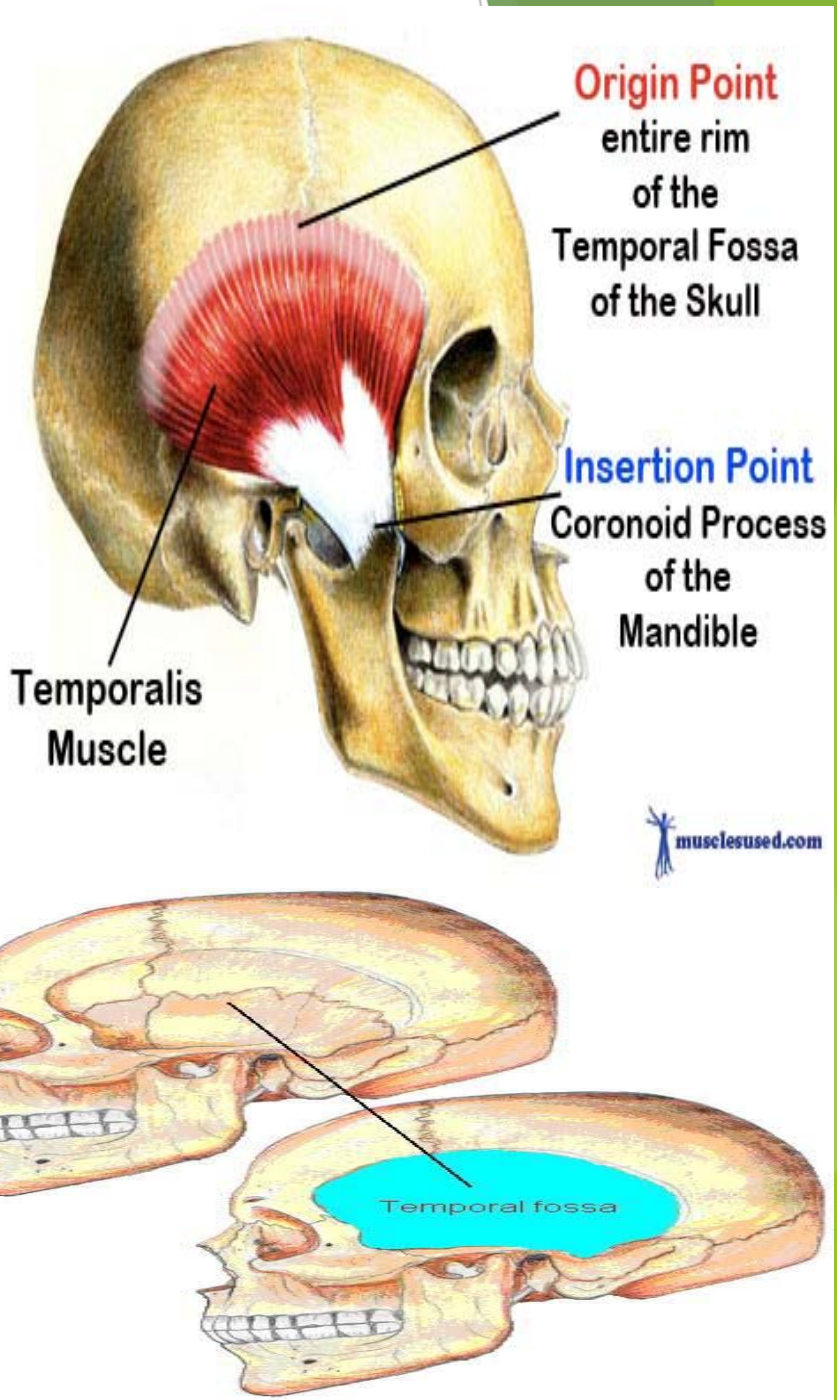
Open Mouth:

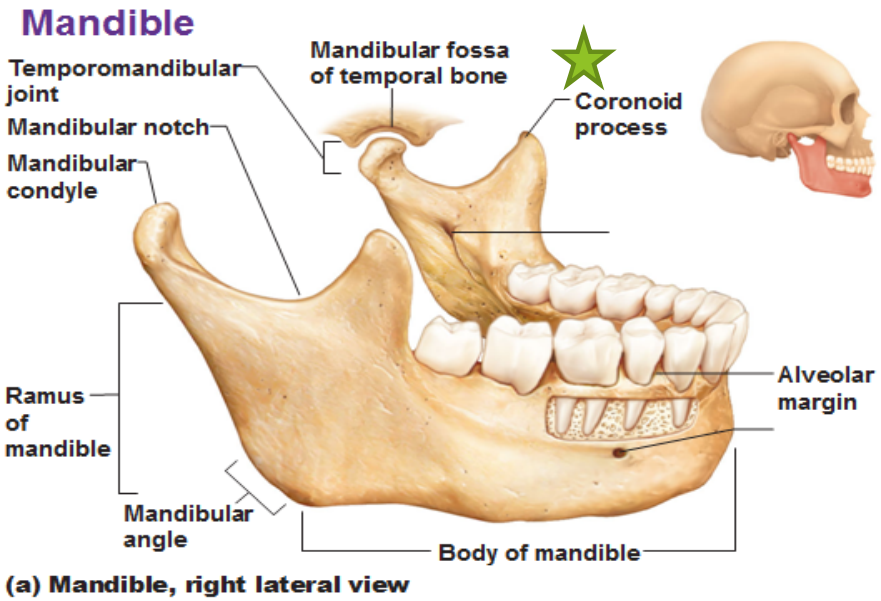
(4) Lateral pterygoid

The Temporalis muscle

Origin: rim of the Temporal Fossa of the Skull.

Insertion: coronoid process of the mandible.

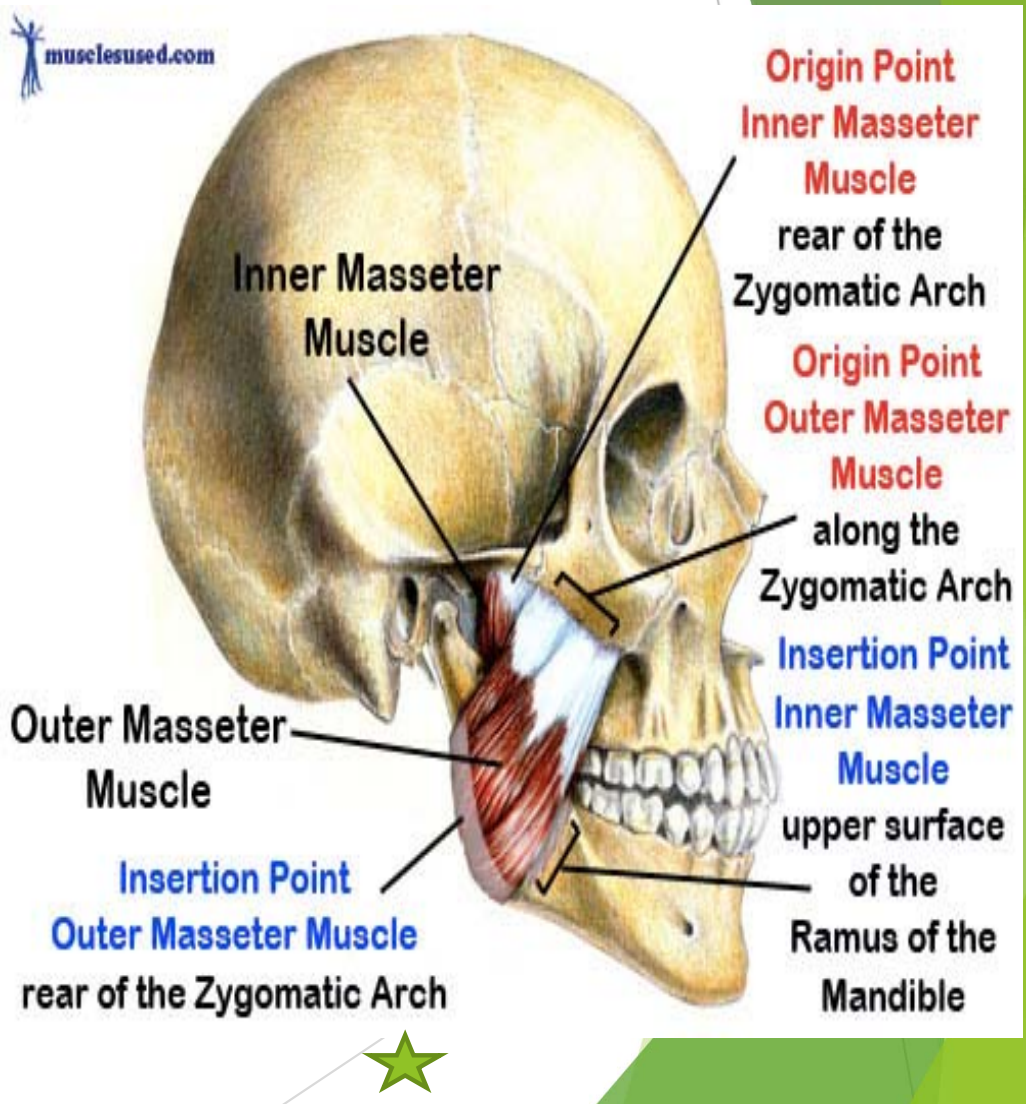




The Masseter muscle

Origin along the Zygomatic Arch

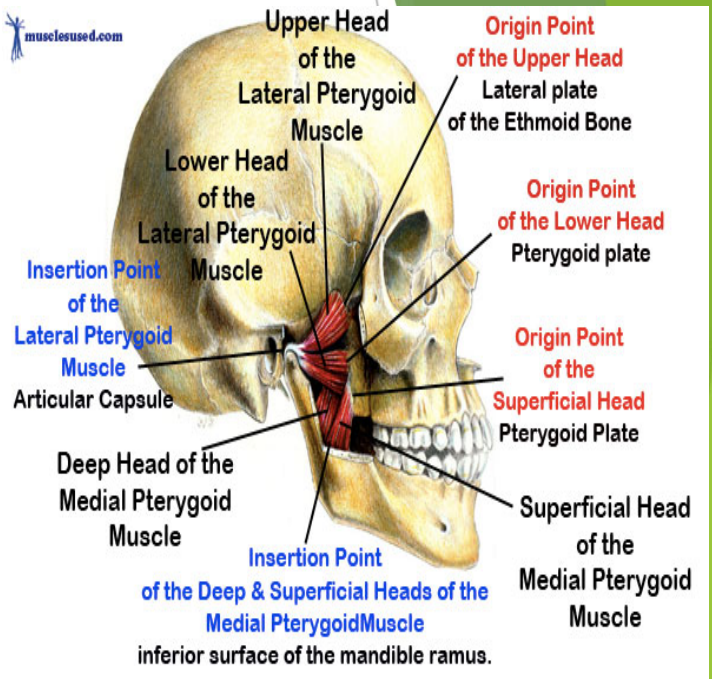
Insertion on the surface of the Ramus of the Mandible



Pterygoid muscles (two muscles)

1.Lateral Pterygoid (two heads)

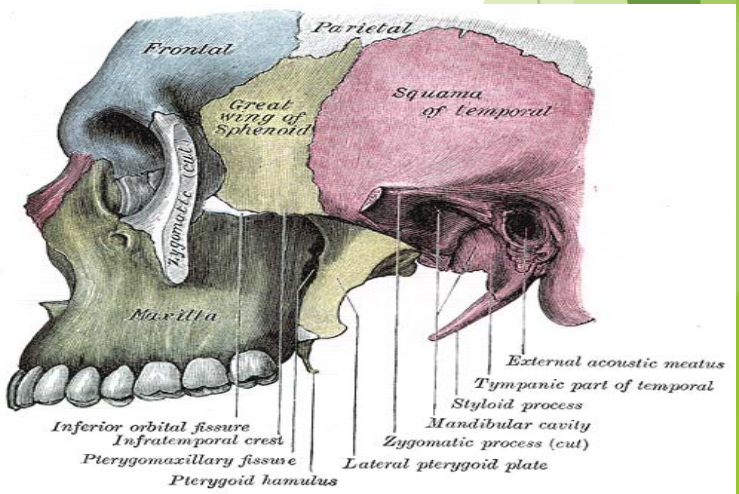
2.Medial Pterygoid(two heads)

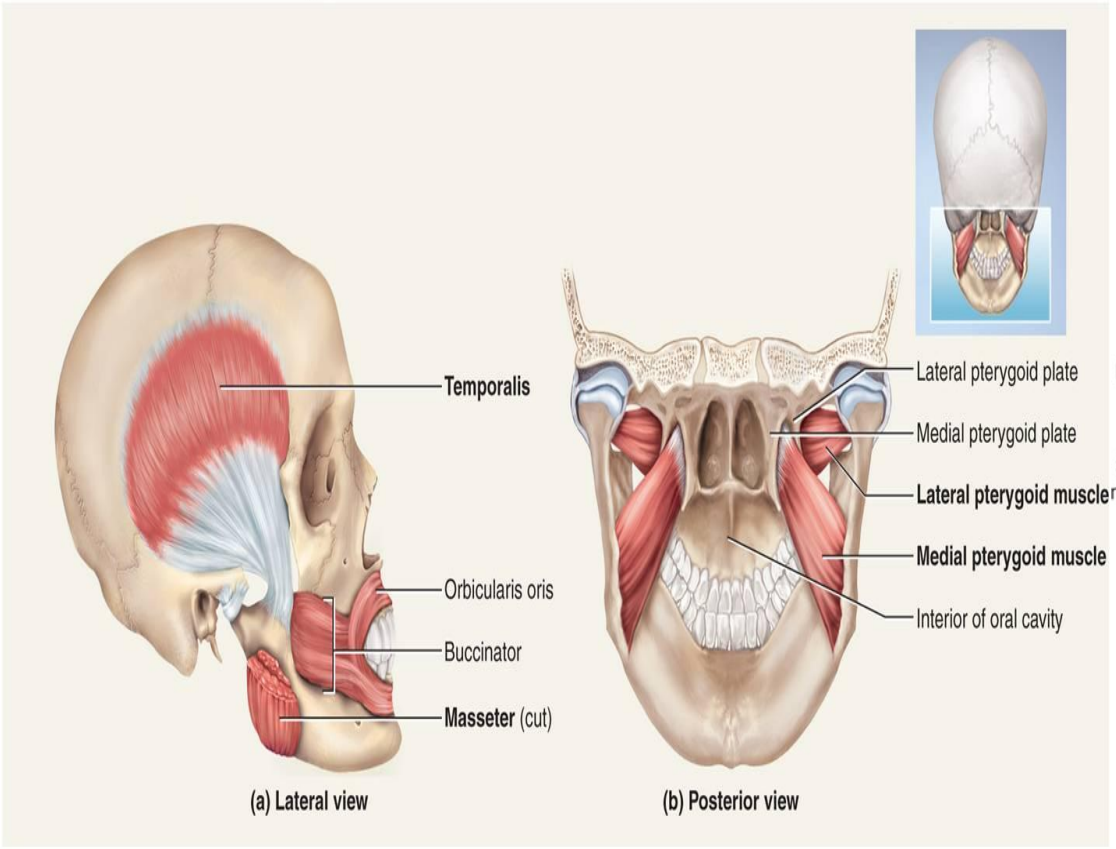


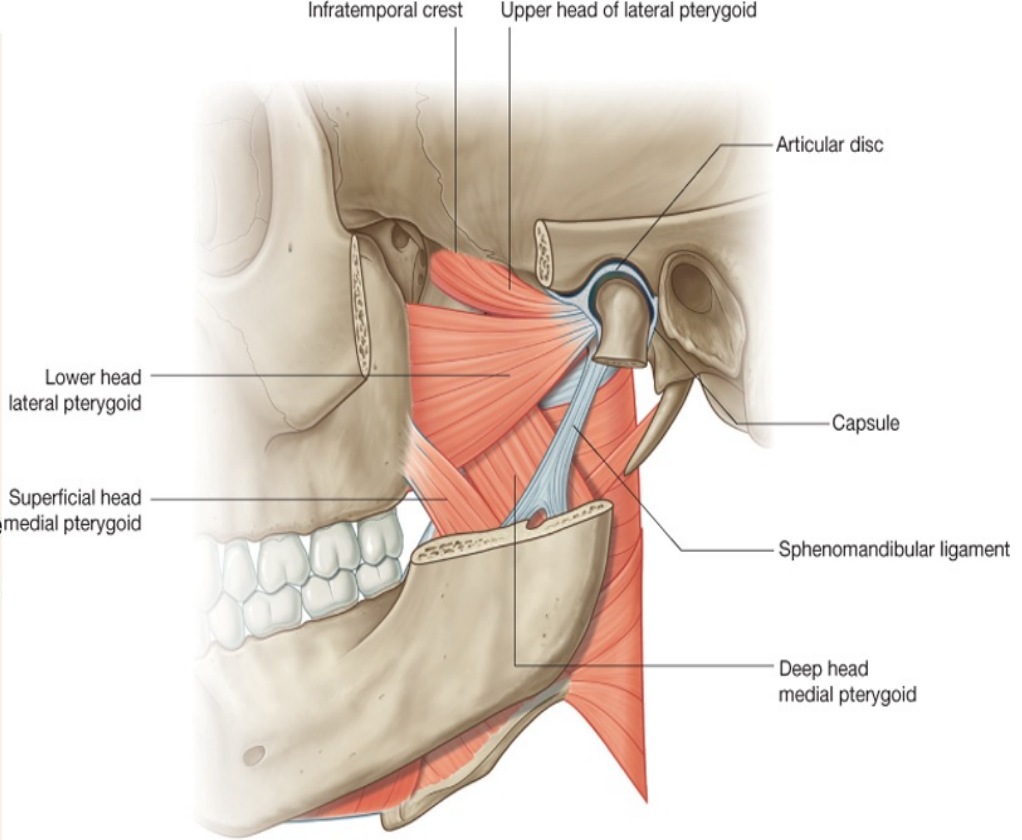
1- Lateral Pterygoid muscle:

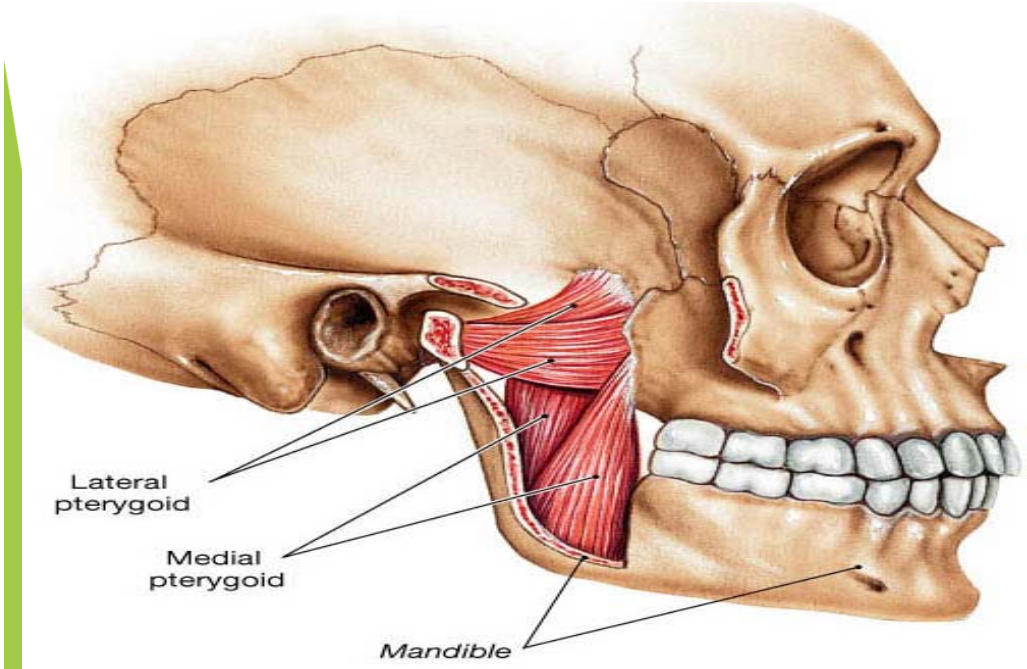
is located higher to the medial Pterygoid muscle.

origin of the Lateral is from the lateral plate of the Ethmoid bone and from the Pterygoid Plate of sphenoid bone. Both heads merge to share the same insertion point which is the articular capsule which covers the condyle of the mandible.

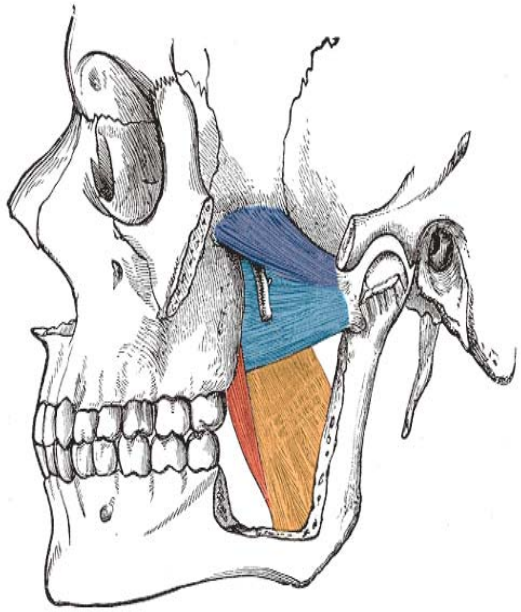








(b) Lateral view, pterygoid muscles exposed

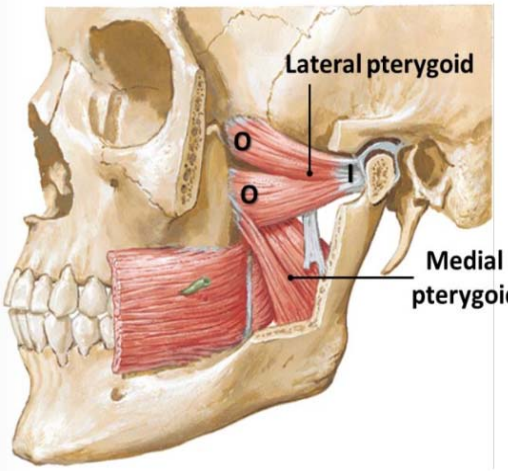


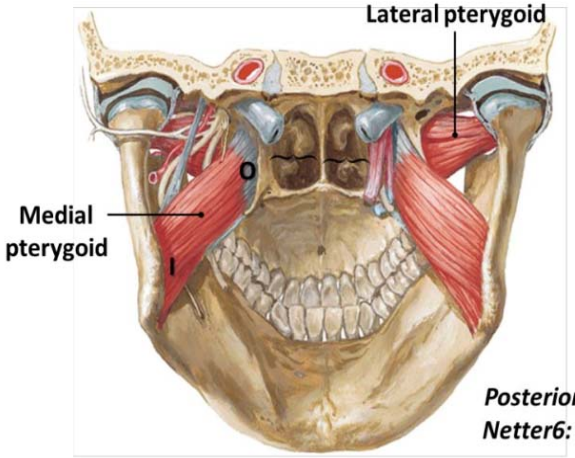
- Superior head of the lateral pterygoid
- Inferior head of the lateral pterygoid
- Deep head of the medial pterygoid
- Superficial head of the medial pterygoid

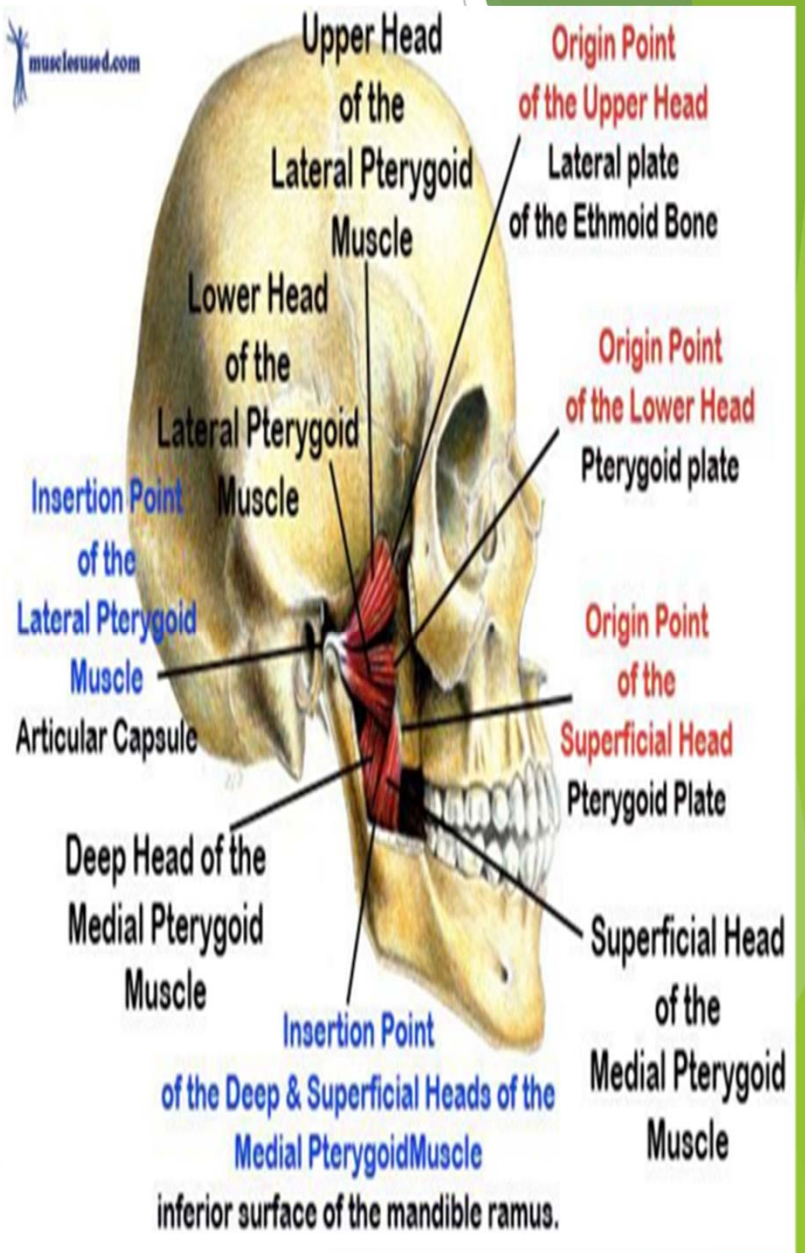
2-Medial Pterygoid :

Origin: from the Pterygoid Plate of sphenoid bone and from the Palatine bone. Both heads merge to form a broad

Insertion: point on the inner surface of the Ramus of the Mandible.



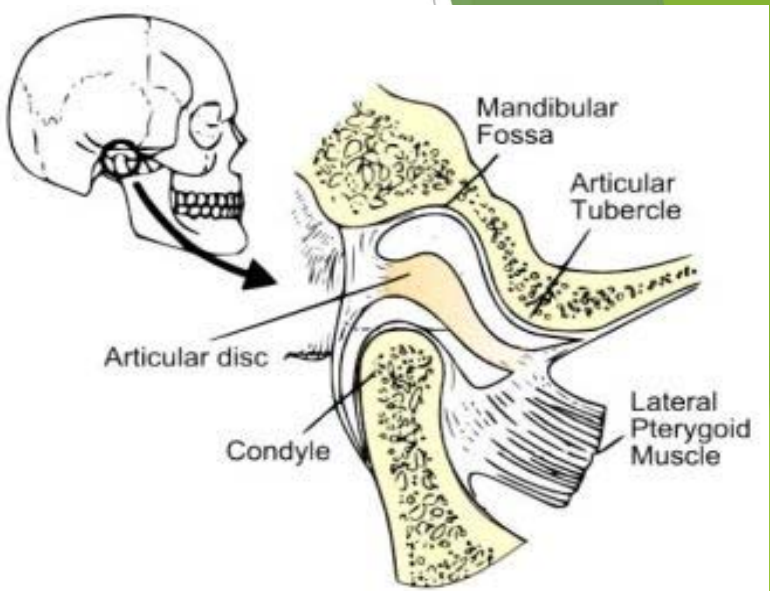


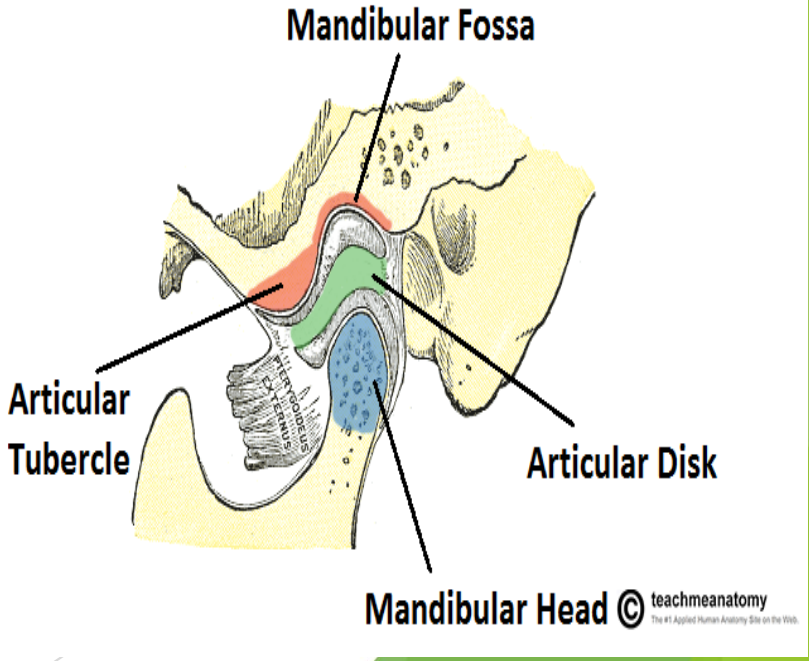


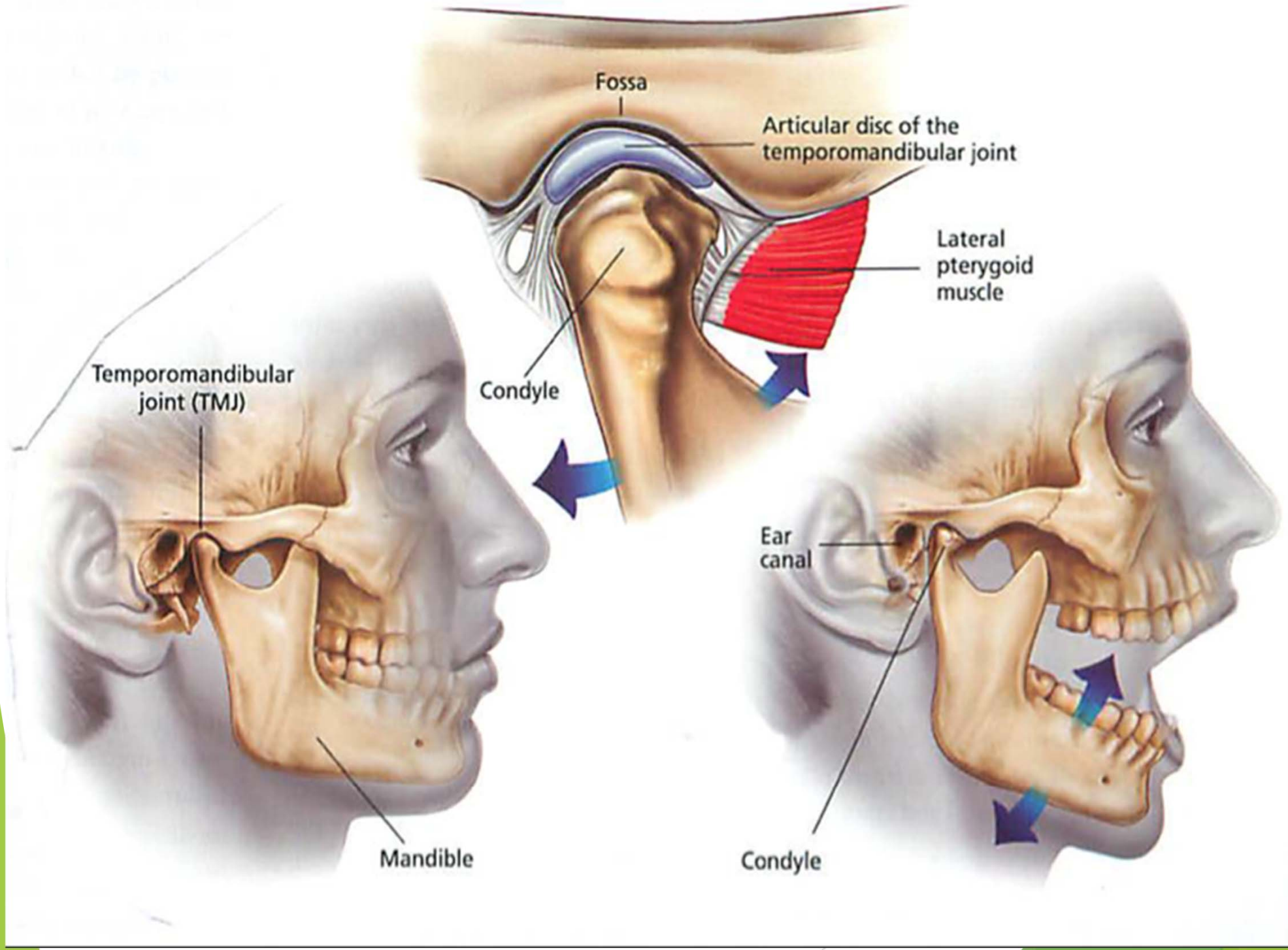
Temporomandibular Joint

Articulation occurs between the **articular tubercle** and the anterior portion of the **mandibular fossa of the temporal bone above** and the **head of the mandible below.**

The articular surfaces are covered with fibrocartilage
The joint is supplied by **mandibular nerve**






Fossa
Articular disc of the temporomandibular joint
Lateral pterygoid muscle
Condyle
Temporomandibular joint (TMJ)
Mandible
Ear canal
Condyle

Movements of Temporomandibular Joint

1. Depression of the Mandible
2. Elevation of the Mandible
3. Protrusion of the Mandible
4. Retraction of the Mandible
5. Lateral Chewing Movements