MSS Module

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Muscles of the Neck

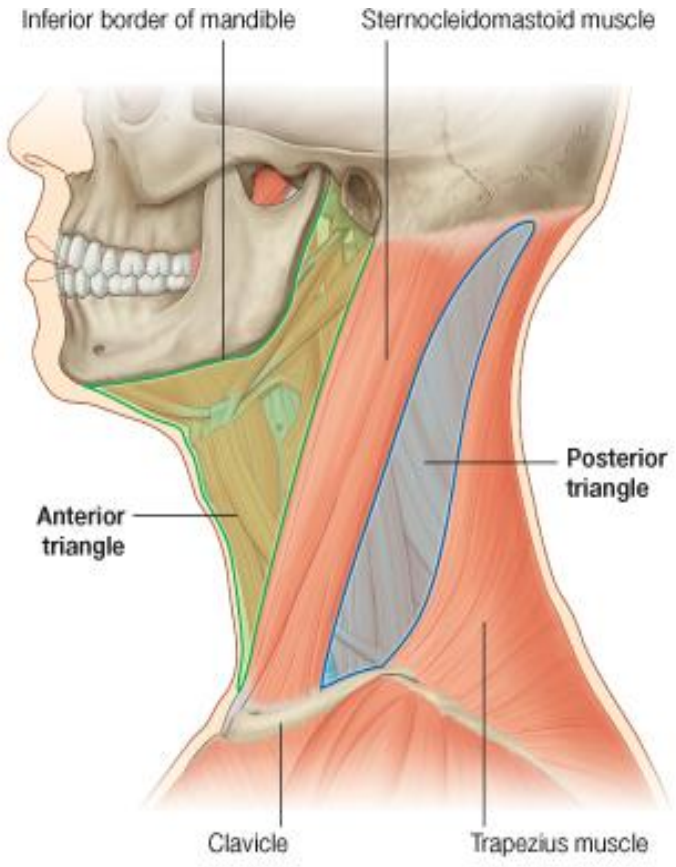
Neck

The neck is a tube providing continuity from the head to the trunk.

It extends:

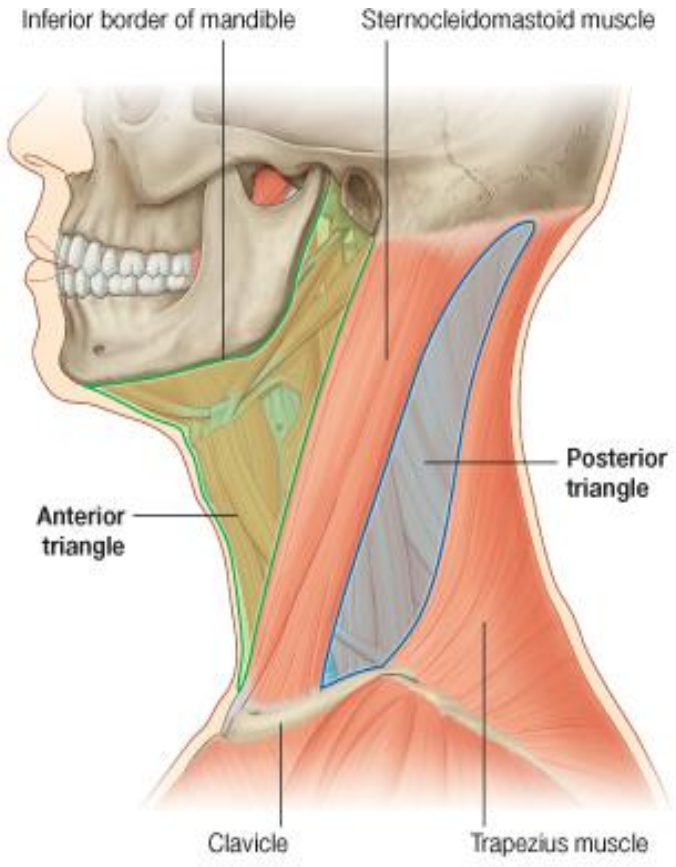
Anteriorly from the lower border of the mandible to the upper surface of the manubrium of sternum.

Posteriorly from the superior nuchal line on the occipital bone of the skull to the intervertebral disc between the C7 and T1 vertebrae.



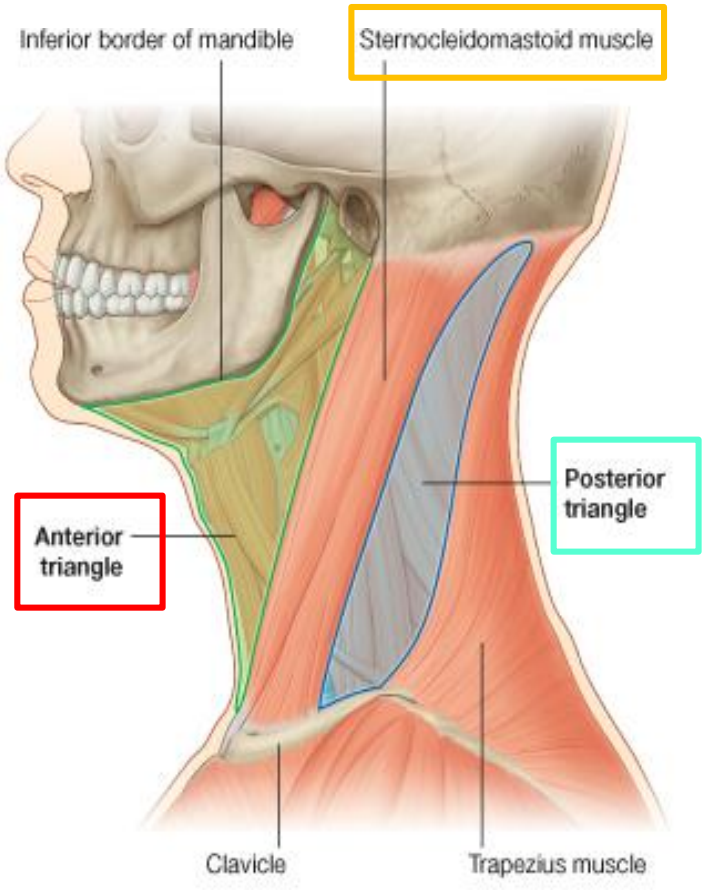
Neck

- For descriptive purposes the neck is divided into **anterior and posterior triangles** on each side by the Sternocleidomastoid muscle.



Sternocleidomastoid Muscle

It divides each side of the neck into anterior and posterior triangles.



Origin:

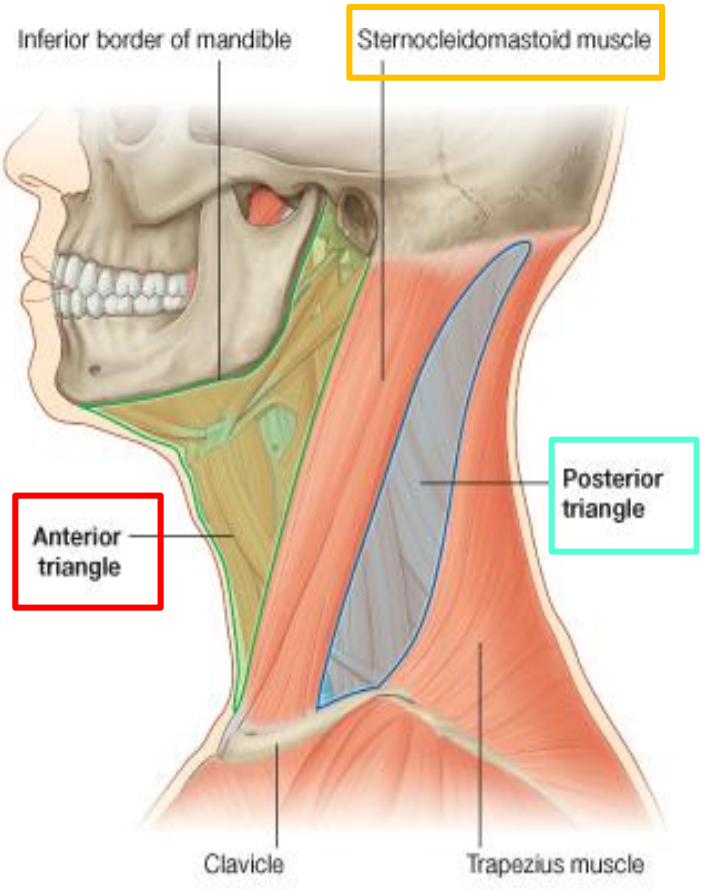
1. **Sternal head:** manubrium sterni
2. **Clavicular head**: medial 1/3 of the clavicle

Insertion: mastoid process of the temporal bone.

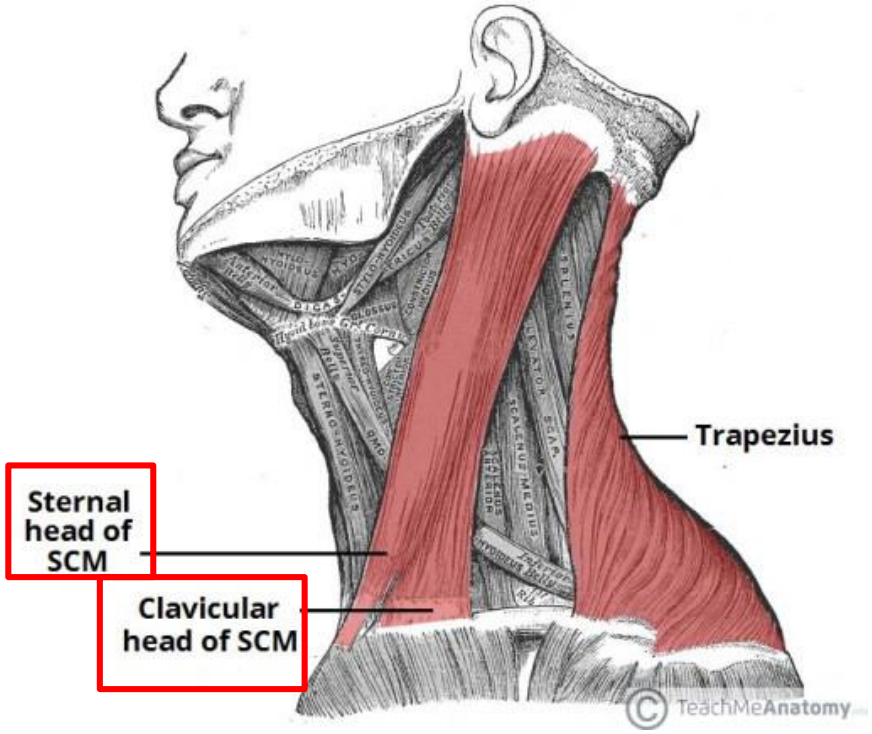
Sternocleidomastoid Muscle

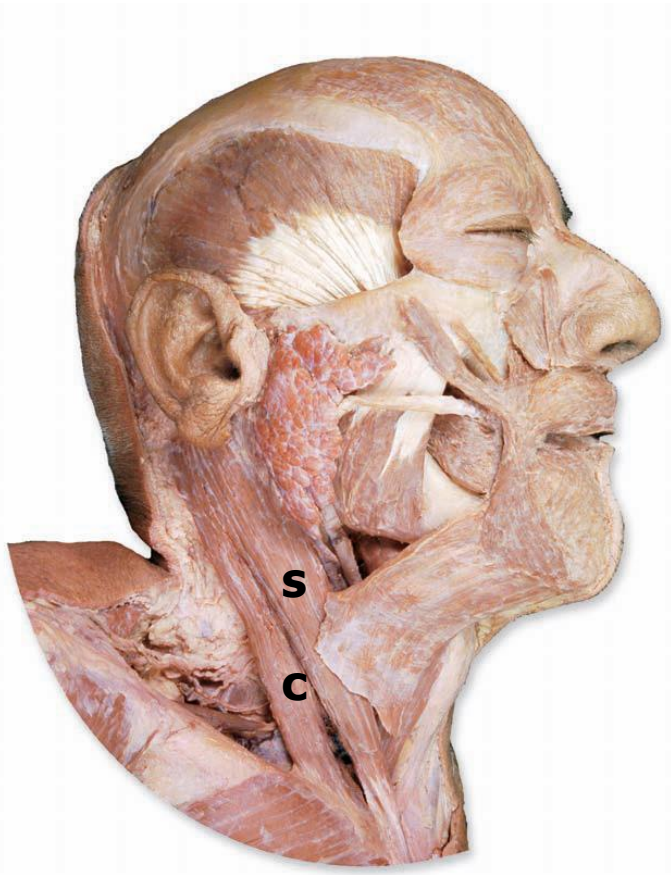
Nerve supply: spinal part of the accessory nerve

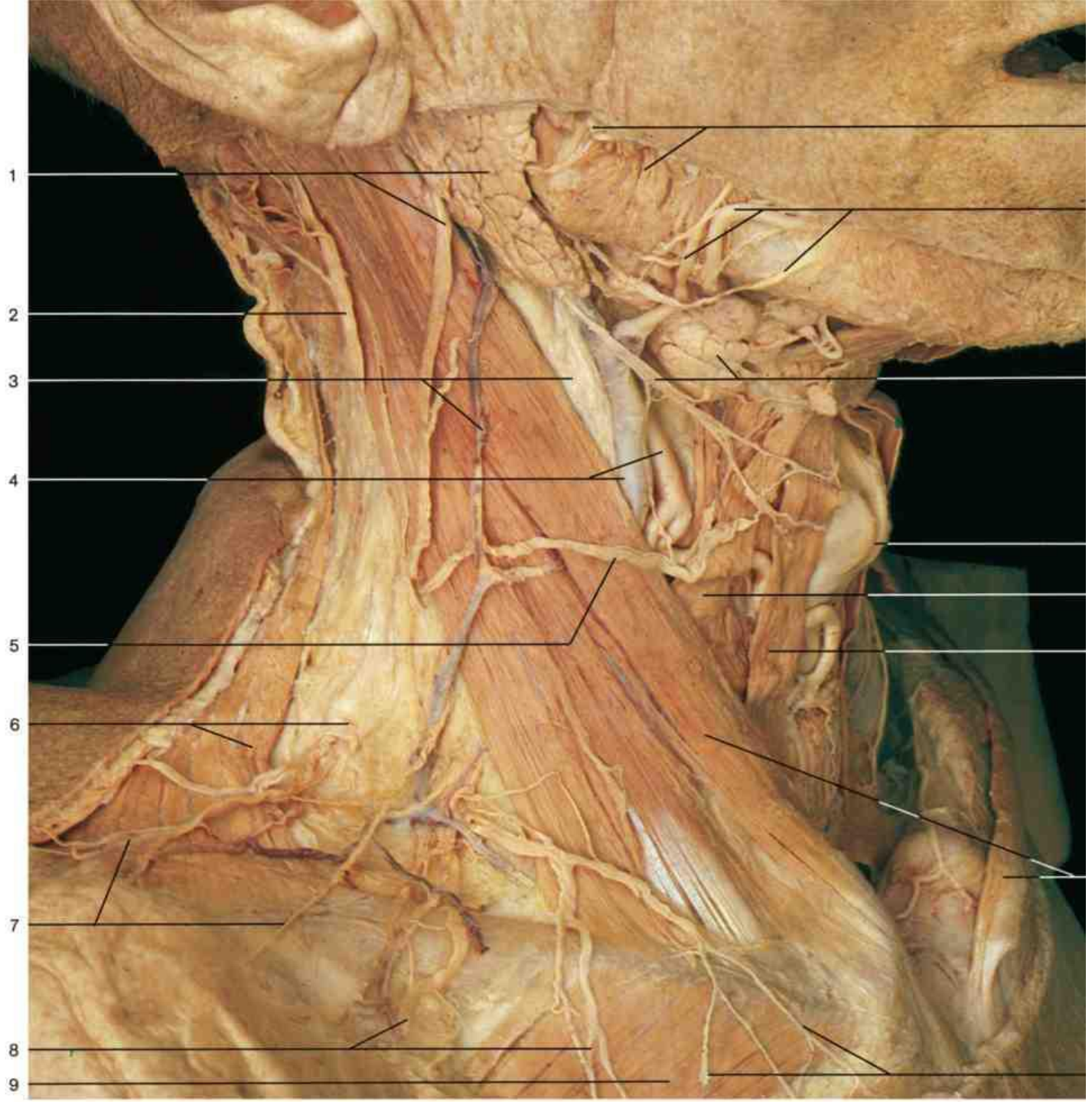
Action: Two muscle acting together extend the head and flex the neck; one muscle rotates head to opposite side



Sternocleidomastoid Muscle



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2
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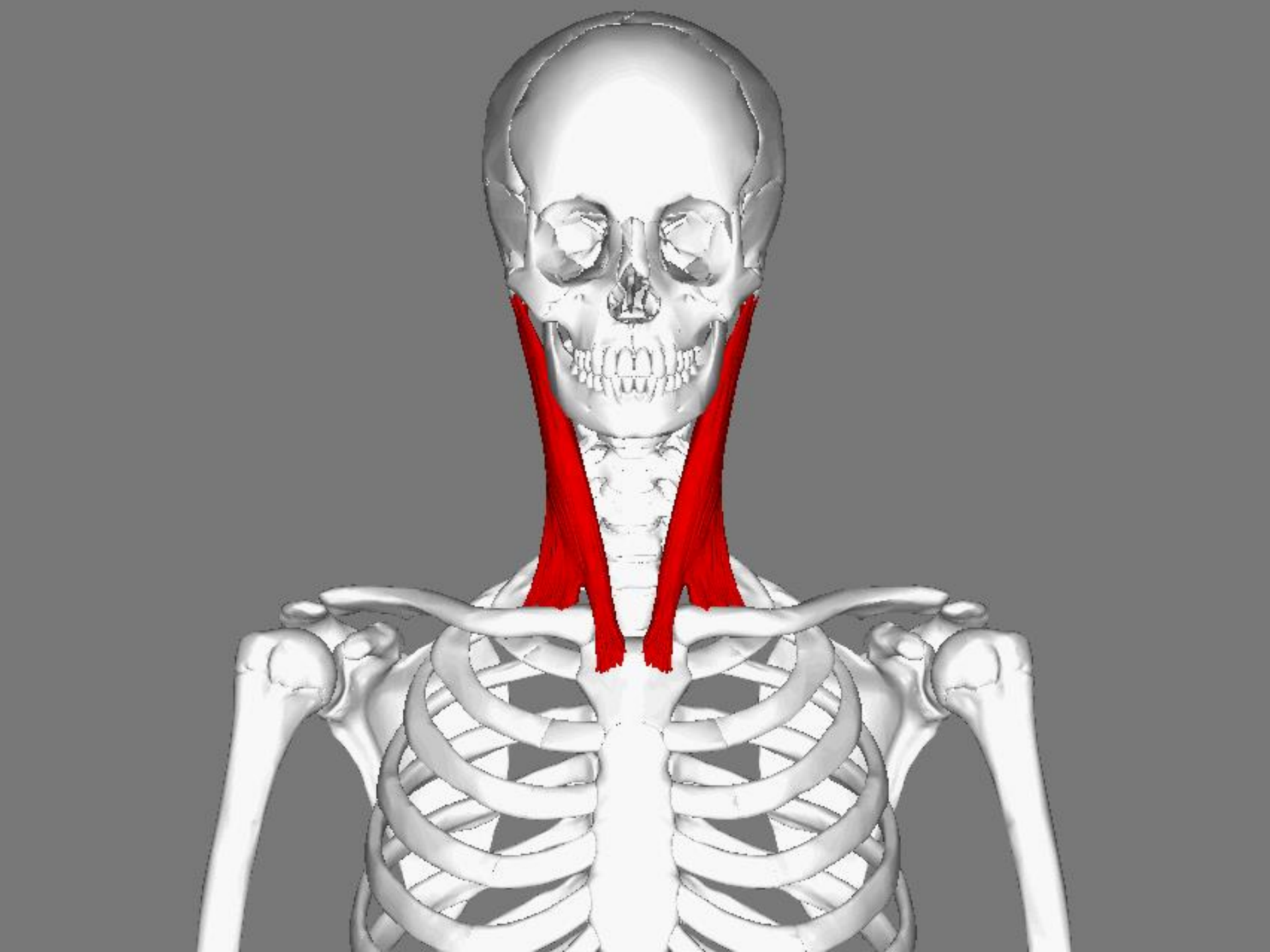
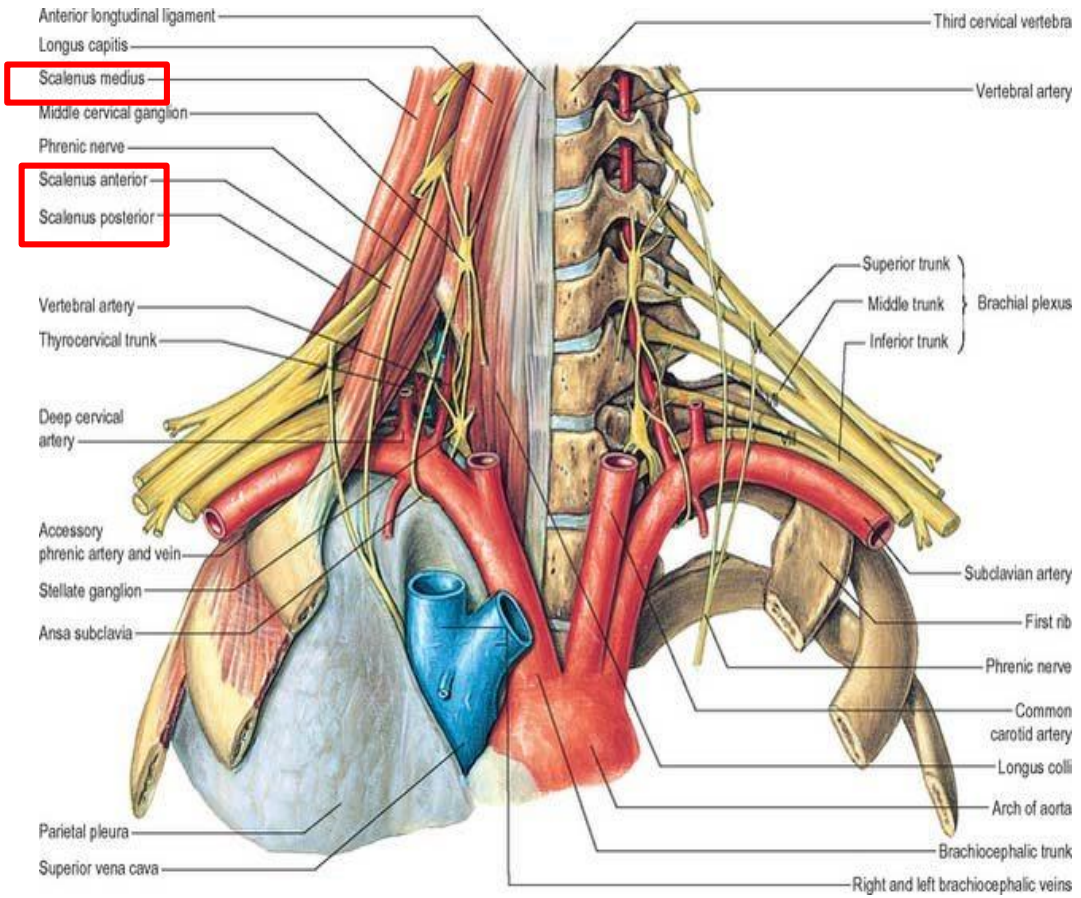


Scalenus Anterior Muscle

It is a key muscle in understanding the root of the neck.

Descends almost vertically from the vertebral column to the first rib.



Scalenus Anterior Muscle

Origin:

- Transverse processes of third, fourth, fifth, and sixth cervical vertebrae

Insertion:

- First rib

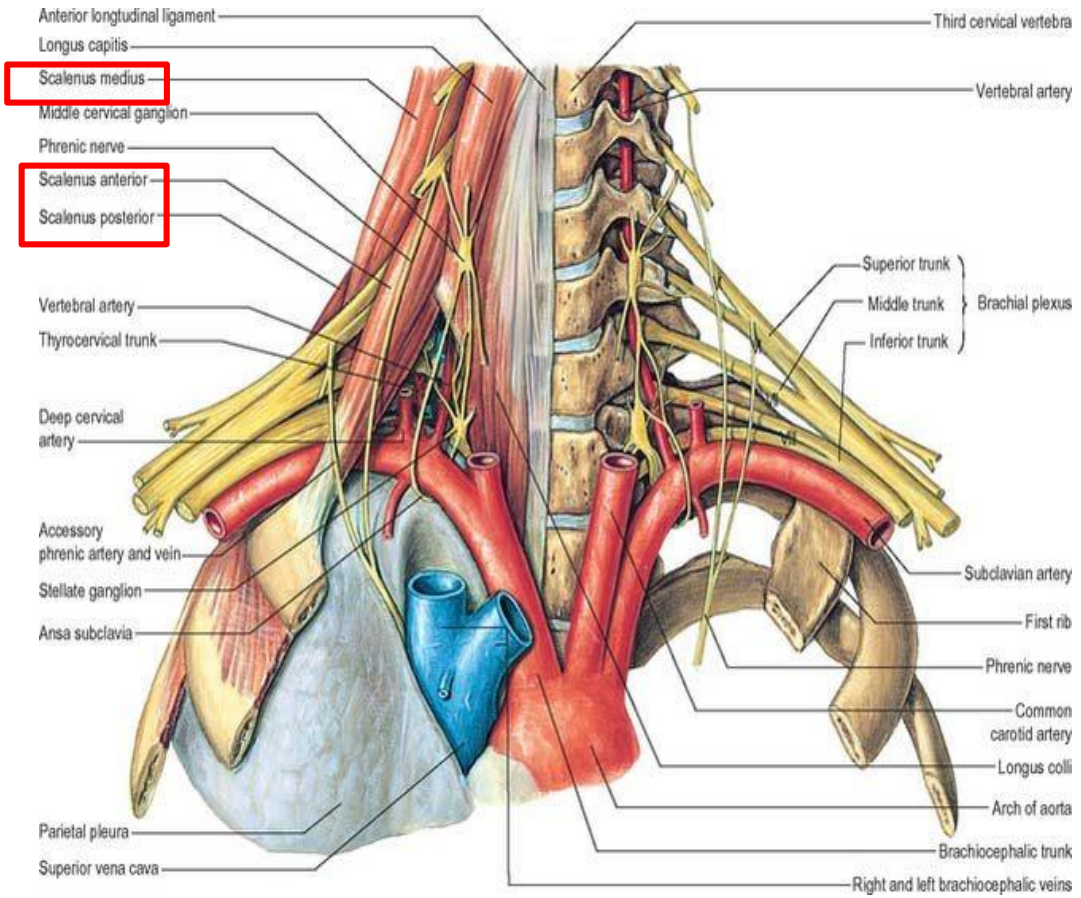
Action:

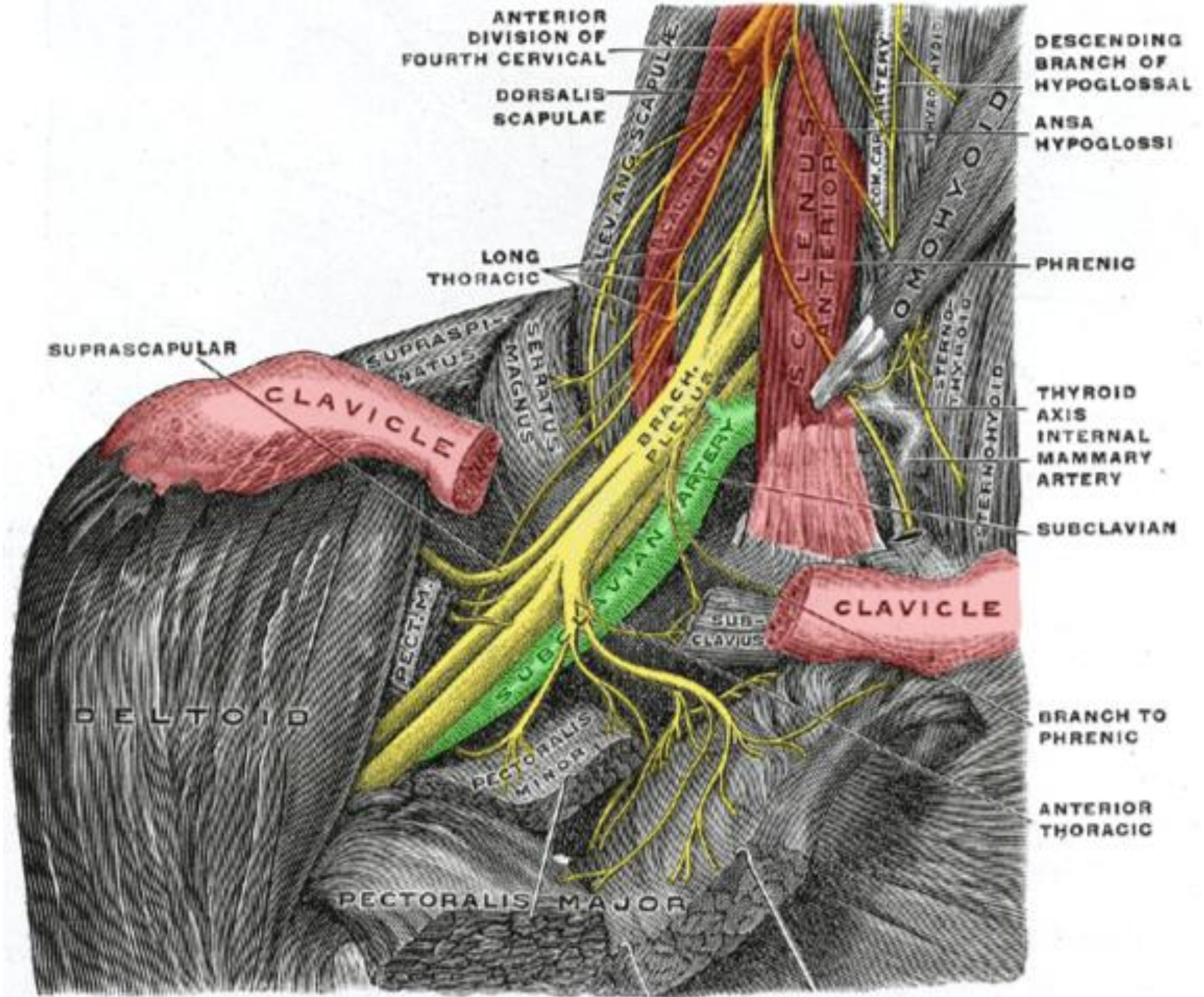
- Elevates first rib, laterally flexes and rotates cervical part of vertebral column

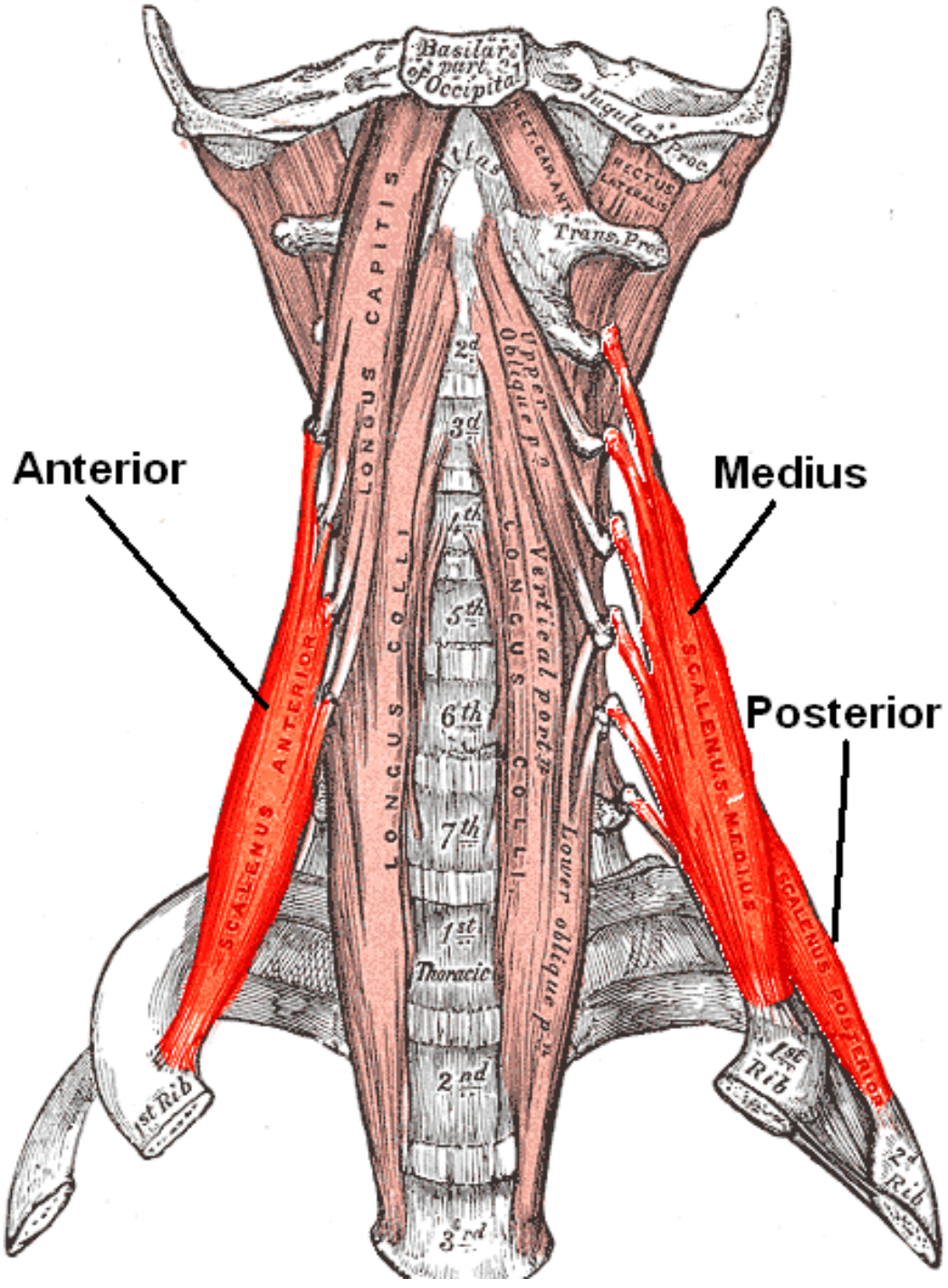
Scalenus Anterior Muscle

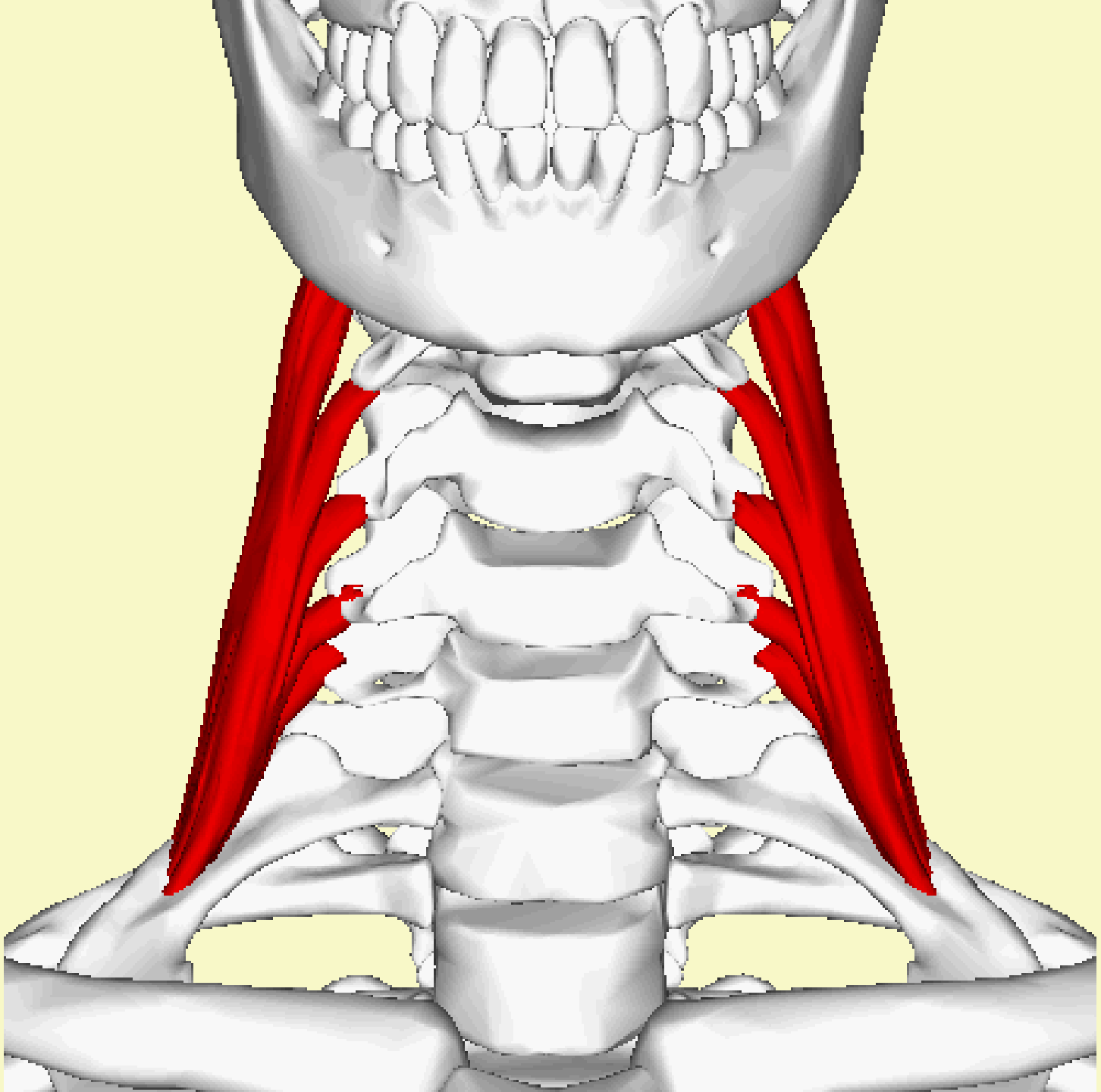
Posteriorly related to the origin of the brachial plexus and subclavian artery.

Anteriorly related to the subclavian vein.




ANTERIOR DIVISION OF FOURTH CERVICAL
DORSALIS SCAPULAE
LONG THORACIC
SUPRASCAPULAR
CLAVICLE
DELTOID
PECT. M.
SUPRASPINATUS
SERRATUS MAGNUS
LEV. ANG. SCAPULAE
SCALENUS ANTERIOR
BRACH. PLEXUS
SUBCLAVIAN ARTERY
SUB-CLAVIUS
PECTORALIS MINOR
PECTORALIS MAJOR
COM. CAR. ARTERY
OMOHYOID
STERNO-THYROID
DESCENDING BRANCH OF HYPOGLOSSAL
ANSA HYPOGLOSSI
PHRENIC
THYROID AXIS
INTERNAL MAMMARY ARTERY
SUBCLAVIAN
CLAVICLE
BRANCH TO PHRENIC
ANTERIOR THORACIC


Anterior
Medius
Posterior
Basilar part of Occipital
Jugular Proc.
Trans. Proc.
RECTUS LATERALIS
RECT. CAPIT. ANT.
LONGUS CAPITIS
LONGUS COLLI
Upper Oblique p.s
Vertical portion
LONGUS COLLI
Lower oblique p.s
SCALENUS ANTERIOR
SCALENUS MEDIUS
SCALENUS POSTERIOR
2d
3d
4th
5th
6th
7th
1st Thoracic
2nd
3rd
1st Rib
1st Rib
2d Rib



Scalenus Medius

- It lies behind the scalenus anterior

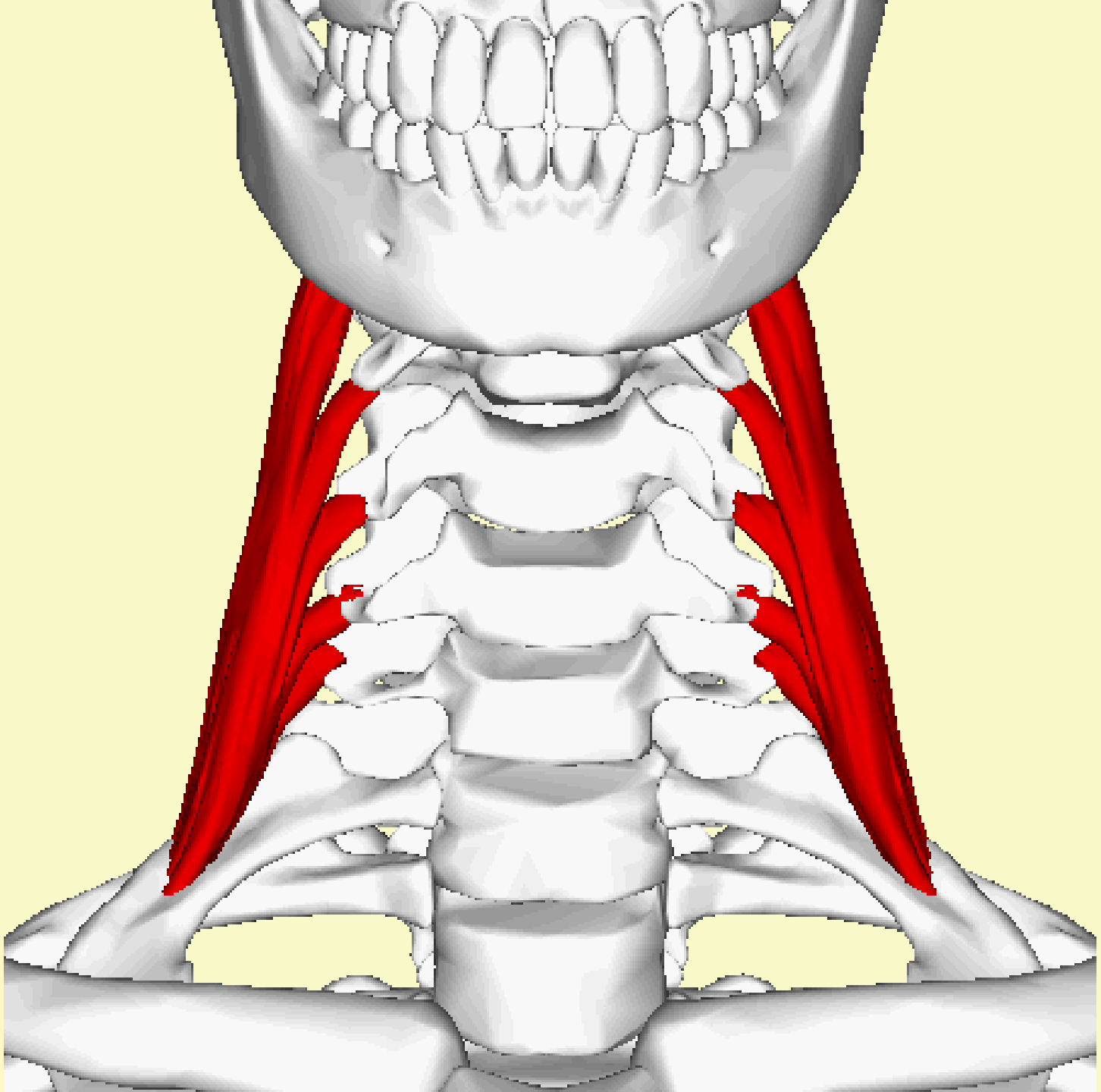
Origin:

- From the transverse process of the atlas and the transverse processes of the next five cervical vertebrae

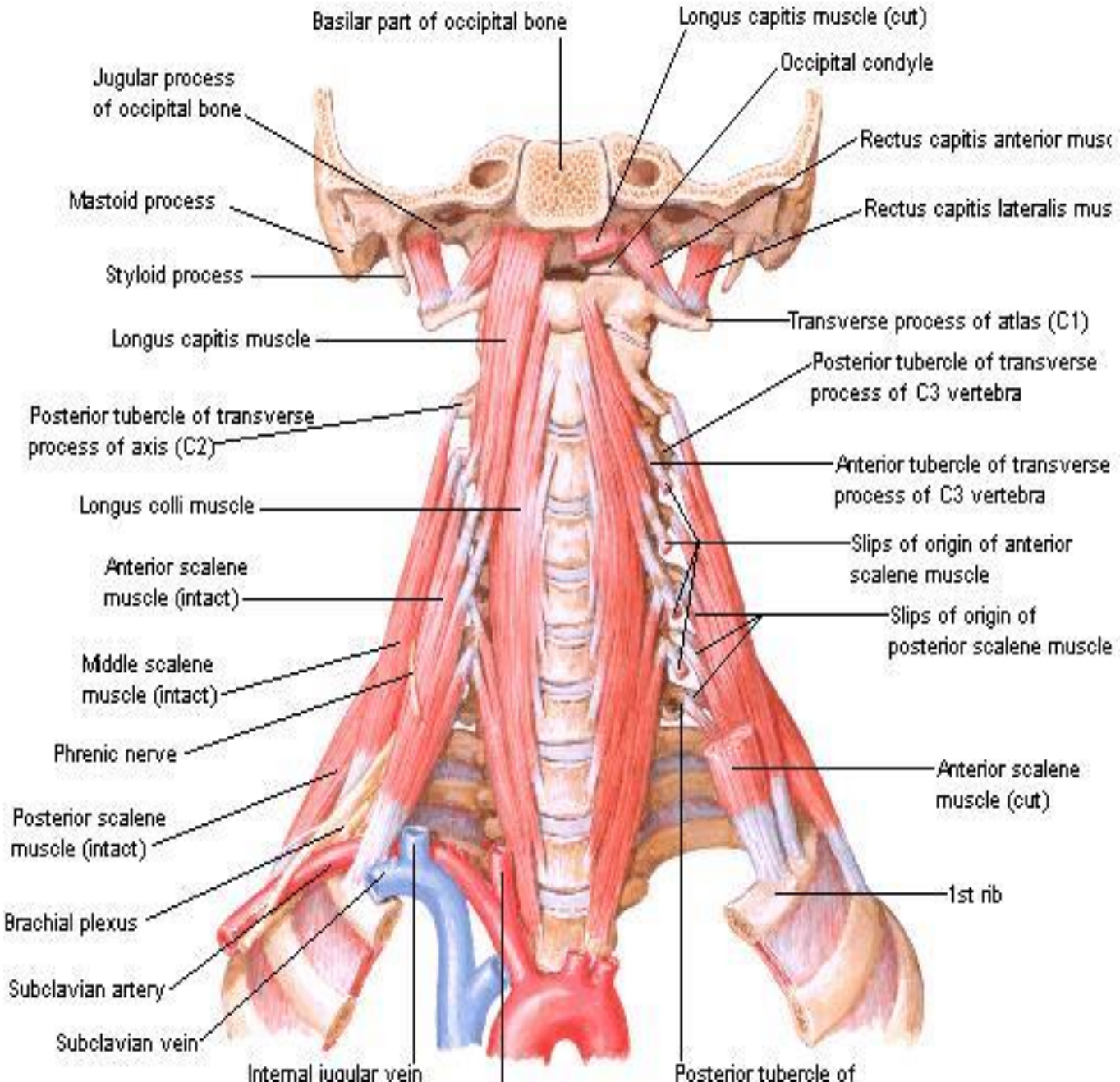
Insertion:

- Into the upper surface of the first rib behind the groove for the subclavian artery

- The muscle lies behind the roots of the brachial plexus and the subclavian artery



Scalene and Prevertebral Muscles



Scalenus Posterior

Origin:

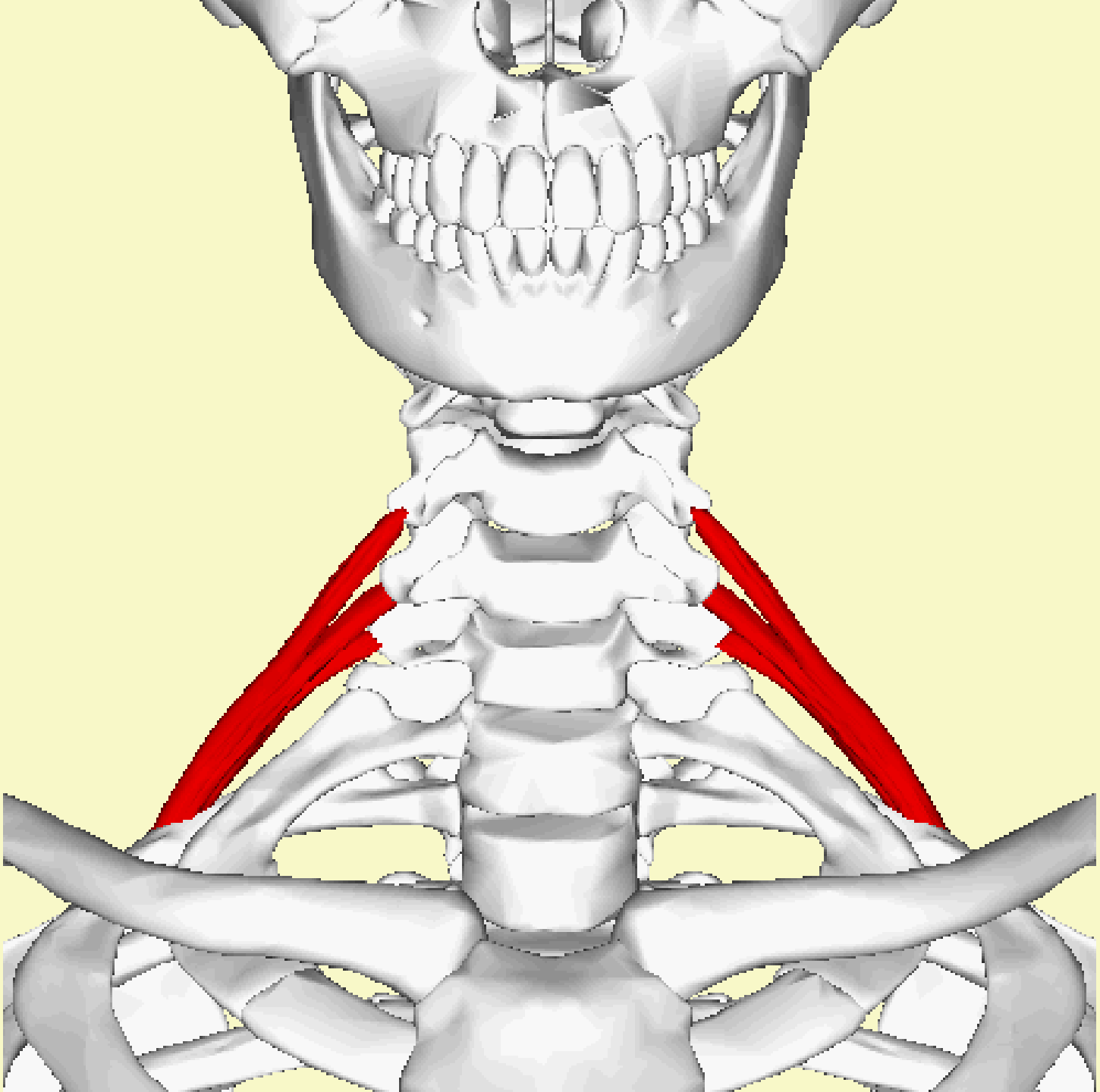
- Transverse processes of lower cervical vertebrae

Insertion:

- Second rib

Action:

- Elevates second rib, laterally flexes and rotates cervical part of vertebral column

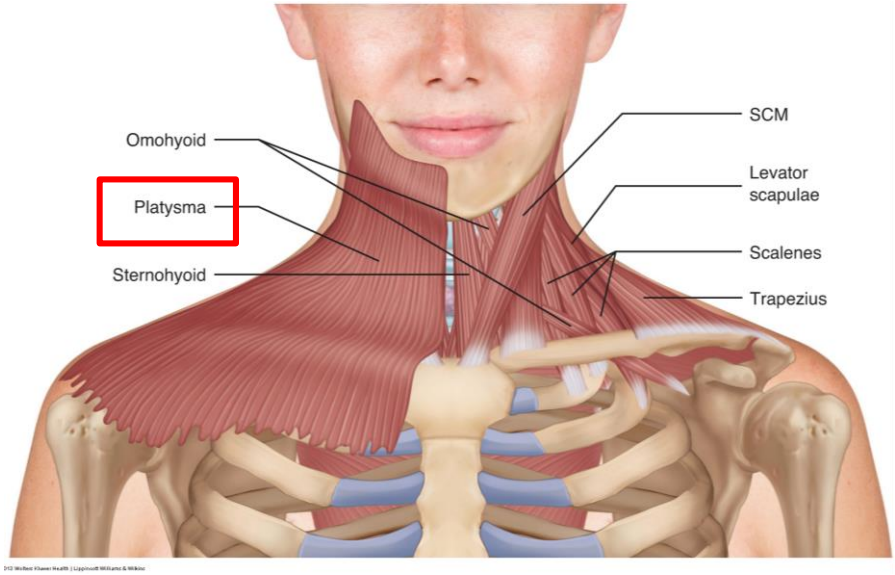


Cervical Fascia - Superficial Fascia

It is a thin layer of connective tissue in the neck contains a thin sheet of muscle (the **platysma**).

Begins in the superficial fascia of the thorax, runs upward to attach to the mandible and blend with the muscles on the face.

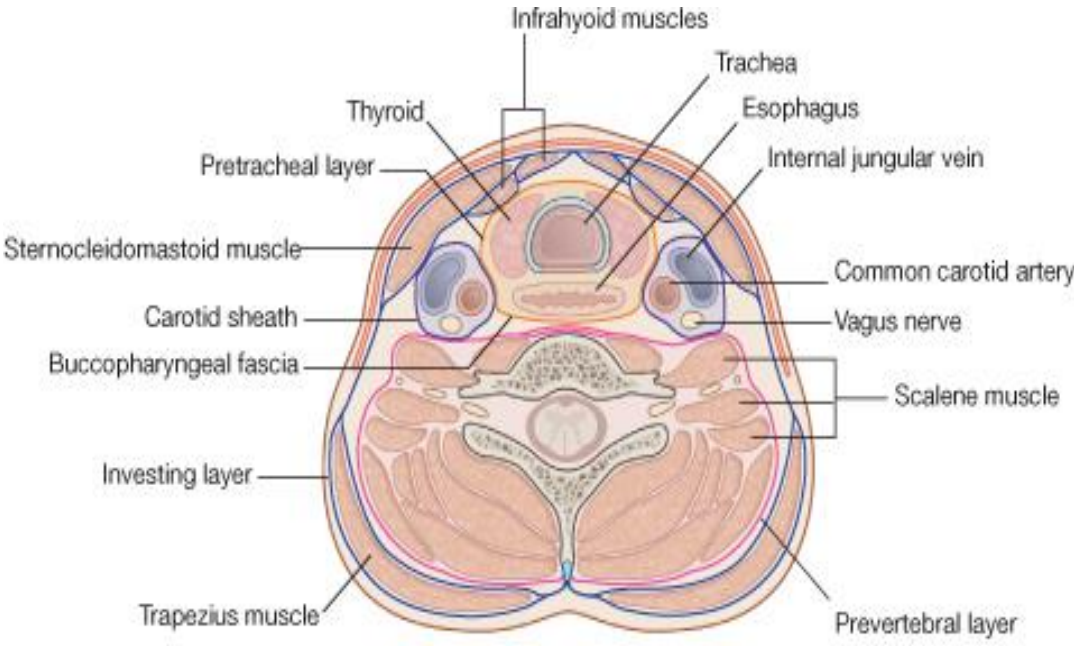
it is innervated by the cervical branch of the facial nerve**.**



Cervical Fascia - Deep Fascia

The deep cervical fascia is organized into several distinct layers, these include:

1. **The Investing layer**
2. **The prevertebral layer**
3. **The pretracheal layer**
4. **The carotid sheaths**



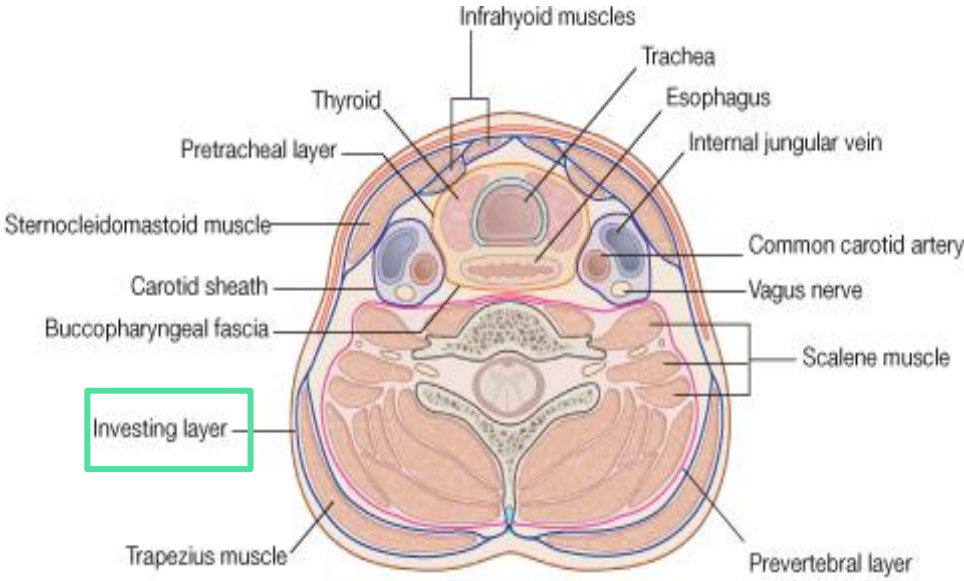
The Investing Layer

Encircles the neck

It splits to enclose the trapezius muscle

Reunites into a single layer as it forms the roof of the posterior triangle

Splits again to surround the sternocleidomastoid muscle.

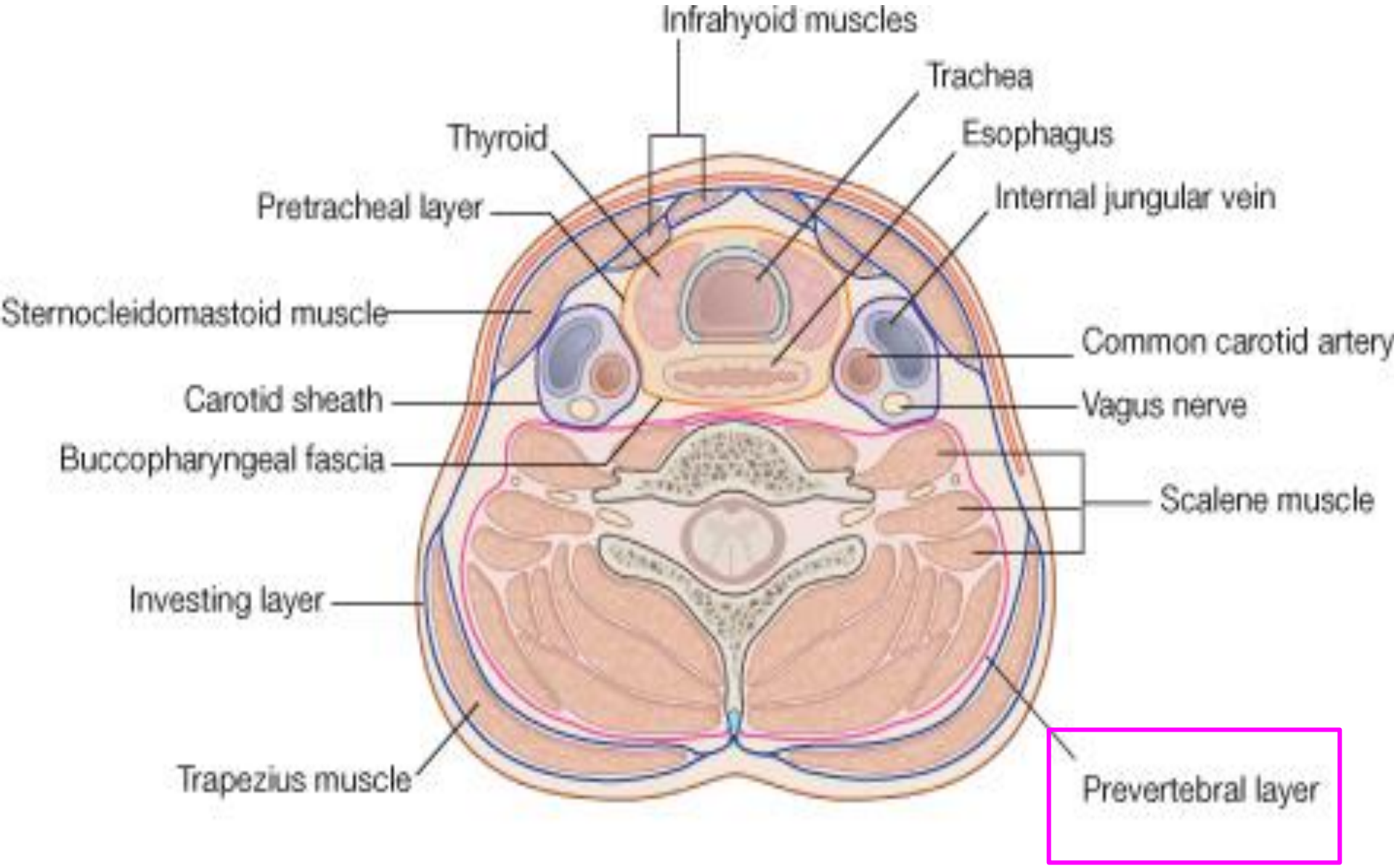


The Prevertebral Layer

It surrounds the vertebral column and the muscles associated with it, including:

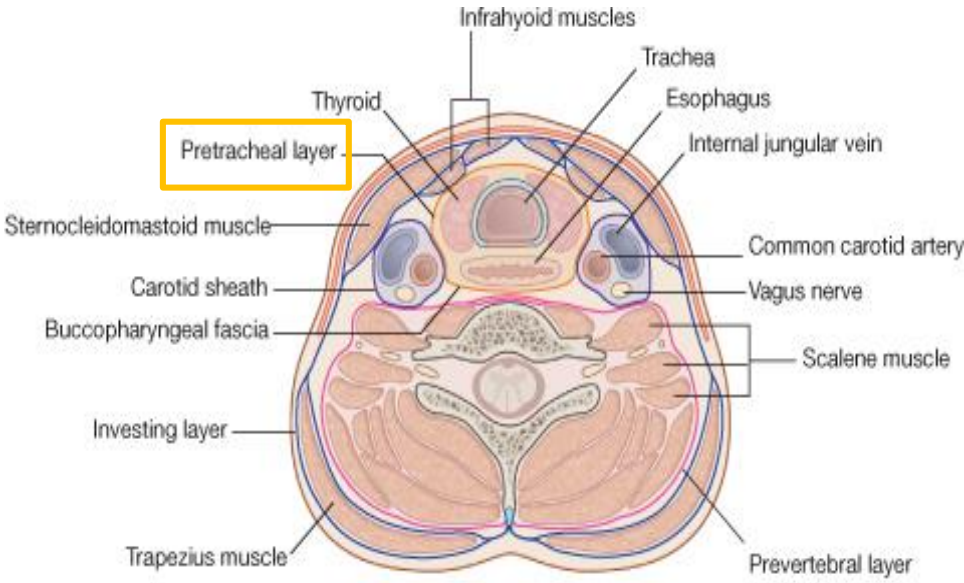
1. The prevertebral muscles
2. The anterior, middle, and posterior scalene muscles
3. The deep muscles of the back

The prevertebral fascia in an anterolateral position extends from the anterior and middle scalene muscles to surround the *brachial plexus and subclavian artery* as these structures pass into the axilla. This fascial extension is the **axillary sheath.**


Infrahyoid muscles
Trachea
Thyroid
Esophagus
Pretracheal layer
Internal jungular vein
Sternocleidomastoid muscle
Common carotid artery
Carotid sheath
Vagus nerve
Buccopharyngeal fascia
Scalene muscle
Investing layer
Trapezius muscle
Prevertebral layer

The Pretracheal Layer

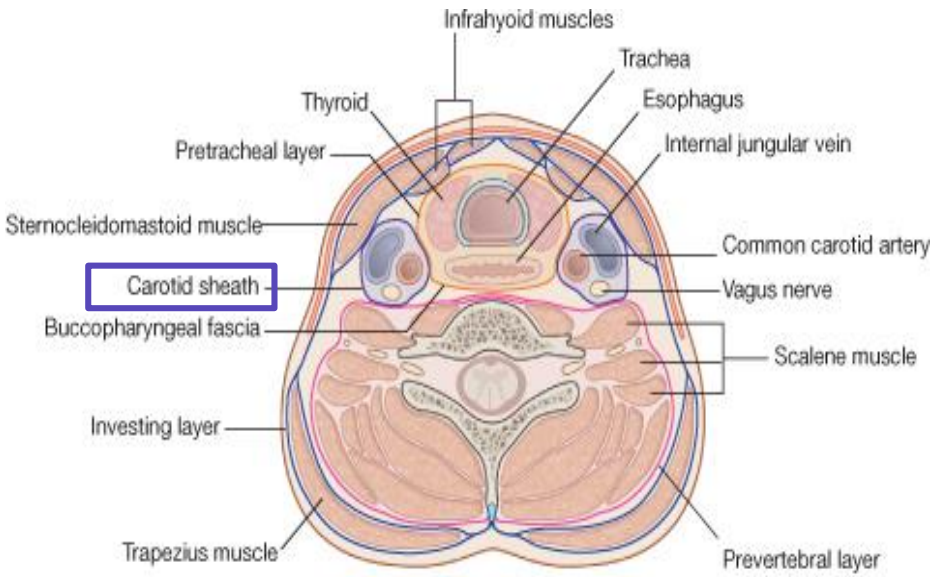
- It encloses the viscera of the neck; including the **trachea**, **esophagus**, and **thyroid gland**.



The Carotid Sheaths

They receive a contribution from the other three fascial layers

Surround the common carotid artery, the **internal carotid artery**, the **internal jugular vein**, and the **vagus nerve** as these structures pass through the neck..

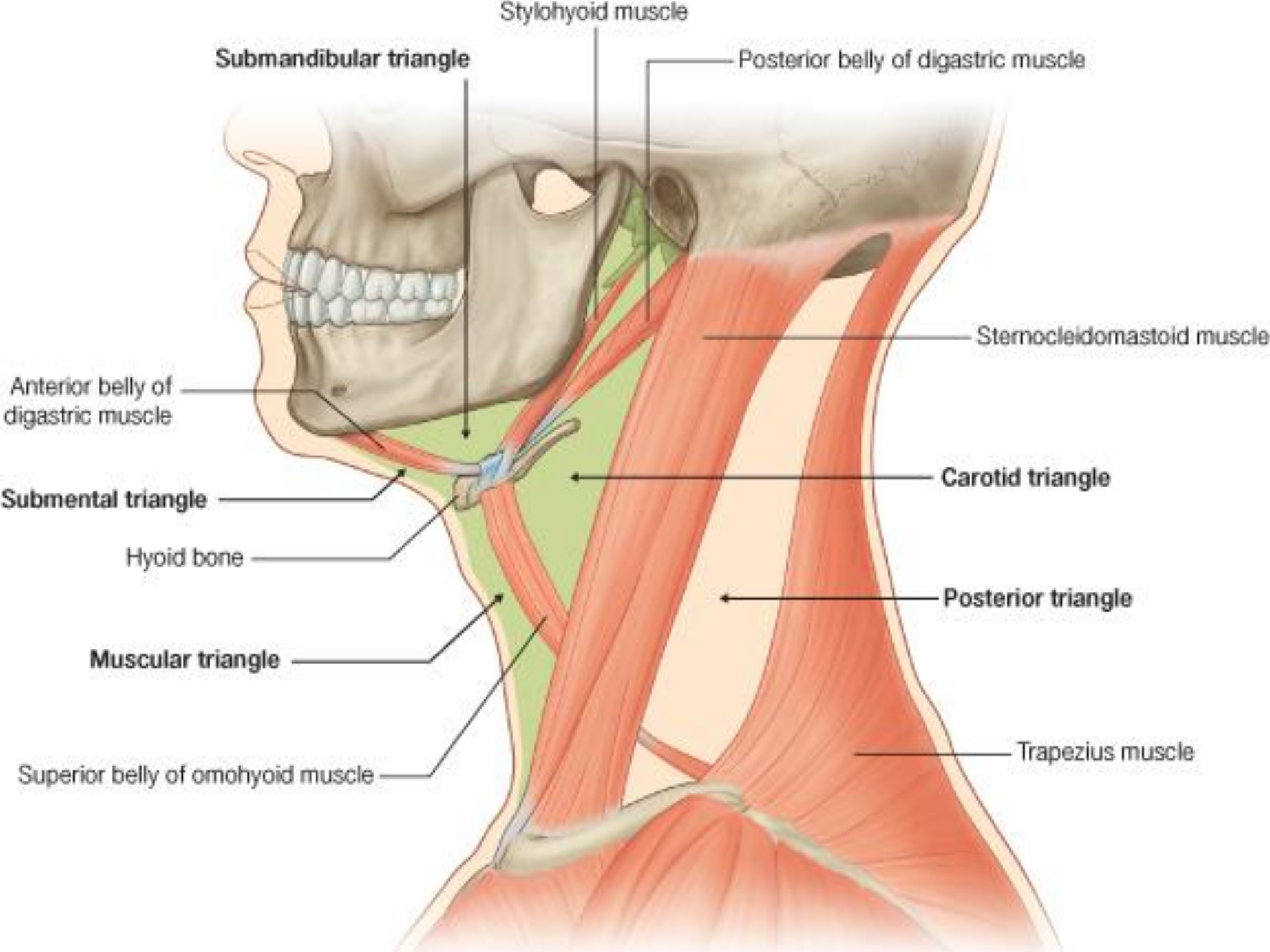


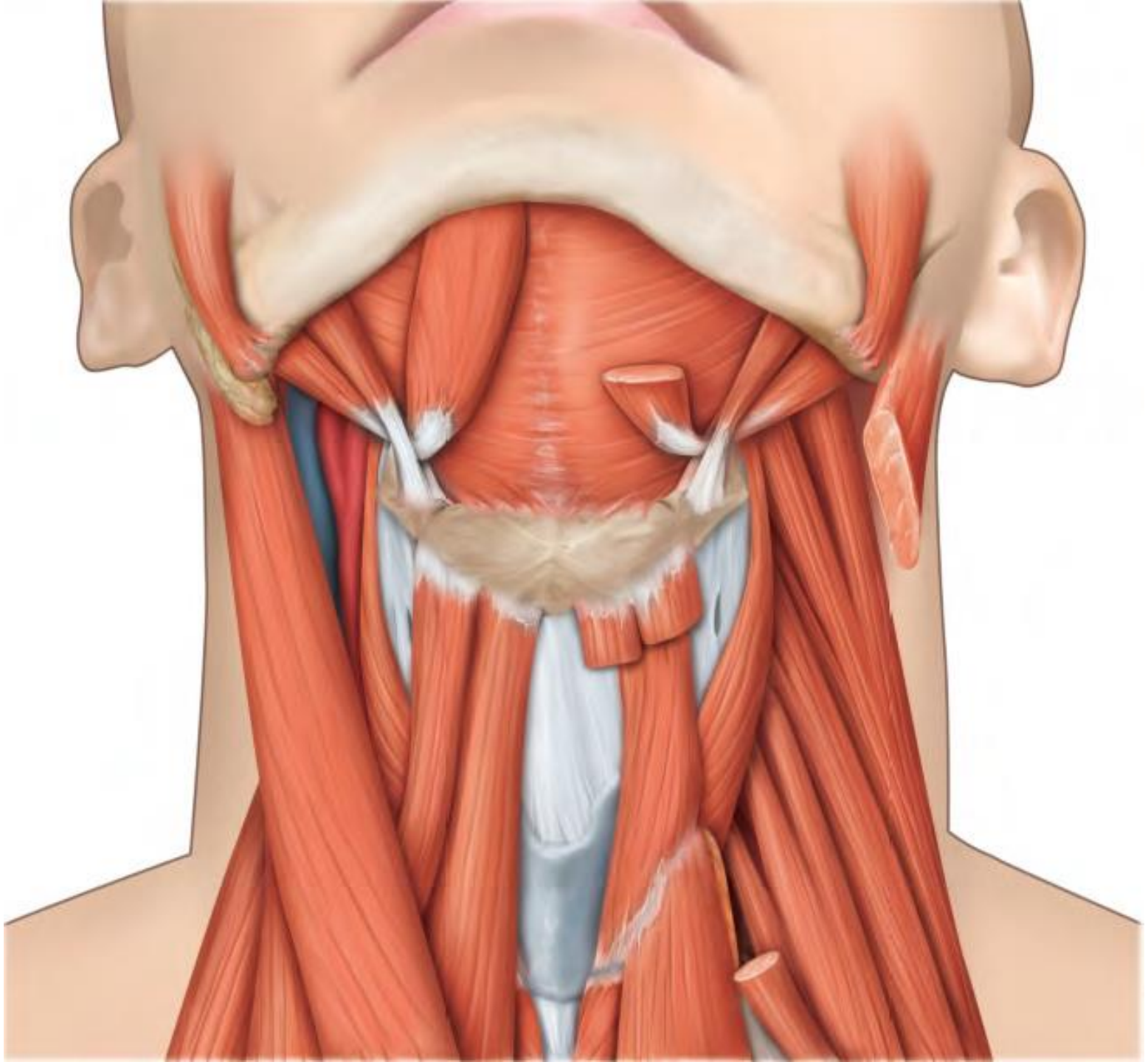
Anterior Triangle

It is further subdivided into several smaller triangles as follows:

1. **The submandibular** (also called digastric)
2. **The submental triangle**
3. **The muscular triangle**
4. **The carotid triangle**

Each of these triangles contains numerous structures that can be identified as being within a specific triangle.


Stylohyoid muscle
Submandibular triangle
Posterior belly of digastric muscle
Sternocleidomastoid muscle
Anterior belly of digastric muscle
Carotid triangle
Submental triangle
Hyoid bone
Posterior triangle
Muscular triangle
Trapezius muscle
Superior belly of omohyoid muscle



Anterior Triangle

The submandibular: outlined by the inferior border of the mandible superiorly and the anterior and posterior bellies of the digastric muscle inferiorly.

The submental triangle: outlined by the hyoid bone inferiorly, the anterior belly of the digastric muscle laterally, and the midline.

Anterior Triangle

The muscular triangle: outlined by the hyoid bone superiorly, the superior belly of the omohyoid muscle, and the anterior border of the sternocleidomastoid muscle laterally, and the midline.

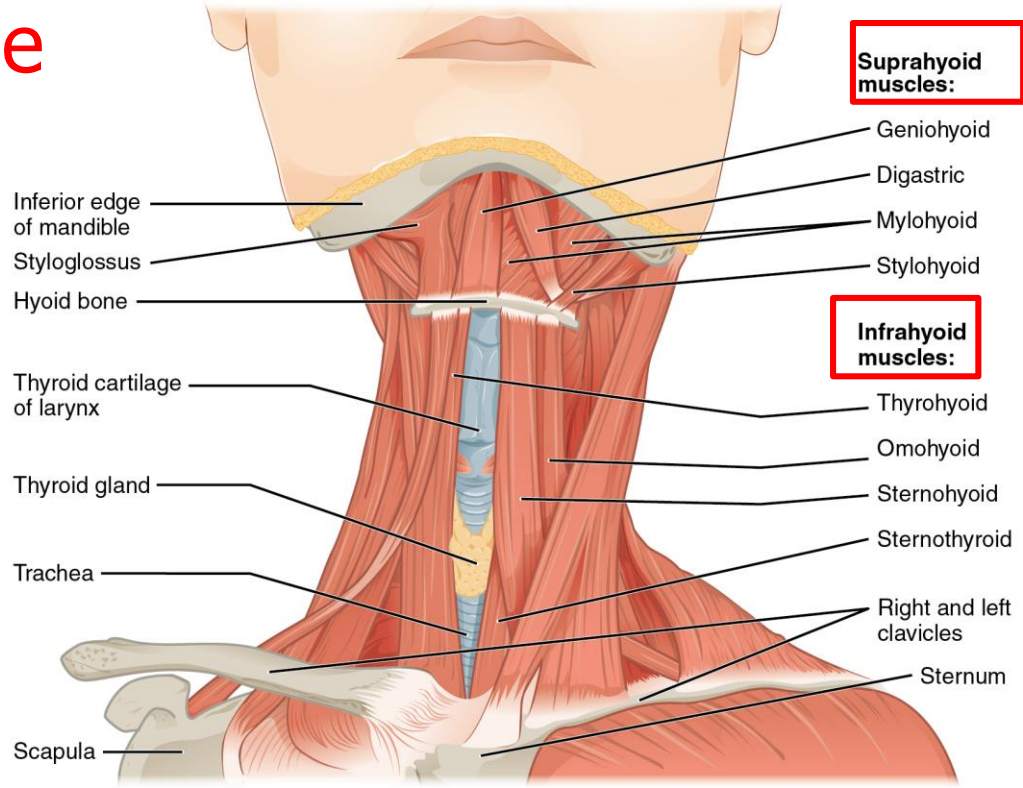
The carotid triangle: outlined by the superior belly of the omohyoid muscle anteroinferiorly, the stylohyoid muscle and posterior belly of the digastric superiorly, and the anterior border of the sternocleidomastoid muscle posteriorly.

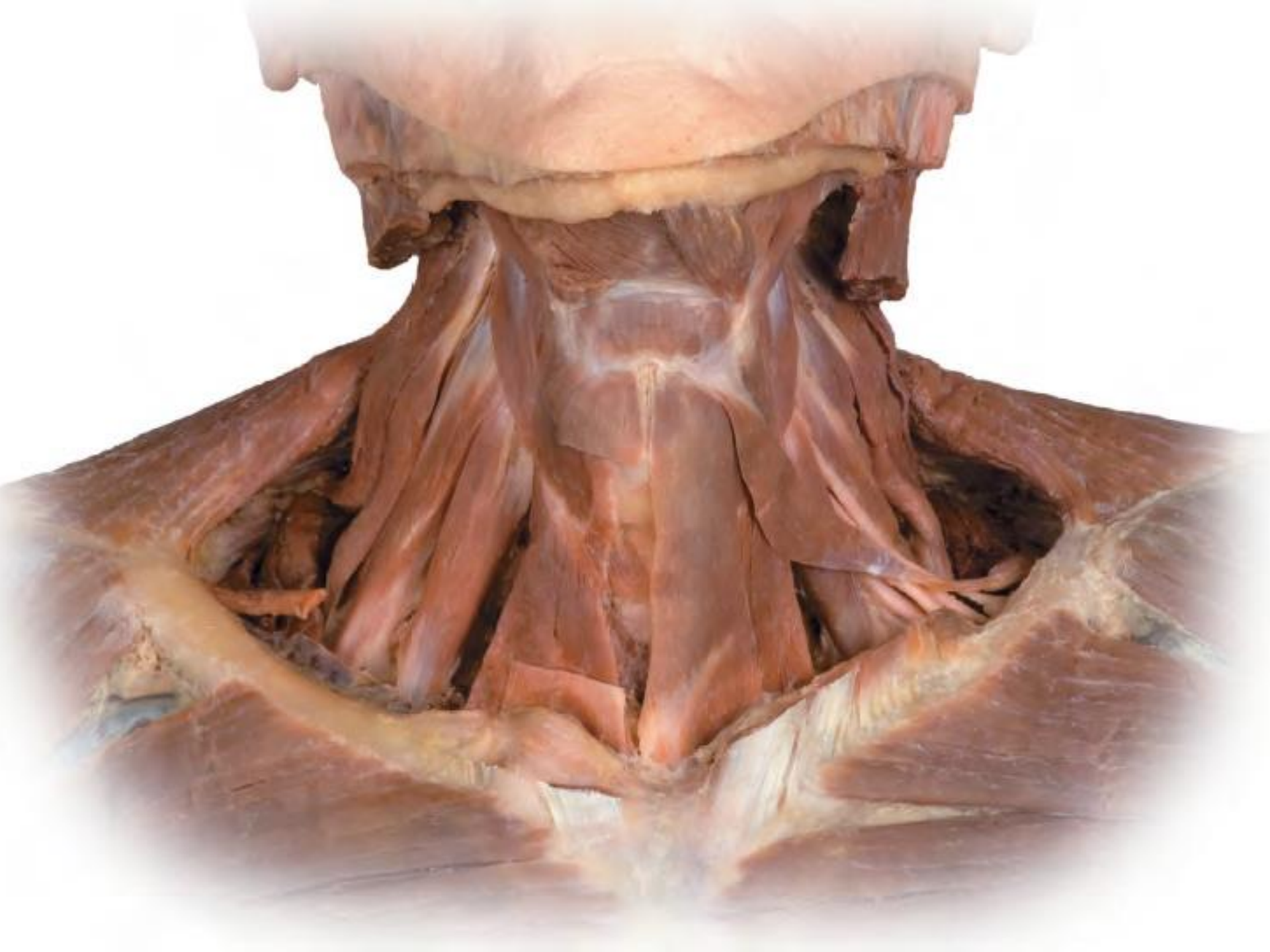
Muscles of Anterior Triangle

Can be grouped according to their location relative to the hyoid bone:

1. **Suprahyoid muscles**

2. **Infrahyoid muscles**





Suprahyoid Muscles

Include 4 muscle that lie above the hyoid bone:

1. **Stylohyoid**
2. **Digastric**
3. **Mylohyoid**
4. **Geniohyoid**

They pass in a superior direction from the hyoid bone to the skull or mandible and raise the hyoid, as occurs during swallowing.

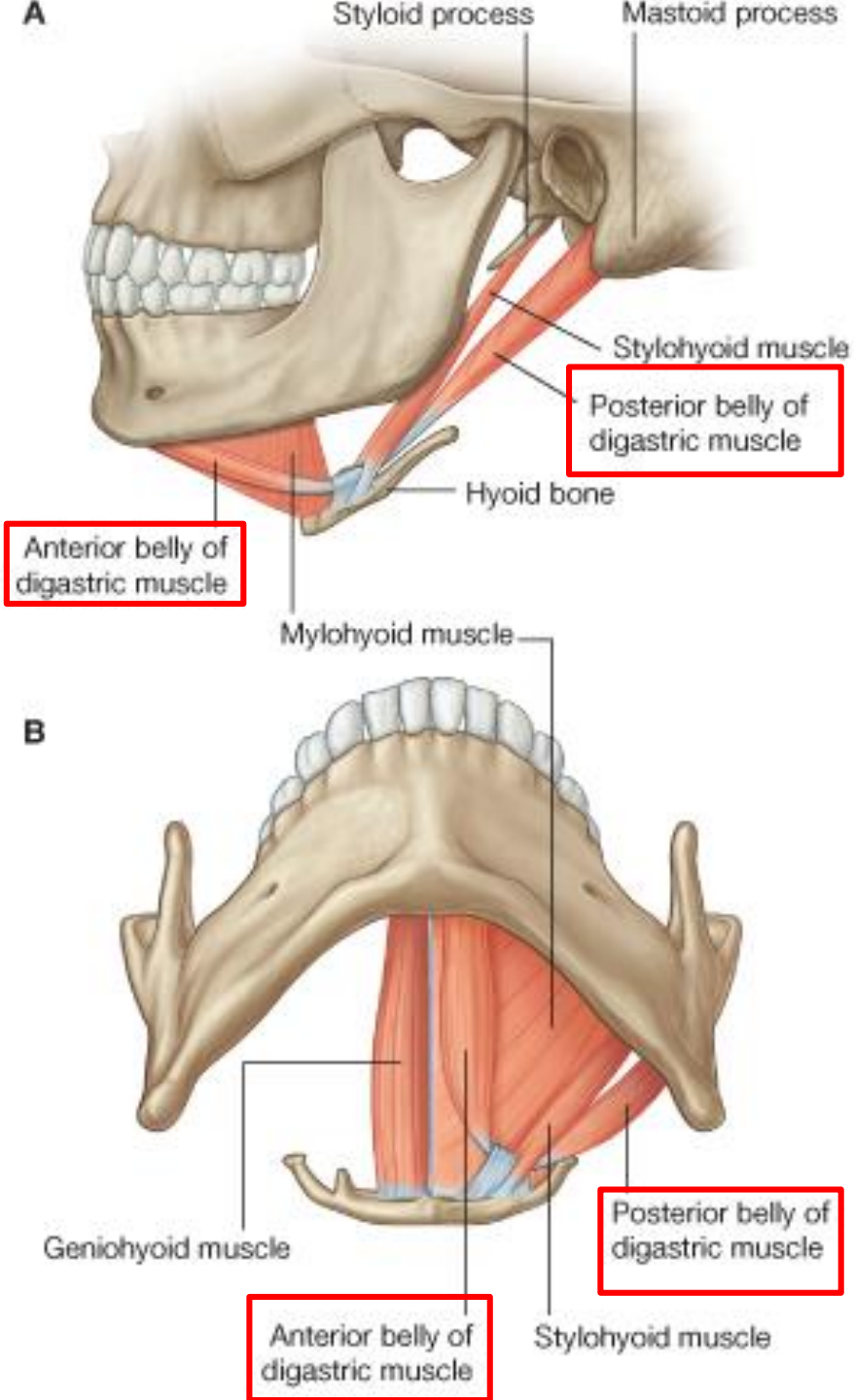
Digastric Muscle

Origin:

Anterior belly: Digastric fossa on the body of mandible

Posterior belly: Medial side of mastoid process of temporal bone

Insertion: Intermediate tendon is held to the hyoid bone by facial sling


A
Styloid process
Mastoid process
Stylohyoid muscle
Posterior belly of digastric muscle
Hyoid bone
Anterior belly of digastric muscle
Mylohyoid muscle
B
Geniohyoid muscle
Posterior belly of digastric muscle
Anterior belly of digastric muscle
Stylohyoid muscle

Digastric Muscle

Nerve supply:

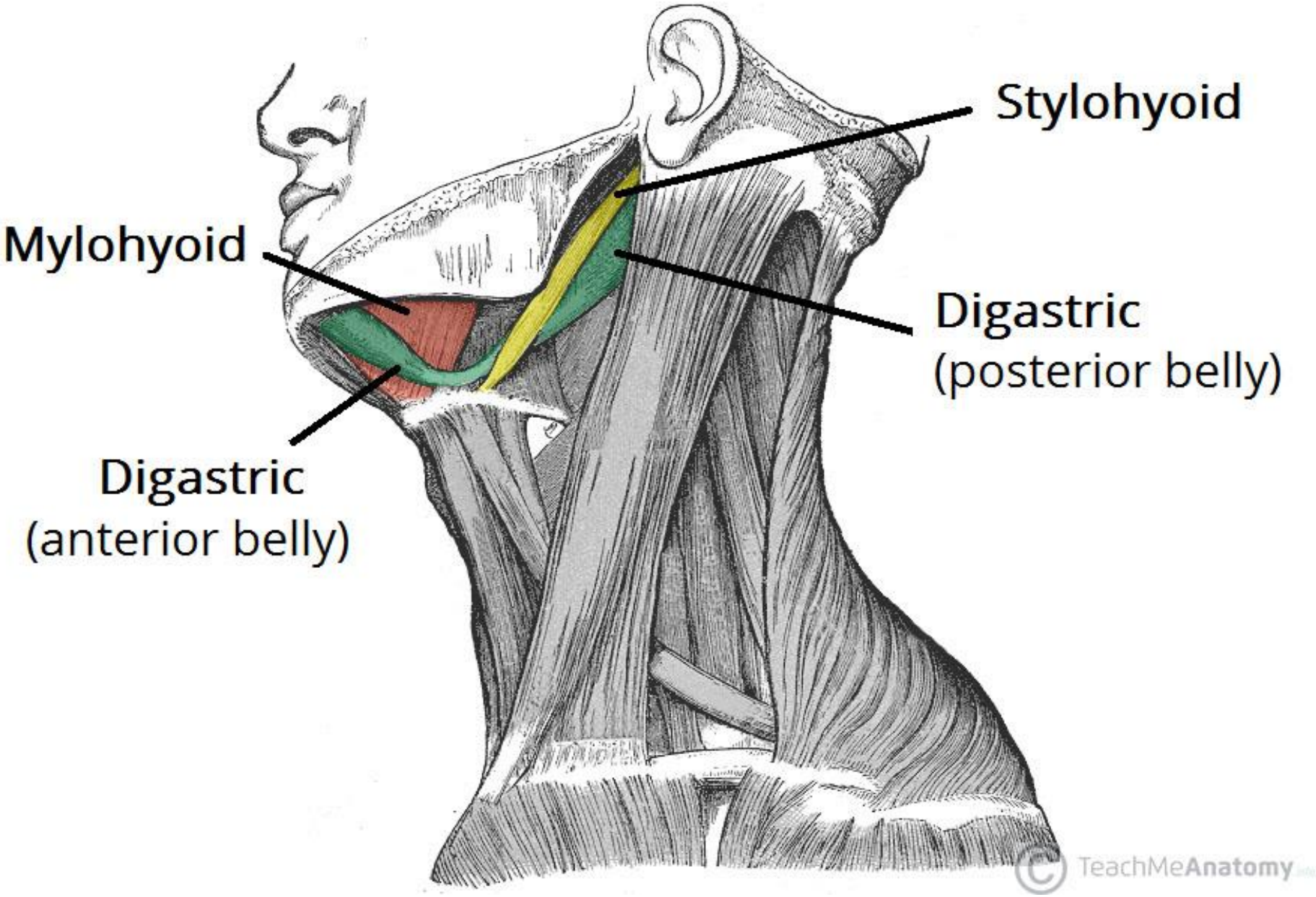
Anterior belly: Mylohyoid N. from mandibular N.

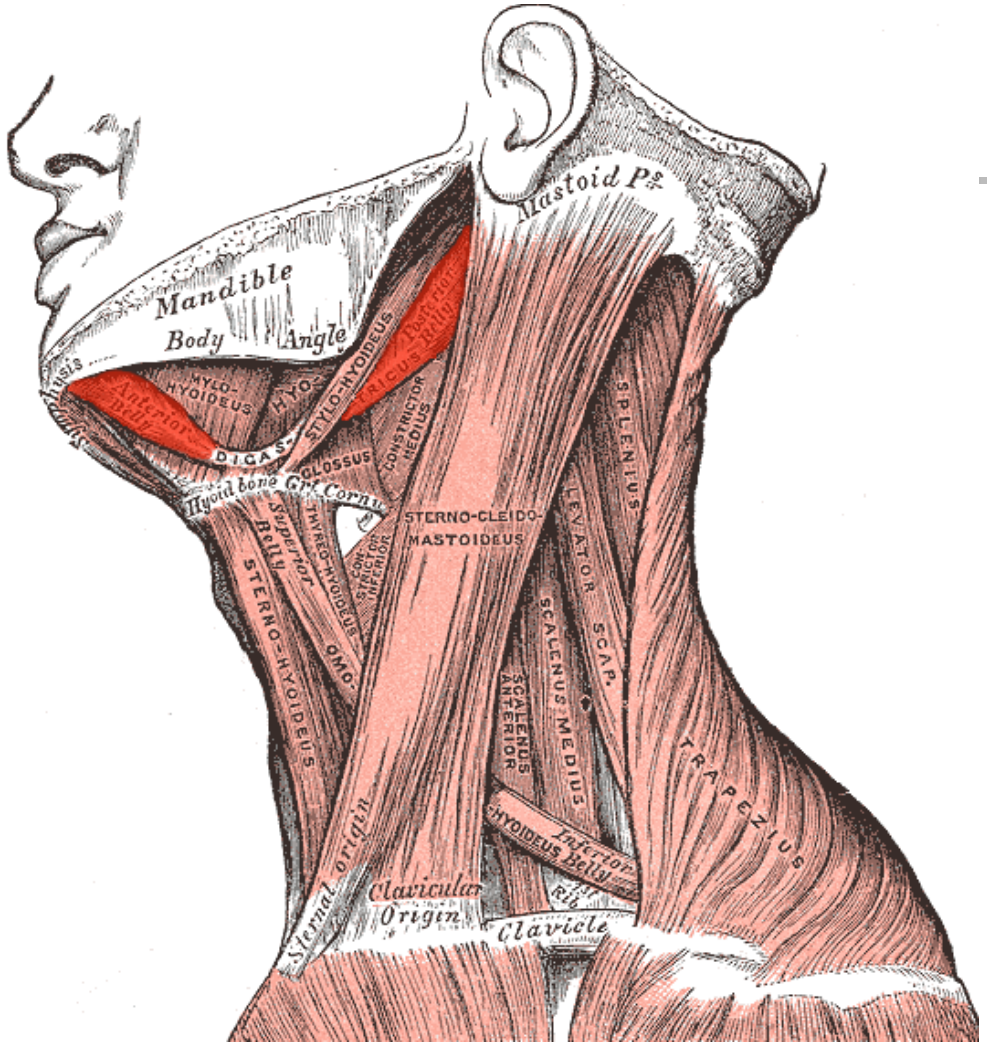
Posterior belly: Facial N.

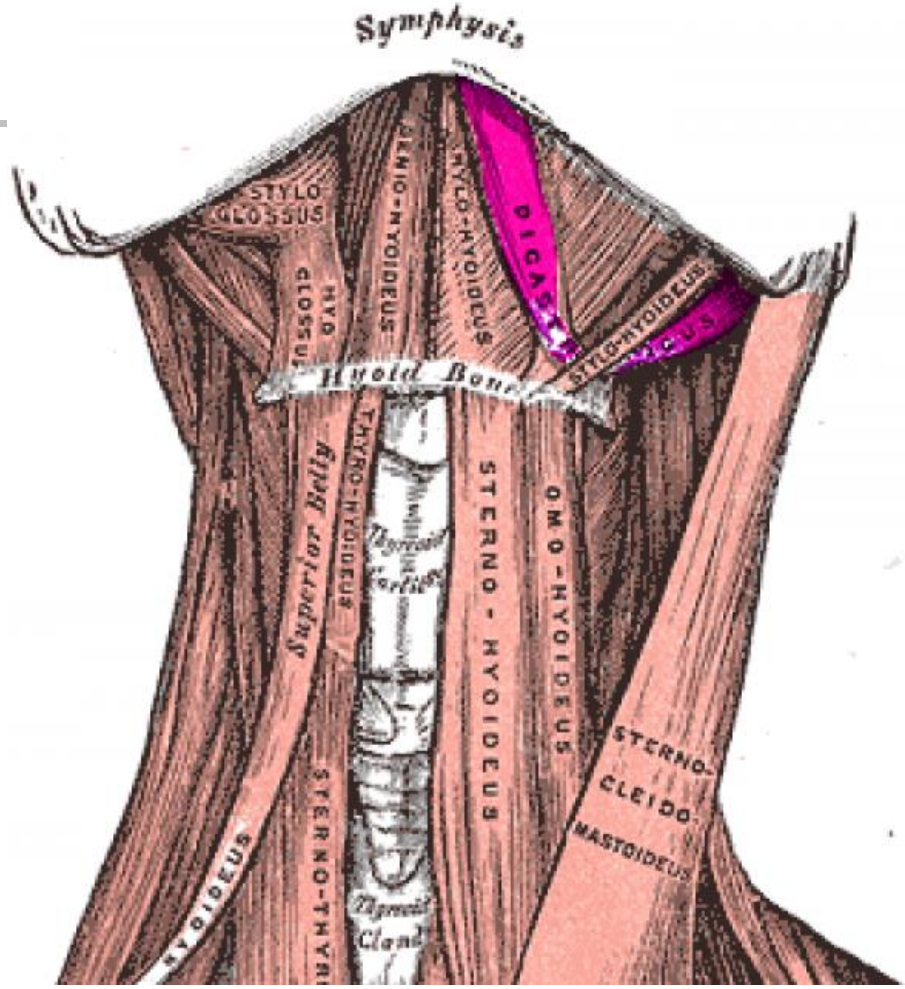
Action:

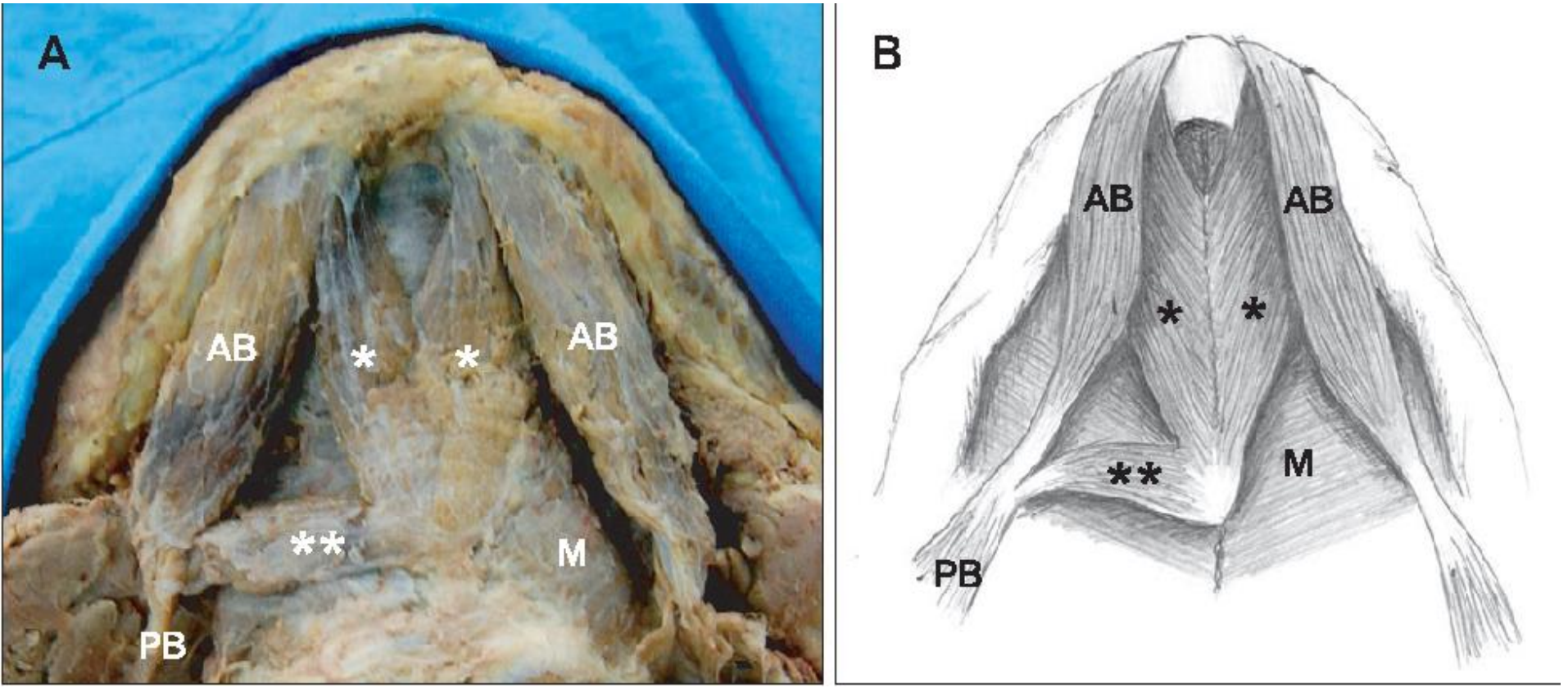
Depresses mandible

Raises hyoid bone (swallowing)


Stylohyoid
Mylohyoid
Digastric
(posterior belly)
Digastric
(anterior belly)
TeachMeAnatomy


Mastoid Ps
Mandible
Body
Angle
Symphysis
Anterior Belly
HYLO-HYOIDEUS
STYLO-HYOIDEUS
Posterior Belly
DIGAS.
GLOSSUS
CONSTRICTOR MEDIUS
Hyoid bone
Gr. Cornu
STERNO-CLEIDO-MASTOIDEUS
SPLENIUS
LEVATOR SCAP.
Superior Belly
THYRO-HYOIDEUS
OMO.
STERNO-HYOIDEUS
SCALENUS ANTERIOR
SCALENUS MEDIUS
TRAPEZIUS
Sternal origin
Clavicular Origin
Clavicle


Symphysis
STYLO GLOSSUS
GENIO-HYOIDEUS
HYLO-HYOIDEUS
DIGAS.
STYLO-HYOIDEUS
Hyoid Bone
Superior Belly
THYRO-HYOIDEUS
STERNO - HYOIDEUS
OMO-HYOIDEUS
STERNO-CLEIDO-MASTOIDEUS


A
AB
*
*
AB
**
M
PB
B
AB
AB
*
*
**
M
PB

Suprahyoid Group - Digastric

Origin
Anterior Belly

Origin
Posterior Belly

Stylohyoid Muscle

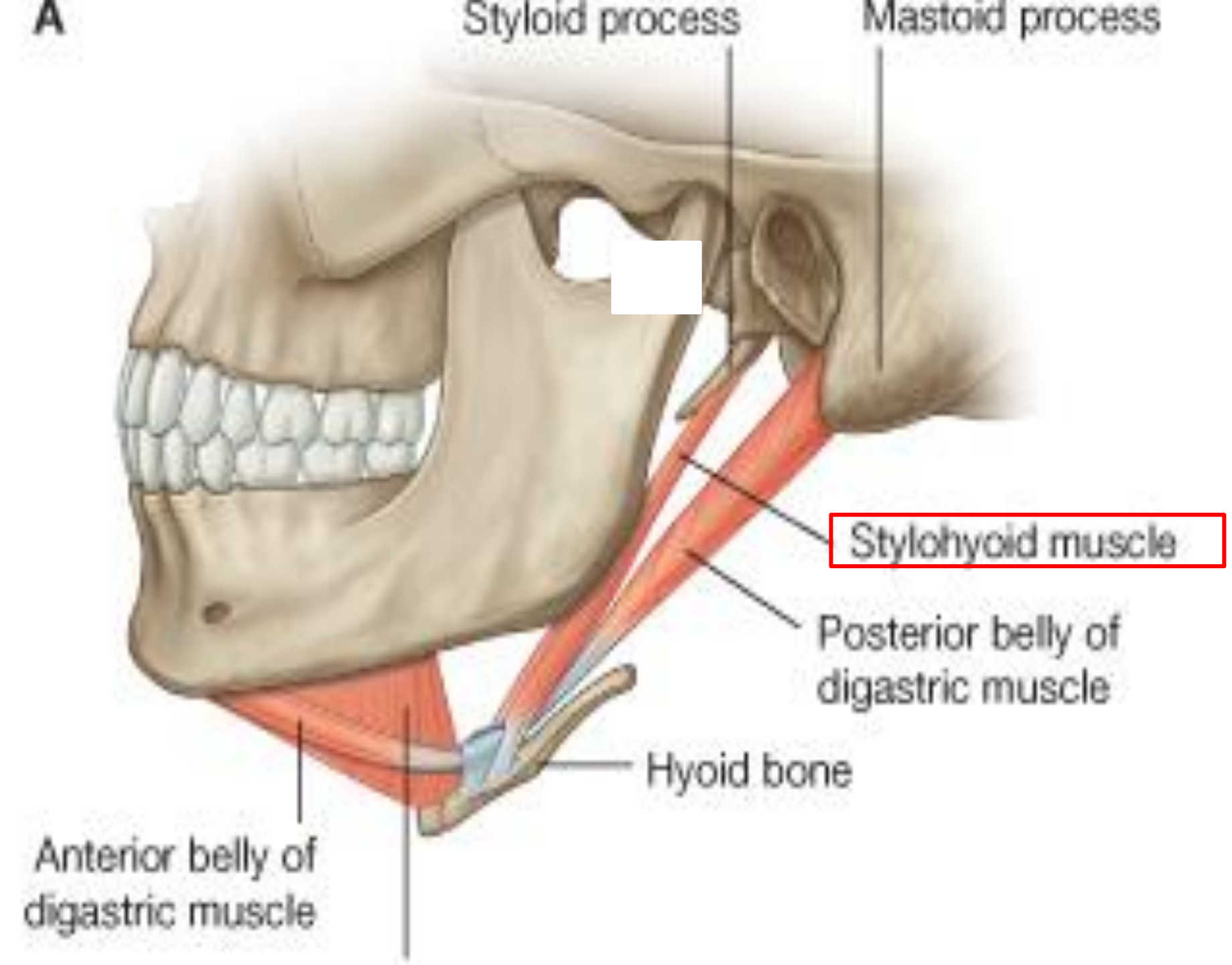
Small muscle lies along the upper border of posterior belly of digastric muscle

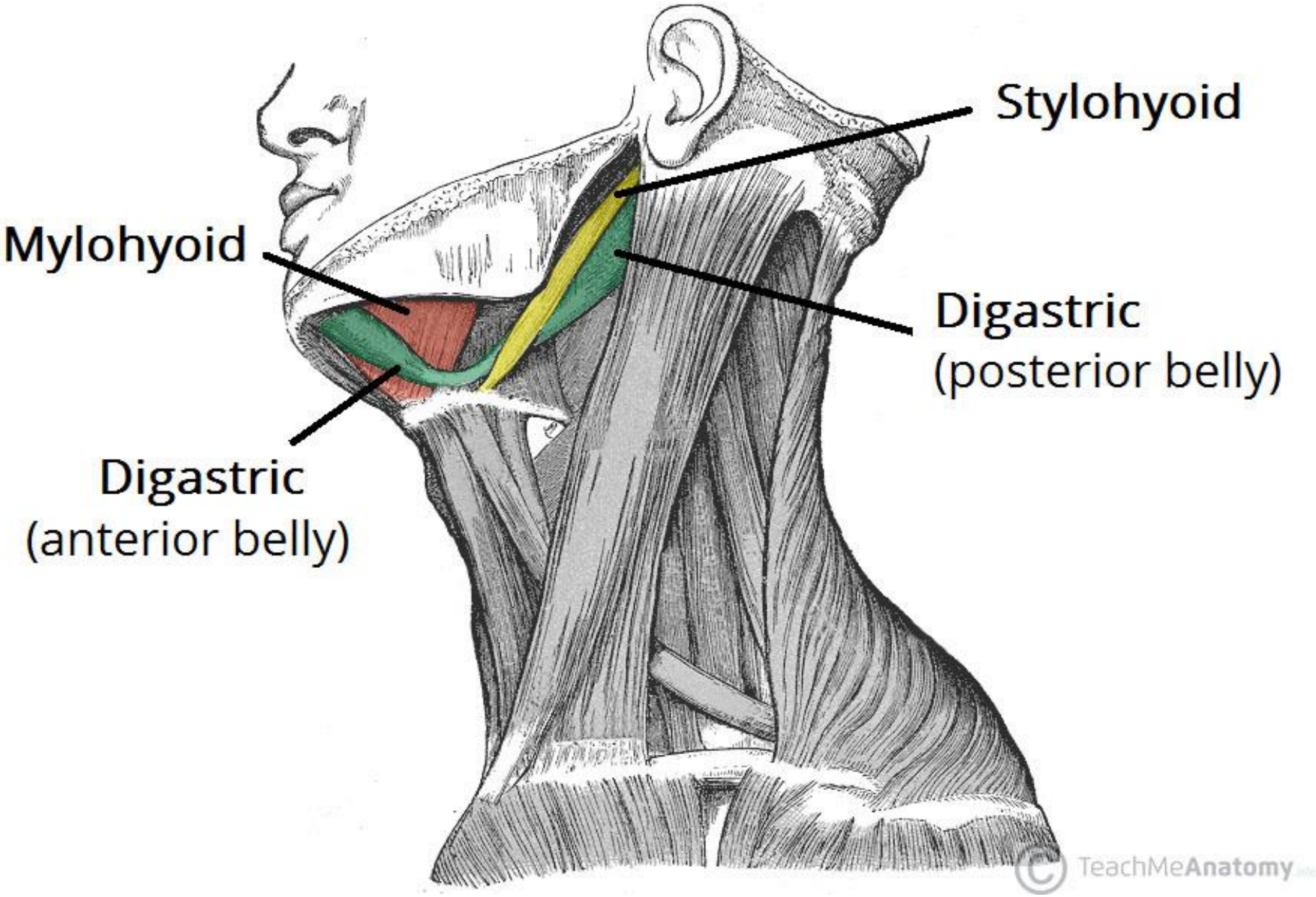
Origin: Base of styloid process

Insertion: Body of hyoid bone

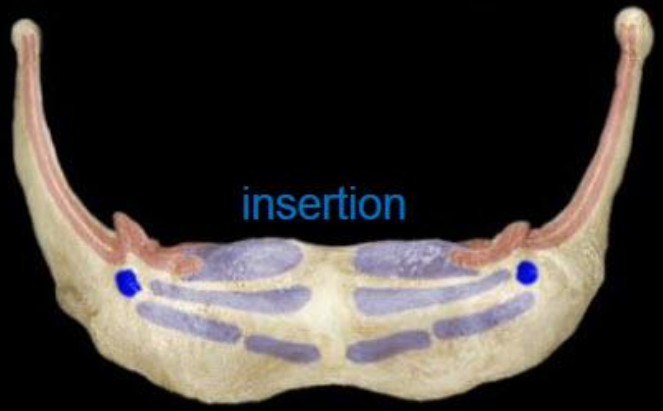
Nerve supply: Facial N.

Action: Elevates hyoid bone.


A
Styloid process
Mastoid process
Stylohyoid muscle
Posterior belly of digastric muscle
Hyoid bone
Anterior belly of digastric muscle


Stylohyoid
Mylohyoid
Digastric
(posterior belly)
Digastric
(anterior belly)
TeachMeAnatomy

Suprahyoid Group - Stylohyoid



Mylohyoid Muscle

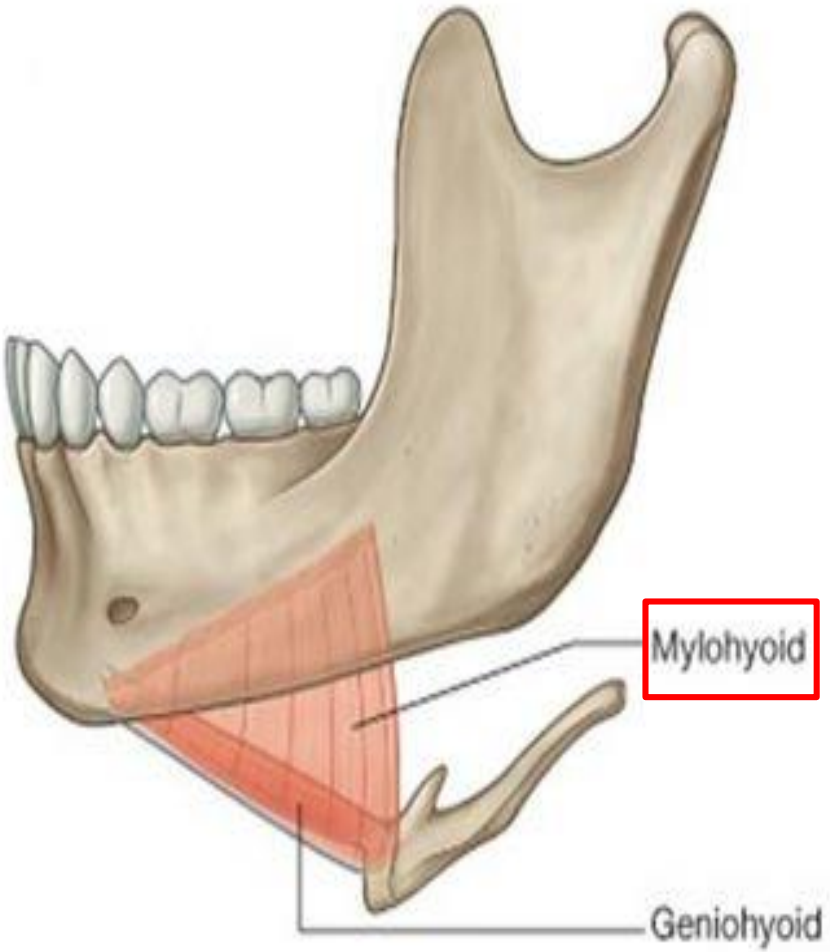
Origin: Mylohyoid line on mandible

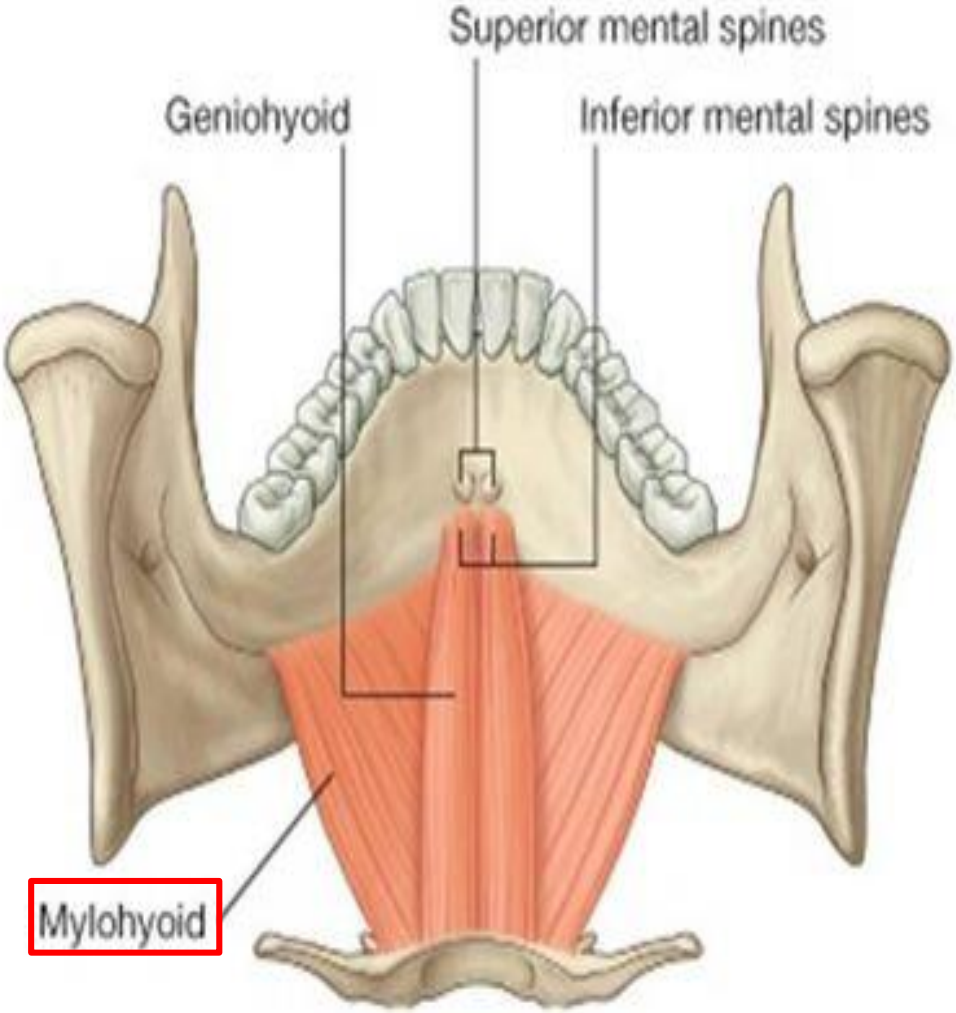
Insertion: Body of hyoid bone and fibers from muscle on opposite side (Fibrous raphe)

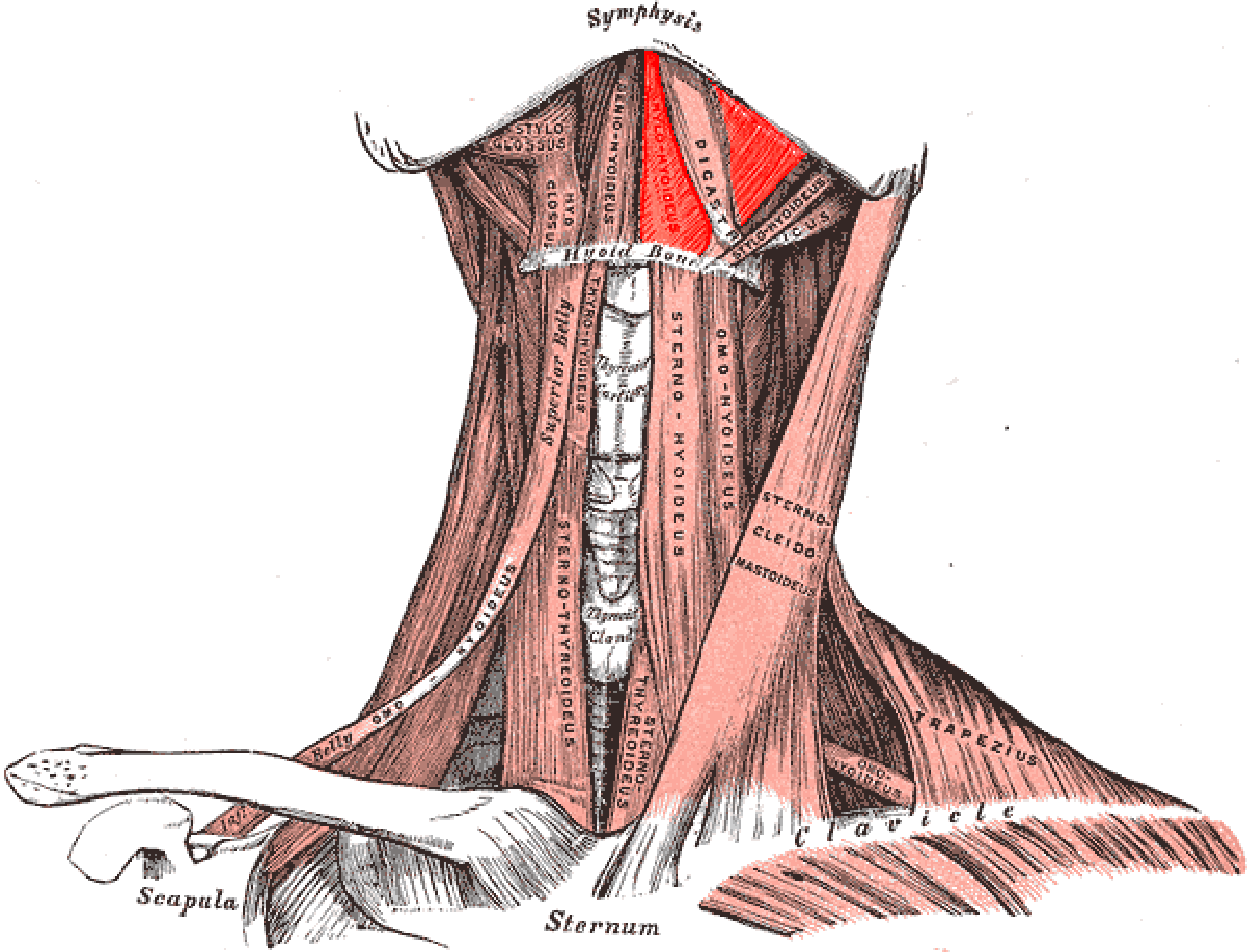
Nerve supply: Mylohyoid N. from mandibular N.

Action:

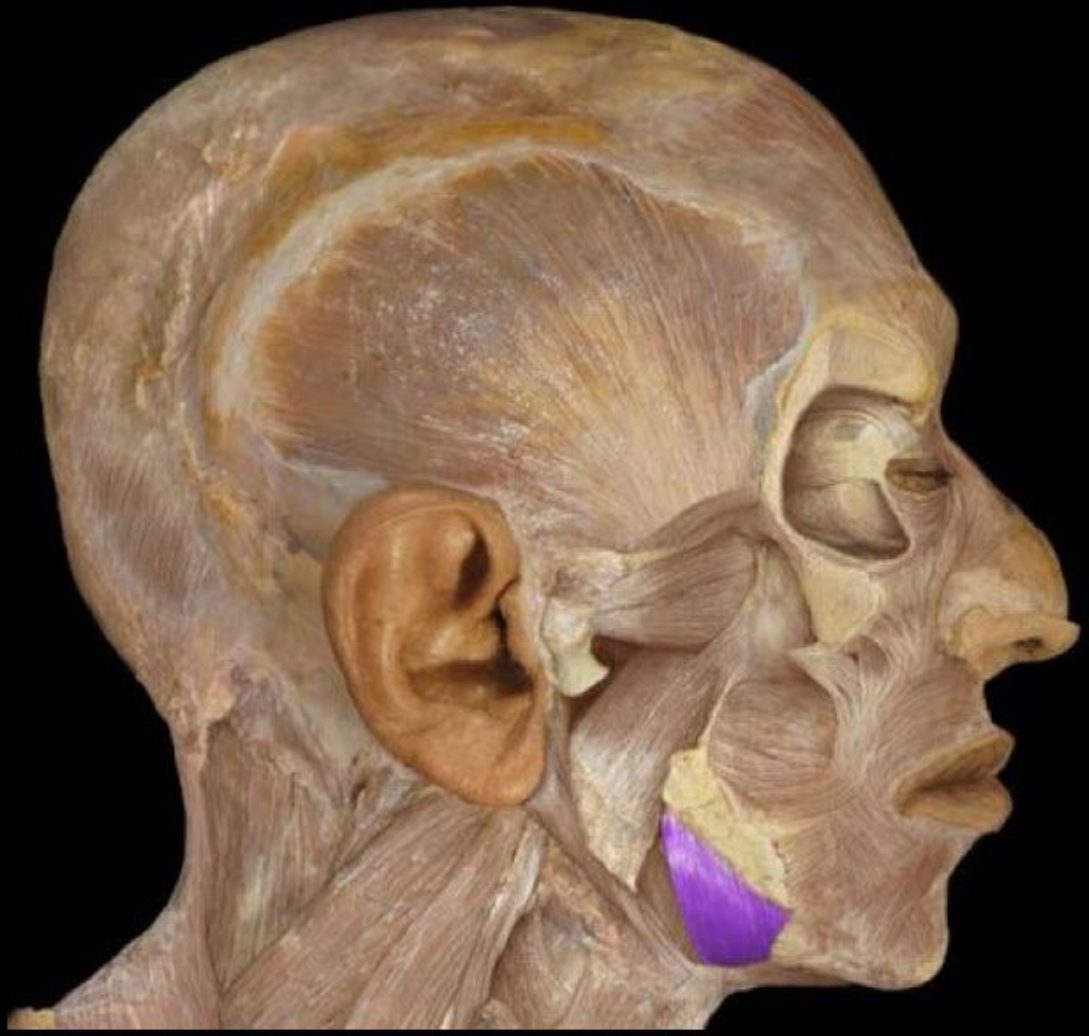
1. Elevates hyoid bone.
2. Support and elevation of floor of mouth


Mylohyoid
Geniohyoid


Superior mental spines
Geniohyoid
Inferior mental spines
Mylohyoid


Symphysis
STYLO GLOSSUS
STERNO-HYOIDEUS
OMO-HYOIDEUS
DIGAST
STYLO-HYOIDEUS
Hyoid Bone
HYO GLOSSUS
THYRO-HYOIDEUS
Superior Belly
Thyroid Cartilage
STERNO - HYOIDEUS
OMO-HYOIDEUS
STERNO-CLEIDO MASTOIDEUS
Thymus Gland
STERNO-THYROIDEUS
Belly
OMO
HYOIDEUS
STERNO-THYREOIDEUS
TRAPEZIUS
Scapula
Sternum
Clavicle

Suprahyoid Group - Mylohyoid



Geniohyoid Muscle

It lies deep to mylohyoid (above it)

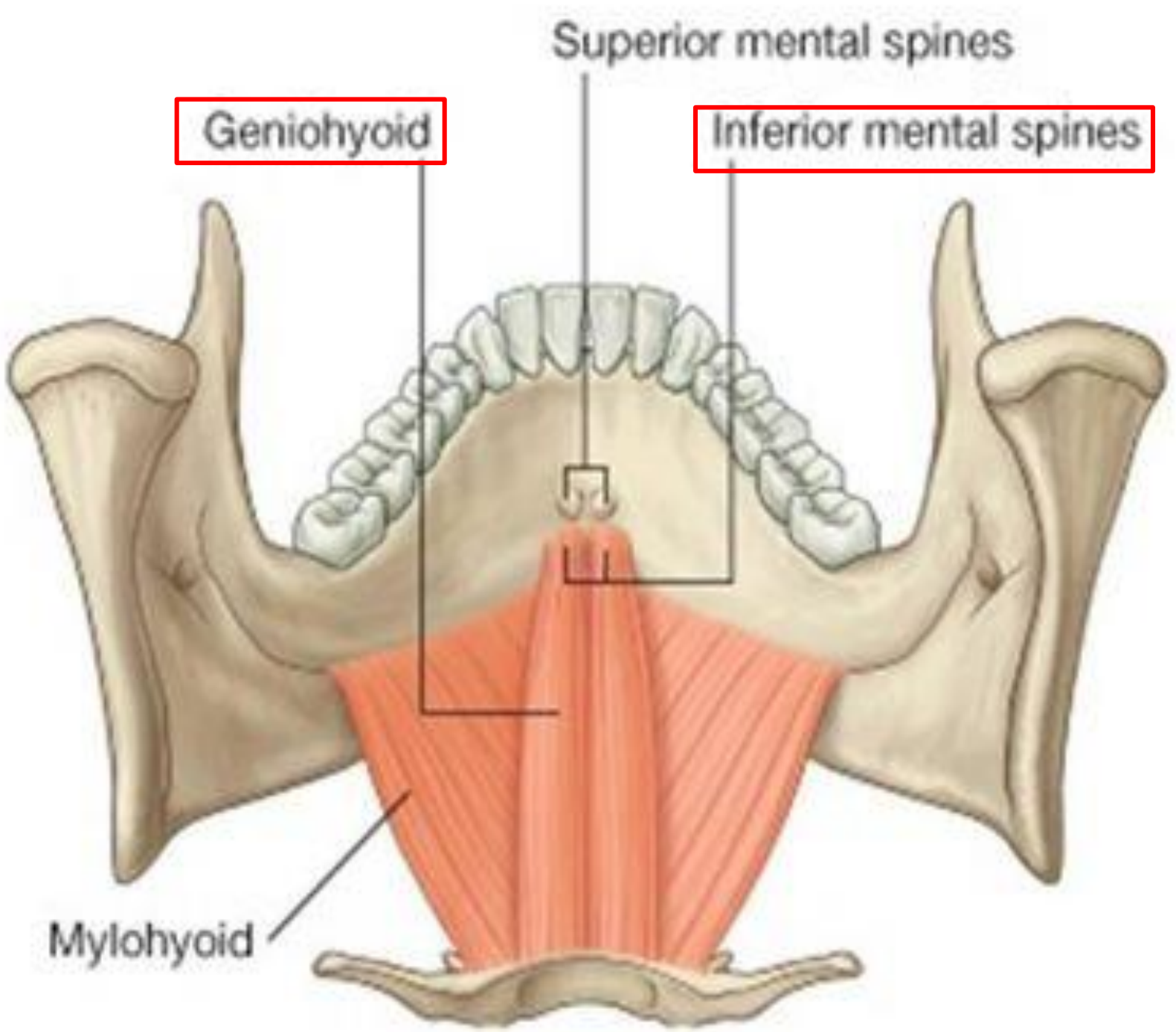
Origin: Inferior mental spine on inner surface of mandible

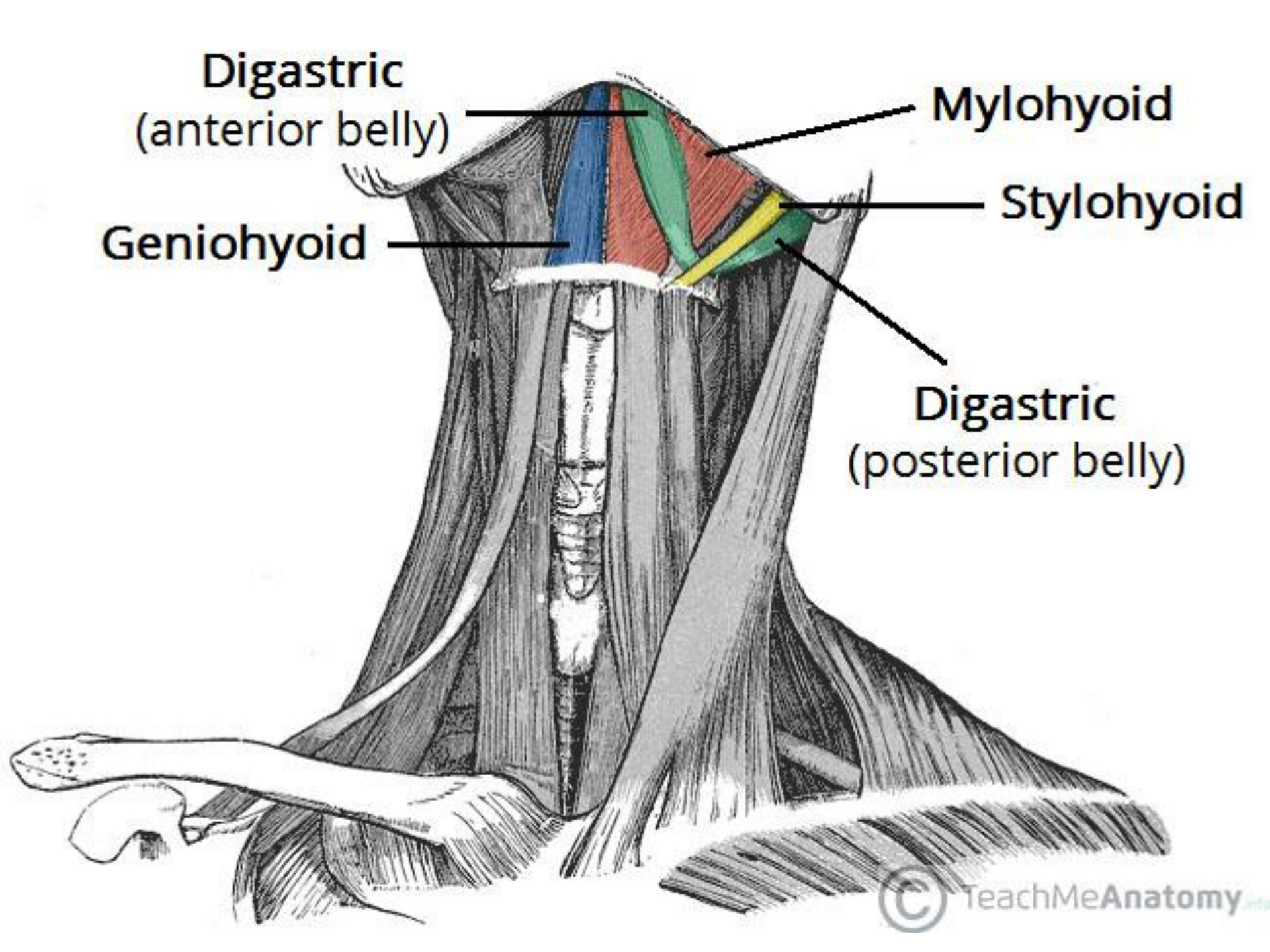
Insertion: Body of hyoid bone

Nerve supply: First cervical N.

Action:

1. Elevates hyoid bone
2. Depresses mandible


Superior mental spines
Geniohyoid
Inferior mental spines
Mylohyoid


Digastric
(anterior belly)
Mylohyoid
Stylohyoid
Geniohyoid
Digastric
(posterior belly)
TeachMeAnatomy

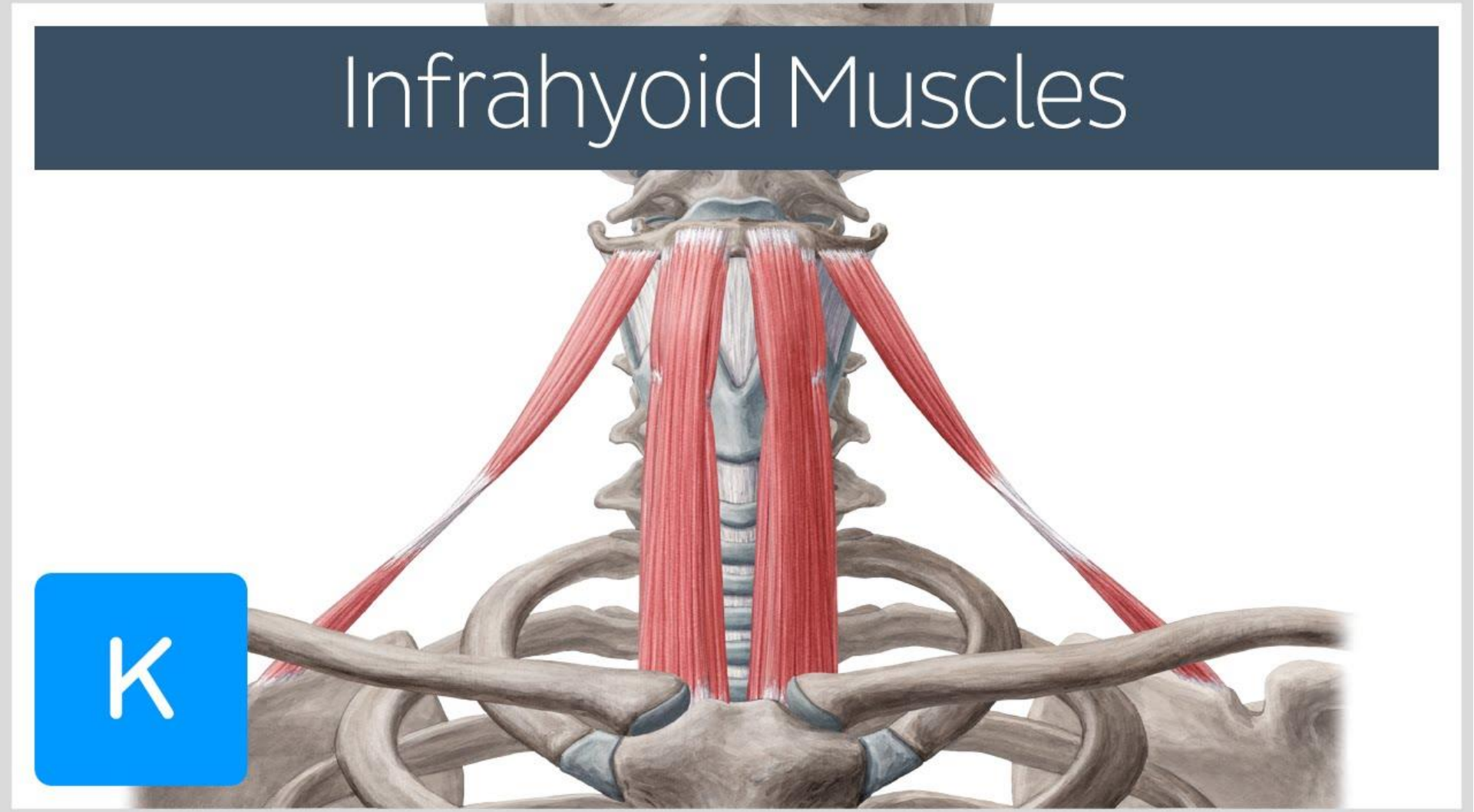
Suprahyoid Group - Geniohyoid

Infrahyoid Muscles

Include 4 muscles that lie below the hyoid bone :

1. **Omohyoid**
2. **Sternohyoid**
3. **Thyrohyoid**
4. **Sternothyroid**

Infrahyoid Muscles



Infrahyoid Muscles

They attach the hyoid bone to inferior structures and depress the hyoid bone.

All infrahyoid muscles are supplied by anterior rami of C1 to C3 through the **ansa cervicalis**, except thyrohyoid which is supplied directly by C1 (through hypoglossal nerve)

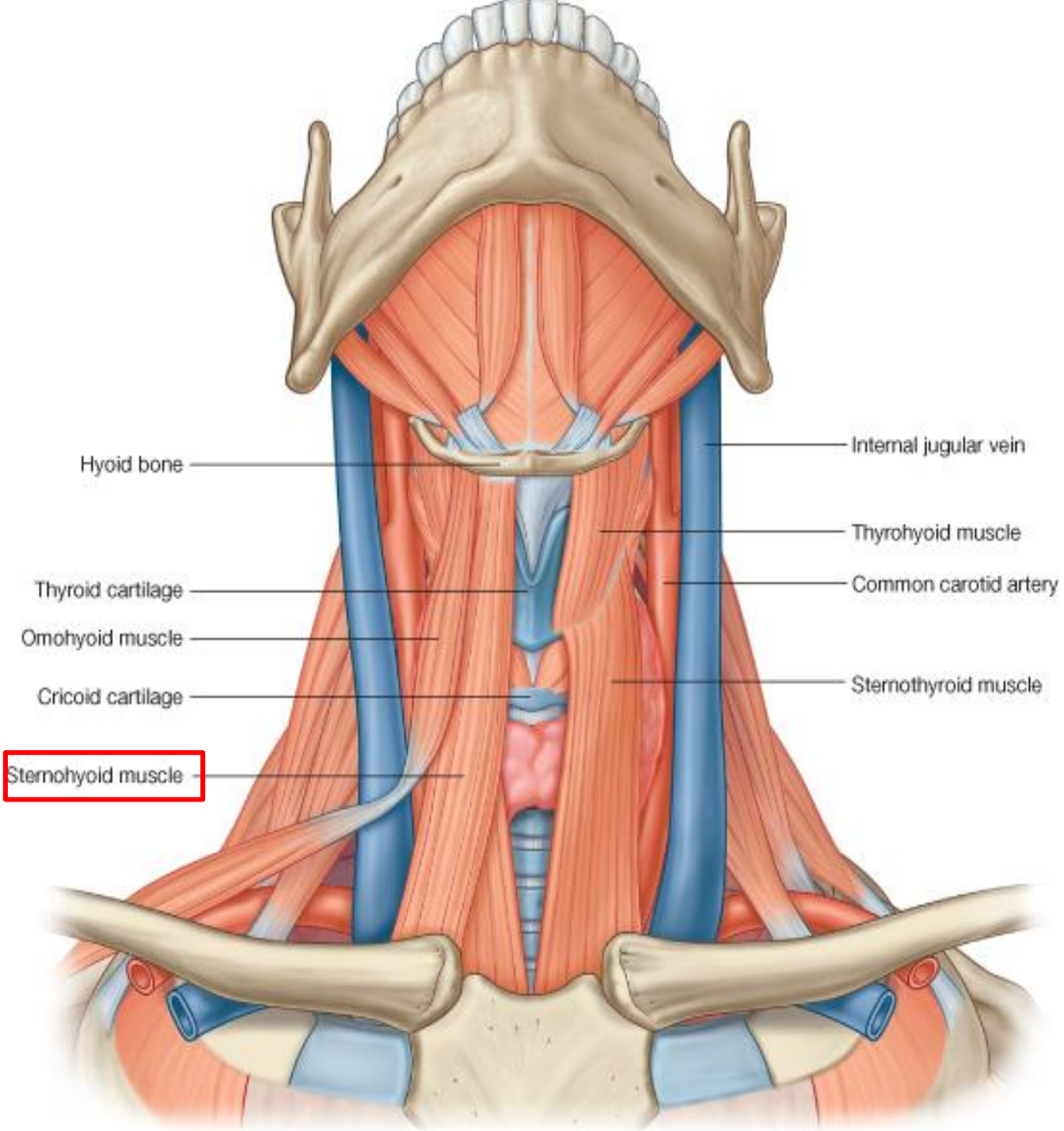
Sternohyoid Muscle

Origin: Manubrium sterni and clavicle

Insertion: Body of hyoid bone medial to attachment of omohyoid muscle

Nerve supply: Anterior rami of C1 to C3 through the ansa cervicalis.

Action: Depresses hyoid bone


Hyoid bone
Thyroid cartilage
Omohyoid muscle
Cricoid cartilage
Sternohyoid muscle
Internal jugular vein
Thyrohyoid muscle
Common carotid artery
Sternothyroid muscle

Infrahyoid Group - Sternohyoid

Sternothyroid Muscle

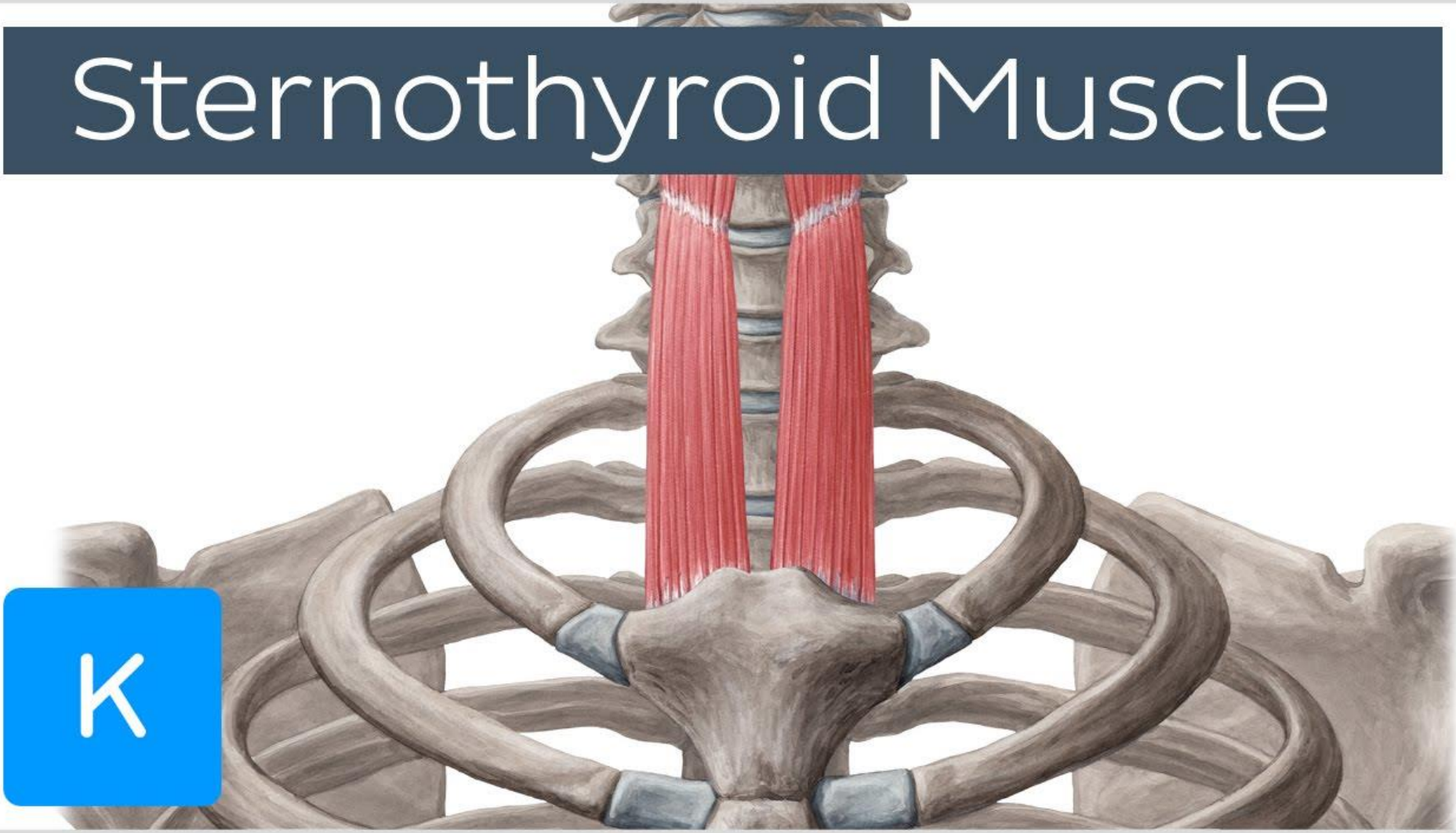
Origin: Manubrium sterni

Insertion: Oblique line on lamina of thyroid cartilage

Nerve supply: Anterior rami of C1 to C3 through the ansa cervicalis.

Action: Depresses larynx

Sternothyroid Muscle



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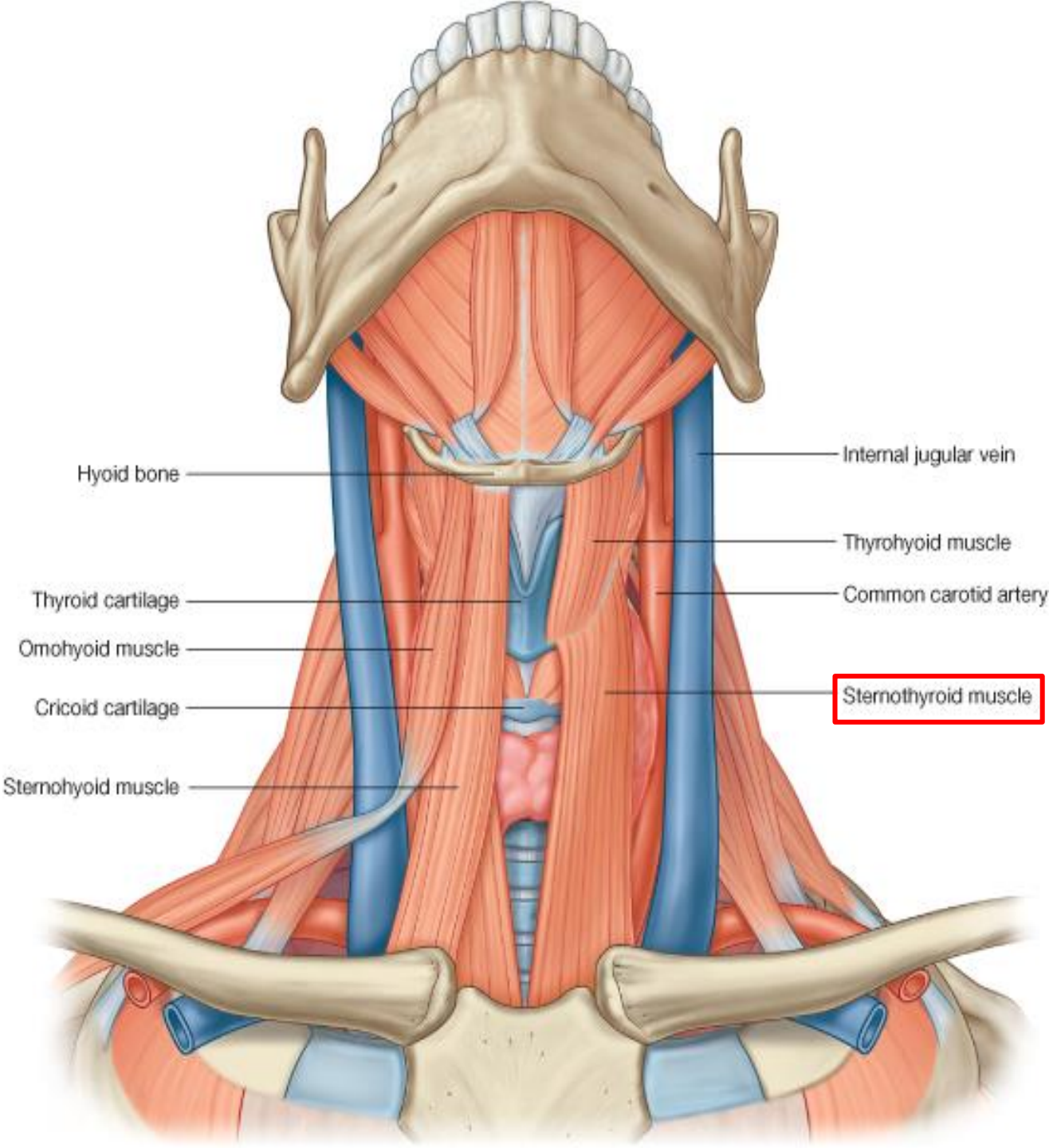

Hyoid bone
Thyroid cartilage
Omohyoid muscle
Cricoid cartilage
Sternohyoid muscle
Internal jugular vein
Thyrohyoid muscle
Common carotid artery
Sternothyroid muscle

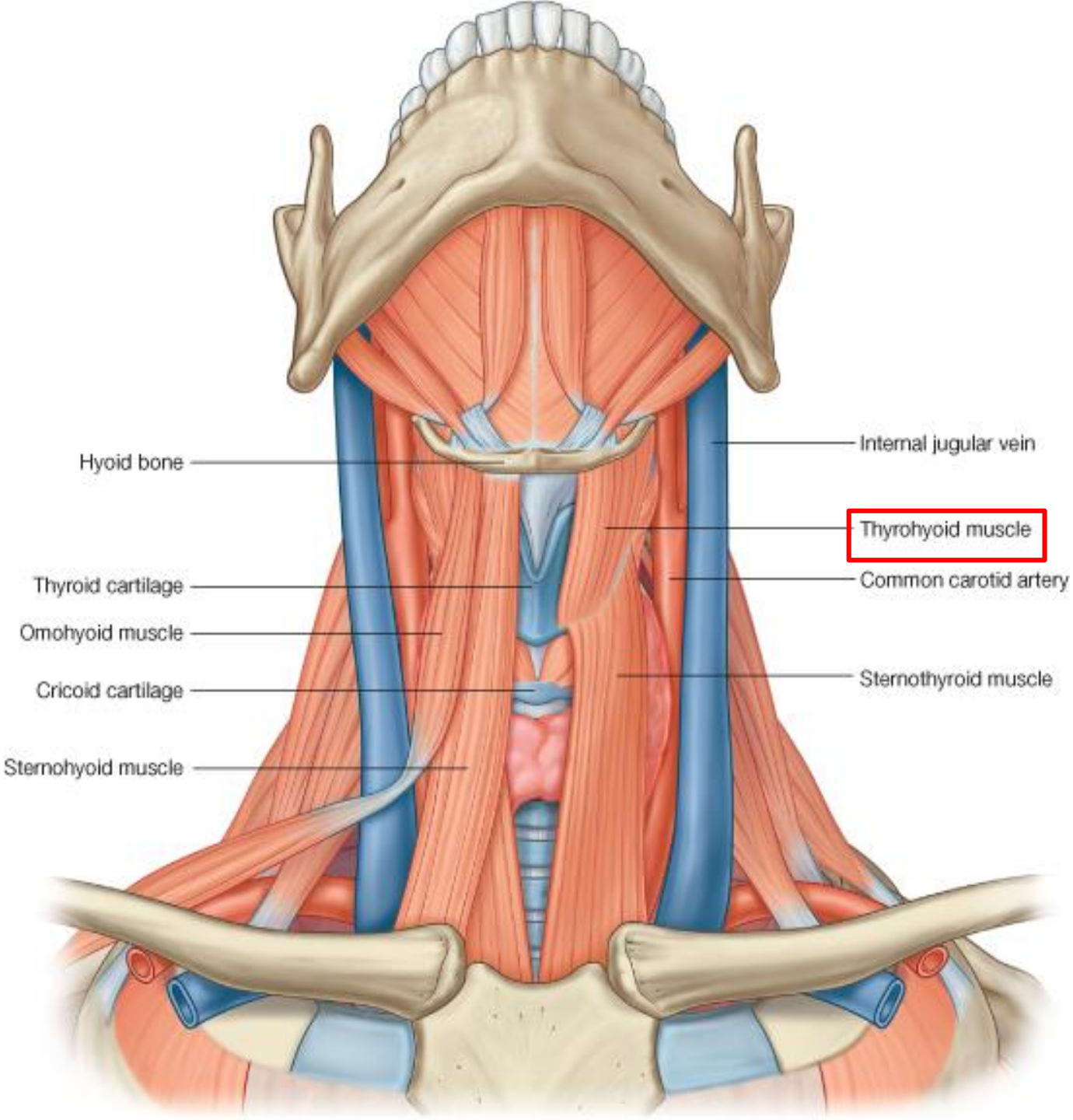
Thyrohyoid Muscle

Origin: Oblique line on lamina of thyroid cartilage

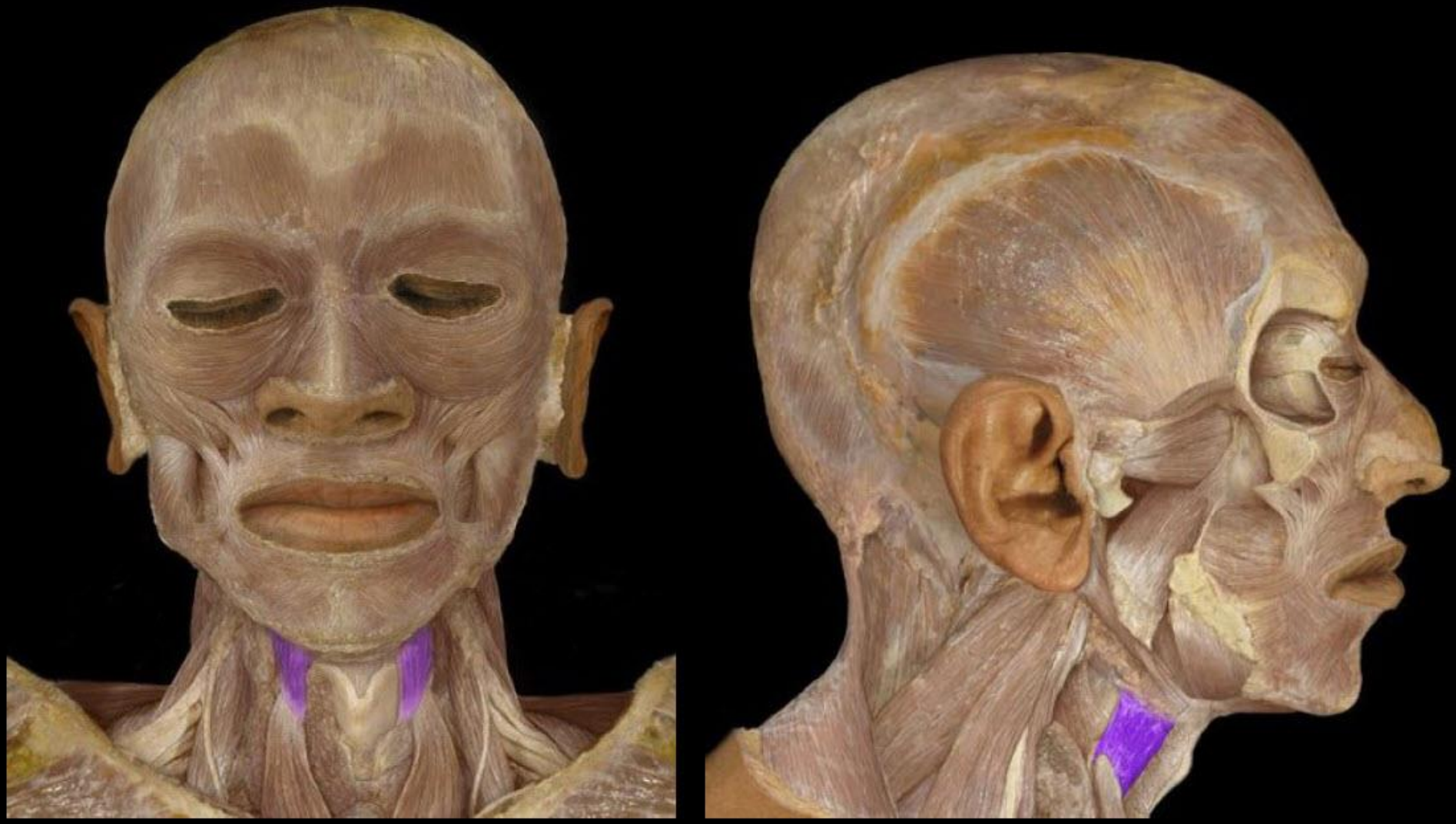
Insertion: Body of hyoid bone

Nerve supply: First cervical N.

Action: Depresses hyoid bone, but when hyoid bone is fixed raises larynx


Hyoid bone
Thyroid cartilage
Omohyoid muscle
Cricoid cartilage
Sternohyoid muscle
Internal jugular vein
Thyrohyoid muscle
Common carotid artery
Sternothyroid muscle

Infrahyoid Group -Thyrohyoid



Omohyoid Muscle

Origin:

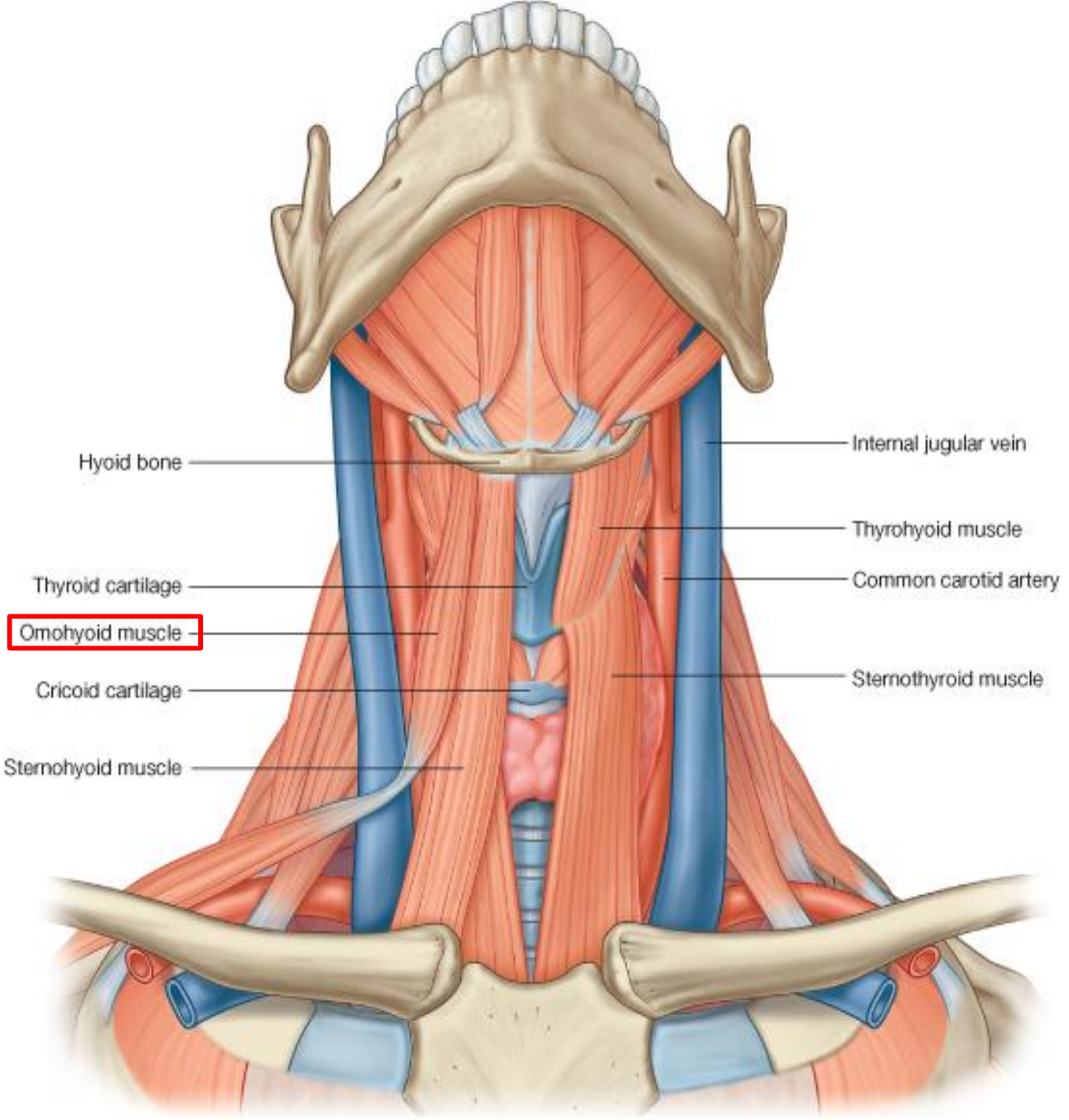
Superior belly: Superior border of scapula media

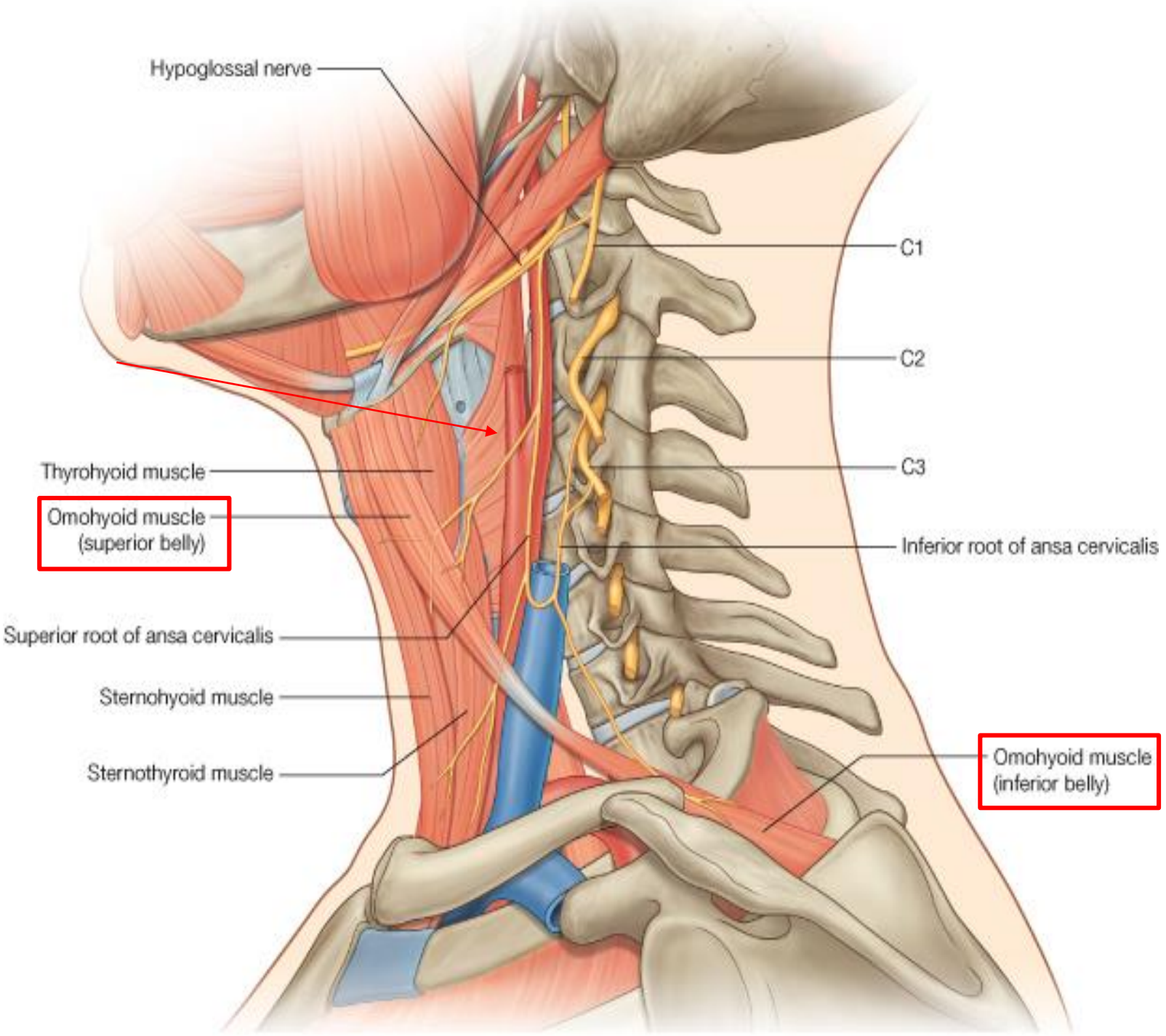
Inferior belly: lower border of body of hyoid bone

Insertion: Intermediate tendon is held to the calvicale and first rib by facial sling

Nerve supply: Anterior rami of C1 to C3 through the ansa cervicalis.

Action: Depresses hyoid bone


Hyoid bone
Thyroid cartilage
Omohyoid muscle
Cricoid cartilage
Sternohyoid muscle
Internal jugular vein
Thyrohyoid muscle
Common carotid artery
Sternothyroid muscle

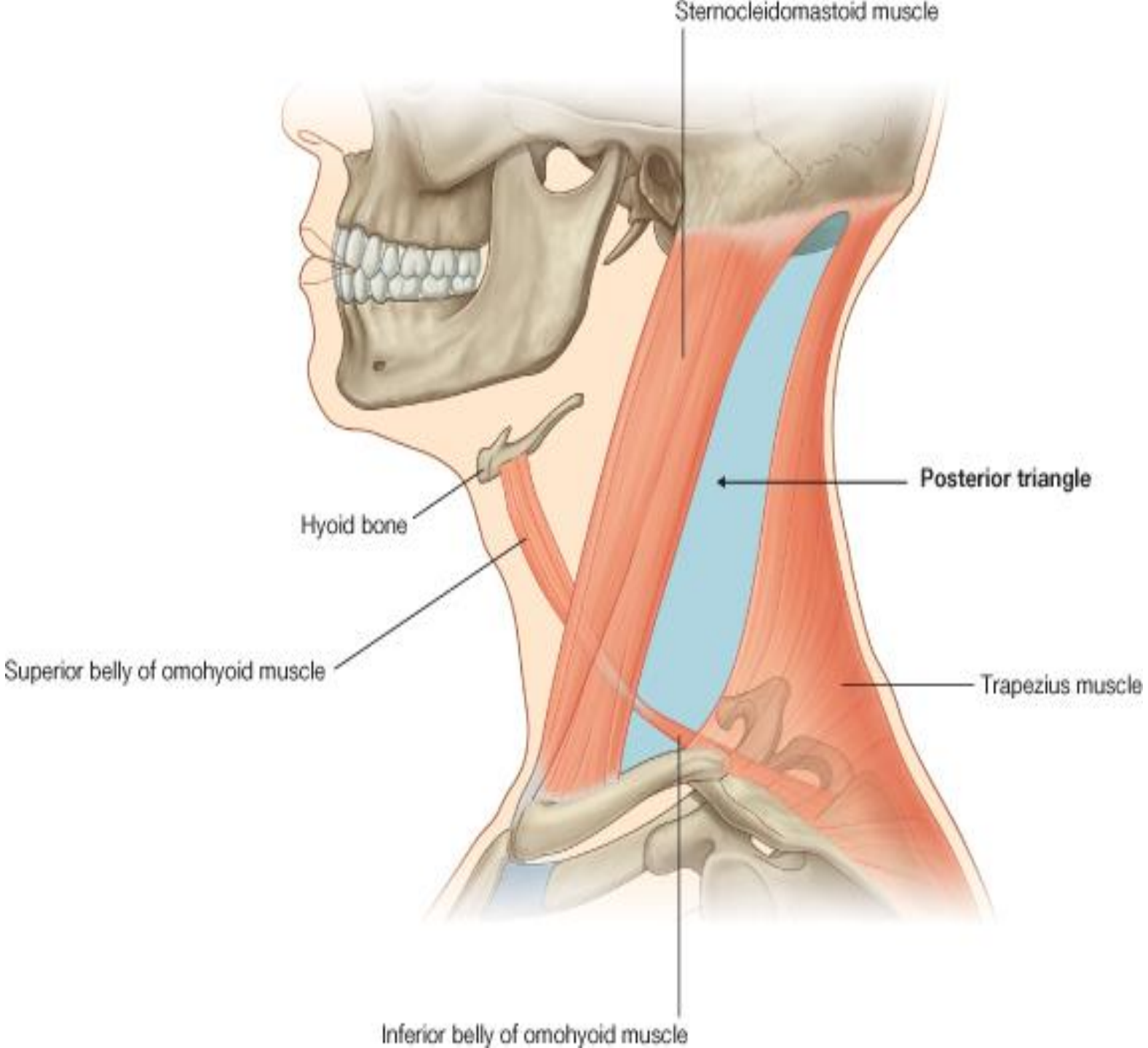

Hypoglossal nerve
C1
C2
C3
Thyrohyoid muscle
Omohyoid muscle
(superior belly)
Inferior root of ansa cervicalis
Superior root of ansa cervicalis
Sternohyoid muscle
Sternothyroid muscle
Omohyoid muscle
(inferior belly)

Posterior Triangle

The posterior triangle of the neck is on the lateral aspect of the neck in direct continuity with the upper limb.

Borders ??

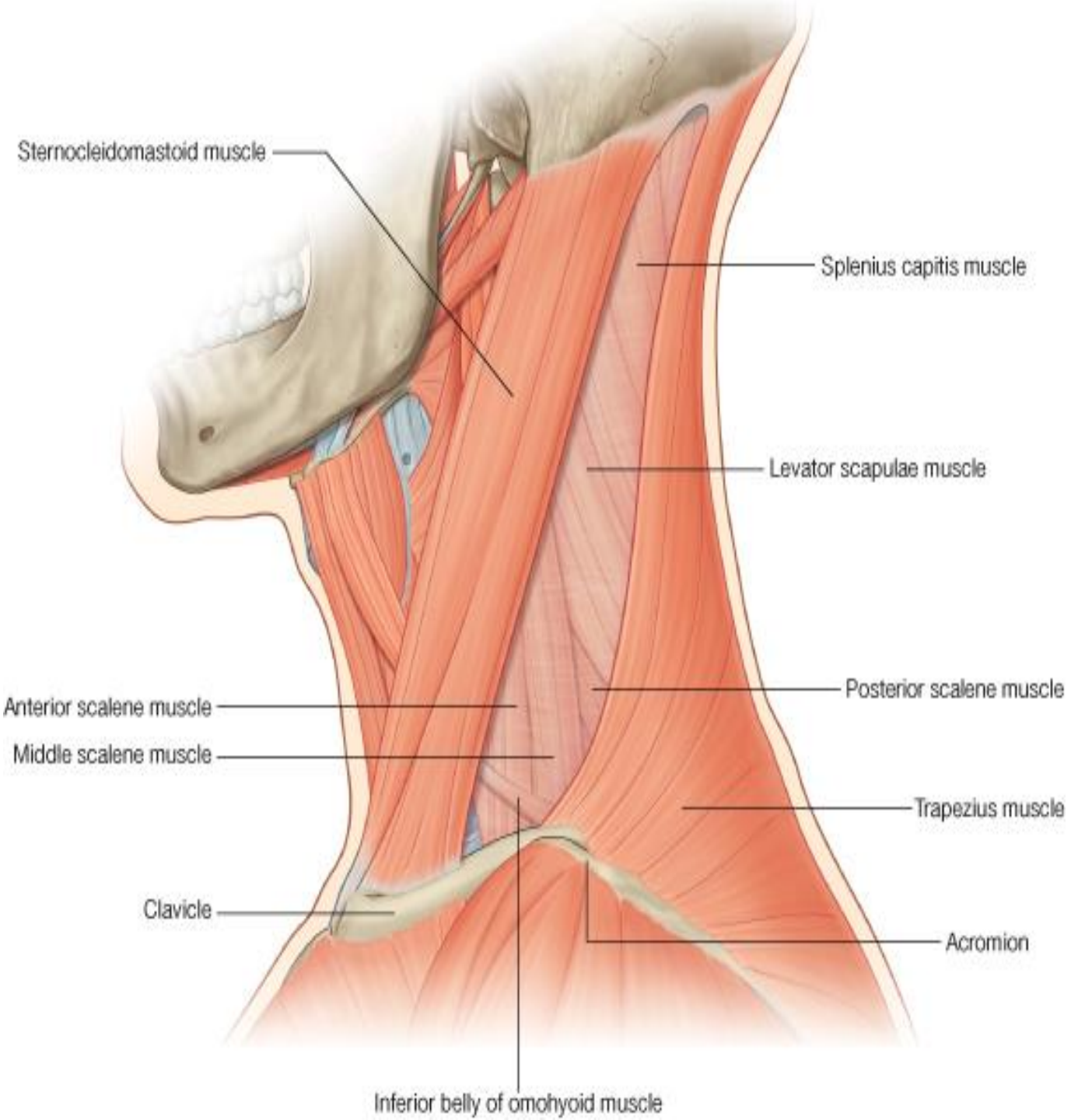
The **inferior belly of omohyoid** crosses the posterior triangle, subdividing it into a small, **subclavian triangle** inferiorly and a much larger **occipital triangle** superiorly.

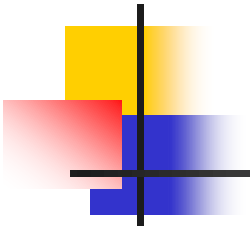

Sternocleidomastoid muscle
Posterior triangle
Hyoid bone
Superior belly of omohyoid muscle
Trapezius muscle
Inferior belly of omohyoid muscle

Boundaries

The roof of the posterior triangle is formed by the **investing layer of cervical fascia** that surrounds the sternocleidomastoid and trapezius muscles as it passes through the region.

The muscular floor of the posterior triangle is covered by the **prevertebral layer of cervical fascia**; and from superior to inferior consists of the **splenius capitis**, **levator scapulae**, and **the posterior, middle, and anterior scalene muscles**.


Sternocleidomastoid muscle
Splenius capitis muscle
Levator scapulae muscle
Posterior scalene muscle
Anterior scalene muscle
Middle scalene muscle
Trapezius muscle
Clavicle
Acromion
Inferior belly of omohyoid muscle



Thank You

- For further inquiries ***PLZ*** feel free to contact at any time through email

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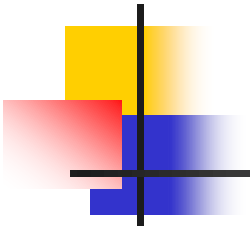
gamal.abdelhady@med.asu.edu.eg



Thank You