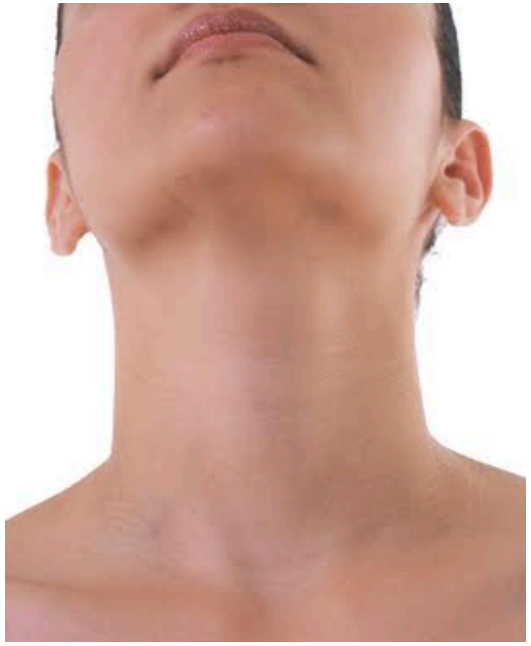
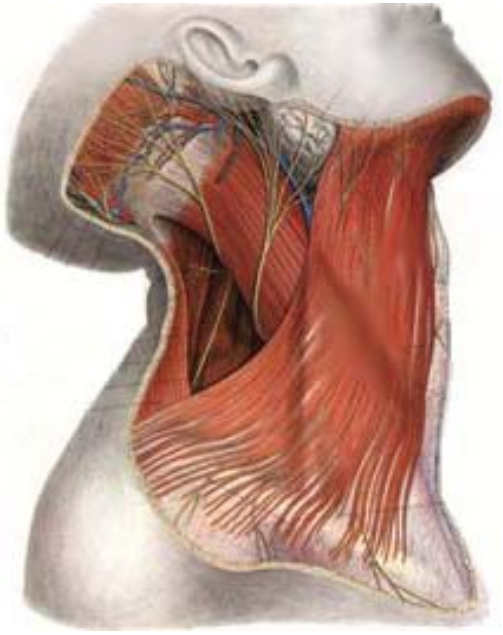
Superficial structures of the neck





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Gross Anatomy of Head & Neck in Dentistry

Learning objectives

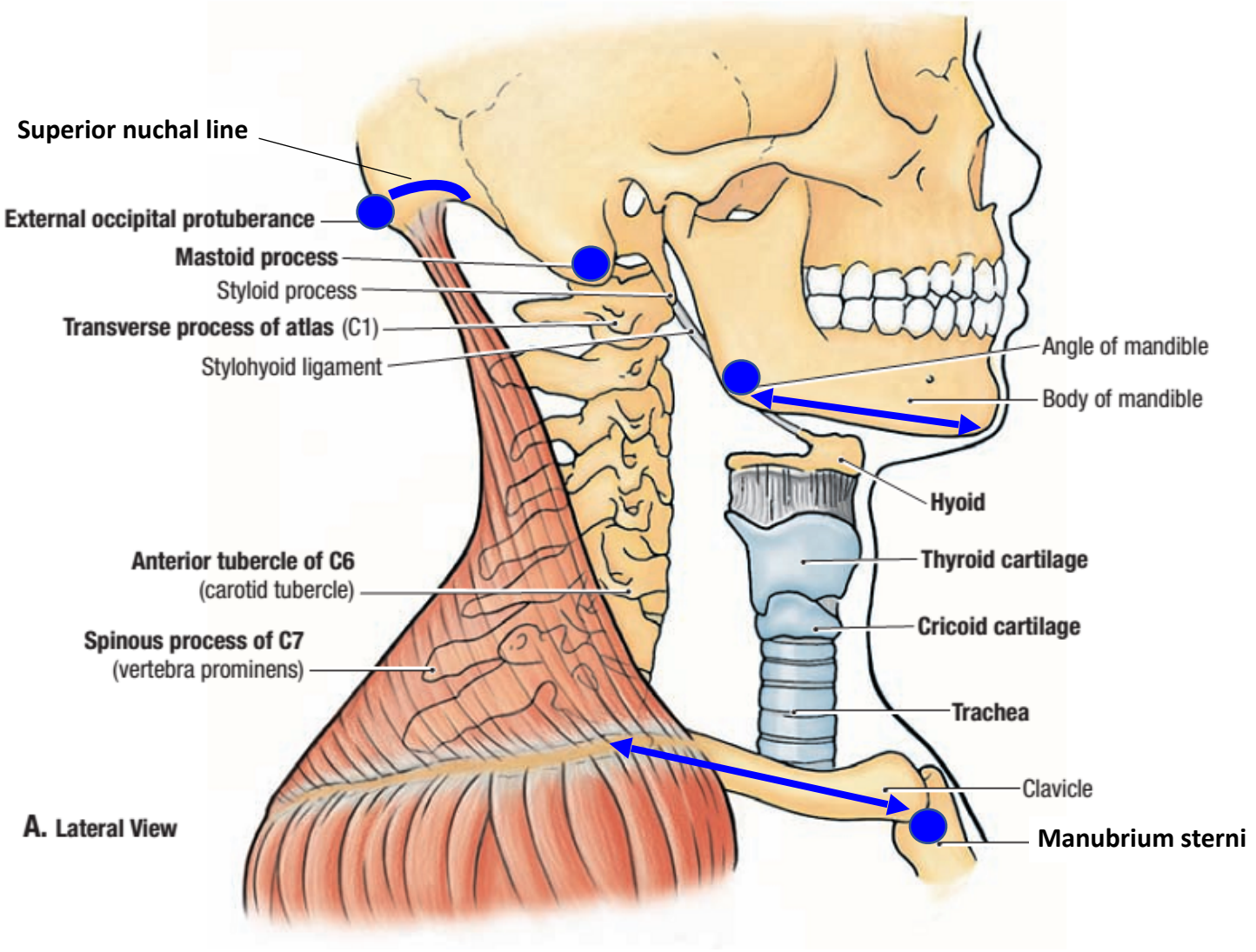
After the class, students will be able to

1. **Indicate the skeleton, surface anatomy and superficial veins of the neck**
2. **Identify the muscles in the neck and explain the action of each muscle**
3. **Describe the course of superficial and deep branches of cervical plexus**
4. **Apply the knowledges in microanatomy, physiology and dentistry**

Outlines of lecture

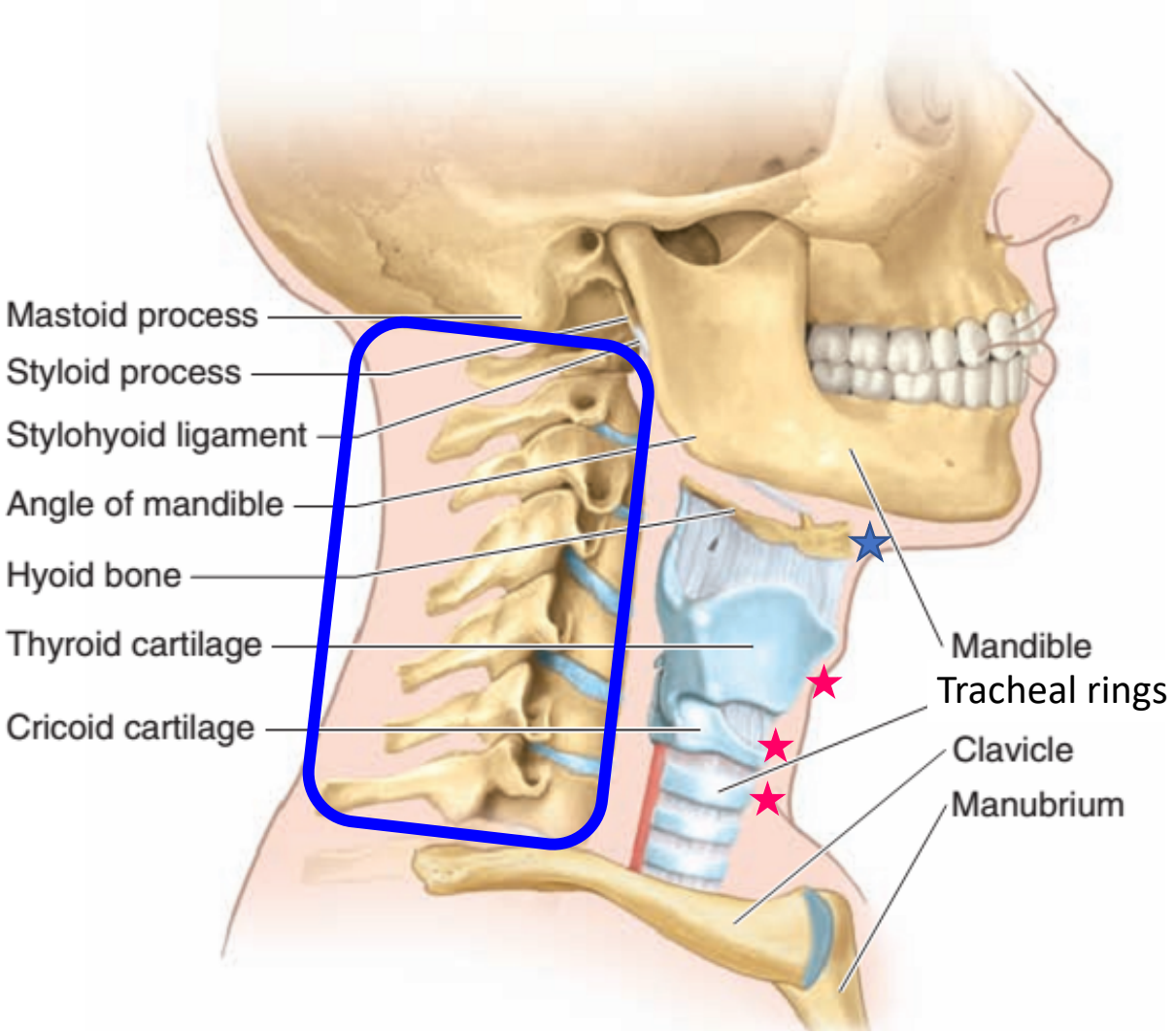
1. Boundary, Skeleton, Surface anatomy of the neck
2. Trapezius, SCM, Platysma muscles
3. Superficial veins of the neck
4. Cutaneous nerves of the neck
5. Muscles of hyoid bones
6. Cervical plexus

Boundary of the neck



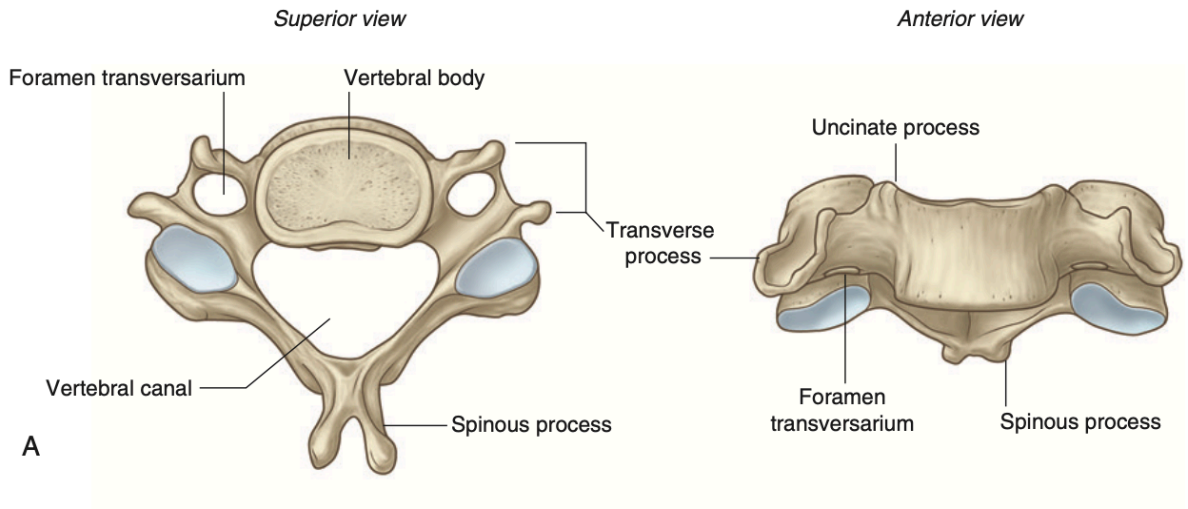
Skeleton of the neck

Cervical vertebra

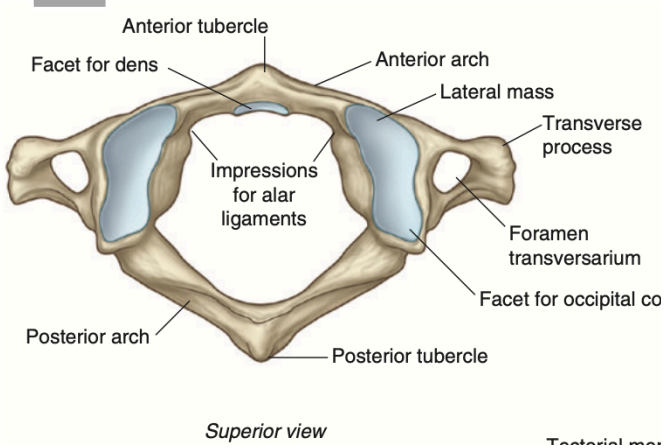


Cervical vertebrae

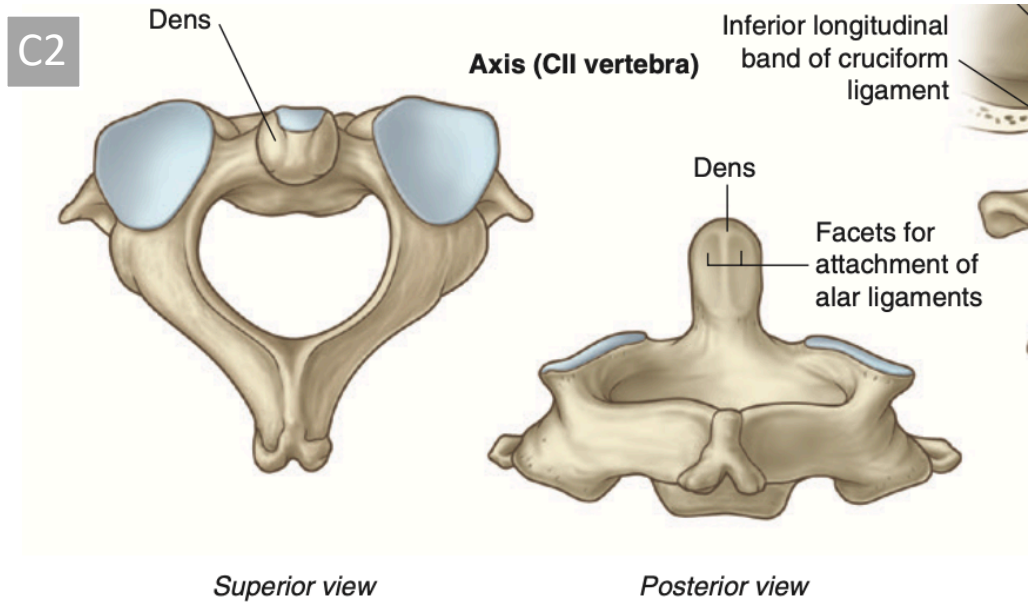
Typical cervical vertebrae

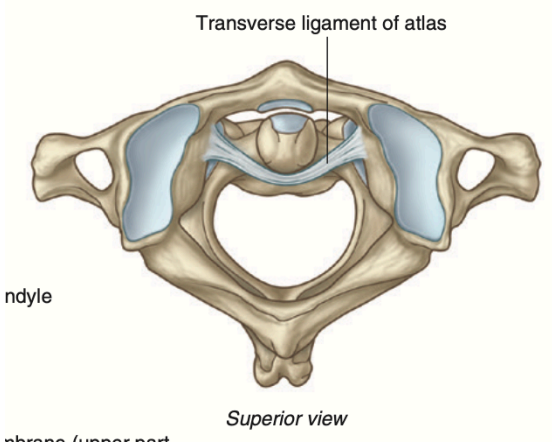


C1

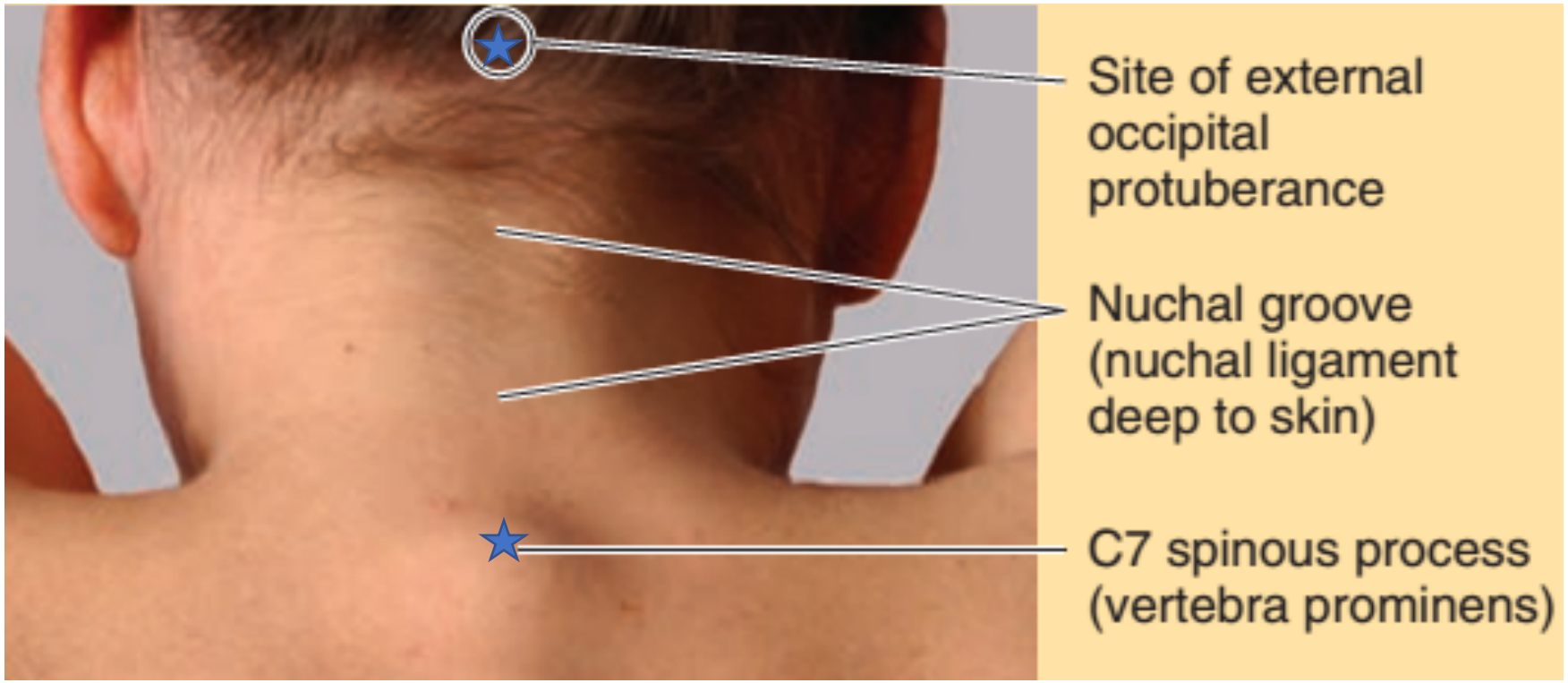


C2

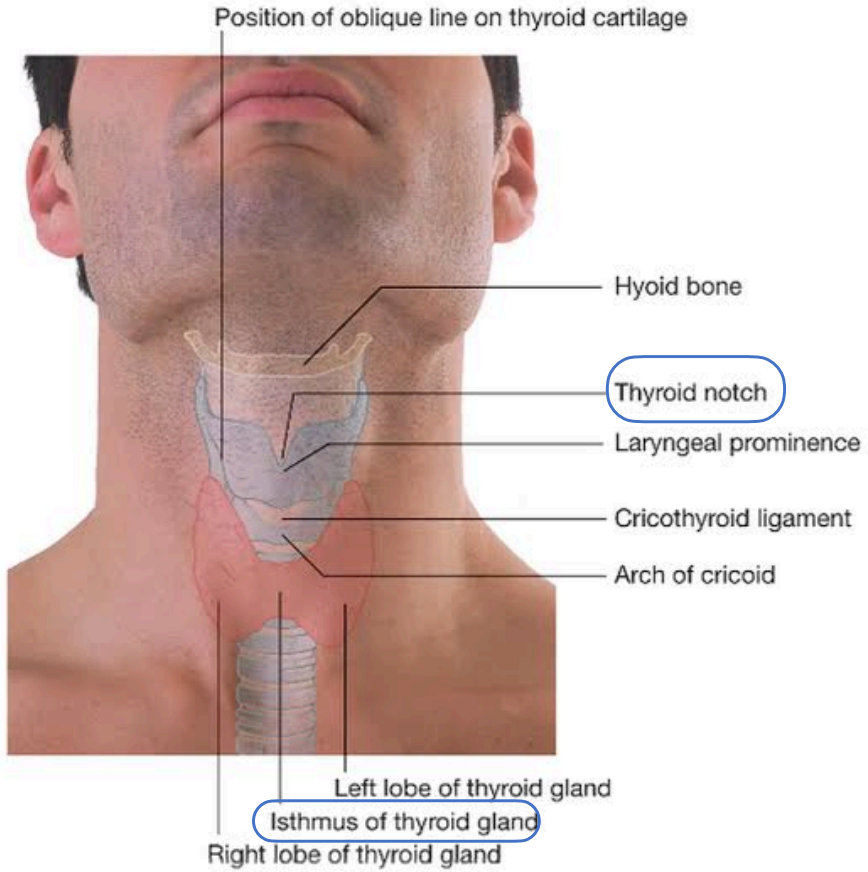


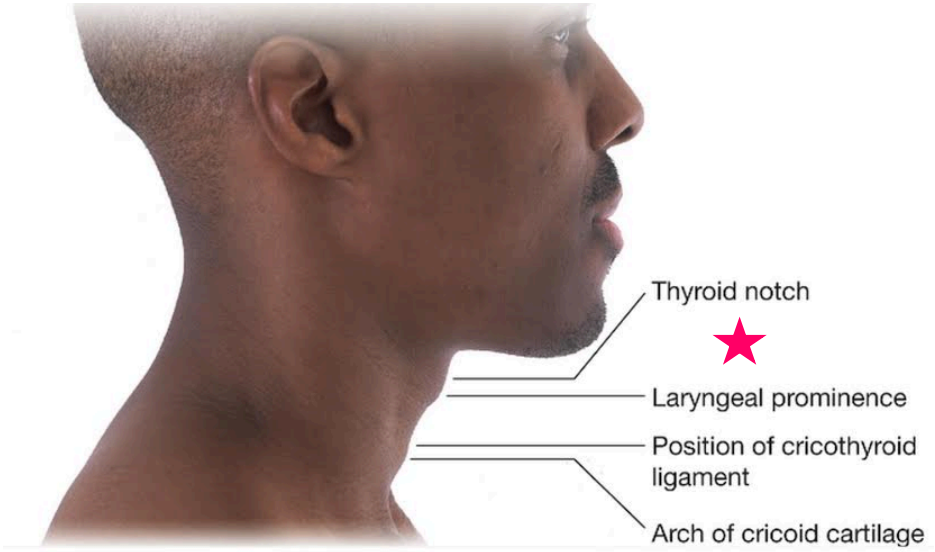


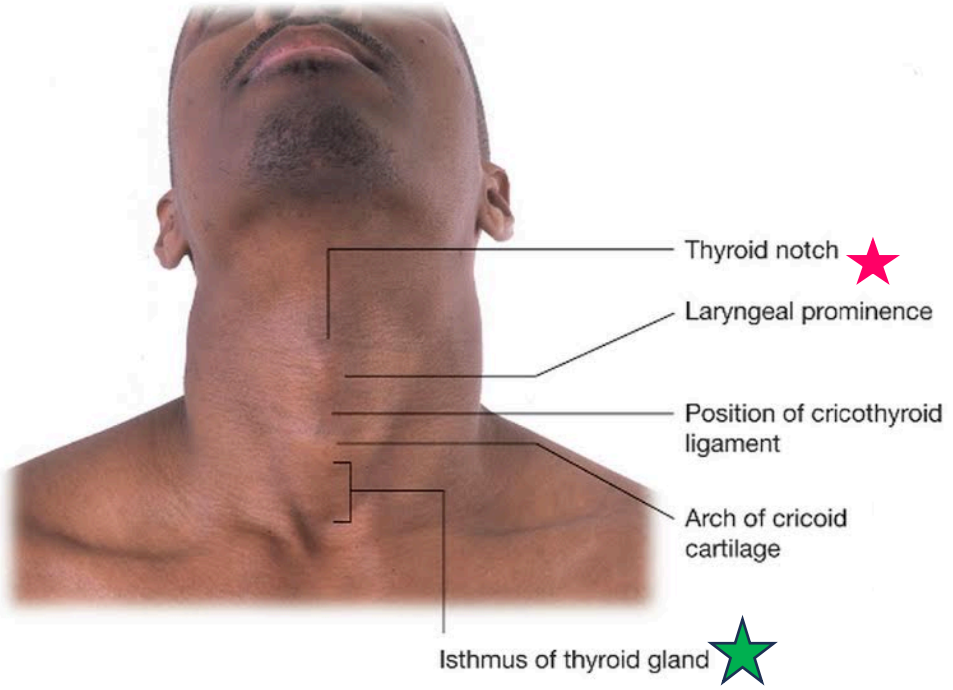
Surface anatomy



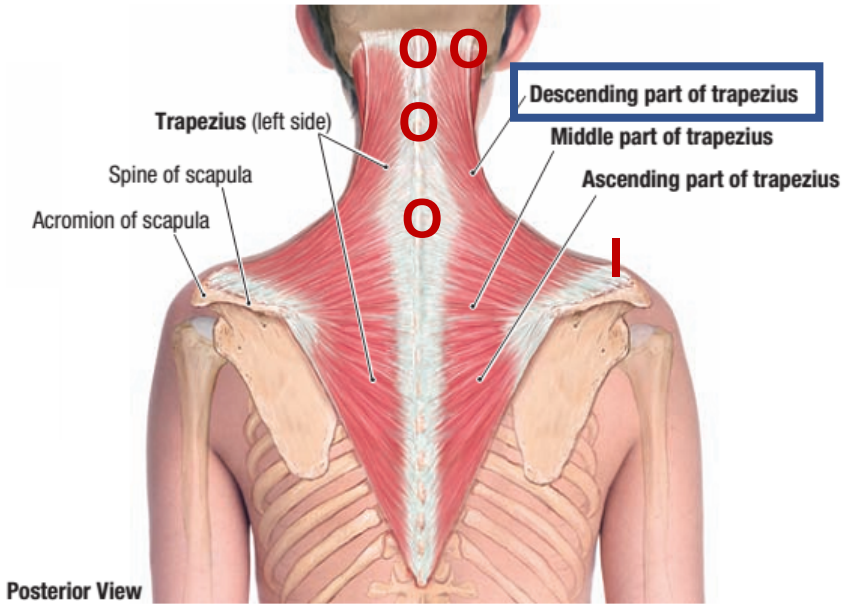
Surface anatomy







Trapezius muscles (Descending or Upper part)

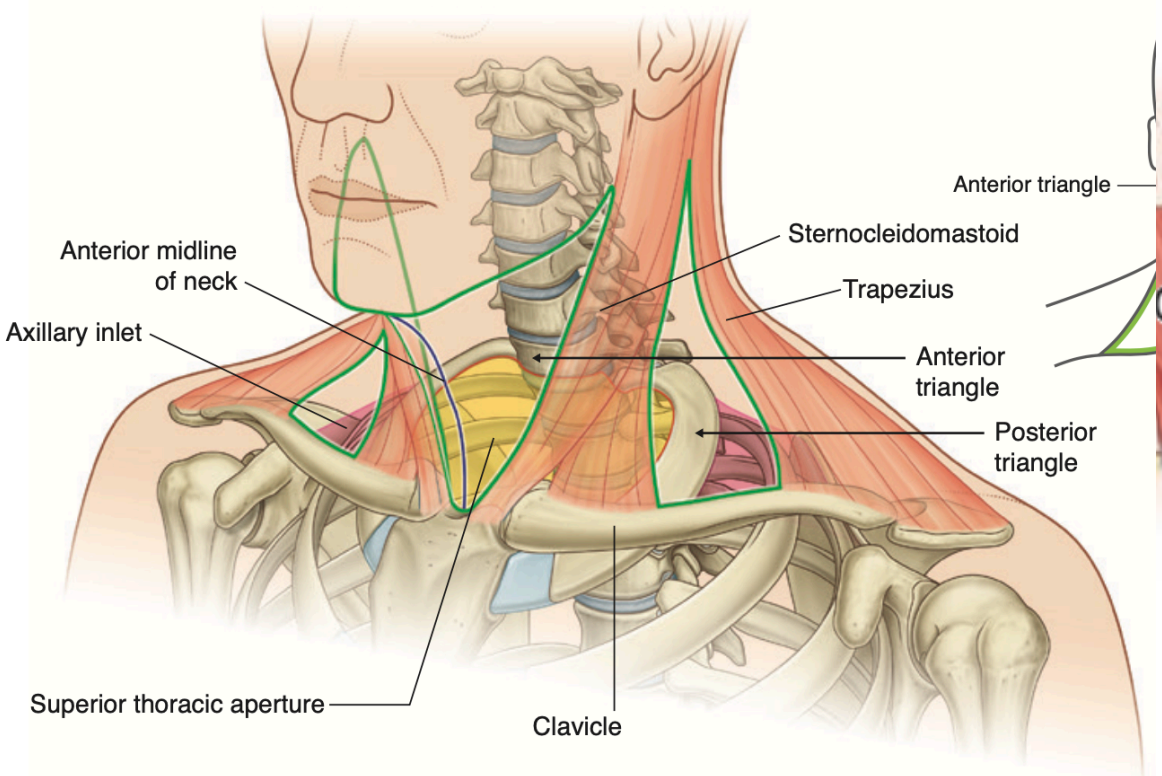


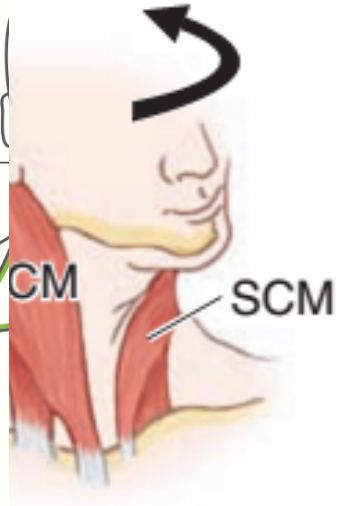


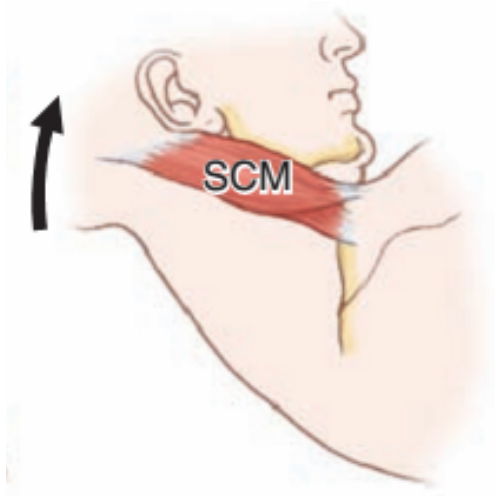


- **Action**
  - **Unilateral: Lateral flexion of cervical vertebrae**
  - **Bilateral: Extension of cervical vertebrae**

Sternocleidomastoid (SCM) muscle

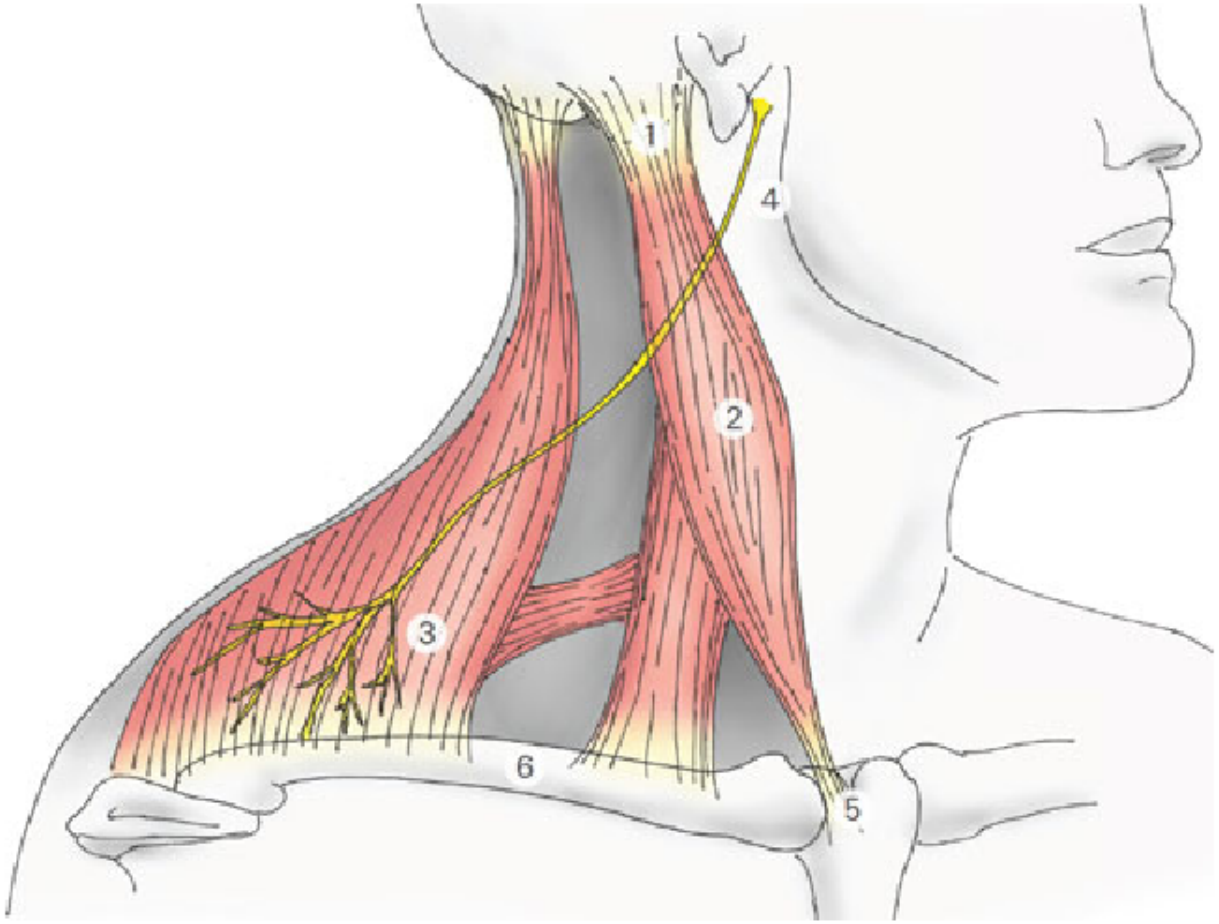






Unilateral: Lateral flexion & rotation of cervical vertebrae

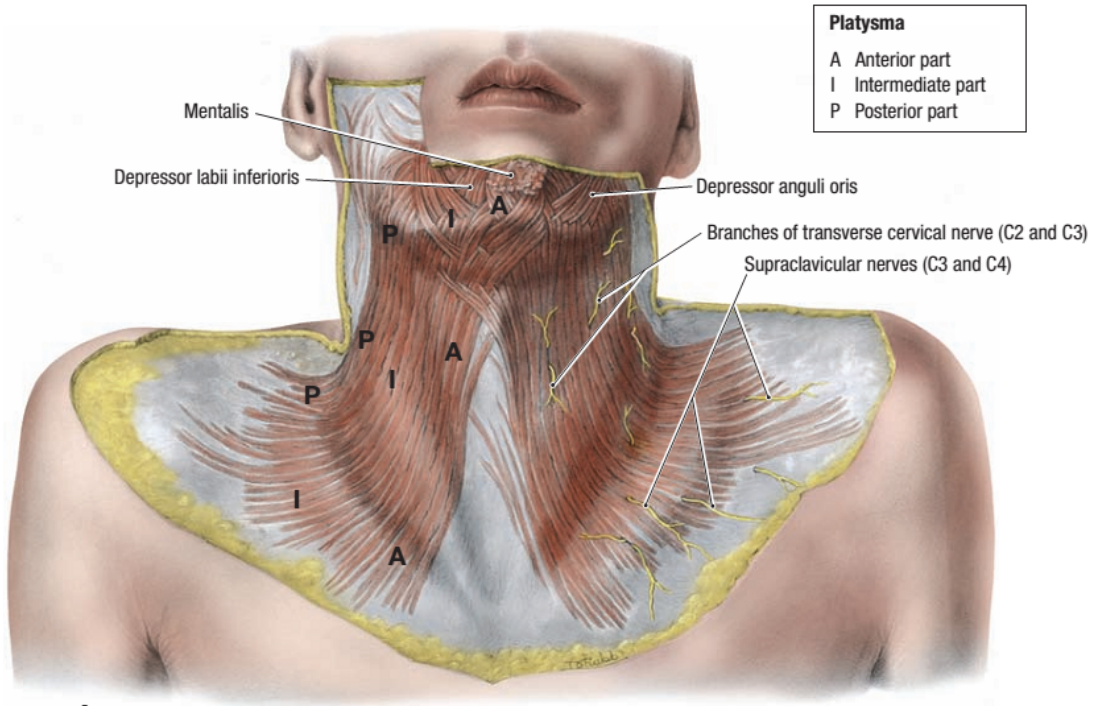
- **Bilateral (supine): Flexion of cervical vertebrae**

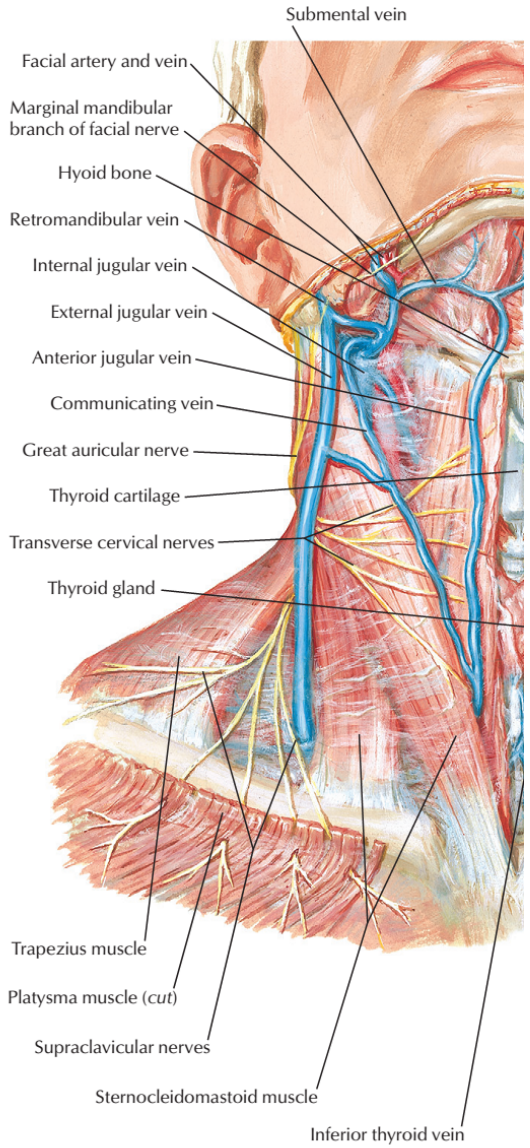


Innervation of Trapezius & SCM

- **Spinal accessory nerve (CN.XI)**

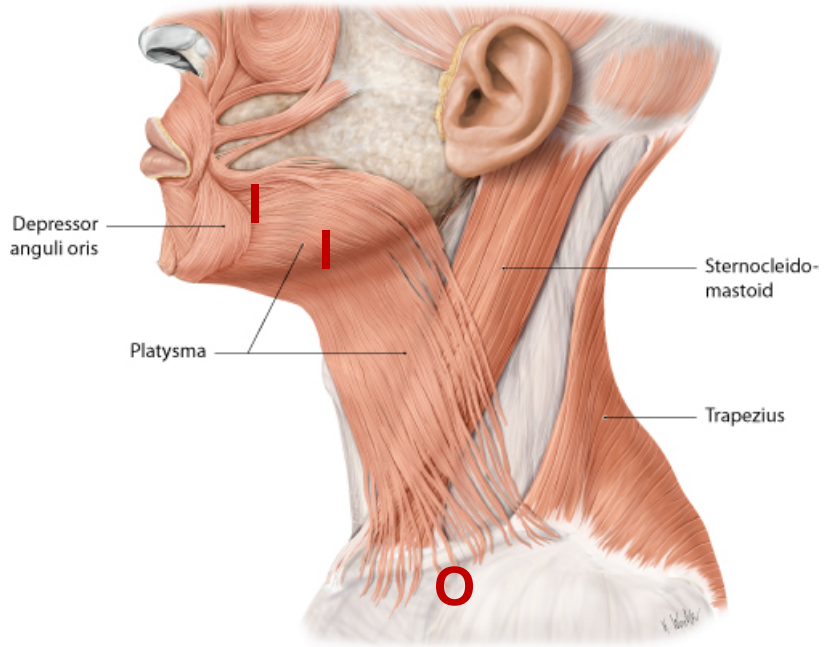
Superficial fascia of the neck

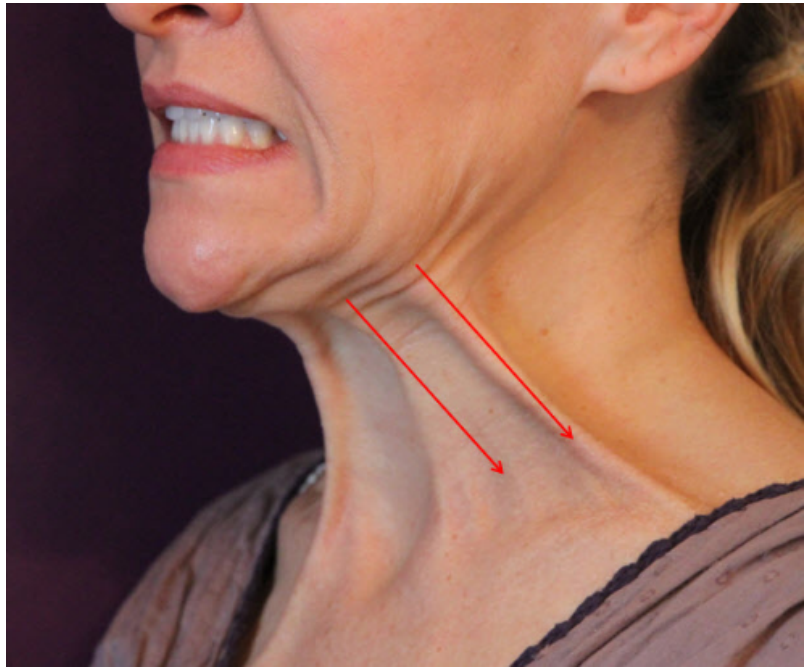




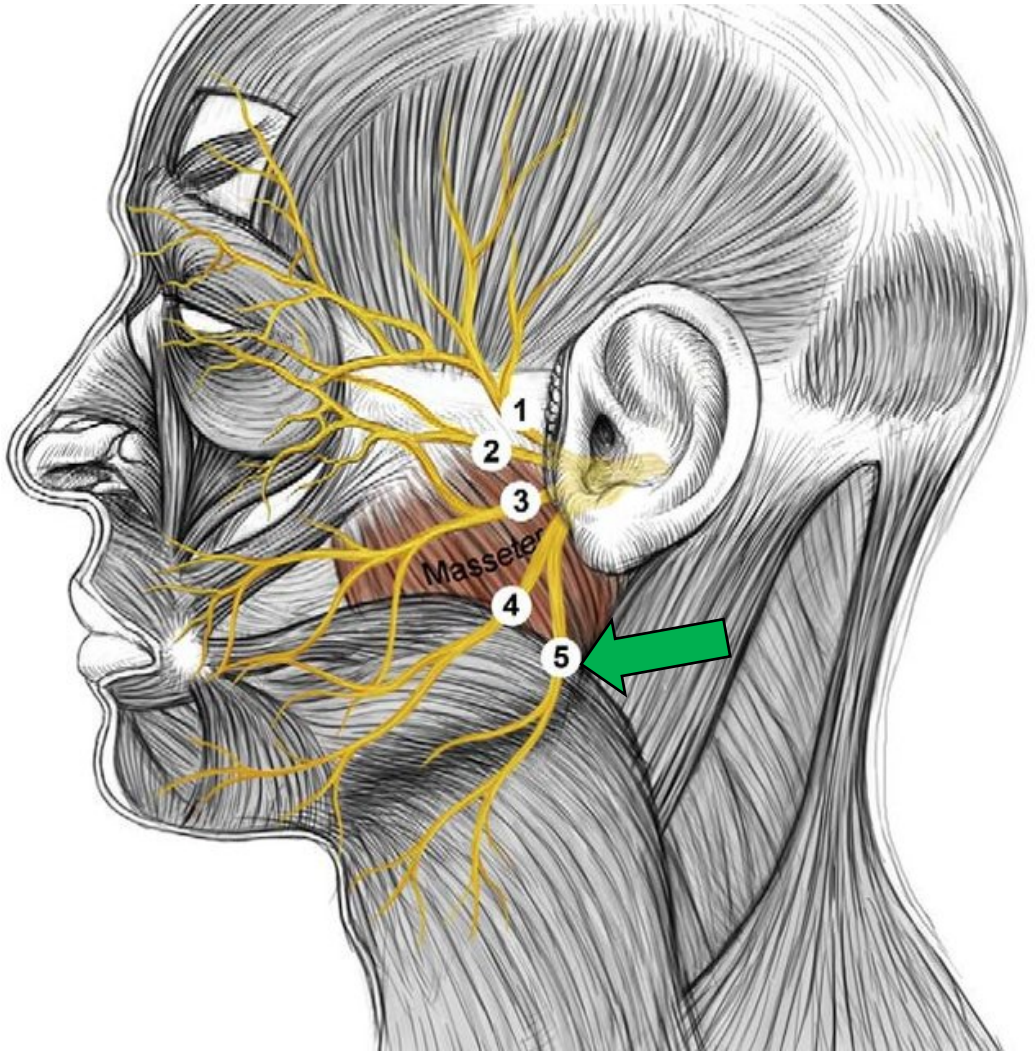
- **Platysma muscle**
- **Superficial veins**
- **Cutaneous nerves**

Platysma muscle





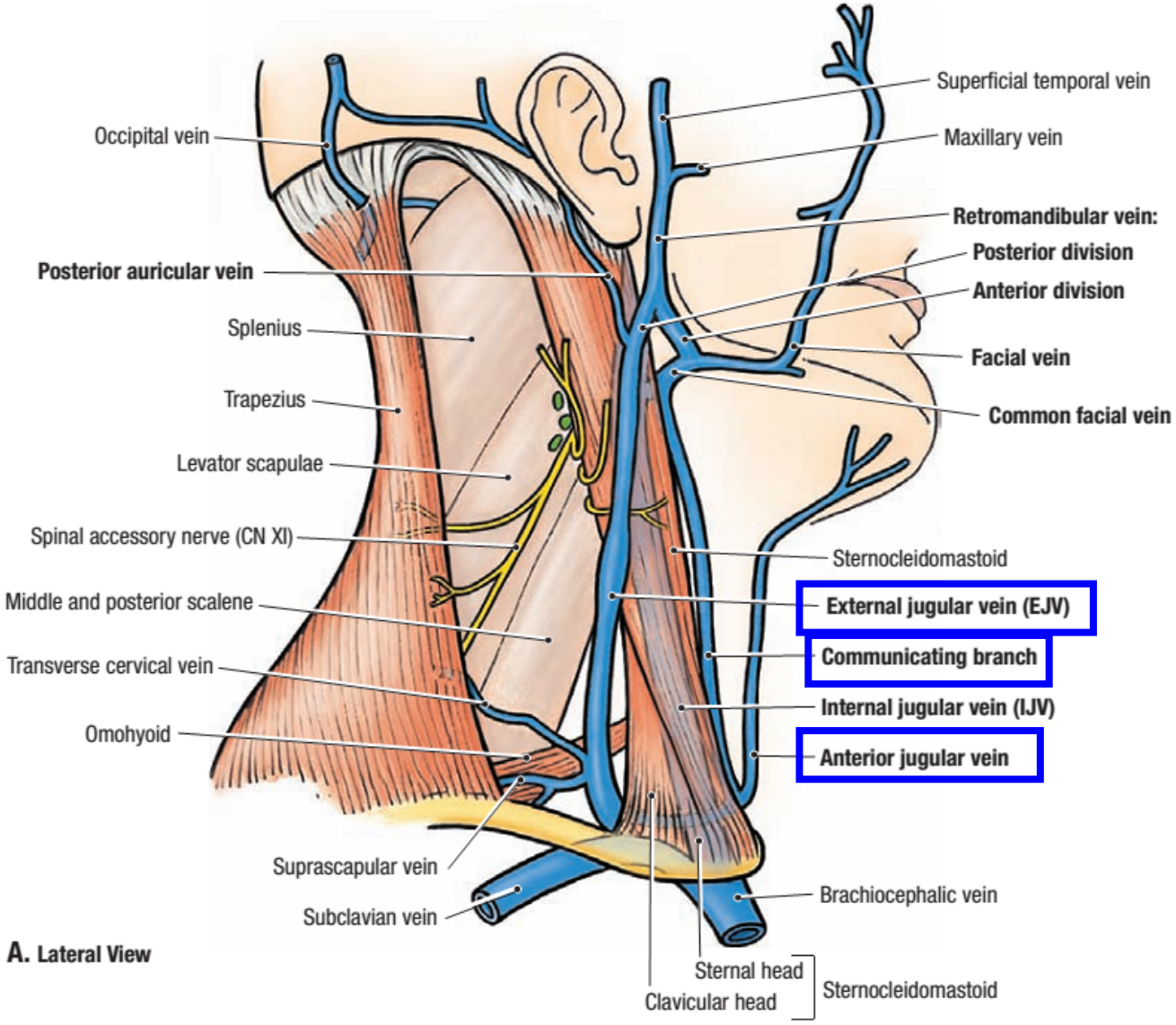
- **Action**
  - **Depress angles of the mouth**
  - **Depress mandible**

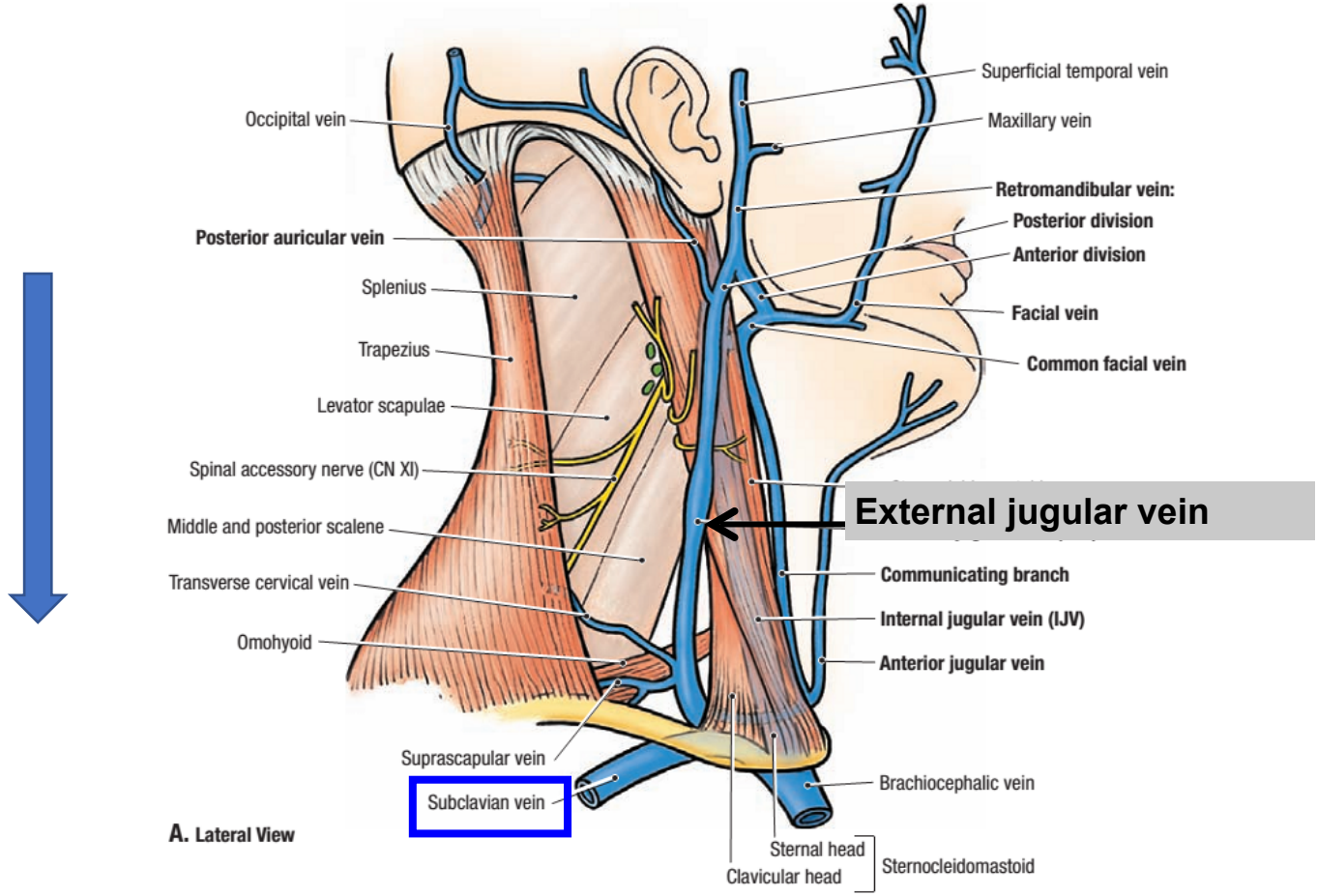


Innervation of Platysma

- **Cervical branch of Facial nerve (CN.VII)**

Superficial veins of the neck



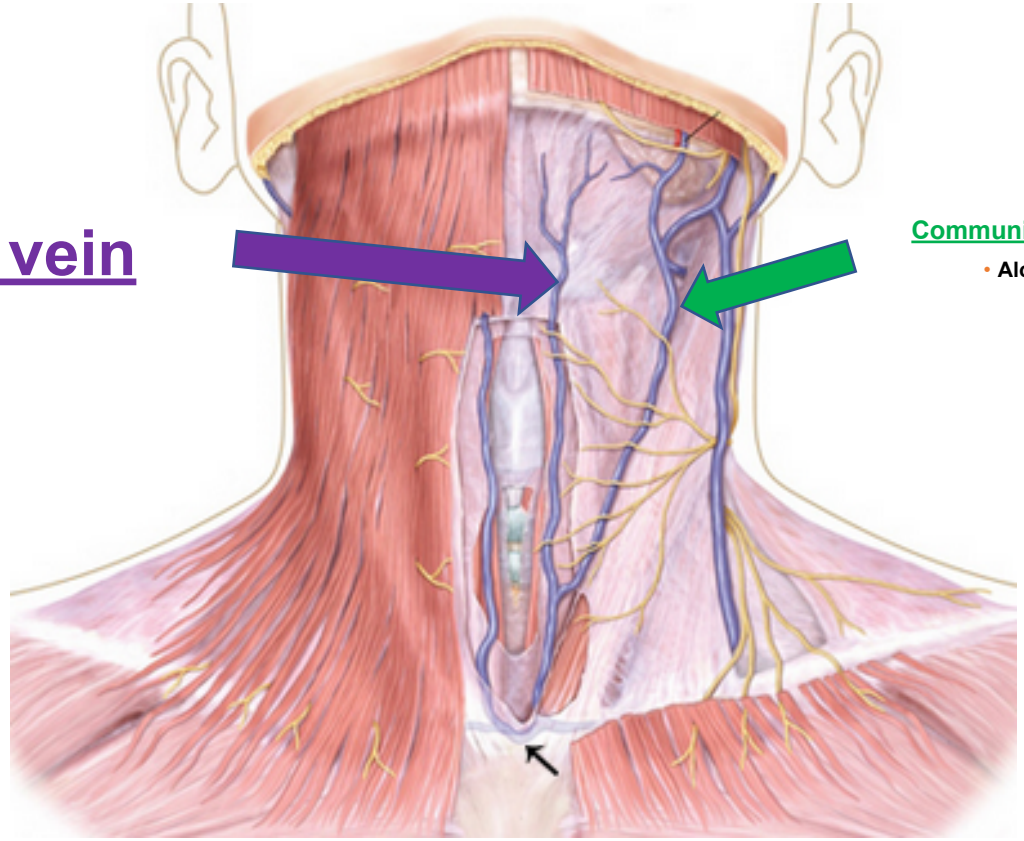


External jugular vein

- Deep to platysma, Superficial to SCM
- Drains to Subclavian vein

Anterior jugular vein

- **Near midline**



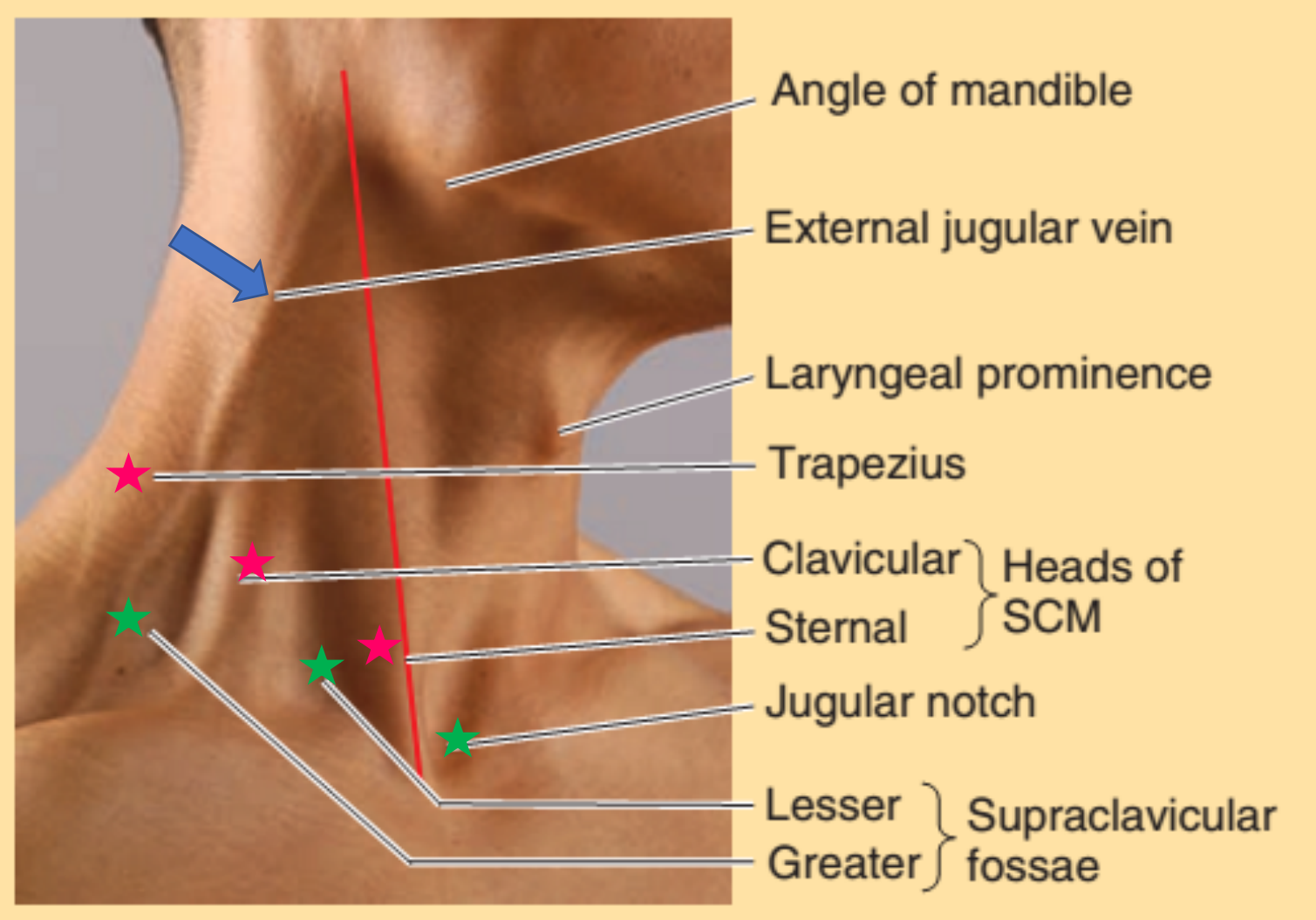
Communicating vein

- **Along anterior border of SCM**

"Jugular venous arch"

- **In suprasternal space**

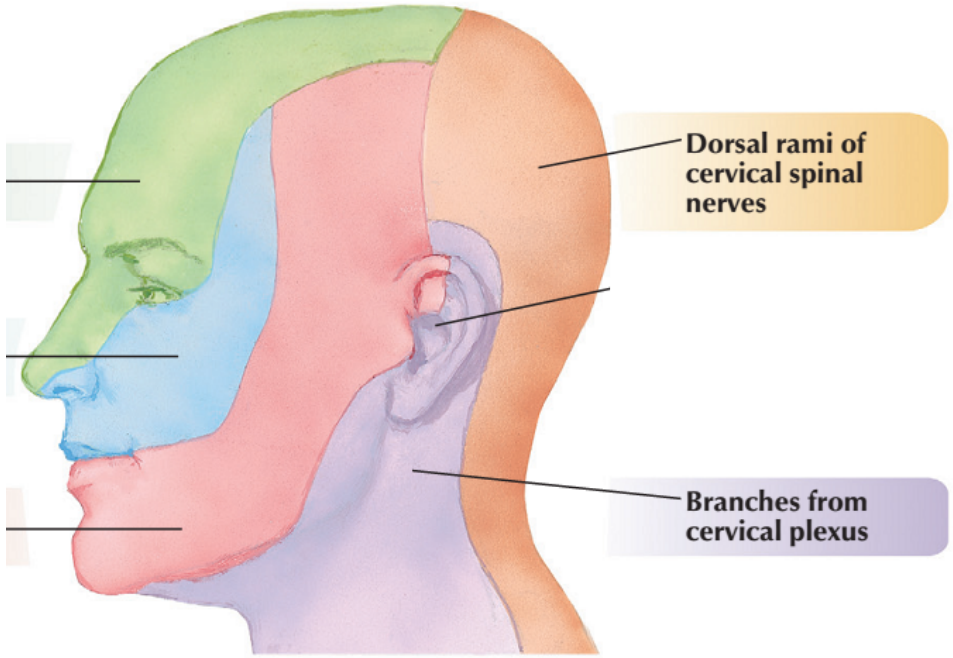
Surface anatomy

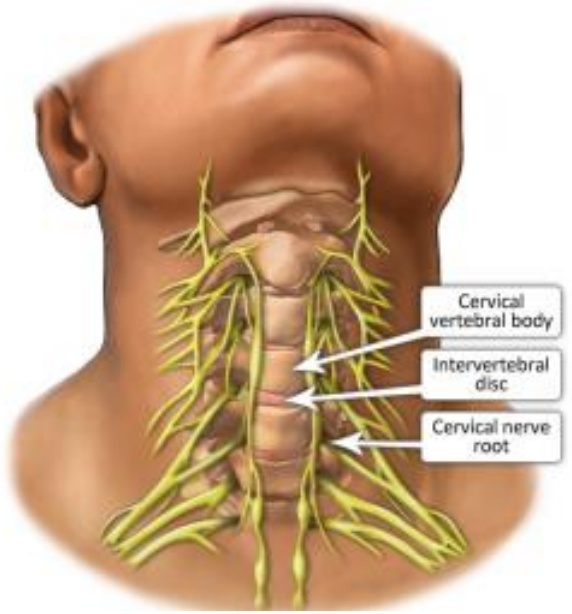


Carotid line (b/w Mastoid process & Angle of mandible to Sternoclavicular joint)

Cutaneous nerves of the neck

"General sensation from skin"

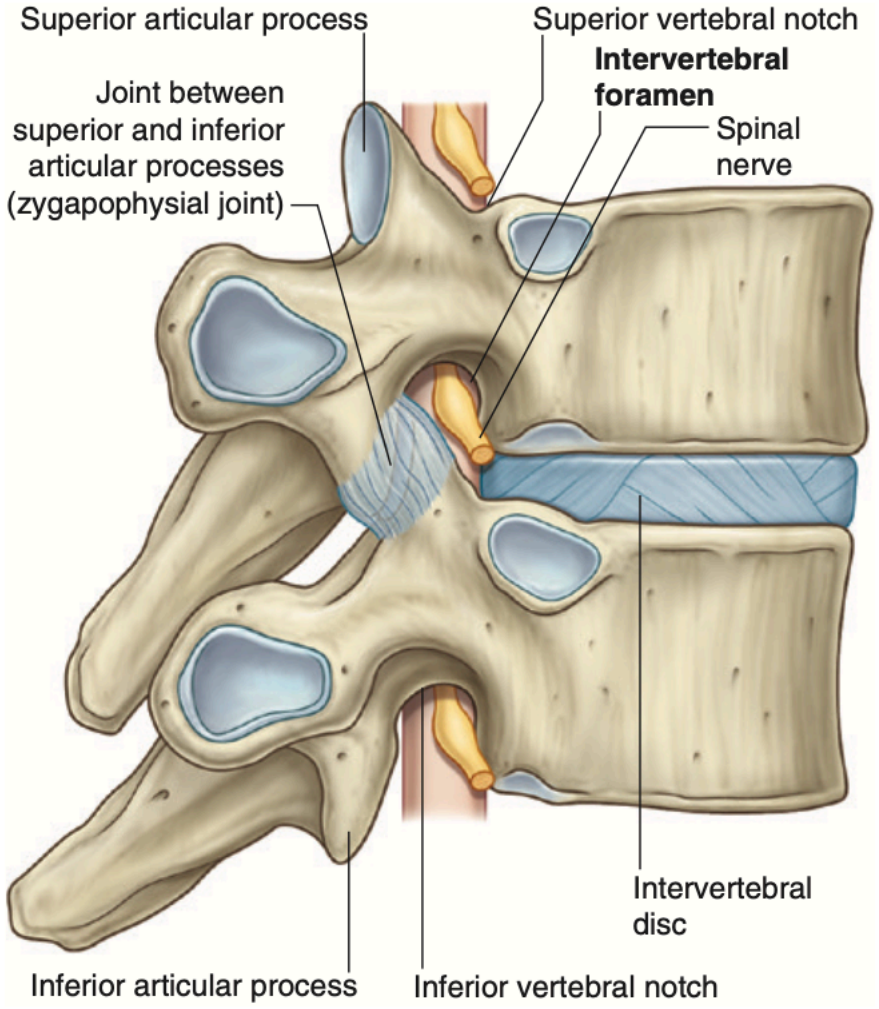


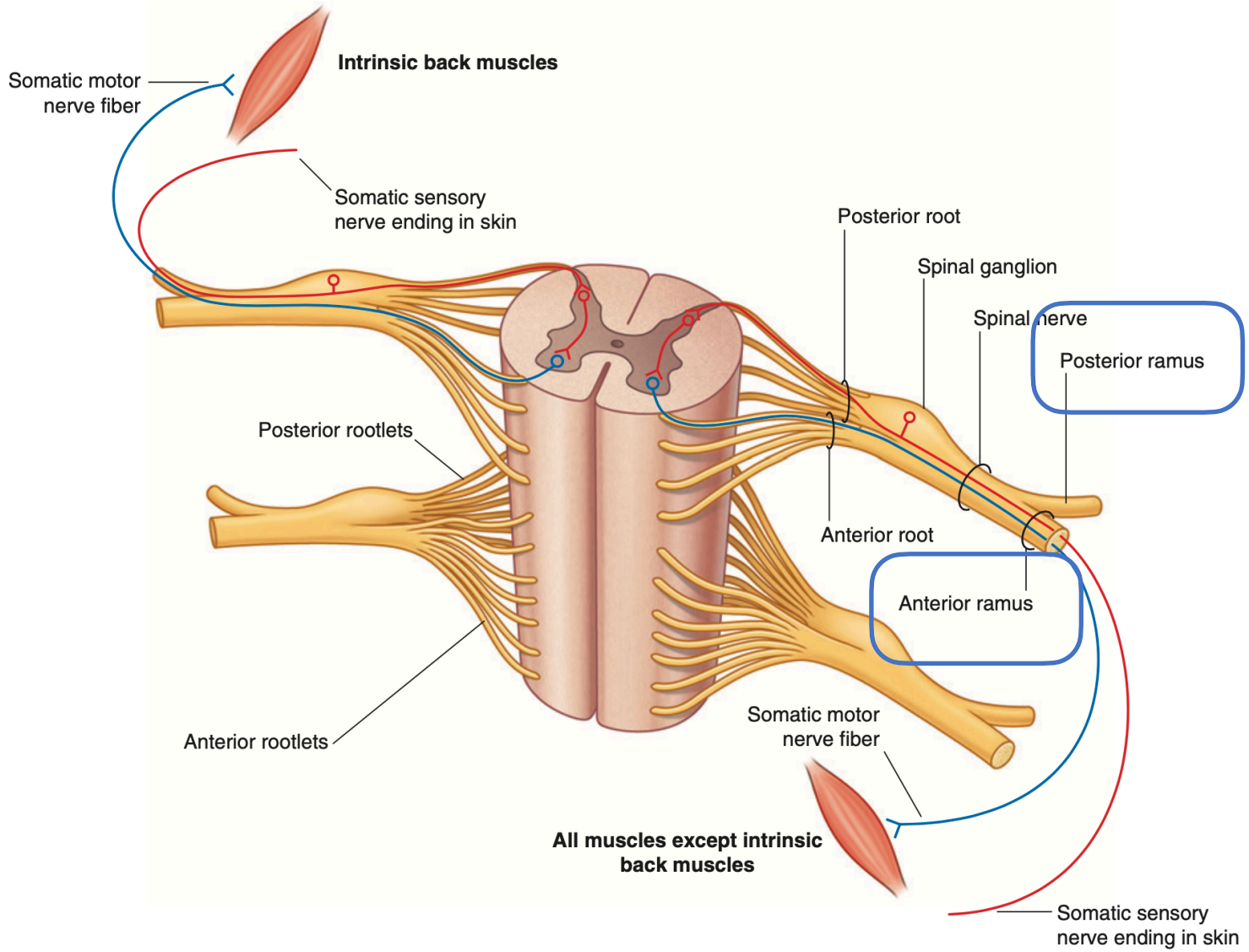


1. **Medial branches of dorsal rami of C3-C6 spinal nerves**

2. **Cutaneous branches of cervical plexus**
   (ventral rami of C2-C4 spinal nerves)

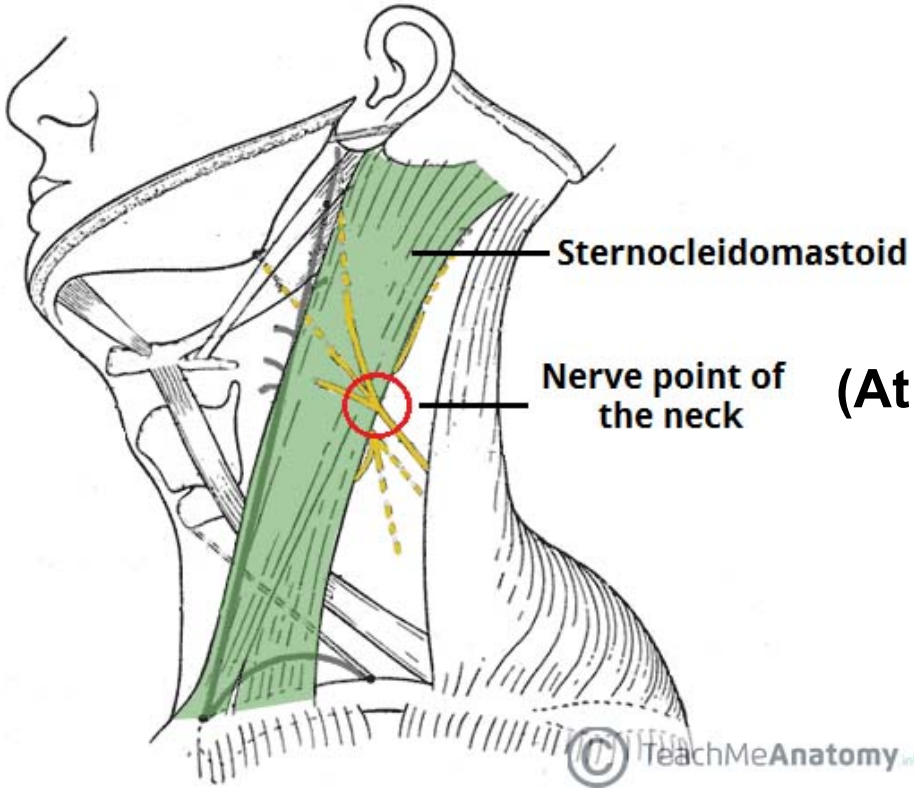
Ventral and dorsal rami of cervical spinal nerve



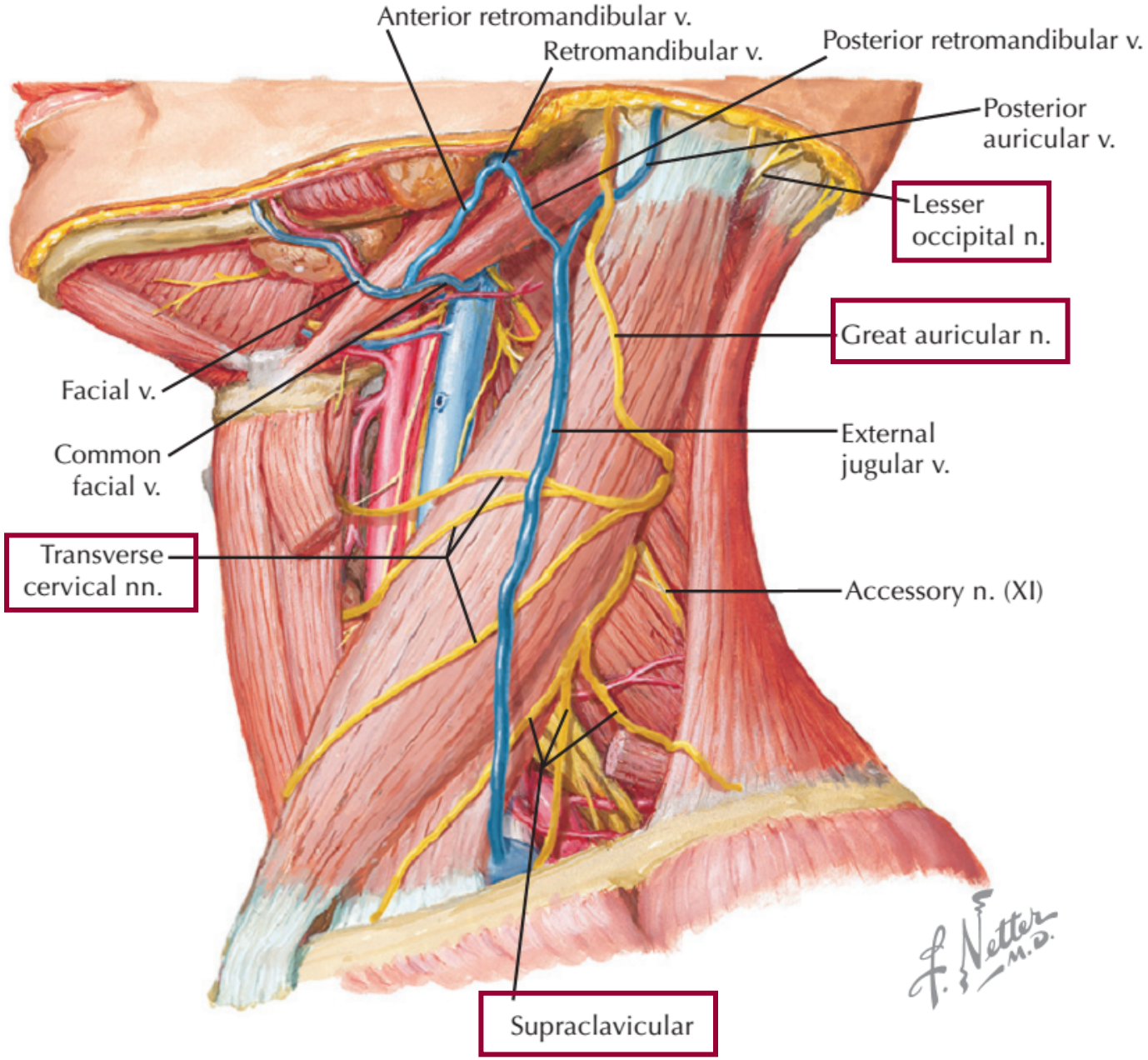


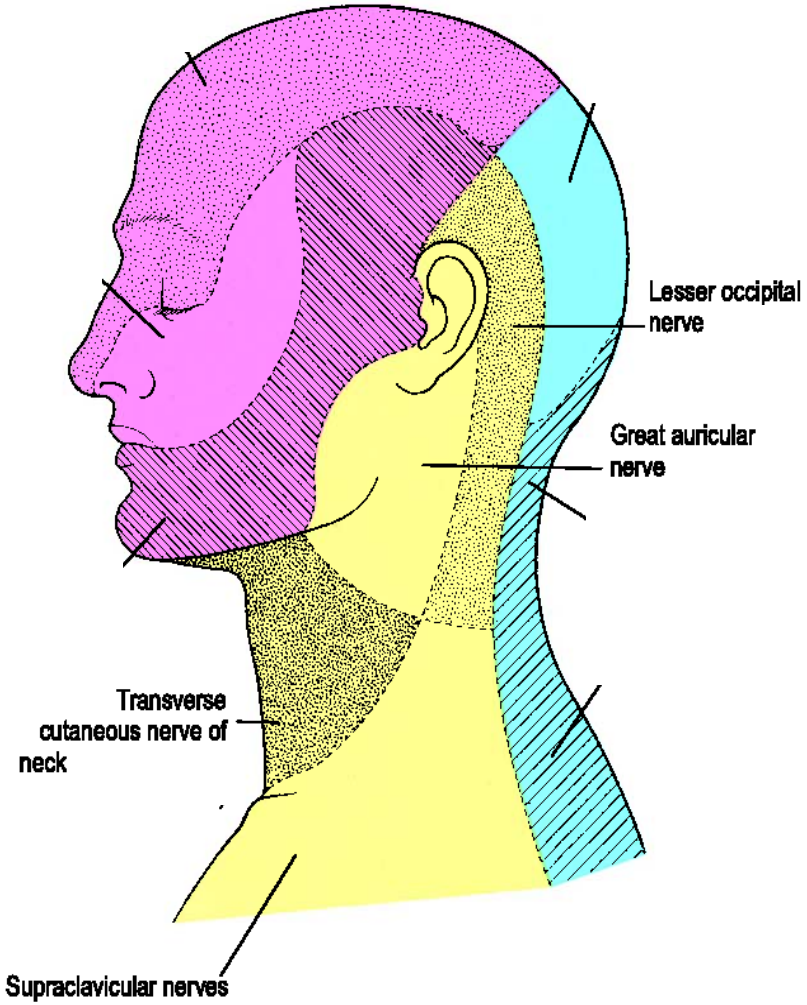
“Cutaneous branches of Cervical plexus”

- **Ventral rami of C2-C4 spinal nerves**



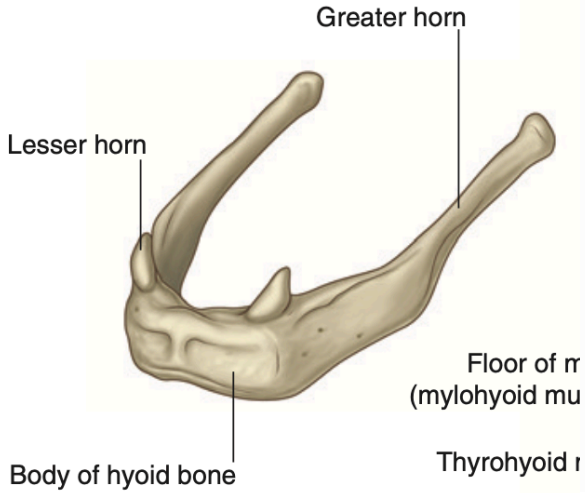
(At the middle of posterior border of SCM)


Anterior retromandibular v.
Retromandibular v.
Posterior retromandibular v.
Posterior auricular v.
Lesser occipital n.
Great auricular n.
Facial v.
Common facial v.
External jugular v.
Transverse cervical nn.
Accessory n. (XI)
Supraclavicular
F. Netter M.D.

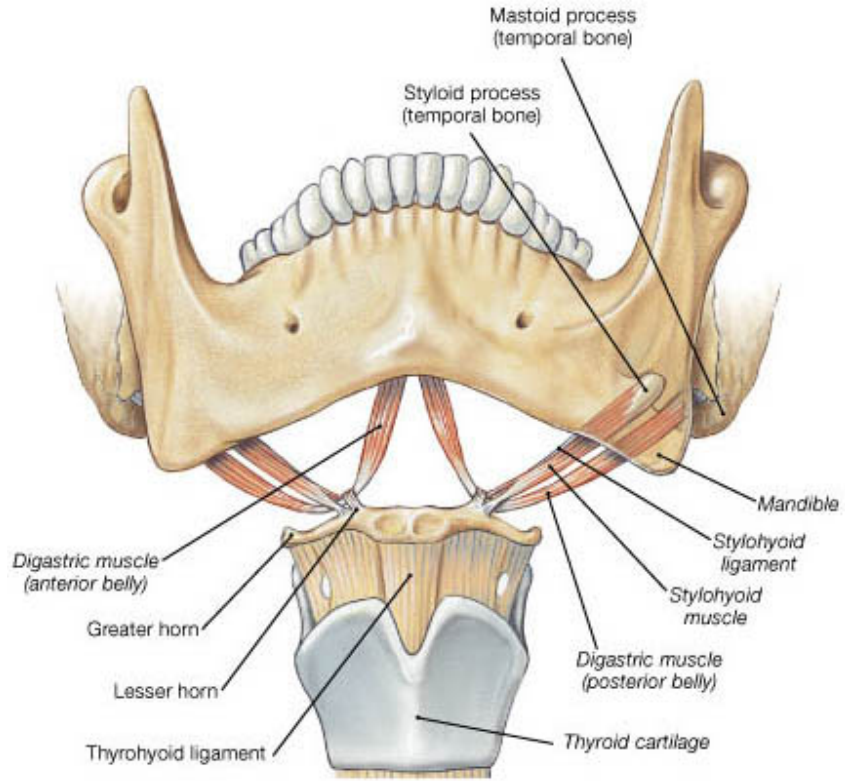

Lesser occipital nerve
Great auricular nerve
Transverse cutaneous nerve of neck
Supraclavicular nerves

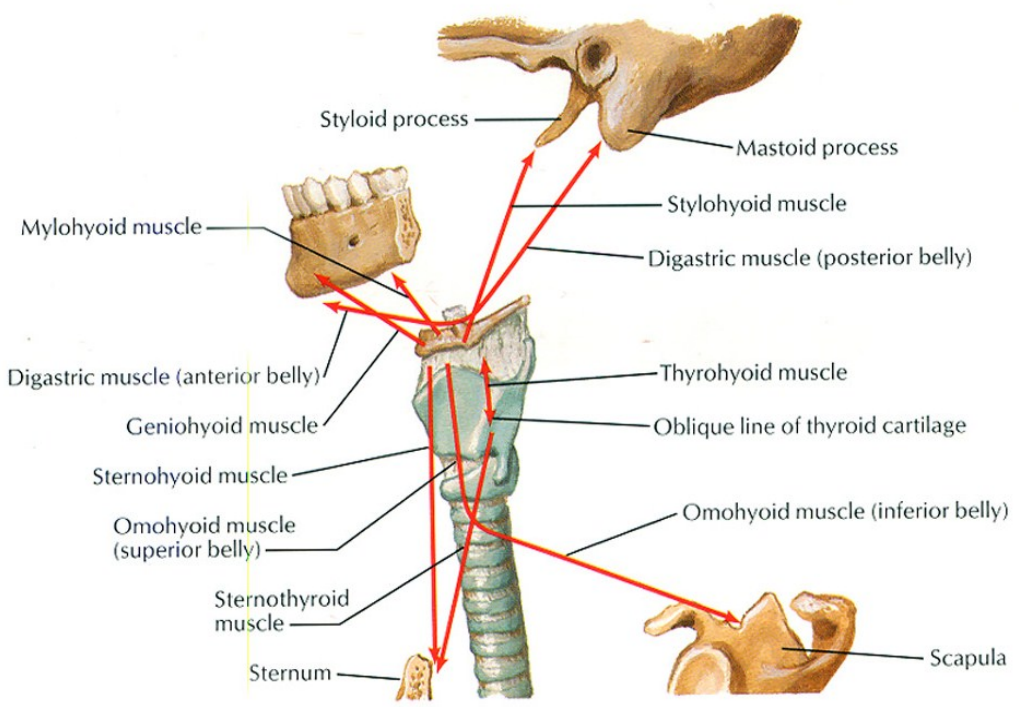
Muscles of Hyoid bone

- Chewing
- Swallowing
- Elevation of larynx

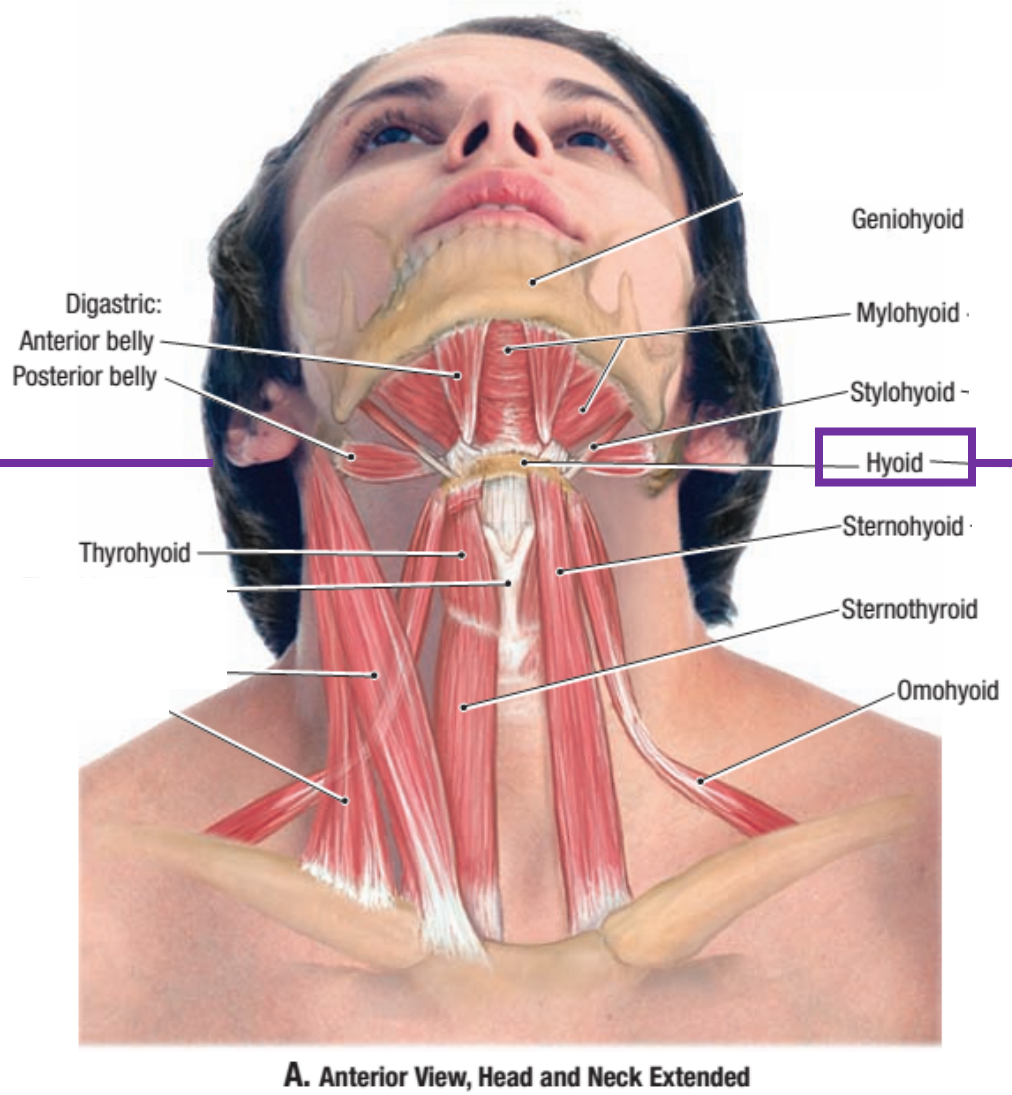








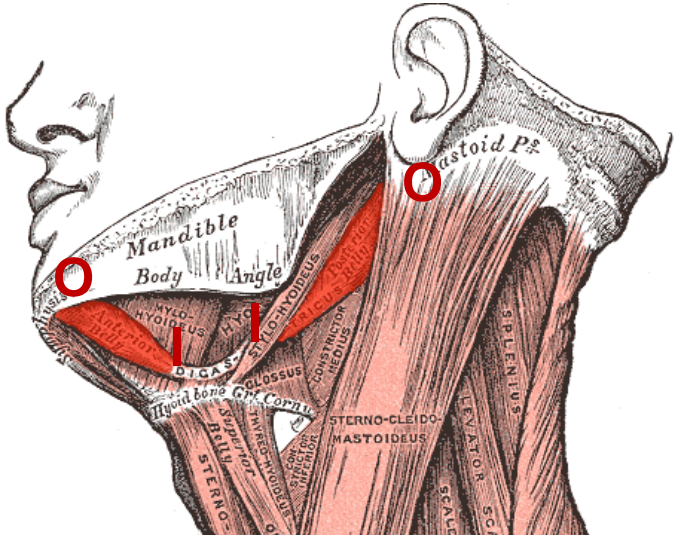
Muscles of Hyoid bone

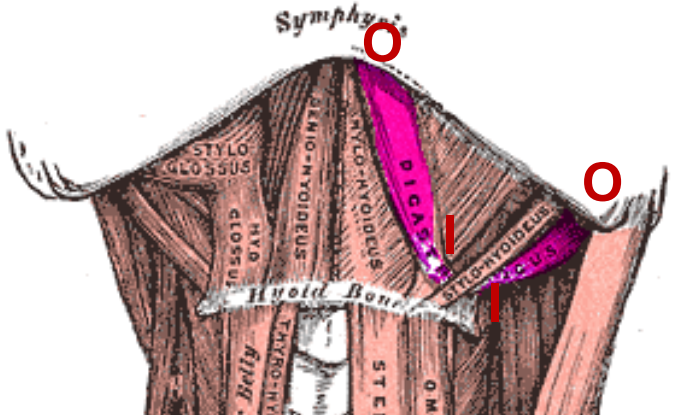


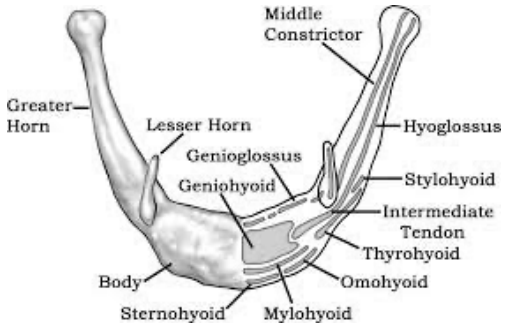
A. Anterior View, Head and Neck Extended

- **Suprahyoid muscles**
- **Infrahyoid muscles**

Digastric muscle





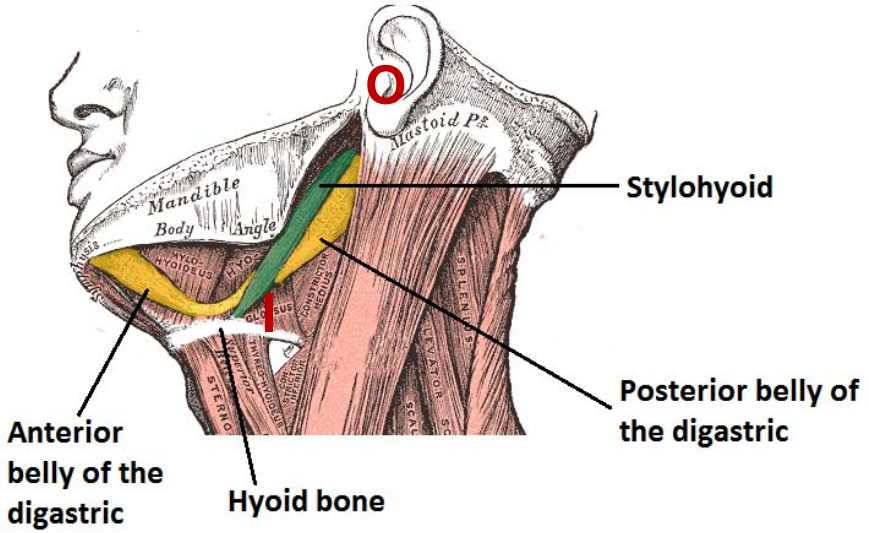


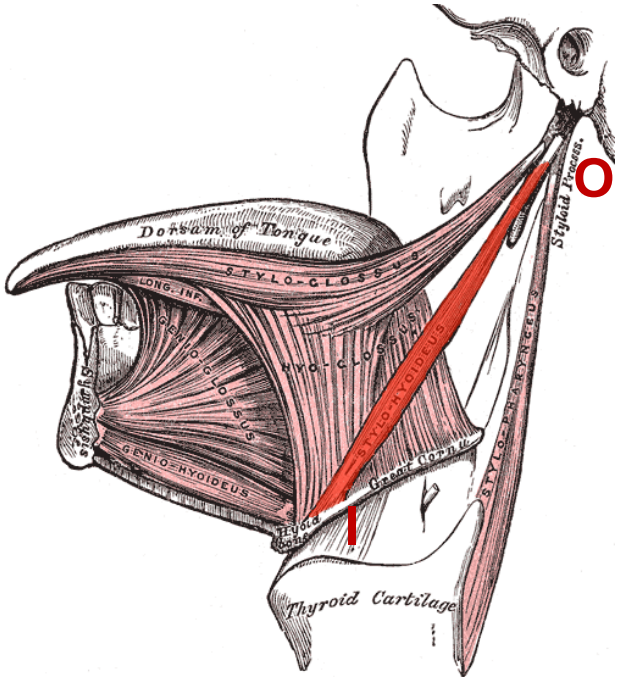
- 2 bellies
  - Posterior belly
    - Origin : mastoid notch
  - Anterior belly
    - Origin : digastric fossa
- Insertion : “Intervening tendon”
  (Fascial sling → hyoid bone)

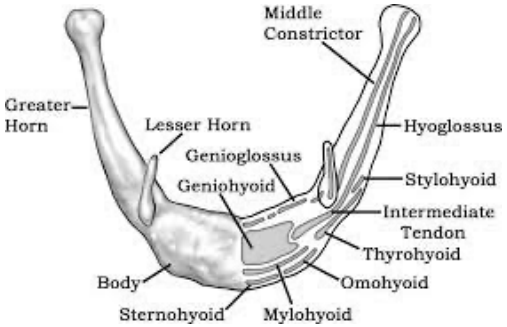
Action

- Elevate hyoid bone
- Depress & retract mandible

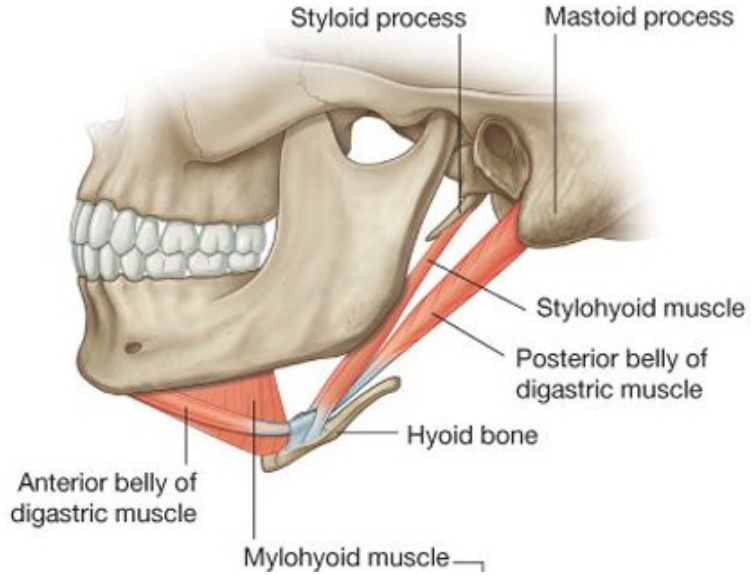
Stylohyoid muscle



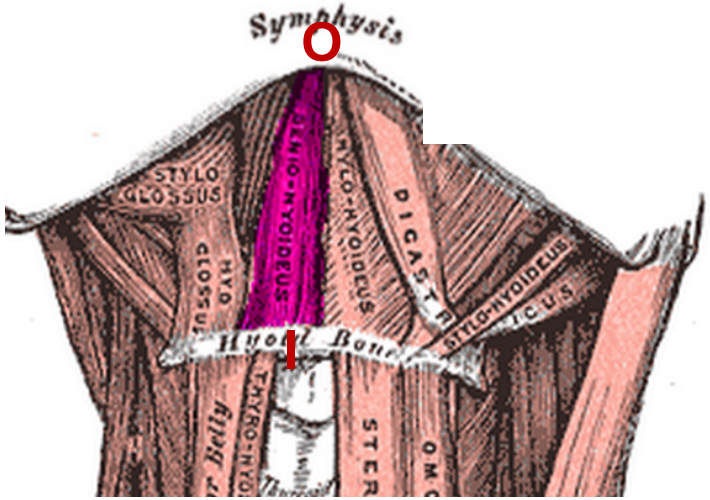


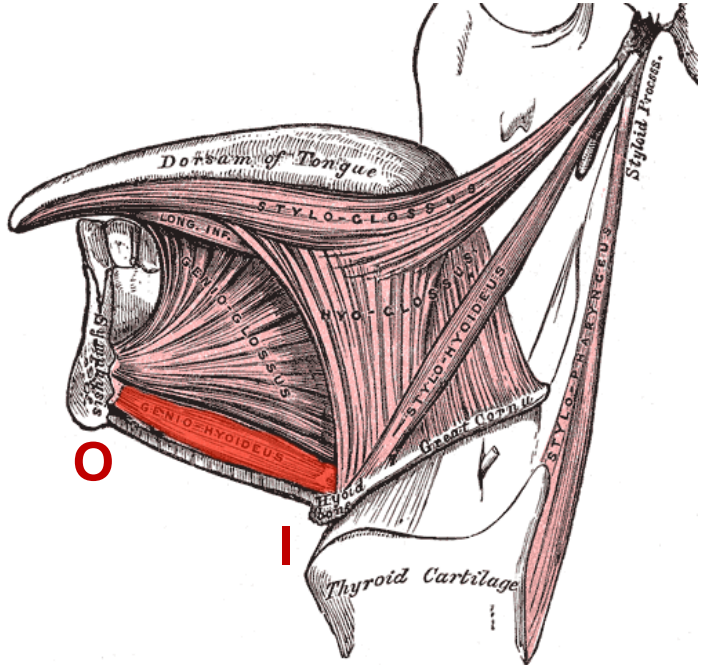


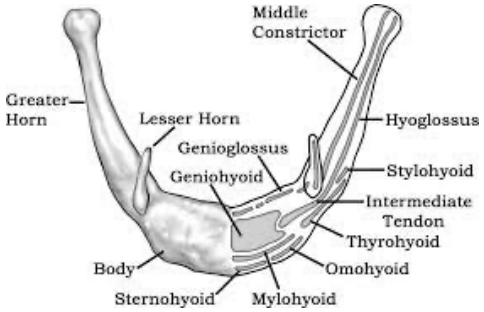
- **Origin:**
  - **Styloid process**
- **Insertion:**
  - **Hyoid bone**
- **Action**
  - **Elevate & retract hyoid bone**



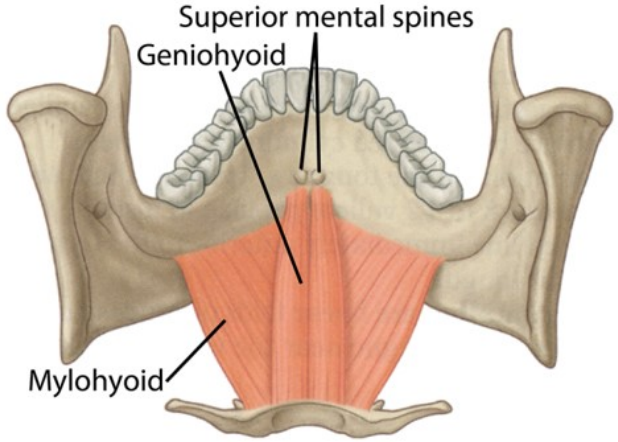
Geniohyoid muscle





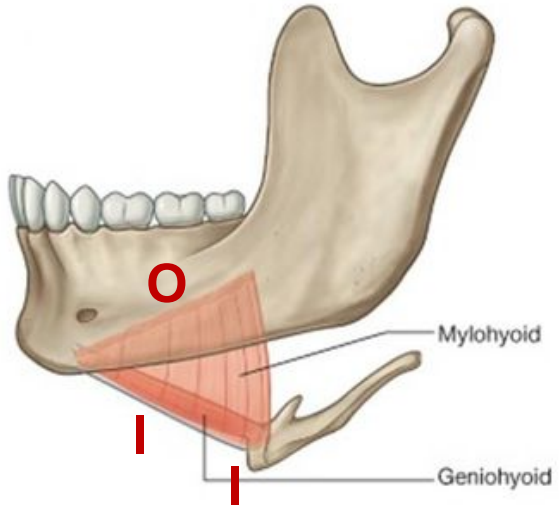


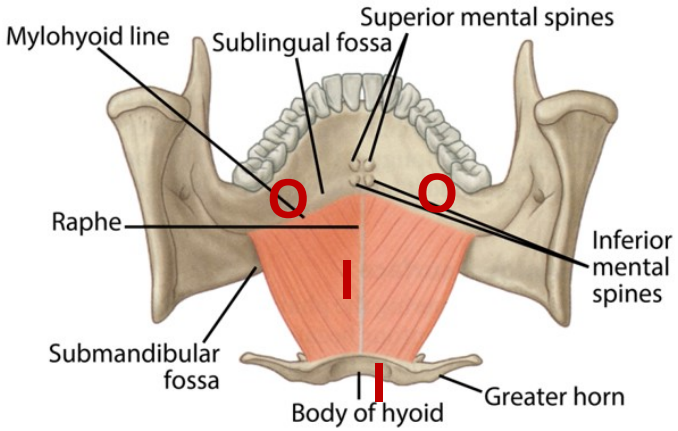
- **Origin**
  - **Inferior genial tubercle**
- **Insertion**
  - **Hyoid bone**
- **Action**
  - **Move hyoid bone anteriorly**

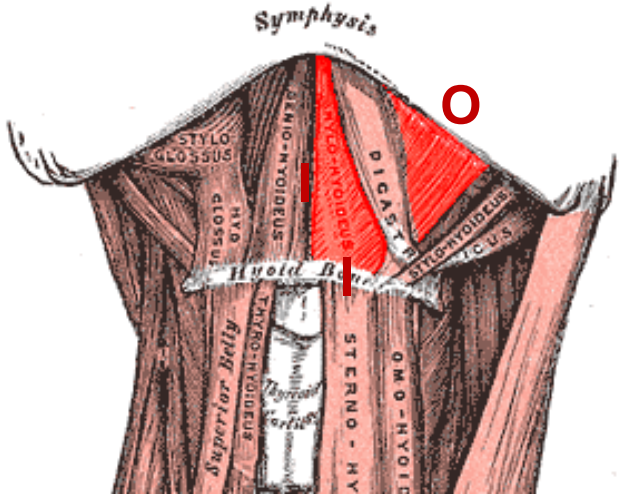


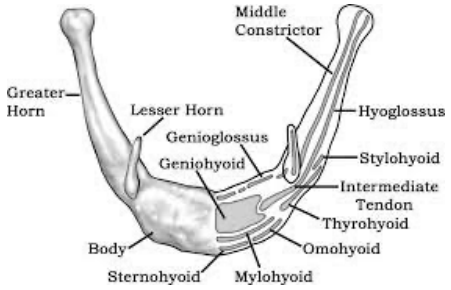
Mylohyoid muscle

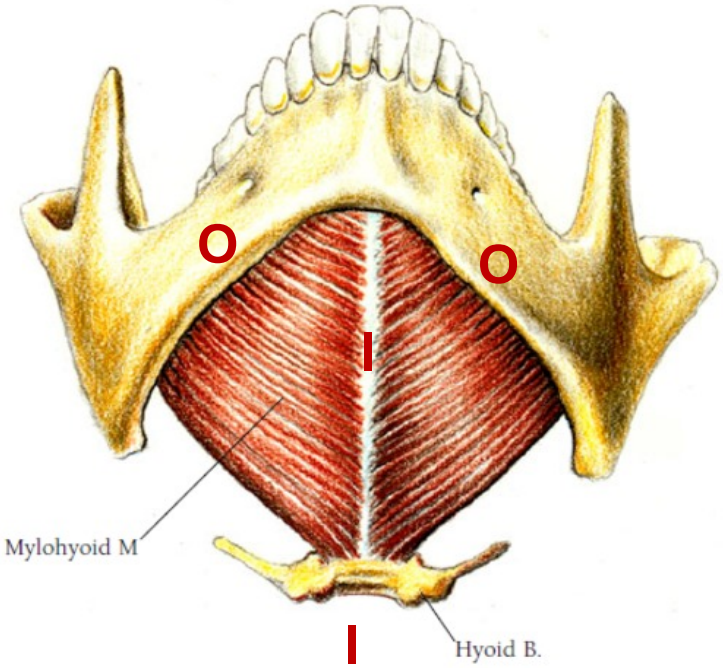
*Form floor of mouth





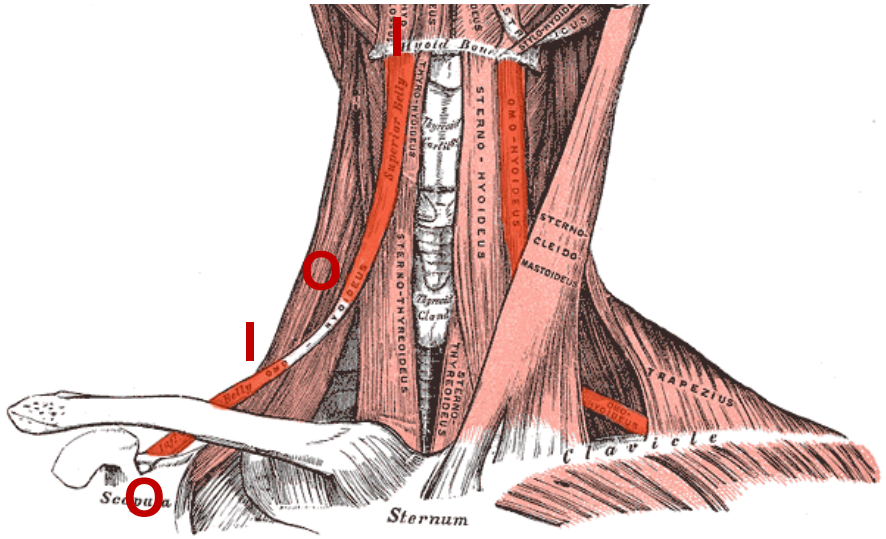


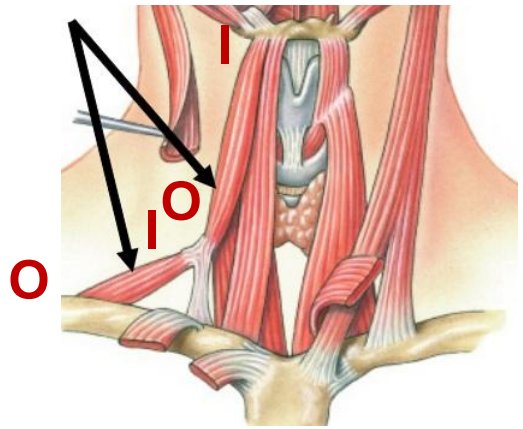


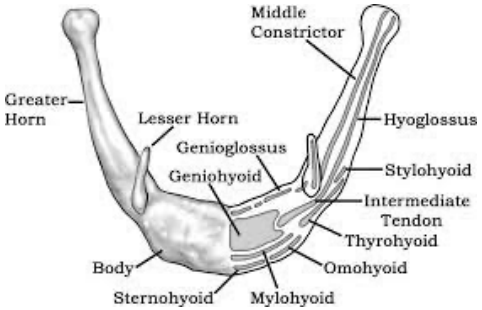


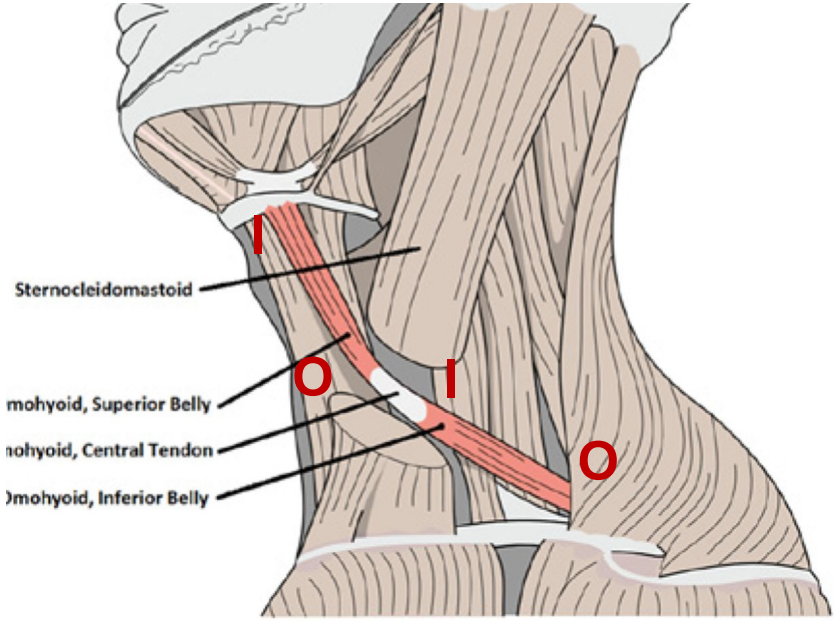
- **Origin:**
  - **Mylohyoid line**
- **Insertion:**
  - **Median tendinous raphe & hyoid bone**
- **Action:**
  - **Elevate hyoid bone & floor of mouth**

Omohyoid muscle



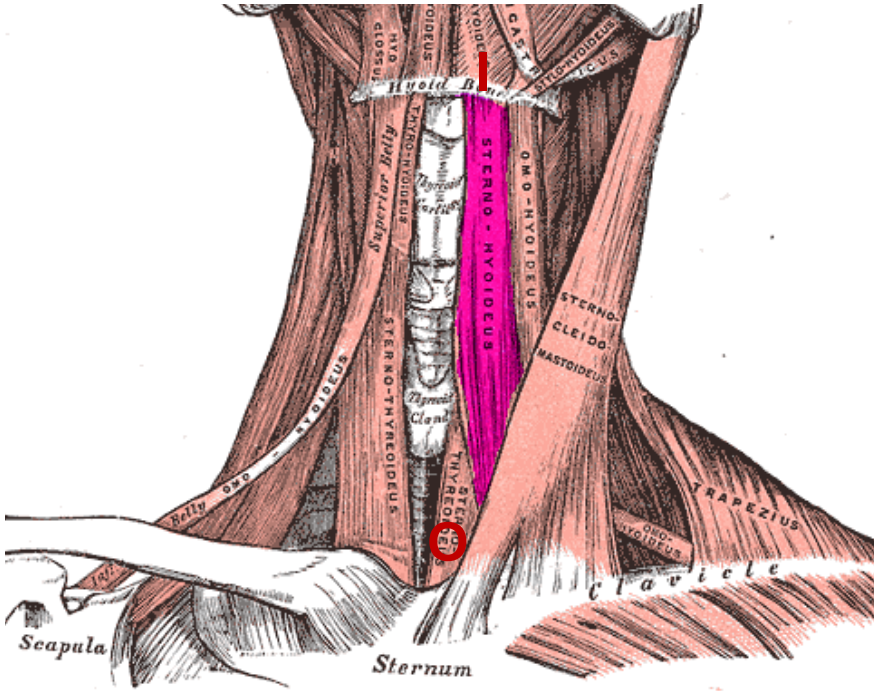


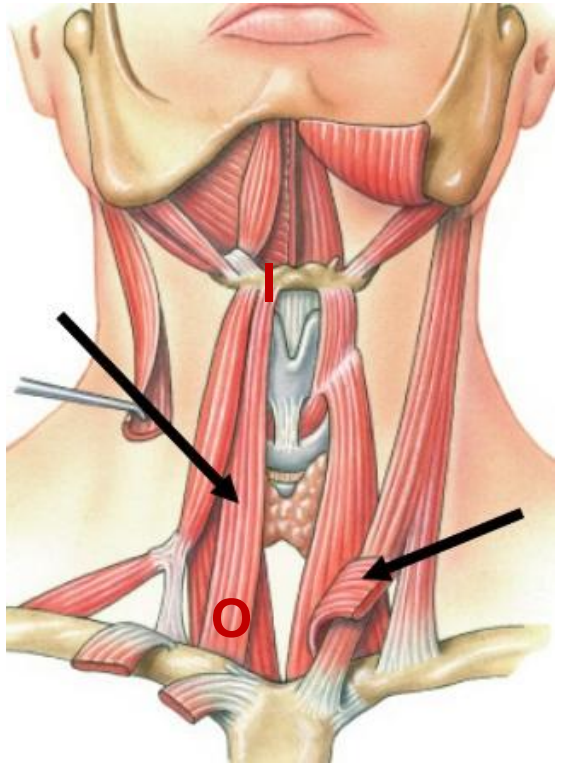


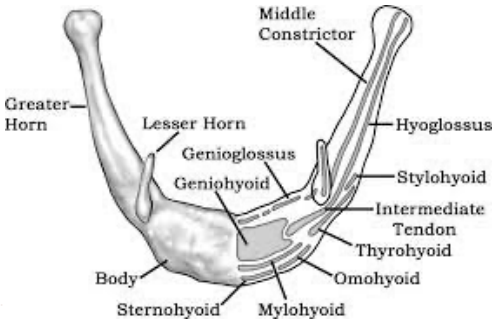


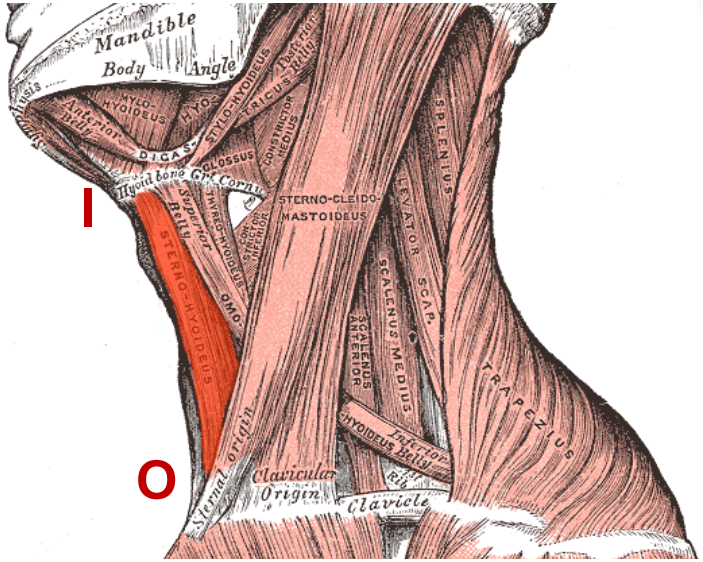
- **Inferior belly**
  - **Origin: scapula**
  - **Insertion: intervening tendon**
- **Superior belly**
  - **Origin: intervening tendon**
  - **Insertion: hyoid bone**
- **"Intervening tendon"**
  (Fascial sling
  → manubrium sterni/1st costal cartilage/clavicle)
- **Action**
  - **Depress & stabilize hyoid bone**

Sternohyoid muscle



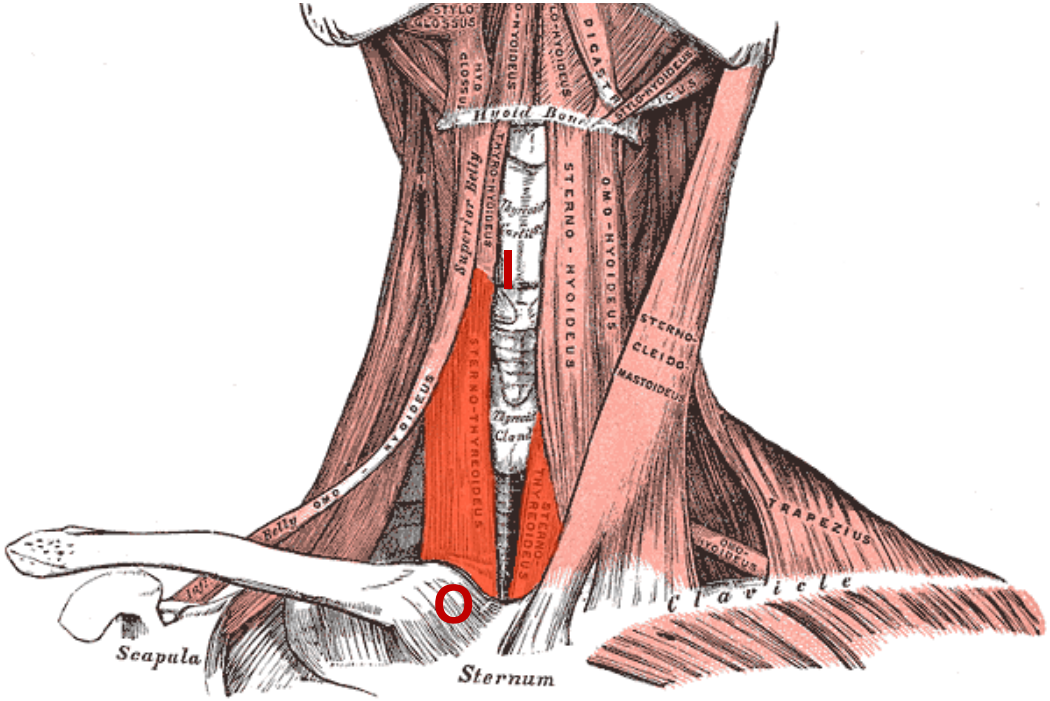


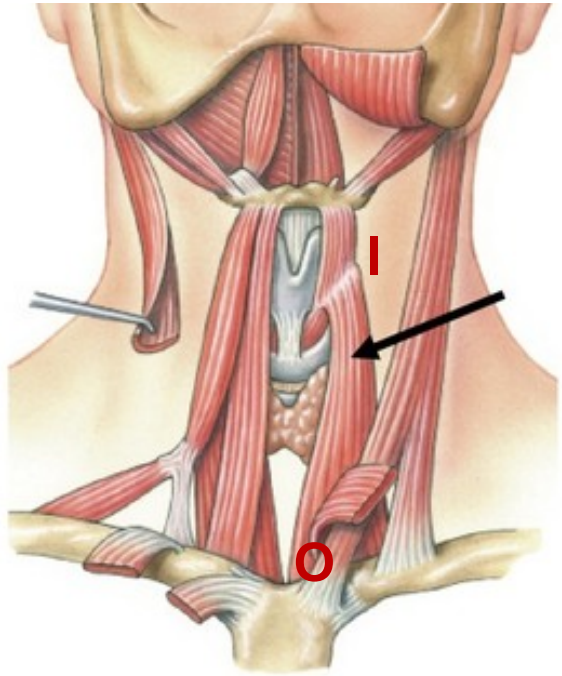




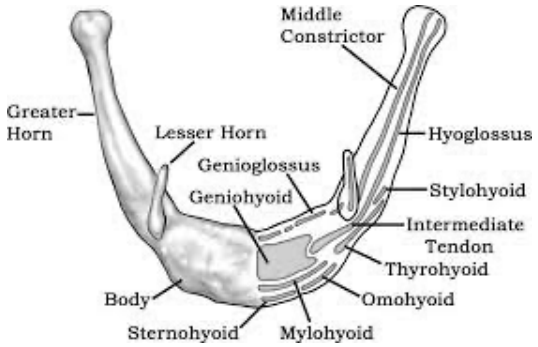
- **Origin**
  - **Manubrium sterni/medial end of clavicle**
- **Insertion**
  - **Hyoid bone**
- **Action**
  - **Depress & stabilize hyoid bone**

Sternothyroid muscle

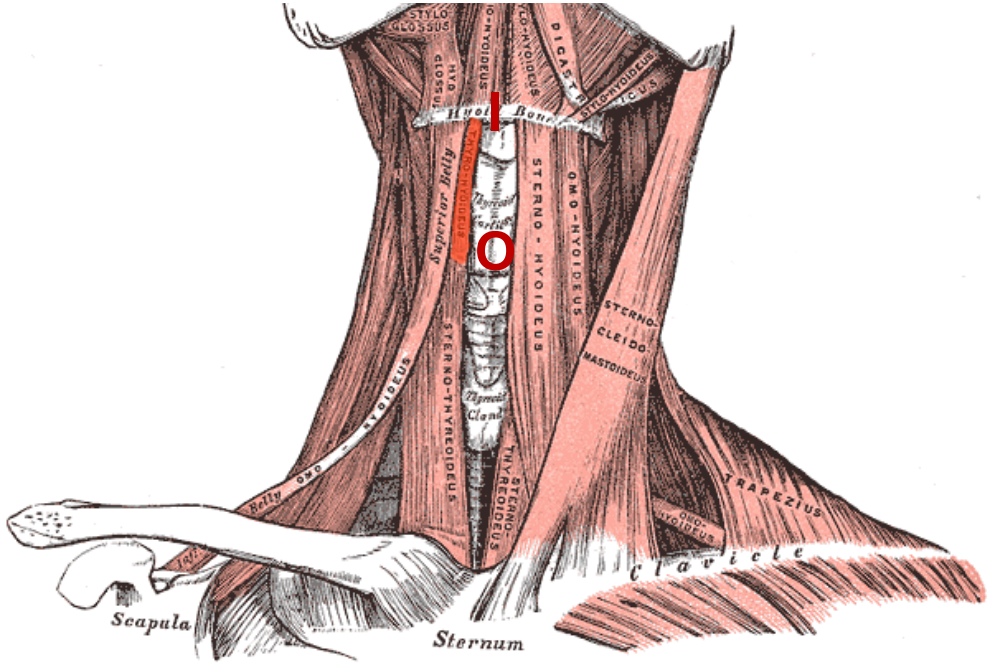


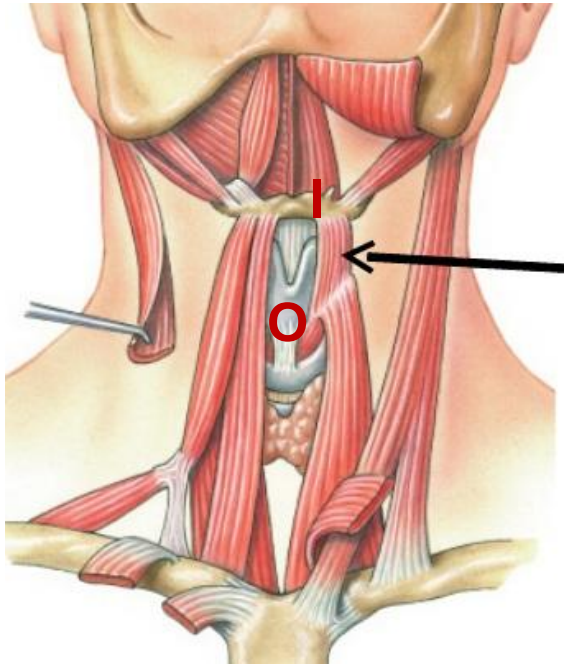


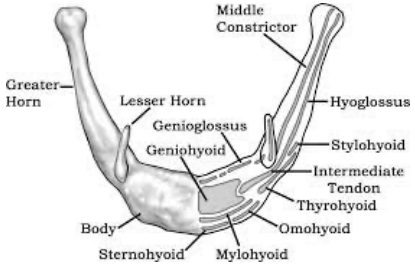
- **Origin**
  - **Manubrium sterni**
- **Insertion**
  - **Oblique line of Thyroid cartilage**
- **Action**
  - **Depress & stabilize hyoid bone, Depress larynx**

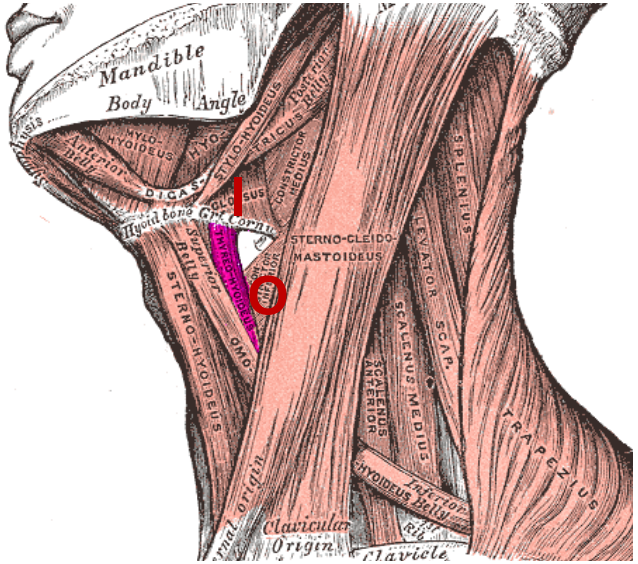


Thyrohyoid muscle



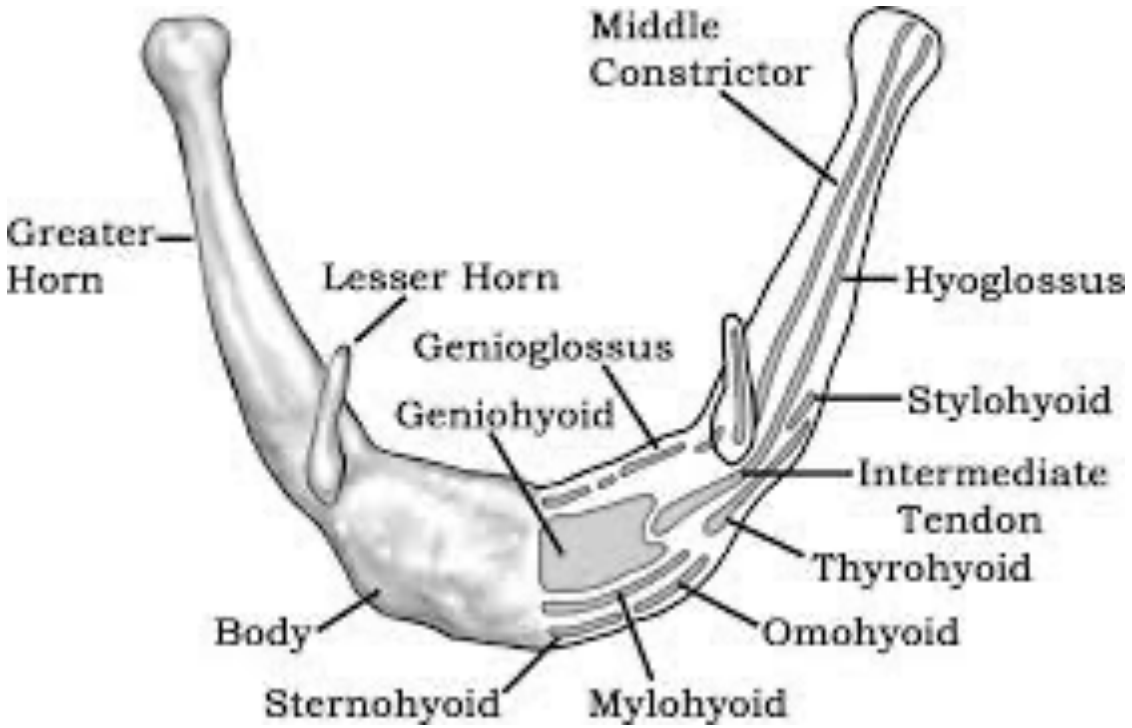




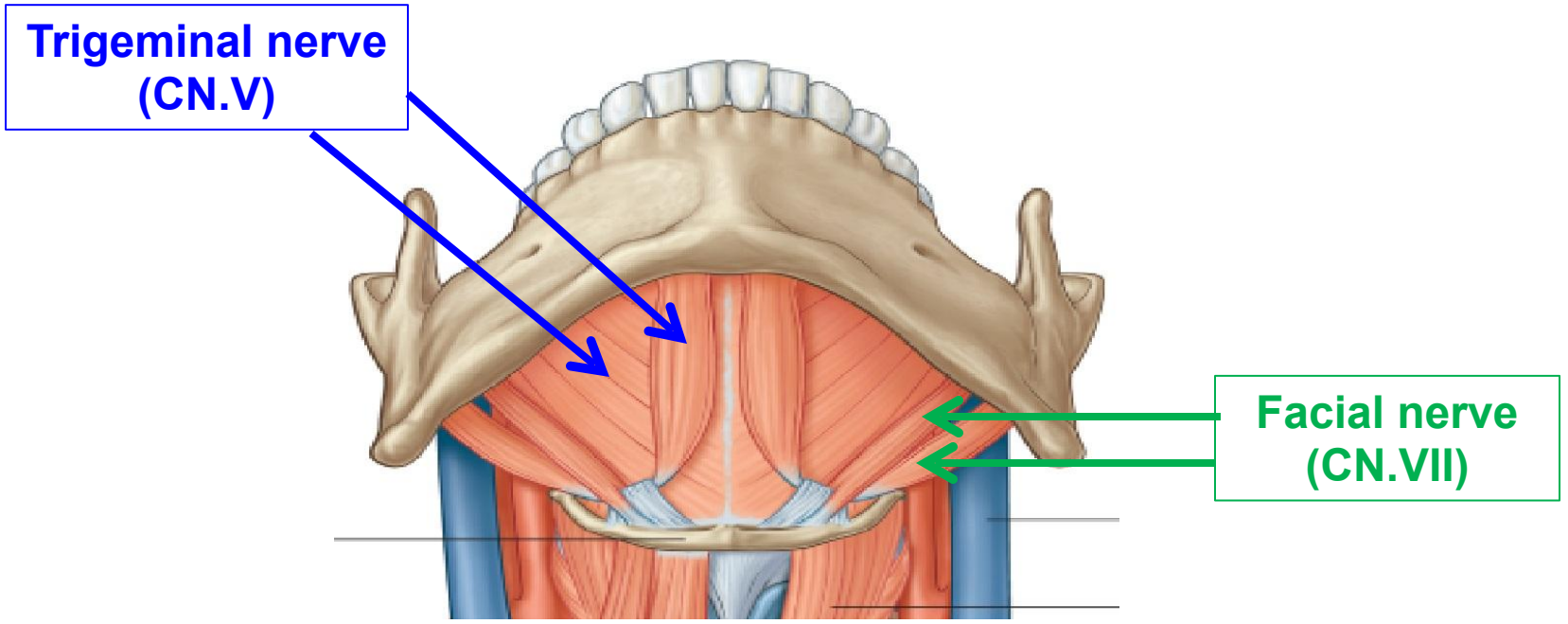


- **Origin**
  - **Oblique line of Thyroid cartilage**
- **Insertion**
  - **Hyoid bone**
- **Action**
  - **Depress & stabilize hyoid bone, Elevate larynx**

Hyoid bone: muscle attachments



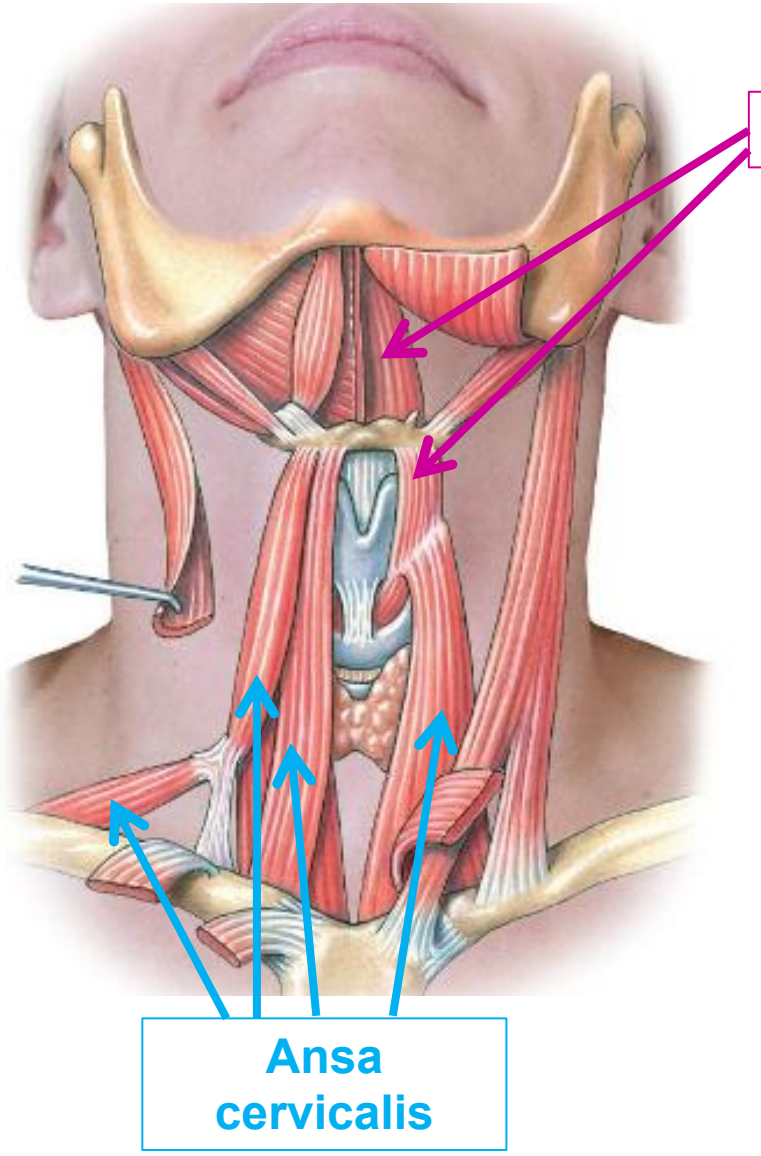
Innervation of Muscles of hyoid bone



1. **Branch of Trigeminal nerve ($CN.V_3$)**
   1) Anterior belly of digastric muscle
   2) Mylohyoid muscle

2. **Branch of Facial nerve (CN.VII)**
   1) Posterior belly of digastric muscle
   2) Stylohyoid muscle

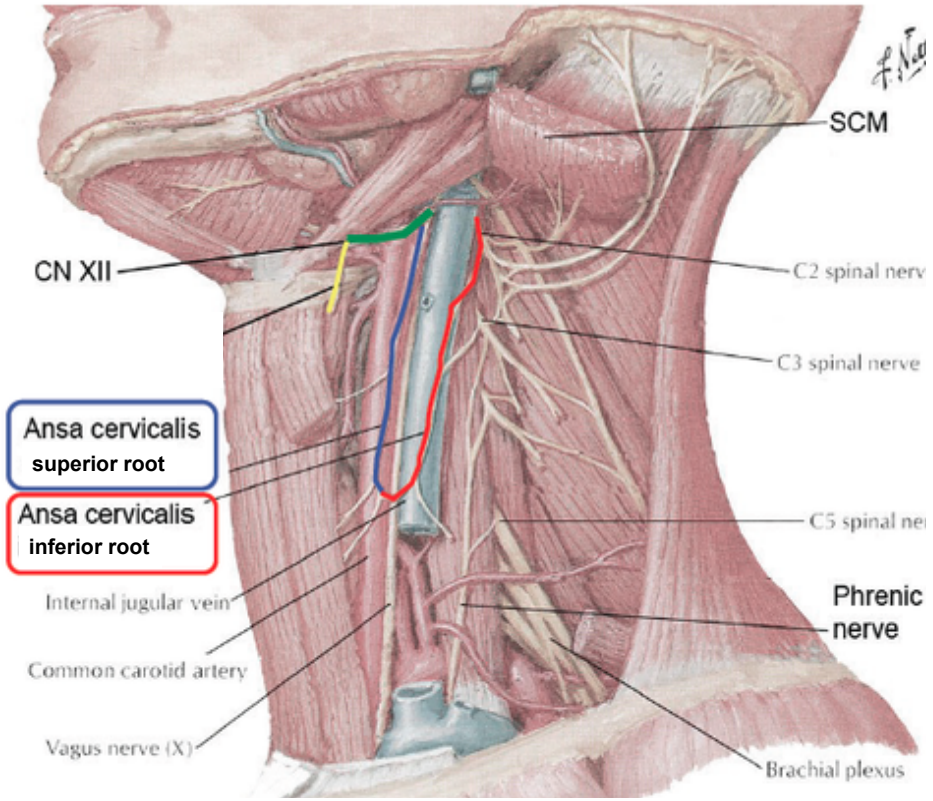
Innervation of Muscles of hyoid bone

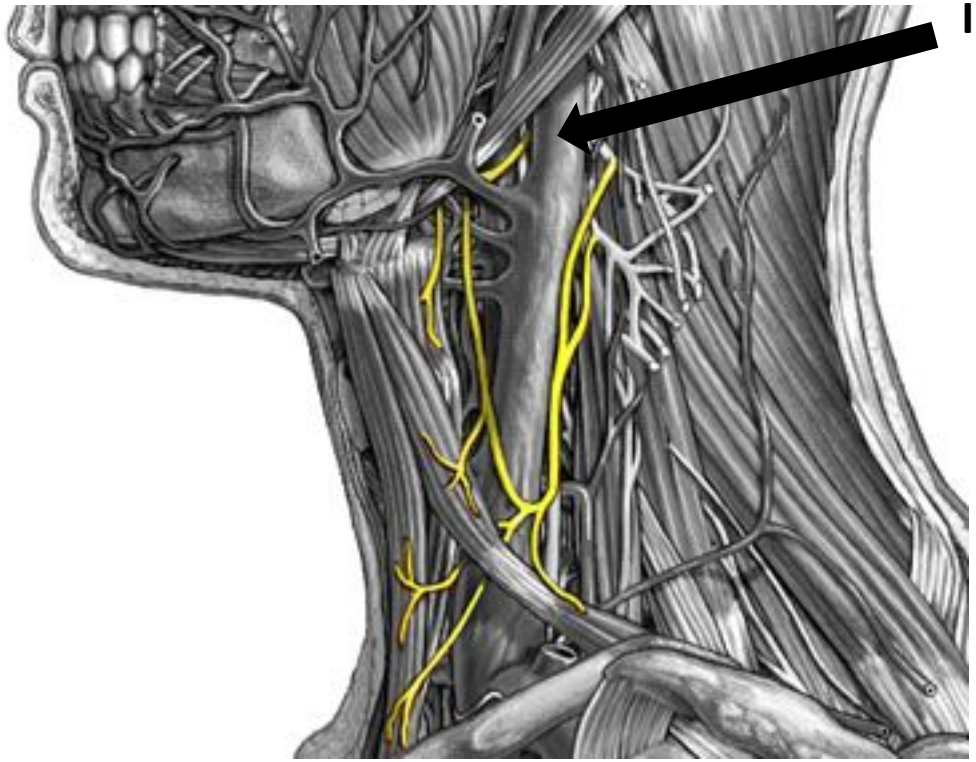


3. C1 spinal nerve
   1) Geniohyoid muscle
   2) Thyrohyoid muscle

4. Ansa cervicalis (C1-C3)
   1) Omohyoid muscle
   2) Sternohyoid muscle
   3) Sternothyroid muscle

Ansa cervicalis

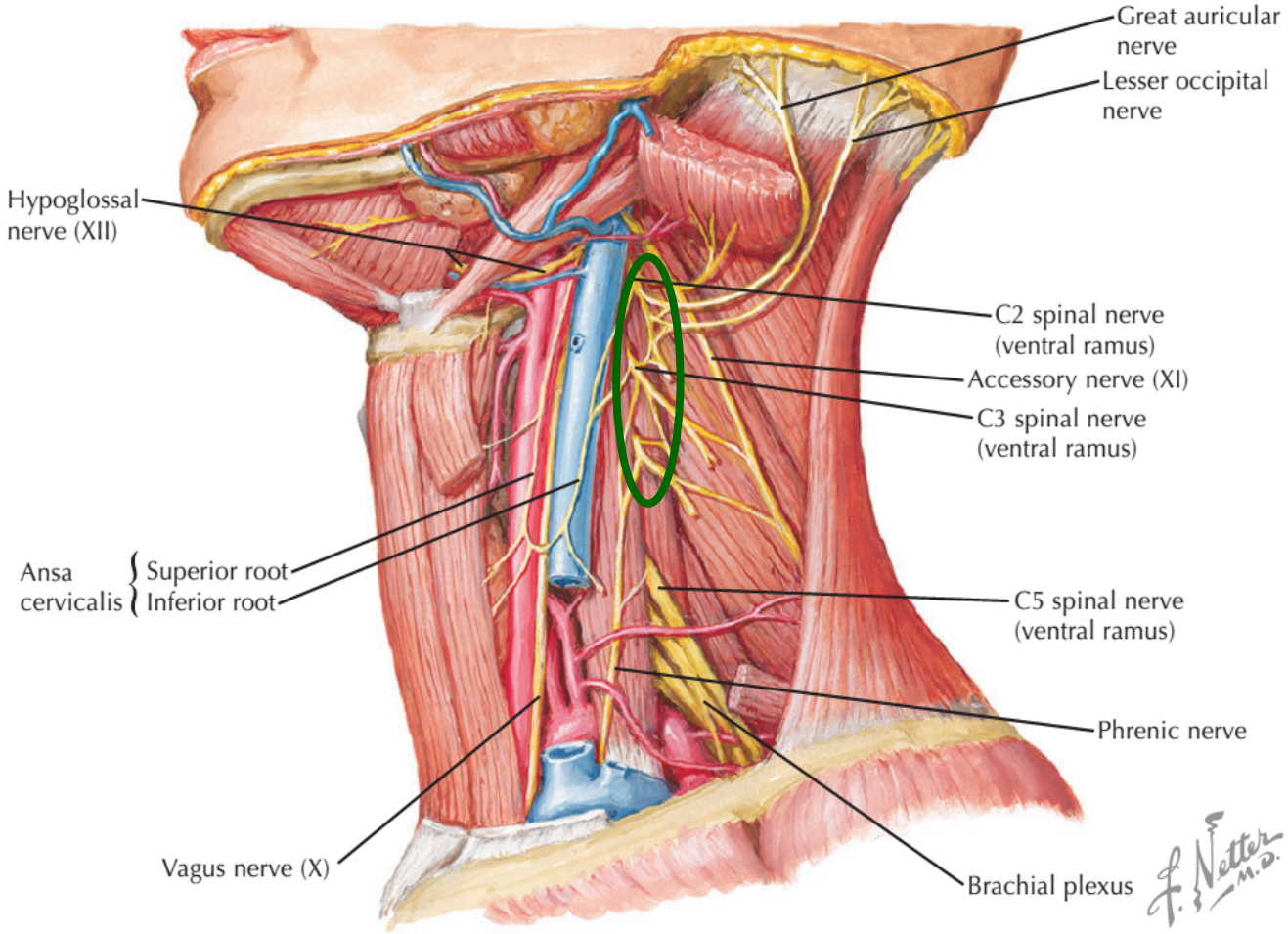




- **Loop of cervical plexus**

1. **<u>Superior root :</u> C1 accompanying Hypoglossal nerve (CN.XII)**
2. **<u>Inferior root :</u> ventral rami of C2-C3 spinal nerves**

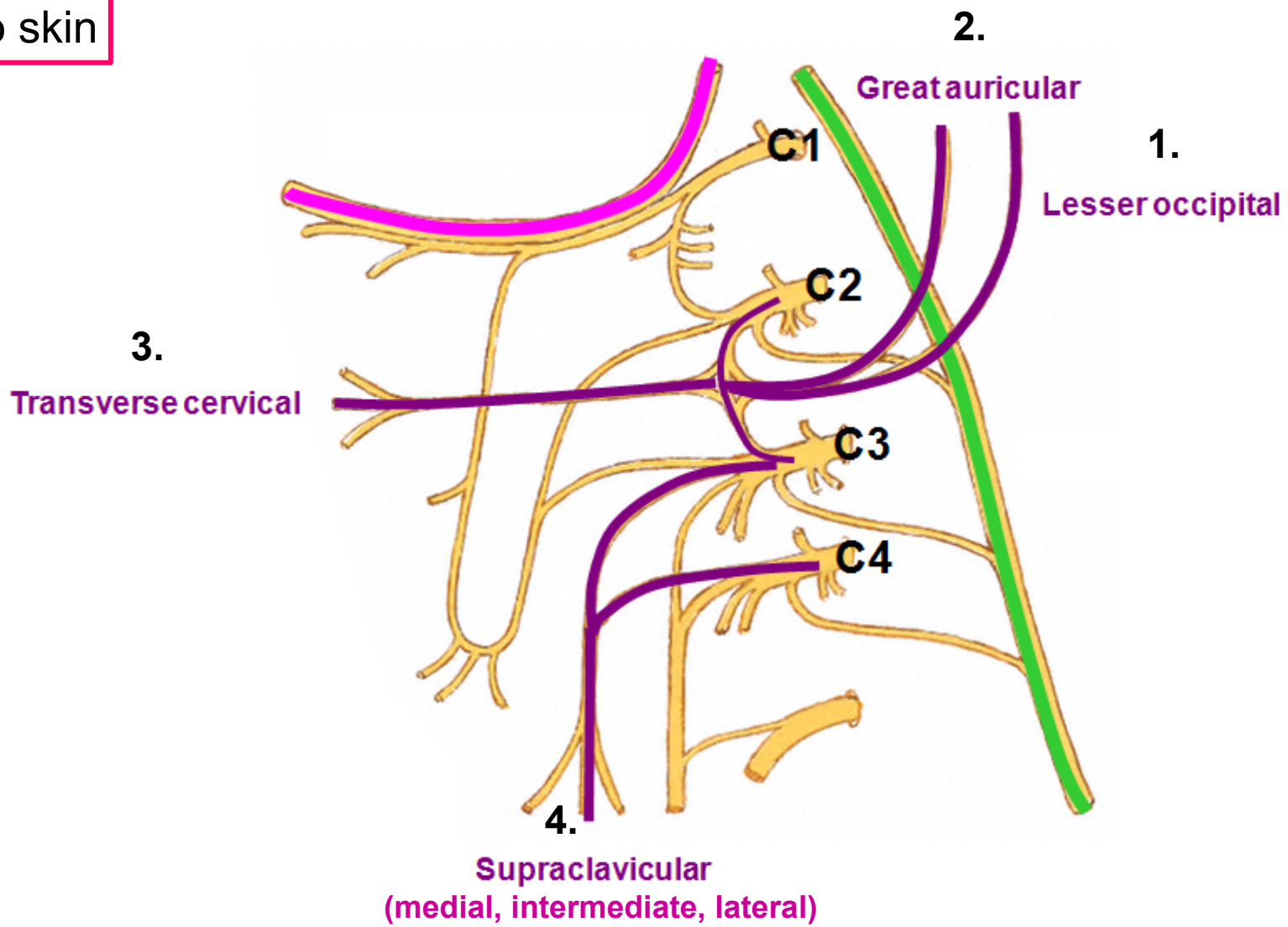
Cervical plexus



- **Ventral rami of C1-C4**

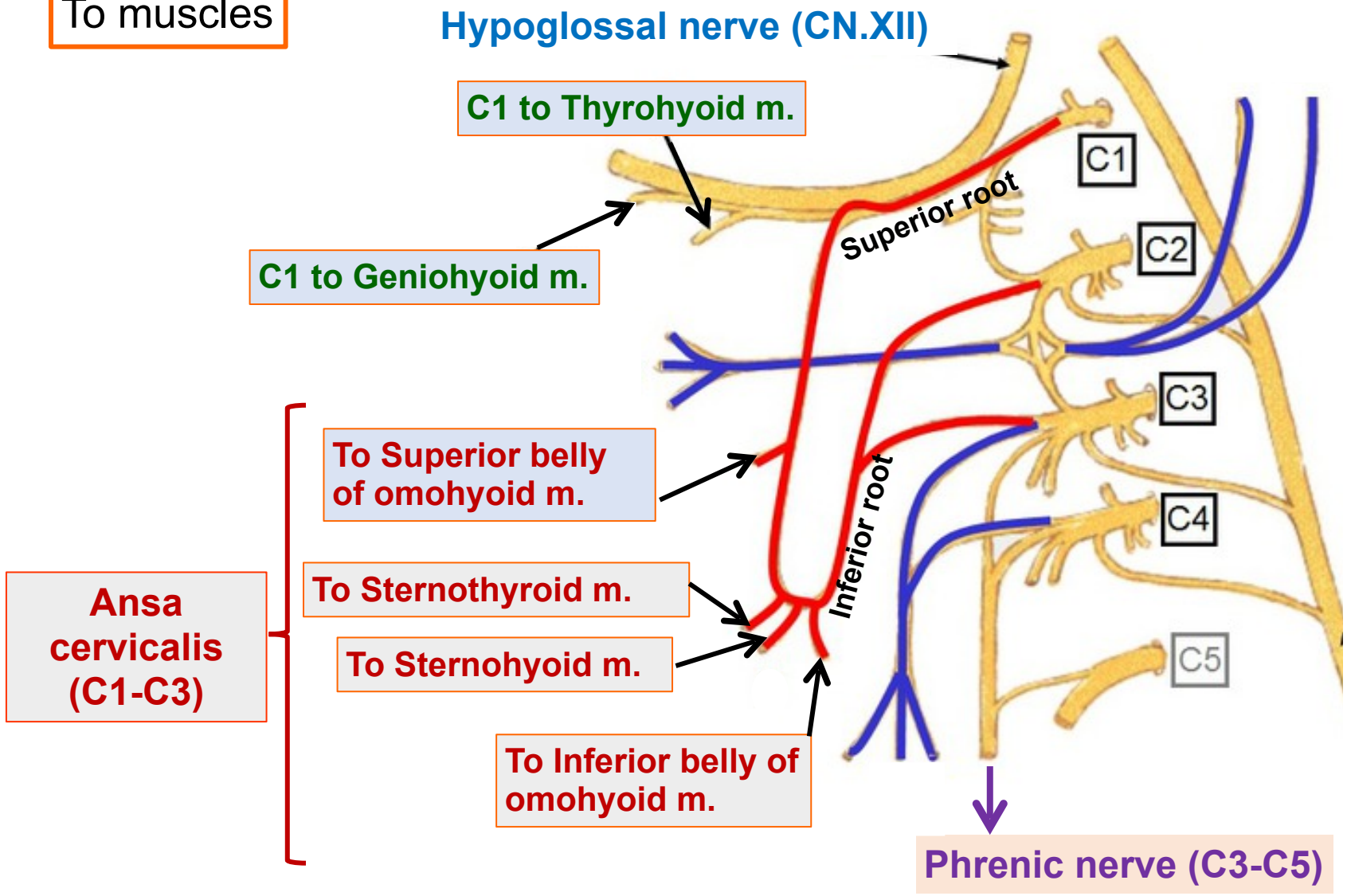
Superficial branches of Cervical plexus

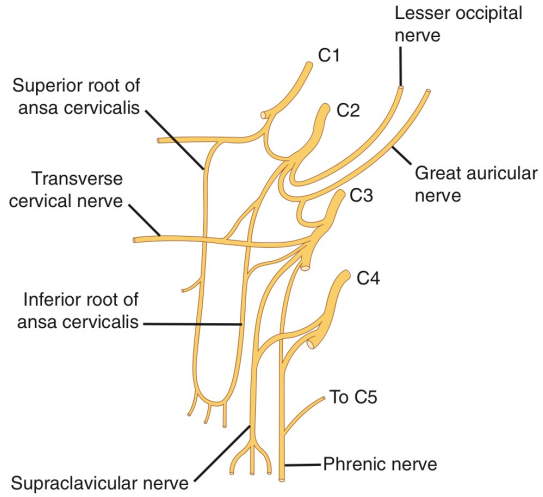
To skin



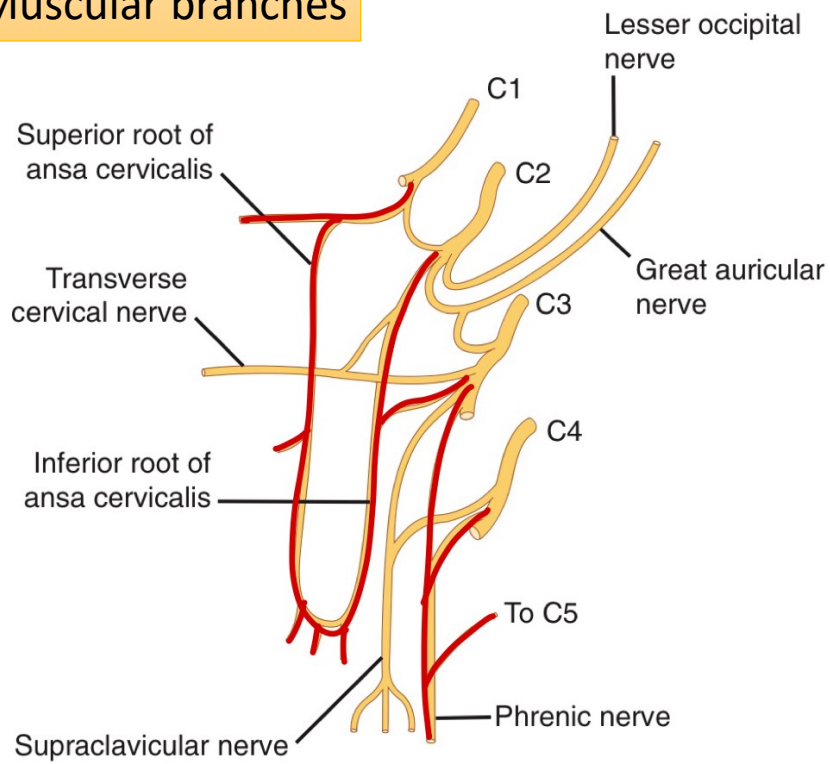
Deep branches of Cervical plexus

To muscles





Muscular branches



Cutaneous branches

