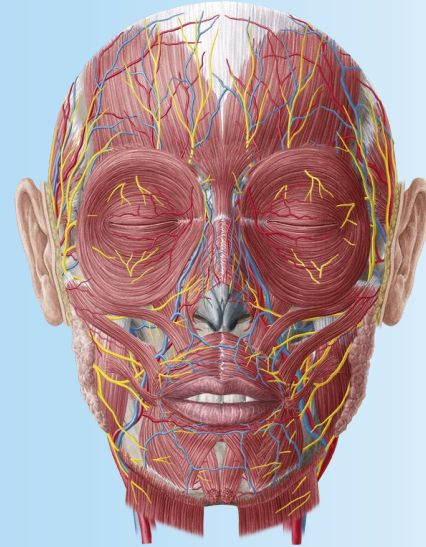


Structures of the Head and Neck

By Ruth-Elise

On today's agenda

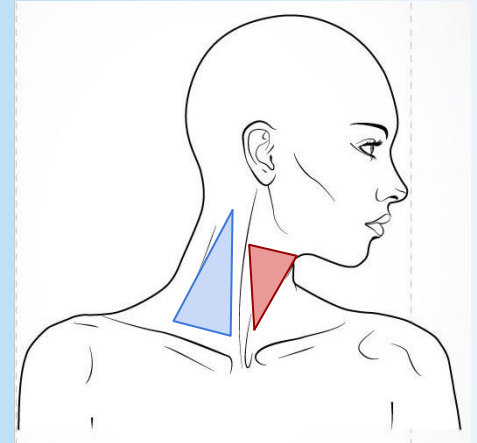
- Triangles of the neck
 - the subdivisions
 - borders
 - contents
- The orbit & its structures



Triangles of the neck

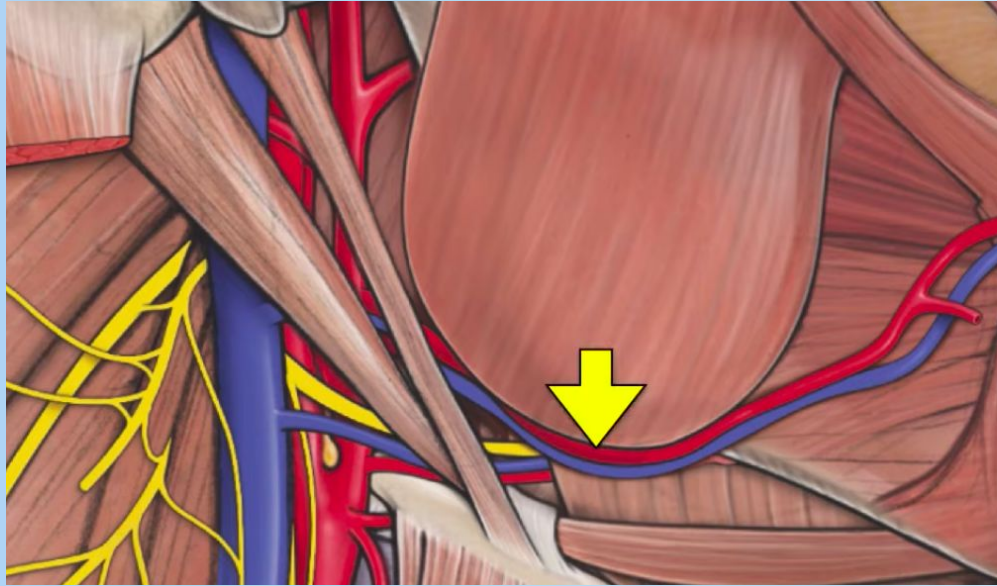
→ What are they and why do we care about them?

- Topographic areas of the neck
- Bound by muscles
- Contain different important structures
- Help us more easily identify the structures



Help us identify structures

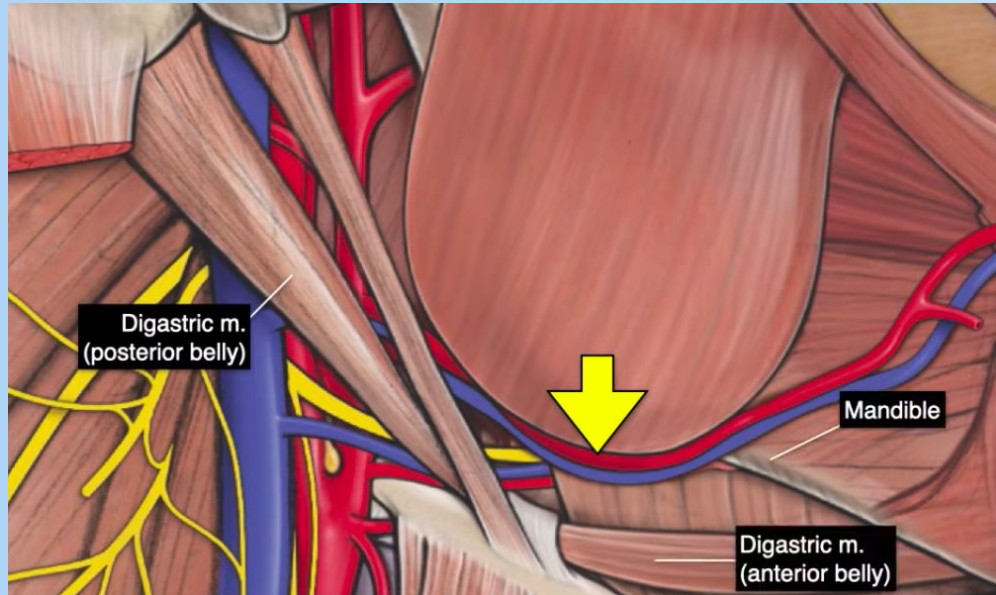
→ For example: which artery is this?



Help us identify structures

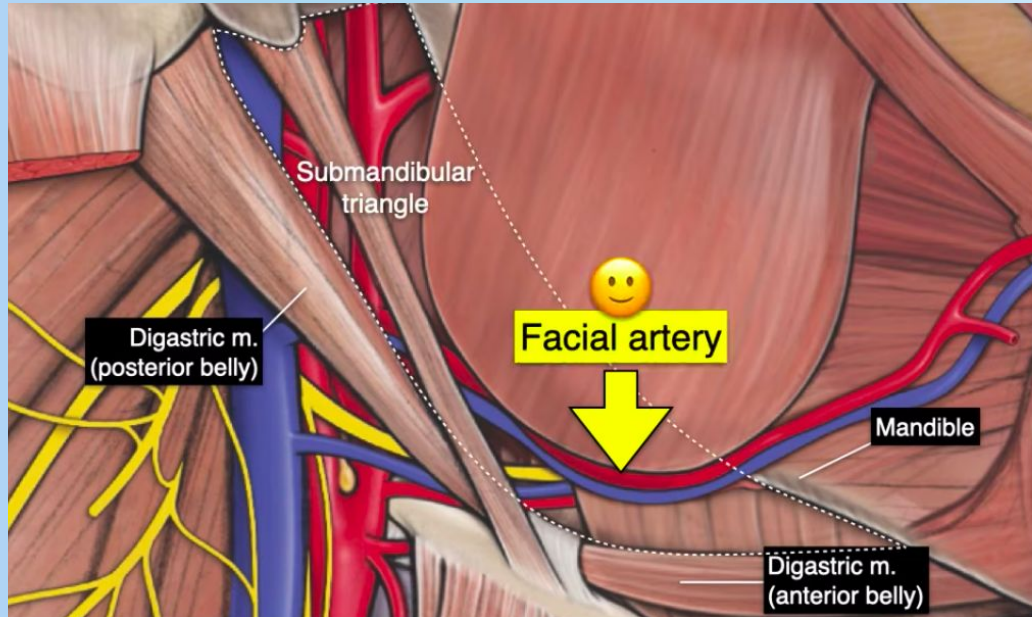
→ For example: which artery is this?

Submandibular triangle!

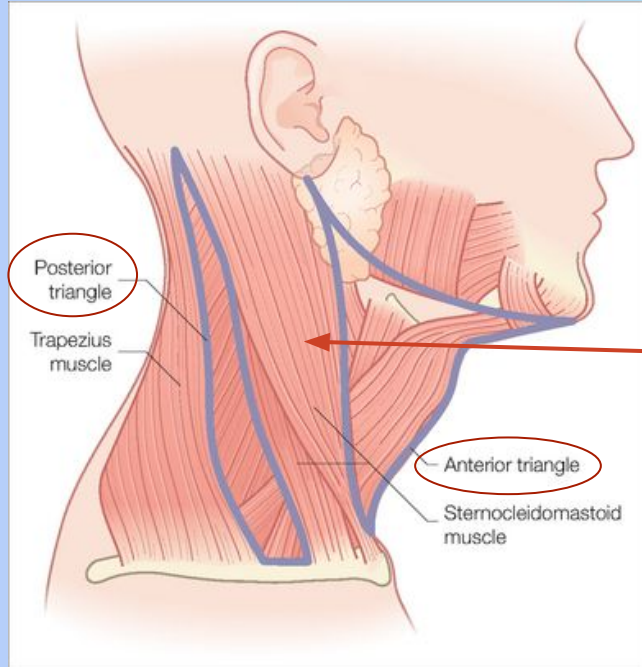


Help us identify structures

→ For example: which artery is this?



Main triangles of the neck



→ 2 main triangles:

- ◆ Anterior
- ◆ Posterior

→ Divided by the **Sternocleidomastoid muscle (SCM)**

→ Can subdivide these into 6 smaller triangles

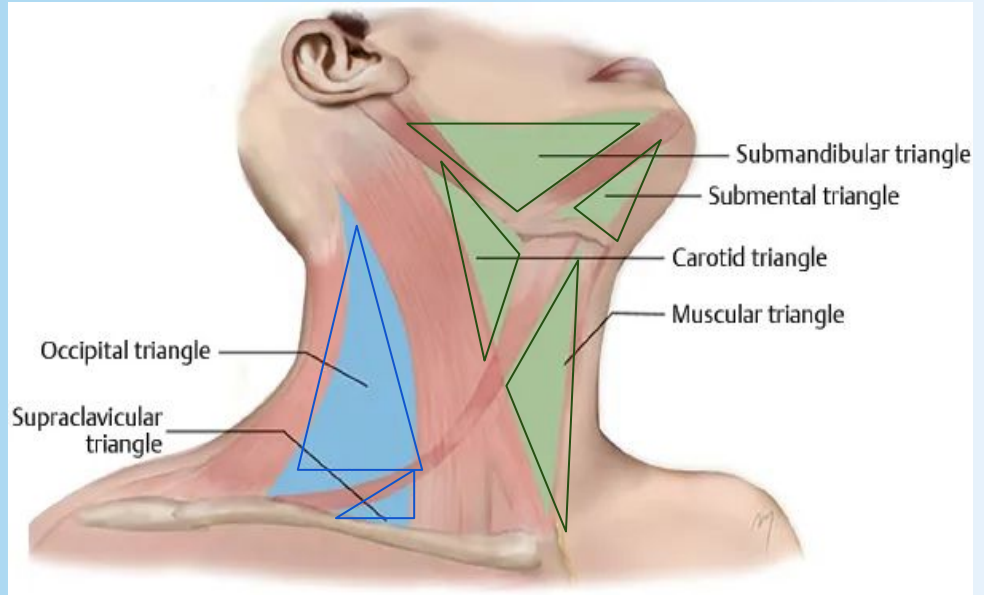
Further triangle divisions

Anterior triangle subdivisions:

1. submandibular
 2. submental
 3. carotid
 4. muscular
-

Posterior triangle subdivisions:

1. occipital
2. supraclavicular



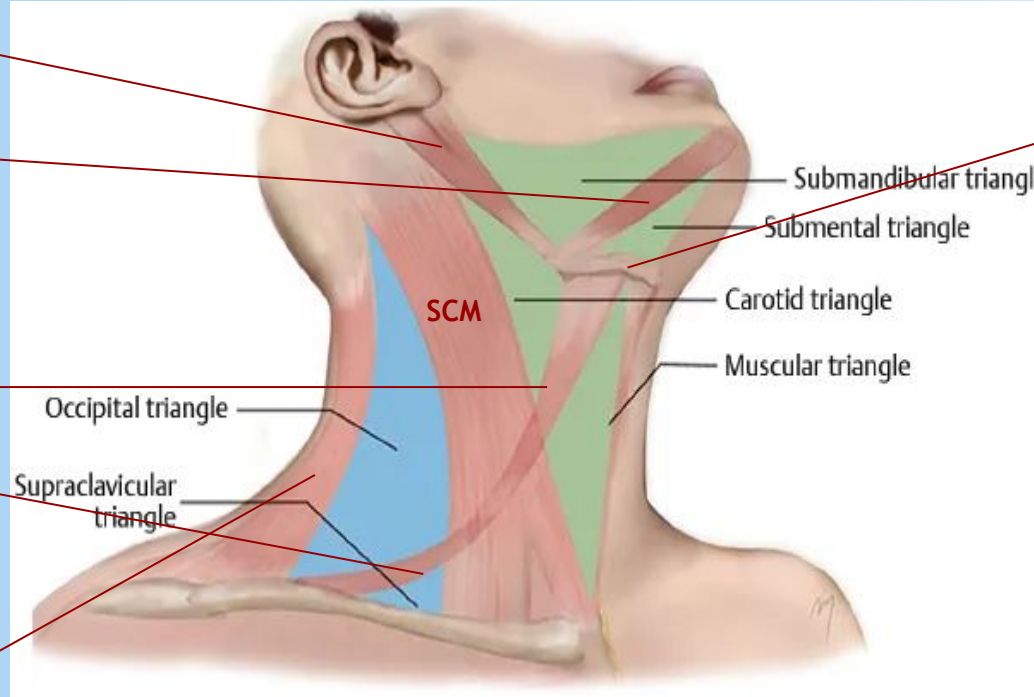
Posterior belly of **digastric** muscle

Anterior belly of **digastric** muscle

Superior belly of **omohyoid** muscle

Inferior belly of **omohyoid** muscle

Trapezius



Hyoid bone

Submandibular triangle

Submental triangle

Carotid triangle

Muscular triangle

Occipital triangle

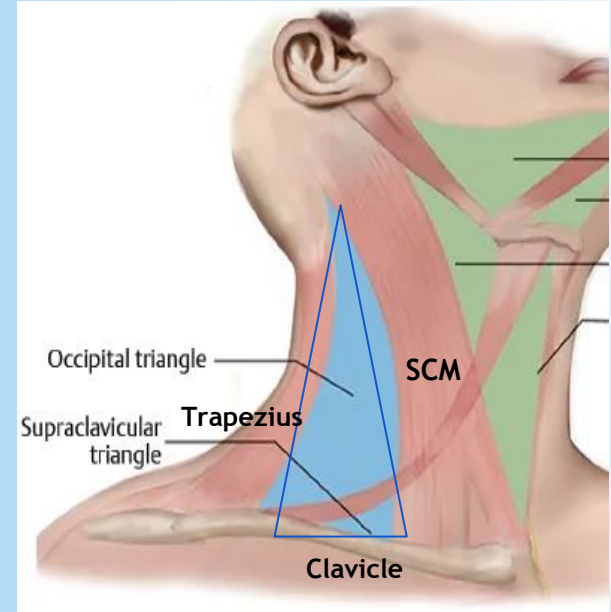
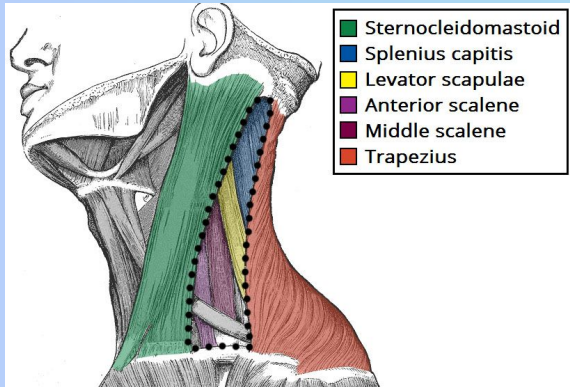
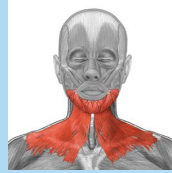
Supraclavicular triangle

SCM

Posterior triangle

Borders:

- ❑ SCM, Trapezius, Clavicle
- ❑ Roof: Deep Cervical fascia (underneath platysma)
- ❑ Floor: Prevertebral fascia (w. muscles)

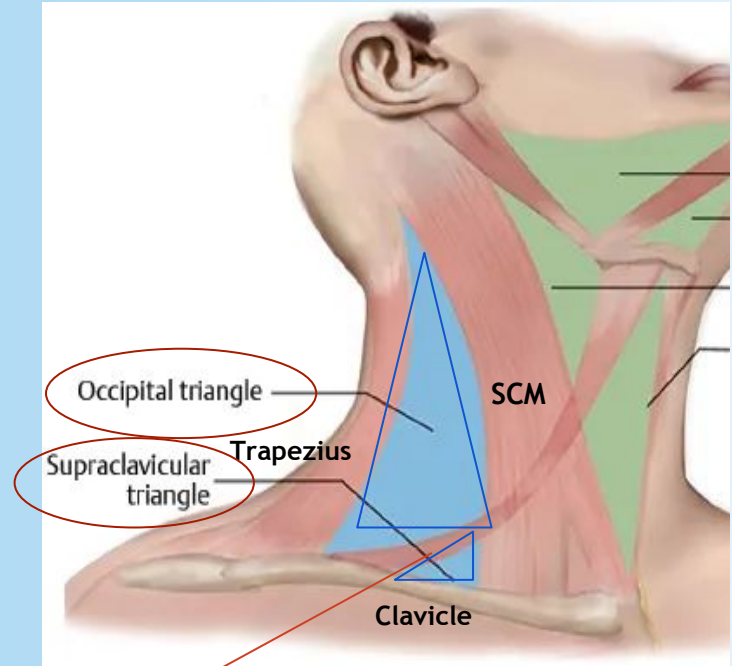


Posterior triangle

Inferior belly of omohyoid muscle

Divides the posterior triangle into:

- Occipital triangle
- Supraclavicular triangle



inf. belly of omohyoid m

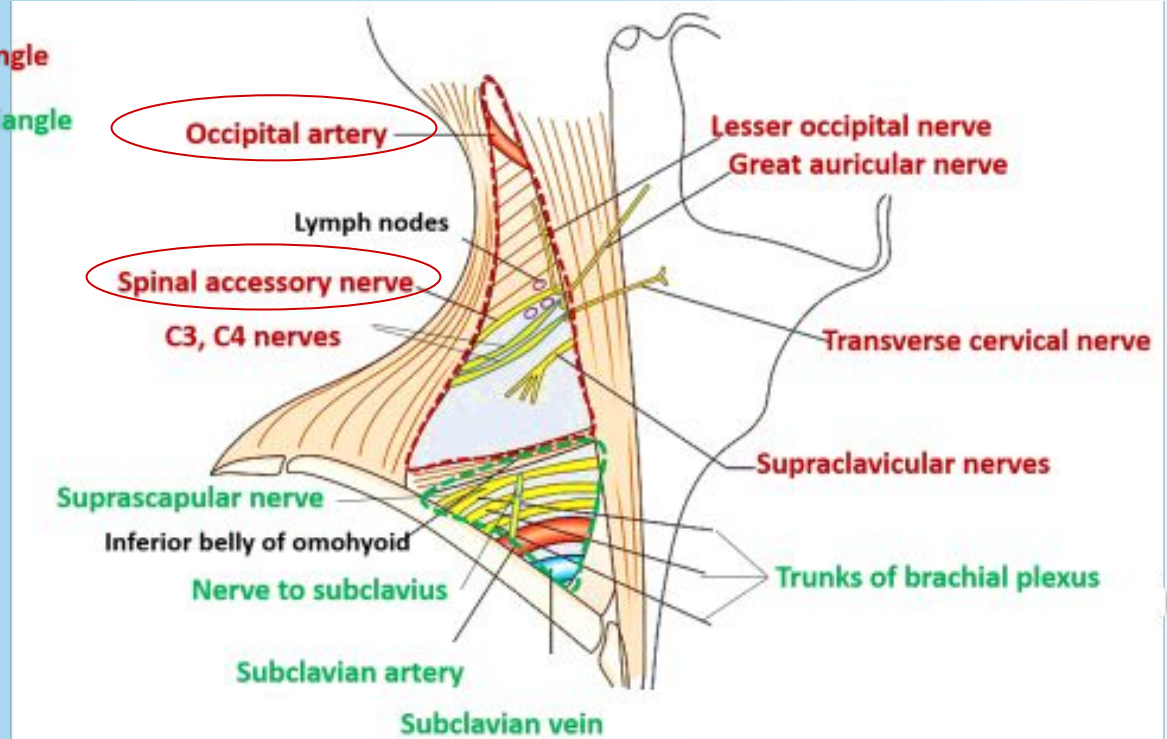
Posterior triangle - contents:

Occipital triangle:

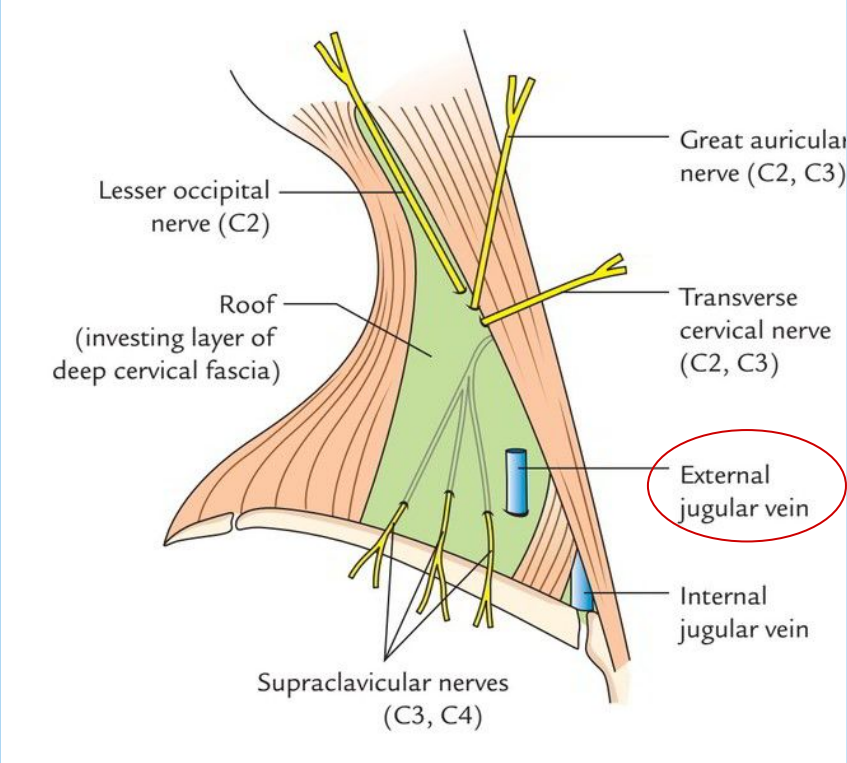
- ❑ Occipital artery
- ❑ Spinal accessory nerve (CN XI)
- ❑ Lymph nodes
- ❑ Branches of cervical plexus
- ❑ External jugular vein!

△ Occipital triangle

△ Subclavian triangle



Posterior triangle - contents:

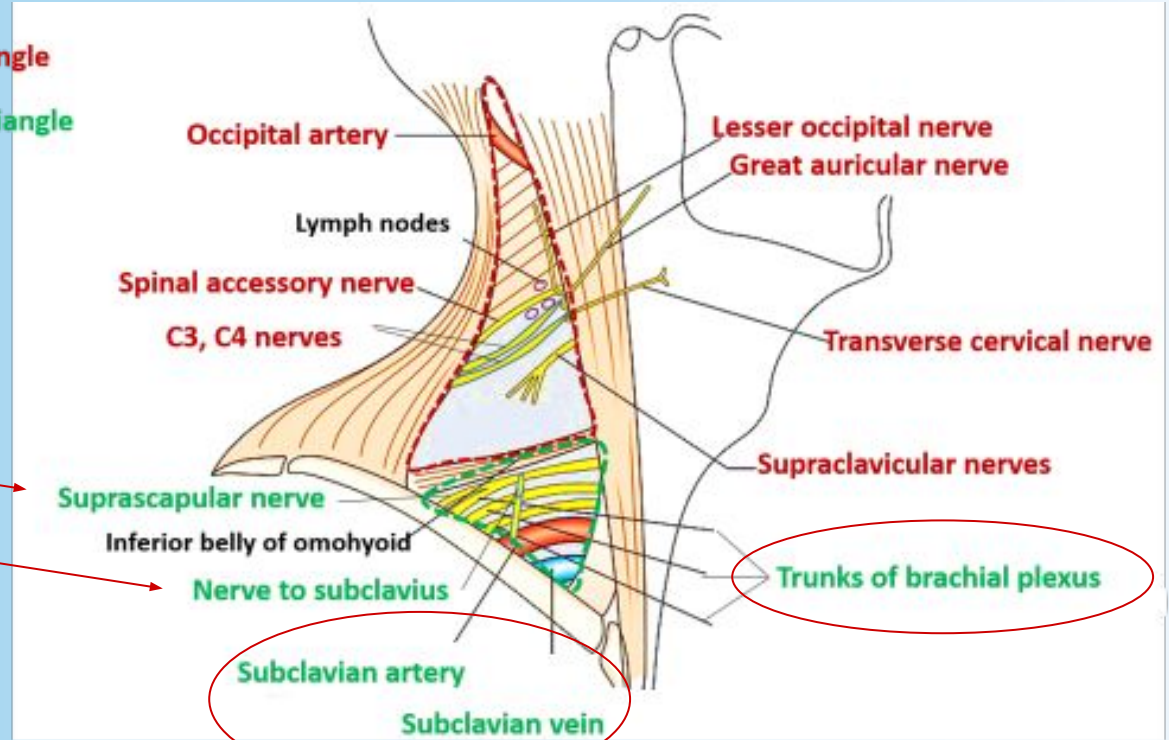


Posterior triangle - contents:

- △ Occipital triangle
- △ Subclavian triangle

Supraclavicular triangle:

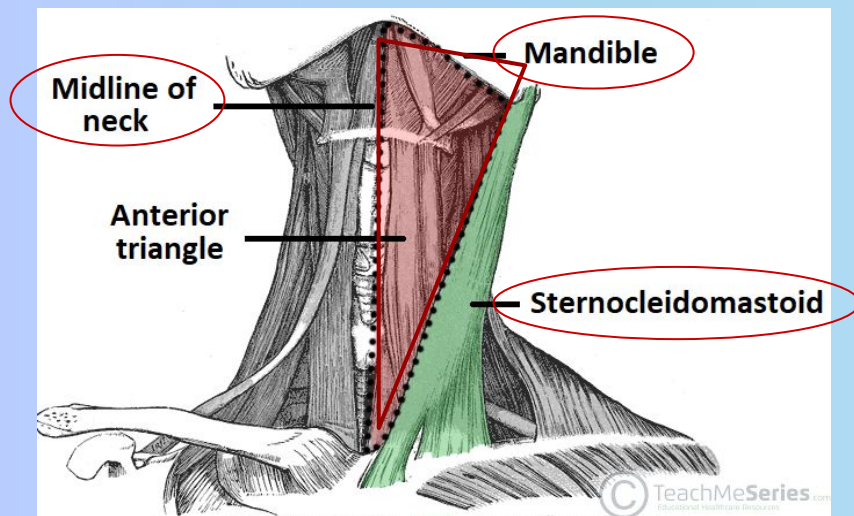
- ❑ Subclavian artery + vein
- ❑ Trunks of brachial plexus
- ❑ Suprascapular nerve
- ❑ Nerve to subclavius m



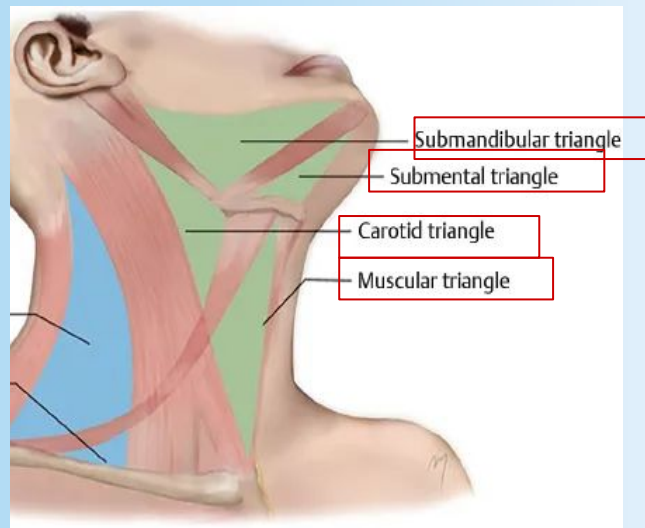
Anterior triangle

Borders:

- ❑ Mandible, SCM, midline of the neck



Subdivisions:



Submandibular triangle

Borders:

- ❑ Mandible, anterior and posterior belly of digastric muscle

Contents:

Viscera:

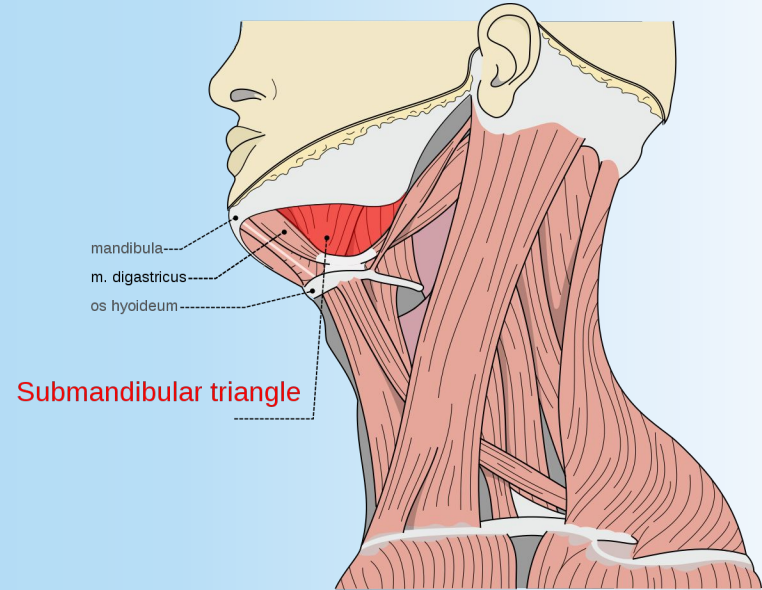
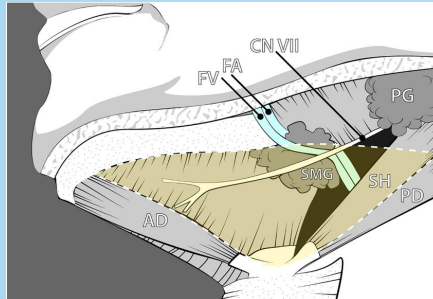
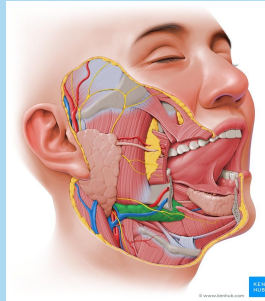
- ❑ Submandibular gland
- ❑ Lymph nodes

Vessels:

- ❑ Facial artery + vein
- ❑ Submental artery + vein
- ❑ Lingual arteries + veins

Nerves:

- ❑ Mylohyoid nerve
- ❑ Hypoglossal nerve (CN XII)



Submandibular triangle

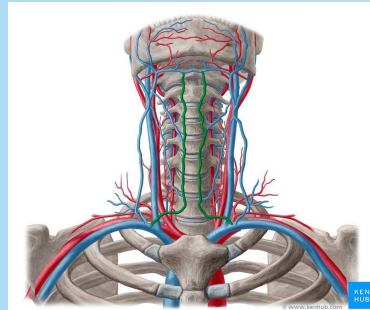
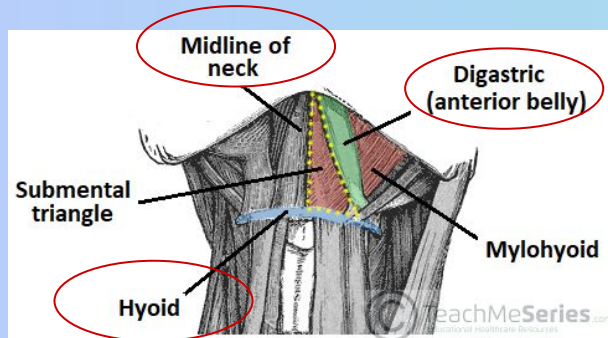
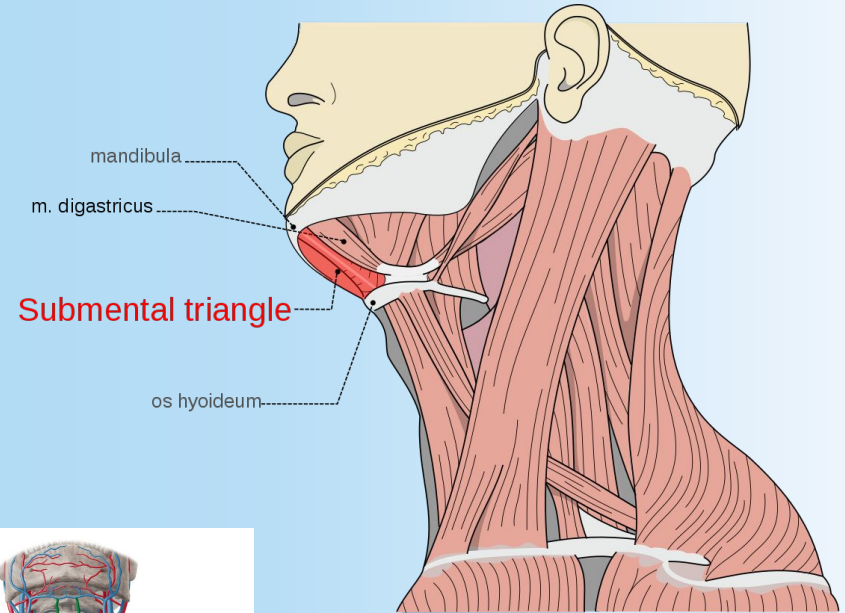
Submental triangle

Borders:

- ❑ Hyoid bone, ant. belly of digastric muscle, midline of neck

Contents:

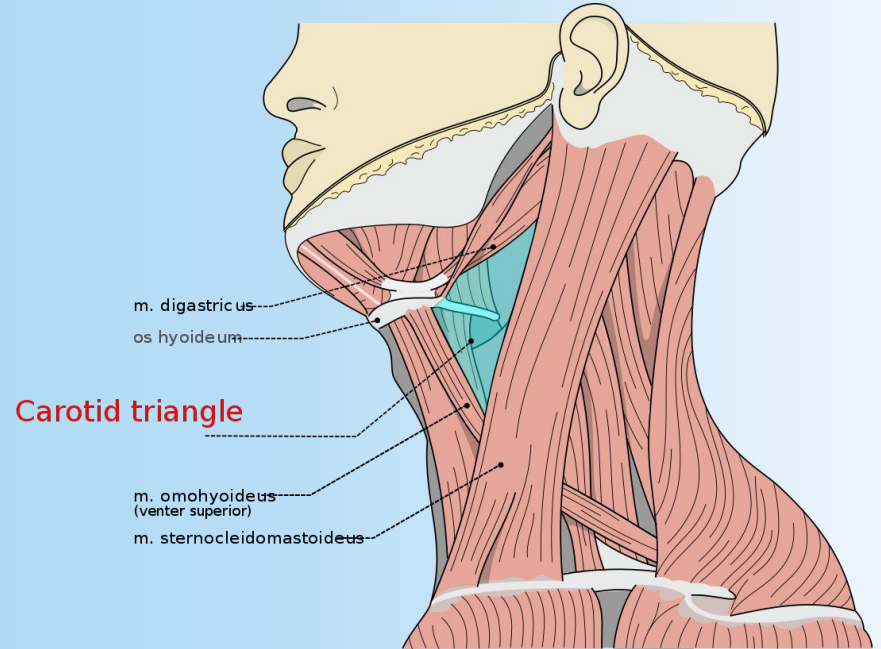
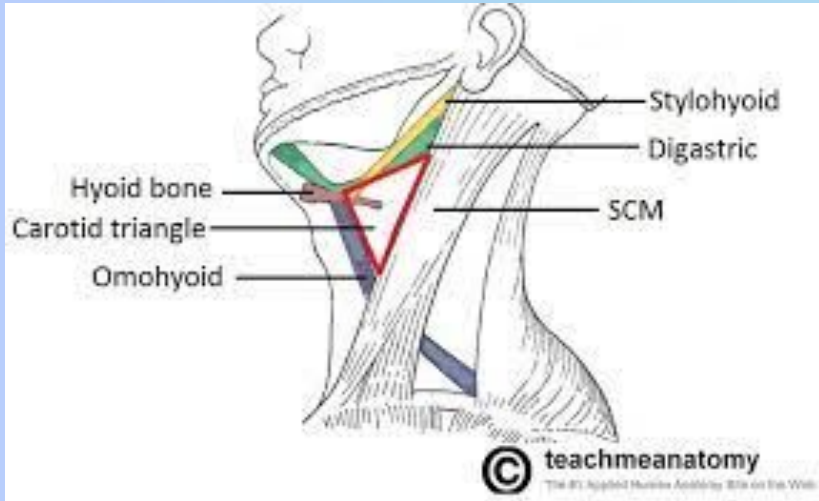
- ❑ Anterior jugular vein
- ❑ Submental lymph nodes



Carotid triangle

Borders:

- ❑ SCM, stylohyoid & posterior belly of digastric muscle and superior belly of omohyoid,



Carotid triangle

Borders:

- ❑ SCM, stylohyoid & posterior belly of digastric muscle and superior belly of omohyoid,

Contents:

Arteries:

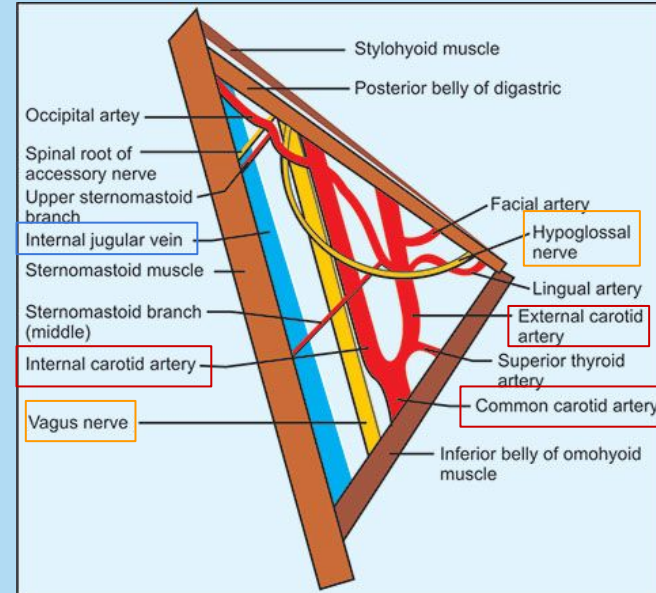
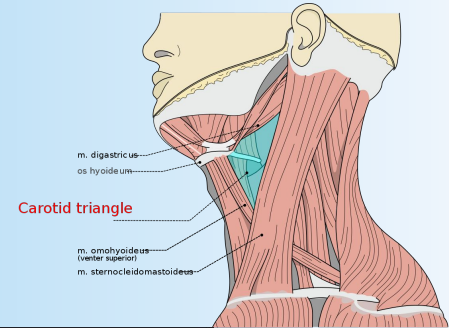
- ❑ Common carotid artery (& carotid sinus)
- ❑ External & Internal carotid arteries

Veins:

- ❑ Internal jugular vein
- ❑ Common facial, Lingual, Superior thyroid, Middle thyroid veins

Nerves:

- ❑ Vagus nerve (CN X)
- ❑ Hypoglossal nerve (CN XII)



Muscular triangle

Borders:

- ❑ Hyoid bone, midline of neck, SCM, superior belly of omohyoid

Contents:

Muscles:

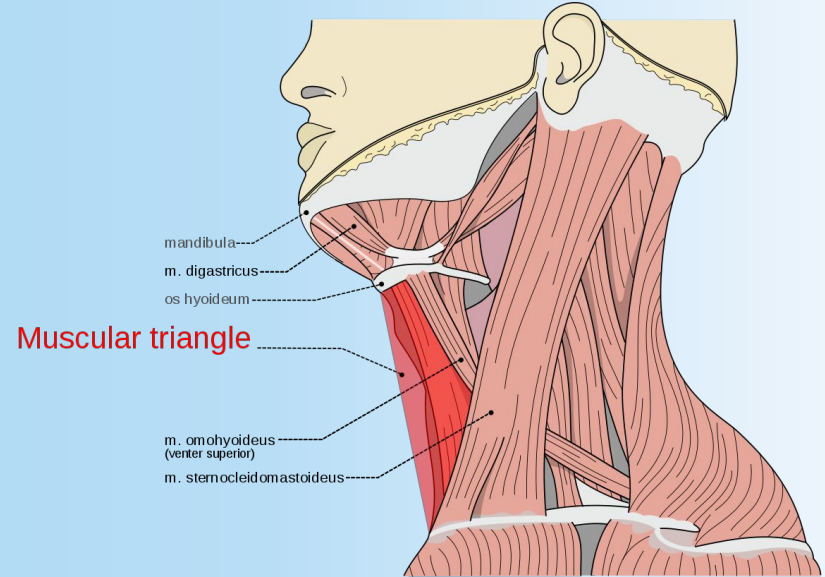
- ❑ Thyrohyoid
- ❑ Sternothyroid
- ❑ Sternohyoid

Vessels:

- ❑ Superior & inferior thyroid arteries
- ❑ Anterior jugular veins

Viscera:

- ❑ Thyroid gland
- ❑ Parathyroid glands
- ❑ Larynx
- ❑ Trachea
- ❑ Esophagus



The orbit and its structures



What I will cover

- Borders of the orbit
- Muscles of the eye
- Common tendinous ring (ring of zinn)
- Nerves and vessels in the orbit



Borders of the orbit

Superior margin:

- Frontal bone
- Sphenoid

Inferior margin:

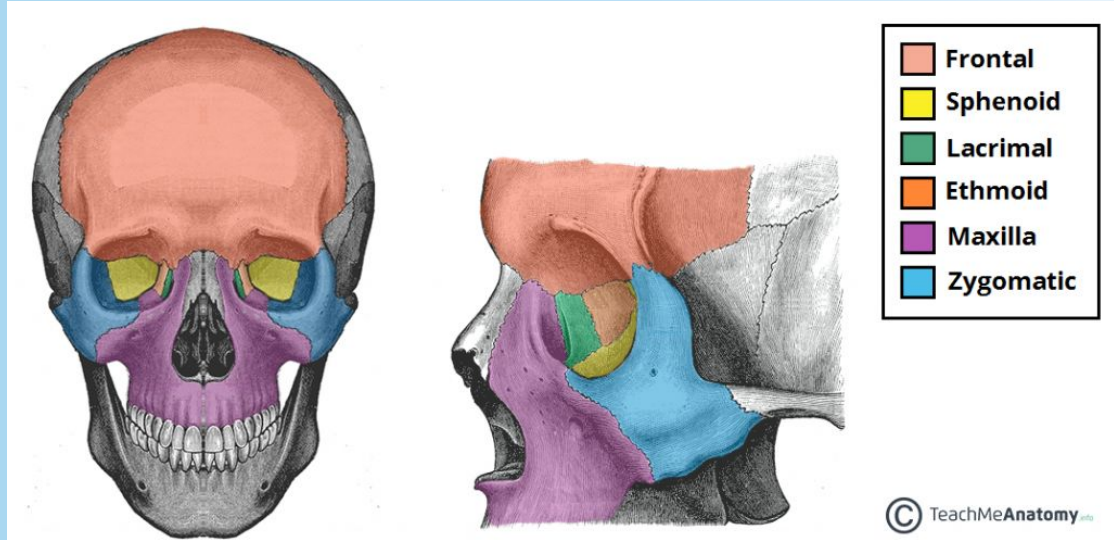
- Maxillary
- Palatine
- Zygomatic

Medial margin:

- Ethmoid
- Lacrimal
- Sphenoid (body)
- Maxillary

Lateral margin:

- Zygomatic
- Sphenoid (greater wing)



Muscles of the eye

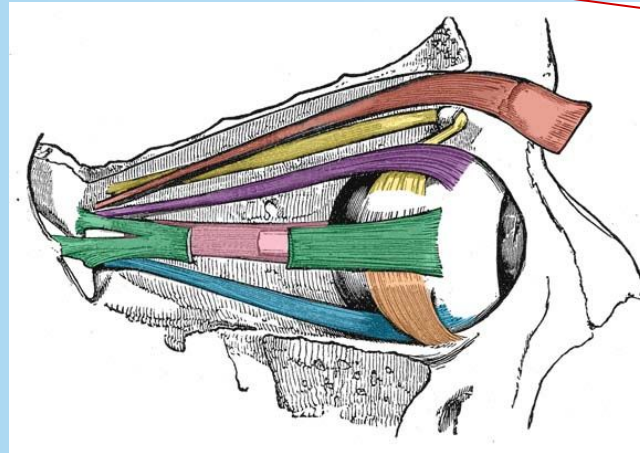
- In total 7 muscles
 - 6 of them: Responsible for eye movement
 - 1 of them: Responsible for movement of the superior eyelid








- **Recti muscles:**

- superior rectus
- inferior rectus
- medial rectus
- lateral rectus

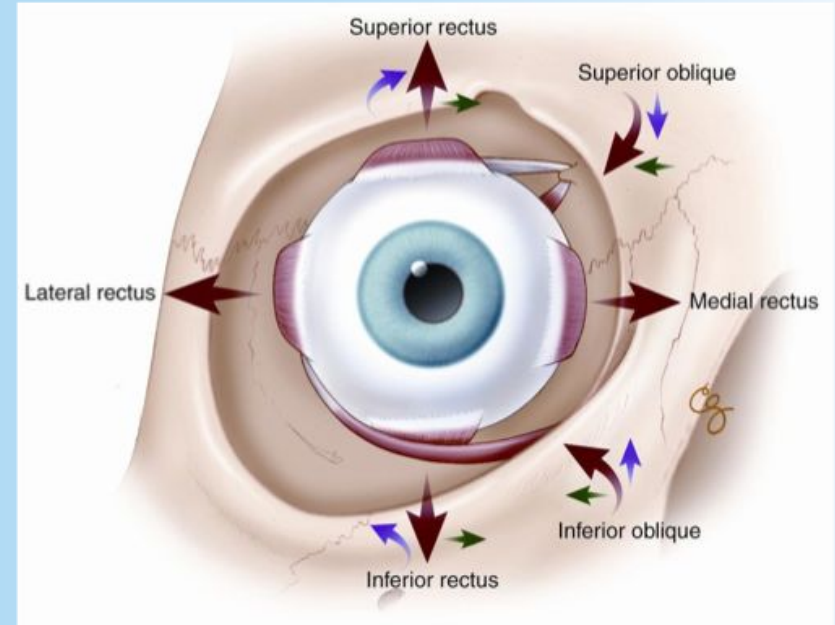
- **Oblique muscles:**

- superior oblique
- inferior oblique



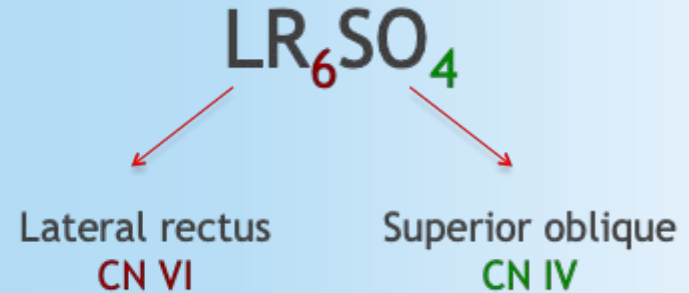
| | |
|---|------------------------------|
|  | Levator palpebrae superioris |
|  | Superior oblique |
|  | Inferior oblique |
|  | Superior rectus |
|  | Medial rectus |
|  | Lateral rectus |
|  | Inferior rectus |

| MUSCLES | ACTION | INNERVATION |
|------------------------------|--|-------------|
| Levator Palpebrae Superioris | Elevates sup. eyelid | CN III |
| Superior Rectus | Elevates eye Adduction Medial rotation | CN III |
| Inferior Rectus | Depresses eye Adduction Lateral rotation | CN III |
| Medial Rectus | Adducts eye | CN III |
| Lateral Rectus | Abducts eye | CN VI |
| Superior oblique | Depresses eye Abduction Medial rotation | CN IV |
| Inferior oblique | Elevates eye Abduction Lateral rotation | CN III |



| MUSCLES | ACTION | INNERVATION |
|------------------------------|--|-------------|
| Levator Palpebrae Superioris | Elevates sup. eyelid | CN III |
| Superior Rectus | Elevates eye Adduction Medial rotation | CN III |
| Inferior Rectus | Depresses eye Adduction Lateral rotation | CN III |
| Medial Rectus | Adducts eye | CN III |
| Lateral Rectus | Abducts eye | CN VI |
| Superior oblique | Depresses eye Abduction Medial rotation | CN IV |
| Inferior oblique | Elevates eye Abduction Lateral rotation | CN III |

How to remember the innervations?



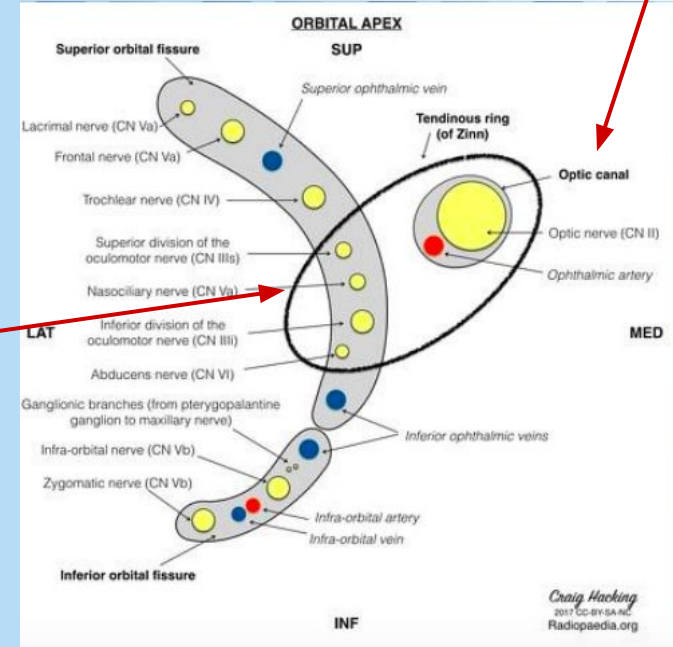
AND THE 4 OTHER
MUSCLES:
CN III

Common tendinous ring

→ Also called “Annulus/Ring of Zinn”

- Ring of fibrous tissue
- Surrounds the optic canal:
 - optic nerve (CN II)
 - ophthalmic artery
- Common origin of the four recti muscles
- Spans the middle, lower part of the superior orbital fissure
- What passes through it?
 - superior division of the oculomotor nerve (CN III)
 - nasociliary nerve (branch of ophthalmic nerve CN V)
 - inferior division of the oculomotor nerve (CN III)
 - abducens nerve (CN VI)
 - optic nerve (CN II)
 - ophthalmic artery

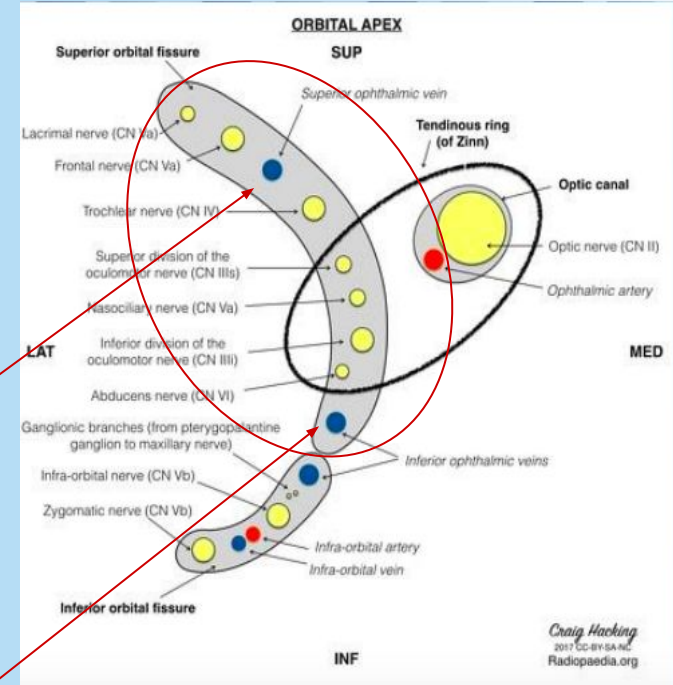
Cranial nerves: 2,3,5,6



What goes through the Superior Orbital Fissure?

Mnemonic: Live Free To See No Insult At All

- L:** lacrimal nerve (branch of CN I)
- F:** frontal nerve (branch of CN I)
- T:** trochlear nerve (CN IV)
- S:** superior division of oculomotor (CN III)
- N:** nasociliary nerve (branch of CN V)
- I:** inferior division of oculomotor (CN III)
- A:** abducens nerve (CN VI)



- remember that the superior ophthalmic vein and inferior ophthalmic veins also go through it!

Good luck on your exam! <3