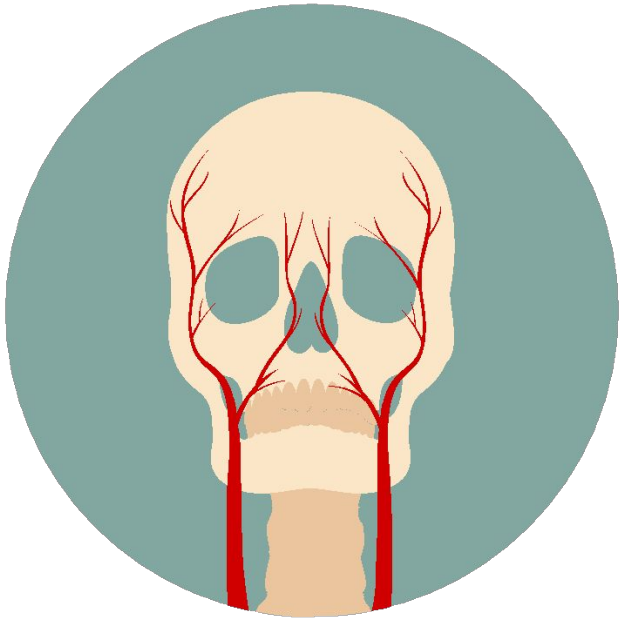
Anatomy Practical (OSPE) exam

Musculoskeletal Block



Anatomy team

practical Med438

Notes |

the information in this file is based on the things that was given during practical sessions along with doctors' notes

"We recommend you to read the theoretical lectures before studying this file"

To ensure your grade on each question :

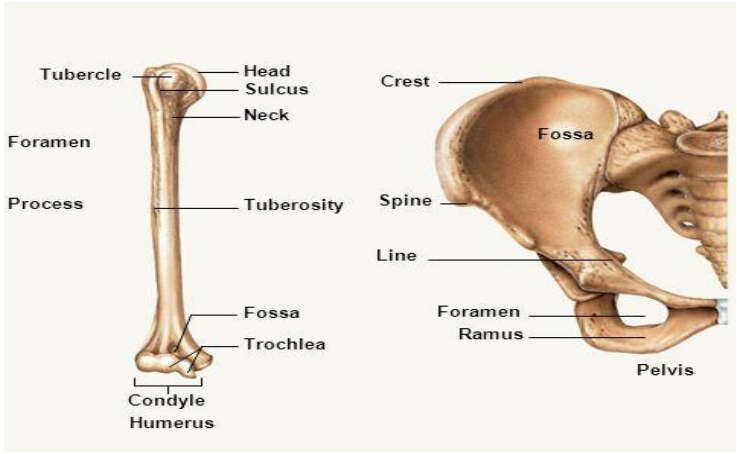
1-Make sure your SPELLING is correct
2-Make sure you write the FULL name or location of the object precisely

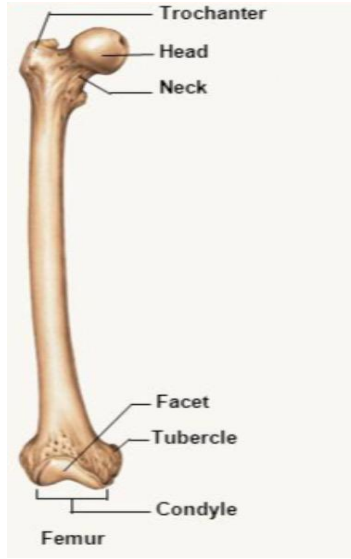
Bones of the Upper and Lower Limbs

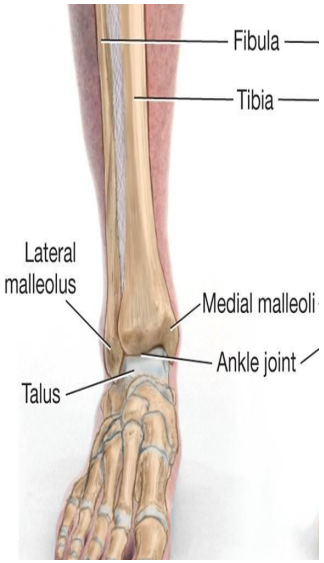
Some of bone markings

	Term	Meaning
1.	**Tubercle**	Small, round projection (smooth)
2.	**Tuberosity**	Small, rough projection
3.	**Epicondyle**	Process on / above Condyle
4.	**Condyle**	Large, round articular
5.	**Fossa**	Shallow depression
6.	**Trochanter**	Large, rough production
7.	**Malleolus**	Bony projection on either side of the ankle
8.	**Spine**	Sharp / pointed process
9.	**Crest**	Narrow ridge of bone (in hip)
10.	**Sulcus " groove "**	Long, narrow depression
11.	**Interosseous border**	Between bones
12.	**Notch**	Indentation, (incision) on an edge / surface

Illustration







BONES OF APPENDICULAR SKELETON (pectoral girdle)

First: Clavicle

it's a **doubly curved**, **subcutaneous** (long bone).

The two end

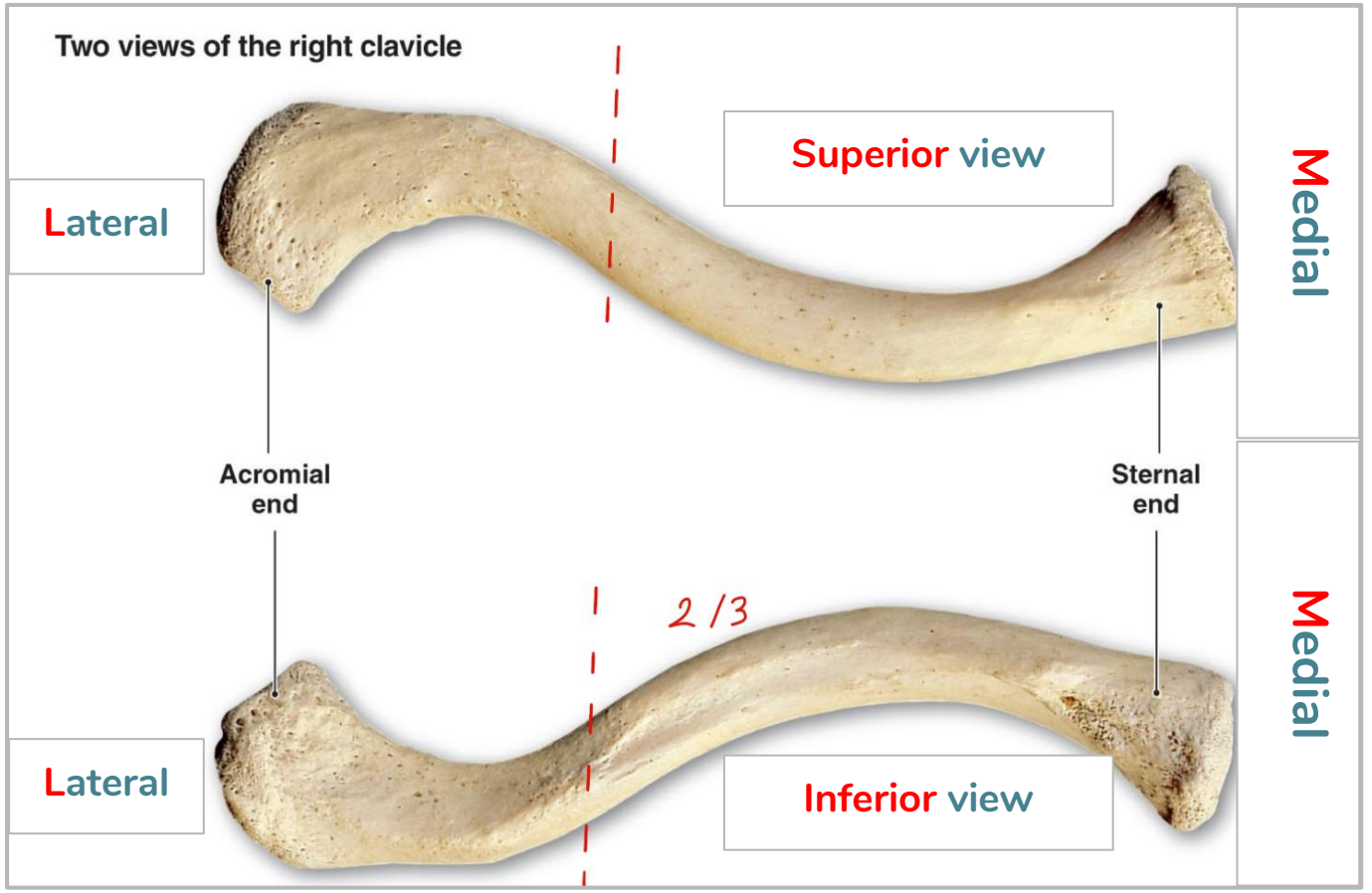
1. Sternal end " Medial - **enlarged** & **triangular** "
2. Acromial end " Lateral - **flattened** "

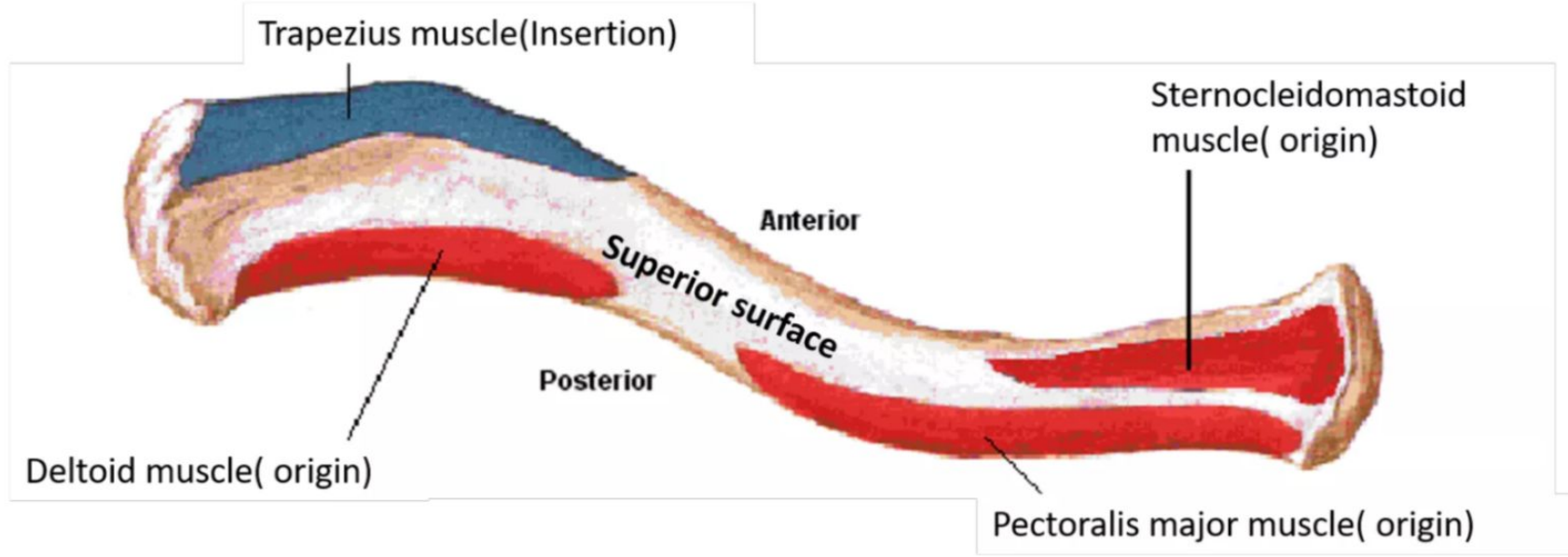
Shaft (body)

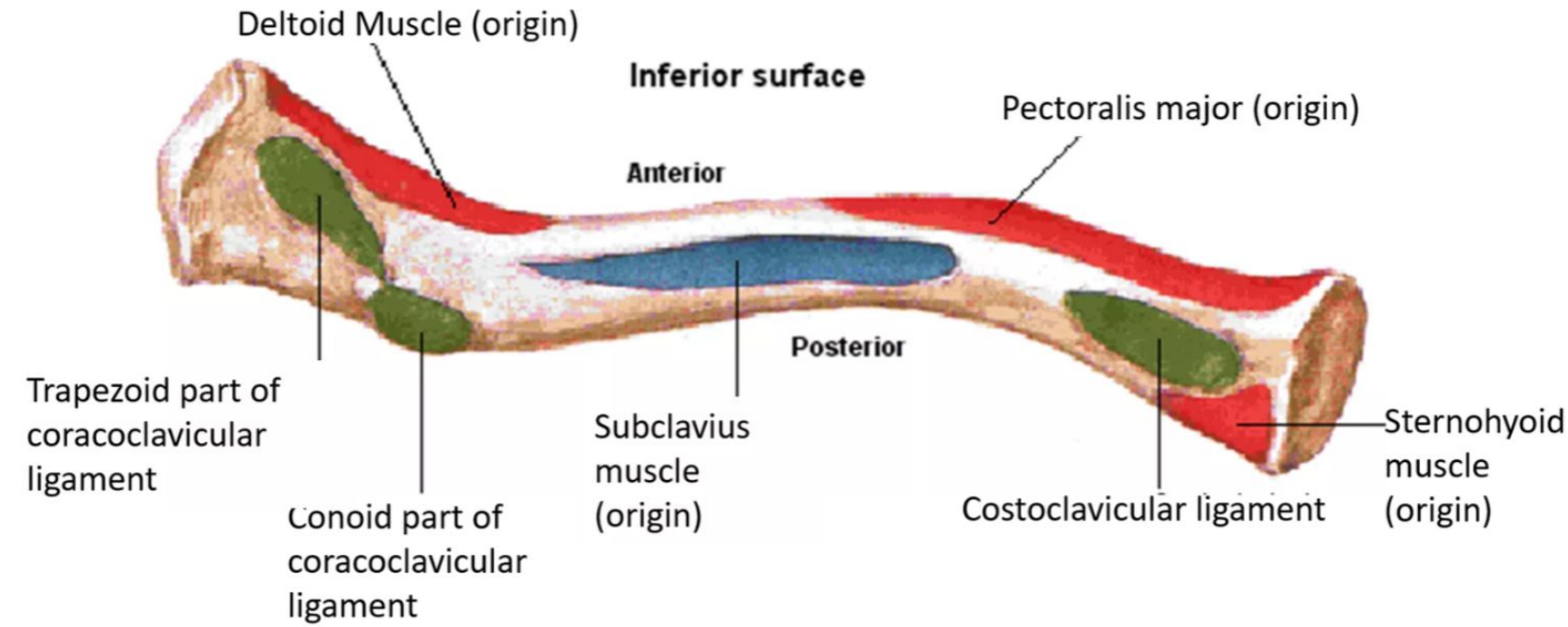
1. **Medial** ⅔ " con**vex** forward "
2. **Lateral** ⅓ " con**cave** forward "

The two surfaces

1. **Superior** surface " **smooth** "
2. **Inferior** surface " **rough** "




Trapezius muscle(Insertion)
Sternocleidomastoid muscle(origin)
Anterior
Superior surface
Posterior
Deltoid muscle(origin)
Pectoralis major muscle(origin)


Deltoid Muscle (origin)
Inferior surface
Pectoralis major (origin)
Anterior
Posterior
Trapezoid part of coracoclavicular ligament
Conoid part of coracoclavicular ligament
Subclavius muscle (origin)
Costoclavicular ligament
Sternohyoid muscle (origin)

BONES OF APPENDICULAR SKELETON (pectoral girdle)

Second: Scapula

It's a **triangular**, **subcutaneous**, extends between the **2nd – 7th** ribs (Flat bone)

The three processes

1. Spine " **Post**erior "
2. Acromion " **Post**erior "
3. Coracoid

The three borders

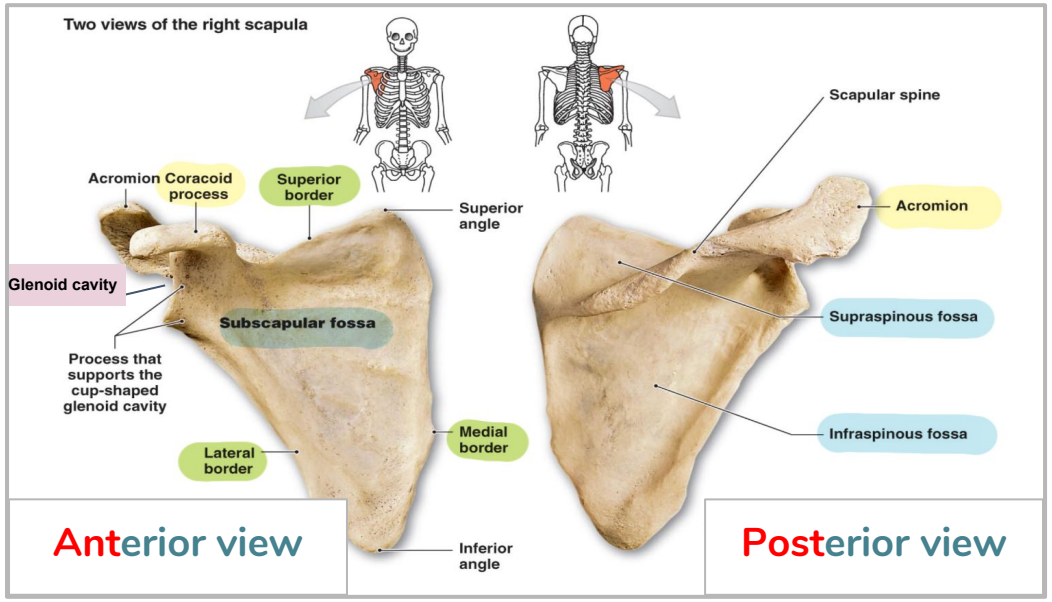
1. **Superior**
2. **Medial** " vertebral "
3. **Lateral** " axillary "

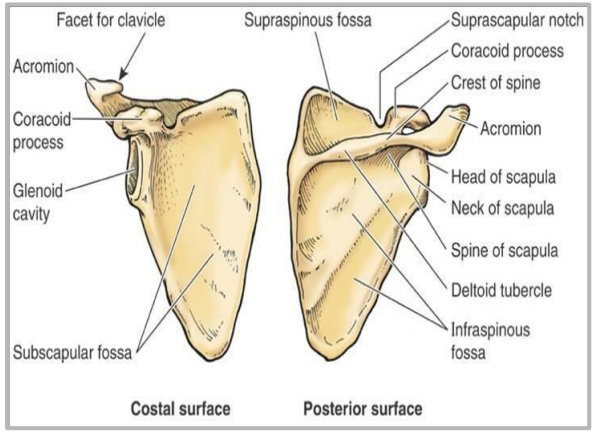
Cavity

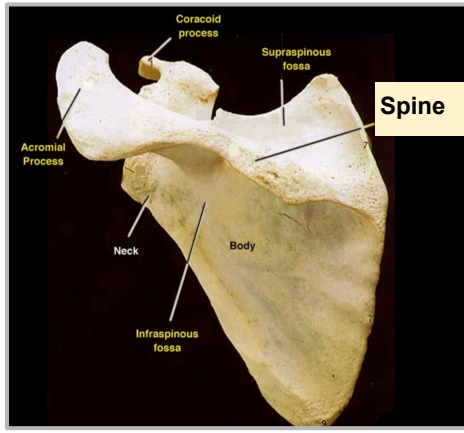
1. Glenoid cavity " **L**ateral - attache with **humerus** "

The two surfaces

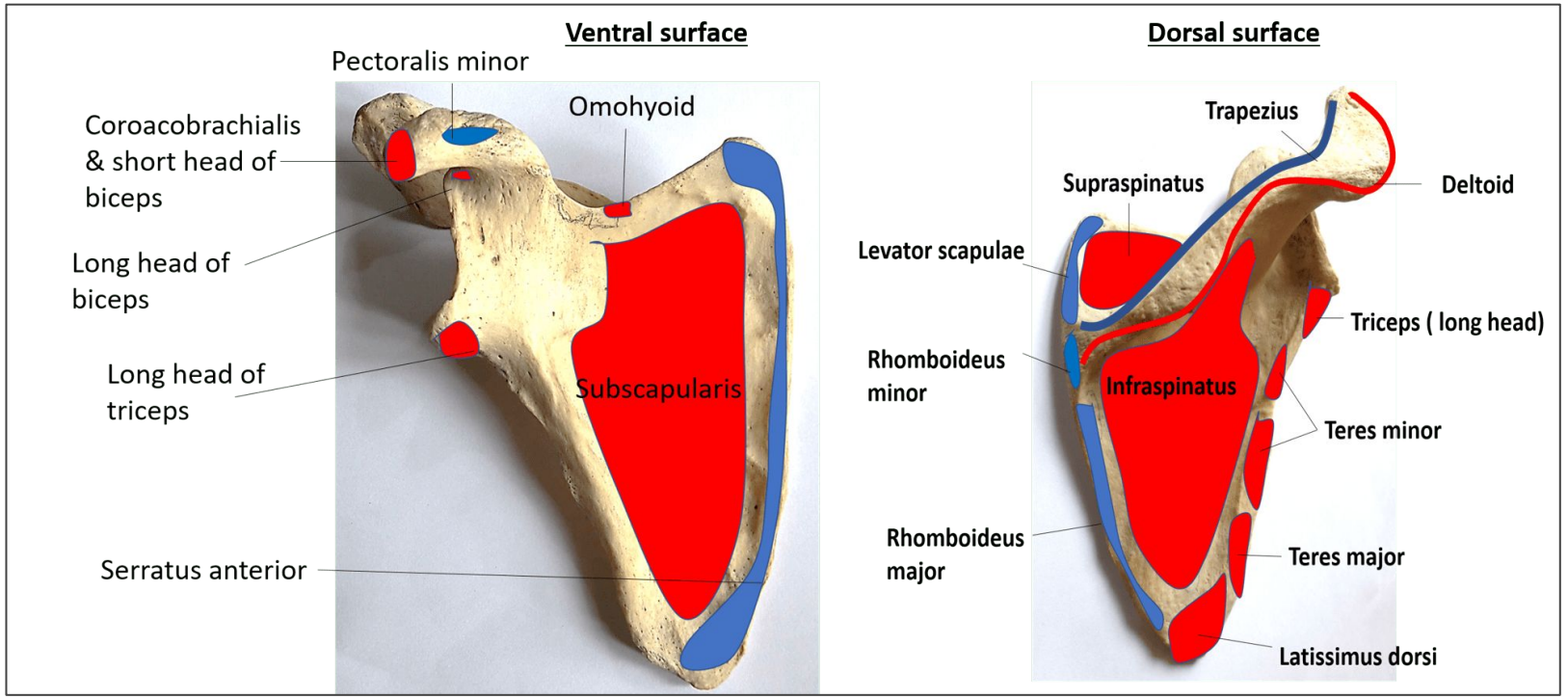
1. **Posterior** " Con**vex** "
   - **Smaller**-Supraspinous Fossa "**above** the spine"
   - **Larger**-Infraspinous Fossa "**below** the spine"
2. **Anterior** (Costal) " Con**cave** "







Muscle attached to the scapula



An easy to use mnemonic to help memorize the 17 muscles that attach to the scapula is SSS TTTT BRR COLD LIP.

There are 17 muscles attached to the scapula	
Originate	**Insert**
Supraspinatus	Serratus Anterior
Infraspinatus	Pectoralis Minor
Subscapularis	Trapezius
Teres Major	Rhomboid Major
Teres Minor	Rhomboid Minor
Triceps Brachii long head	Levator Scapula
Long head Biceps Brachii	
Coracobrachialis	
Latissimus Dorsi	
Deltoid	

BONES OF APPENDICULAR SKELETON (upper limbs)

First: Humerus

It's the bone of the **arm** (Long bone)

The proximal end

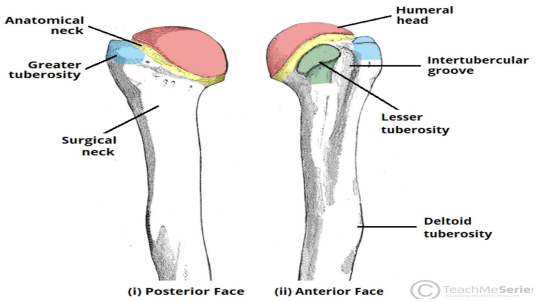
1. Head " Medial "
2. Anatomical neck
3. Greater tubercles
4. Lesser tubercles
5. Intertubercular groove " only Anterior "
6. Surgical neck

The distal end

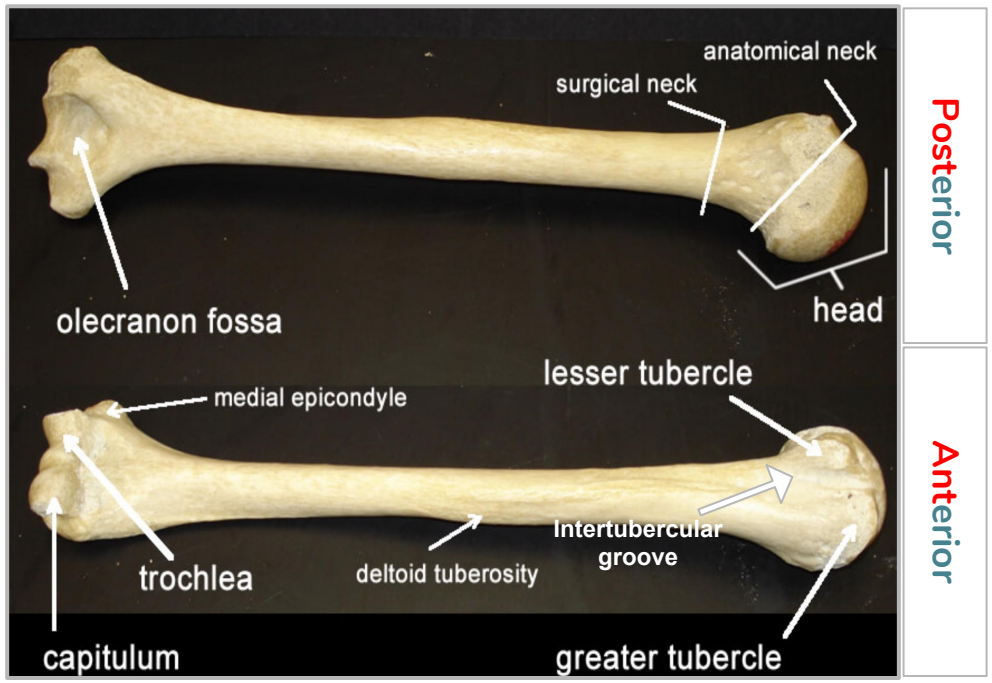
1. Lateral epicondyle
2. Medial epicondyle
3. Trochlea " Medial - Anterior & Posterior "
4. Capitulum " Lateral - Anterior "
5. Olecranon fossa " only Posterior "
6. Coronoid fossa " Anterior "
7. Radial fossa " Anterior "

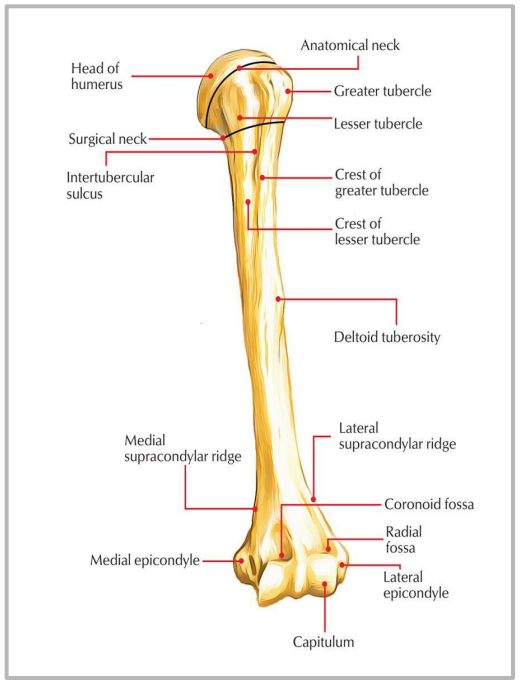
Shaft (body)

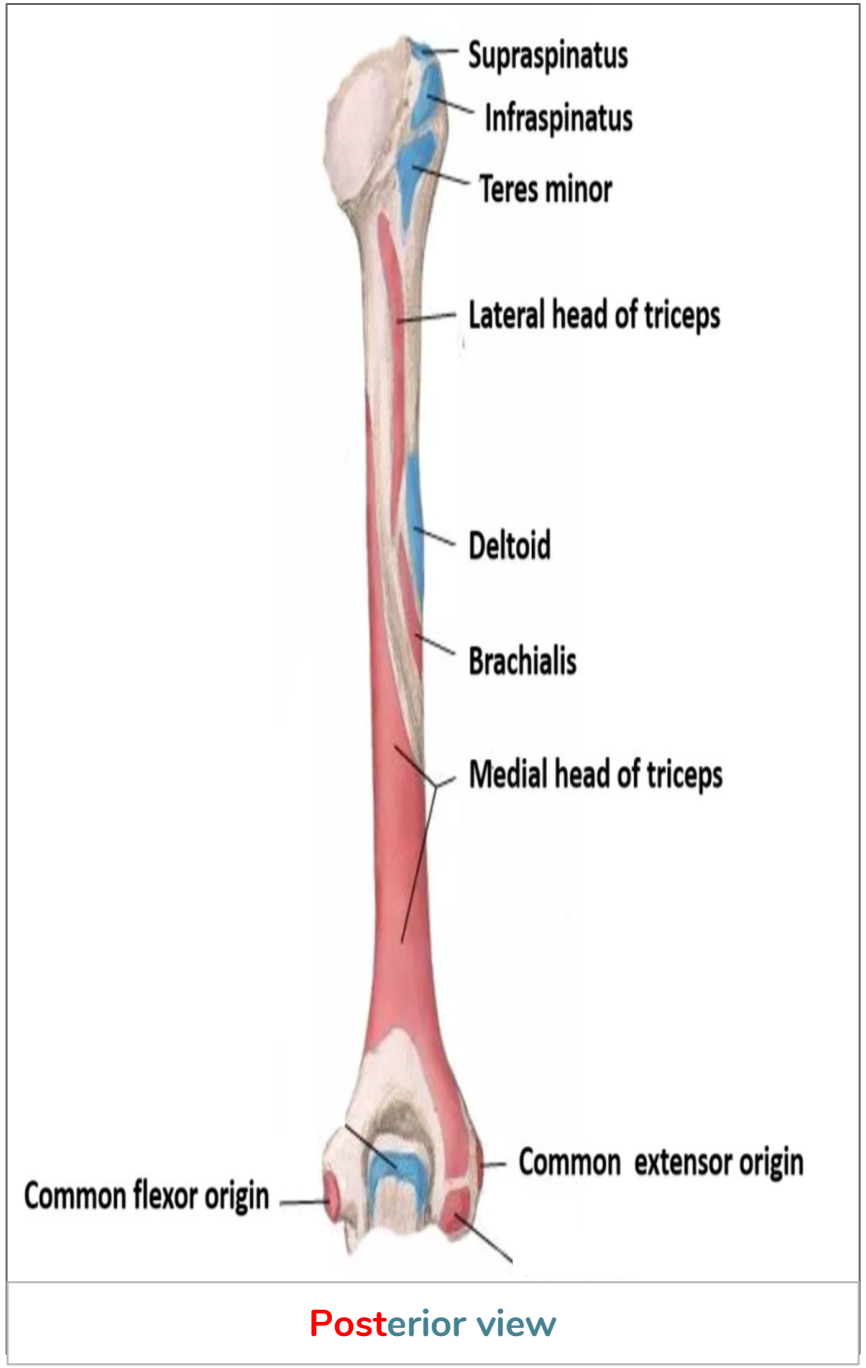
1. Deltoid tuberosity " Lateral - rough region "



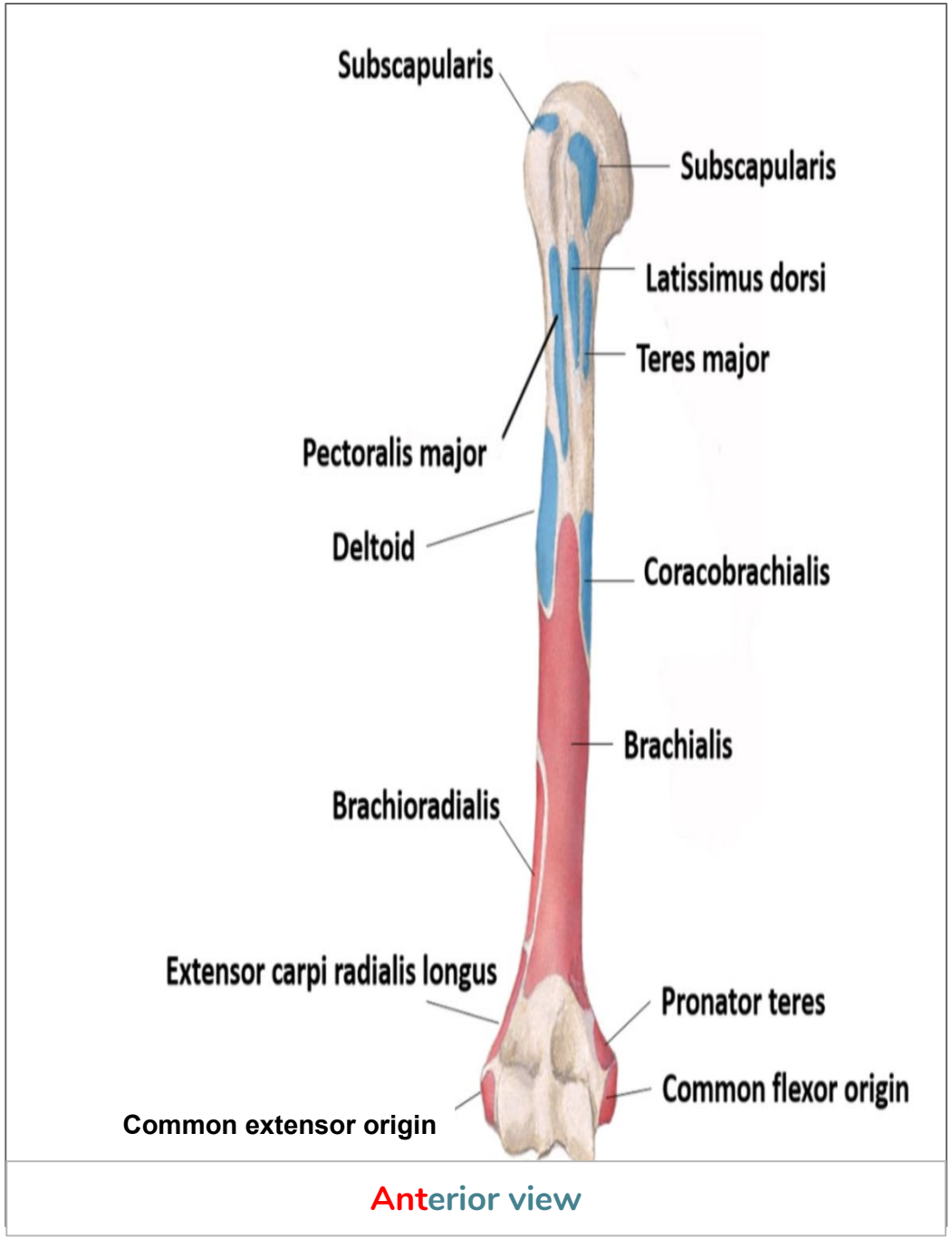
Two views of left humerus







Posterior view



Anterior view

BONES OF APPENDICULAR SKELETON (upper limbs)

Second: Ulna

It's the **Medial** bone of the **forearm** - **Longest** bone in forearm (Long bone)

The proximal end " U shape "

1. Olecranon process
2. Trochlear notch " attach with **Trochlea** of **Humerus** "
3. Coronoid process
4. Radial notch
5. Tuberosity of the ulna

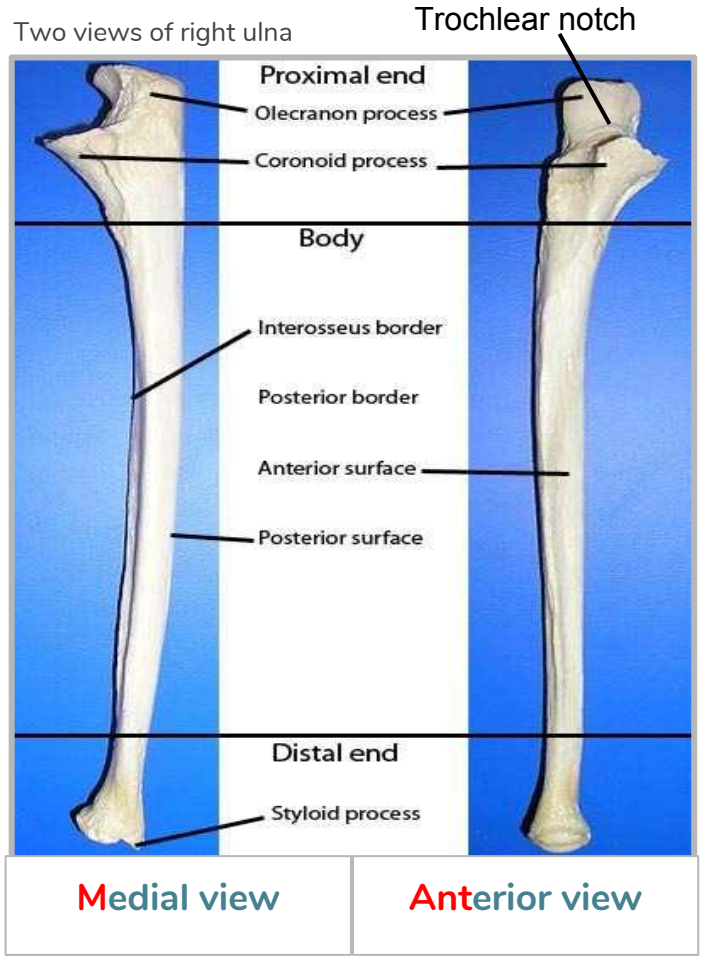
Shaft (body)

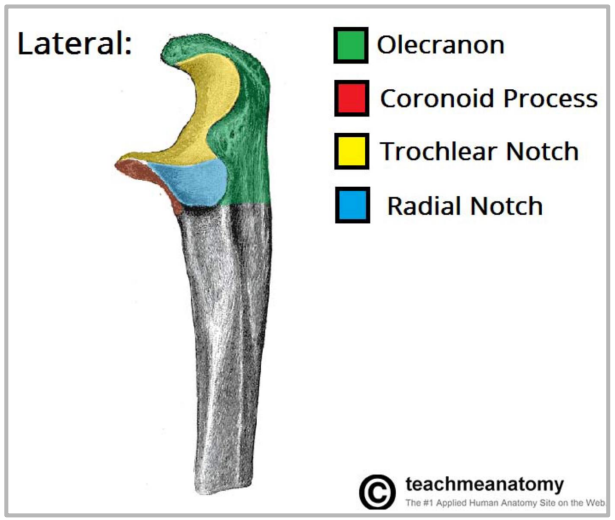
1. Interosseous border of the ulna
   " Lateral sharp border - attach with **Radius** "

The distal end " small region "

1. Styloid process of the ulna " Medial "

Two views of right ulna





BONES OF APPENDICULAR SKELETON (upper limbs)

Third: Radius

It's the **Lateral** bone of the **forearm** - **shortest** bone in forearm (Long bone)

The proximal end

1. Head of the radius
2. Neck of the radius
3. Radial tuberosity " Medial "

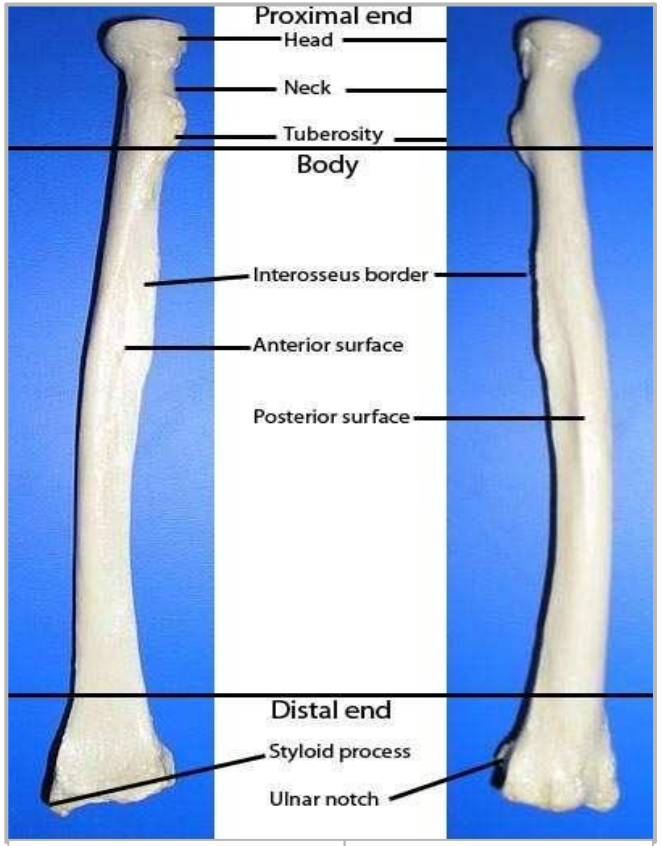
Shaft (body)

1. Interosseous border of the radius " **Medial** sharp border "
2. **Ant**erior surface " con**cave** "
3. **Post**erior surface " con**vex** "

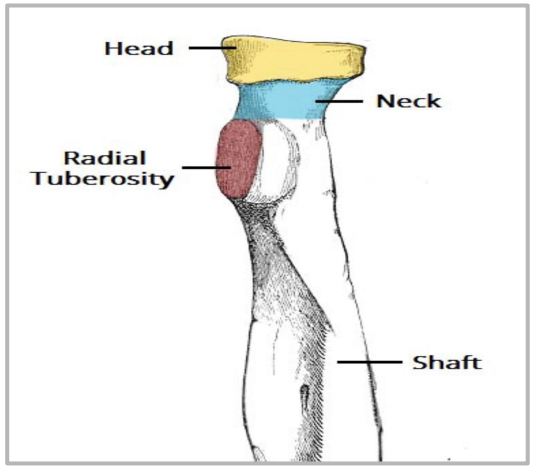
The distal end " enlarged "

1. Styloid process of the radius " **L**ateral"
2. Ulnar notch

Two views of right radius

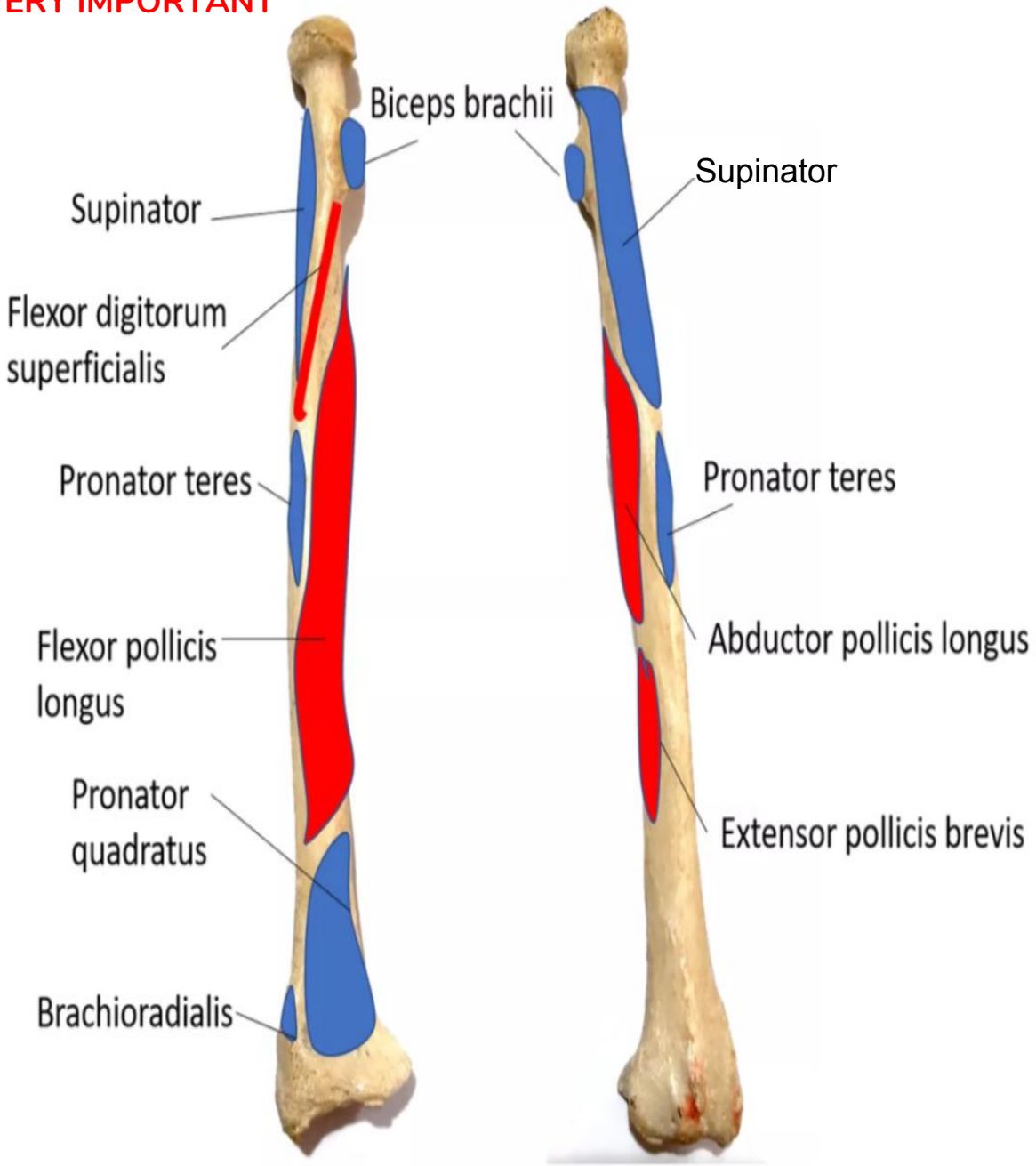


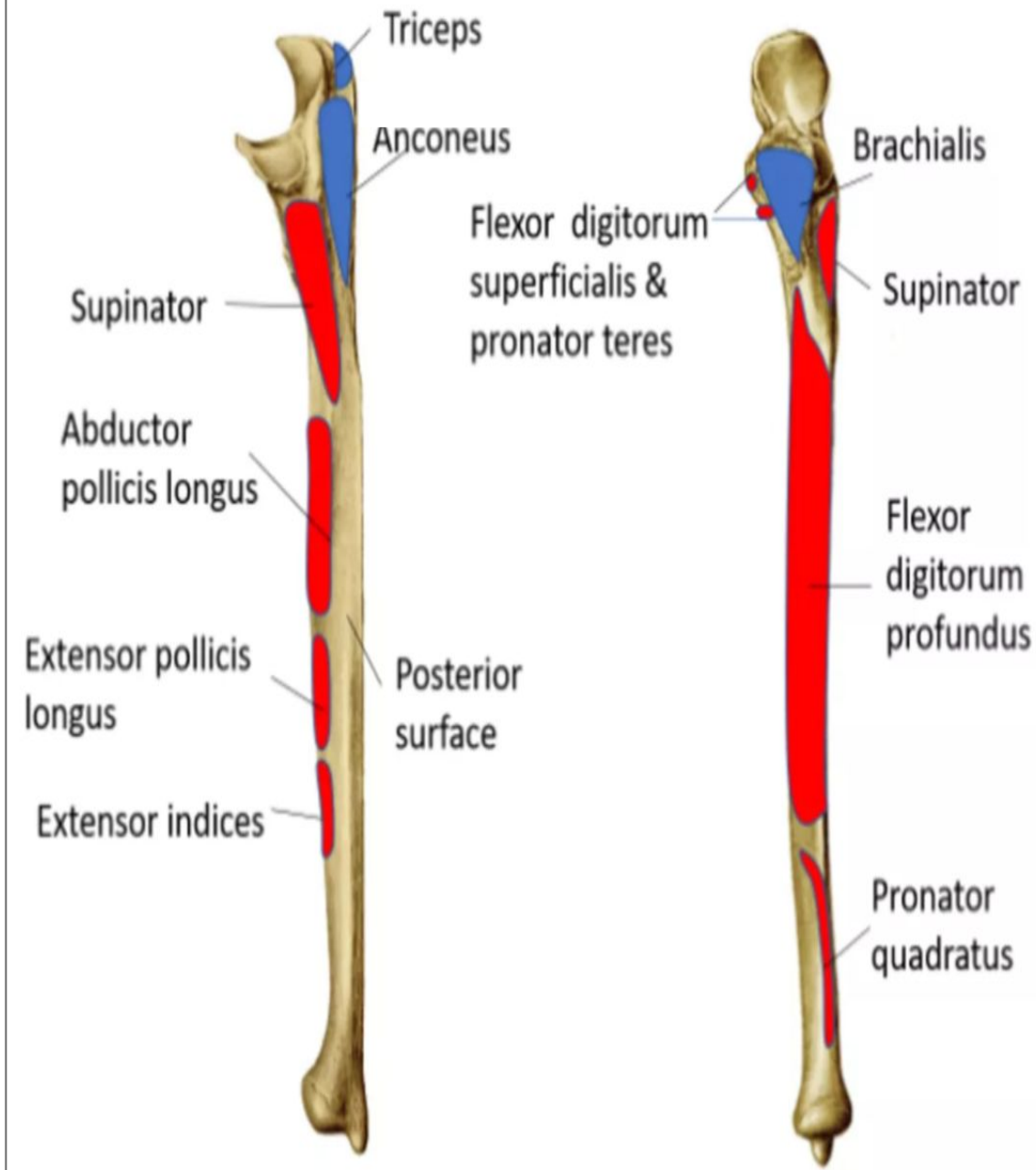
Anterior view | Posterior view



Anterior view | Posterior view

VERY IMPORTANT





BONES OF APPENDICULAR SKELETON (hand)

1. Carpal bones : 8 short bones

- **Proximal row**≫ (from Lateral to Medial):
  Scaphoid,Lunate, Triquetral & Pisiform bones.

- **Distal row**≫ (from Lateral to Medial):
  Trapezium,Trapezoid, Capitate & Hamate.

2. Metacarpal bones : 5

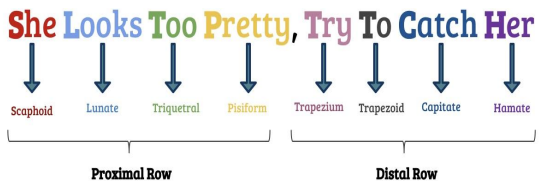
- Each has a Base, Shaft, and a Head.
- Start numbering from: Lateral (thumb) ≫ Medial .

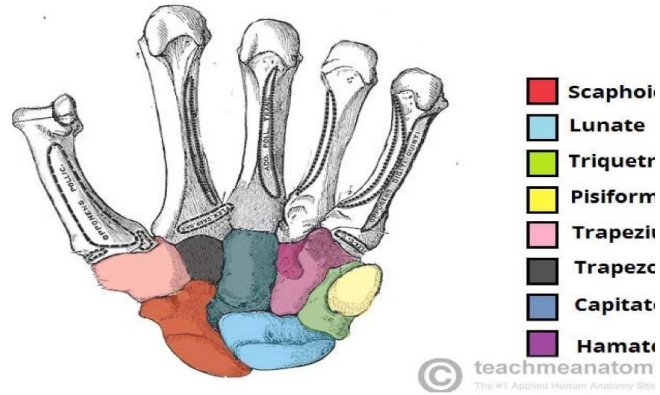
" Q : what is the number of this bone ? "

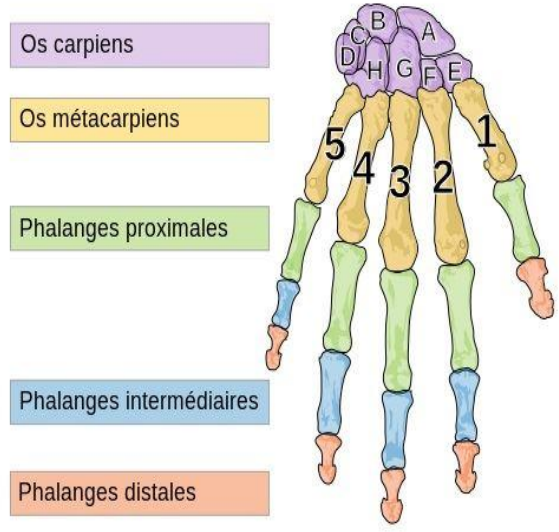
3. Phalanges: 14

- Each digit has Three Phalanges Except the Thumb which has only Two.

* we always start from thumb.







BONES OF APPENDICULAR SKELETON (lower limbs)

First : Femur

It's the bone of the **thigh** (Long bone)

The upper end

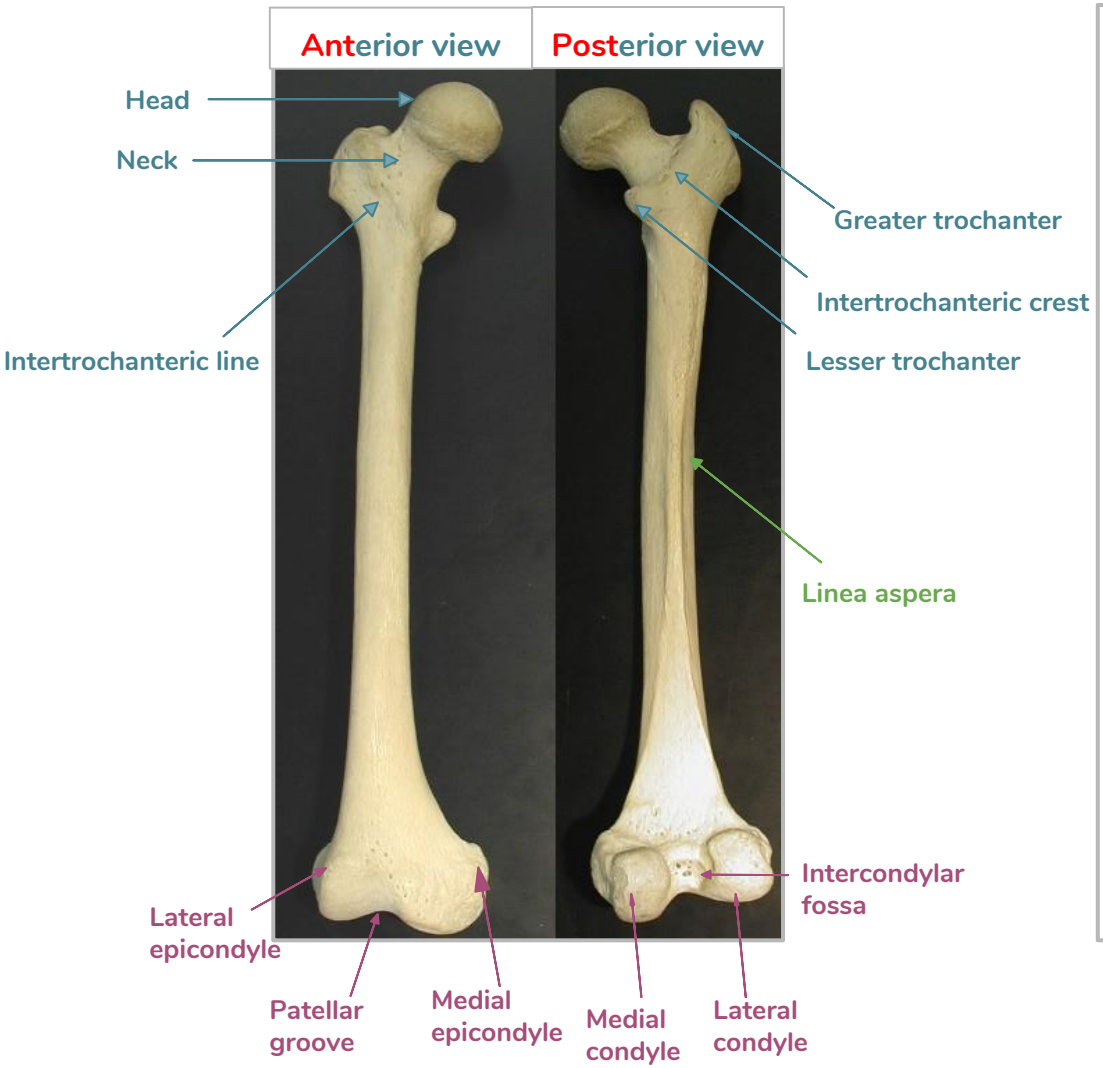
1. Head of the femur
2. Neck of the femur
3. Greater trochanter
4. Lesser trochanter
5. Intertrochanteric crest "**Post**erior"
6. Intertrochanteric line "**Ant**erior"

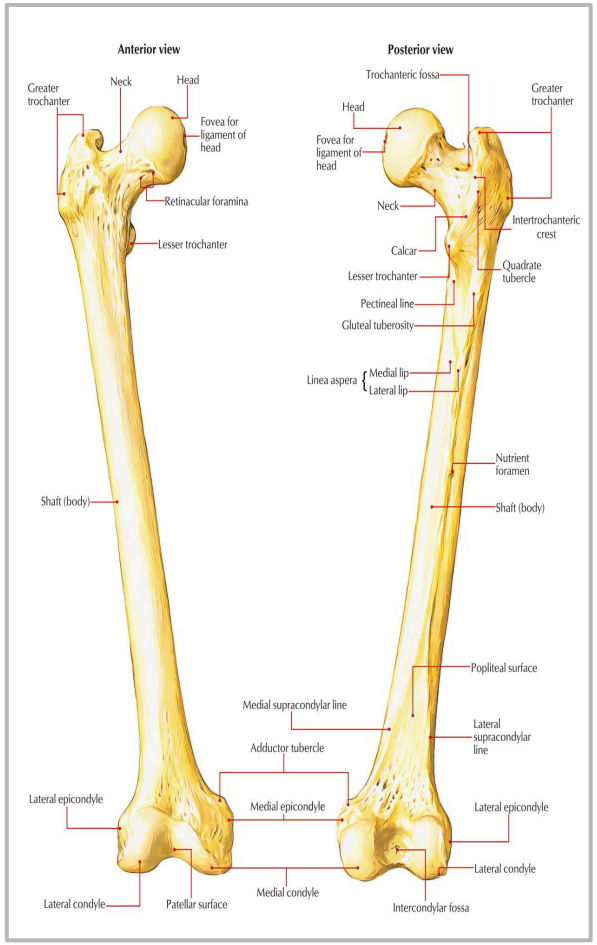
Shaft (body)

1. Linea aspera

The lower end

1. **M**edial condyle
2. **L**ateral condyle
3. **M**edial epicondyle
4. **L**ateral epicondyle
5. Intercondylar fossa "**pos**terior"
6. Patellar groove "**Ant**erior "





BONES OF APPENDICULAR SKELETON (lower limbs)

Second: Tibia

It's the **Medial** bone of the **leg** (Long bone)

The upper end

1. **Medial** condyle
2. **Lateral** condyle

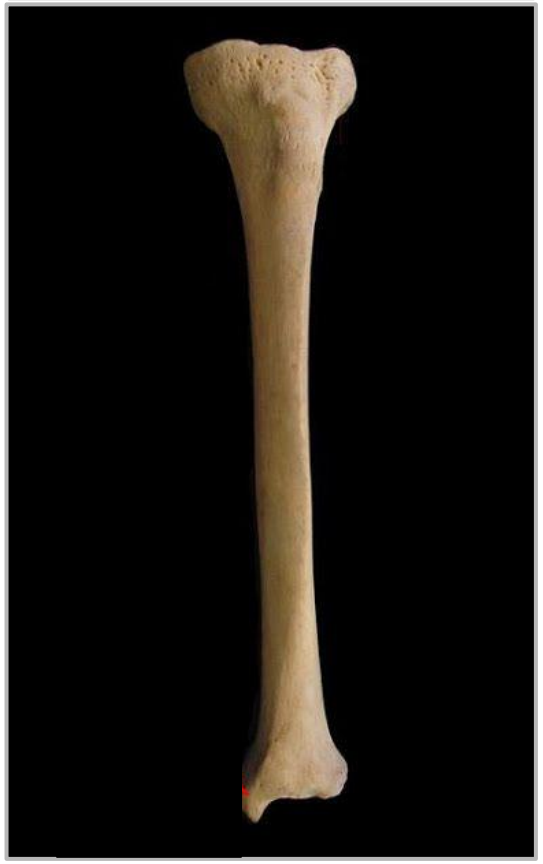
Shaft (body)

1. Tibial tuberosity "**Ant**erior - subcutaneous"

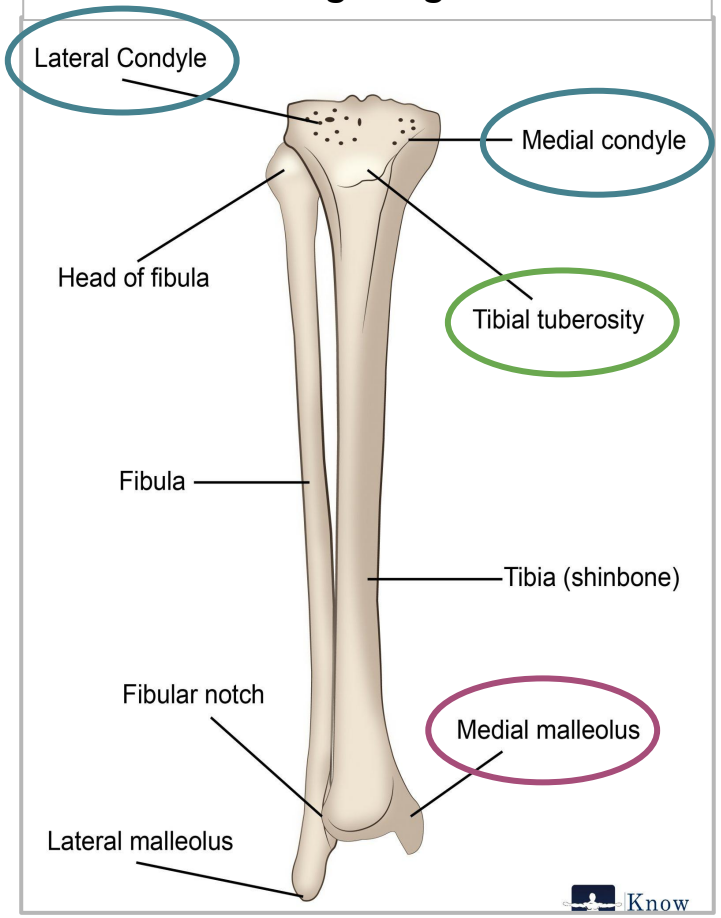
The lower end

1. **Medial** malleolus
2. Fibular notch

Left leg
"**malleolus** will be **M**edial **Ant**eriorly"



Right leg



BONES OF APPENDICULAR SKELETON (lower limbs)

Third: Fibula

It's the **Lateral** bone of the **leg** (Long bone)

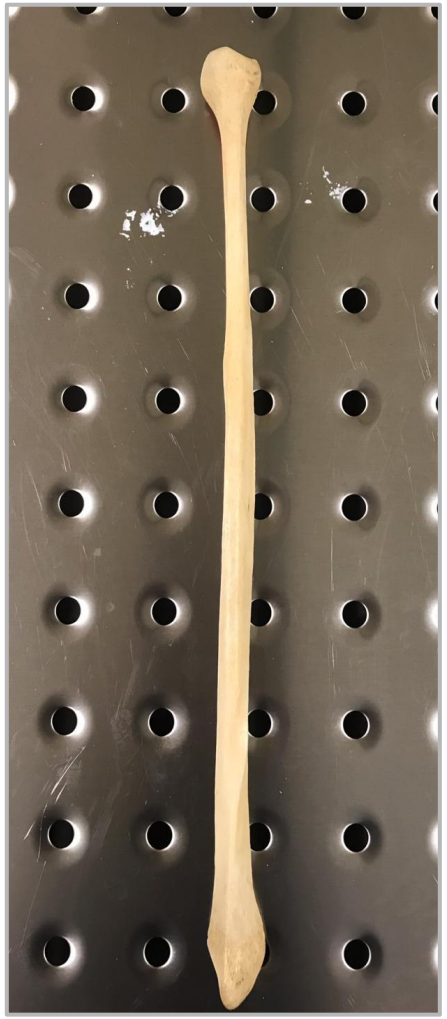
The upper end

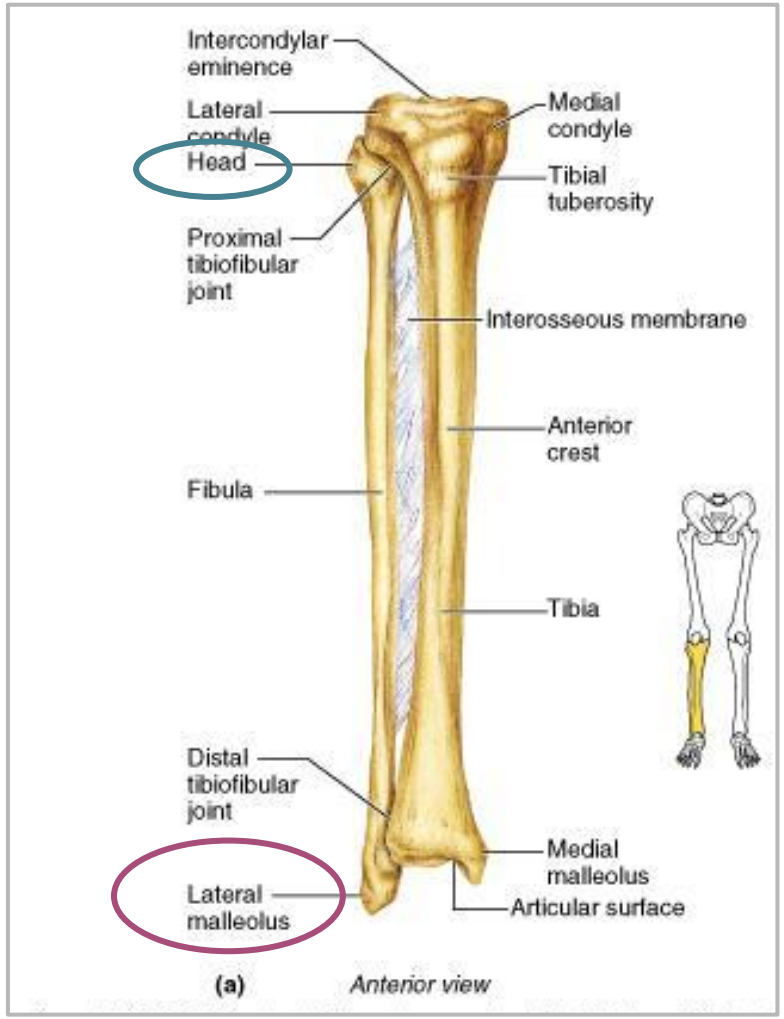
1. Head of the fibula
2. Neck
3. Styloid process " Lateral "

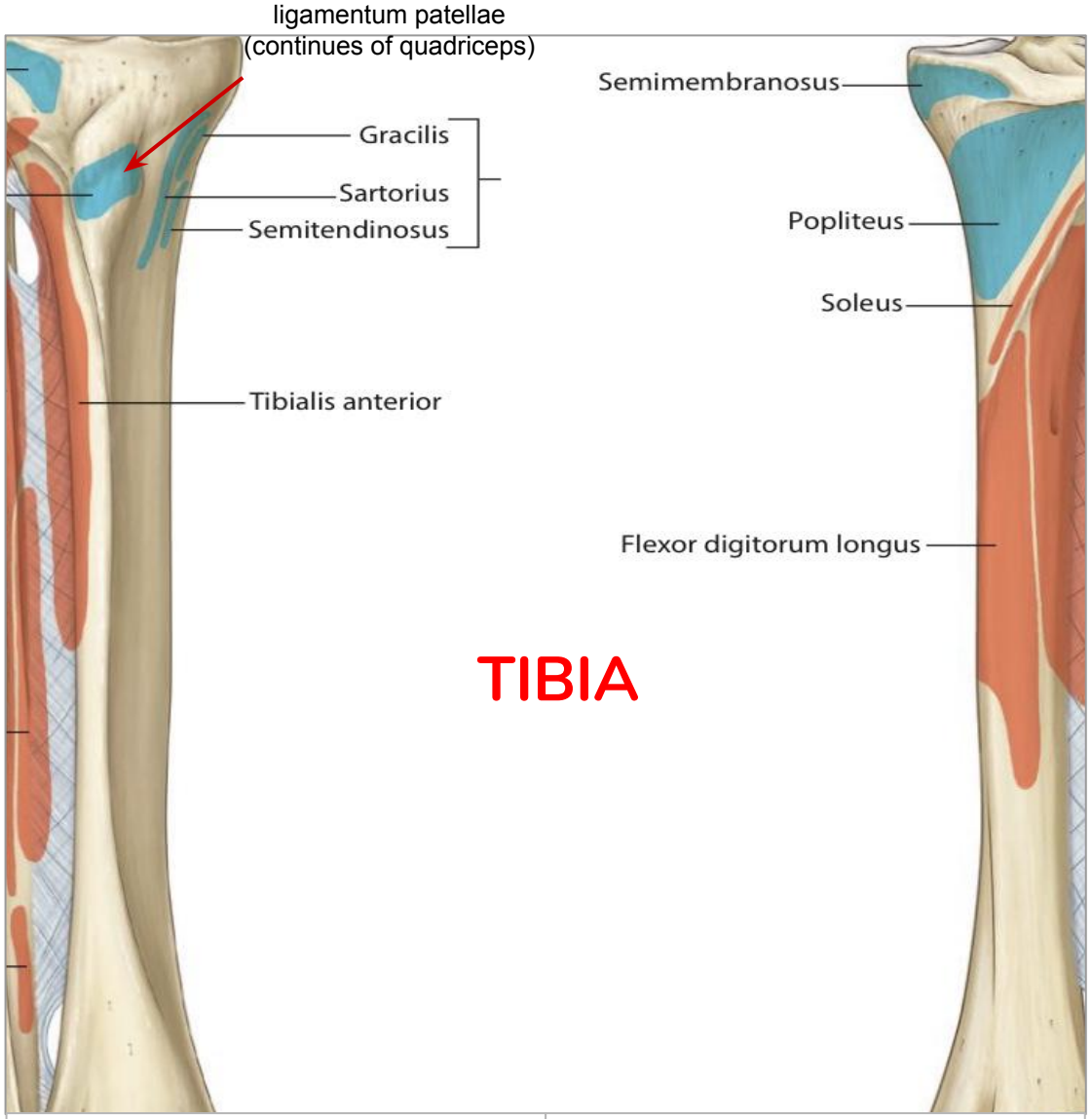
The lower end

1. **Lateral** malleolus

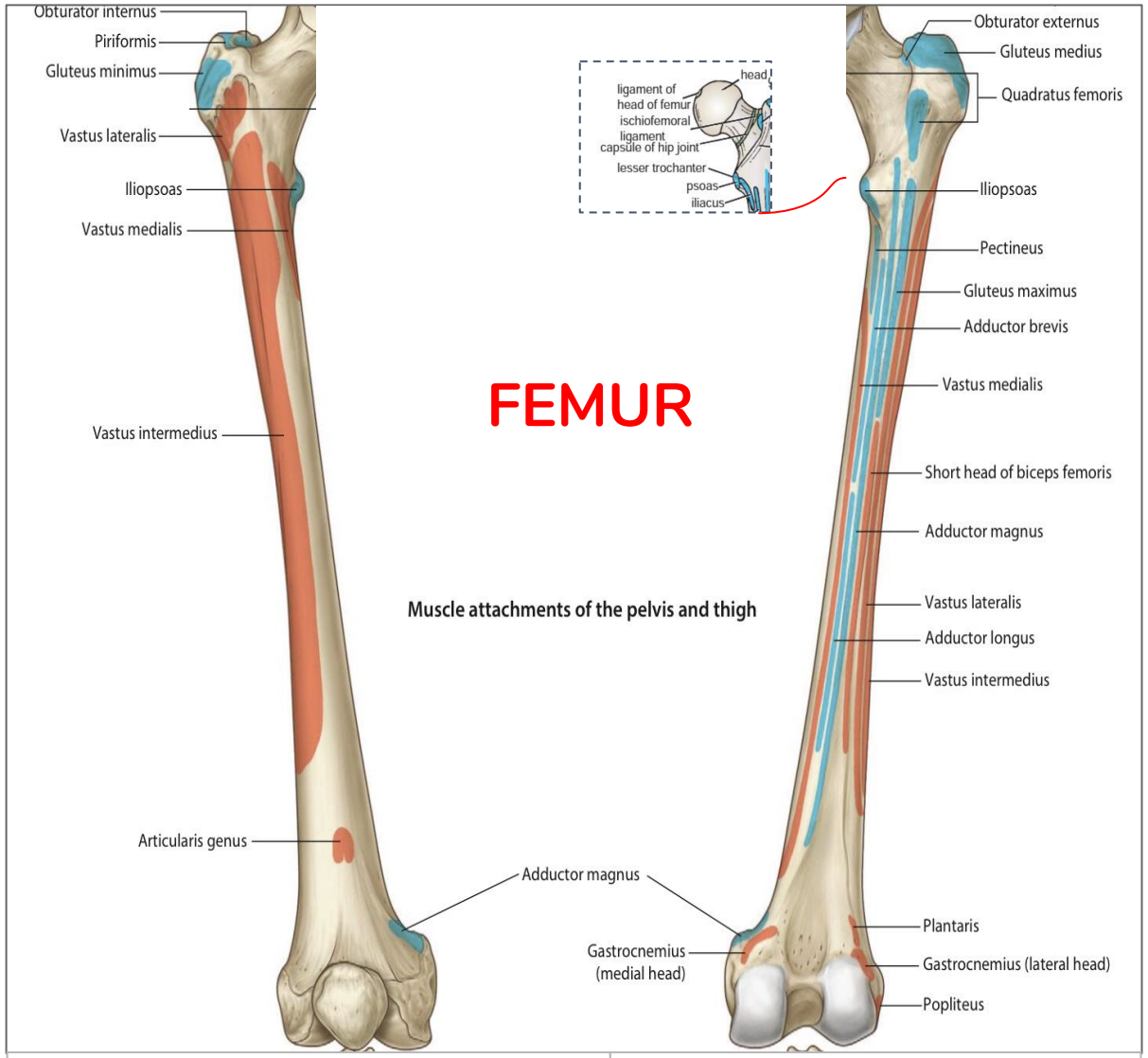
*Question will be identify, upper or lower end?







Anterior view | Posterior view



Anterior view | Posterior view

BONES OF APPENDICULAR SKELETON (pelvic girdle)

Hip bone

One of the 2 bones of the pelvic girdle "hip & sacrum"

Proximal

1. Ilium

Distal

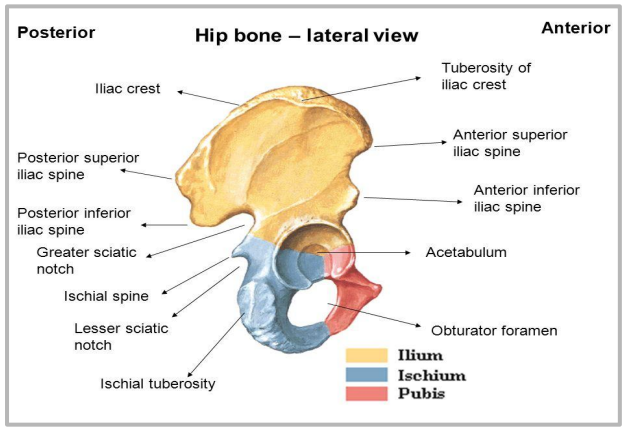
1. Pubis "**Ant**erior "
2. Ischium "**Post**erior"

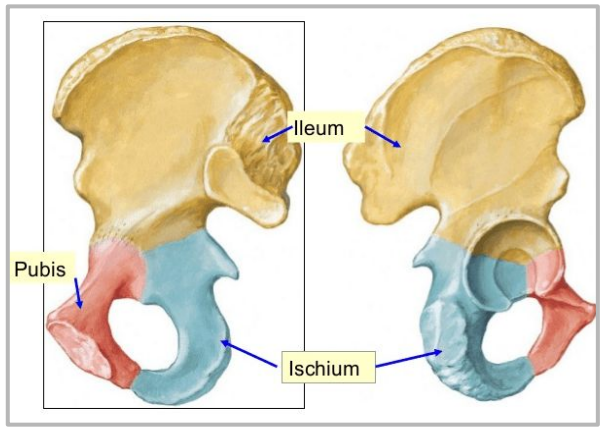
cavity

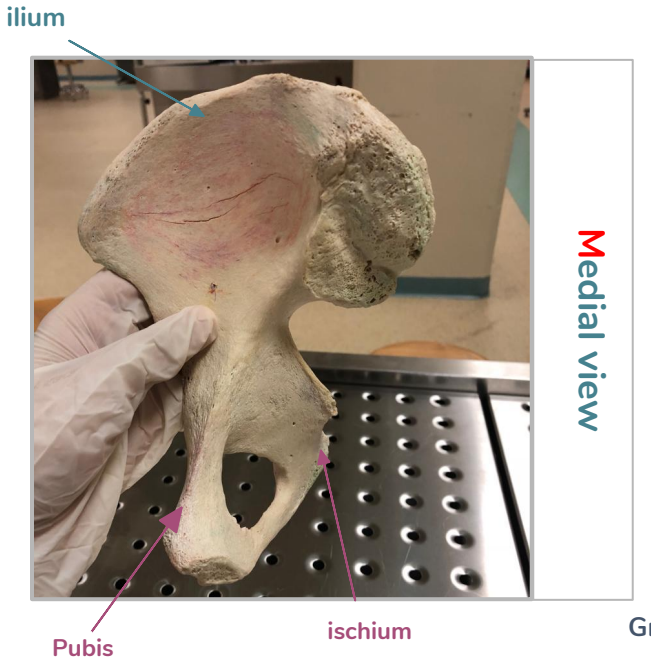
1. Acetabulum "con**cave** - articulates with the **head** of **femur** to form **hip joint** "

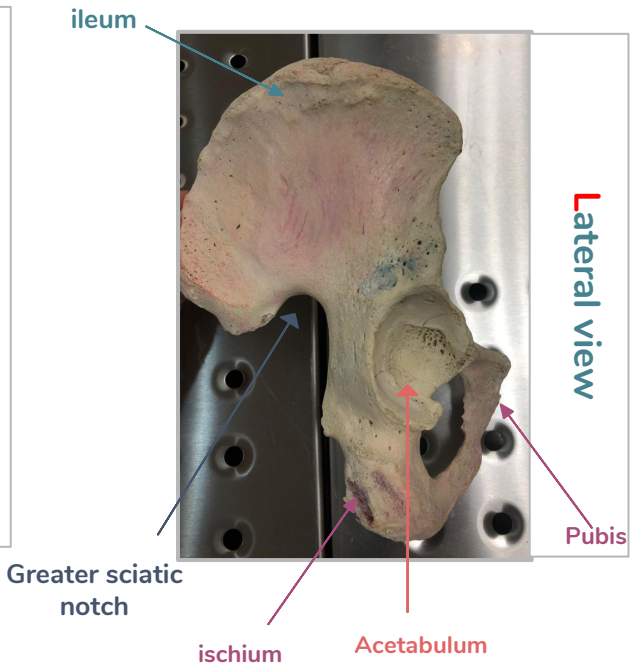
Notch

1. Greater sciatic notch " between the **pos**terior **infer**ior iliac spine "









*Note:Doctor said that it will come with details later on

BONES OF APPENDICULAR SKELETON (foot)

1. Tarsal bones : 7 short bones

- **Proximal row**≫ (from Medial to Lateral):
Calcaneus, Talus, Navicular, Cuboid

- **Distal row**≫ (from Medial to Lateral):
Medial cuneiform, intermediate cuneiform, lateral cuneiform

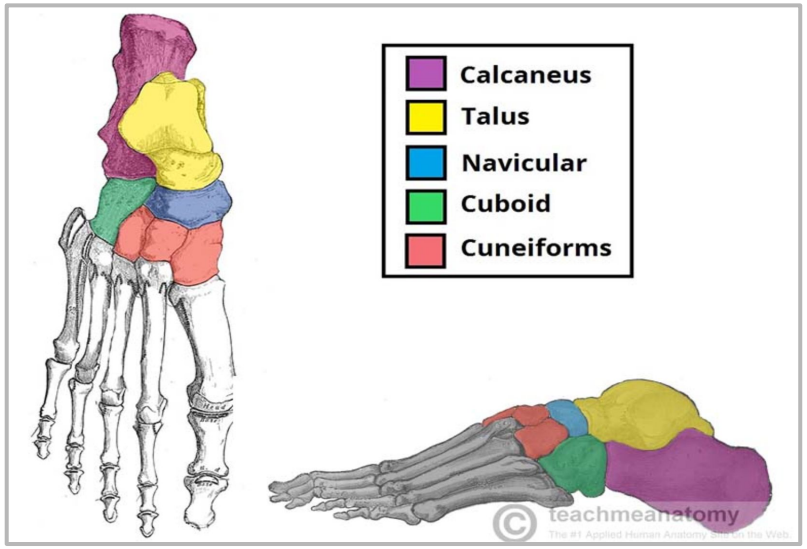
2. Metacarpal bones : 5

- Each has a Base, Shaft, and a Head.
- Start numbering from: Medial (big toe) ≫ Lateral.

3. Phalanges: 14

- Each digit has Three Phalanges Except the Big Toe which has only Two.

* we always start from the big toe



* In hand we start numbering from Lateral ≫ Medial

*In foot it's the opposite
Medial ≫ Lateral

Calcaneus
important

Lateral to Medial , Proximal to Distal

Cute Tina Never Could Cooperate
Calcaneus, Talus, Navicular, Cuboid, cuneiform

Helpful videos |

- We made this video to help you

https://drive.google.com/file/d/1koJ3dvk68t1Z8C3i26yL0SJaUkbUb1e4/view?usp=sharing

- Upper limb

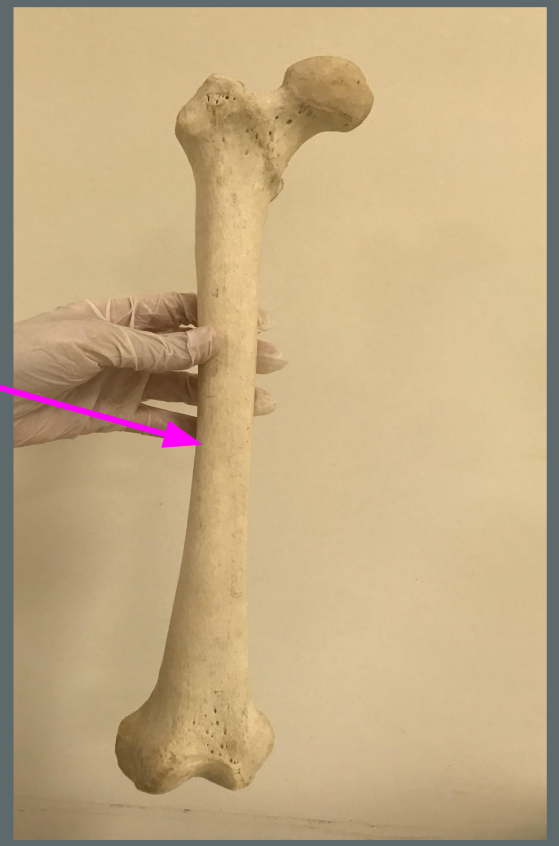
https://youtu.be/NXDIuph9arA

- Lower limbs

https://youtu.be/cjLPJH5xarM

Ex Questions |

- Identify the bone and its side?
- What's the muscle attached to the marked area?



A: 1- Right femur
2- Vastus intermedius

Anatomy of the Spine

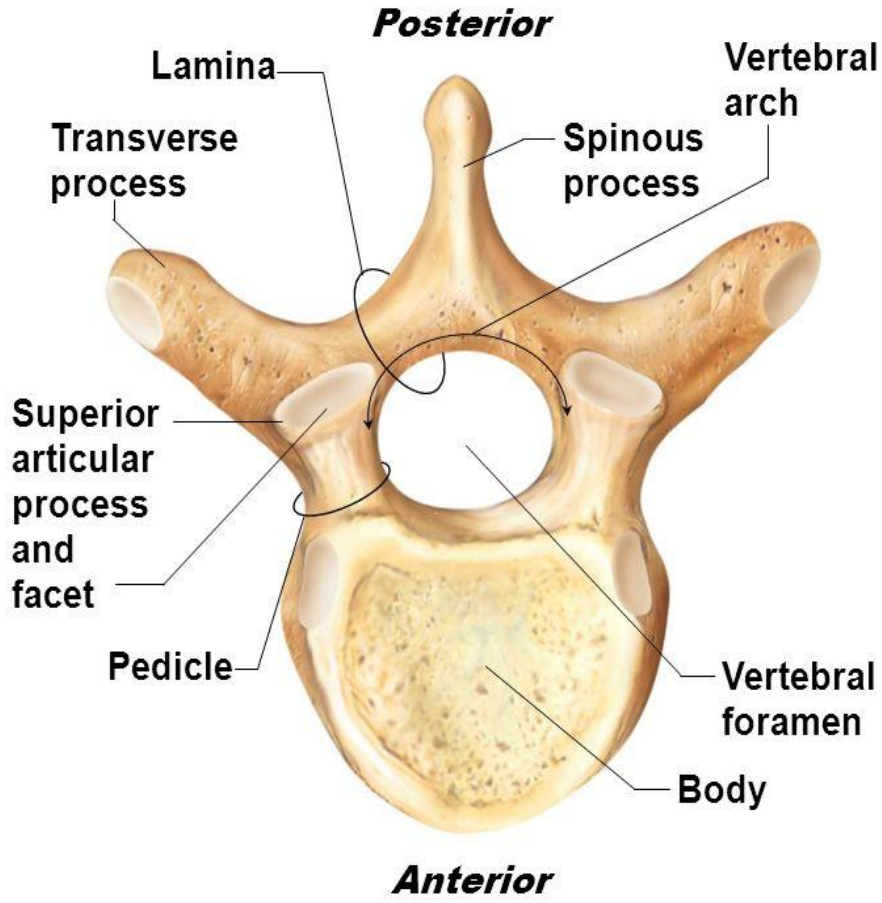
ANATOMY OF THE SPINE

Vertebrae

Typical Vertebrae has:

1. Body " Anterior "
2. Spinous process " Posterior "
3. Transverse process " Lateral "
4. Superior & inferior articular facet
5. Vertebral foramen
6. Transverse foramen " special only for cervical vertebrae "
7. Lamina
8. Pedicle

Figure 5.19 A typical vertebra, superior view.



ANATOMY OF THE SPINE

Atypical Cervical Vertebrae (C1-C2,C7)

Reminder! C3-C6 are typical cervical vertebrae

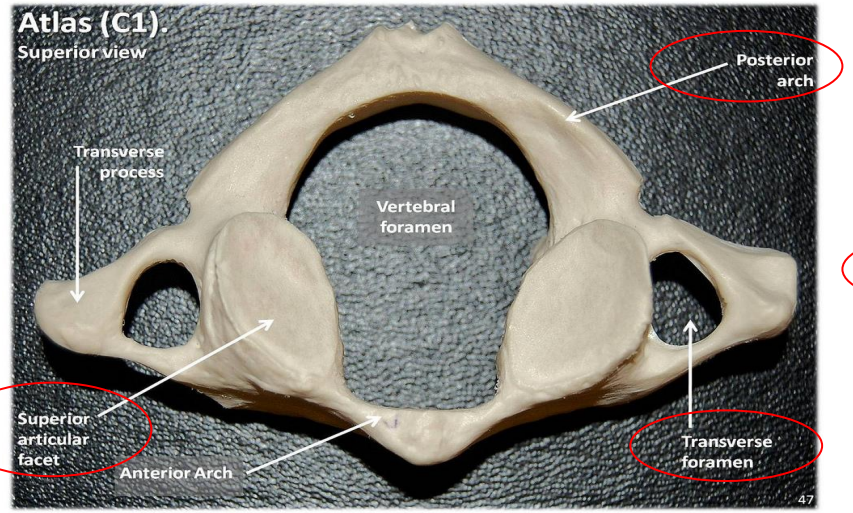
Atlas C1

Features:

- No body
- Transverse foramen
- Kidney shaped facet (superior surface)
- Transverse process
- Vertebral foramen

Joint:

- Superior surface receives the occipital condyle of the skull to form the Atlanto-occipital joint (nod yes)



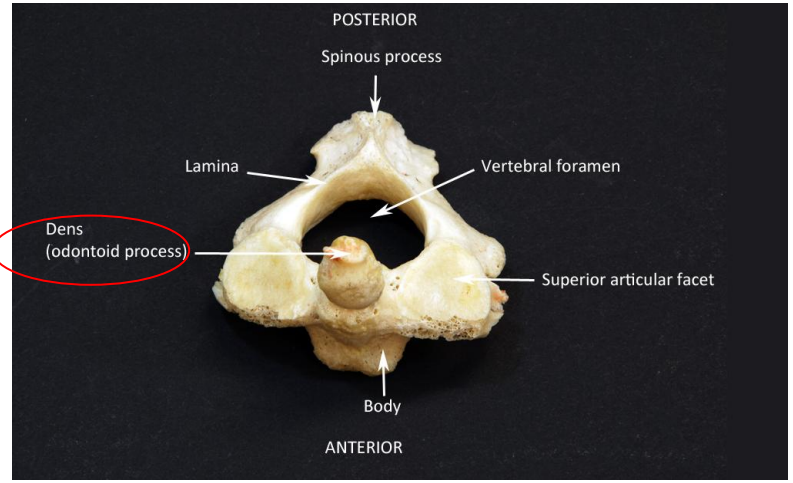
Axis C2

Features:

- Odontoid process or dens
- Transverse foramen
- Spinous process
- Superior & inferior articular facet
- Vertebral foramen

Joint:

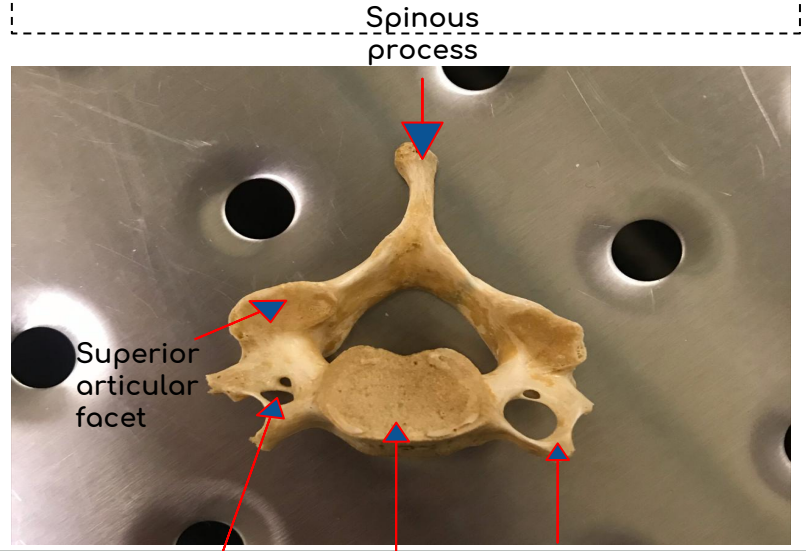
- Articulates with C1 to form the Atlanto-Axial joint (nod no)



Atypical C7

Features:

- Long spinous process
- Not bifid
- Transverse foramen
- Transverse process
- Superior & inferior articular facet
- Veins and nerves passes through transverse foramen

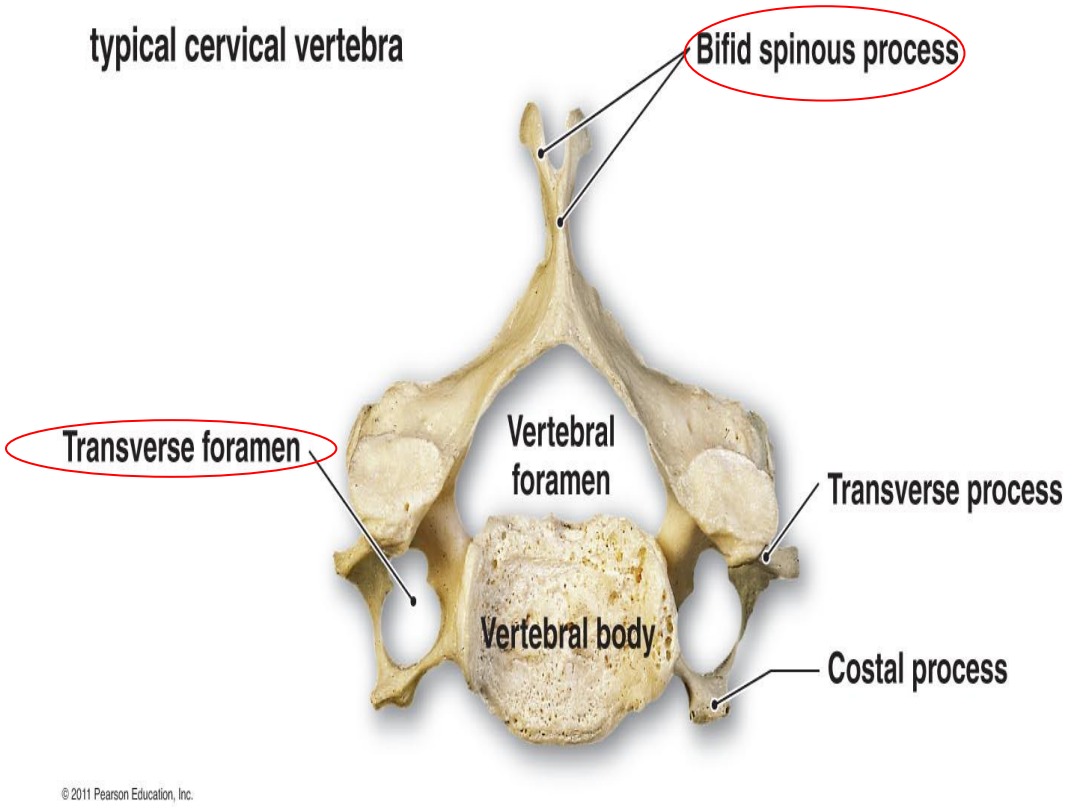


ANATOMY OF THE SPINE

Typical cervical vertebrae (C3-C6)

Features:

- Transverse foramen
- Vessels passes through transverse foramen except C7 only veins and nerves
- Small body
- Transverse process
- Vertebral foramen
- spinous processes is bifid,short and fork like

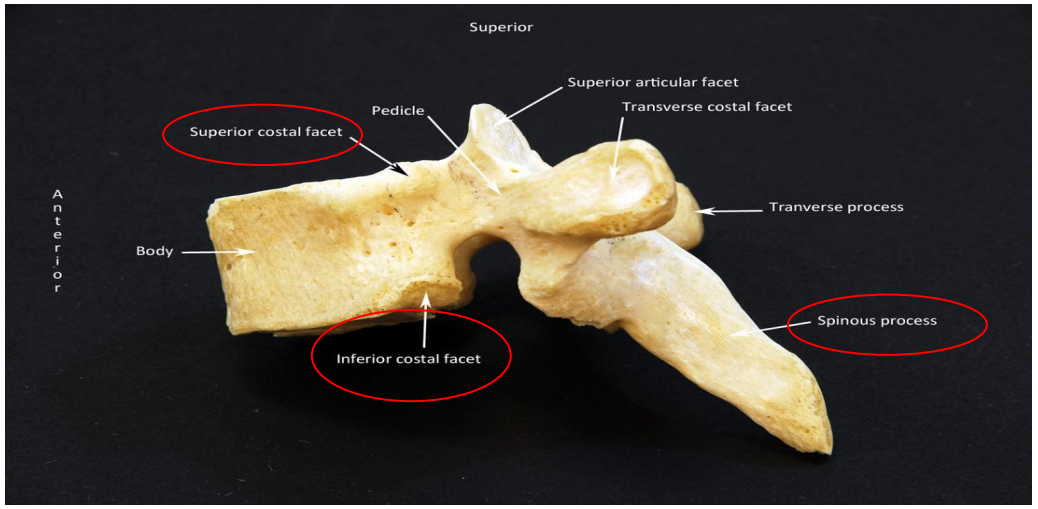


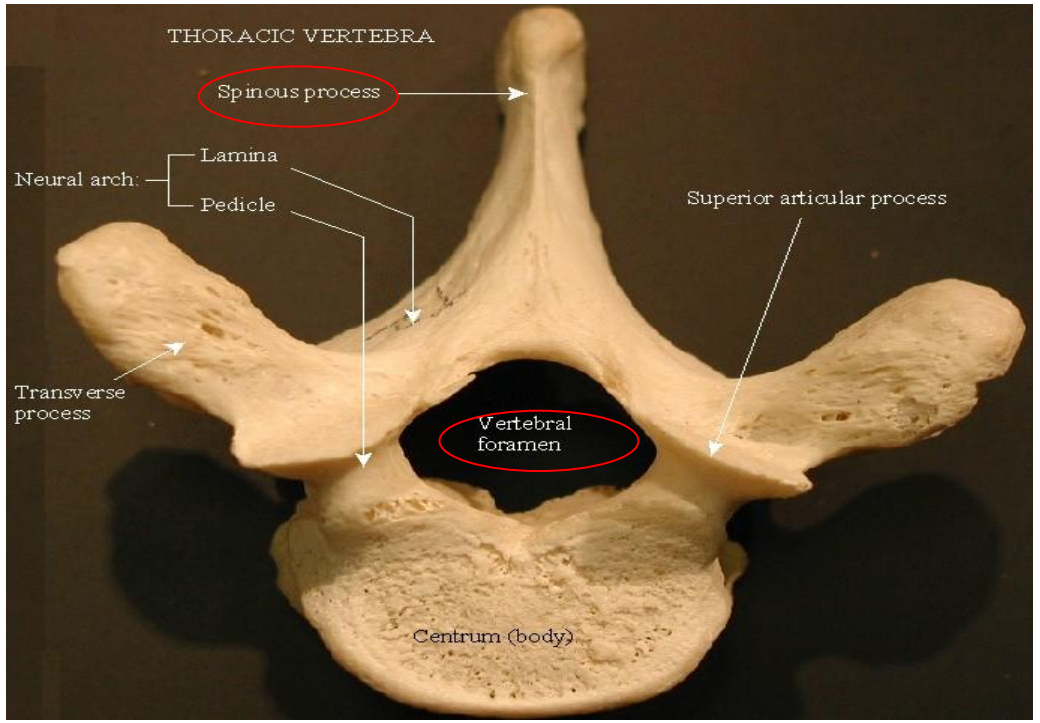
ANATOMY OF THE SPINE

Thoracic vertebrae

Features:

- Heart shaped body
- Long spine that hooks sharply downward
- Two costal demifacets
- Transverse process
- Superior & inferior articular process
- Vertebral foramen



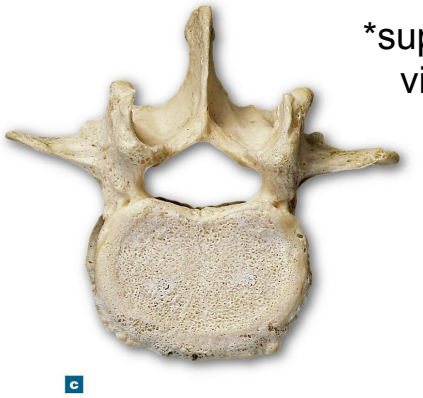


ANATOMY OF THE SPINE

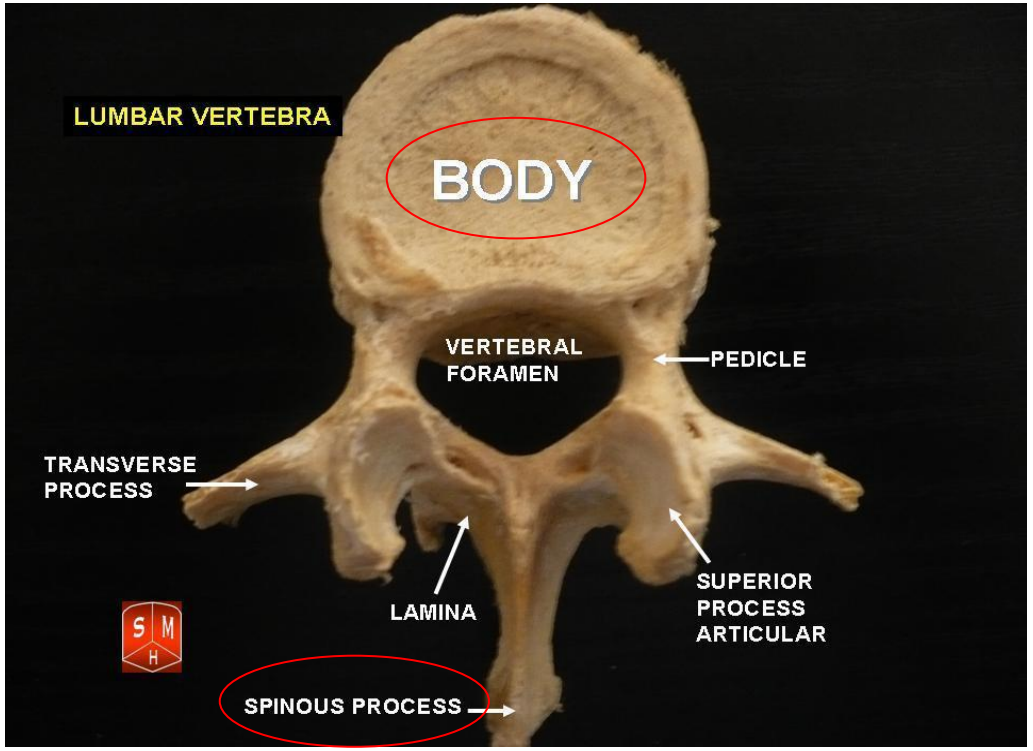
Lumbar vertebrae

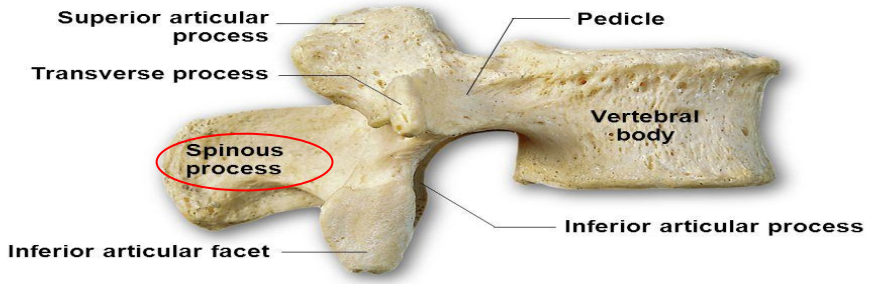
Features:

- Massive block like body
- Short hatchet shaped spinous process
- Transverse process
- Vertebral foramen
- Superior & inferior articular process



*superior view

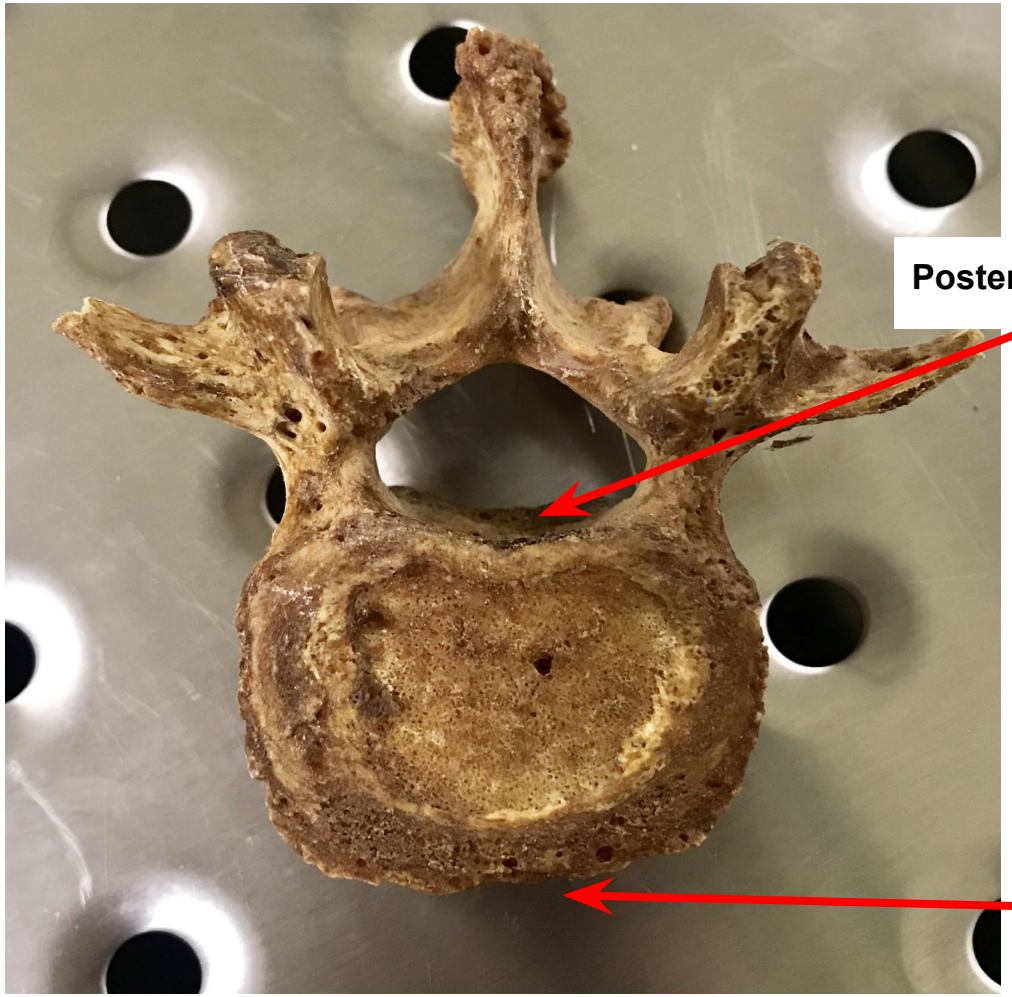


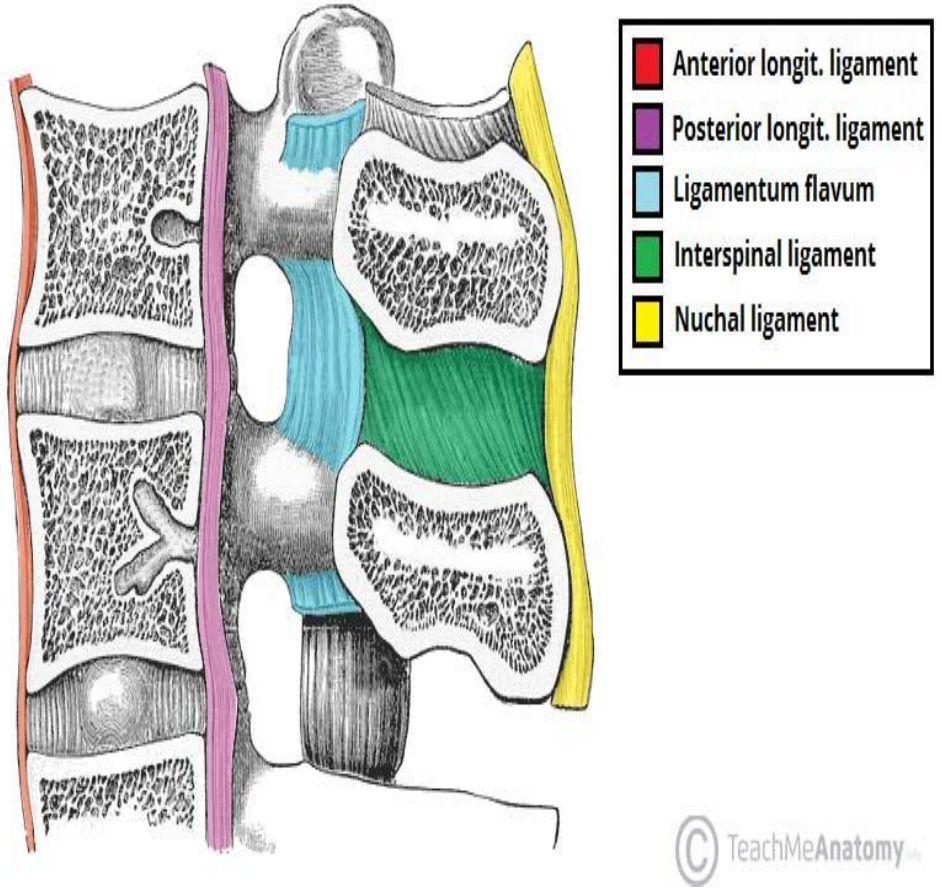


A lateral view of a typical lumbar vertebra

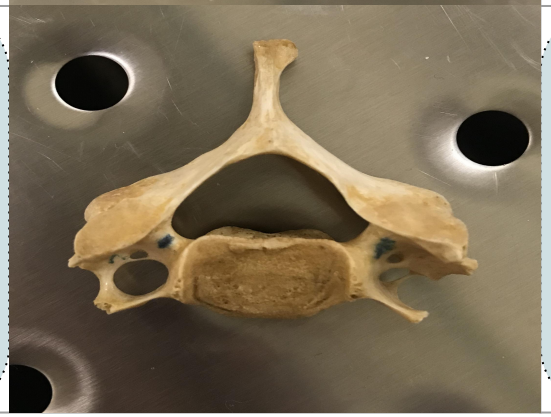
ANATOMY OF THE SPINE

Ligaments





Review

Transverse foramen + no body = Atypical cervical vertebrae (C1) “atlas”		Transverse foramen + bifid spine = typical cervical vertebrae (C3-C6)	
Transverse foramen + odontoid process = Atypical Cervical Vertebrae (C2) “axis”		Heart shaped body + downward pointing spine = Thoracic Vertebrae	
Transverse foramen + body + non bifid spine (long) = Atypical cervical vertebrae (C7)		Big + hatchet shaped spine (short) = Lumbar Vertebrae	

Helpful videos |

- Atypical Cervical Vertebrae (Atlas & Axis)

https://youtu.be/U3wx14CWPCQ

- Typical Cervical Vertebrae + C7

https://youtu.be/4Tmjq0K36DY

- Thoracic Vertebrae

https://youtu.be/0iagFm23eFQ

- Lumbar Vertebrae

https://youtu.be/w0O1cb1kxK8

Ex Questions |

- Identify the structure?
- Give two feature about the structure:

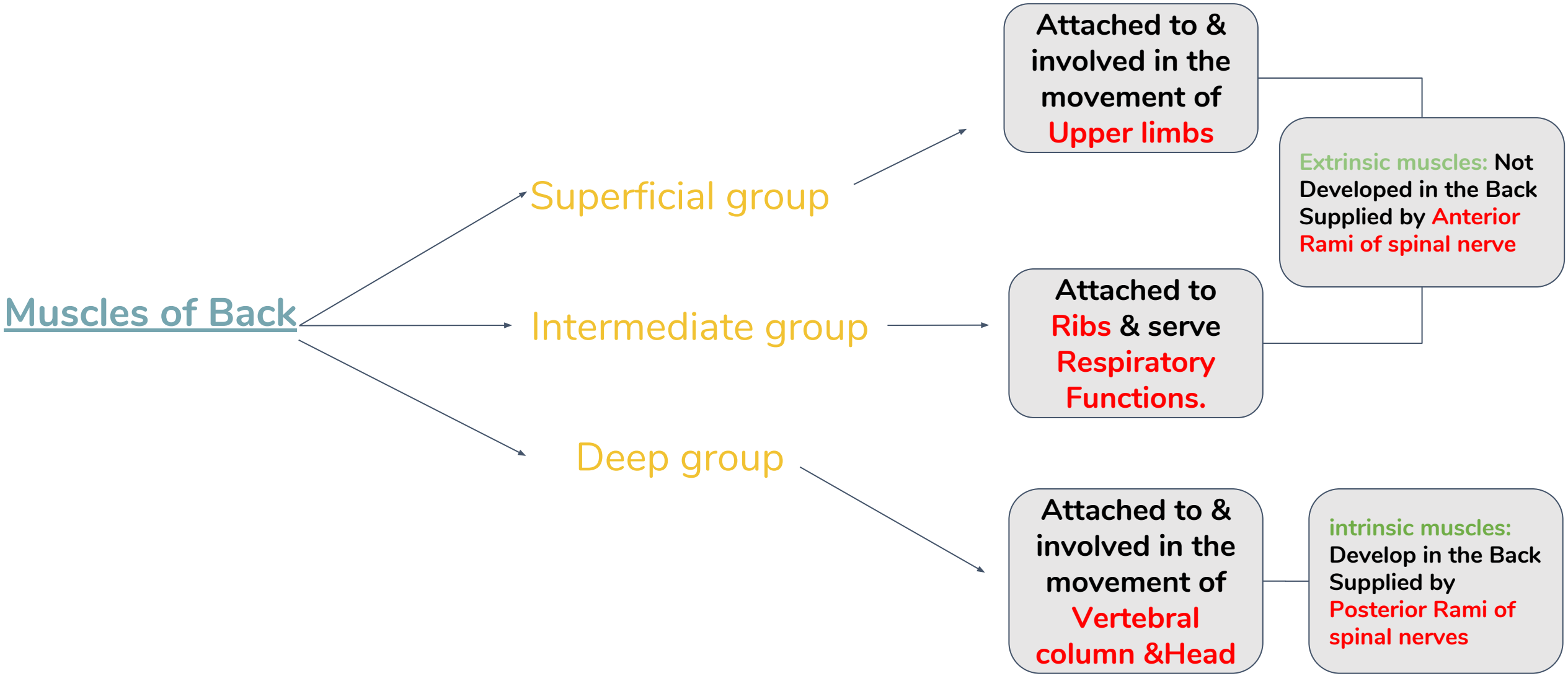
A: 1- typical cervical vertebrae (C3-C6)
2- the spinous process is bifid and short
- transverse foramen special for cervical

Muscles of the back

Movement

extra information

	Term	Meaning
1.	**Extensor**	a muscle whose contraction extends or straightens a limb or other part of the body.
2.	**Rotator**	a muscle whose contraction causes or assists in the rotation of a part of the body


Muscles of Back
Superficial group
Intermediate group
Deep group
Attached to & involved in the movement of Upper limbs
Extrinsic muscles: Not Developed in the Back Supplied by Anterior Rami of spinal nerve
Attached to Ribs & serve Respiratory Functions.
Attached to & involved in the movement of Vertebral column &Head
intrinsic muscles: Develop in the Back Supplied by Posterior Rami of spinal nerves

MUSCLES OF THE BACK (Superficial group)

- **Muscles connecting vertebral column to scapula (move scapula through shoulder girdle joints) include:**

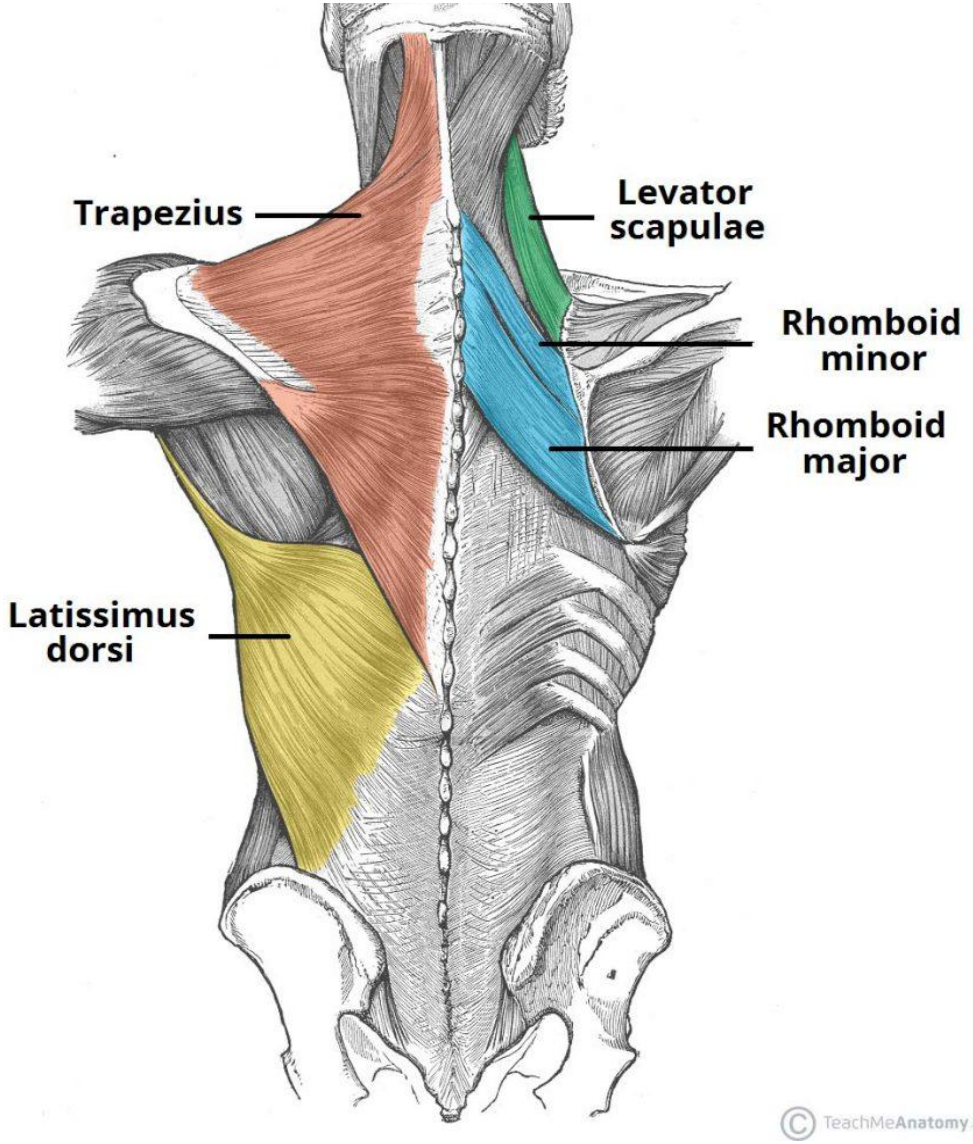
1. Trapezius.
2. Levator scapulae.
3. Rhomboid minor.
4. Rhomboid major.

Muscle connecting vertebral column to humerus (move humerus through shoulder joint) include:

1. Latissimus dorsi.

*Doctor's note: Superficial group contain 2 layers

1st layer ≫ Trapezius & Latissimus dorsi.
2nd layer ≫ Levator scapulae & Rhomboid minor and major.
mostly,only the superficially muscles will be in OSPE !



MUSCLES OF THE BACK (Superficial group)

First : Trapezius

Origin

Occipital bone and spinous processes of C7 - T12

Insertion

Posterior border of **L**ateral ⅓ of clavicle + acromion and spine of scapula C-shaped

Nerve supply

Nerve ≫ Spinal part of accessory (11th cranial) nerve

Action

Rotation of scapula during abduction of humerus above horizontal. >90 degree horizontal

1. **Upper fibers**: elevate scapula.
2. **Middle fibers**: retract scapula.
3. **Lower fibers**: depress scapula

MUSCLES OF THE BACK (Superficial group)

Second: Levator scapulae

Origin

Cervical transverse process
C1-4

Insertion

Medial border of scapula

Nerve supply

Nerve ≫ **Dorsal** scapular nerve.

Root ≫ From root of brachial plexus **(C5)**

Action

Elevates scapula

MUSCLES OF THE BACK (Superficial group)

Third and fourth : Rhomboid minor & Rhomboid major

Origin

*Note: this is based on what the doctor on the practical said

- **R.Major**: Thoracic spines **T2 to T5**
- **R.Minor**: Spines of **C7 & T1**

Insertion

Medial border of scapula.

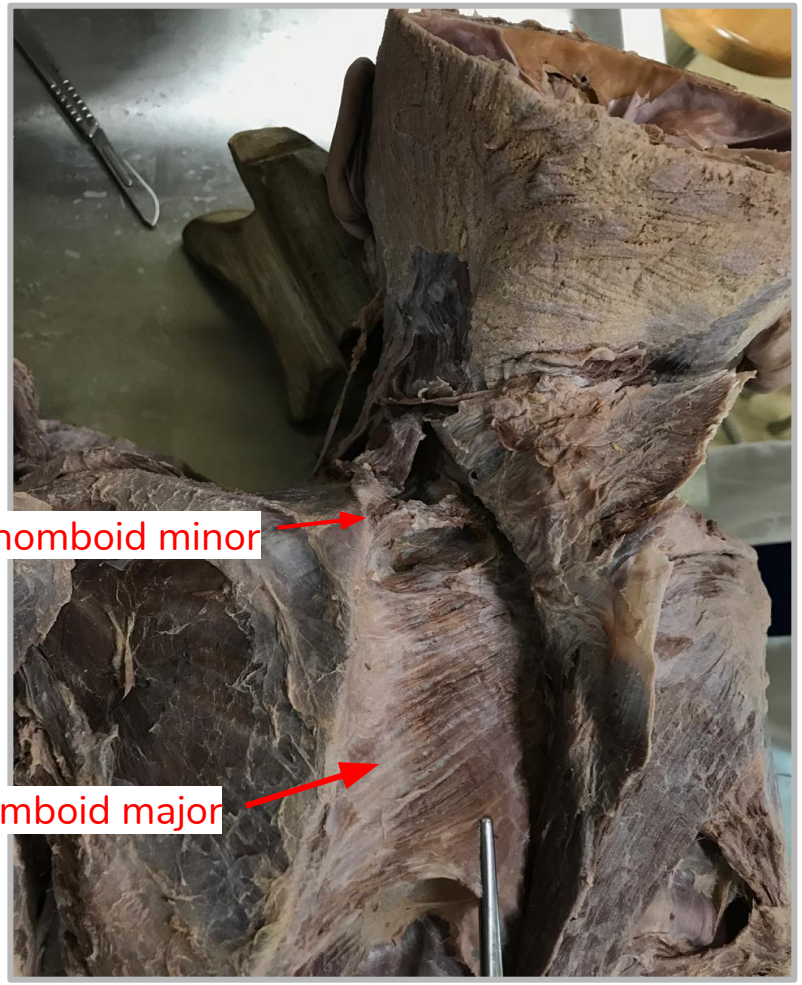
Nerve supply

Nerve ≫ **Dorsal** scapular nerve.

Root ≫ From root of brachial plexus (**C5**) *same as Levator Scapulae

Action

Retract scapula
*Also called extension



MUSCLES OF THE BACK (Superficial group)

Fifth: Latissimus dorsi

Origin

*Note: this is based on what the doctor on the practical said

1. Spine of **lower 6** thoracic vertebrae
2. Thoracolumbar fascia
3. Iliac crest

Insertion

Bicipital groove of humerus
*Also known as intertubercular groove

Nerve supply

Nerve ≫ Dorsal thoracodorsal nerve.

Root ≫ (**C6,7,8**) From **poste**rior cord of brachial plexus.
*Also called nerve to latissimus dorsi

Action

1. **Ex**tension
2. **Add**uction
3. **M**edial rotation
   " **of humerus** "
   *(arm,shoulder joint)

MUSCLES OF THE BACK (Intermediate group)

- **Intermediate group is separated from the deep group by (Thoracolumbar fascia)**
  *(A sheet of connective tissue covering or binding together body structures).

Serratus Posterior superior

Action ≫ **Rib** elevator

- contributes in deep **ins**piration

Serratus Posterior inferior

Action ≫ **Rib** depressor

- contributes in forced **ex**piration

Nerve supply

Nerve ≫ **Ant**erior rami of Thoracic spinal nerve

Serratus Posterior inferior

Serratus Posterior superior

MUSCLES OF THE BACK (Deep group)

Erector spinae

Extend from sacrum to skull.

The largest muscle of this group, which is formed of **3** vertical columns from (**Lateral** ≫ **Medial**) :

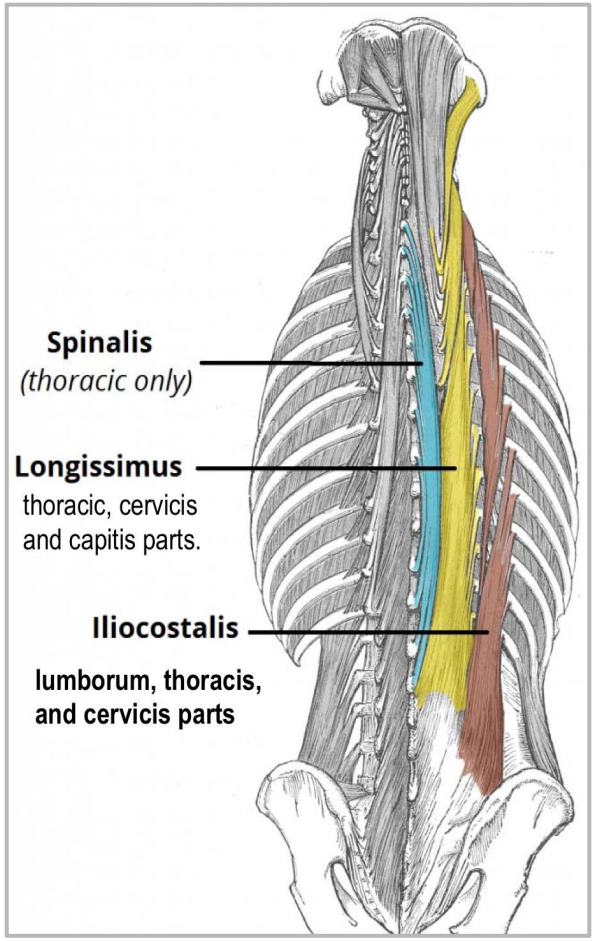
1. **Iliocostalis**
2. **Longissimus**
3. **Spinalis**

Nerve supply

Nerve ≫ **Posterior** rami of spinal nerves

Action

Include **Extensor** and **Rotators** of head & vertebral column.

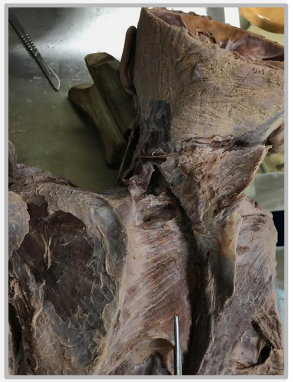


Review

Levator Scapulae≫

Rhomboid Minor≫

Rhomboid Major≫



Trapezius≫

Latissimus Dorsi≫

Auscultatory Triangle≫

Erector Spinae≫

Serratus Posterior Superior≫

Serratus Posterior Inferior≫

	Muscle name	Origin	Insertion	Nerve supply	Actions
1.	**Trapezius**	Occipital bone spinous processes of **C7 - T12**	**Lateral** ⅓ of clavicle + acromion and spine of scapula	Spinal part of **accessory** (**11**th cranial) nerve	**Rotation of scapula during abduction of humerus above horizontal.** >90 degree horizontal 1. Upper fibers: elevate scapula. 2. Middle fibers: retract scapula. 3. Lower fibers: depress scapula
2.	**Levator scapulae**	Cervical transverse process **C1-4**	**Medial** border of scapula	**Nerve ≫ Dorsal** scapular nerve. **Root ≫** From root of brachial plexus **(C5)**	**Elevates scapula**
3.	**Rhomboid minor**	Thoracic spines **T2 to T5**		**Nerve ≫ Dorsal** scapular nerve. **Root ≫** From root of brachial plexus (**C5**)	**Retract scapula**
4.	**Rhomboid major**	Spines of **C7 & T1**			
5.	**Latissimus dorsi**	1. Spine of **lower 6** thoracic vertebrae 2. Thoracolumbar fascia 3. Iliac crest	Bicipital groove of humerus	**Nerve ≫ Dorsal** thoracodorsal nerve. **Root ≫** (**C6,7,8**) From **poste**rior cord of brachial plexus.	**Extension**, **Adduction**, **Medial rotation** " **of humerus** "
6.	**Serratus Posterior superior**	-	-	**Nerve ≫ Ant**erior rami of Thoracic spinal nerve	**Rib elevator "contributes in deep inspiration"**
7.	**Serratus Posterior inferior**	-	-		**Rib depressor "contributes in forced expiration"**
8.	**Erector spinae**	-	-	**Nerve ≫ Poste**rior rami of spinal nerves	**Extensor and Rotators of head & vertebral column.**

Helpful videos |

- We made this video for you

https://drive.google.com/file/d/1XhK1_KHUd7dyDy52BJBBCpfVkb5PDq5j/view?usp=sharing

- Trapezius muscle

https://youtu.be/dCjs-Nshn7A

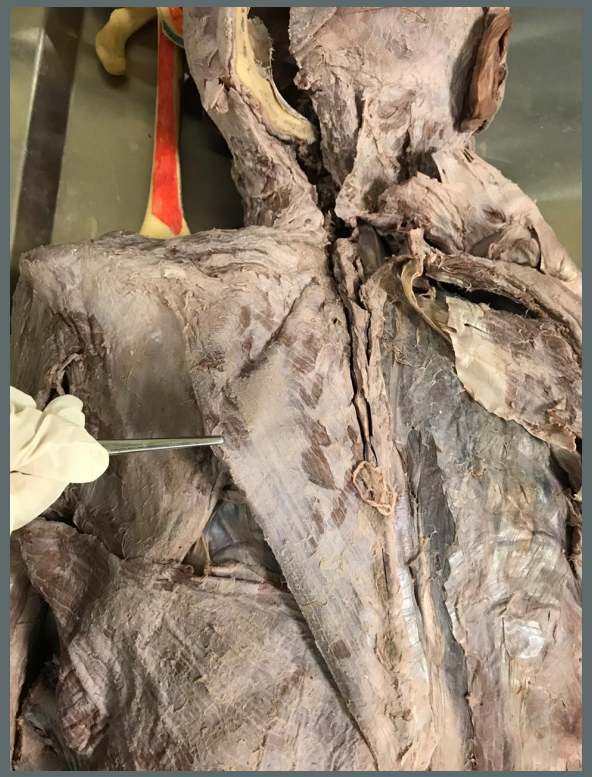
- Serratus Posterior superior and inferior

https://youtu.be/i7g5xis0kwY

https://youtu.be/nYknmvC9KJY

- Muscles of the back

https://youtu.be/lfiorcWqc_U



Questions |

- Identify the marked area?
- state the rest of superficial muscles?
- Levator Scapula is supplied by what nerve?
- the Erector spinae has 3 vertical columns

  what are they?

1- trapezius
2- levator scapulae, rhomboid major, rhomboid minor, and Latissimus dorsi
3-dorsal scapular nerve. From root of brachial plexus (C5)
4-iliocostalis, Longissimus, and spinalis

Muscles of the Upper Limb

Muscles of the Upper Limbs

Muscles of the Shoulder

Deltoid

- Nerve Supply: Axillary Nerve

Supraspinatus

- Nerve Supply: **Supra**scapular Nerve

Muscles of the Upper Limbs

Muscles of the Shoulder

Infraspinatus

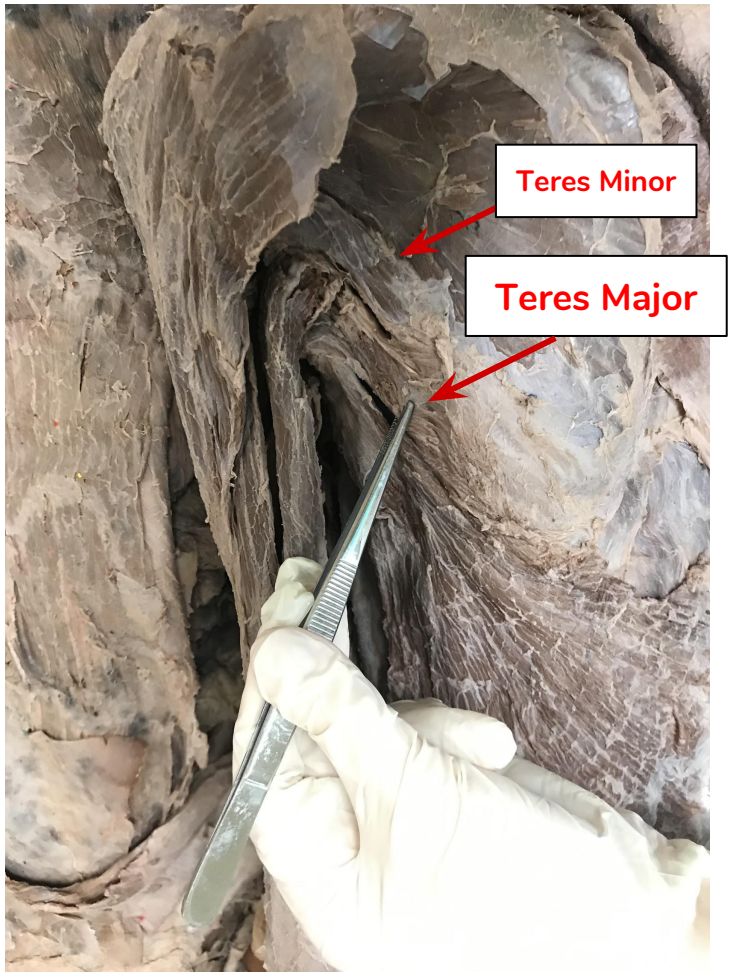
- Nerve Supply: **Supra**scapular Nerve

Teres Minor

- Nerve Supply: Axillary Nerve

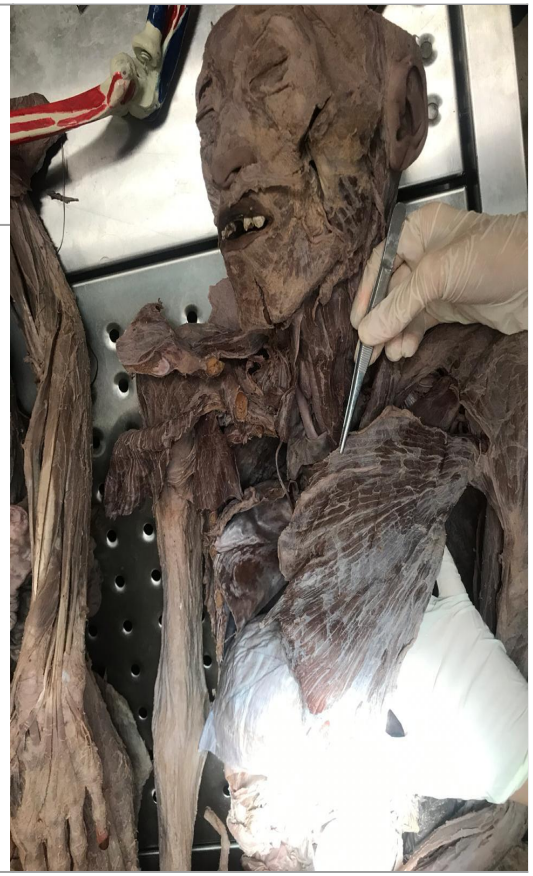
Teres Major

- Nerve Supply: Lower **Sub**scapular Nerve



Muscles of the Upper Limbs

Muscles of the Pectoral Region

Pectoralis Major	
• Nerve Supply: Medial and Lateral Pectoral Nerve	

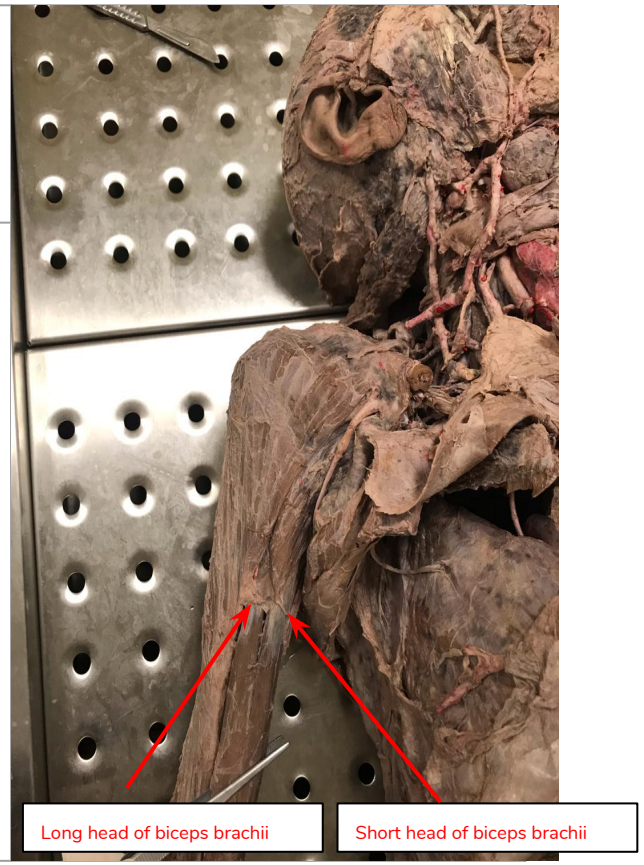
Pectoralis Minor	
• Nerve Supply: Medial Pectoral Nerve	

Muscles of the Upper Limbs

Muscles of the Arm

Biceps brachii

- Nerve Supply: Musculocutaneous Nerve

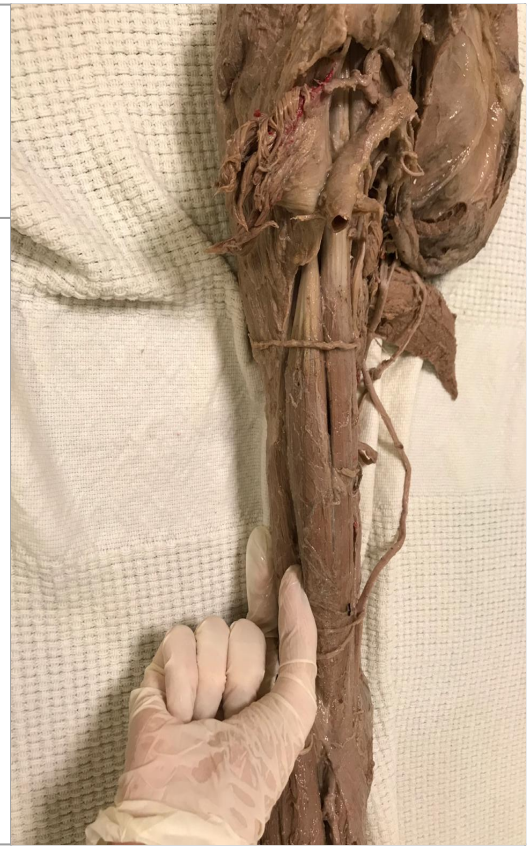


Coracobrachialis

- Nerve Supply: Musculocutaneous Nerve

Muscles of the Upper Limbs

Muscles of the Arm

Brachialis	
• Nerve Supply: Musculocutaneous Nerve (Medial Part) & Radial Nerve (Lateral Part)	

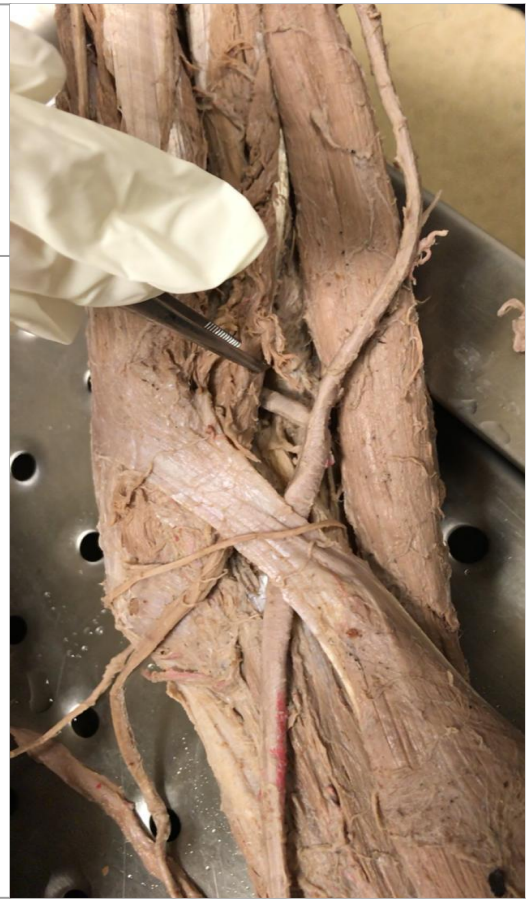
Triceps	
• Nerve Supply: Radial Nerve	

Muscles of the Upper Limbs

Muscles of the Forearm (Anterior)

Pronator Teres

- Nerve Supply: Median Nerve



Flexor Carpi Radialis

- Nerve Supply: Median Nerve

***You can check the video at the end from our lab**

Muscles of the Upper Limbs

Muscles of the Forearm (Anterior)

Flexor Carpi Ulnaris	
• Nerve Supply: Ulnar Nerve	

Palmaris Longus	
• Nerve Supply: Median Nerve	

***You can check the video at the end from our lab**

Muscles of the Upper Limbs

Muscles of the Forearm (Anterior)

Flexor Digitorum Superficialis
• Nerve Supply: Median Nerve.

Flexor Digitorum Profundus
• Nerve Supply: Anterior interosseous Nerve (branch of the median nerve), medial half is supplied by the ulnar nerve

***You can check this video from our lab for flexor**
https://drive.google.com/file/d/1V42XUX73MxsSuHiI3Ws3_yWnmd786waK/view?usp=drivesdk

Muscles of the Upper Limbs

Muscles of the Forearm (Extensors)

Extensor Carpi Radialis Longus	
• Nerve Supply: Radial Nerve.	

Extensor Carpi Radialis Brevis	
• Nerve Supply: Deep branch of radial nerve. (Posterior interosseous nerve)	

***You can check the video at the end from our lab**

Muscles of the Upper Limbs

Muscles of the Forearm (Extensors)

Extensor Digiti Minimi

- Nerve Supply: Deep branch of radial nerve. (Posterior interosseous nerve)

Extensor Digitorum

- Nerve Supply: Deep branch of radial nerve. (Posterior interosseous nerve)

***You can check the video at the end from our lab**

Muscles of the Upper Limbs

Muscles of the Forearm (Extensors)

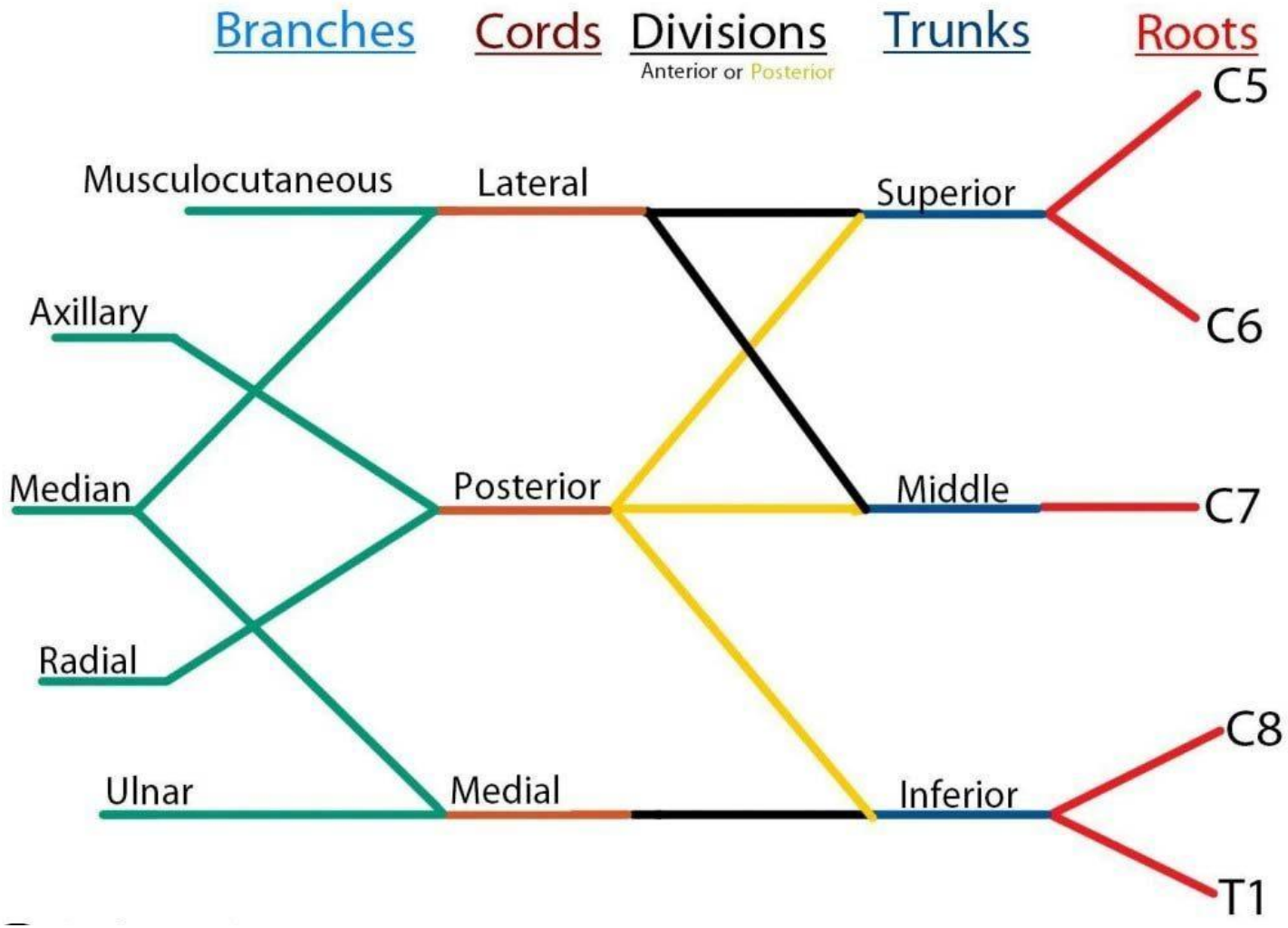
Extensor Carpi Ulnaris	
• Nerve Supply: Deep branch of radial nerve. (Posterior interosseous nerve)	

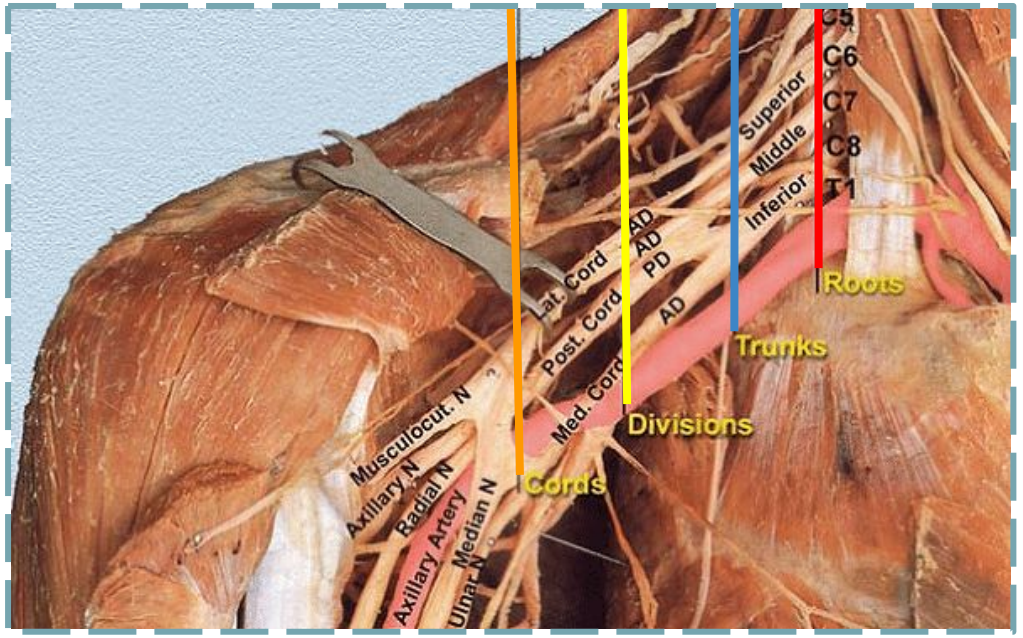
Brachioradialis	
• Nerve Supply: Radial nerve	

***You can check this video from our lab for extensor**
https://drive.google.com/file/d/1HGv5aoObkwjv6LGPTvmIoWyBS1l0y_nx/view?usp=drivesdk

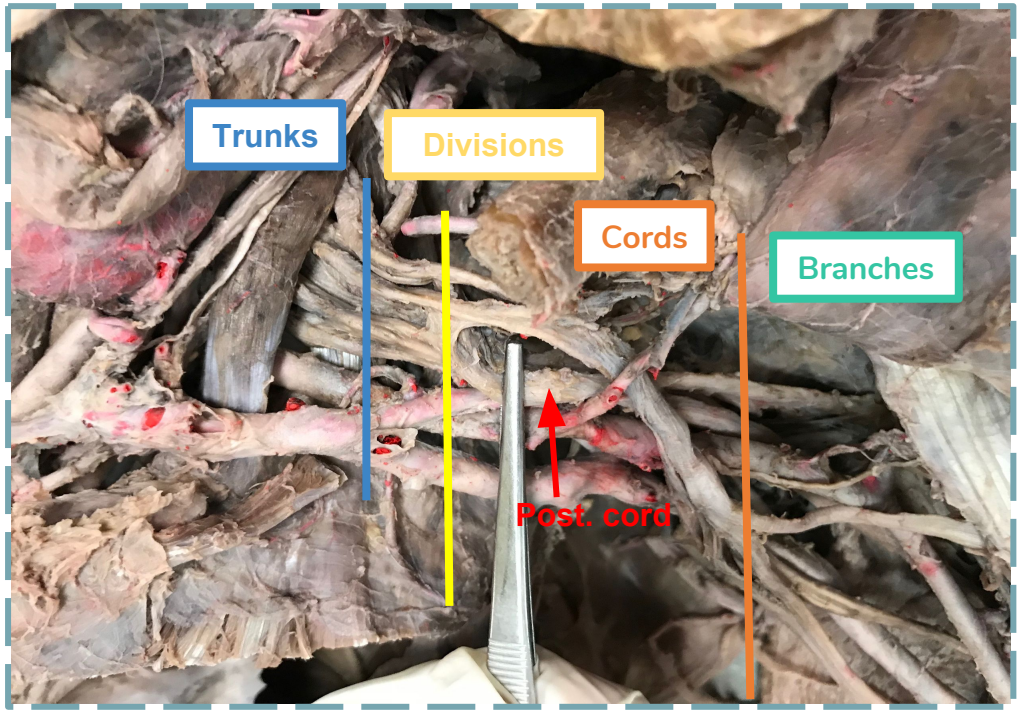
Nerves of the Upper Limb

Brachial Plexus



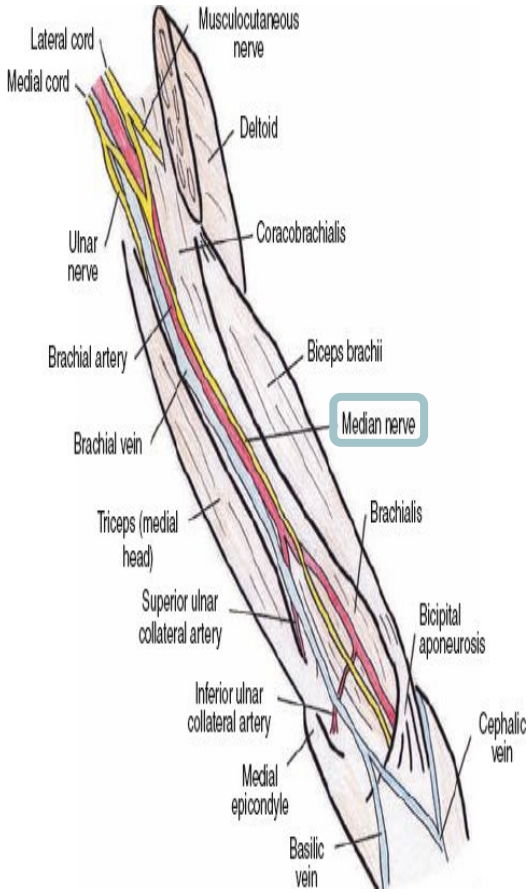


Right shoulder

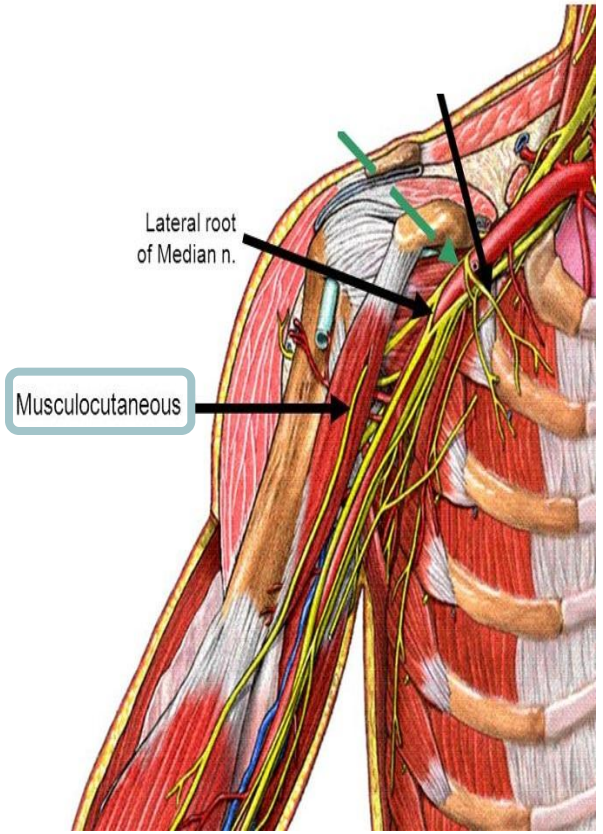
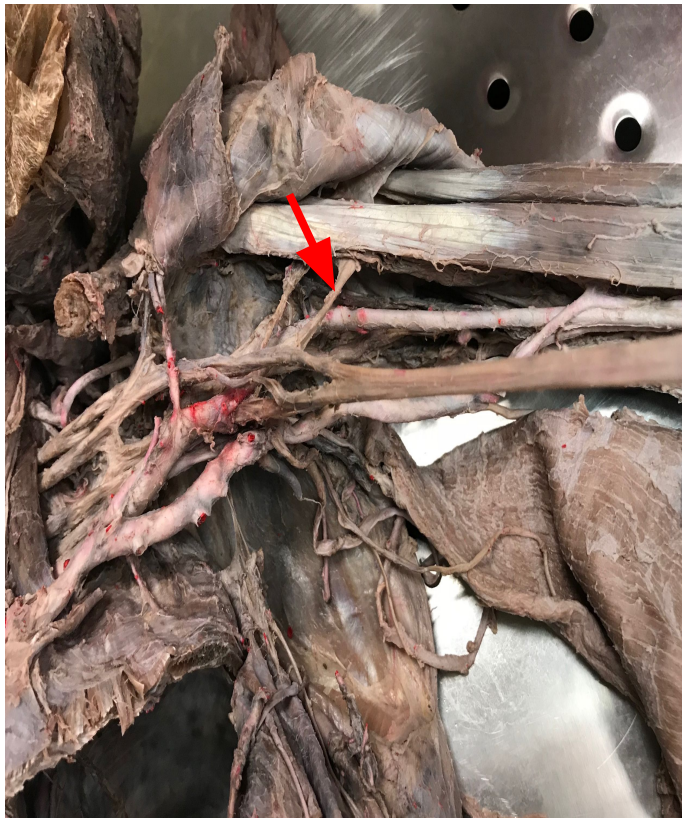
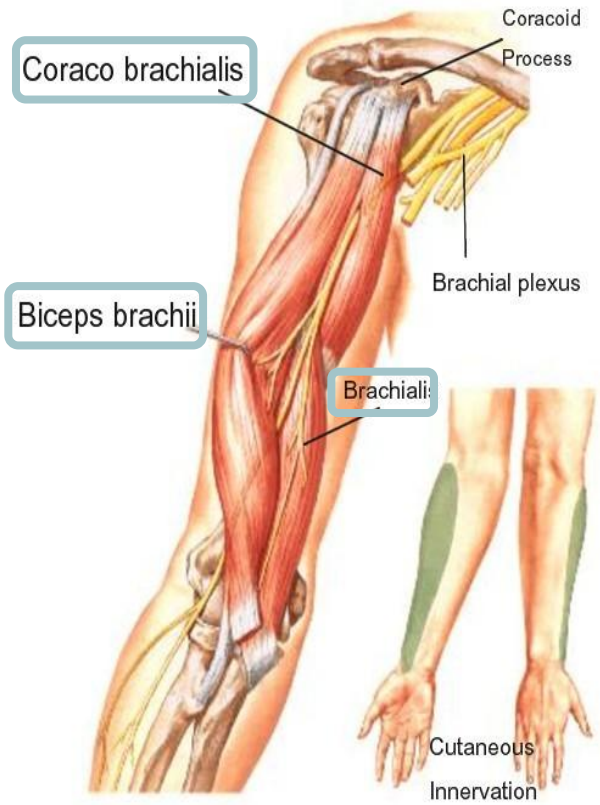


Left shoulder

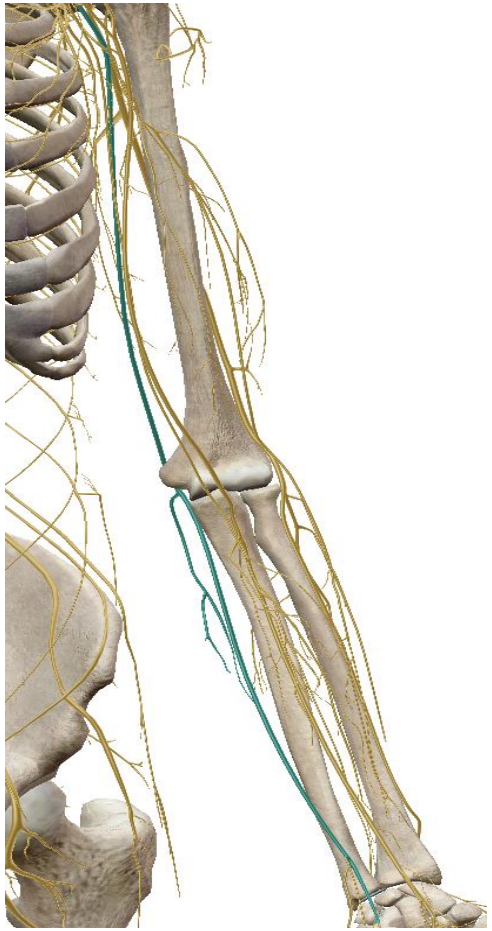
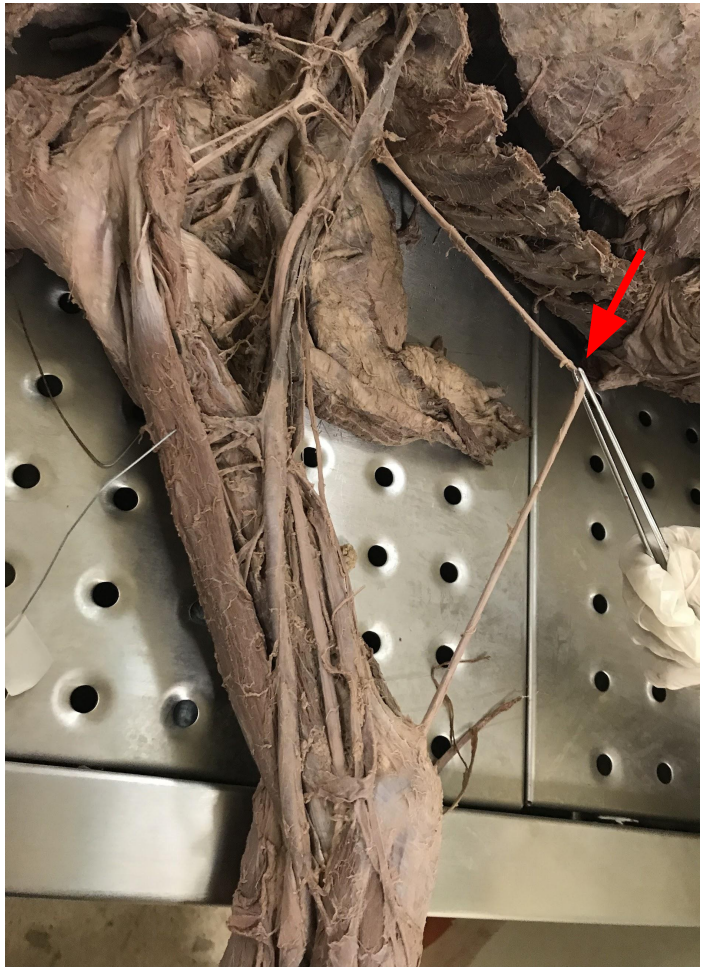
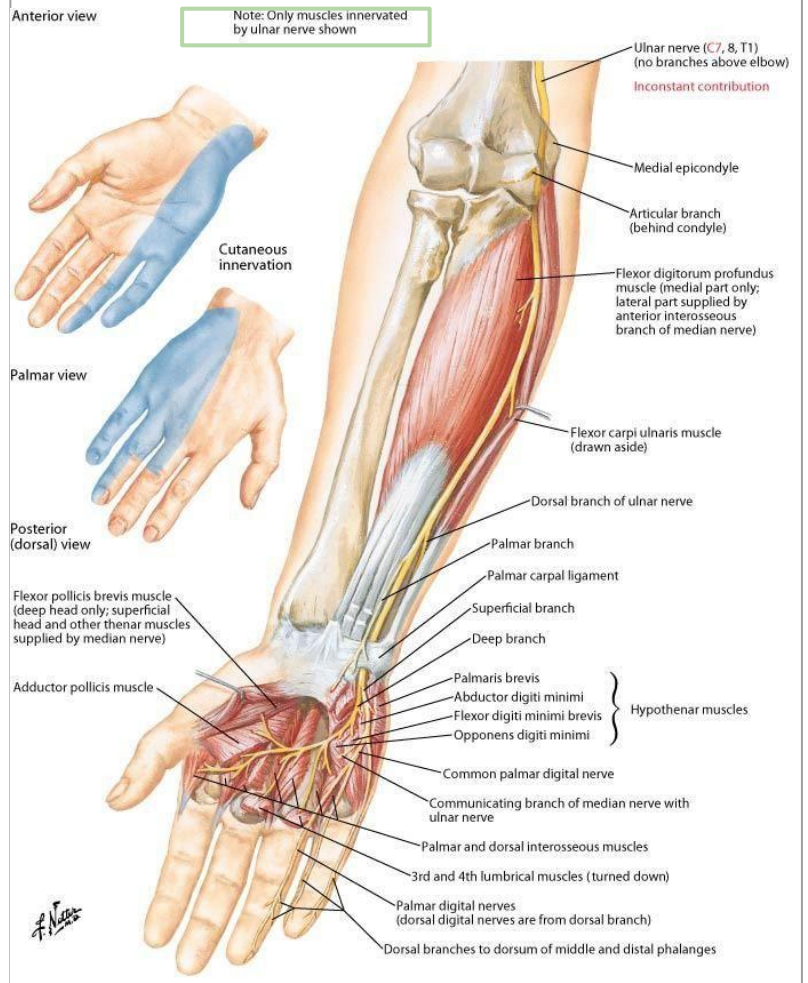
Median Nerve

Roots	Picture	Lab picture	Innervation
• **cord:** **medial & lateral (called medial & lateral roots)** • **roots:** **C5, 6, 7, 8, T1**		**Y** shaped 	**Forearm**: it innervates most of the muscles in the anterior compartment of the forearm **(Except for the Flexor Carpi Ulnaris and the medial half of the Flexor Digitorum Profundus)** **Hand**: • Three thenar eminence muscles associated with the thumb. • Lateral two lumbrical muscles associated with movement of the index and middle finger. • Skin over the palmar surface of the lateral three and one- half digits and over the lateral side of the palm and middle of the wrist.

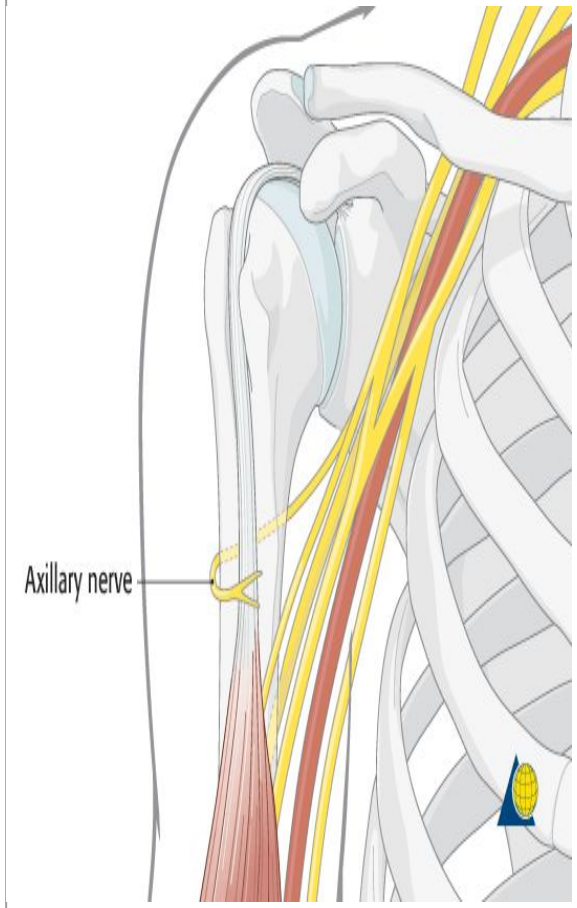
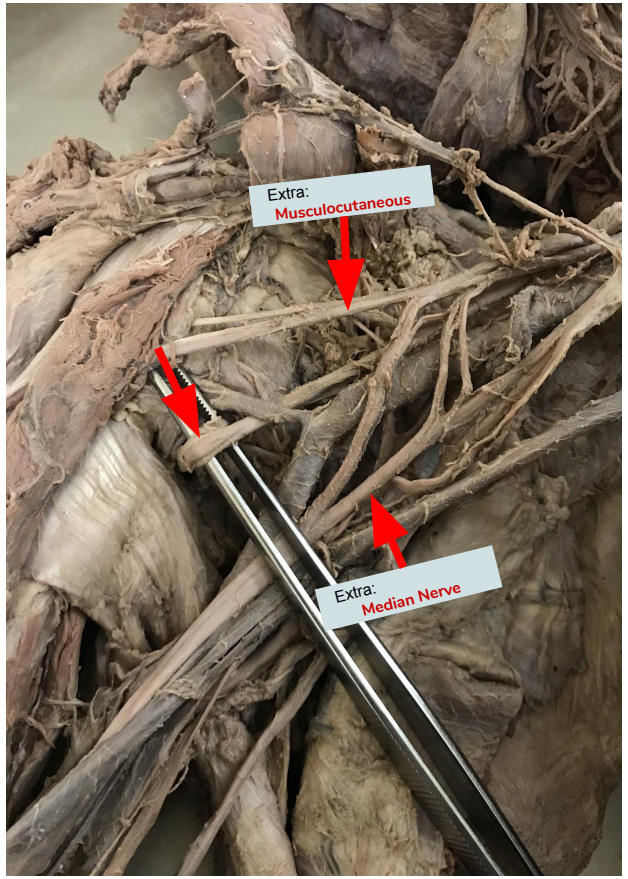
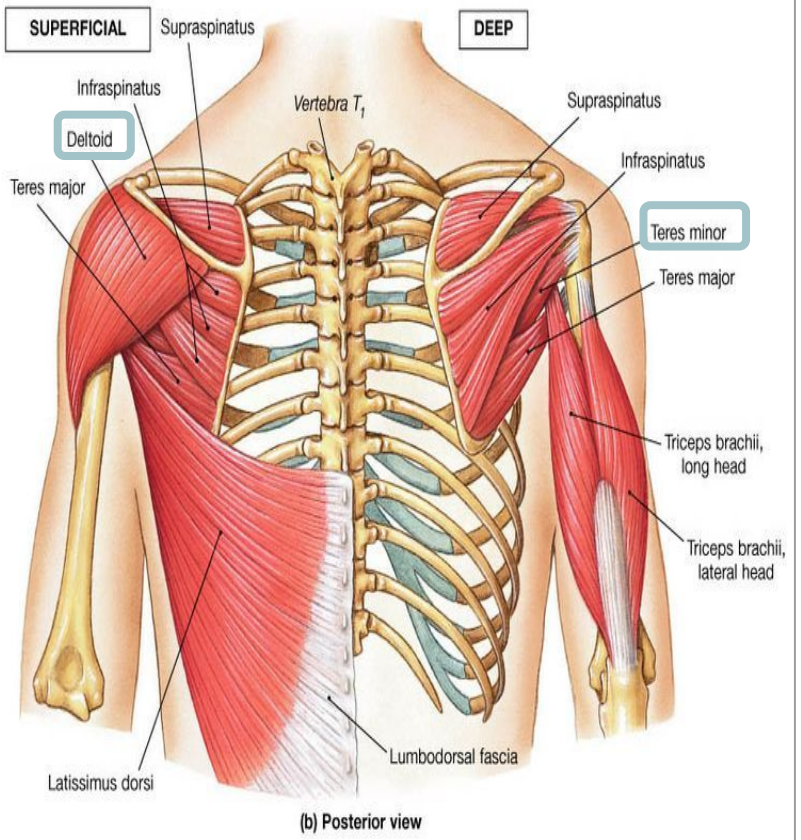
Musculocutaneous Nerve

Roots	Picture	Lab picture	Innervation
• **Lateral cord** • **roots: C5, C6,C7**			

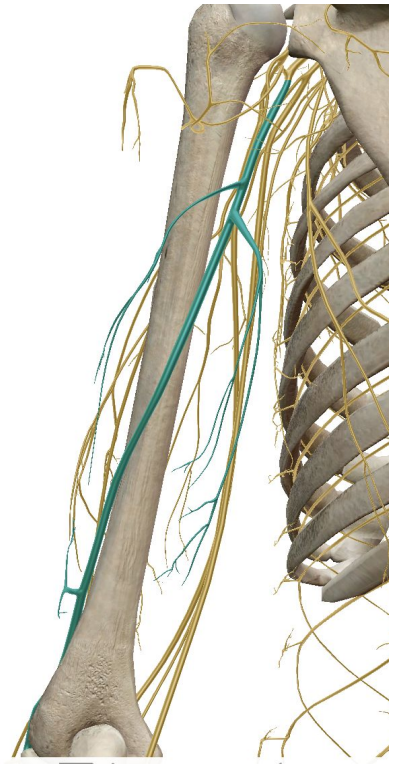
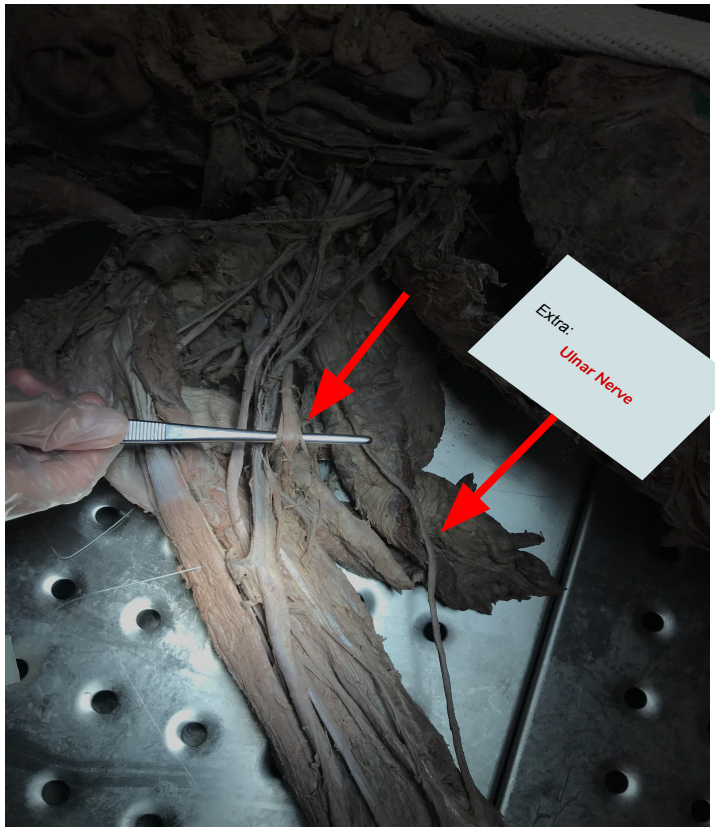
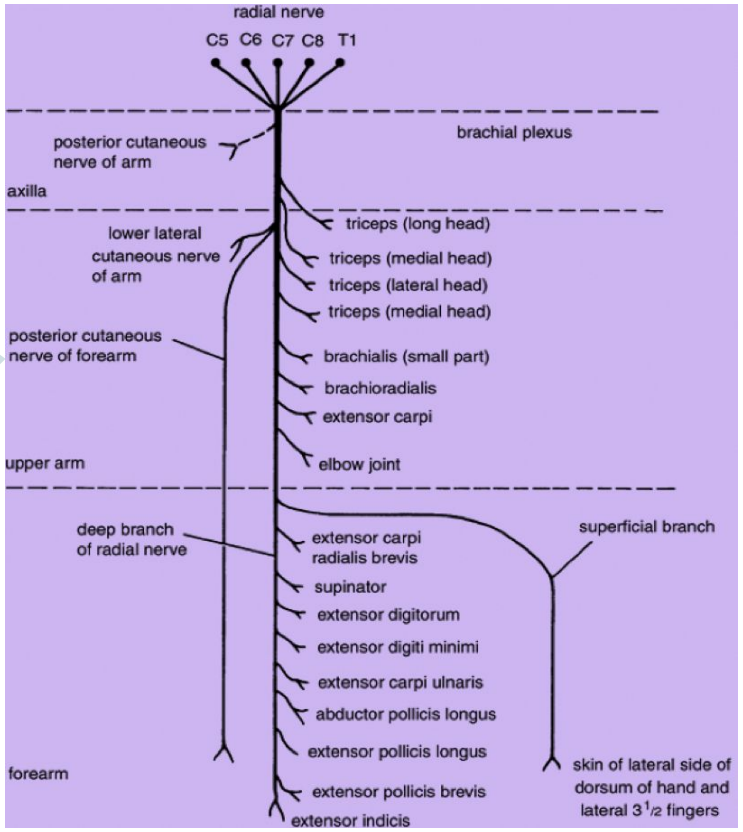
Ulnar Nerve

Roots	Picture	Lab picture	Innervation
• Cord: medial cord • roots: C8-T1			

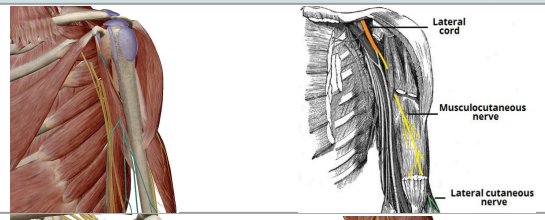
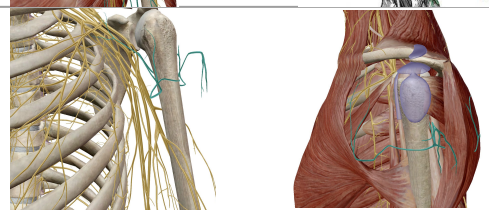
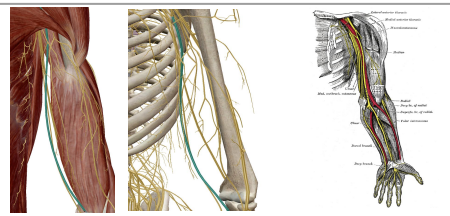
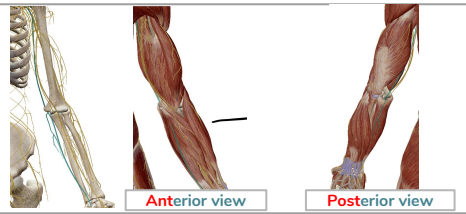
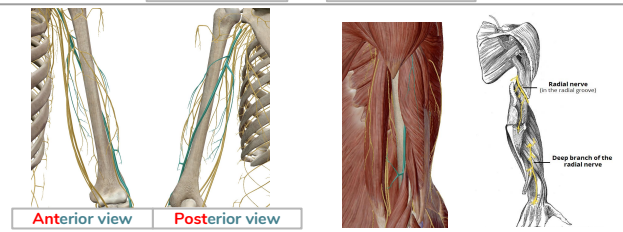
Axillary Nerve

Roots	Picture	Lab picture	Innervation
• Posterior Cord • roots: C5 , C6			

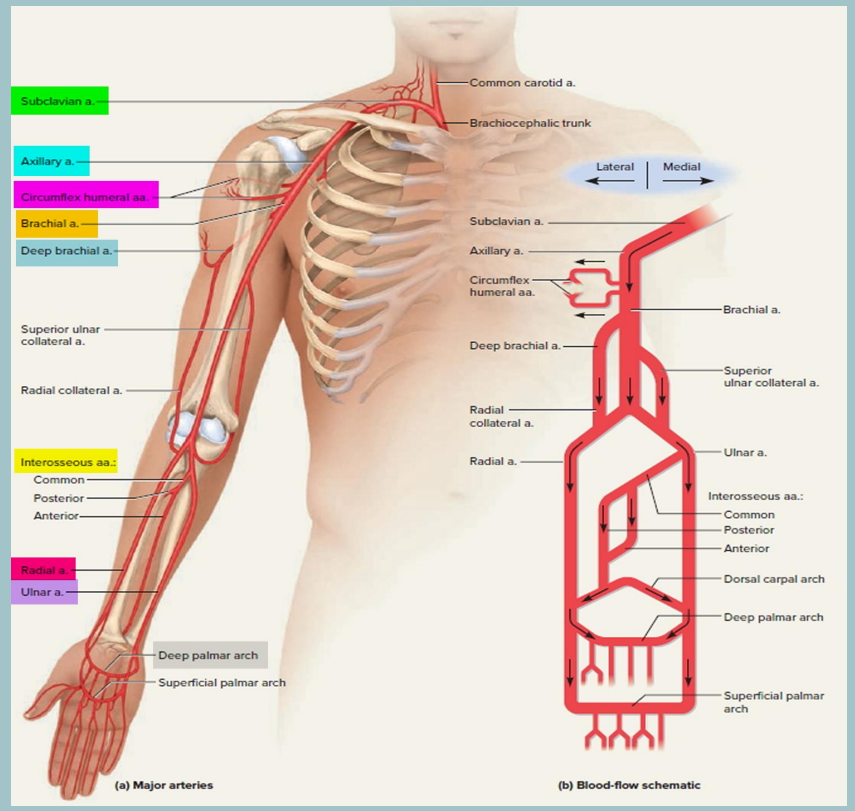
Radial Nerve

Roots	Picture	Lab picture	Innervation
• Cord: Posterior cord • roots: C5-T1			

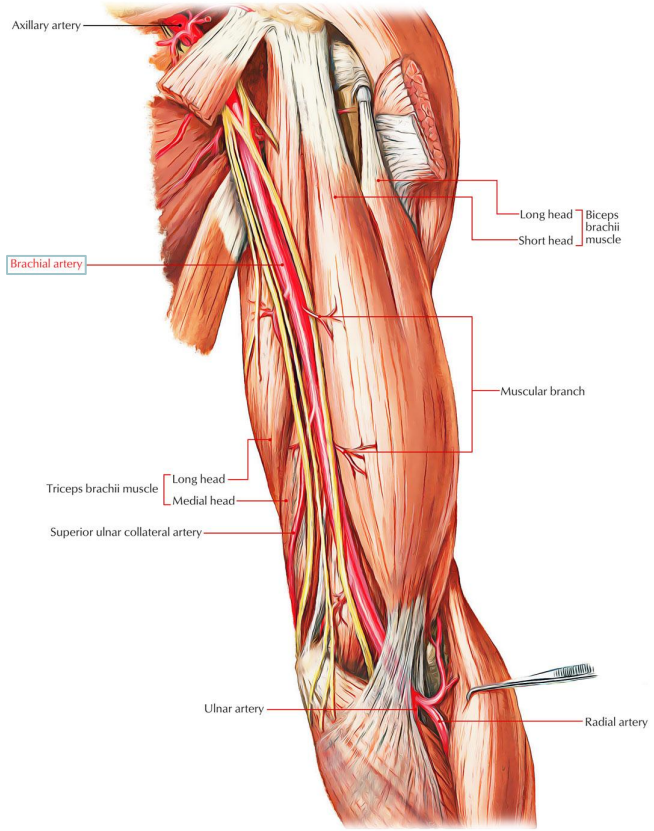
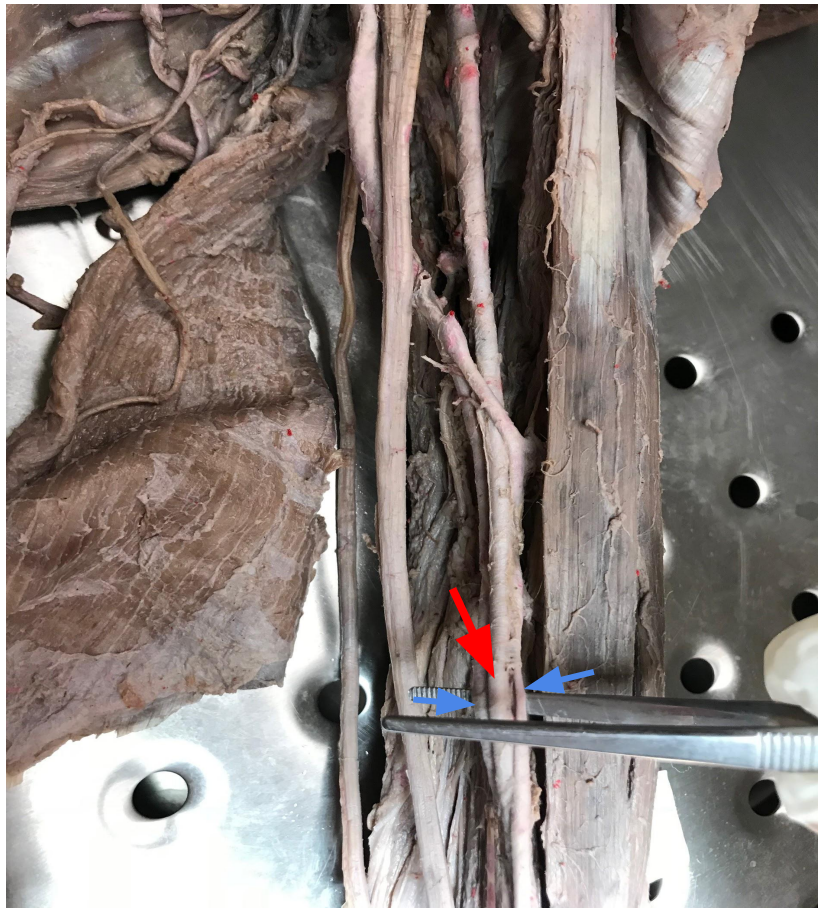
Review

Name	Picture	Roots	Muscles supply
Musculocutaneous nerve		C5 , C6,C7	• Biceps brachii • Brachialis • Coracobrachialis
Axillary nerve		C5 , C6	• Teres minor • Deltoid
Median nerve		C5, 6, 7, 8, T1	• ***Superficial layer:*** Pronator teres, flexor carpi radialis and palmaris longus. • ***Intermediate layer:*** Flexor digitorum superficialis. • ***Deep layer:*** Flexor pollicis longus, pronator quadratus, and the lateral half of the flexor digitorum profundus
Ulnar nerve		C8, T1	• ***Forearm:*** Flexor carpi ulnaris and Flexor digitorum profundus • ***Hand:*** Hypothenar muscles, Medial two lumbricals, Adductor pollicis, Palmar and dorsal interossei of the hand and Palmaris brevis
Radial nerve		C5, 6, 7, 8, T1	• ***Arm***: Triceps brachii, Anconeus, Brachioradialis, Extensor carpi radialis longus • ***Forearm***: Extensor carpi radialis brevis, Supinator • ***Hand***: Extensor digitorum, Extensor digiti minimi, Extensor carpi ulnaris, Abductor pollicis longus, Extensor pollicis brevis, Extensor pollicis longus, Extensor indicis

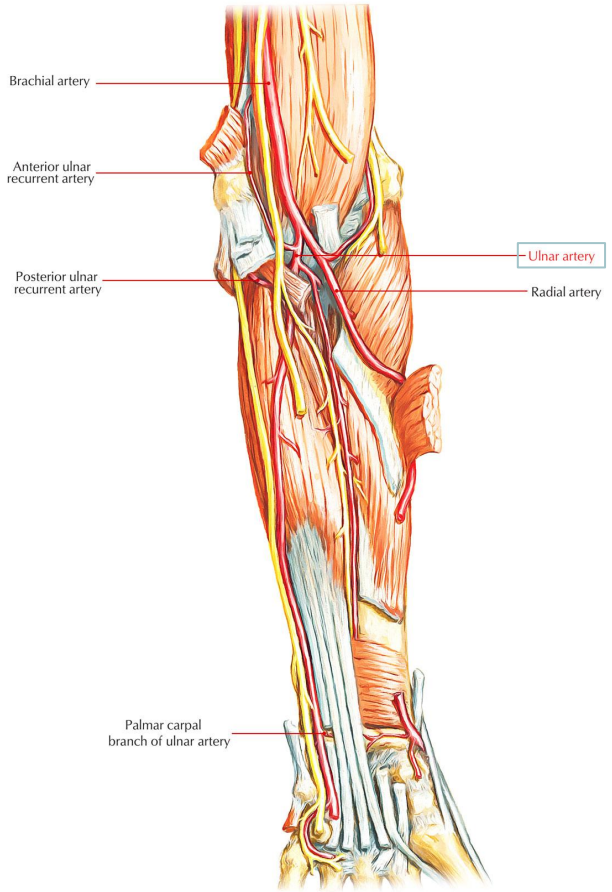
Vasculature of the Upper Limb



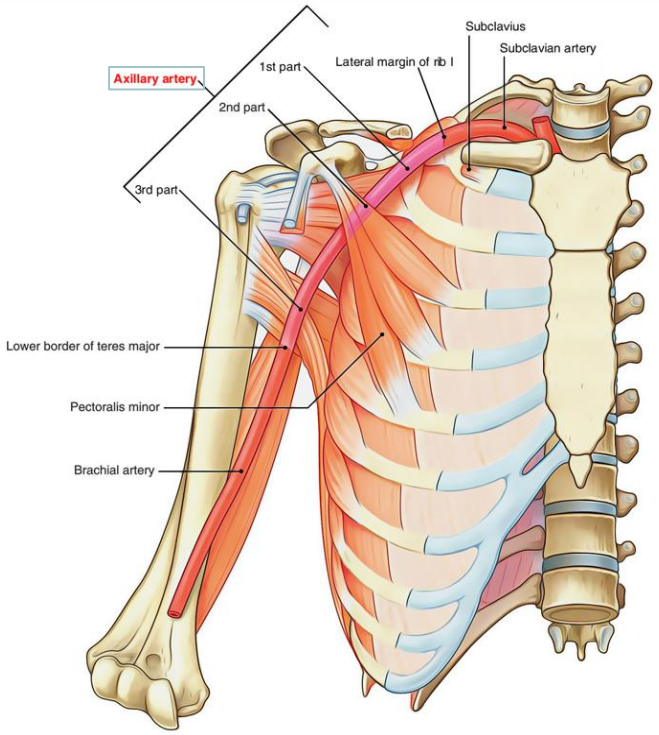
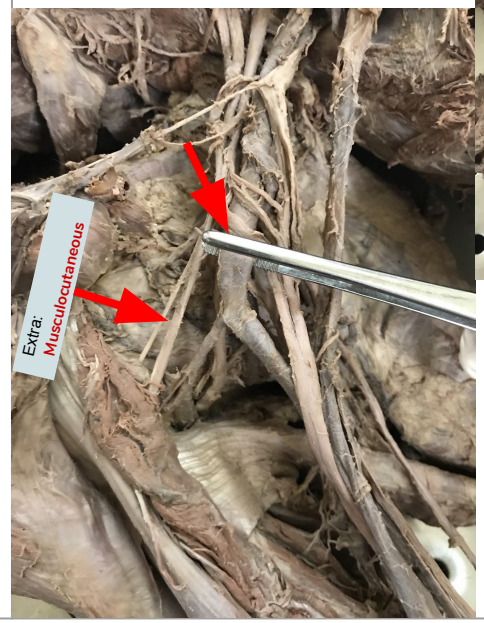
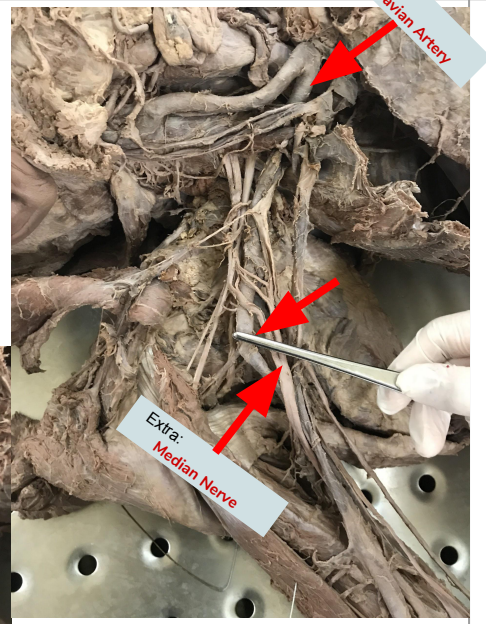
Brachial Artery

Picture	Lab picture	Notes
		• Is a continuation of the axillary artery at the lower border of teres major muscle. • Provides ***main arterial radial*** supply for the arm. • Terminates opposite neck of radius by dividing into ***radial & ulnar arteries.*** • Red: Brachial artery • Blue: venae comitantes

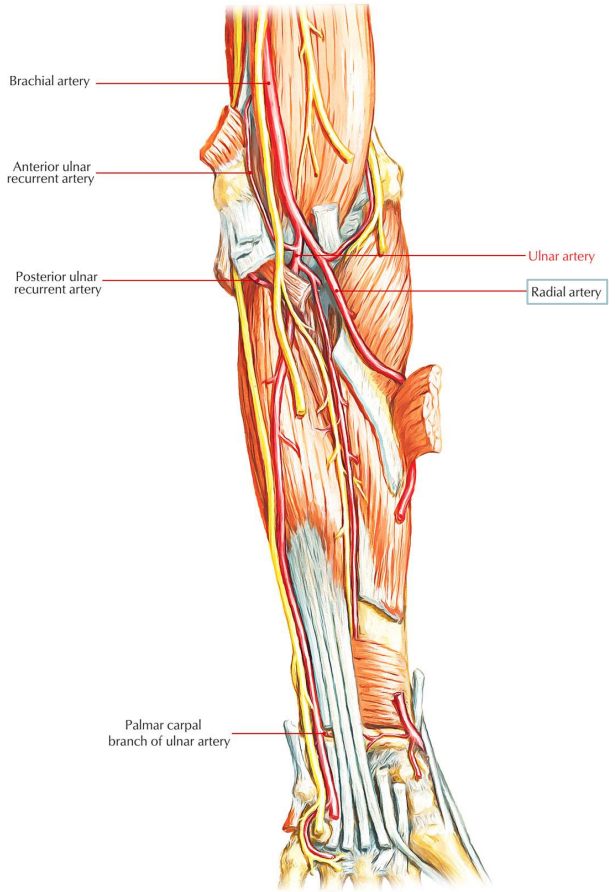
Ulnar Artery

Picture	Lab picture	Notes
		• The ***larger*** of the two terminal branches of the brachial artery. • Begins in the ***cubital fossa*** at the level of neck of radius • Enters the palm, in front of the ***flexor retinaculum*** with the ulnar nerve.

Axillary Artery

Picture	Lab picture	Notes
	 	• Is closely related to the cords of ***brachial plexus*** and their branches • Is crossed anteriorly by the pectoralis minor muscle, and is divided into three parts; ***1st, 2nd & 3rd.*** • Continues as <u>Brachial artery</u> at lower border of teres major muscle.

Radial Artery

Picture	Lab picture	Notes
		• The ***smaller*** of the two terminal branches of the brachial artery. • Begins in the ***cubital fossa*** at the level of neck of radius • Leaves the forearm by ***winding*** around the lateral aspect of the wrist to reach ***the dorsum*** of the hand. • Red: Radial artery • Blue: ulnar artery • Green: ulnar nerve

Muscles of the Lower Limb

Muscles of the Lower Limbs

Muscles of the Gluteal region

Gluteus Maximus

- Nerve supply: Inferior Gluteal nerve

Gluteus Medius

- Nerve supply: Superior Gluteal nerve

Piriformis

- Nerve supply: Anterior rami of S1 & S2

Obturator Internus

- Nerve supply: Nerve to Obturator Internus

Muscles of the Lower Limbs

Muscles of the Gluteal region

Superior Gemellus

- Nerve supply: Nerve to Obturator Internus

Inferior Gemellus

- Nerve supply: Nerve to Quadratus Femoris

Quadratus Femoris

- Nerve supply: Nerve to Quadratus Femoris

Muscles of the Lower Limbs

Muscles of the Thigh (Anterior)

Quadriceps Femoris

*Remember: When answering, write the muscle name + part of Quadriceps Femoris, for example, Rectus Femoris part of Quadriceps Femoris

Rectus Femoris

- Nerve supply: Femoral nerve

Vastus Intermedius

- Nerve supply: Femoral nerve

Vastus Medialis

- Nerve supply: Femoral nerve

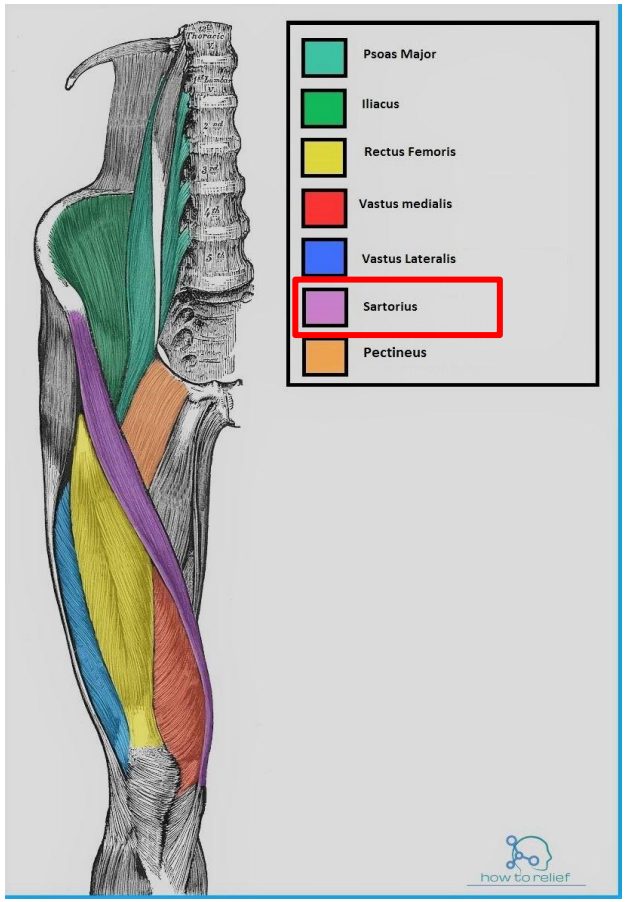
Vastus Lateralis

- Nerve supply: Femoral nerve

Muscles of the Lower Limbs

Sartorius (Anterior)

Nerve supply: Femoral nerve



Muscles of the Lower Limbs

Muscles of the Thigh (Medial)

Gracilis

- Nerve supply: Obturator nerve

Adductor Longus

- Nerve supply: Obturator nerve

Adductor Brevis

- Nerve supply: Obturator nerve

Adductor Magnus

- Nerve supply: Obturator nerve

Muscles of the Lower Limbs

Muscles of the Thigh (Posterior)

Biceps Femoris (long head)	
• Nerve supply: Tibial part of the sciatic nerve	

Biceps Femoris (short head)	
• Nerve supply: common peroneal part of the sciatic nerve	

Muscles of the Lower Limbs

Muscles of the Thigh (Posterior)

Semitendinosus

- Nerve supply: Tibial part of the sciatic nerve

Semimembranosus

- Nerve supply: Tibial part of the sciatic nerve

Muscles of the Lower Limbs

Muscles of the Leg (Anterior)

Tibialis anterior

- Nerve supply: Deep Peroneal Nerve

Extensor digitorum longus

- Nerve supply: Deep Peroneal Nerve

Muscles of the Lower Limbs

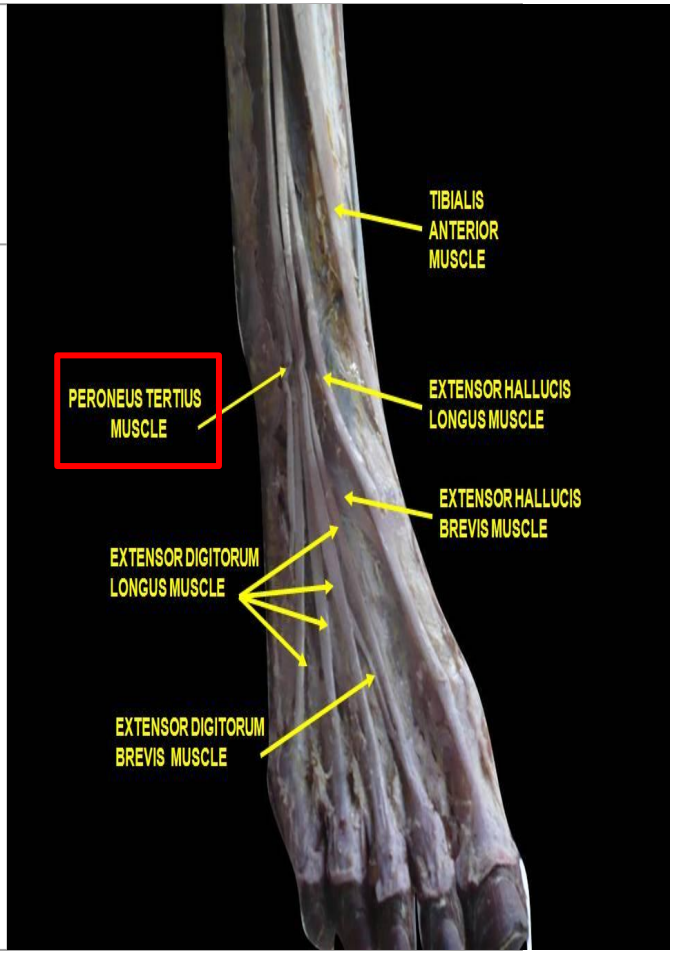
Muscles of the Leg (Anterior)

Extensor hallucis longus

- Nerve supply: Deep Peroneal Nerve

Peroneus tertius

- Nerve supply: Deep Peroneal Nerve

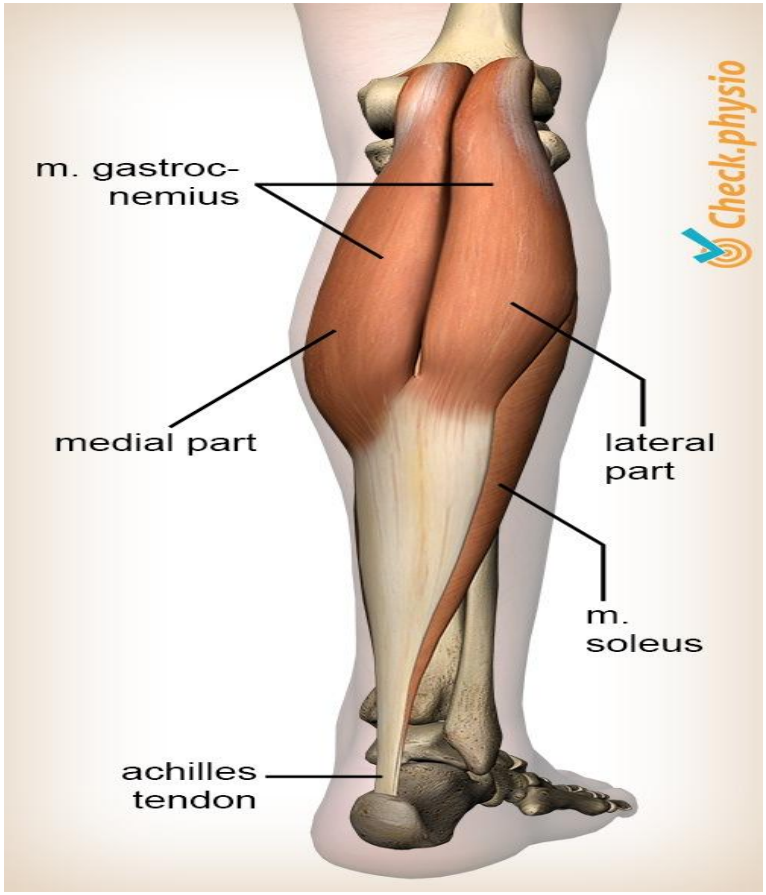


Muscles of the Lower Limbs

Muscles of the Leg (Posterior)

Gastrocnemius	
• Nerve supply: Tibial Nerve	

Soleus	
• Nerve supply: Tibial Nerve	



*Plantaris —> too small + doctor did not focus on it

Muscles of the Lower Limbs

Muscles of the leg (Posterior)

Tibialis Posterior

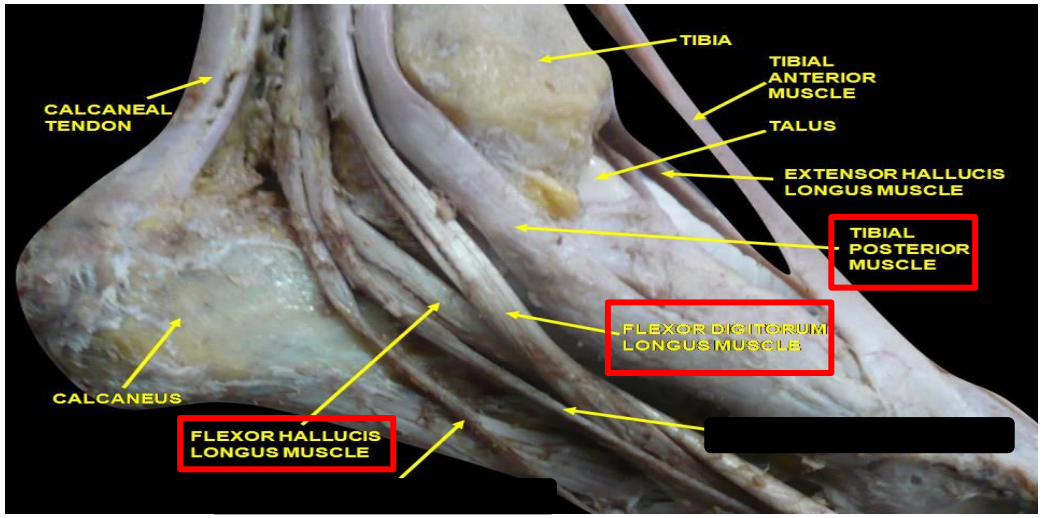
- Nerve supply: Tibial nerve

Flexor Digitorum Longus

- Nerve supply: Tibial nerve

Flexor Hallucis Longus

- Nerve supply: Tibial nerve



Muscles of the Lower Limbs

Muscles of the Leg (Lateral)

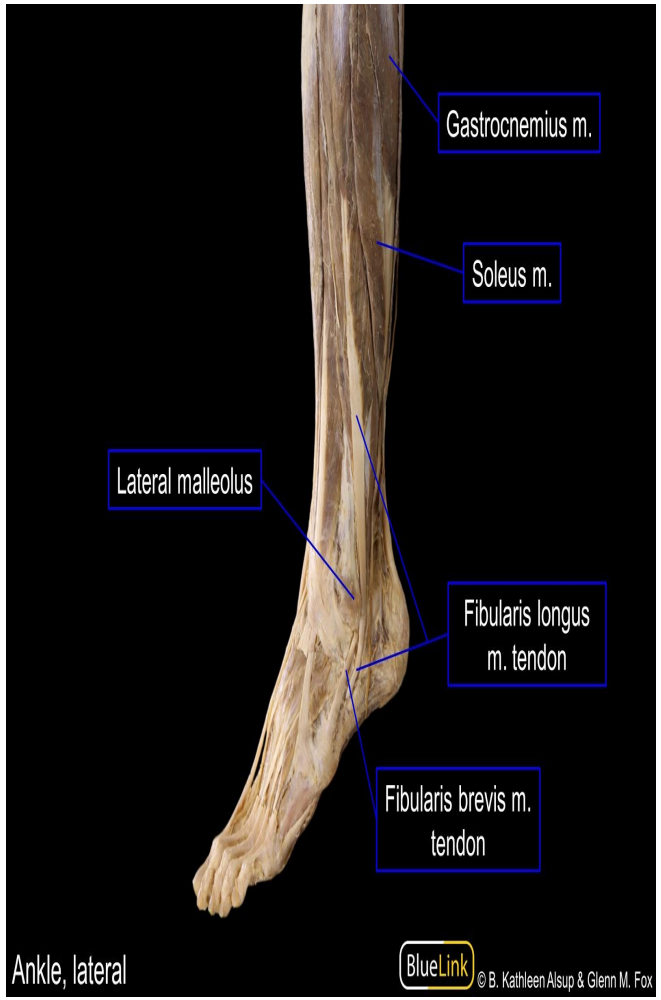
*also called fibularis longus and fibularis brevis

peroneus longus (PL) ★

- nerve supply: superficial peroneal nerve (musculocutaneous nerve)

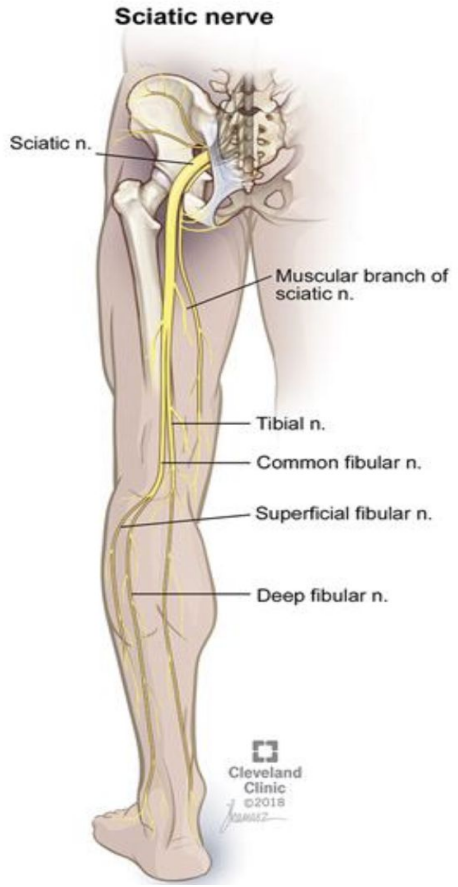
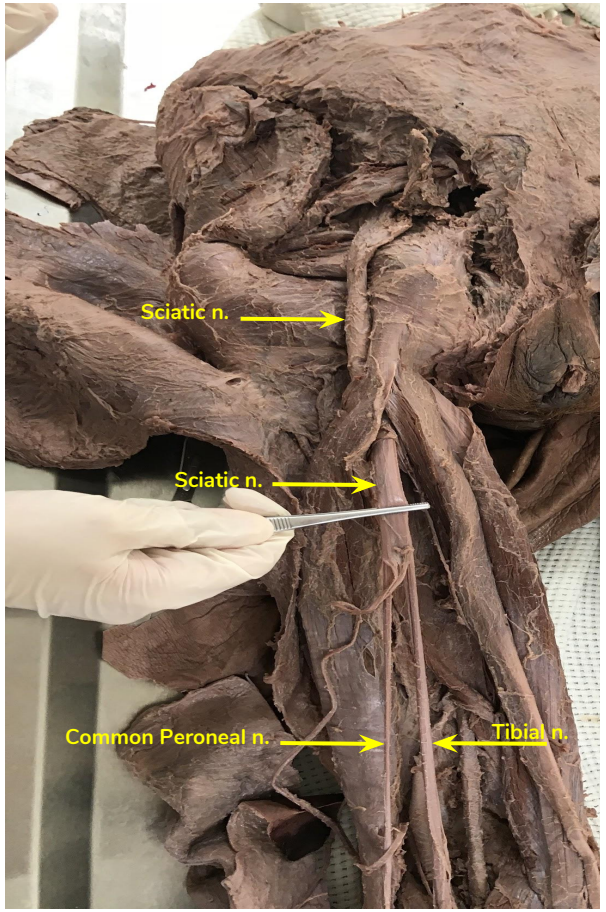
Peroneus brevis (Pb) ★

- Nerve supply: superficial peroneal nerve (musculocutaneous nerve)

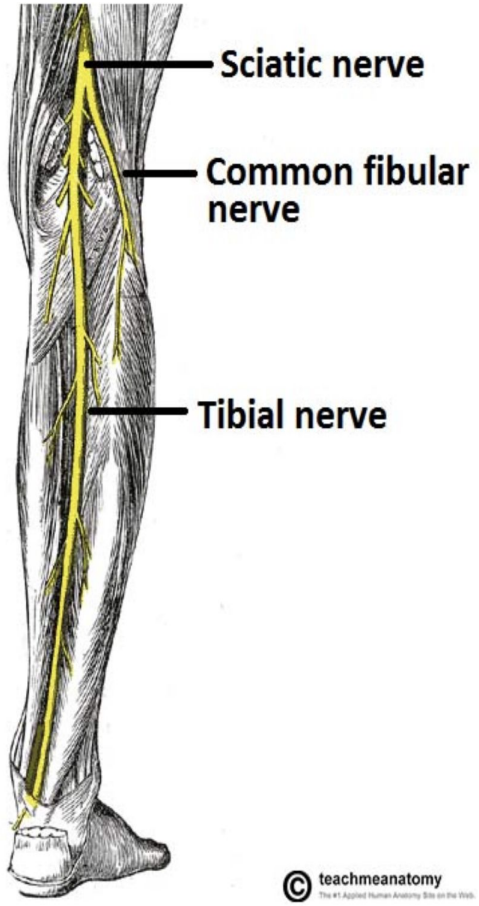
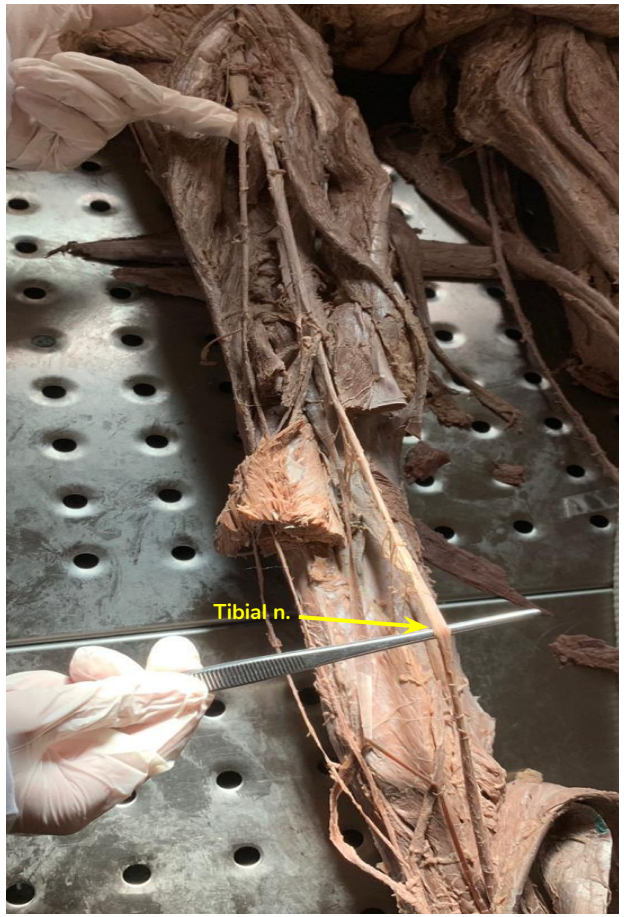


Nerves of the Lower Limb

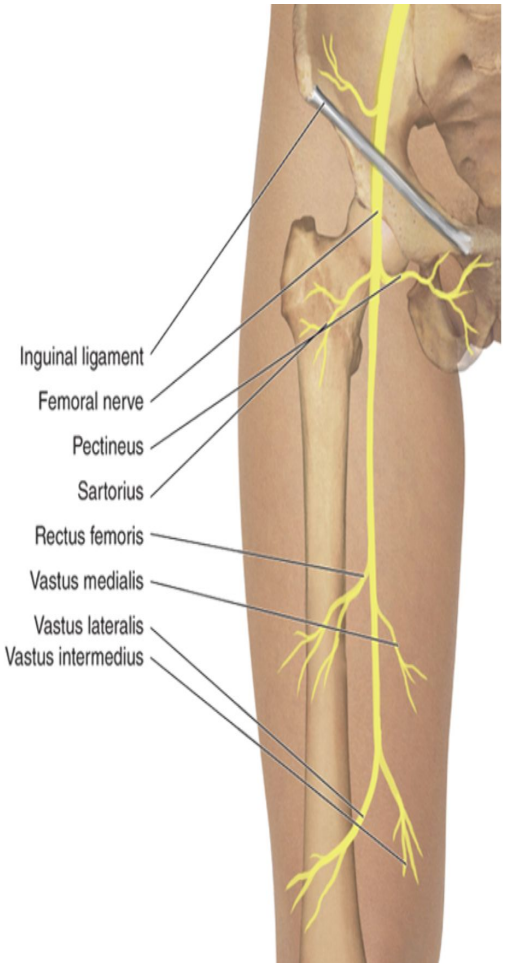
Sciatic Nerve

Roots	Picture	Lab picture	Innervation
L4 L5 S1 S2 S3			**Posterior Compartment:** 1- Hamstring part of Adductor Magnus 2-Biceps Femoris. 3- Semitendinosus. 4-Semimembranosus. **All muscle below the knee (leg,foot)**

Tibial Nerve

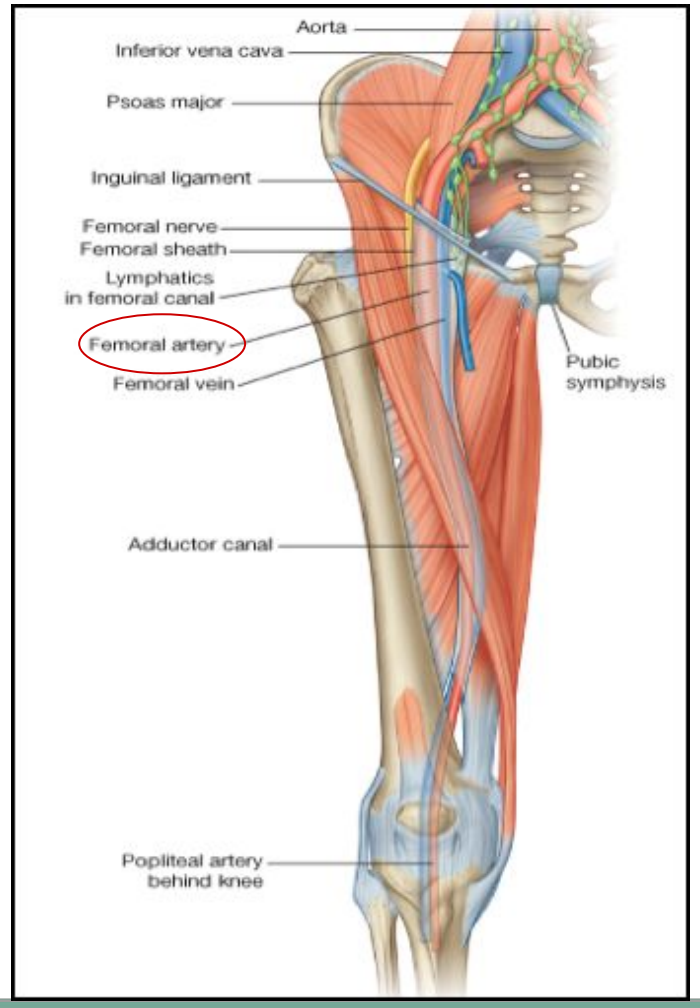
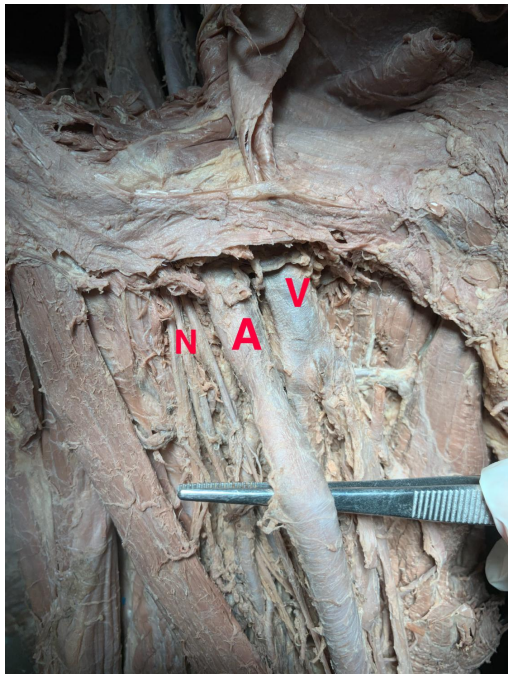
Roots	Picture	Lab picture	Innervation
			-Muscles of posterior compartment of leg -Intrinsic muscles of sole

Femoral Nerve

Roots	Picture	Lab picture	Innervation
L2 L3 L4		Femoral VAN (from medial to lateral) V= vein, A= artery, N= nerve 	**Anterior Compartment:** 1-Quadriceps femoris (Rectus femoris,Vastus intermedius,Vastus medialis,Vastus lateralis) 2-Sartorius 3-Pectineus 4-Iliacus

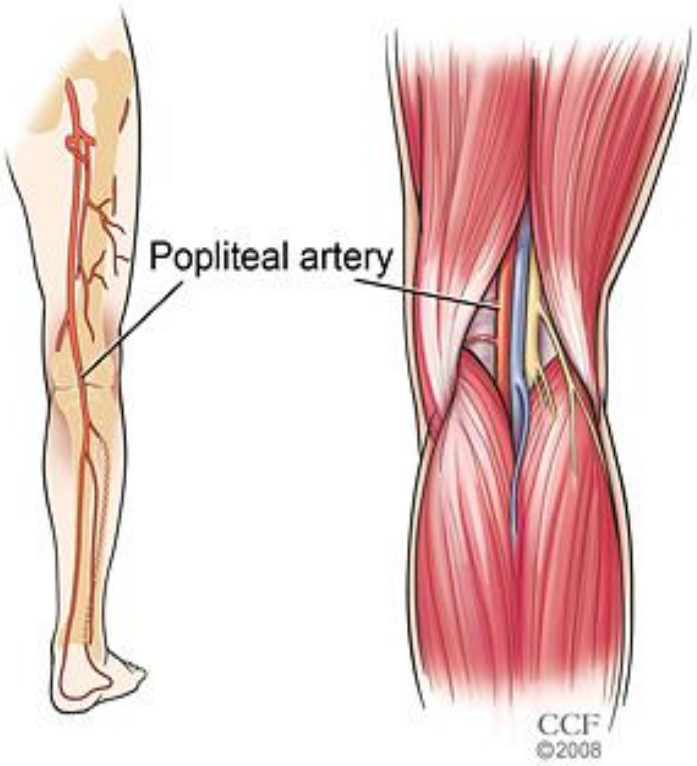
Vasculature of the Lower Limb

Femoral Artery

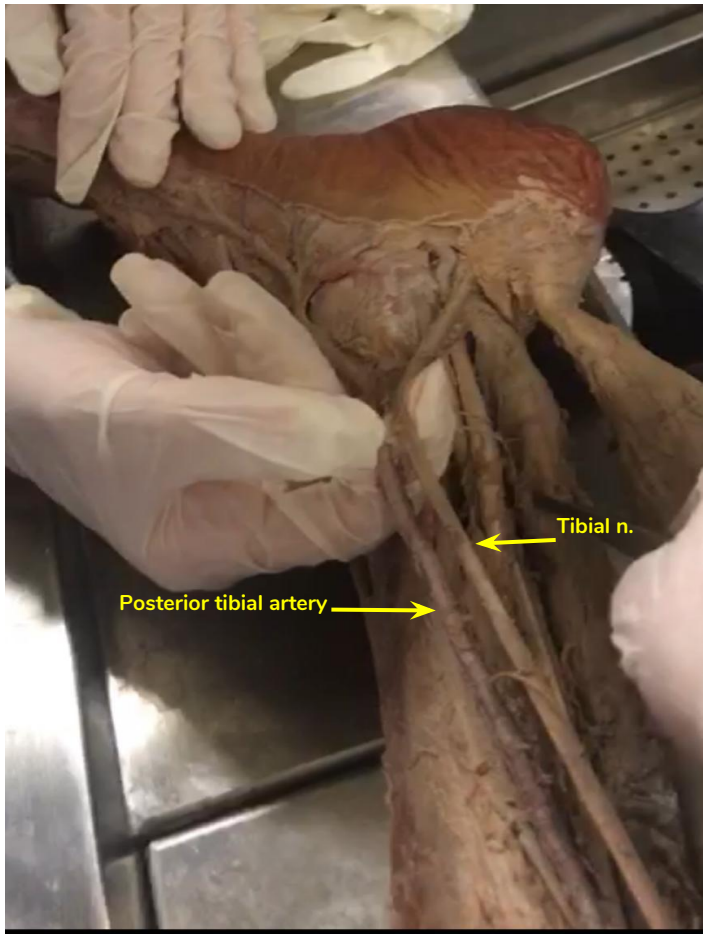
Picture	Lab picture	Notes
		• It is the continuation of the External Iliac artery • Is the main arterial supply to the lower limb • supplies: Lower abdominal wall, Thigh & External Genitalia

V: Femoral vein
A: Femoral artery
N: Femoral nerve
(medial to lateral)

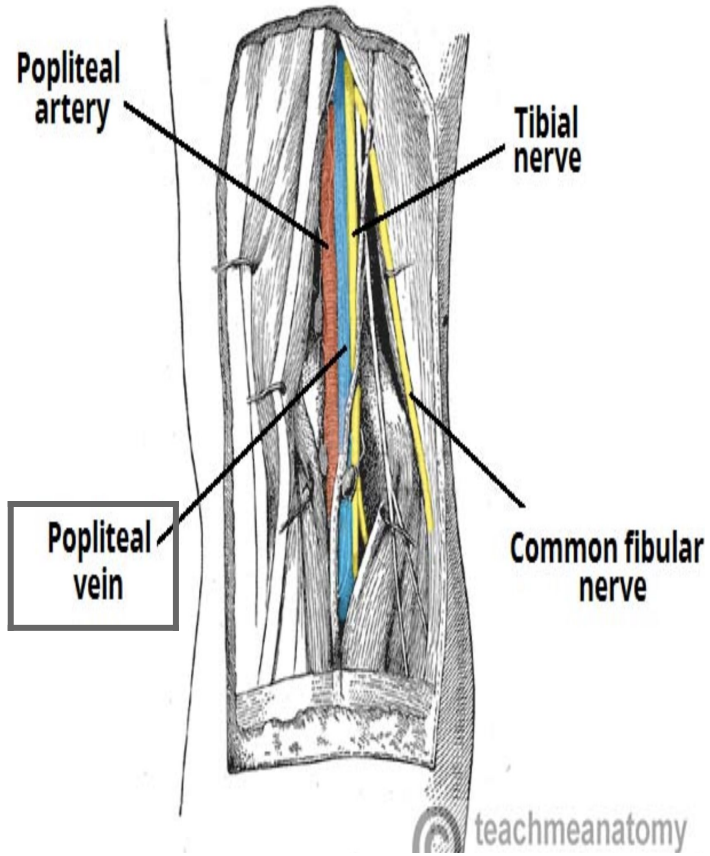
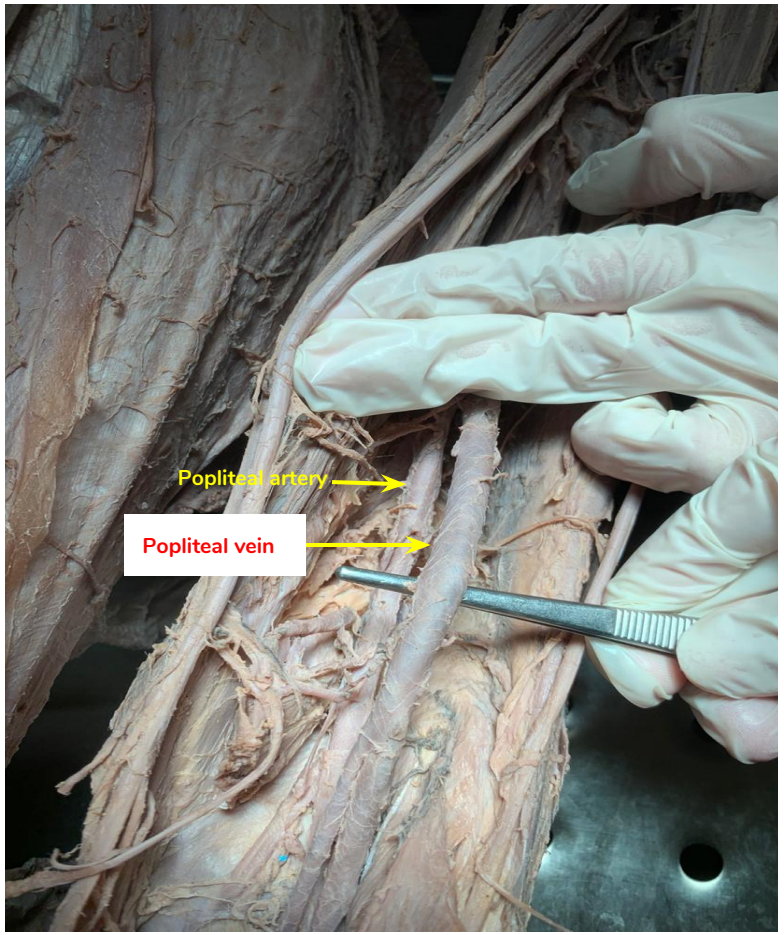
Popliteal Artery

Picture	Lab picture	Notes
		• The continuation of the femoral artery. • It is the deepest structure in the Popliteal Fossa

Posterior tibial Artery

Lab picture	Lab picture
	

Popliteal Vein

Picture	Lab picture	Notes
		The vein is more superficial than artery and it will be divided

Ex Questions | UL

1-Identify the nerve and its roots? ★

2-give three examples of

muscles supplied by this nerve?

3-Identify the muscle? ★

4-Supplied by which nerve?

5-Identify the vessel? ★

A: 1- median nerve, Roots: C5-T1
2- flexor carpi radialis, flexor pollicis longus,
lateral half of the flexor digitorum profundus
3- pectoralis major
4- medial and lateral pectoral nerve
5-brachial artery

Ex Questions | LL

1-Identify the nerve?

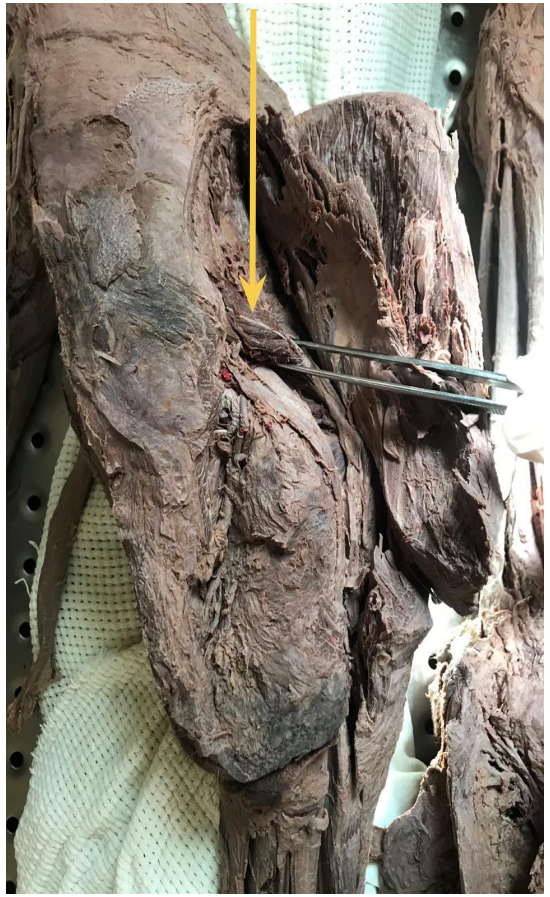
2-give three examples of muscles suppl

by this nerve?

3-Identify the muscle?

4-Supplied by which nerve?

5-Identify the vessel?



A: 1- Tibial Nerve
2- Gastrocnemius, soleus, and plantaris
3- Piriformis
4- Anterior Rami of S1 & S2
5- Popliteal Artery

Helpful videos |

- Forearm flexors

https://youtu.be/ZeQGHKyXQC4
https://youtu.be/sJjJwO02k0g

- Forearm extensors

https://youtu.be/BlNGKNbpHk8
https://youtu.be/p7_i9o-iGNA

- Shoulder region

https://youtu.be/WTvdPb7hcVQ

- Anterior compartment of arm + nerves

https://youtu.be/1yncNrYpk74

- Anterior + Medial compartment of Thigh

https://youtu.be/9JIfmmBPGDM

- Gluteal region + posterior compartment Thigh

https://youtu.be/ZOzUv66_

- Posterior + Lateral compartment of leg

https://youtu.be/MQtDj5NAGd0

- Anterior compartment of leg

https://youtu.be/lyV6eDqYg0M

Best wishes

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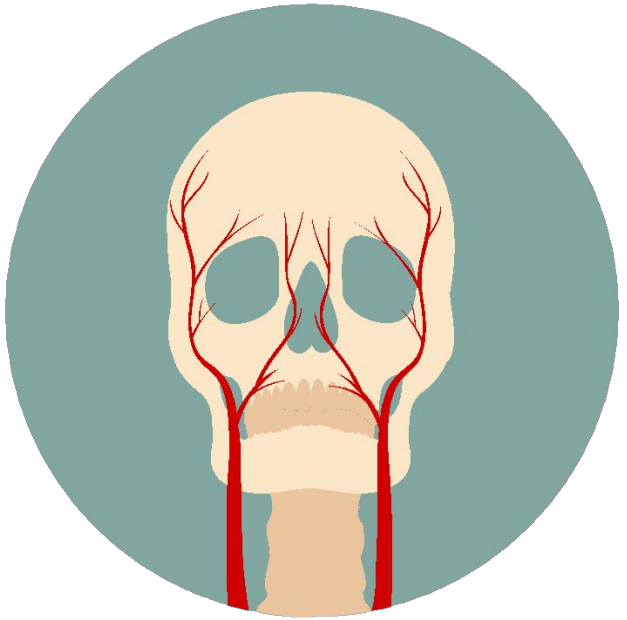

Anatomy team

practical Med438