

# Anatomy Practical Revision (OSPE) exam

# Note :

As we know the exam is completely different from previous years, so 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 first three theoretical lectures before studying this file specially the TERMS OF POSITION

**IT'S VERY IMPORTANT TO ATTEND THE REVISION CLASS ON SUNDAY**

To ensure your grade on each question :

1-Make sure your SPELLING is correct or relatively similar,

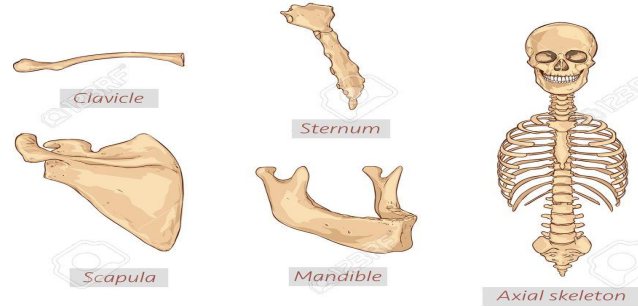
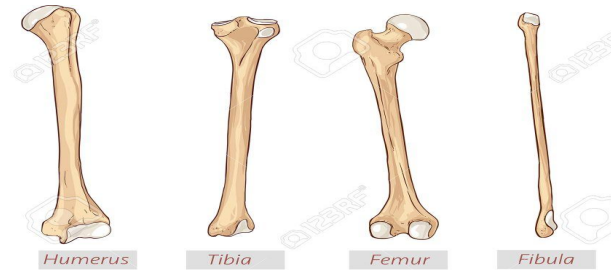
2-Make sure you write the FULL name or location of the object precisely

# 1. Bones

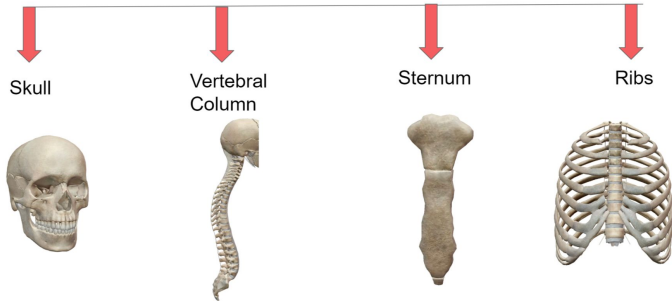
# Brief recap :

Type of bones :

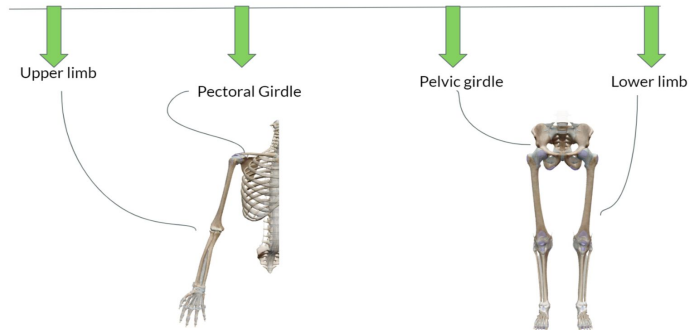
- 1- **Flat:** (sternum/skull bones/Scapula/ribs/clavicle)
- 2- **Irregular:** (vertebra\hip bone)
- 3- **Long:** (humerus/radius/ulna/femur/tibia/fibula)
- 4- **Short:** (carpals /Tarsals)
- 5- **Sesamoid:** (patella)



## BONES OF AXIAL SKELETON



## BONES OF APPENDICULAR SKELETON



# BONES OF AXIAL SKELETON (Skull)

**Cranium bones:** these bones are enclose the brain

## Frontal bone

1 bone

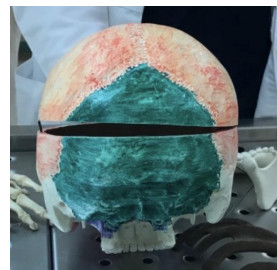
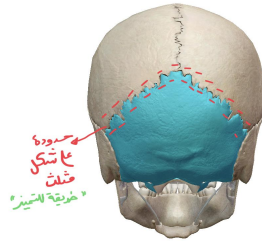
Type of the bone :  
**Flat** bone



## Occipital bone

1 bone

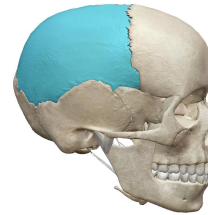
Type of the bone :  
**Irregular** bone



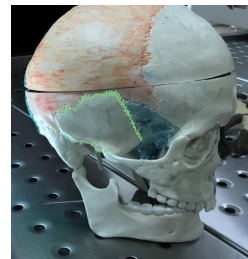
## Parietal bones

2 bones

Type of the bone :  
**Flat** bone



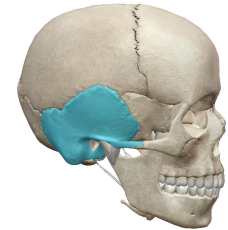
it's 2 Lobes



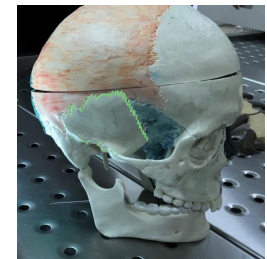
## Temporal bones

2 bones

Type of the bone :  
**Irregular** bone



it has 2 lobes "also"



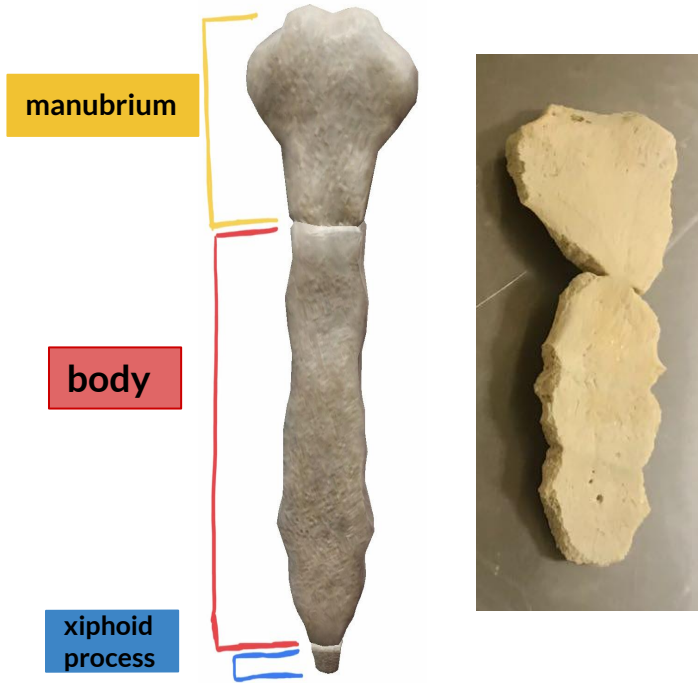
# BONES OF AXIAL SKELETON

## Sternum

Called also breastbone located in the center of the chest

Has 3 parts: manubrium, body & xiphoid process

Type of bone  
Flat bone

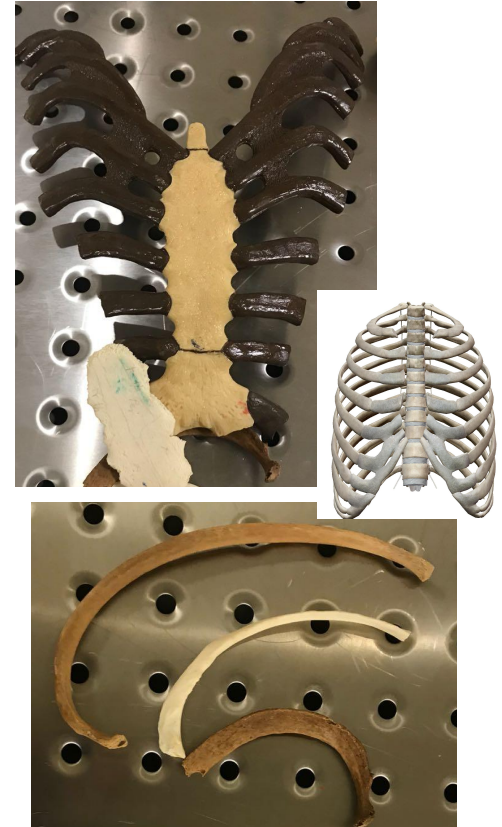


## Ribs



enclose and protect the chest cavity,

12 pairs  
True ribs are 1-7  
False ribs are 8-10  
Floating ribs are 11 & 12

Type of bone  
Flat bone



# BONES OF APPENDICULAR SKELETON (Pectoral girdle)

<b>Scapula</b>	
a bone in Pectoral girdle <b>Type of the bone :</b> Flat bone	
<b>Clavicle</b>	
a bone in Pectoral girdle <b>Type of the bone :</b> Long bone  <b>how I can differentiate?</b> S shape bone	



# BONES OF APPENDICULAR SKELETON (Upper limb)

## Bone of the arm

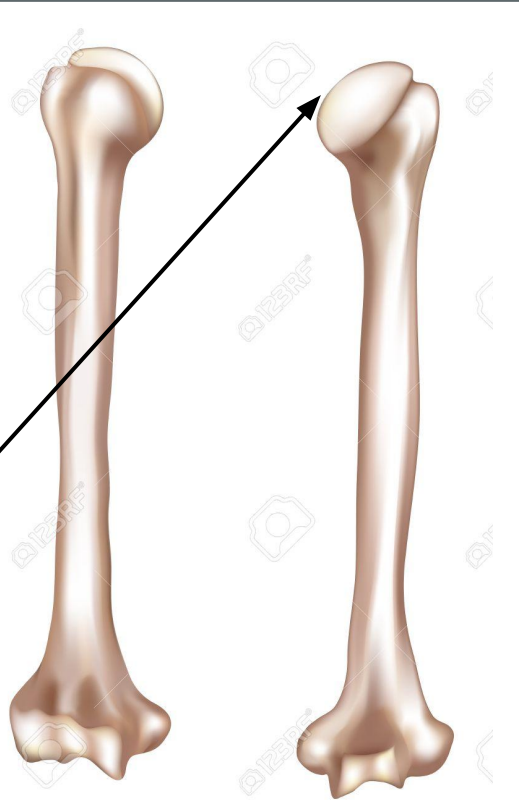
### Humerus

a bone in the upper limb

It's the Bone of the arm

Type of the bone:  
Long bone

how I can differentiate?  
It has a 1/2 ball **without** neck in one end





# BONES OF APPENDICULAR SKELETON (Upper limb)

## Bones of the forearm:

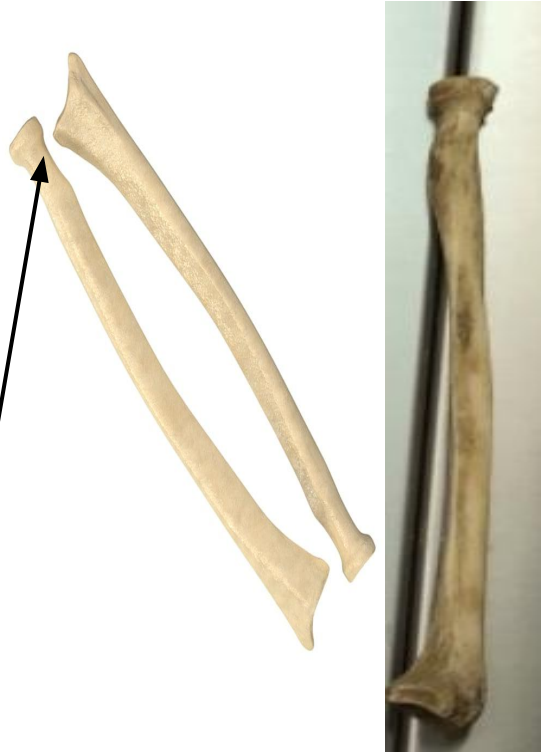
### Radius

a bone in the upper limb

it's the **lateral** Bone of the forearm in anatomical position

**Type of bone:**  
Long bone

**how I can differentiate?**  
It look like the end of the baseball bat in one end



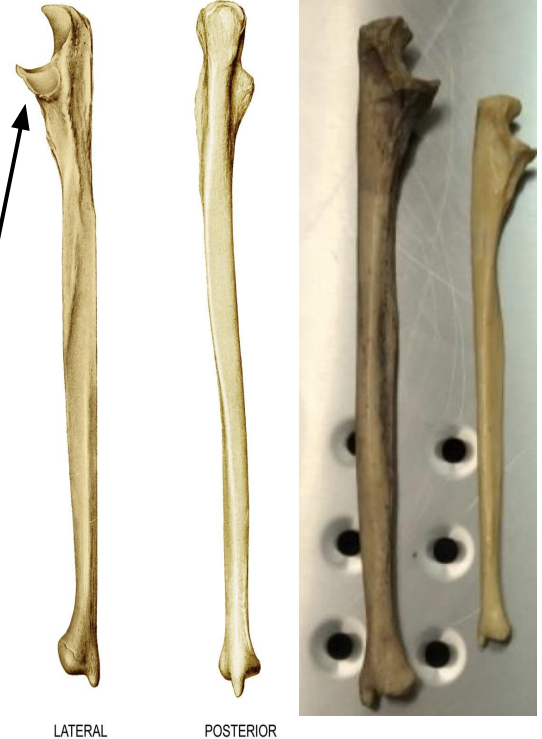
### Ulna

a bone in the upper limb

it's the **Medial** Bone of the forearm in anatomical position

**Type of bone:**  
Long bone

**how I can differentiate?**  
It look like 'U' letter in one end



# BONES OF APPENDICULAR SKELETON (Lower limb)

## Bones of the thigh :

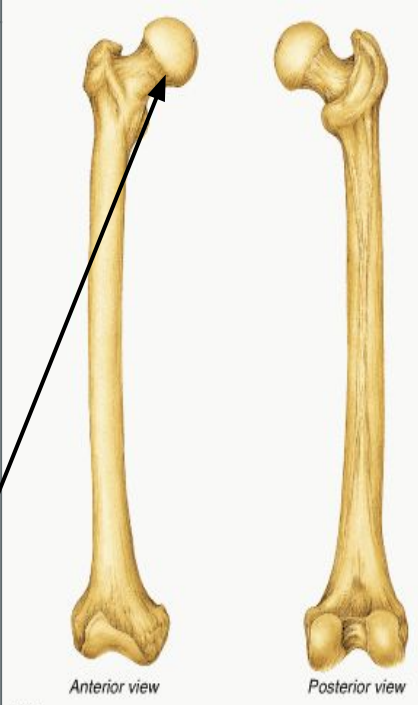
### Femur

a bone in the Lower limb

it's the **Bone of thigh**

**Type of bone:**  
Long bone

**how I can differentiate?**  
It has a 2\3 ball **with** neck in one end ( look like "mushroom")

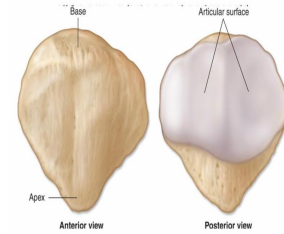


### Patella

a bone in the Lower limb

located in front of the knee joint where the (femur) and (tibia) meet.

**Type of bone:**  
Sesamoid bone



# BONES OF APPENDICULAR SKELETON (Lower limb)

## Bones of the Leg:

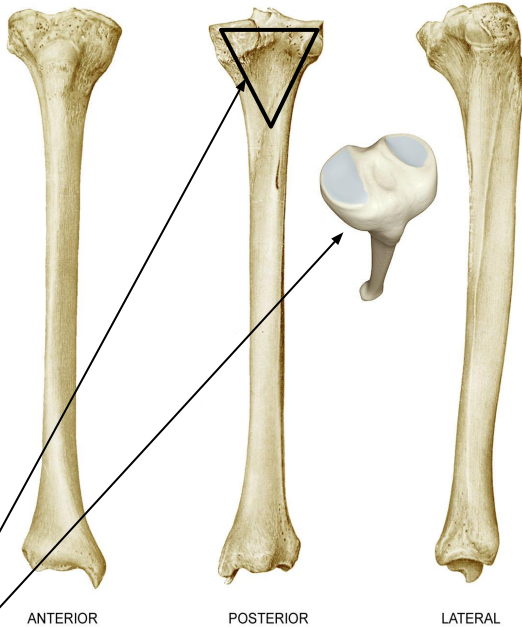
### Tibia

a bone in the Lower limb

it's the **medial bone of the leg** in anatomical position

**Type of bone:**  
Long bone

**how I can differentiate?**  
It has a triangular that got platform in one end



### Fibula

a bone in the Lower limb

it's the **lateral bone of the leg** in anatomical position

**Type of bone:**  
Long bone

**how I can differentiate?**  
There is not any unique structure in both ends

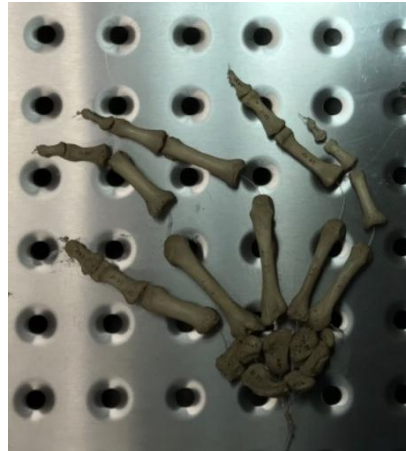
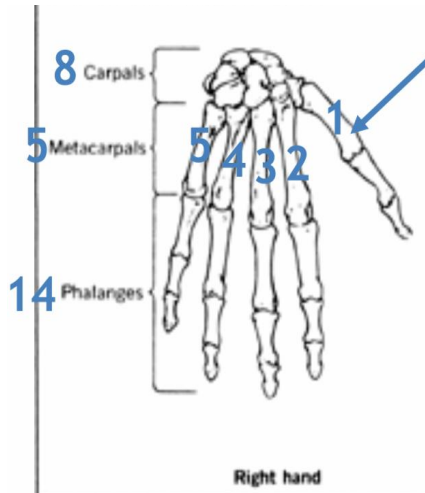


# BONES OF APPENDICULAR SKELETON

To count the metacarpal/metatarsal bones, we **start** from the **thumb/big toe**

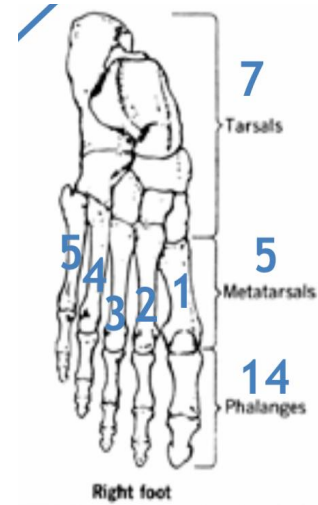
## Bones of the hand:

In the **hand** we **start** from **lateral to medial**



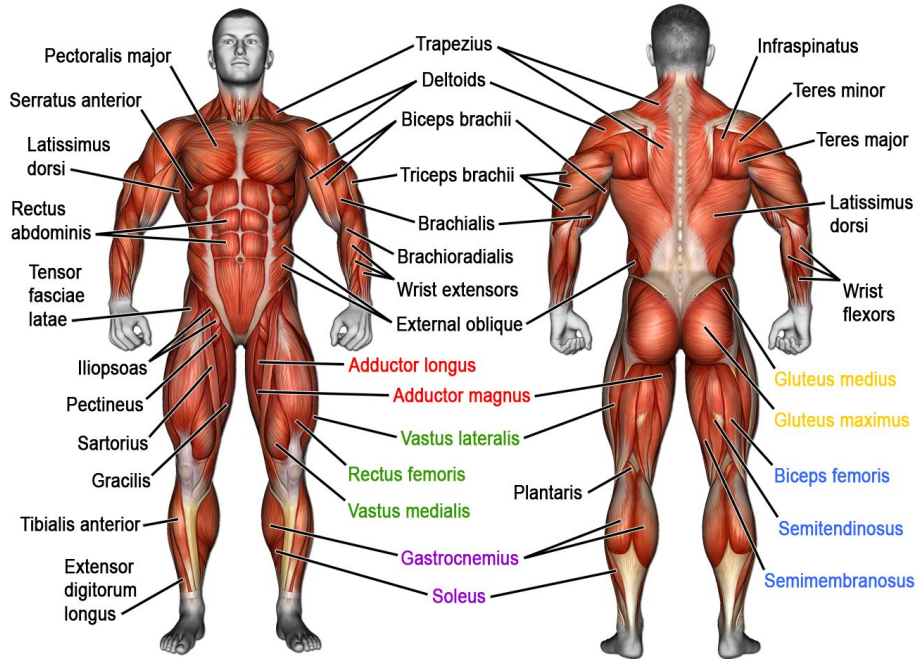
## Bones of the foot:

In the **foot** we **start** from **medial to lateral**



## 2. Skeletal Muscles

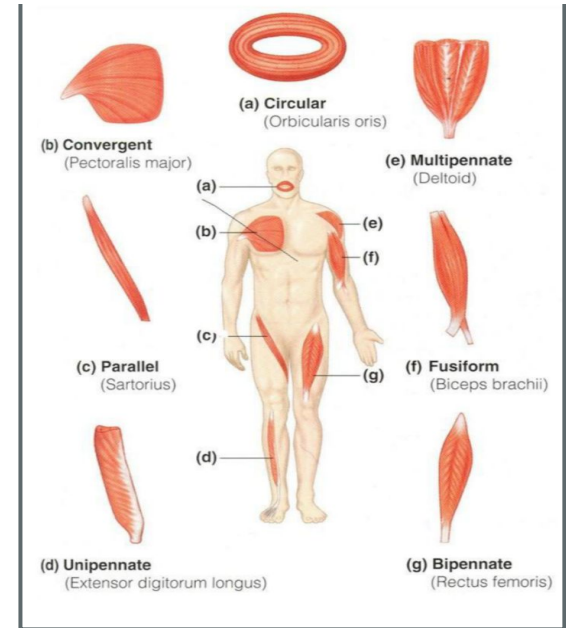
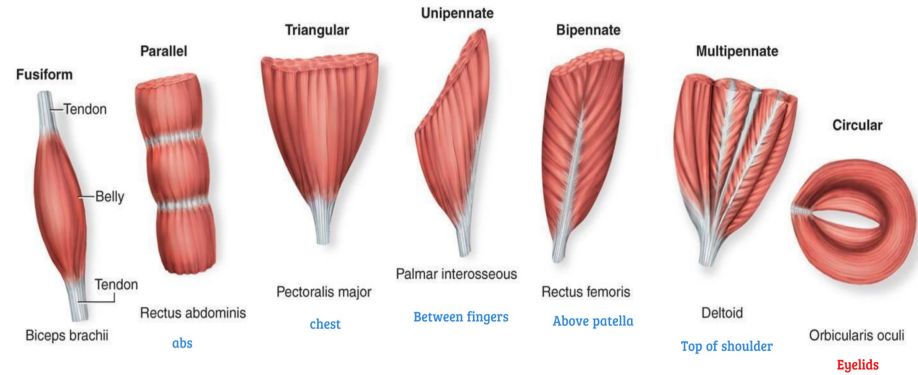
# Brief recap :



■ Adductors 
 ■ Quadriceps 
 ■ Calves 
 ■ Glutes 
 ■ Hamstrings

[www.WeightTraining.guide](http://www.WeightTraining.guide)  
 IG: weighttrainingguide

## Directions of muscle fibers (type):



**Important**

# Skeletal Muscles (Chest)

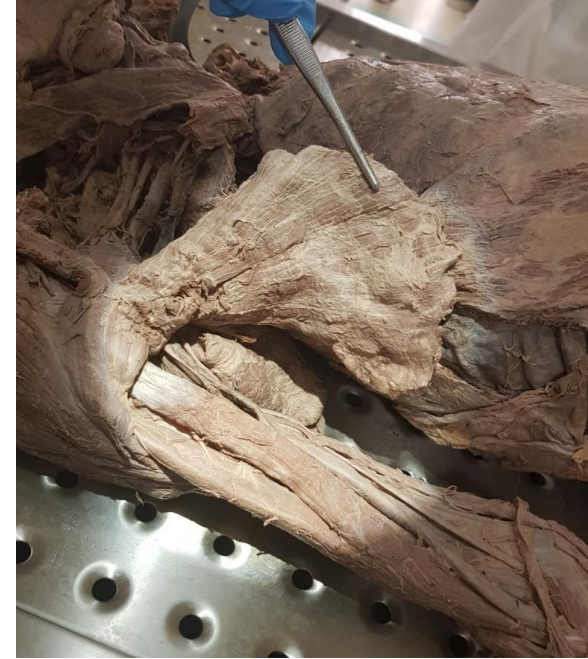
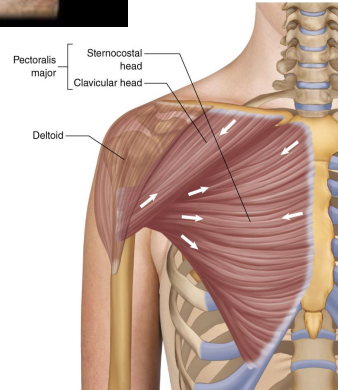
## Pectoralis major

The pectoralis major muscle is a large muscle in the upper chest

**Directions of muscle fibers (type):**

Triangular -convergent

**Named based on:**  
size and position



# Skeletal Muscles (Upper limb)

## Deltoid

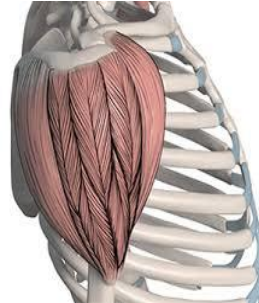
a muscle in the upper limb located on the uppermost part of the arm and the top of the shoulder

**Directions of muscle fibers (type):**

Multipennate

**Named based on:** shape  
deltoid =triangular

**One of its Function :**  
Deltoid muscle is the fixator for Biceps prime mover muscle





# Skeletal Muscles (Upper limb)

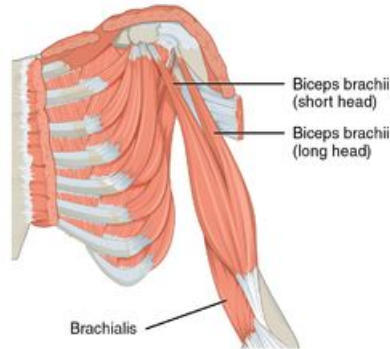
## Biceps brachii

a muscle in the upper limb run along the humerus bone (from the front) between the shoulder and the elbow

**Directions of muscle fibers (type):**  
Fusiform

**Named based on:** number of head biceps= 2 head

**One of its Function :**  
It is the prime mover for **flexion** of the elbow joint and forearm.



# Skeletal Muscles (Upper limb)

## Triceps brachii

a muscle in the upper limb run along the humerus bone (from the back) between the shoulder and the elbow

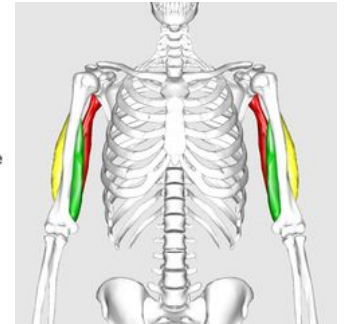
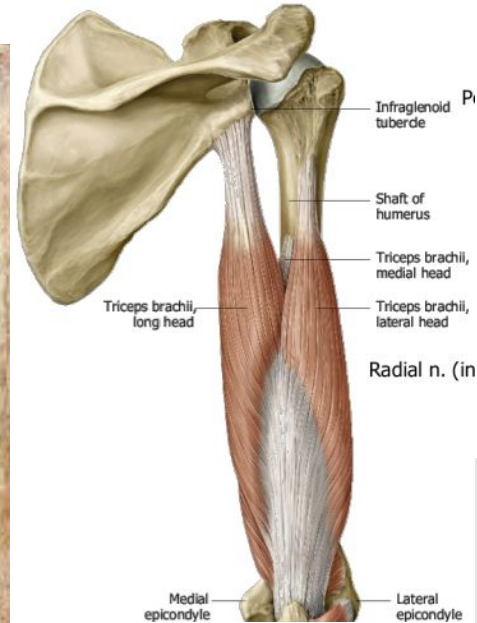
**Directions of muscle fibers (type):**

Fusiform

**Named based on:** number of head triceps= 3 head

**One of its Function :**

It is the prime mover for **extension** of the elbow joint and forearm.



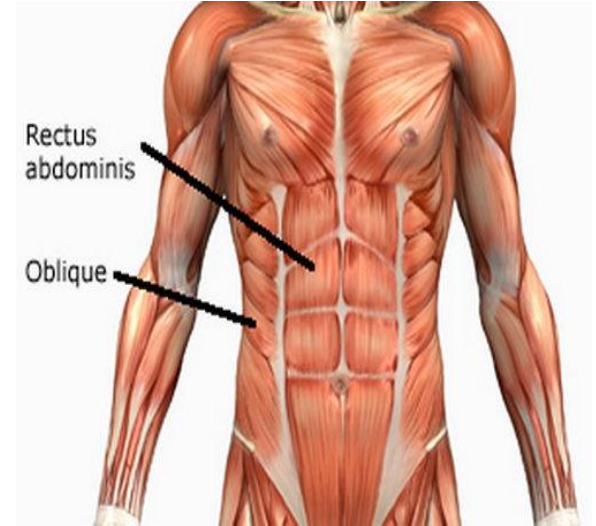
# Skeletal Muscles (abdomen)

## Rectus abdominis

located in the front of the body inside the abdominal region

**Directions of muscle fibers (type):**  
Parallel

**Named based on:** shape and position



# Skeletal Muscles (lower limb)

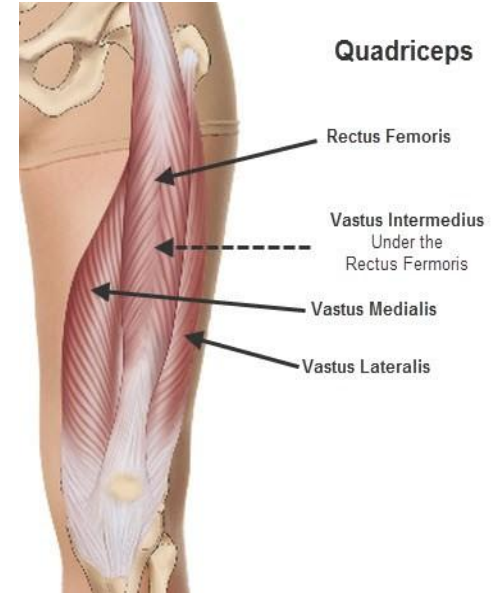
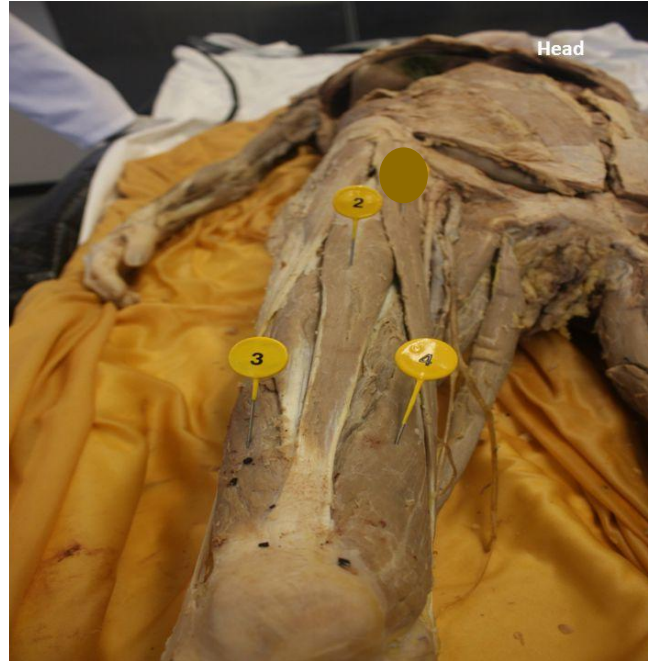
## Quadriceps Femoris

a muscle in the Lower limb located in the front of the thigh

is a large muscle group that includes the **four** prevailing muscles on the front of the thigh.

**Directions of muscle fibers:**  
Bipennate

**Named based on:**  
Number of heads

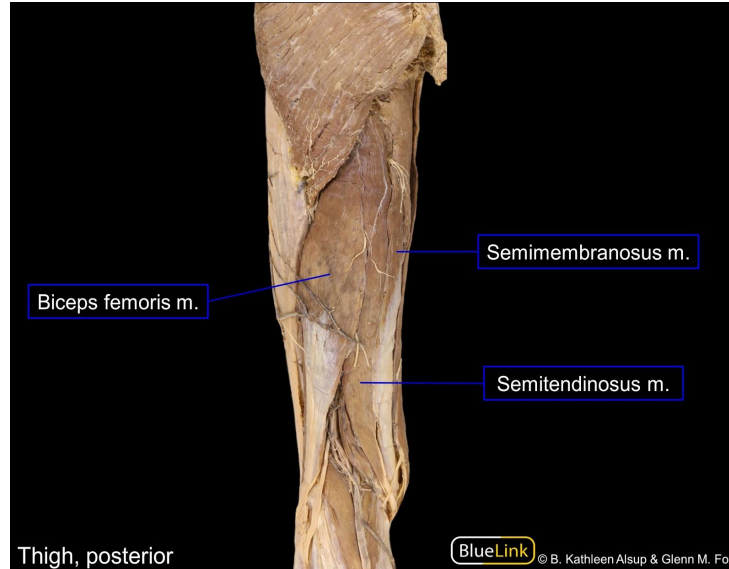


# Skeletal Muscles (lower limb)

## Hamstring

a muscle in the Lower limb it is one of the three posterior thigh muscles in between the hip and the knee

Divided to three muscle:  
1- semimembranosus  
2- semitendinosus  
3- **biceps femoris.**



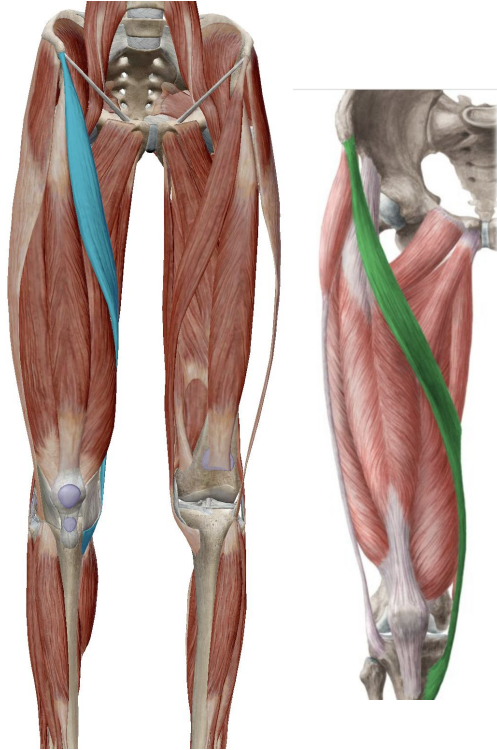
# Skeletal Muscles (lower limb)

## Sartorius

a muscle in the Lower limb located in the proximal (upper) anterior part of the thigh

it's the longest muscle in the human body

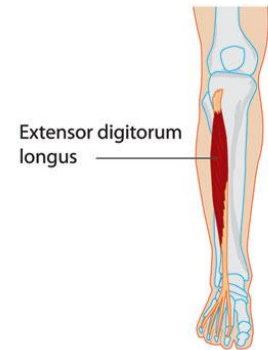
**Directions of muscle fibers:**  
Parallel



## Extensor digitorum longus

a muscle in the Lower limb located in the front of the leg

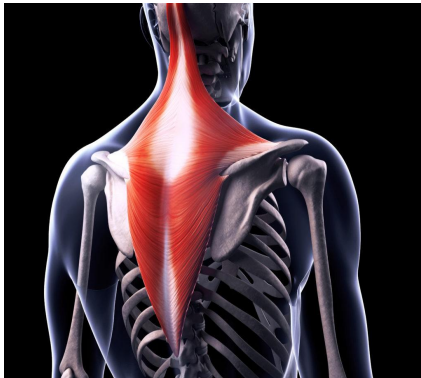
**Directions of muscle fibers:**  
Unipennate



# Skeletal Muscles (other muscles might be important)

## Trapezius

It is **Upper back** muscle that extends from the occipital bone to the lower thoracic vertebrae of the spine



## Gluteus

The gluteal muscles are a group of three muscles which make up the buttocks:

- 1- gluteus maximus,
- 2- gluteus medius
- 3- gluteus minimus.



**Gluteus Maximus**



**Gluteus Medius**



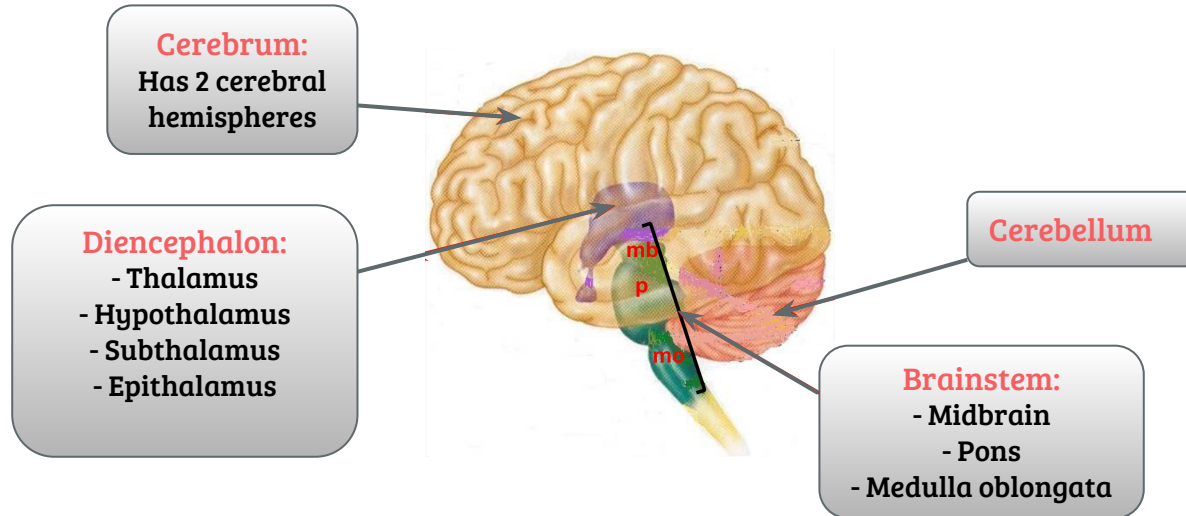
**Gluteus Minimus**

# 3. Nervous System



# Brief recap :

The brain is a large mass of nervous tissue located in the cranial cavity. It has four major regions:



# Nervous system (Brain)

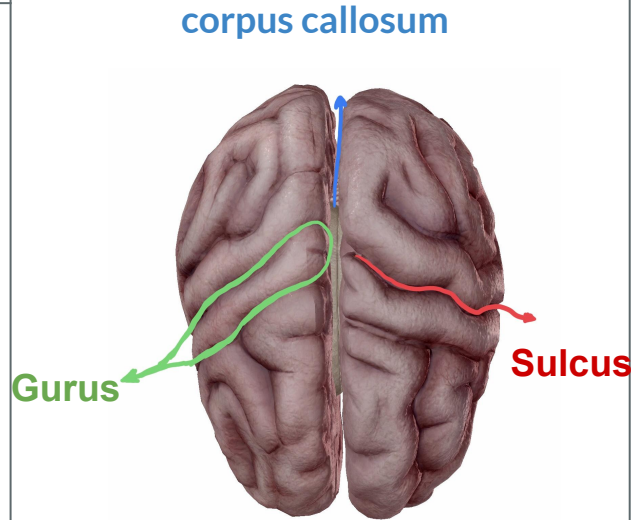
## Cerebrum

The largest part of the brain

Has 2 cerebral hemispheres

The cerebral hemispheres are connected by a thick bundle of nerve fibers called **corpus callosum**

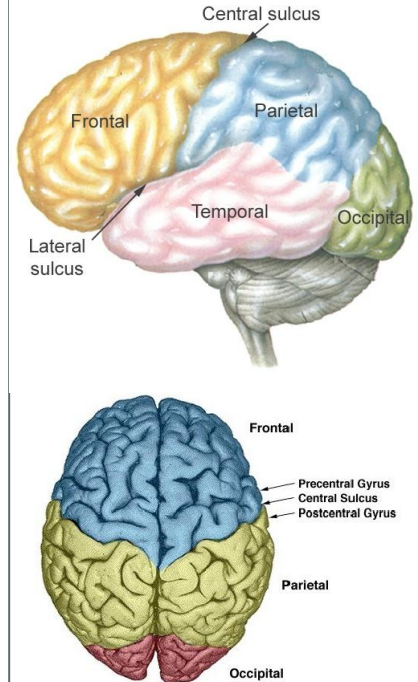
The surface shows ridges of tissue, called **gyri**, separated by grooves called **sulci**.



Divided (each hemisphere) by deeper sulci (central and lateral sulcus), into 4 lobes:

1. **Frontal**
2. **Parietal**
3. **Temporal**
4. **Occipital**

It has an outer cortex of **grey matter** and an inner region of **white matter**



# Nervous system (Brain)

## Cerebellum

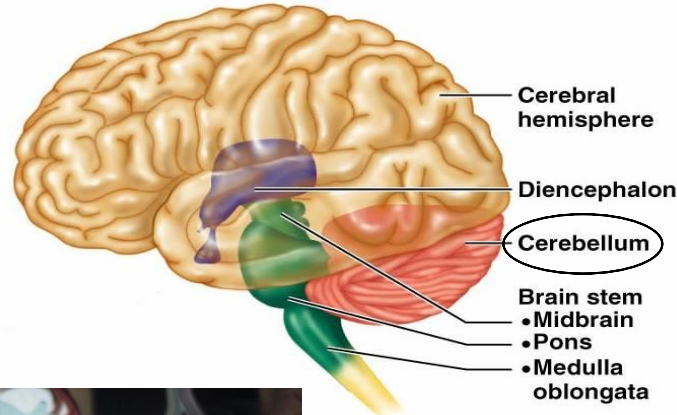
has 2 hemispheres

The cerebellum is located inferior to the occipital lobe of the cerebrum

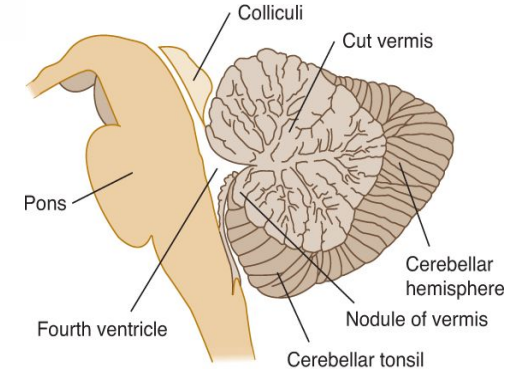
It has an outer cortex of **grey matter** and an inner region of **white matter**

### Function:

It provides precise coordination for body movement and helps to maintain equilibrium



Only one lobe



Source: Waxman SG: Clinical Neuroanatomy: Twenty-Seventh Edition: www.accessmedicine.com  
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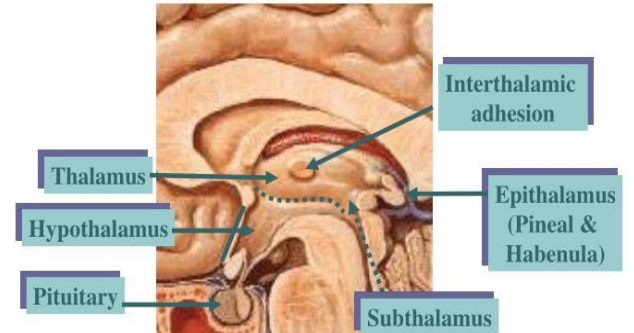
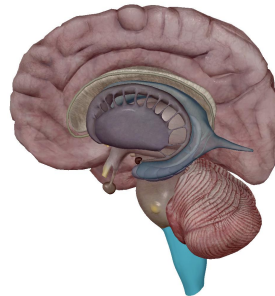
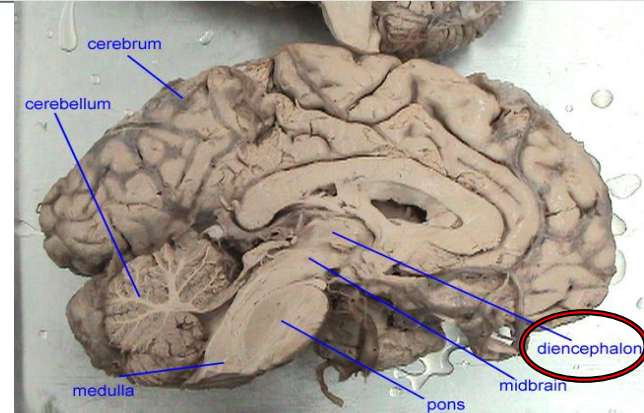
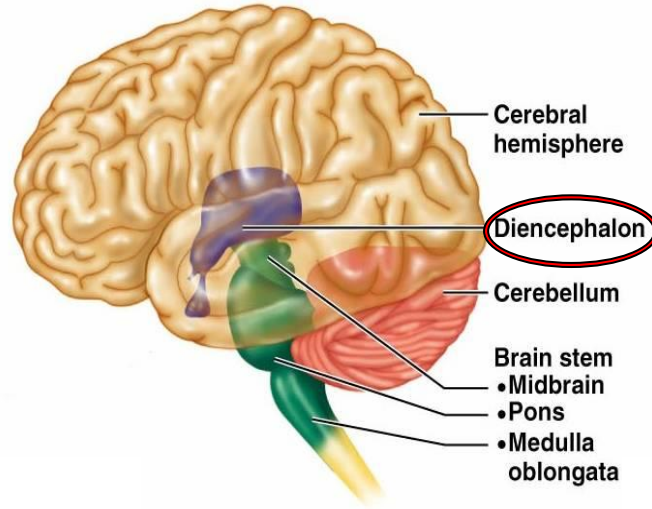
# Nervous system (Brain)

## Diencephalon

located deep in the brain underneath the cerebrum

Divided into 4 parts:

- Thalamus
- Hypothalamus
- Subthalamus
- Epithalamus



# Nervous system (Brain)

## Brainstem

posterior part of the brain, continuous with the spinal cord

Divided to 3 parts :

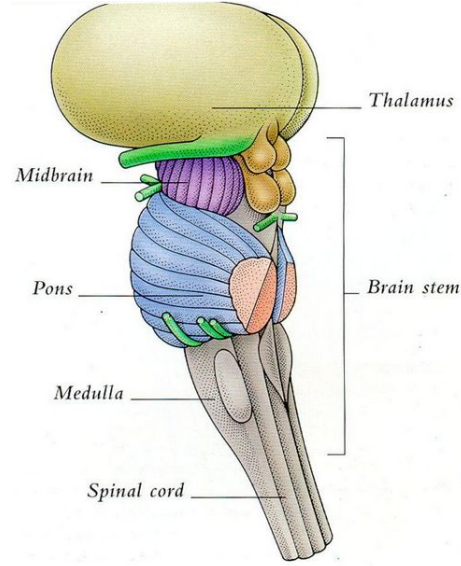
Midbrain

Pons

Medulla oblongata



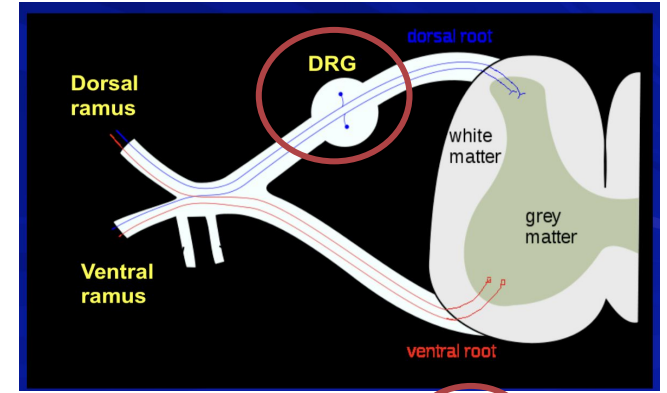
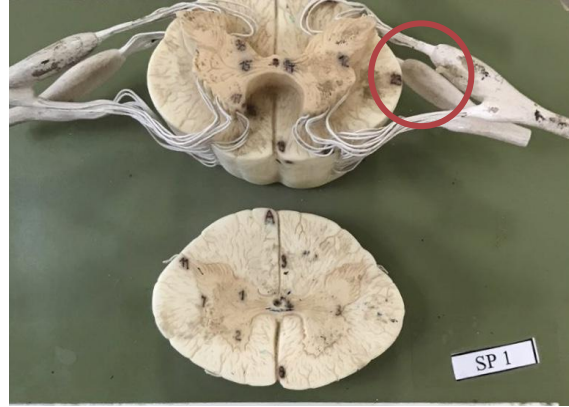
**without midbrain**



# Nervous system (spinal cord)

## Dorsal Root Ganglion

also known as a (posterior root ganglion), is a cluster of neurons in a dorsal root of a spinal nerve



**مهم جدا** هنا تعرفون وين جهه (Dorsal and ventral)

اربطوها بشكل الفراشة دائم الأذرع الطويلة لها تكون في جهة ودائم تحتوي على العقدة (Dorsal)



# Example question :

Identify the name, location and the fiber direction for the labeled muscle ?

Name : deltoid

Location : located on the uppermost part of the arm and the top of the shoulder

Type : multipennate



Identify the name, location and the type of the labeled bones?

Name : tibia

Location : the medial bone of the leg in anatomical position

Type : Long bone



Identify the name, location and function of the this part of the brain ?

Name : cerebellum

location: inferior to the occipital lobe of the cerebrum

Function : coordination for body movement and maintain equilibrium



# Helpful videos

1- Difference between long bones (**very important**)

<https://www.youtube.com/watch?v=piUM03Jhxj0>

2- Upper limb muscles on real cadaver

<https://www.youtube.com/watch?v=bS2hmN0KsxU>

3- lower limb muscles on real cadaver

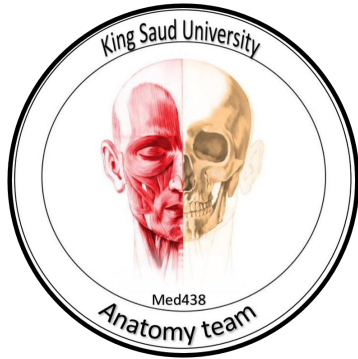
<https://www.youtube.com/watch?v=GHE6jQxQaCQ>

4- Anatomy of real brain

<https://www.youtube.com/watch?v=OMqWRlxo1oQ>



# Best wishes



Created by :

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- Noura Alturki

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