

**Anatomy  
Practical  
Revision  
(OSPE) exam  
Highlighted  
file**

# 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

# تحديد بروف أبو المكارم

1. مايجي اي شي في ال skull and vertebrae
2. مايجي اي شي من ال face
3. مايسأل عن اي شي اذا هو يمين او يسار
4. الصورة الي فيها العضلات بأنواعها مهمة جدا
5. العضلات الي في legs and forearm مو مهمه
6. ال function حق العضلات مو مهم
7. ال gluteus maximus مهمه
8. ممكن يجيب جزء من عضلة ما يجيبها كامله زي rectus femoris مثلا جزء من quadriceps
9. مايجي ولا سؤال عن ال movement
10. Function حق ال cerebellum مهم
11. ال lobes حقت الدماغ مهمه
12. مايجي اي شي من spinal cord

هذا كلام الدكتور الطلاب فقط نقلوه طبعا حظ في بالك انه ممكن ينكر في أي وقت

# 1. Bones

# Brief recap :

## Type of bones :

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



Humerus



Tibia



Femur



Fibula



Clavicle



Sternum



Scapula

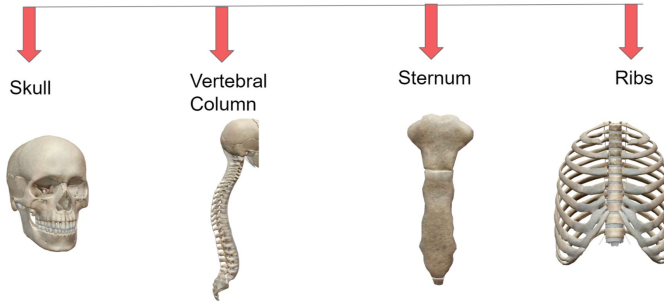


Mandible

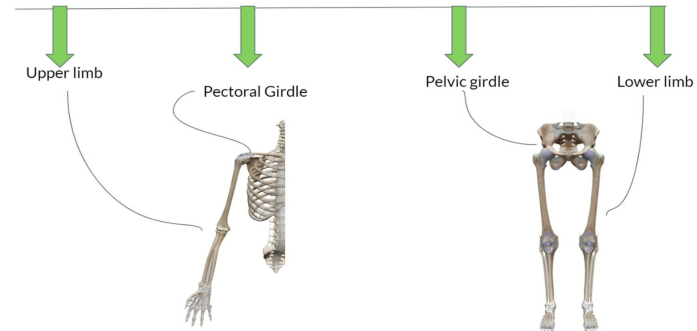


Axial skeleton

## BONES OF AXIAL SKELETON



## BONES OF APPENDICULAR SKELETON



# BONES OF AXIAL SKELETON (Skull)

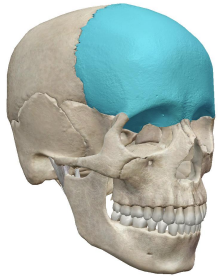
**Cranium bones:** these bones are enclose the brain

Whole slide is Not that important

## Frontal bone

1 bone

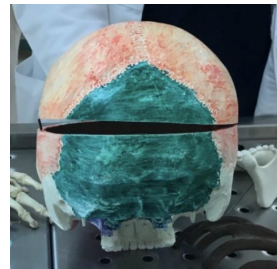
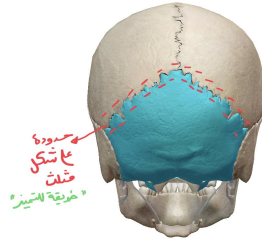
Type of the bone :  
**Flat** bone



## Occipital bone

1 bone

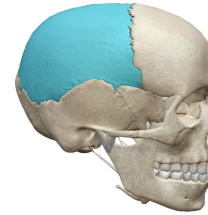
Type of the bone :  
**Irregular** bone



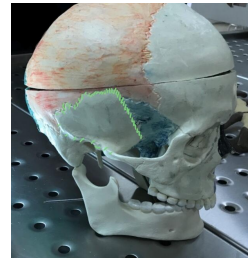
## Parietal bones

2 bones

Type of the bone :  
**Flat** bone



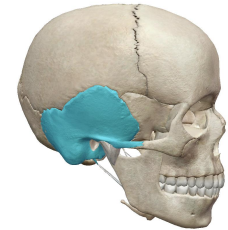
it's 2 lobes



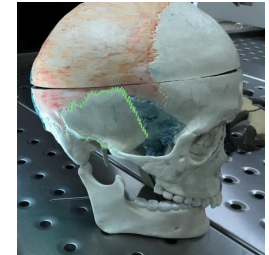
## Temporal bones

2 bones

Type of the bone :  
**Irregular** bone



it has 2 lobes "also"



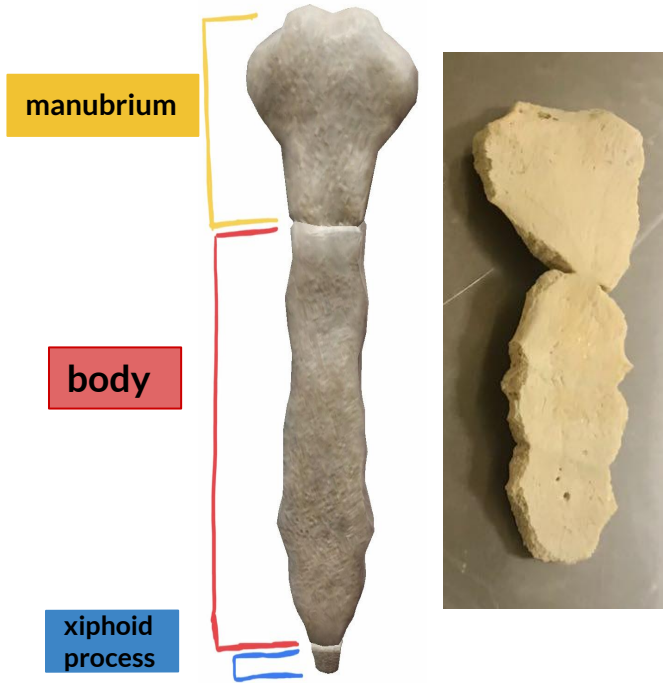
# BONES OF AXIAL SKELETON

## Sternum

Called also breastbone located in the center of the chest

Has 3 parts: manubrium, body & xiphoid process

Type of bone  
Flat bone

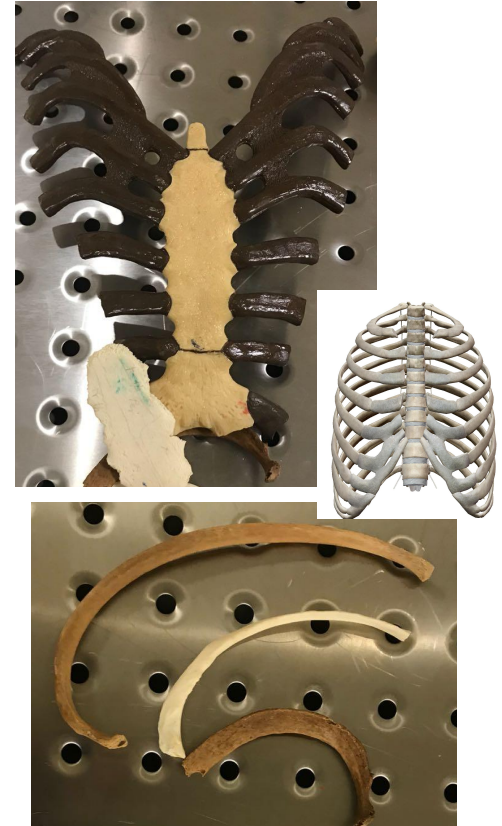


## Ribs

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)

## Scapula

a bone in Pectoral girdle (posterior bone of shoulder girdle)

Type of the bone :  
Flat bone



## Clavicle

a bone in Pectoral girdle (anterior bone of shoulder girdle)

Type of the bone :  
Long bone

how I can differentiate?  
S shape bone





# BONES OF APPENDICULAR SKELETON (Upper limb)

## Bone of the arm

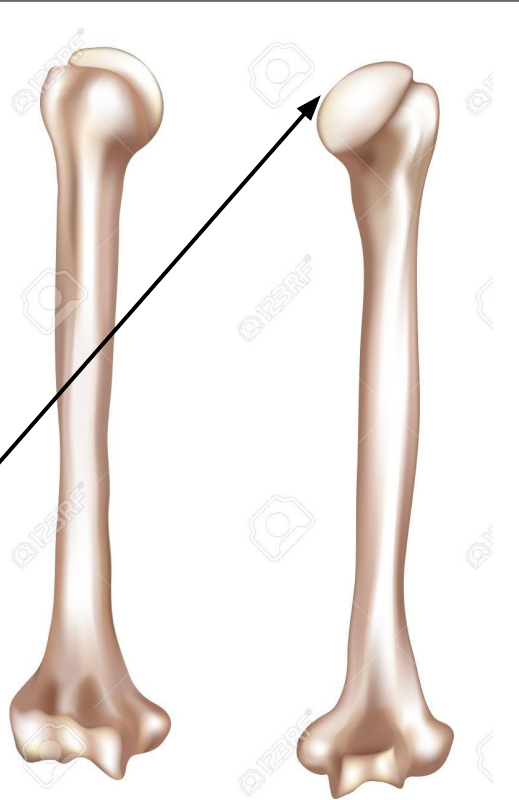
### Humerus

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:

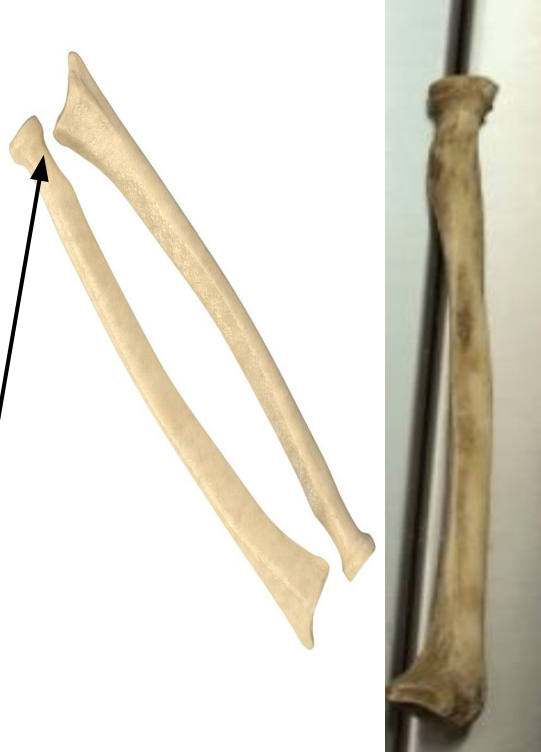
### Radius

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



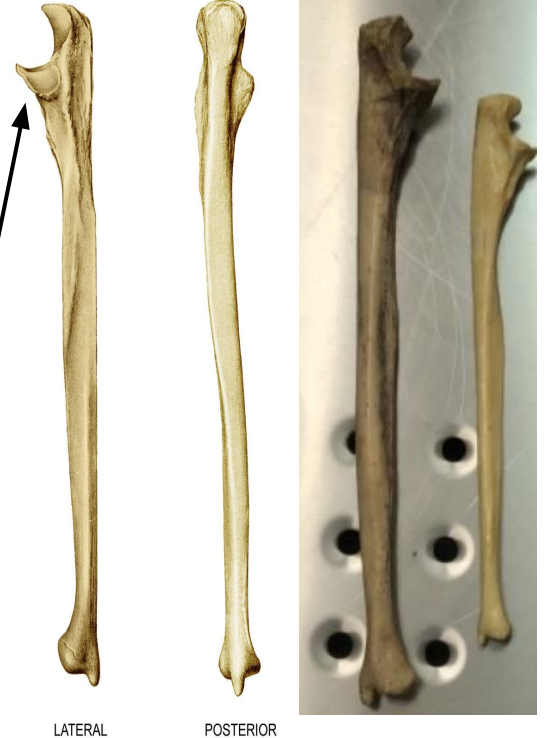
### Ulna

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 :

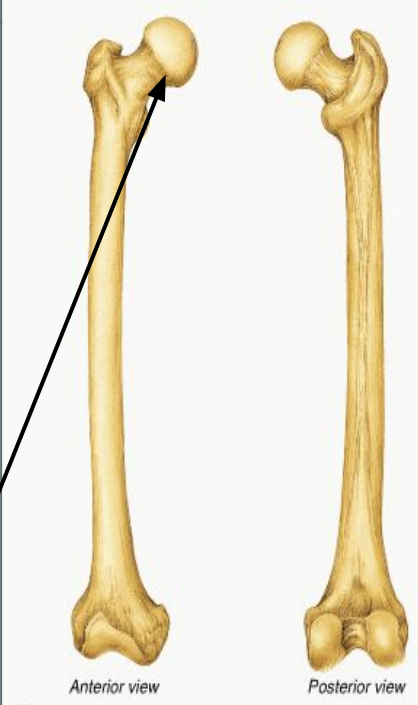
### Femur

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")

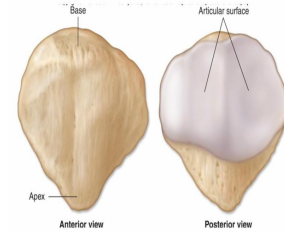


### Patella

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:

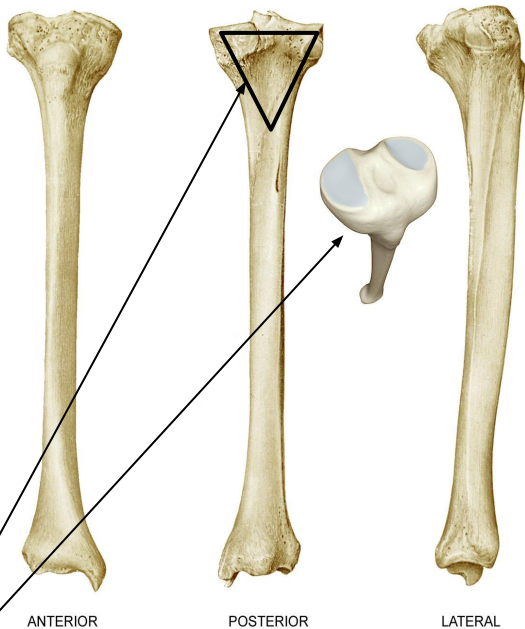
### Tibia

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



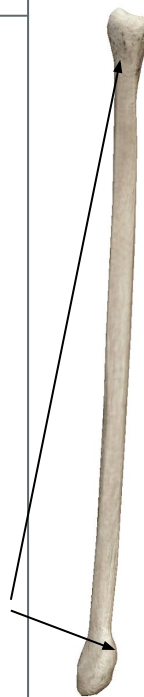
### Fibula

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**



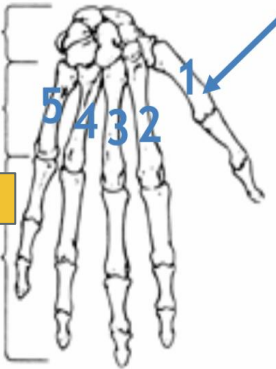
Short bone

8 Carpals

5 Metacarpals

Both are long

14 Phalanges



Right hand



## Bones of the foot:

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



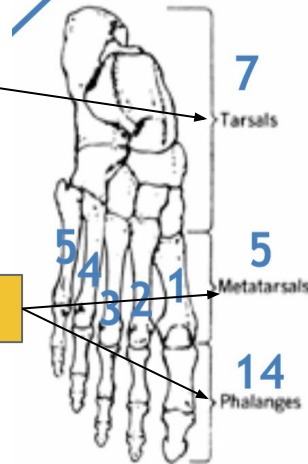
Short bone

7 Tarsals

Both are long

5 Metatarsals

14 Phalanges



Right foot



# Some additions depend on the revision today (girls)

Sacrum (5 fused) in vertebral column (irregular bone)



Hip (irregular bone)



Mandible facial bone



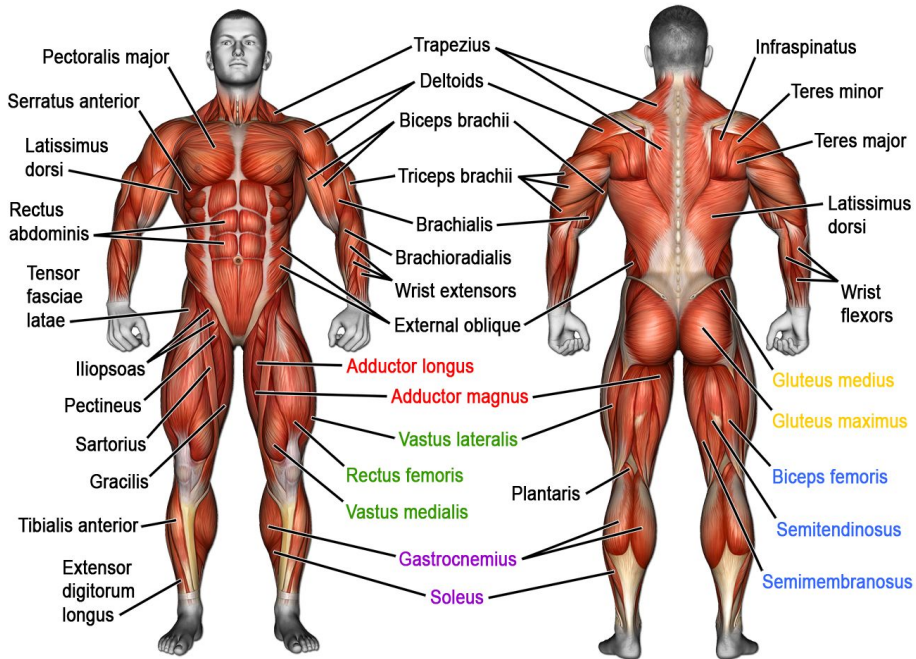
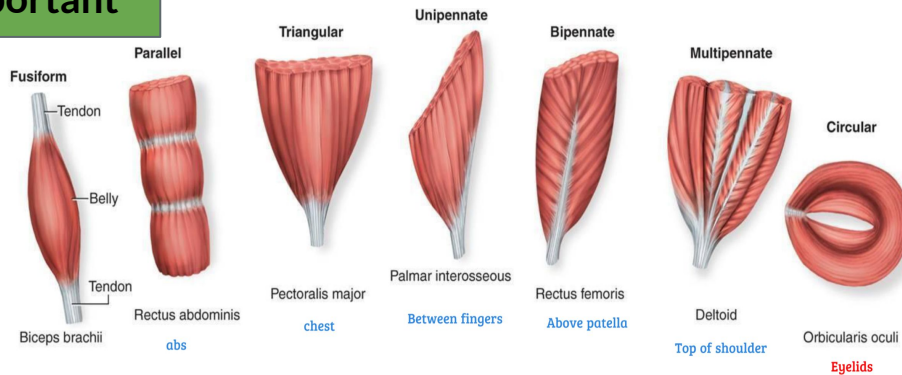
عند الاولاد الدكتور قال ماتجي هذي العظام عند البنات الدكتورة  
نيهت انها ممكن تجي عليهم أسئلة فحطينها احتياط

## 2. Skeletal Muscles

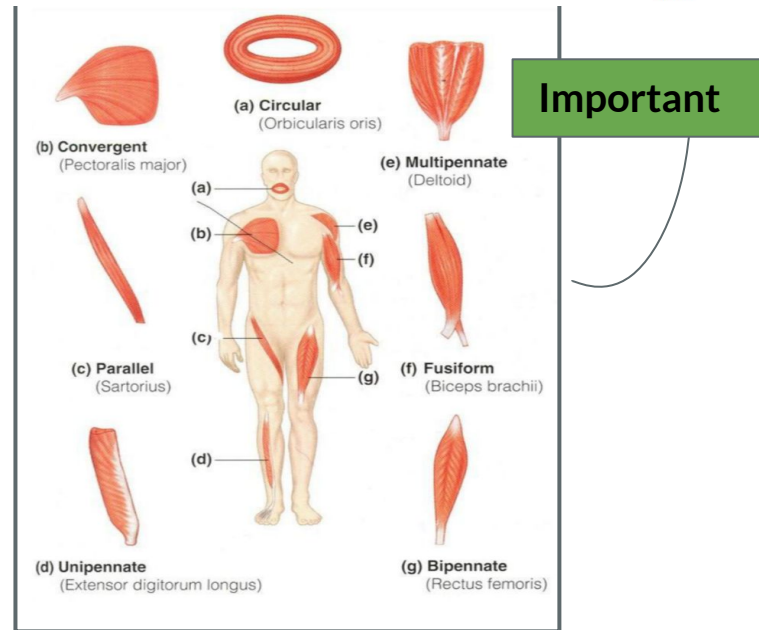
# Important

## Directions of muscle fibers (type):

# Brief recap :



www.WeightTraining.guide  
IG: weighttrainingguide





# Skeletal Muscles (Chest)

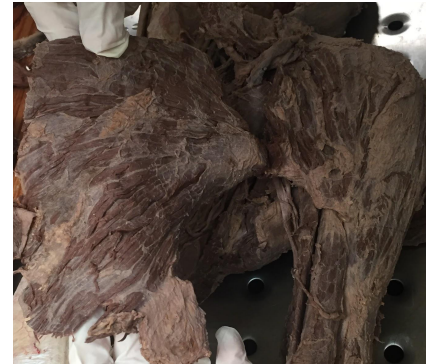
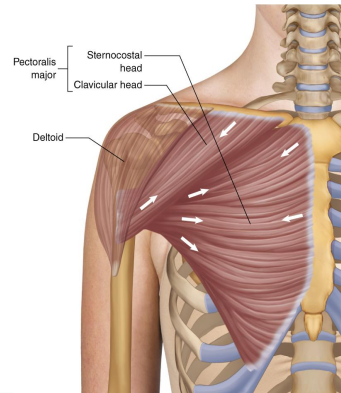
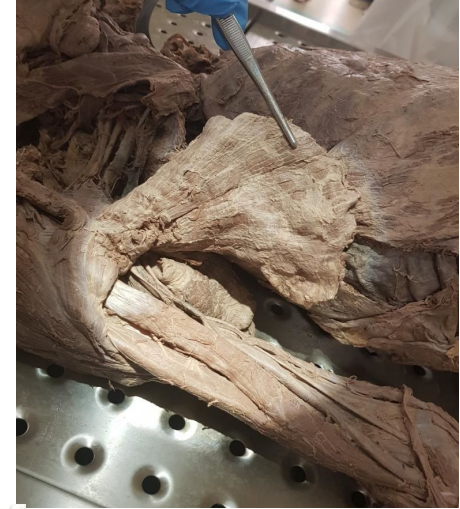
## Pectoralis major

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)

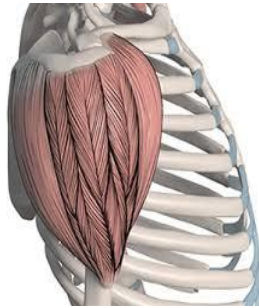
## Deltoid

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



# Skeletal Muscles (Upper limb)

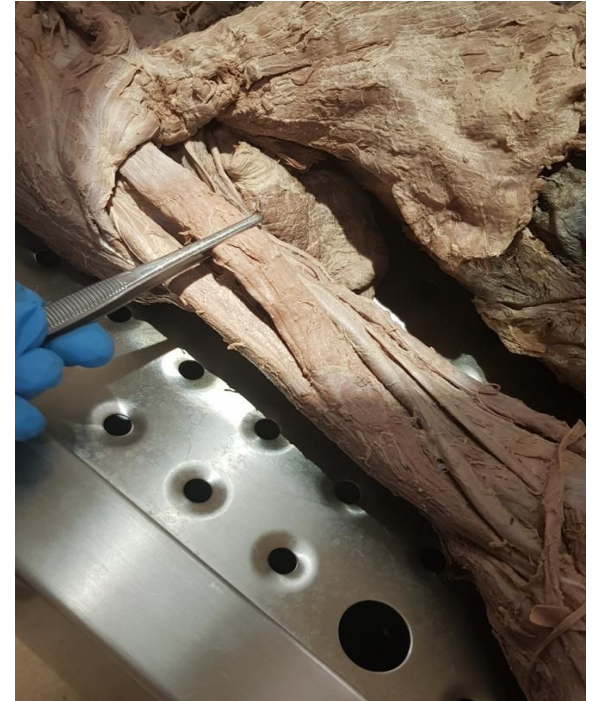
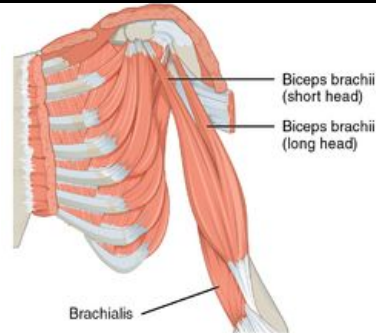
## Biceps brachii

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



We make this video to more explain:

<https://drive.google.com/open?id=1WiA6gijl-xz2JXUVAZ2g-YWhE3NNbZQc>

# Skeletal Muscles (Upper limb)

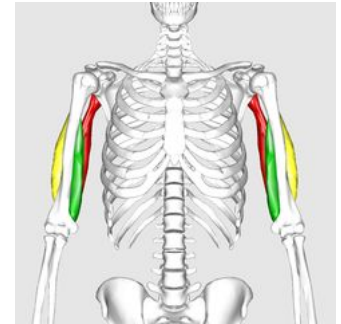
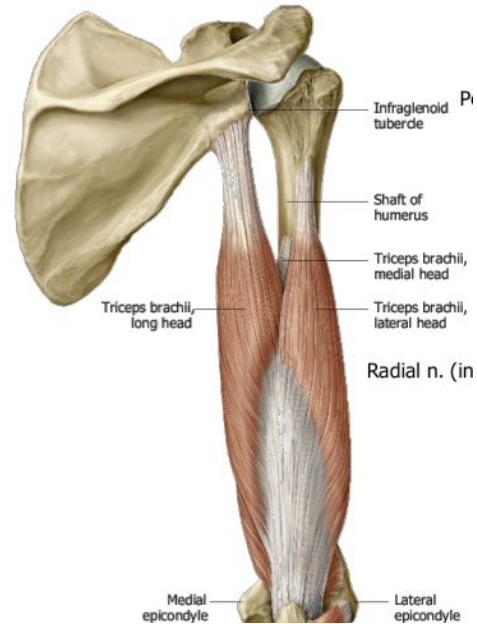
## Triceps brachii

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



# Skeletal Muscles (lower limb)

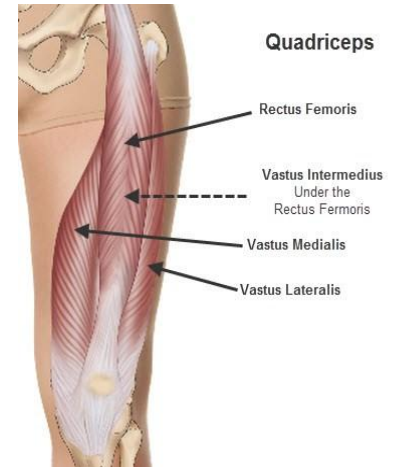
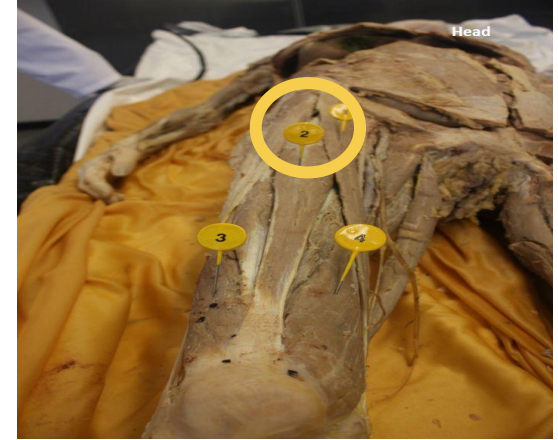
## Quadriceps Femoris

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:**  
Rectus Femoris part of Quadriceps femoris it is **Bipennate**

**Named based on:**  
Number of heads



We make this video to more explain:

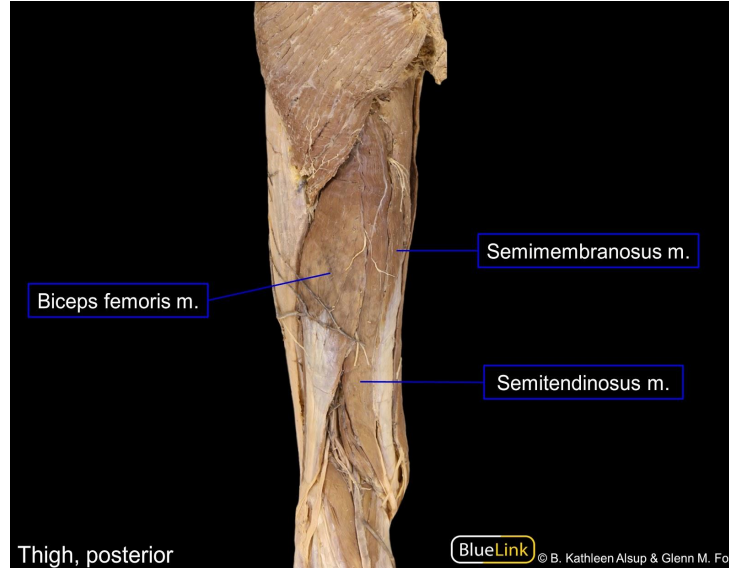
[https://drive.google.com/open?id=1EH\\_NwBQmZb6CfkARQnat9I8rMpdfIDYX](https://drive.google.com/open?id=1EH_NwBQmZb6CfkARQnat9I8rMpdfIDYX)

# 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.



دكتورة البنات قالت ما بتجي ولكن دكتور الشباب نبيه عليها فخليناها للاحتياط

# 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

It attach form lateral to medial

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

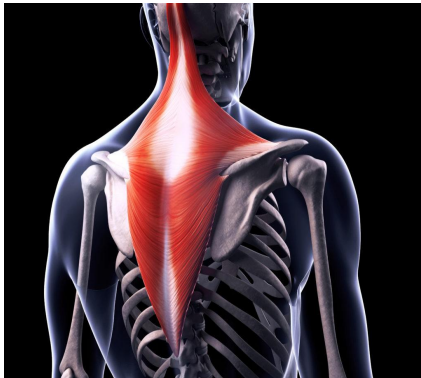
Not that important



# 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



**Not that important**

## 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**

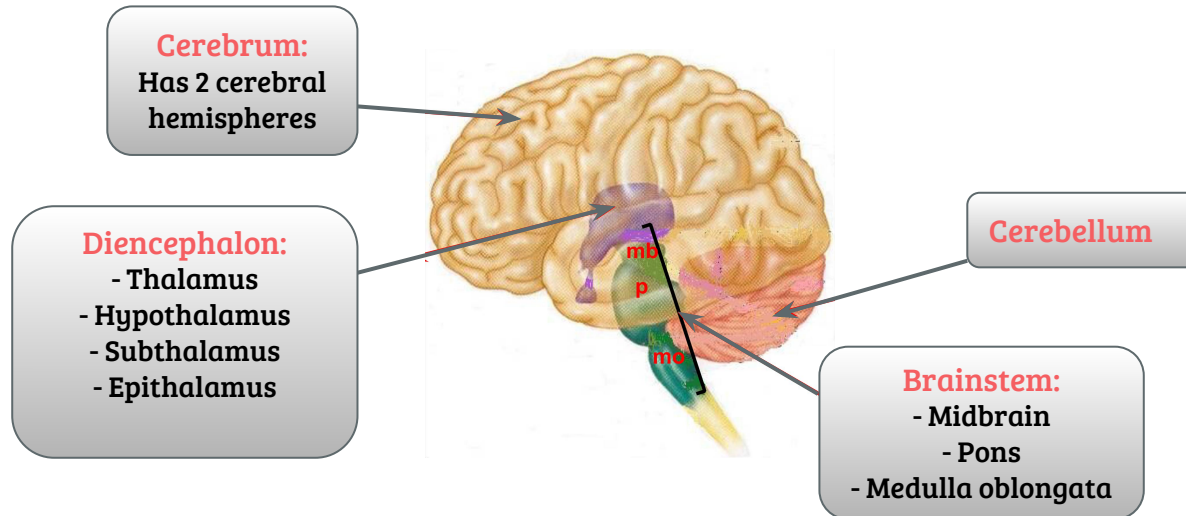
دكتورة البنات قالت ما بتجي ولكن دكتور الشباب نيهه عليها فخليناها للاحتياط



# 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)

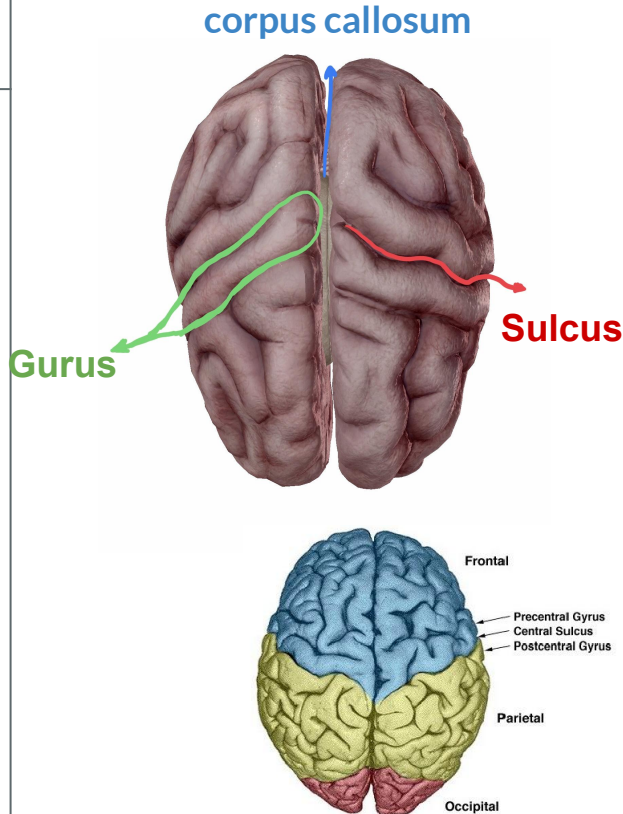
## Cerebrum

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**

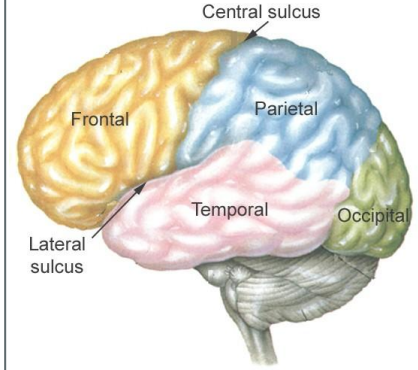
The surface shows ridges of tissue, called **gyri**, separated by grooves called **sulci**.



## Important

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

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



Frontal lobe

# Nervous system (Brain)

## Cerebellum

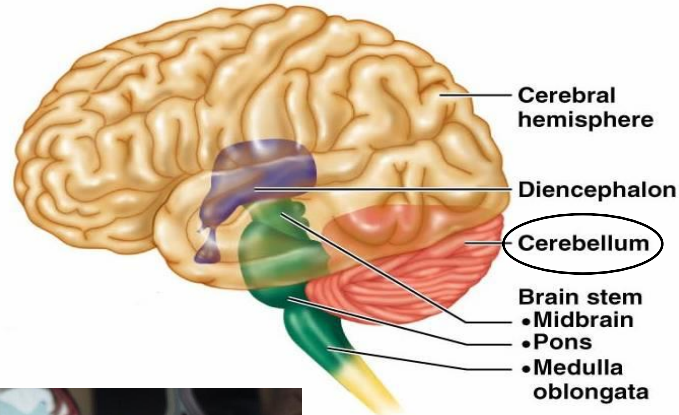
has 2 hemispheres

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

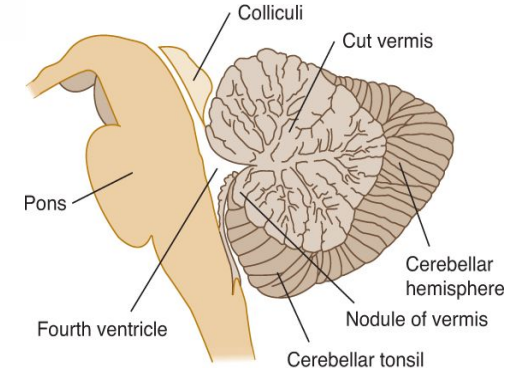
It has an outer cortex of grey matter and an inner region of white matter

### 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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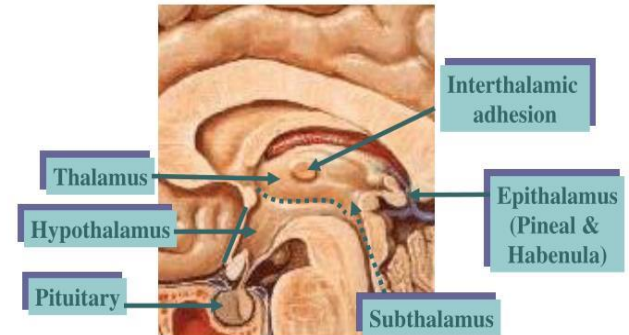
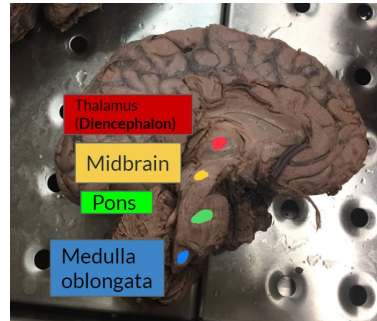
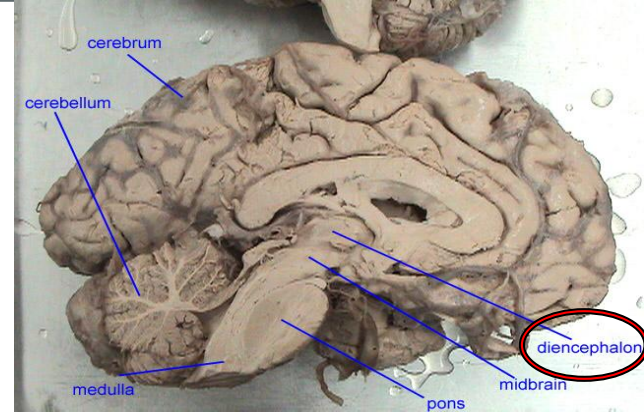
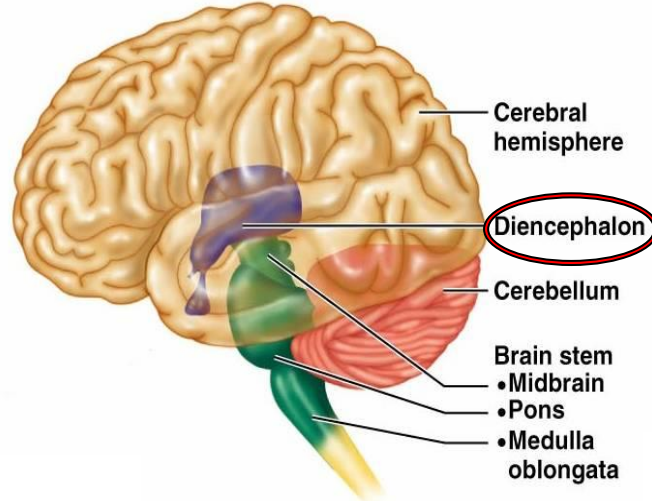
# Nervous system (Brain)

## Diencephalon

located deep in the brain underneath the cerebrum

Divided into 4 parts:

- Thalamus (diencephalon)
- Hypothalamus
- Subthalamus
- Epithalamus



# Nervous system (Brain)

Important

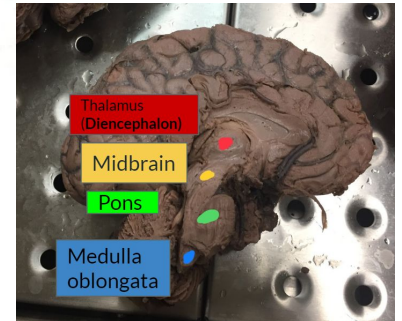
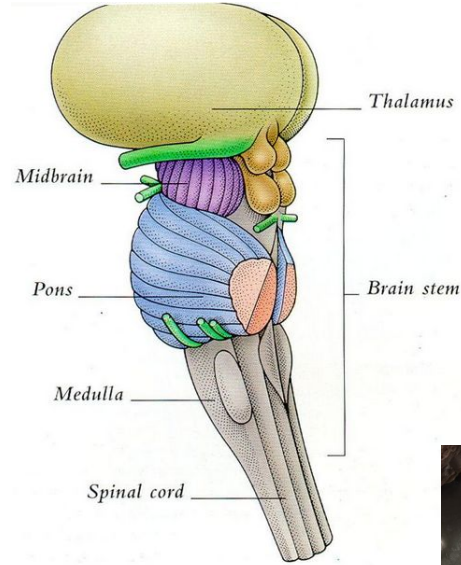
## Brainstem

posterior part of the brain, continuous with the spinal cord

Divided to 3 parts :  
Midbrain  
Pons  
Medulla oblongata



without midbrain



# Example question :

Identify the name, position 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, position 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, position 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

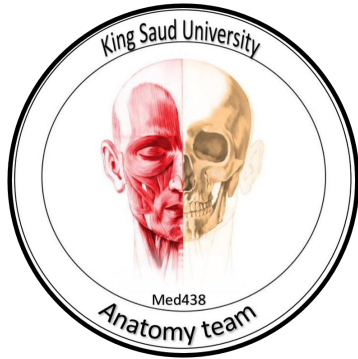
<https://www.youtube.com/watch?v=GHE6jQxQaCQ>

4- Anatomy of real brain

<https://www.youtube.com/watch?v=OMqWRIxo1oQ>



# Best wishes



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Contact us: Twitter : @Anatomy438