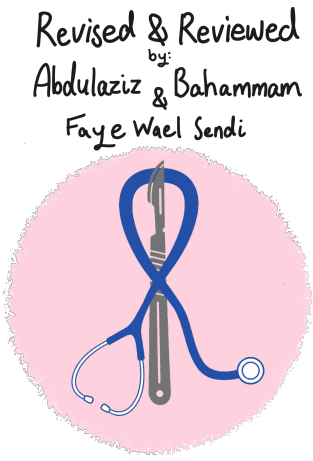
Anatomy Practical

OSPE

Foundation Block

MED441
KING SAUD UNIVERSITY

- Main text
- Important
- Doctors notes
- Extra information



skeletal system

A Brief recap:

***Skeleton is divided into:-**

- Axial skeleton
- appendicular skeleton.

***Types of bones:-**

Flat: Skull, Sternum, Scapula. (SSS)

Irregular: Vertebrae, Hip bone.

Long: Tibia, Ulna, Femur.

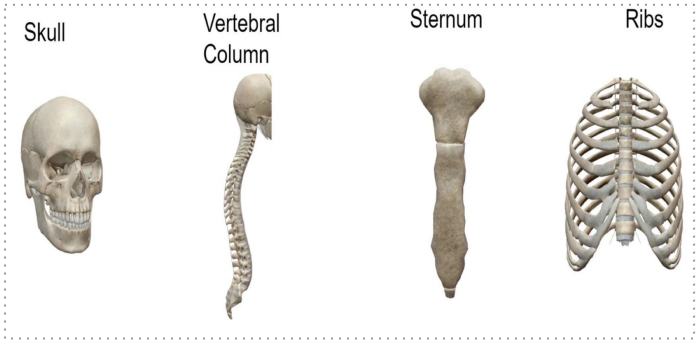
Short: Carpals, Tarsals.

Sesamoid: Patella.

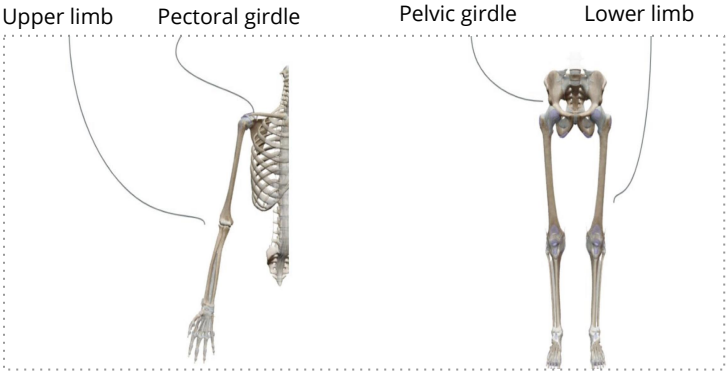
*You **must** differentiate between the **name**, **type** and **Anatomical position**

For example:-
Name: Tibia
Type: long bone
Anatomical position: Medial bone of the leg

BONES OF **AXIAL** SKELETON



BONES OF **APPENDICULAR** SKELETON



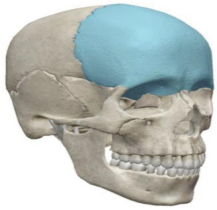
skeletal system

***Axial skeleton:** skull, sternum, ribs, and vertebrae**.**

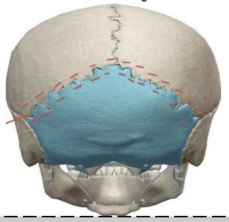
1- skull: note that facial bones are IRREGULAR

Cranium bones:

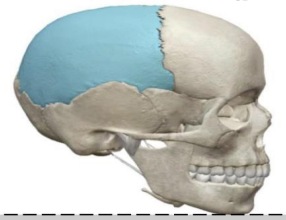
Frontal bone



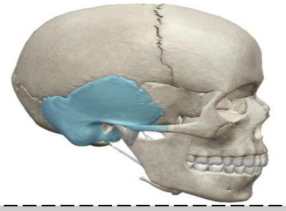
Occipital



Parietal bones (pair)

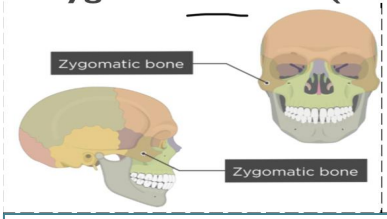


Temporal bones



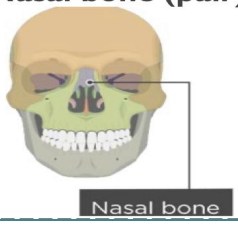
Facial bones:

Zygomatic bones (

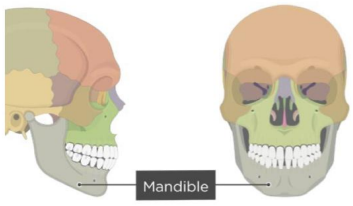


Maxilla (pair)

Nasal bone (pair)

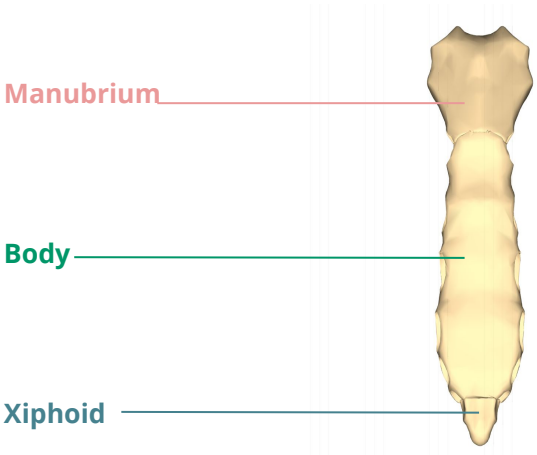


Mandible



2- sternum:

a flat bone

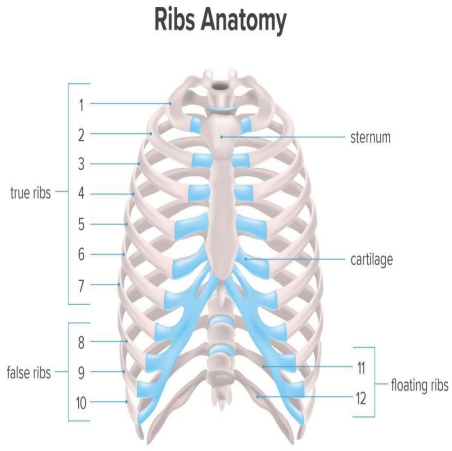


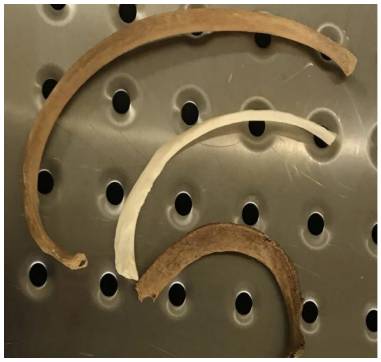
3- Ribs: they protect the thoracic cavity and Consist of 12 (pairs).

1-7: True ribs
8,9 and 10: False ribs
11 and 12: Floating ribs

RIBS ARE **FLAT** BONES

Note that floating ribs are also considered as false ribs





skeletal system

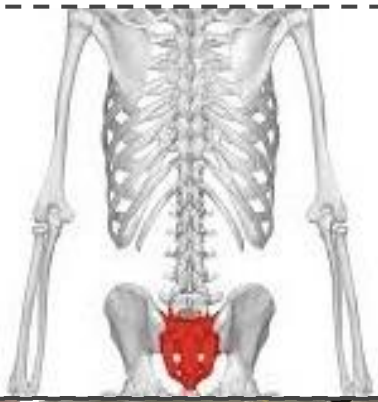
***Bones of appendicular skeleton:**

pectoral (shoulder) girdle :

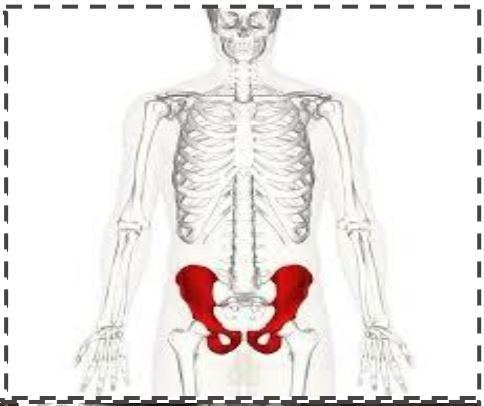
Clavicle	Scapula
(in the pectoral girdle) -Type: long bone. - 'S' shaped	Type: flat bone. - part of the pectoral girdle -triangular in shape

Pelvic girdle:

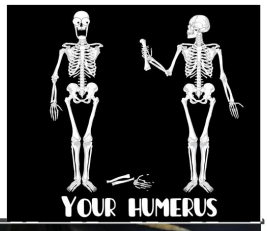
Sacrum
(**5** fused) in vertebral column (irregular bone)



Hip bone
(irregular bone)



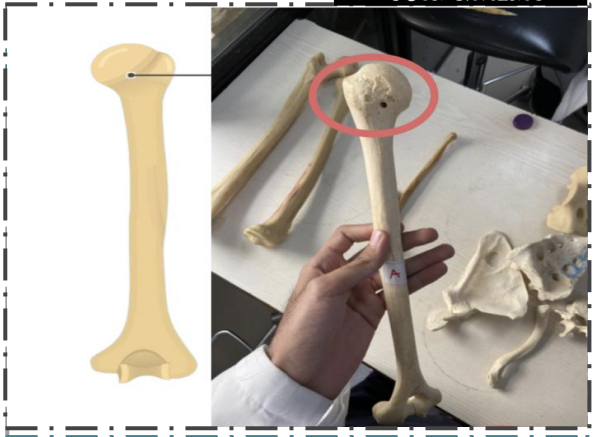
skeletal system



*Bones of upper limb:

Humerus: (in the arm)

- Long bone because the length is greater than the width and has two ends.
How can I differentiate?
It has a semi-ball at one of its ends (**without neck**)



Ulna: (in the forearm)

Long bone
-shaped curve
-medial bone of the forearm
How can I differentiate?
-Has a (U)

Radius: (in the forearm)

Long bone
-Has a circle at the bottom (cap)
(تشبه الكرملّه)
- lateral bone of the forearm

Hand:

-Carpals: short bones (8)
-Metacarpals:long bones (5)
-phalanges: long bones (14)
Positions:Distal, Medial and Proximal
For the thump:only Distal and Proximal

Counting starts from lateral to medial (starting from the thumb).
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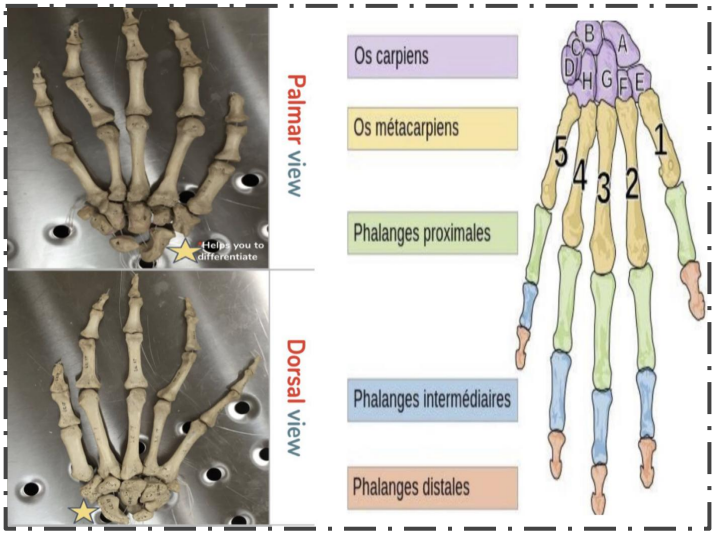


BONES OF APPENDICULAR SKELETON (lower limb)

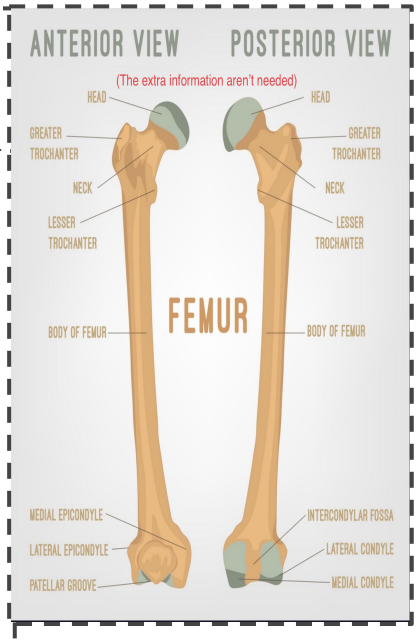
Bones of the Lower limb:

Femur

a bone in the Lower limb
it's the Bone of thigh

Type of bone:
Long bone

Easiest way to know if a bone is femur is by noticing the half ball on the top of it



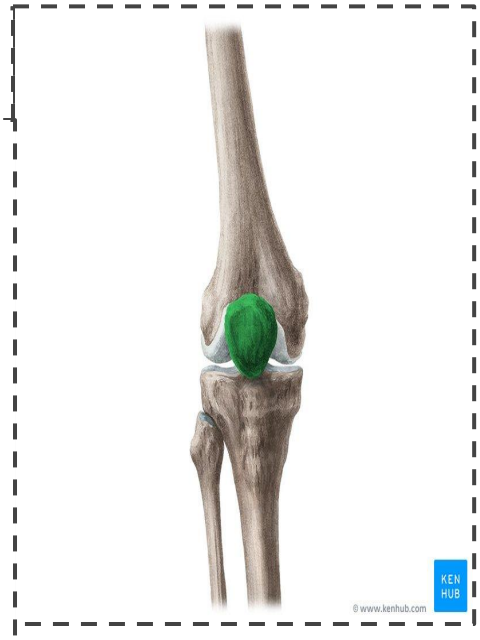
Patella

a bone in the Lower limb

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

Type of bone:
Sesamoid bone

Just for memorizing:
الاسم المتعارف عليه (الصابونه) لانها نفس الشكل



BONES OF APPENDICULAR SKELETON (Lower limb)

Bones of the Leg:

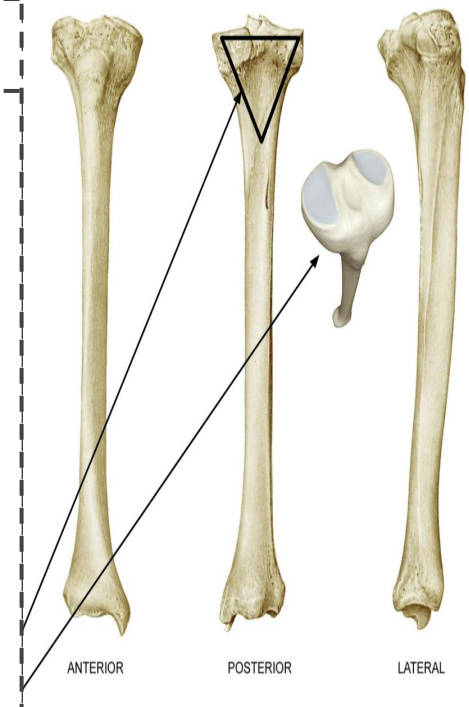
Tibia

a bone in the Lower limb

it's the medial bone in anatomical position

Type of bone: Long bone

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



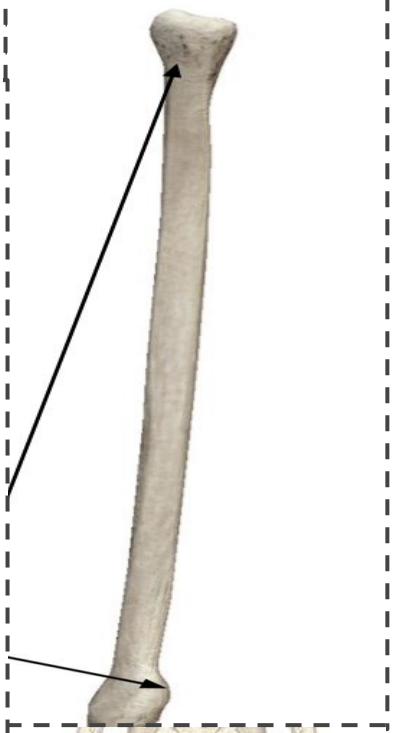
Fibula

a bone in the Lower limb

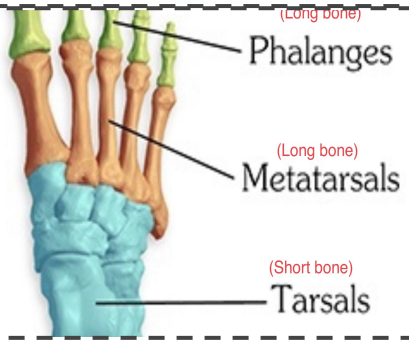
it's the lateral bone in anatomical position

Type of bone: Long bone

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

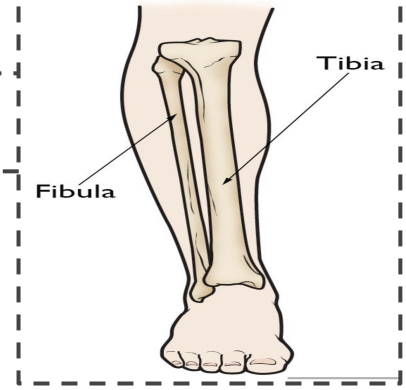


Bones of the foot:
Tarsals : 7 (short bone)
Metatarsals:5
Phalange: 14



both metatarsals and phalanges (Long bones)

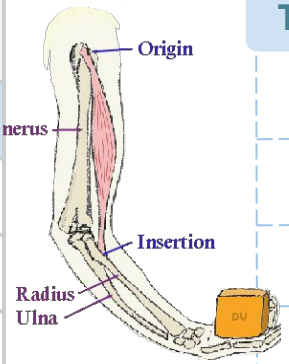
tibia vs fibula



SKELETAL MUSCLES

BRIEF RECAP

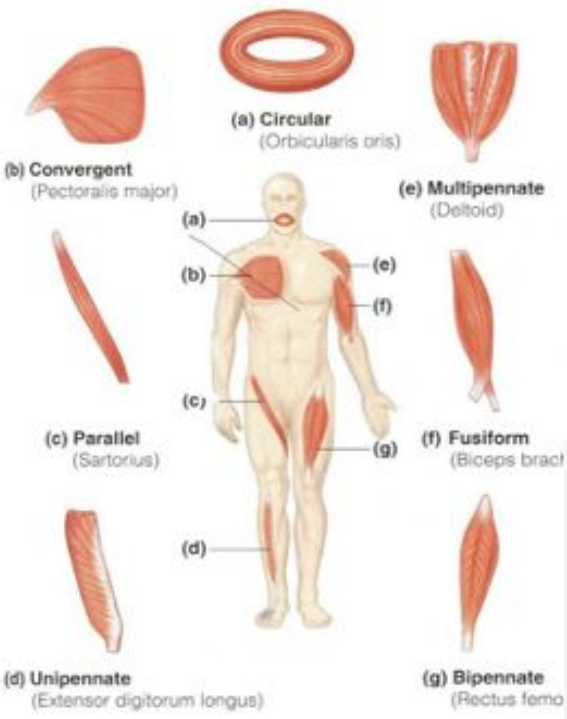
Muscles Attachment	
Origin	**Insertion**
Mostly **Fleshy**	Mostly **fibrous**
Least movable	**Most** movable
The **proximal** end	The **Distal** end

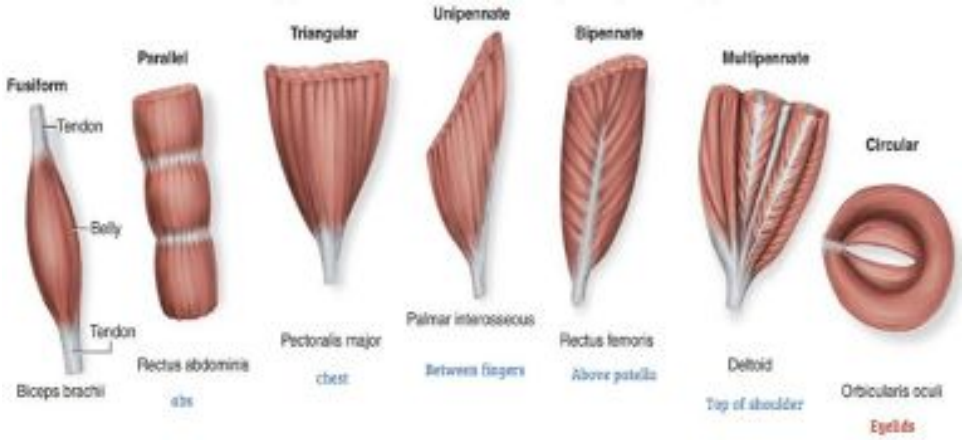


Types Of Attachments

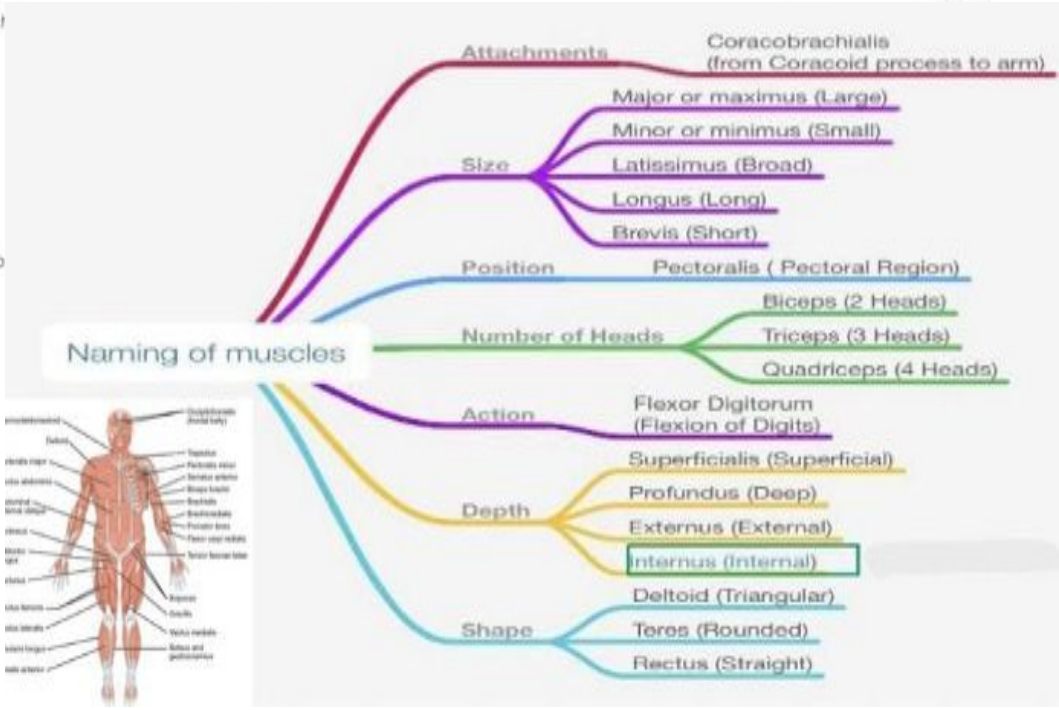
- Tendons
- Aponeurosis
- Raphe

DIRECTION OF MUSCLE FIBERS



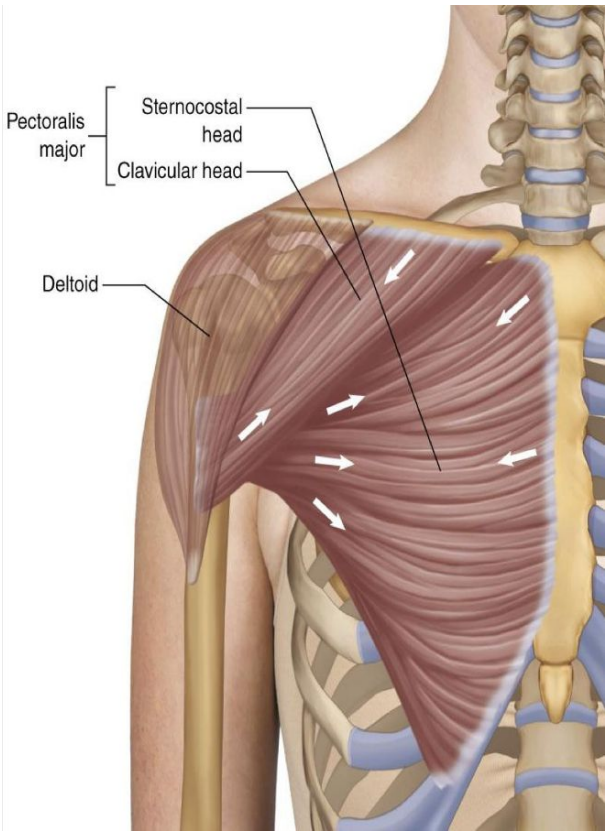


It's IMPORTANT to know the direction of the muscle fibers



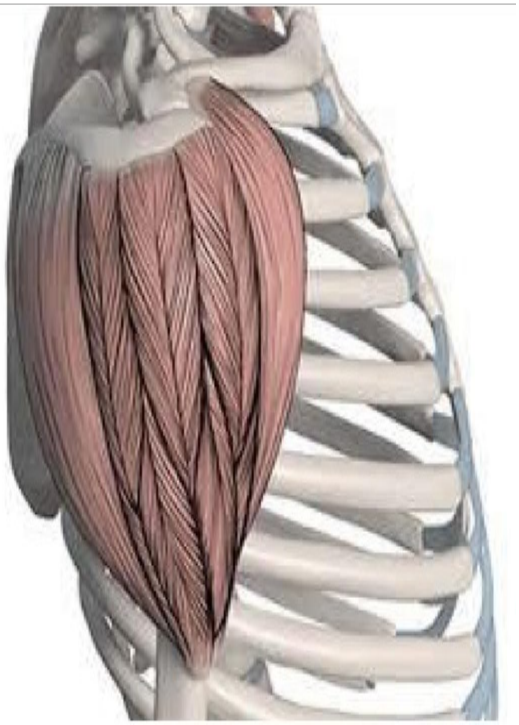
skeletal muscles (chest)

Muscle name	**Pectoralis major**
Named based on	Size (major= large) and position
Location	In the upper chest
Direction of muscle fibers (type)	**Triangular - convergent**



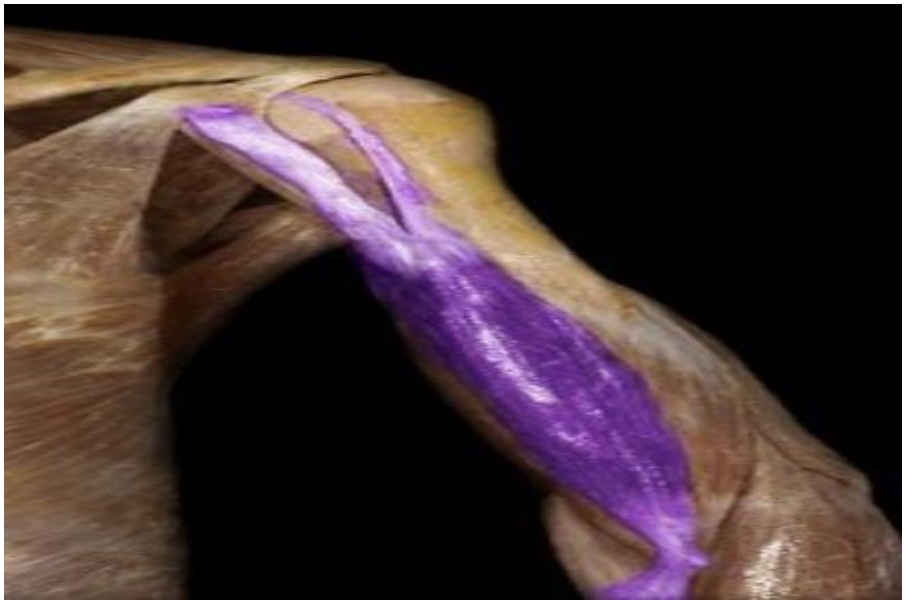
skeletal muscles (upper limb)

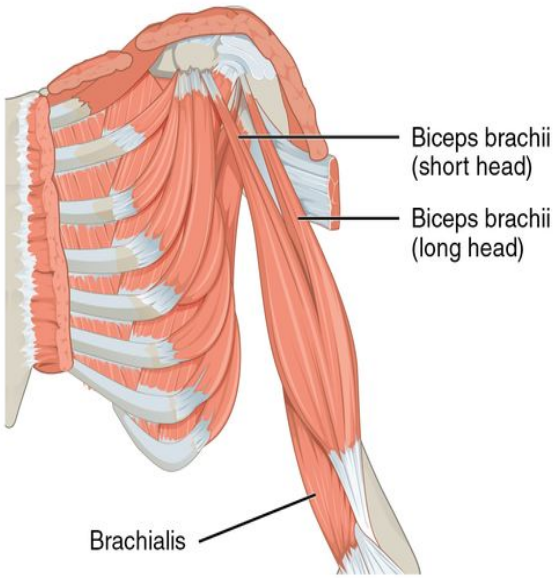
Muscle name	**Deltoid**
Named based on	Shape (deltoid = triangular)
Location	In the upper limb located on the uppermost part of the arm and the top of the shoulder
Direction of muscle fibers (type)	**Multipennate**



skeletal muscles (upper limb)

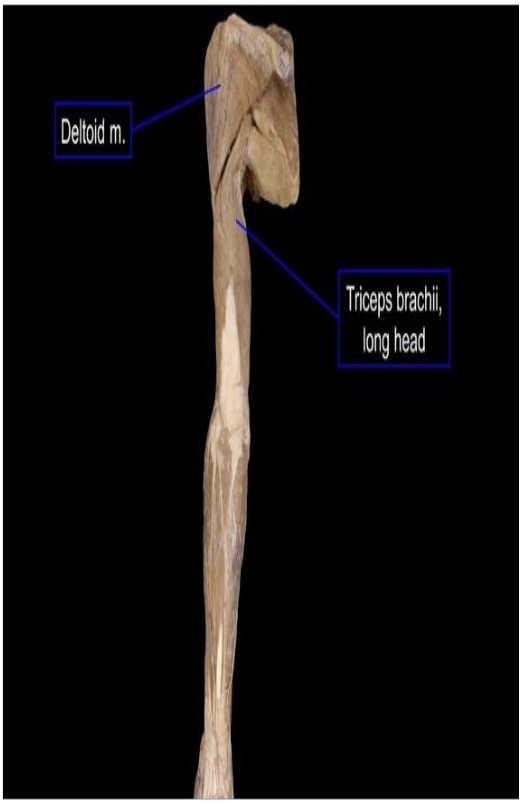
Muscle name	**Biceps Brachii**
Named based on	Number of heads (biceps = two heads)
Location	In the upper arm. Located along the humerus bone (from the front) between the shoulder and the elbow.
Direction of muscle fibers (type)	**Fusiform**

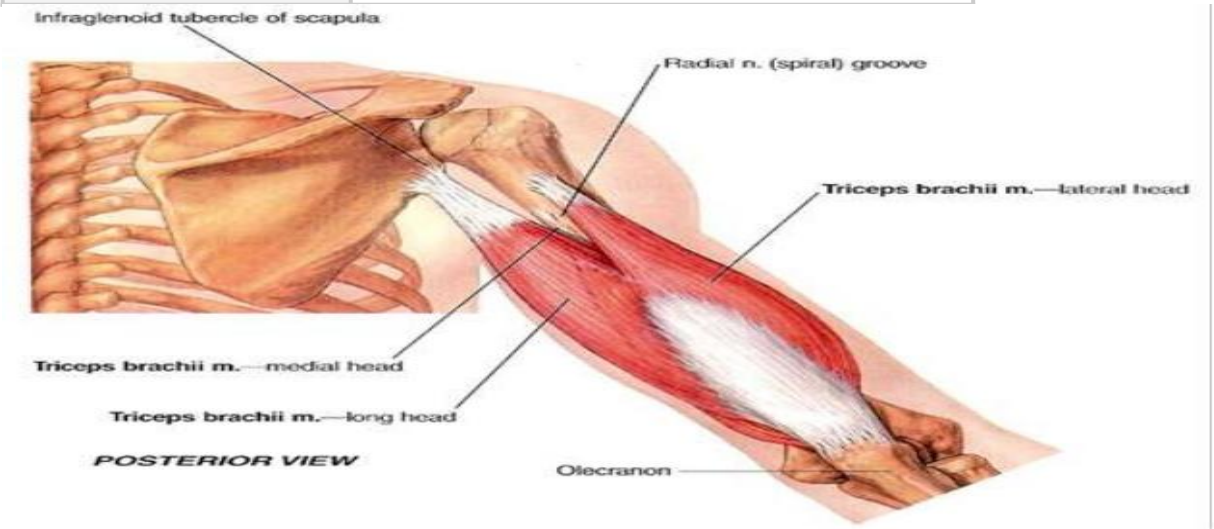


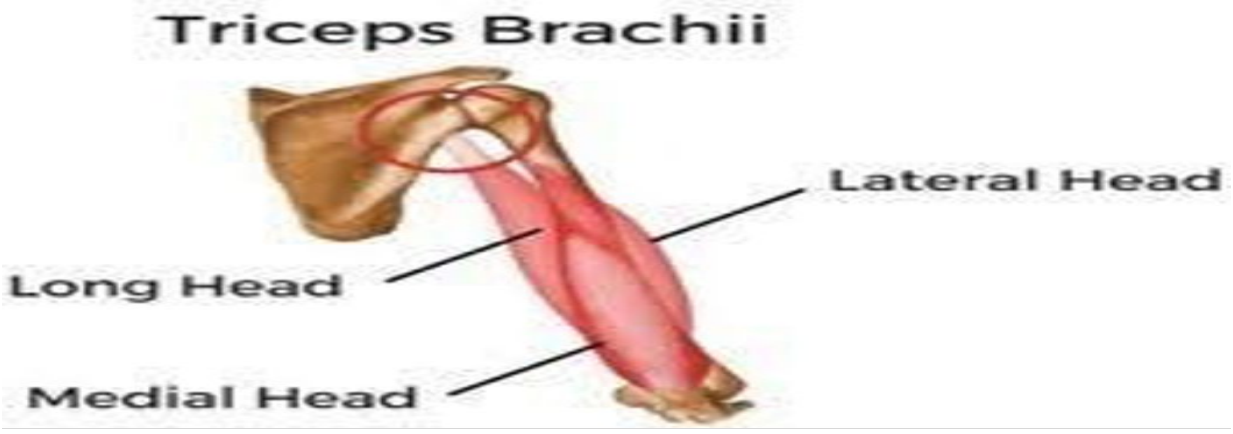


skeletal muscles (upper limb)

Muscle name	**Triceps Brachii**
Named based on	Number of heads (triceps = 3 heads)
Location	In the upper arm. Along the humerus bone (from the back) between the shoulder and the elbow.
Direction of muscle fibers (type)	**Fusiform**

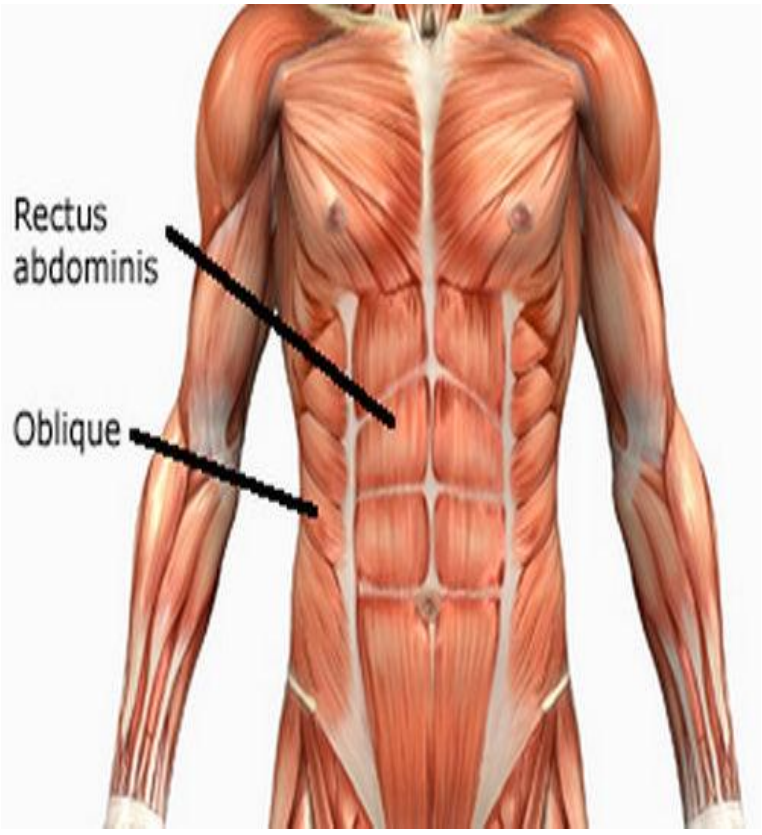






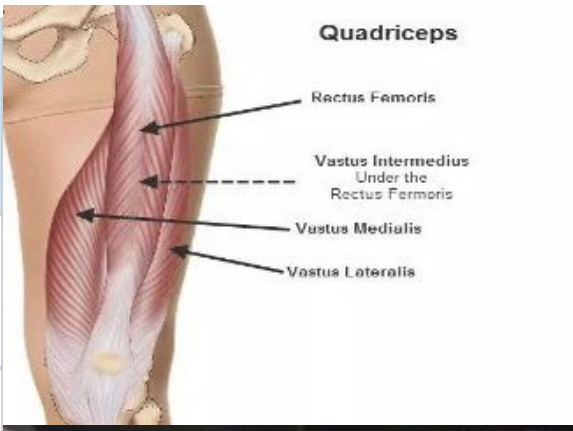
skeletal muscles (abdomen)

Muscle name	**Rectus abdominis**
Named based on	Shape and position
Location	In the front of the body inside the abdominal region
Direction of muscle fibers (type)	**Parallel**

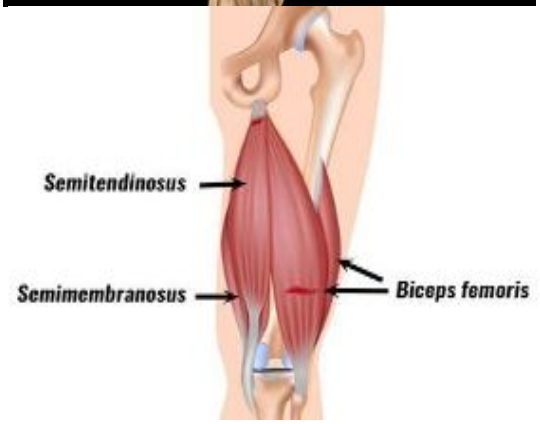


skeletal muscles(lower limb)

Muscle name	**Quadriceps femoris (Rectus femoris)**
Named based on	Number of heads (four)
Location	Large fleshy muscle group in the front of the thigh covering the front and the sides of the thigh
Direction of muscle fibers (type)	**Bipennate**

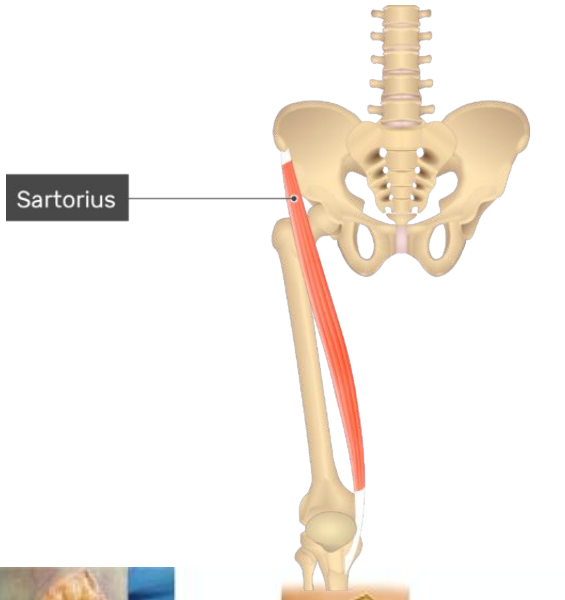


Muscle's Name	Definition
Hamstring	- Any of three muscles at the back of the thigh that function to flex and rotate the leg and extend the thigh. The three muscles are : A - semimembranosus B- semitendinosus C- Biceps femoris

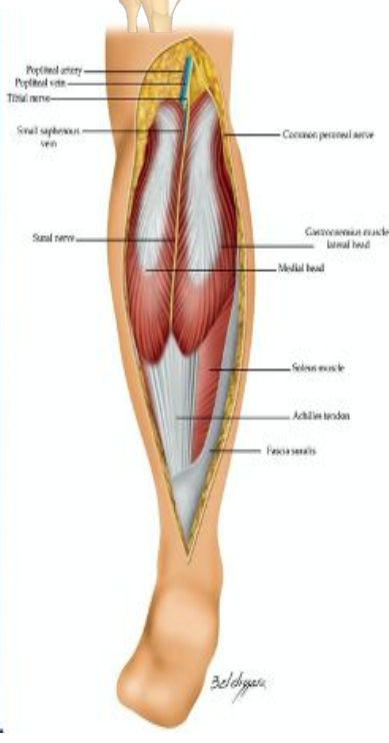


skeletal muscles(lower limb)

Muscle name	**Sartorius**
Definition	A muscle that crosses the front of the thigh obliquely , assist in rotating the leg to the cross-legged position (it's **The Longest Muscle** in the human body)
Location	In the proximal (upper) anterior part of the thigh.
Direction of muscle fibers (type)	**parallel**



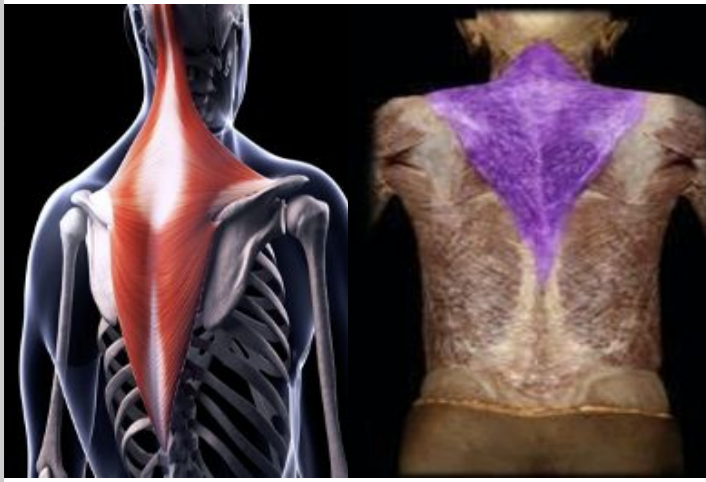
Muscle name	**Calf muscle**
Definition	Calf muscle is a two muscles 1- gastrocnmenius (Largest) 2- soleus (Smallest)
Location	In the posterior aspect of the leg
Direction of muscle fibers (type)	**Bipennate**



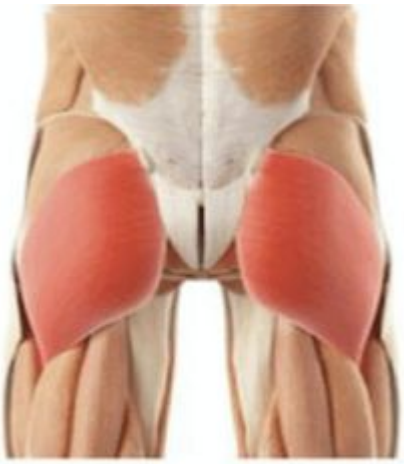
Other skeletal Muscles

من جزئية الأولاد

Muscle's Name	Definition
Trapezius	It is an **Upper back** muscle that extends from **Occipital** bone to the **lower Thoracic Vertebrae** of the spine



Muscle's Name	Definition
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

It's recommended that you watch the Blackboard video first*

Nervous system

Organization of nervous tissue:

- Gray matter (G.M)
- White matter (W.M)

Brain

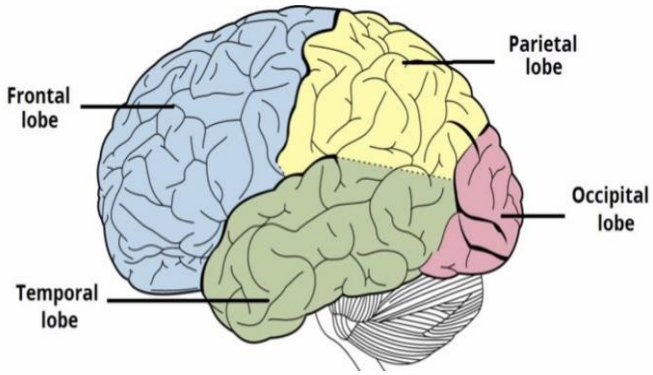
- located in the cranial cavity

- it has 4 lobes:
  - frontal
  - parietal
  - temporal
  - occipital
    - these lobes are part of the cerebrum

Explanation: how to determine the front and the back of the brain ?
The front of the brain has 2 poles(قطبين) while the back has only one

Consist of 4 parts:

- Cerebrum (المخ)
- Cerebellum (المخيخ)
- Diencephalon (you need to know the thalamus and hypothalamus)
- Brain stem (its called stem " جذع " because it carries the whole brain)



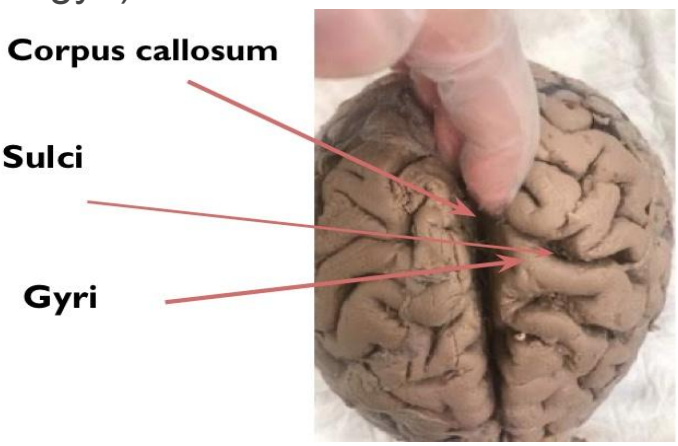
Cerebrum

- It has two hemispheres :
right and left

- Outer part is the cortex
(consist of grey matter)

- Inner core is the White matter

- It has 2 types of folds :
Gyri : folds on the surface
Sulci : inner folds (deeper than than the gyri)



These are the two cerebral hemispheres that are connected by a thick bundle of fibers known as corpus callosum

Located Deep within the white matter masses of grey matter Called **basal nuclei**

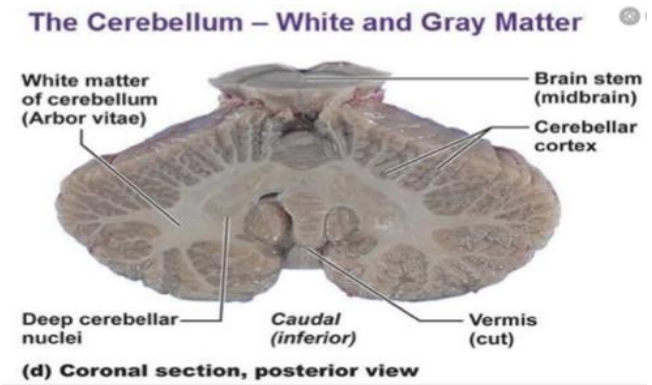
Cerebellum

Function is important*

- Posterior

- It has two hemisphere :
right and left

- outer cortex (القشرة) **of grey matter and inner region of white matter**



All you need to see is the grey and white matter other info is NOT IMPORTANT

Diencephalon

- Thalamus
- Hypothalamus
- Subthalamus
- Epithalamus

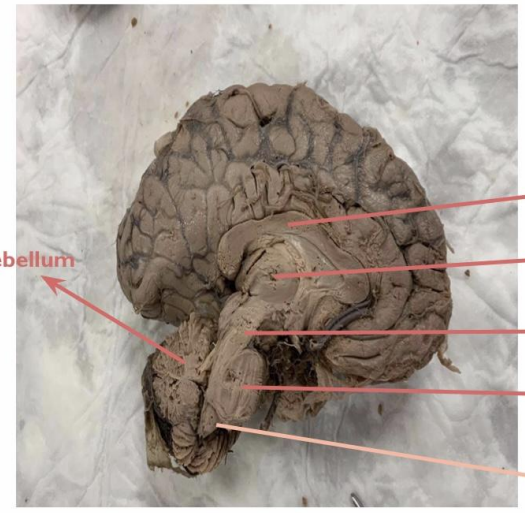
- **Thalamus** is(the egg shape or ball shape structure)
- **Hypothalamus** (it is like a triangle in the lower part of the thalamus)

Brain stem

Consist of:
- Midbrain
- Pons
- Medulla oblongata

The part that will help you determine the brainstem is the **Pons**
Superior to the pons is the **midbrain**

Inferior to the pons is the **medulla oblongata**



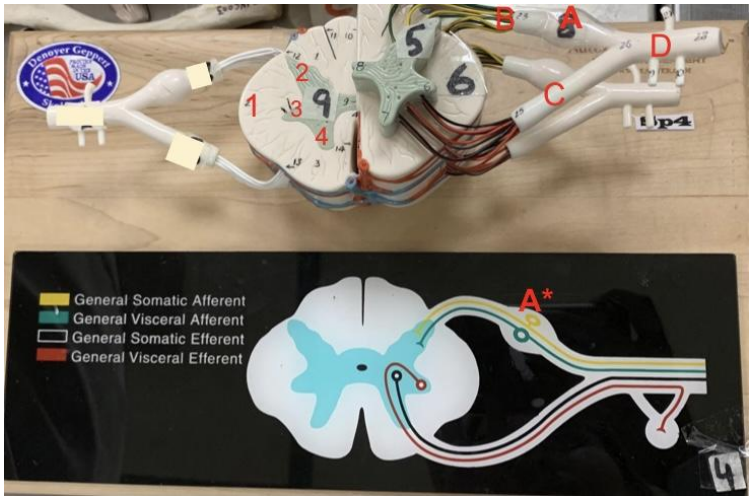
Spinal cord

Cylindrical in shape lies within the vertebral canal
Spinal cord
-Extends from foramen magnum to L2 vertebra
-Gives rise to 31 pairs of spinal nerves

Spinal cord

Cauda equina: is a group of spinal nerves at the end of the spinal cord(مثل ذيل الحصان)

Cross section of the spinal cord



MED438
اربطوها بشكل الفراشه دائما الاذرع الطويله تكون في جهه **dorsal**
دائما تحتوي على العقدة*

Anterior median fissure(ventral) فتحة واسعة
Posterior median septum (dorsal)فتحة ضيقة

Dorsal root ganglion(DRG)	A
Dorsal root of spinal nerve	B
Ventral root of spinal nerve	C
Trunk of spinal nerve	D
White matter of spinal cord	1
Dorsal horn of spinal cord	2
Lateral horn of spinal cord	3
Ventral horn of spinal cord	4

SAQs:

1-What does the brain stem consist of? Slide 17

2- what is the direction of muscle fibers of the deltoid muscle?

Multipennate

3- which muscle has convergent muscle fibers?

Pectoralis major

4- what is the direction of muscle fibers of Quadriceps femoris?

Bipennate

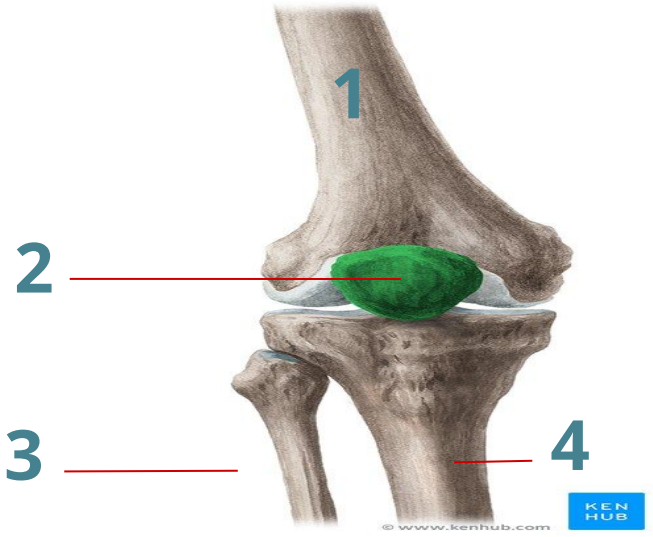
5- muscle that is located in the proximal anterior part of the thigh?

sartorius

6- Identify the following:

- The joint name:
knee joint **(of right leg)**

- Labeled bones:
1- Femur
2- patella
3- Fibula **(lateral)**
4- Tibia **(medial)**



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