



# Introduction to Anatomy

**1<sup>st</sup> Year Medical Students**

**2025-2026**

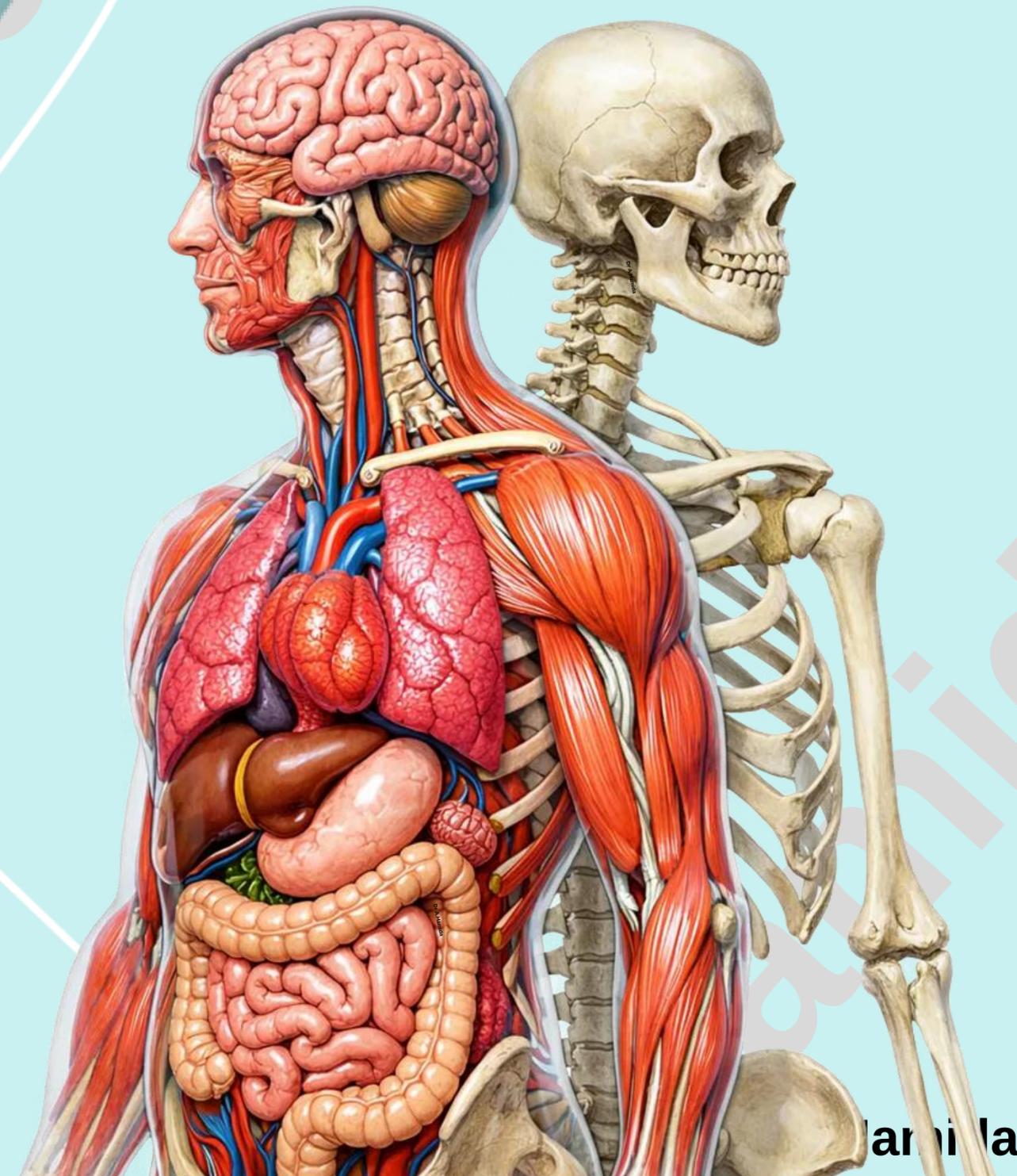
**Second Semester**

**Dr. Abedallah Hamida, MBBS, PhD**

**Department of Anatomy and Histology**

**School of Medicine-The University of Jordan**

**[a\\_hamida@ju.edu.jo](mailto:a_hamida@ju.edu.jo)**



Hamida

# Course Outline:

**1** Introduction and Terminology

**2** Skeletal System

**3** Cardiovascular System

**4** Lymphatic System

**5** Nervous System

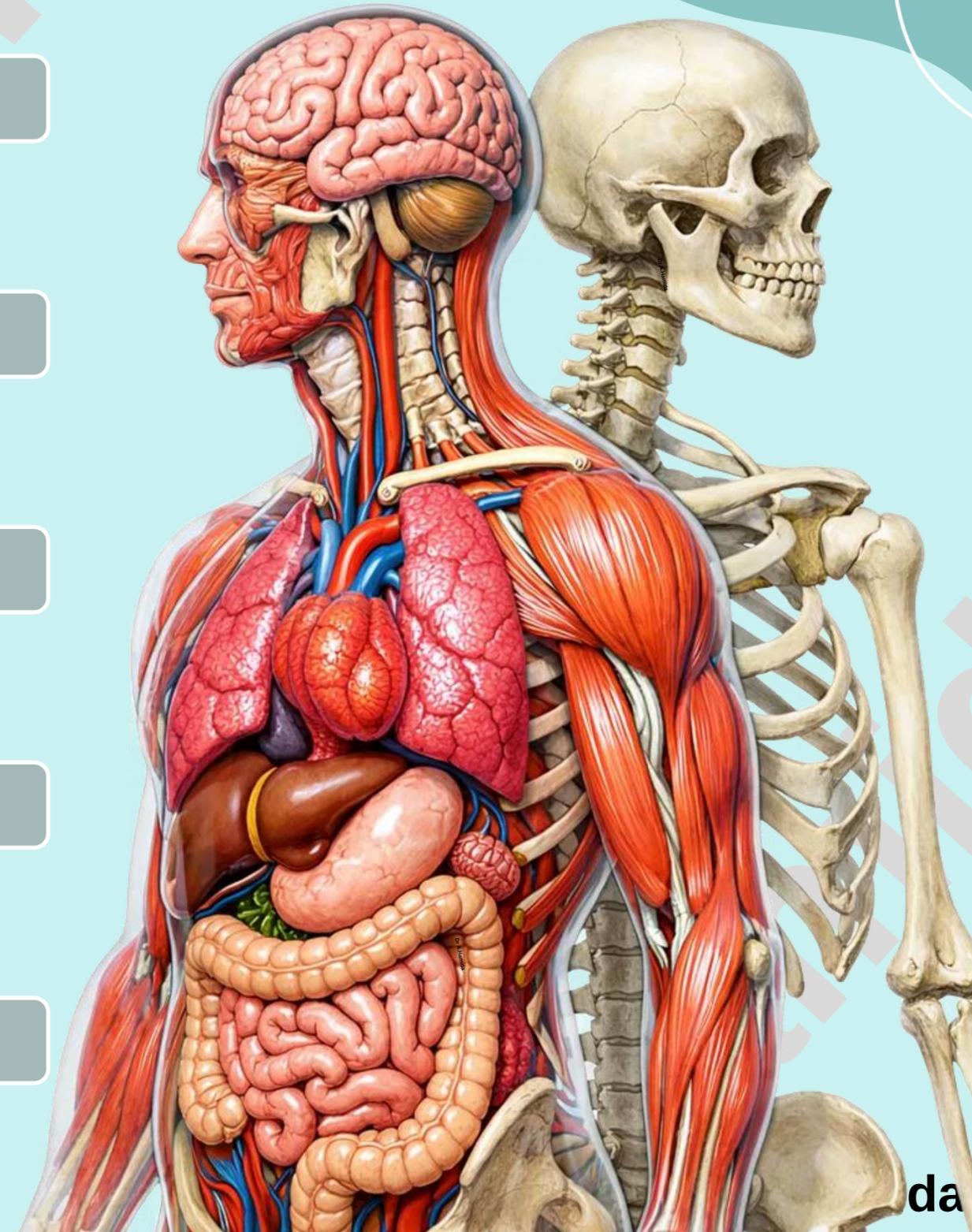
**6** Muscular System

**7** Respiratory System

**8** Digestive System

**9** Urinary System

**10** Endocrine System



# 2

## Skeletal System

### System Outline:

2.1

**Axial Skeleton**

2.2

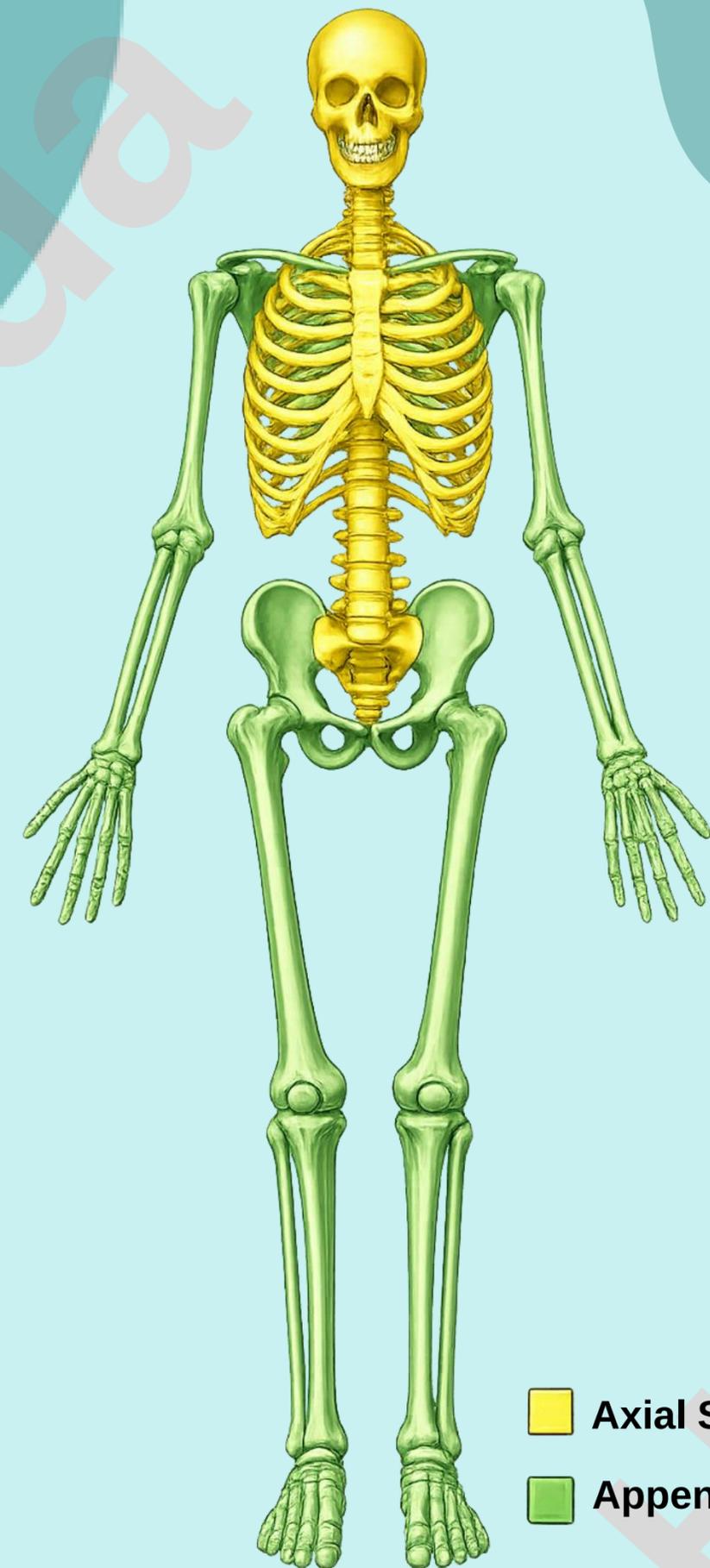
**Appendicular Skeleton**

2.3

**Joints**

# Skeletal system

## 2. Appendicular Skeleton



■ Axial Skeleton

■ Appendicular Skeleton

# 2

## Skeletal System

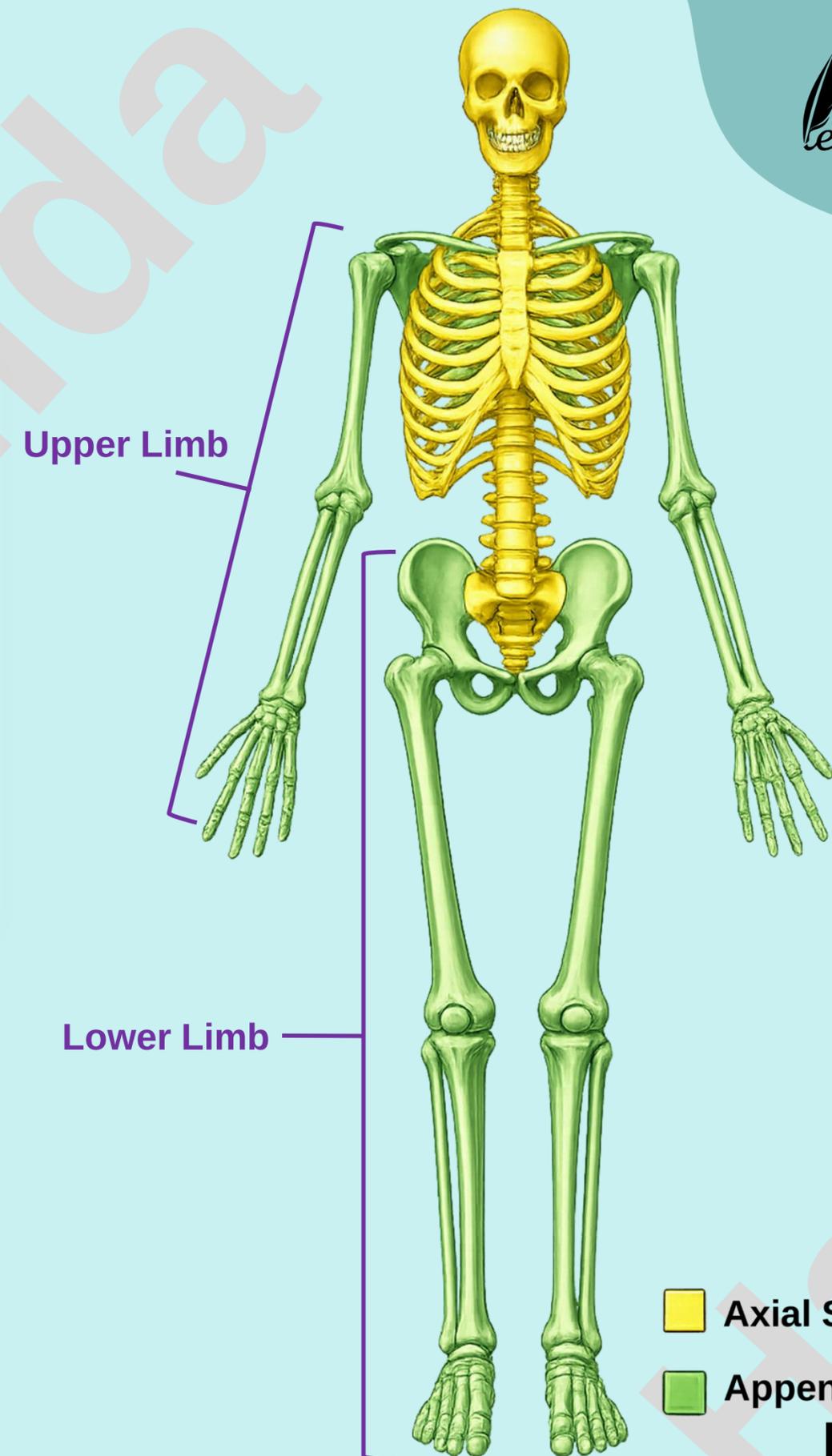
- The human skeletal system consists of **206 bones**
- The skeletal system is classified functionally into:

### 1. Axial Skeleton :

- Consists of the bones and cartilages that lie close to the central axis of the body.
- It includes the bones of the
  1. Skull
  2. Vertebral Column
  3. Thoracic Cage

### 2. Appendicular Skeleton :

- It is bilaterally symmetrical and consist of the bones and cartilages of the:
  1. Upper Limb
  2. Lower Limb



■ Axial Skeleton

■ Appendicular Skeleton

Dr A.Hamida

# 2.2 Skeletal System-Appendicular Skeleton

## Lecture Outline:

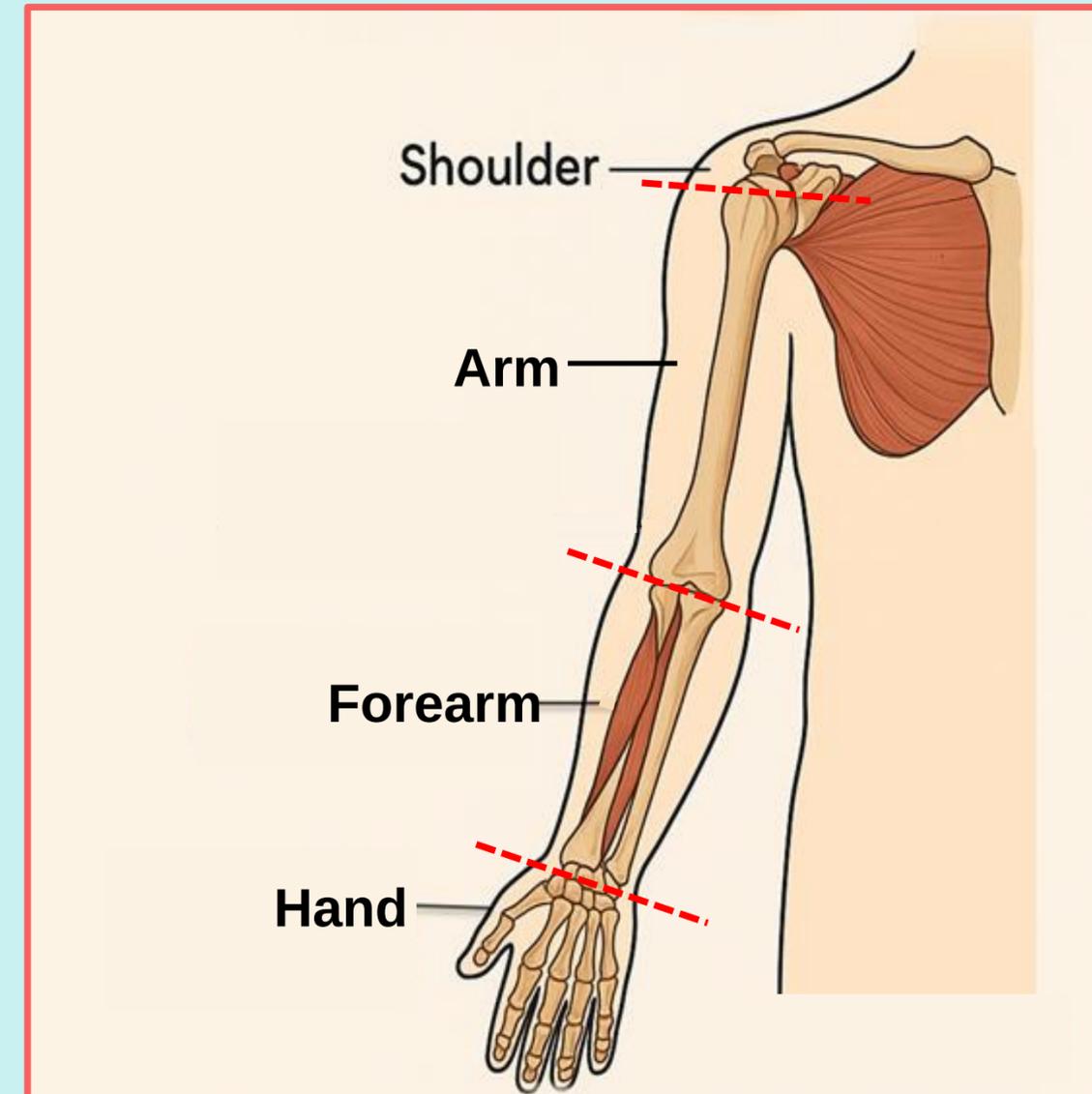
2.2.1 Upper Limb Bones

2.2.1 Lower Limb Bones

## Upper Limb Bones

➤ The upper limb consists of four regions:

1. **Shoulder region (Pectoral Girdle):** the area where the upper limb attaches to the trunk.
2. **Arm:** the region between the shoulder joint and the elbow joint.
3. **Forearm:** the region between the elbow joint and the wrist joint.
4. **Hand:** the region distal to the wrist joint.

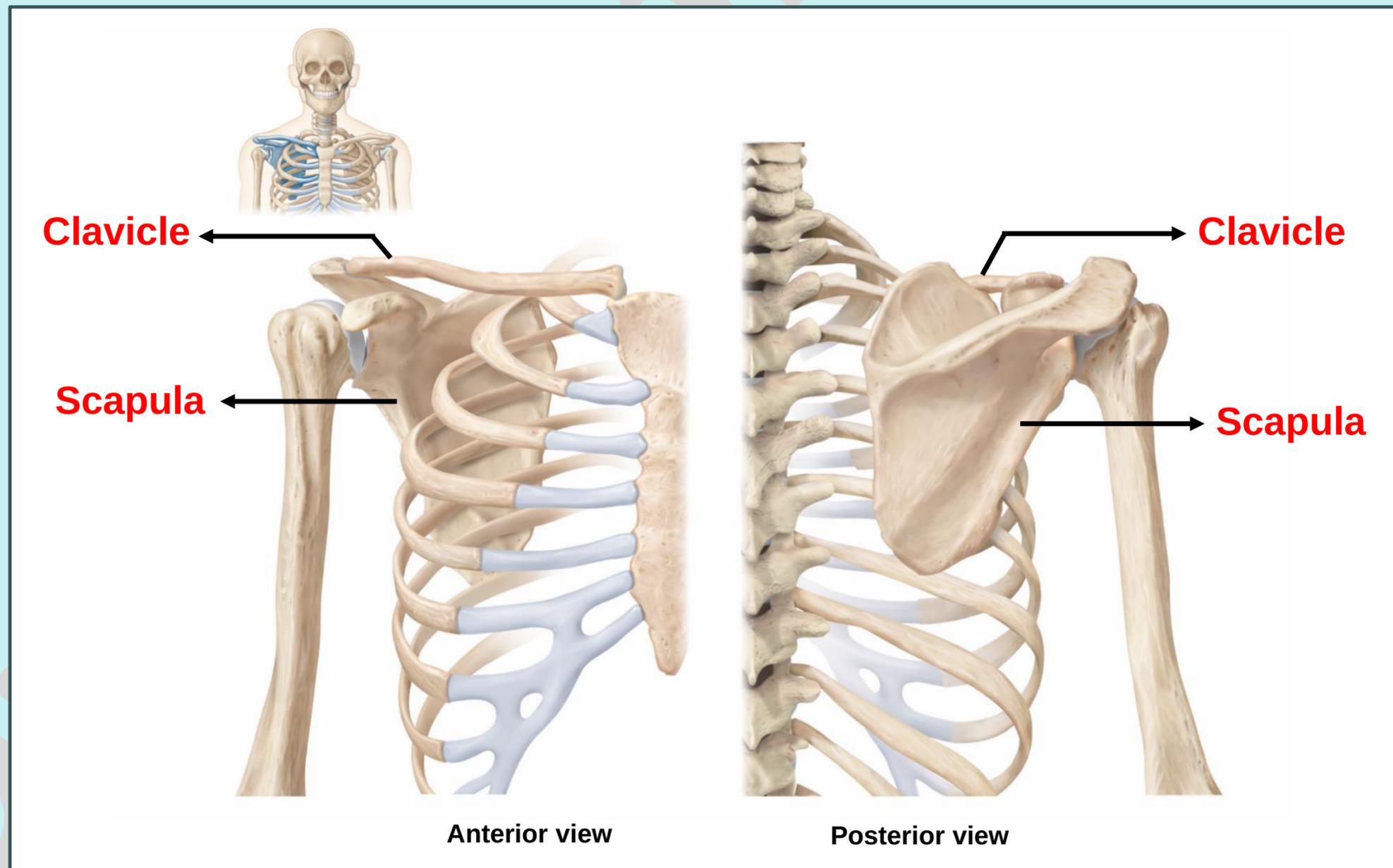


## Upper Limb Bones

### 1. Shoulder (Pectoral Girdle)

➤ The shoulder (pectoral girdle) consists of the bones that connect the upper limbs to the axial skeleton.

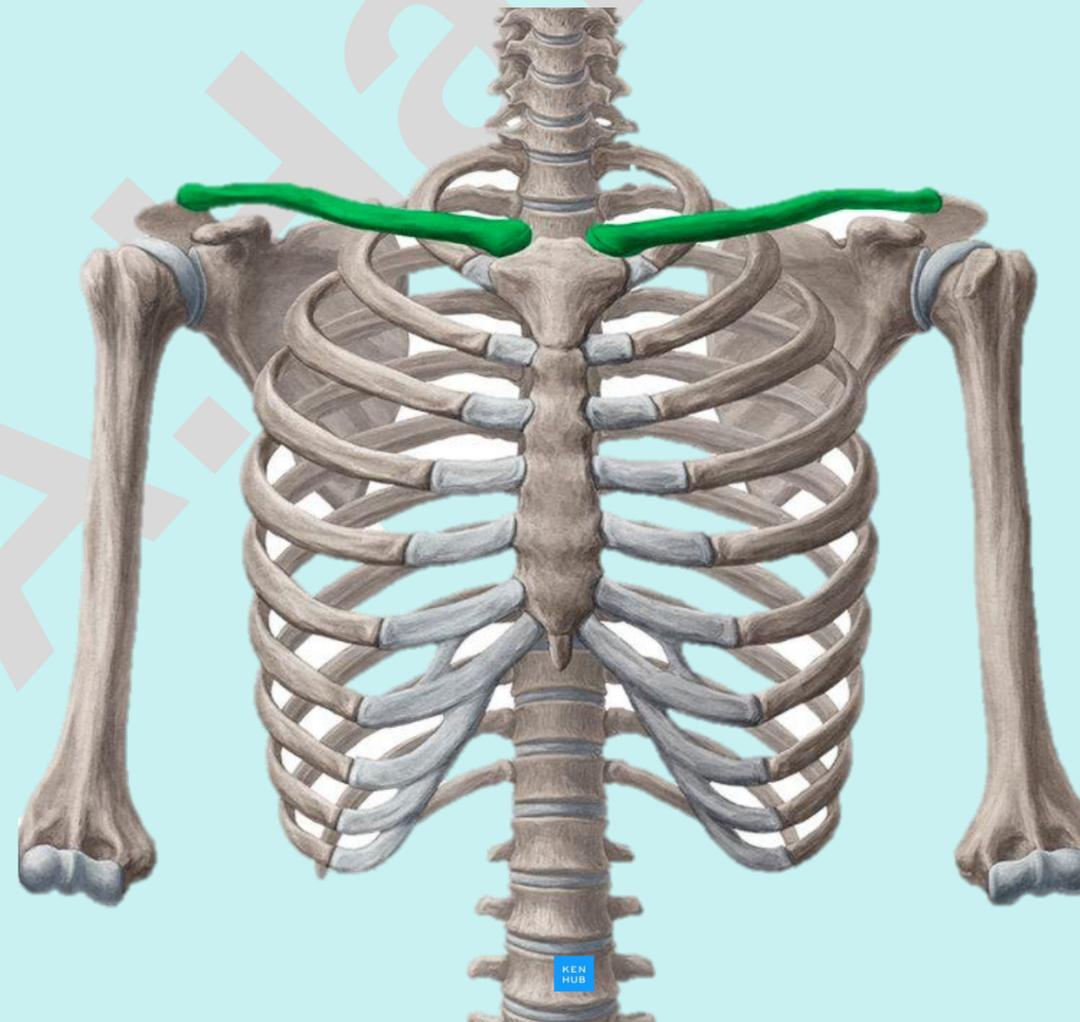
1. Clavicle
2. Scapula



### 1. Shoulder (Pectoral Girdle)

#### ➤ Clavicle Bone (collarbone)

- A long, S-shaped bone lying horizontally across the anterior thorax, superior to the first rib.
- It is subcutaneous (under the skin) and easily palpable along its length.
- Articulates medially with the sternum and laterally with the scapula.

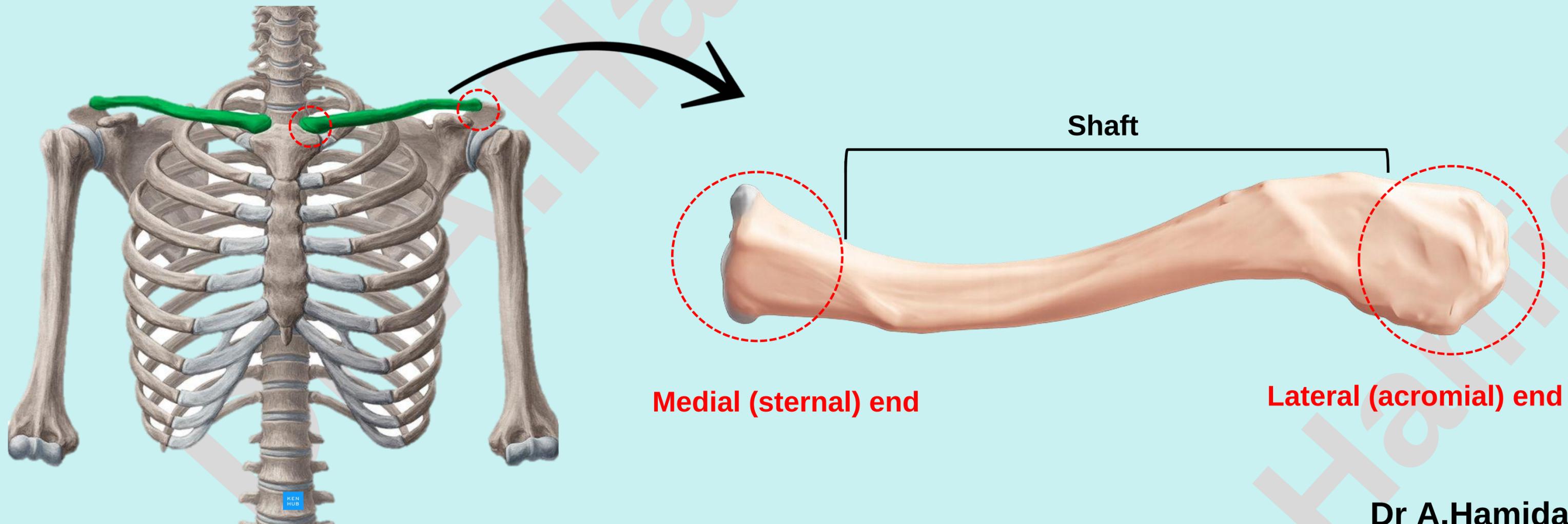


## Upper Limb Bones

### 1. Shoulder (Pectoral Girdle)

#### ➤ Clavicle Bone (collarbone)

- It consists of three parts: **the medial end, the lateral end and the shaft.**
  1. **Medial (sternal) end:** rounded and articulates with the manubrium of the sternum.
  2. **Lateral (acromial) end:** broad, flat, lateral end, articulates with the acromion of the scapula.
  3. **Shaft:** curved.

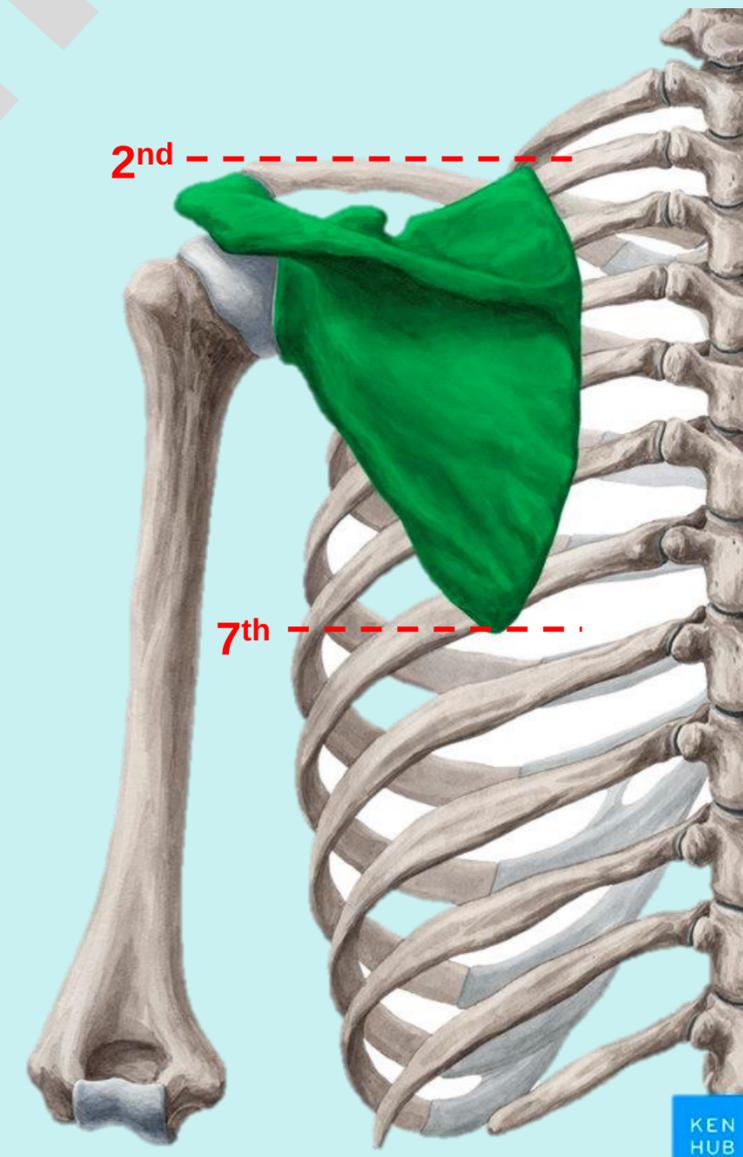
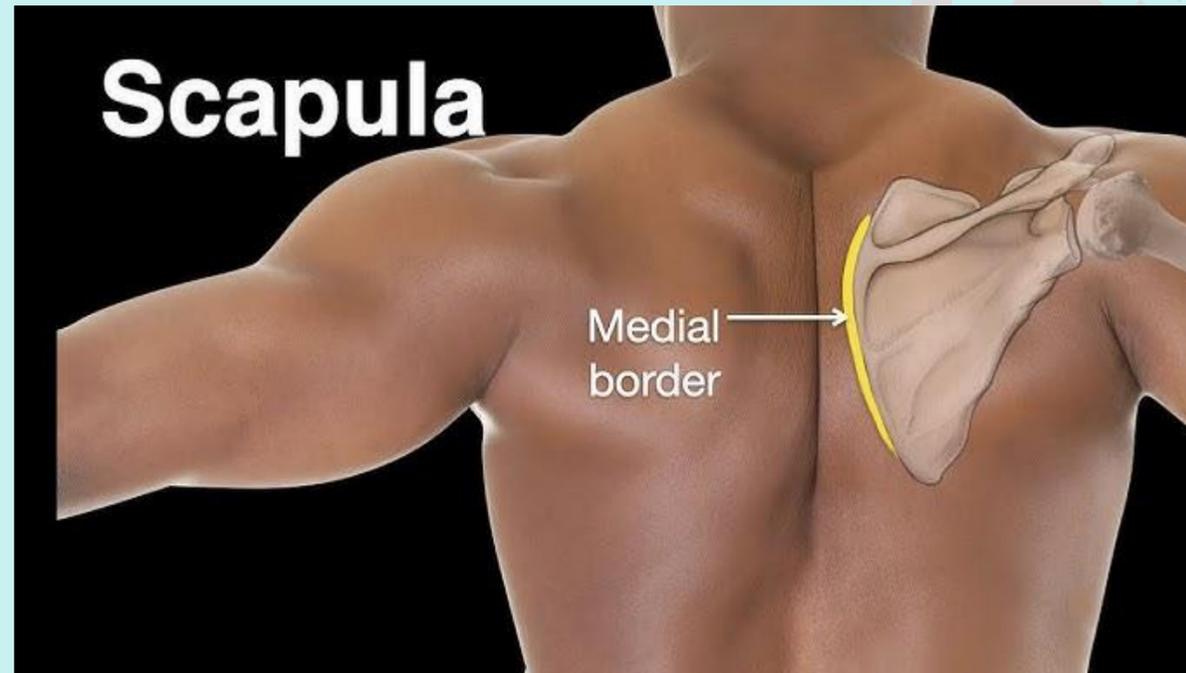


## Upper Limb Bones

### 1. Shoulder (Pectoral Girdle)

#### ➤ Scapula Bone (shoulder plate)

- A flat, triangular bone situated in the superior posterior thorax, between the 2<sup>nd</sup> and 7<sup>th</sup> ribs.



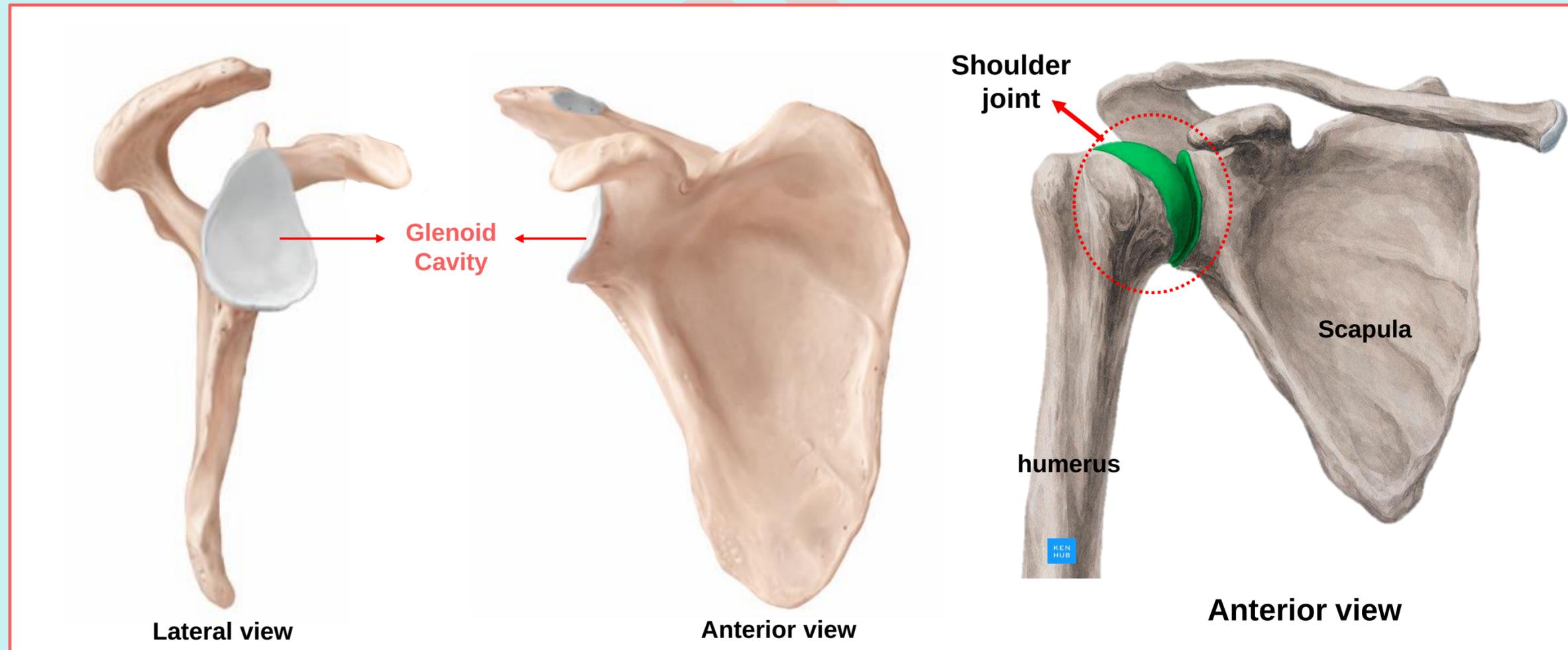
Posterior view

## Upper Limb Bones

### 1. Shoulder (Pectoral Girdle)

#### ➤ Scapula Bone (shoulder plate)

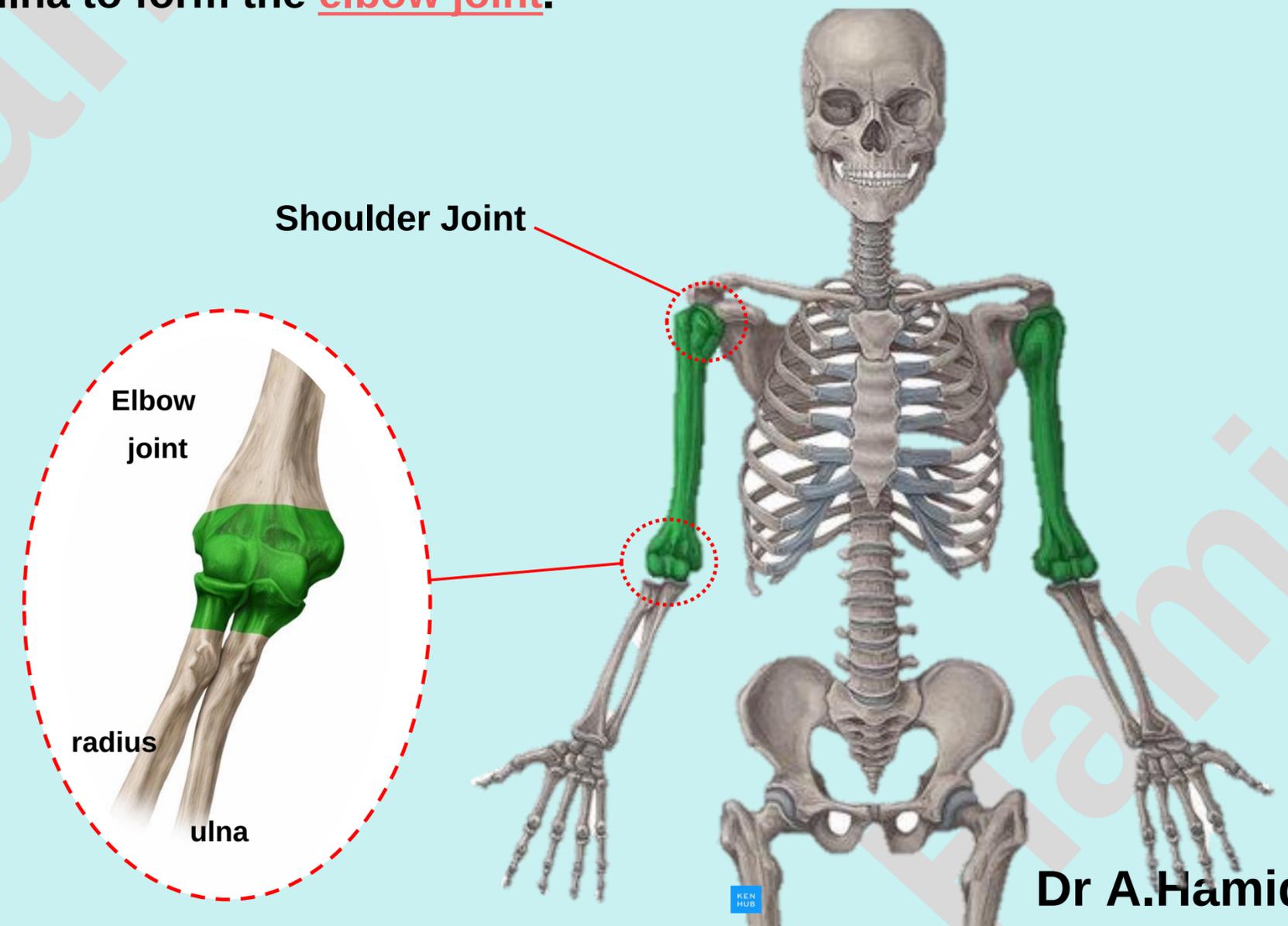
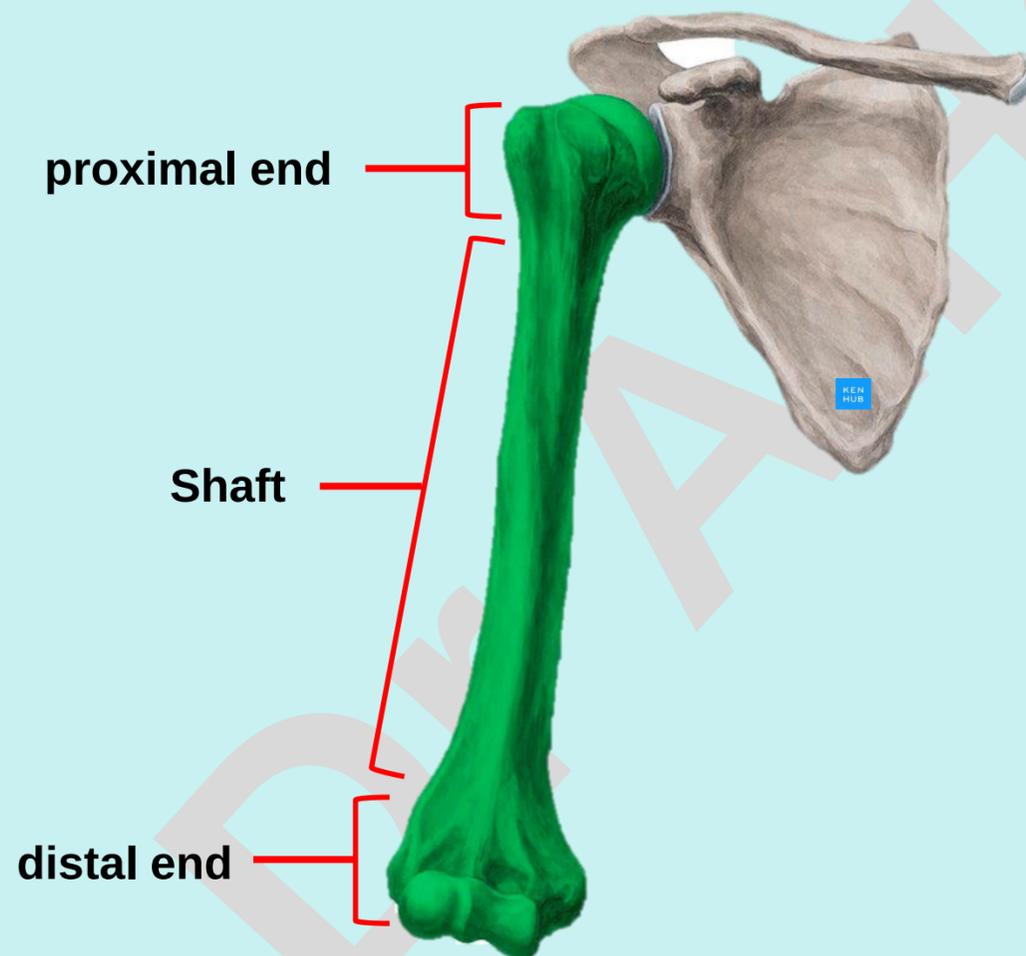
- Articulates laterally with the head of the humerus at the glenoid cavity.
- Glenoid Cavity is a shallow depression that articulates with the head of the humerus to form the shoulder joint.



➤ Arm region contains one bone:

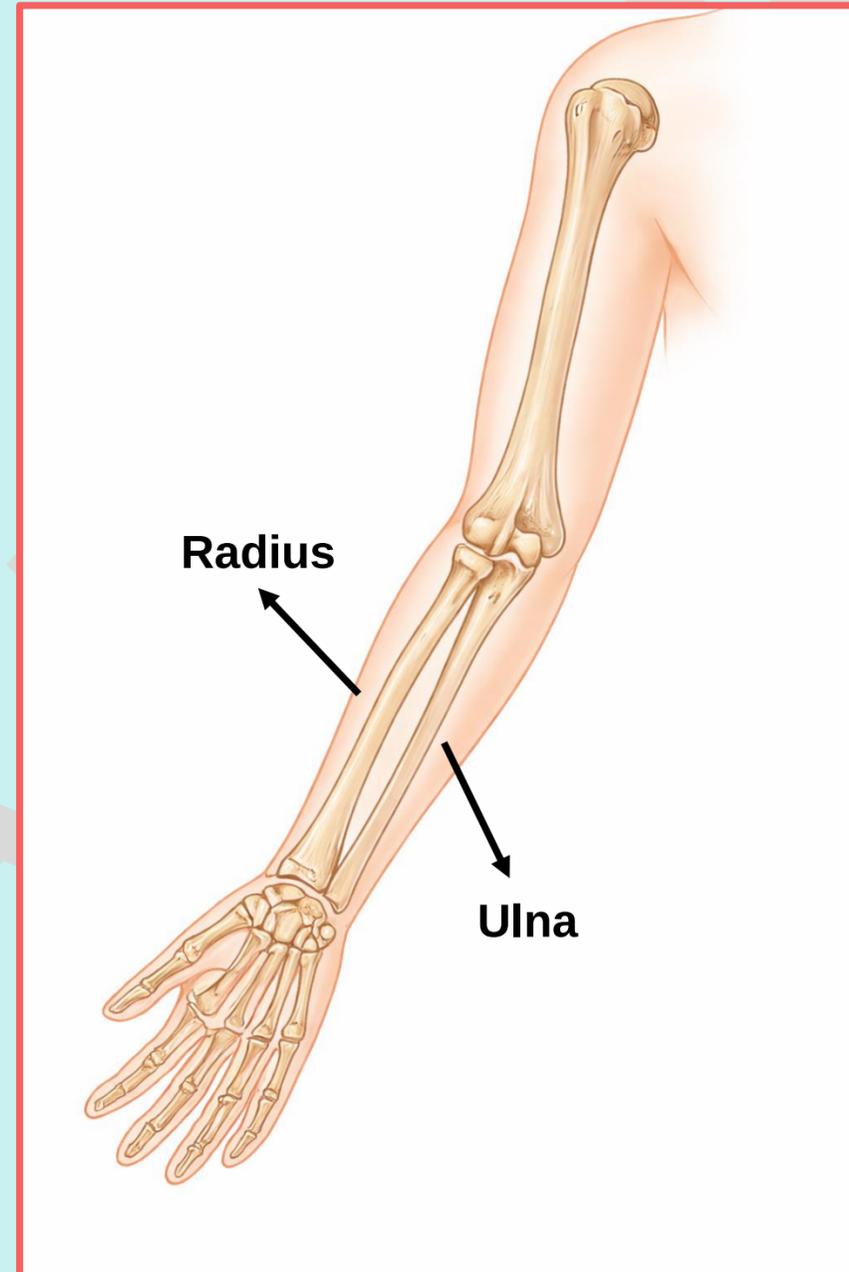
Humerus : 

- A long bone, with a **proximal end**, **shaft**, and **distal end**.
- The proximal end articulates with the scapula at the glenoid cavity to form the **shoulder joint**.
- The distal end articulates with the radius and ulna to form the **elbow joint**.



➤ Forearm region contains two bones:

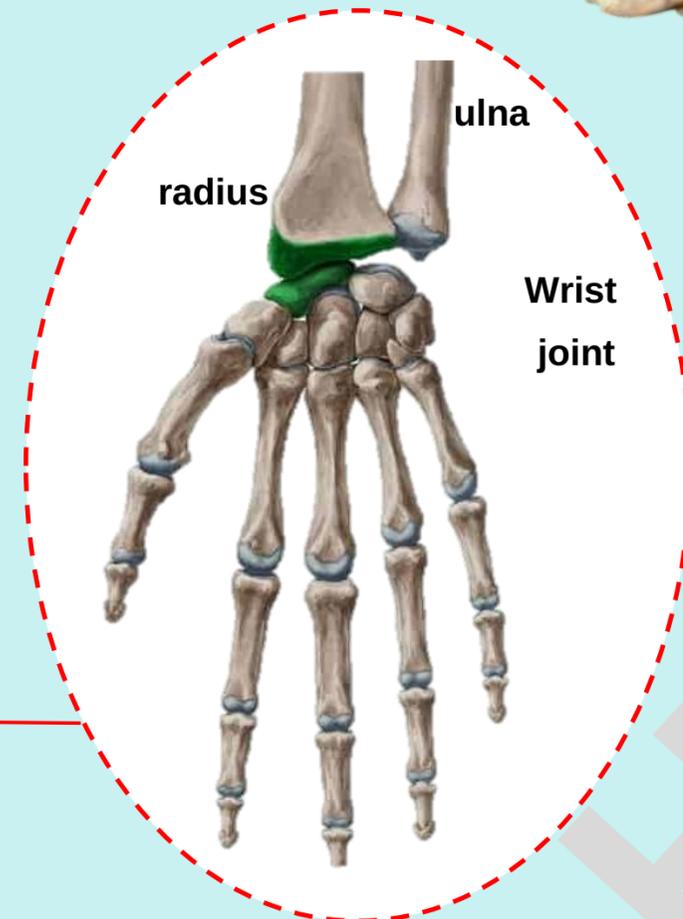
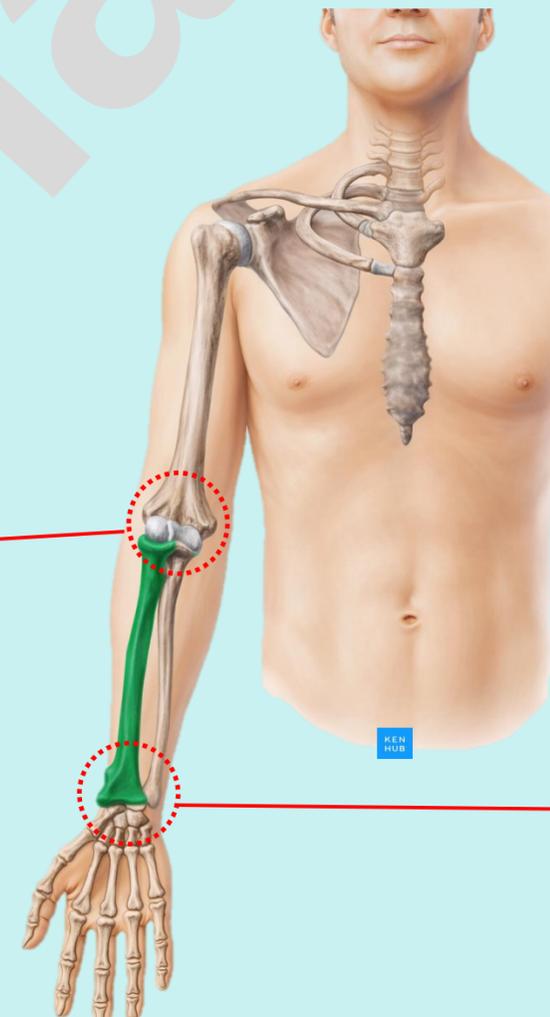
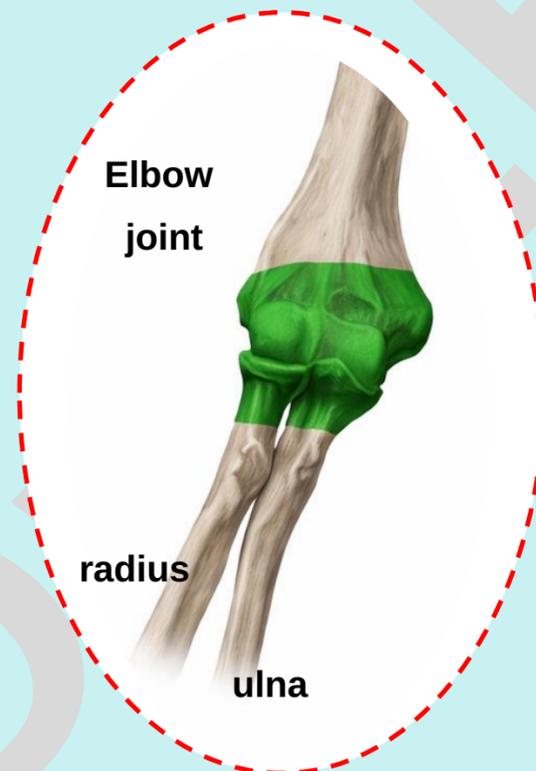
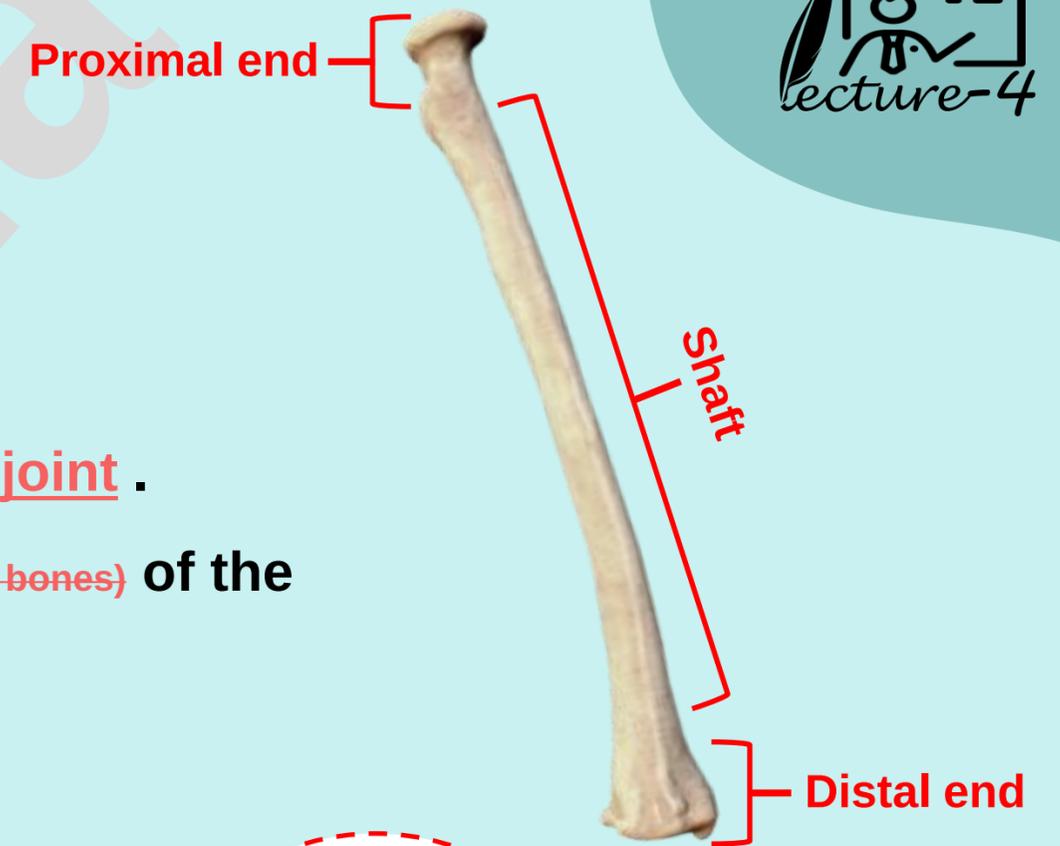
1. **Radius (Lateral)**
2. **Ulna (Medial)**



### 1. Radius :



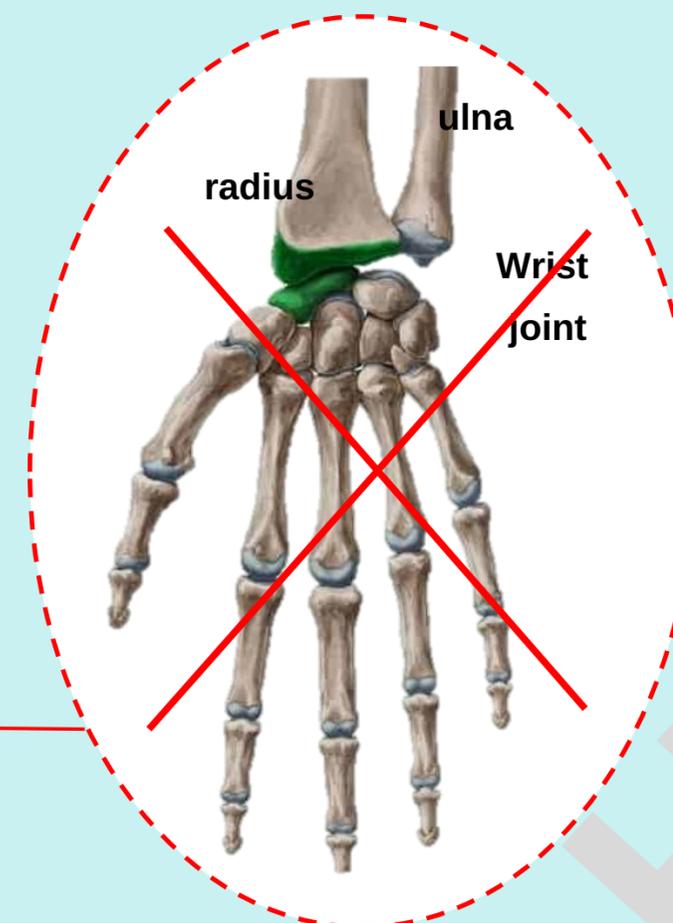
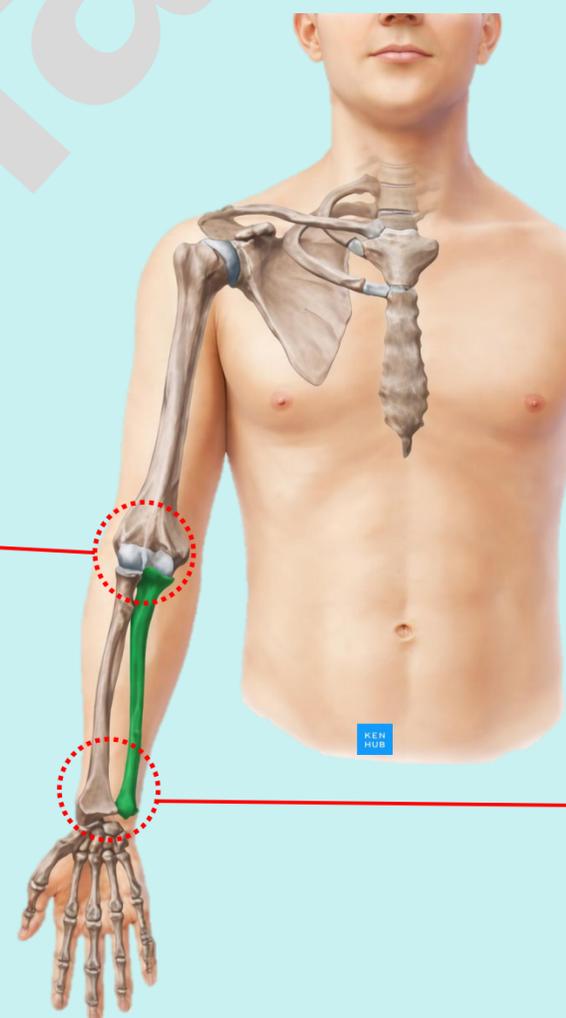
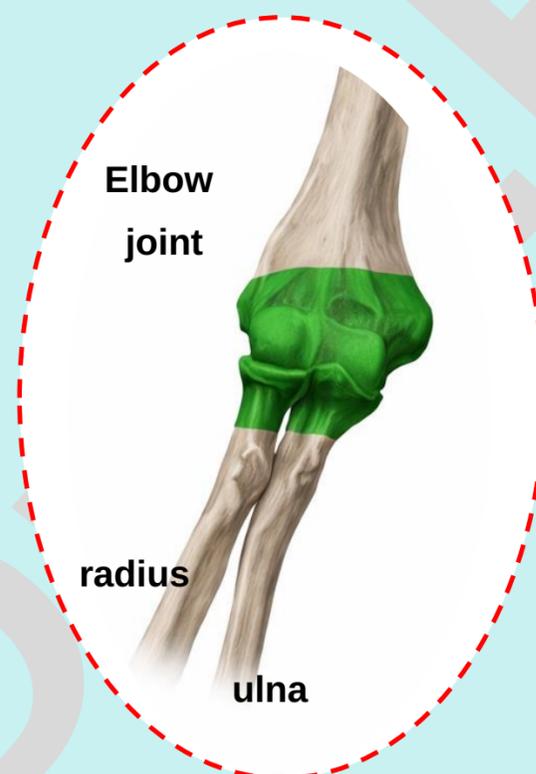
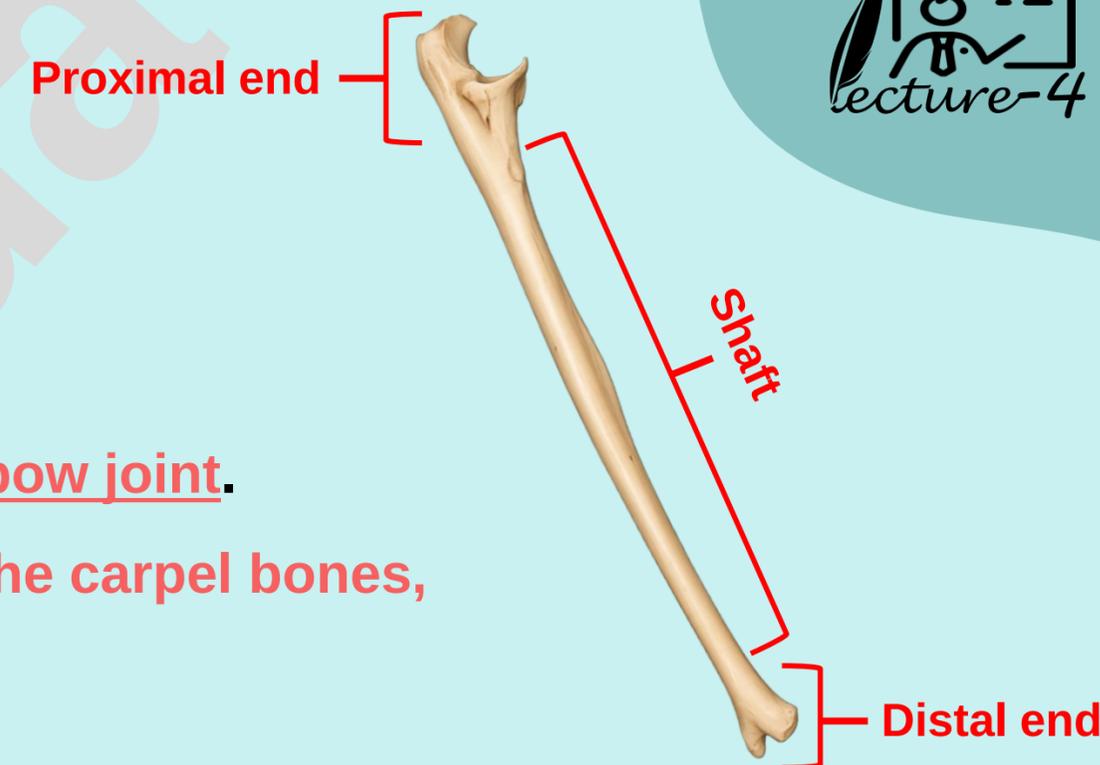
- The lateral bone of the forearm.
- A long bone, with a **proximal end**, **shaft**, and **distal end**.
- The proximal end articulates with the humerus and ulna at the **elbow joint**.
- The distal end articulates with the carpal bones (~~scaphoid, lunate and triquetral bones~~) of the hand, forming the **wrist joint**.



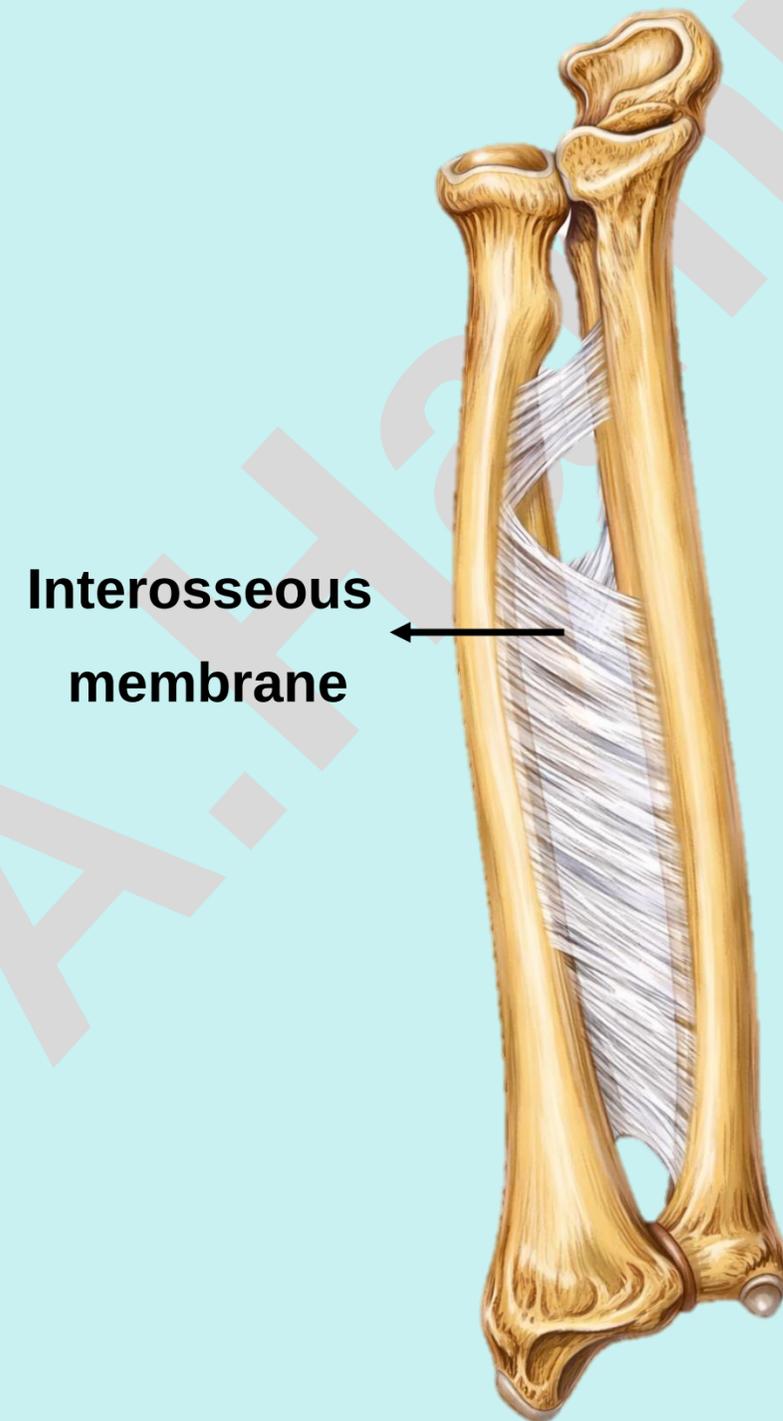
### 2. Ulna :



- The medial bone of the forearm.
- A long bone, with a **proximal end**, **shaft**, and **distal end**.
- The proximal end articulates with the humerus and radius at the **elbow joint**.
- The distal end articulates with the radius (**does not articulate with the carpal bones, therefore, it is not part of the wrist joint**).



- The radius and ulna are connected by an interosseous membrane



➤ Hand region consists of the following parts:

1. Wrist (carpus): 🎥

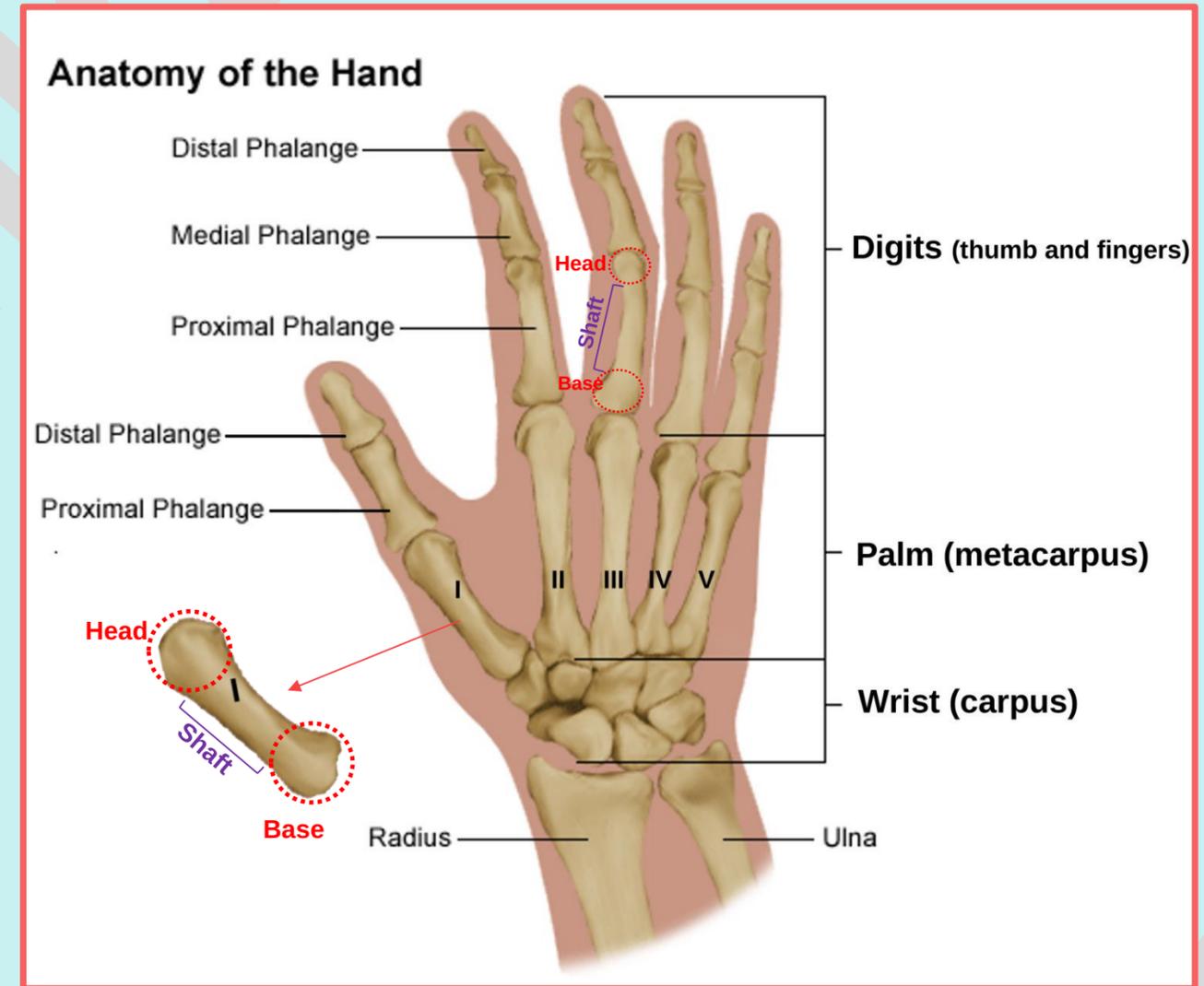
- Consists of eight short carpal bones.

2. Palm (metacarpus): 🎥

- Consists of five metacarpal bones.
- Numbered I–V from thumb to little finger.
- Each metacarpal bone is a short long bone and consists of a **head, shaft, and base**.

3. Digits: 🎥

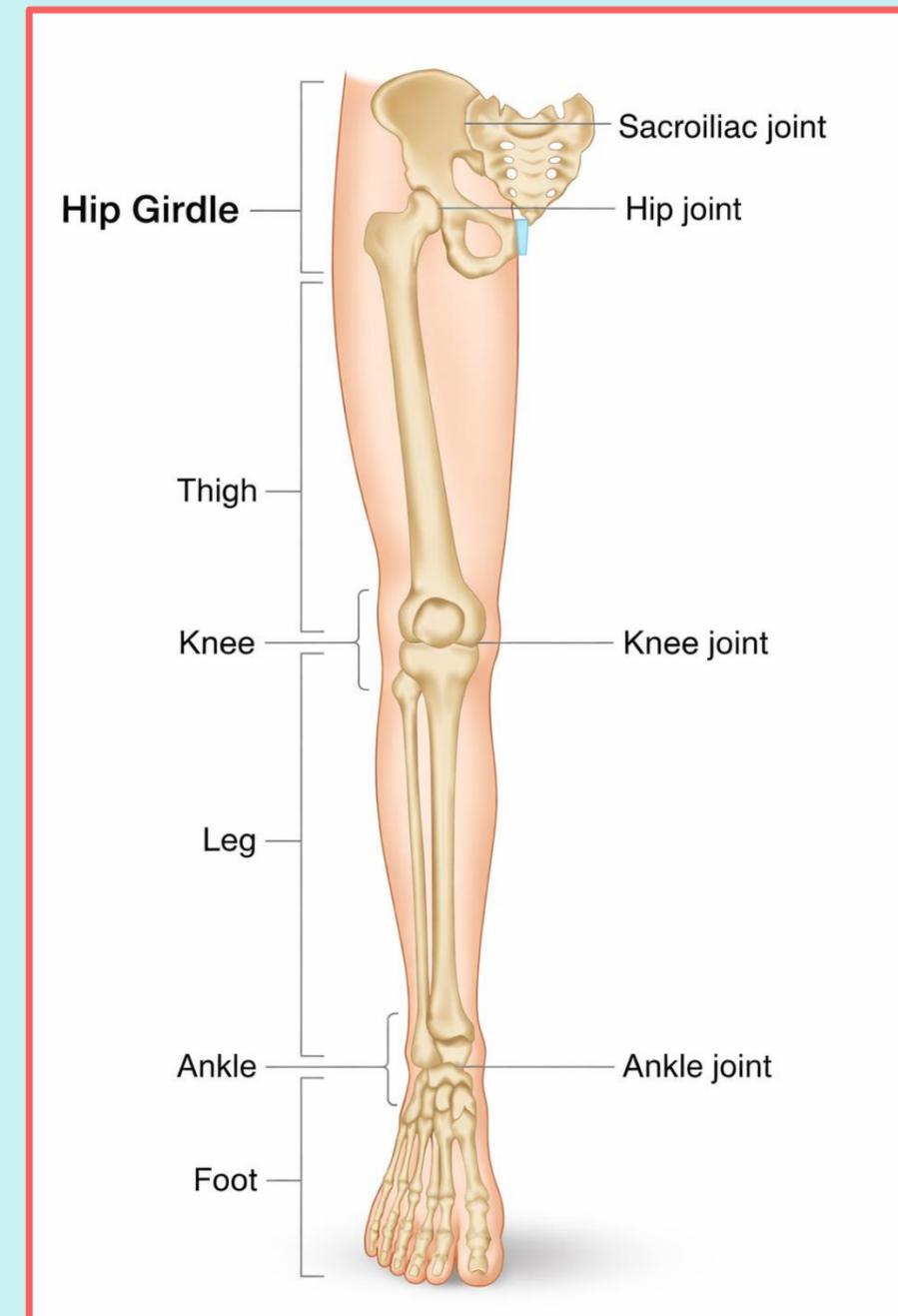
- Each finger has three phalanges (**proximal, middle, and distal**), except the thumb, which has two phalanges (**proximal and distal**).
- Each phalanx bone is a short long bone consists of a **head, shaft, and base**.



## Lower Limb Bones

➤ The Lower limb consists of four regions:

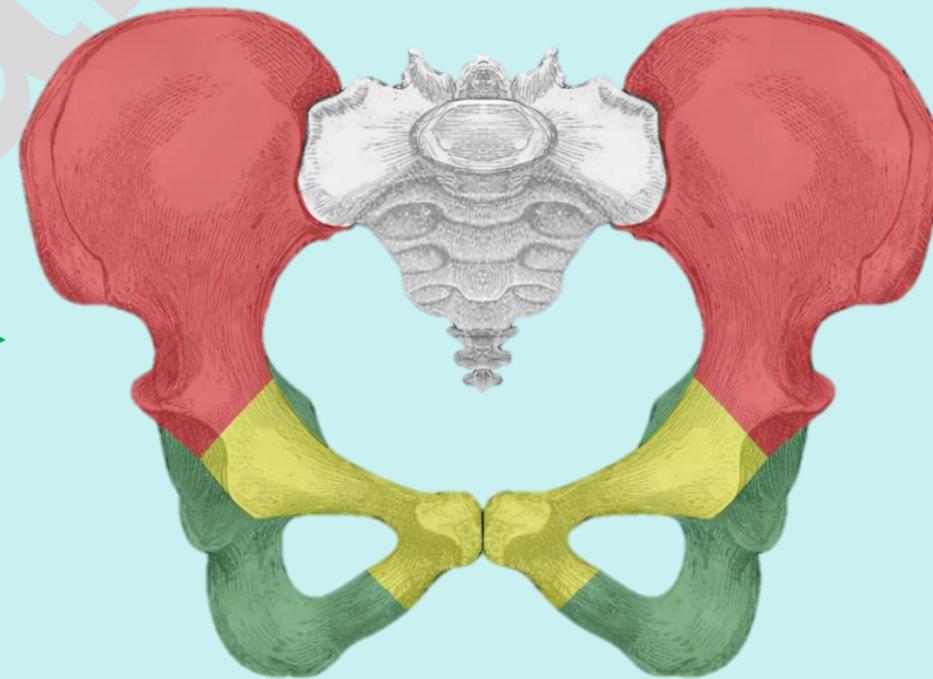
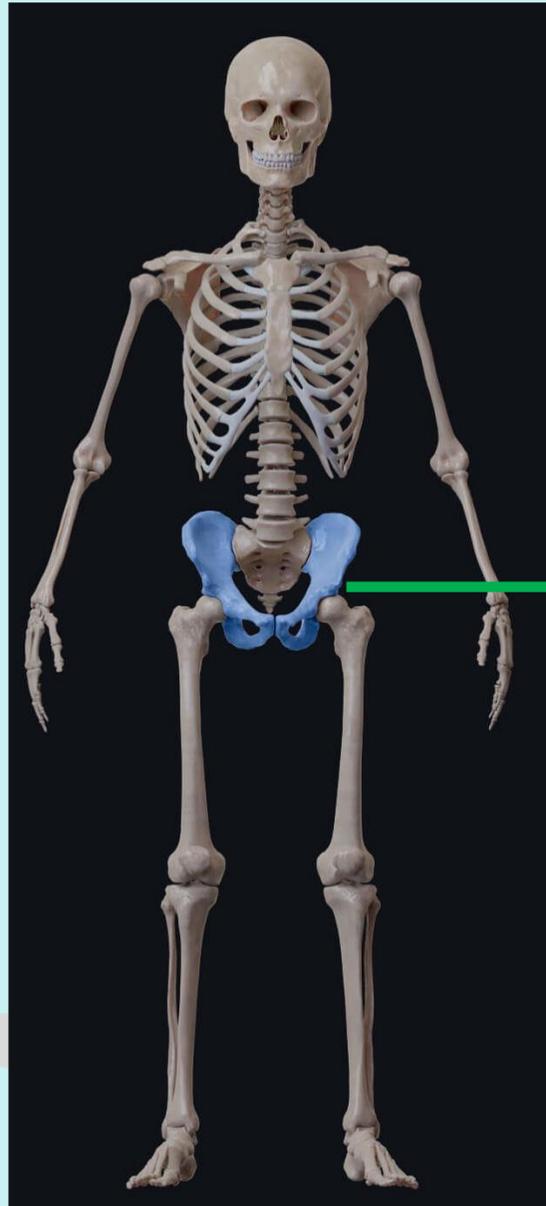
1. **Hip region (Pelvic Girdle):** the area where the lower limb attaches to the trunk.
2. **Thigh:** the region between the hip joint and the knee joint.
3. **Leg:** the region between the knee joint and the ankle joint.
4. **Foot:** the region distal to the ankle joint.



## Lower Limb Bones

### 1. Hip region (Pelvic Girdle)

- The hip (pelvic girdles) consists of the bones that connect the lower limbs to the axial skeleton.
- It consists of two hip bones. 



1. Hip region (Pelvic Girdle)

➤ Hip bone 

• Formed by the fusion of three primary bones:

1. Ilium:

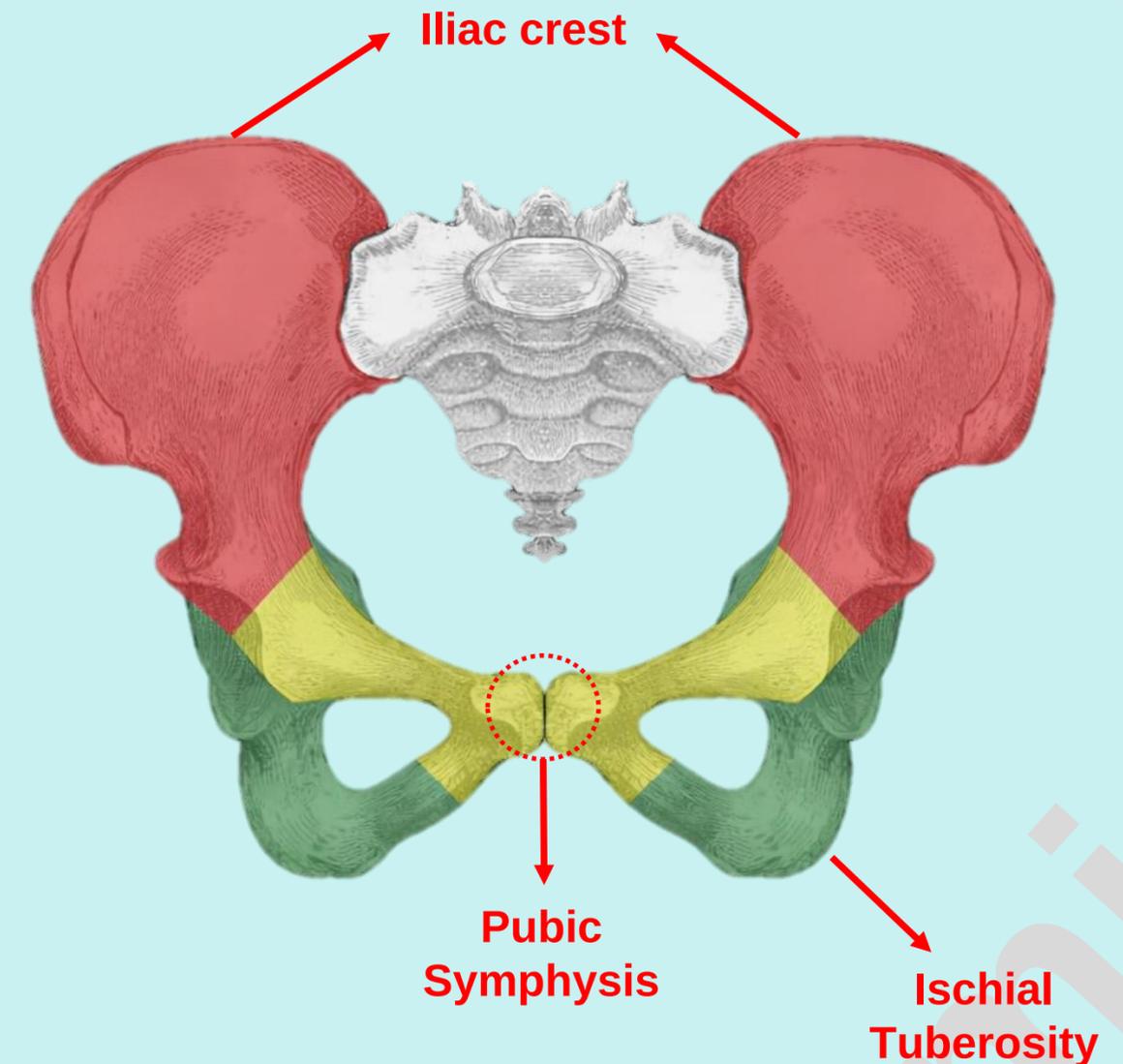
- Forms the superior part of the hip bone.
- The upper palpable part of the ilium is the iliac crest.

2. Ischium:

- Forms the inferior, posterior part of the hip bone.
- The ischial tuberosity is the part of ischium on which we sit.

3. Pubis:

- Forms the anterior and inferior part of the hip bone.
- The two pubic bones articulates anteriorly at joint called the pubic symphysis.

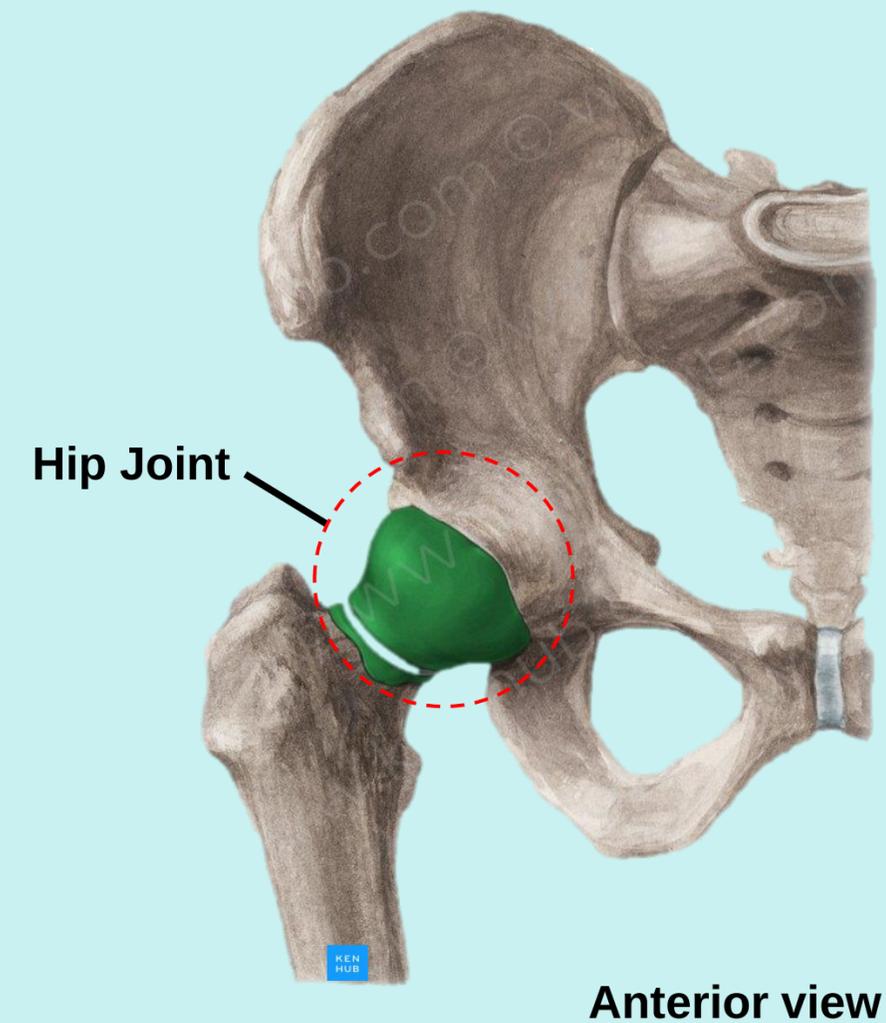
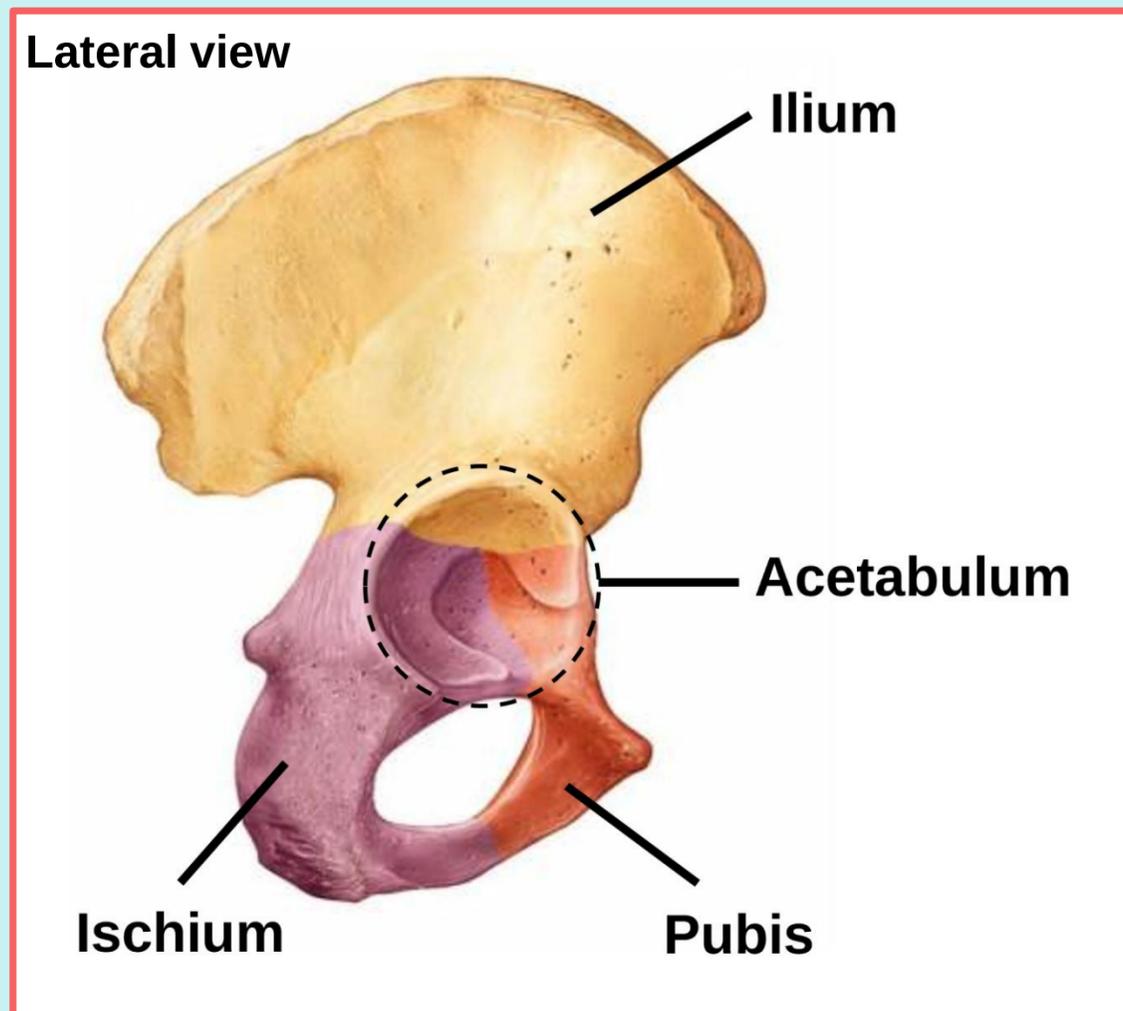


## Lower Limb Bones

### 1. Hip region (Pelvic Girdle)

#### ➤ Hip bone

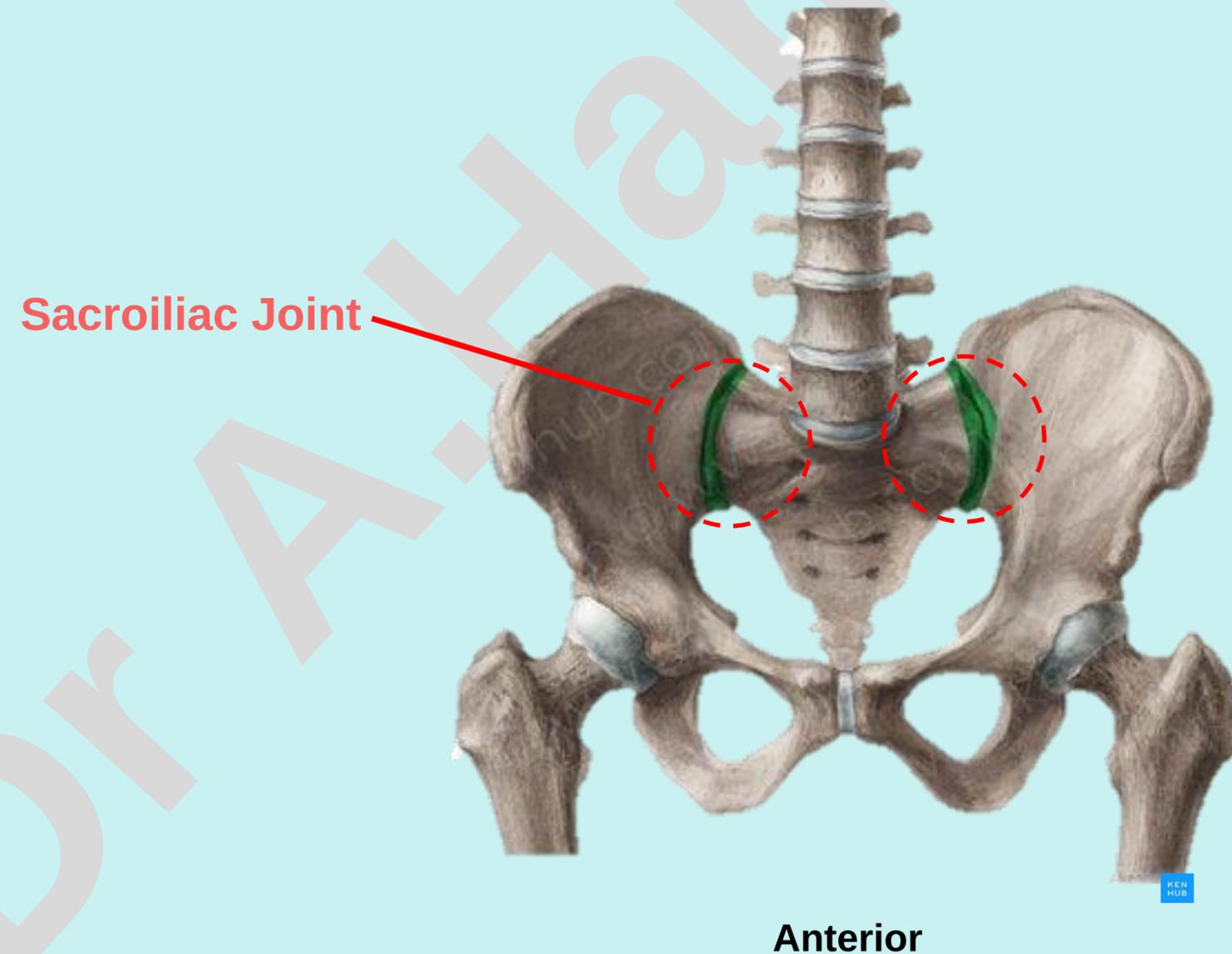
- The three bones meet at the Acetabulum: a socket where the head of the femur articulates to form the hip joint.



1. Hip region (Pelvic Girdle)

➤ Hip bone

- Hip bones articulate posteriorly with the sacrum forming Sacroiliac Joint.



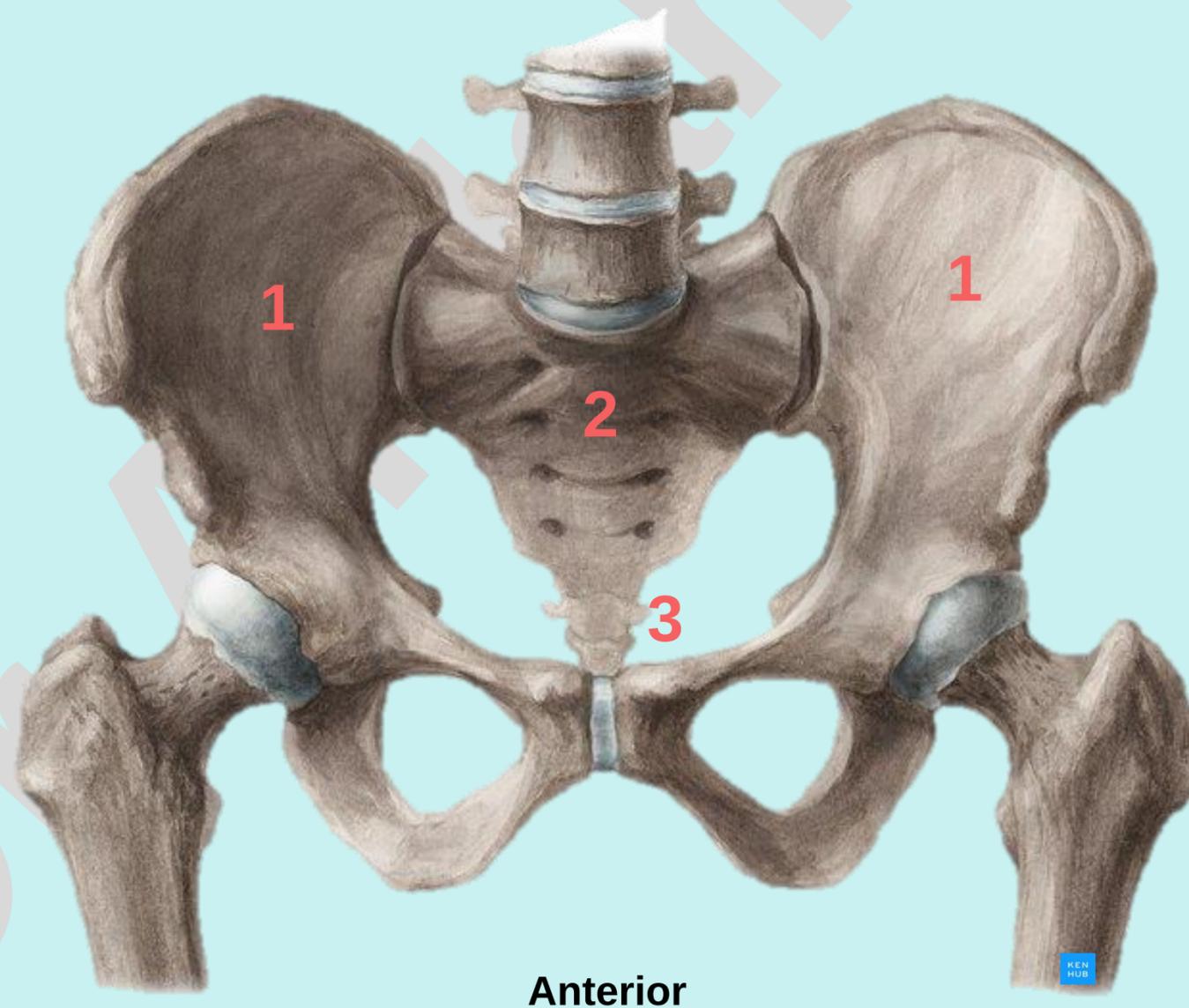
## Lower Limb Bones

### 1. Hip region (Pelvic Girdle)

#### Pelvic skeleton



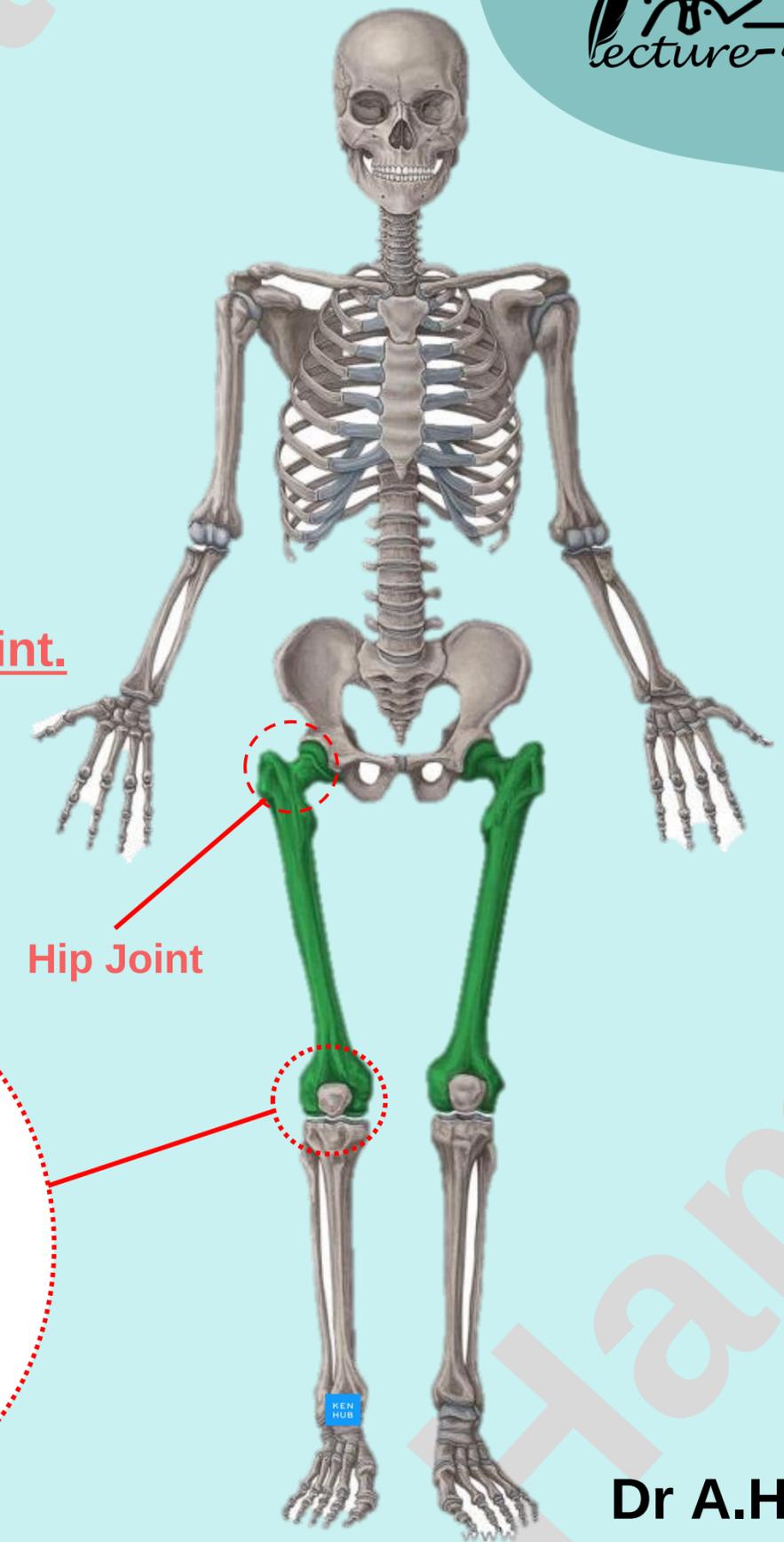
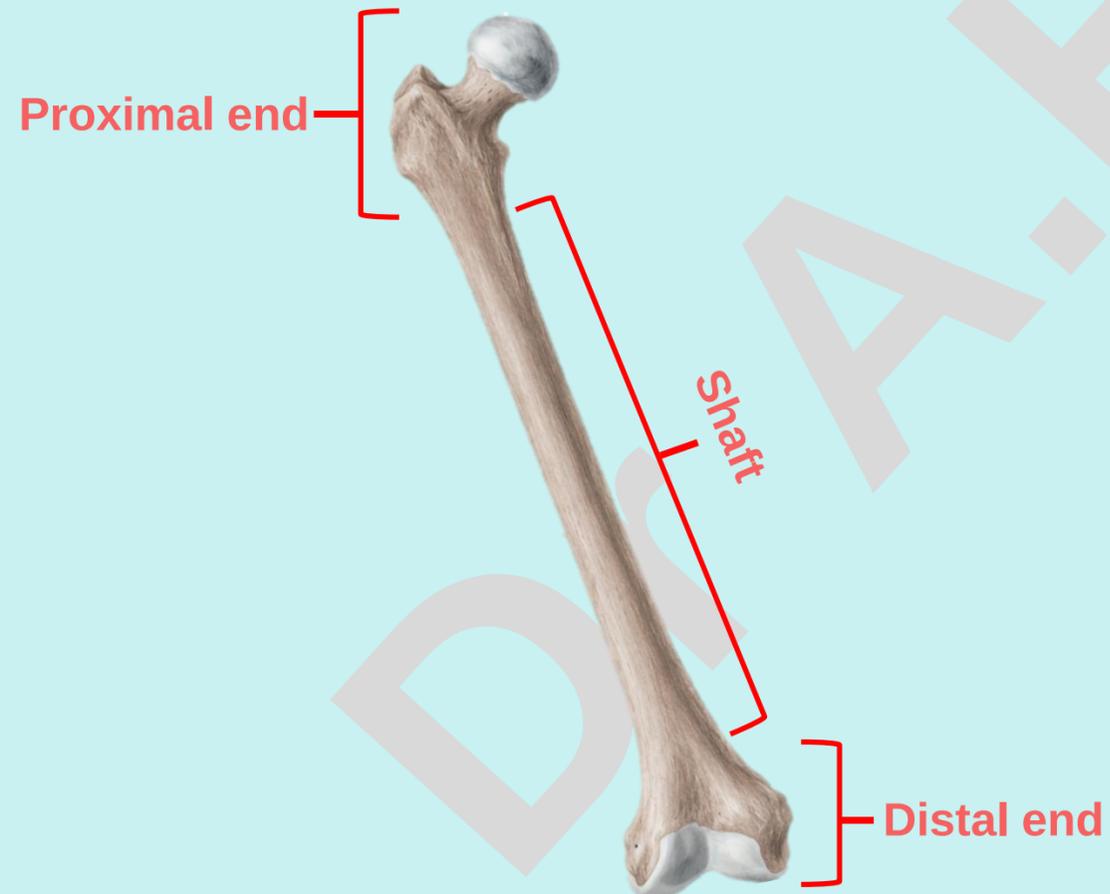
- The two hip bones<sup>1</sup>, sacrum<sup>2</sup>, and the coccyx<sup>3</sup> together form the pelvis.



➤ Thigh region contains one bone:

Femur : 

- The longest (45cm), heaviest, and strongest bone in the body, with a **proximal end**, **shaft**, and **distal end**.
- The proximal end articulates with the acetabulum of the hip bone, forming the **hip joint**.
- The distal end articulates with the tibia and patella, forming the **knee joint**.

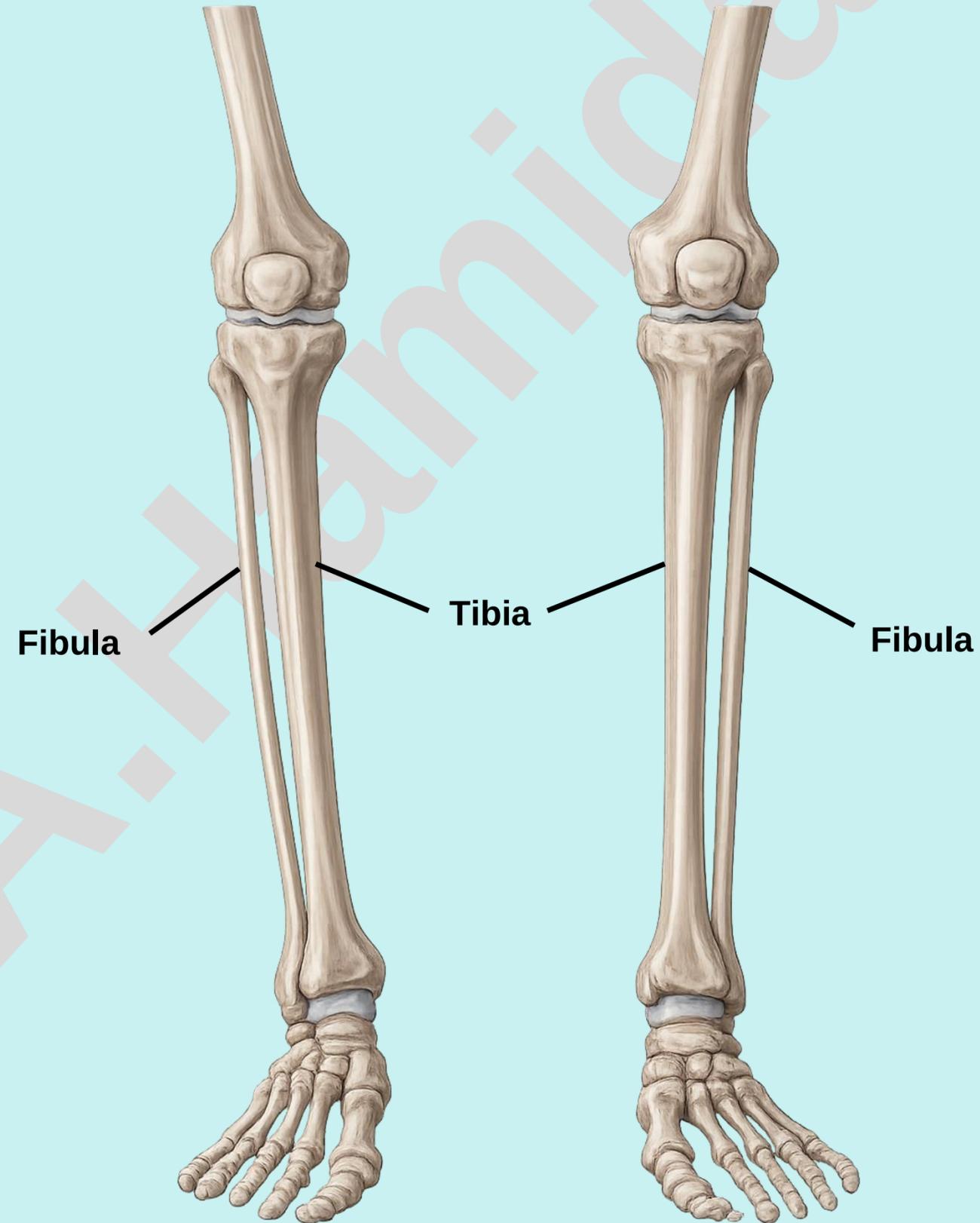


## Lower Limb Bones

### 3. Leg

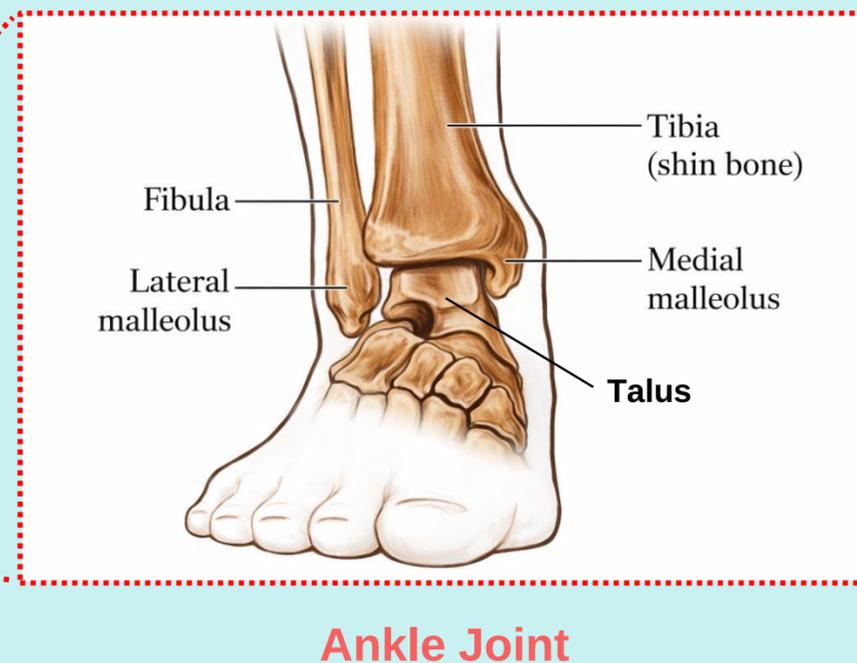
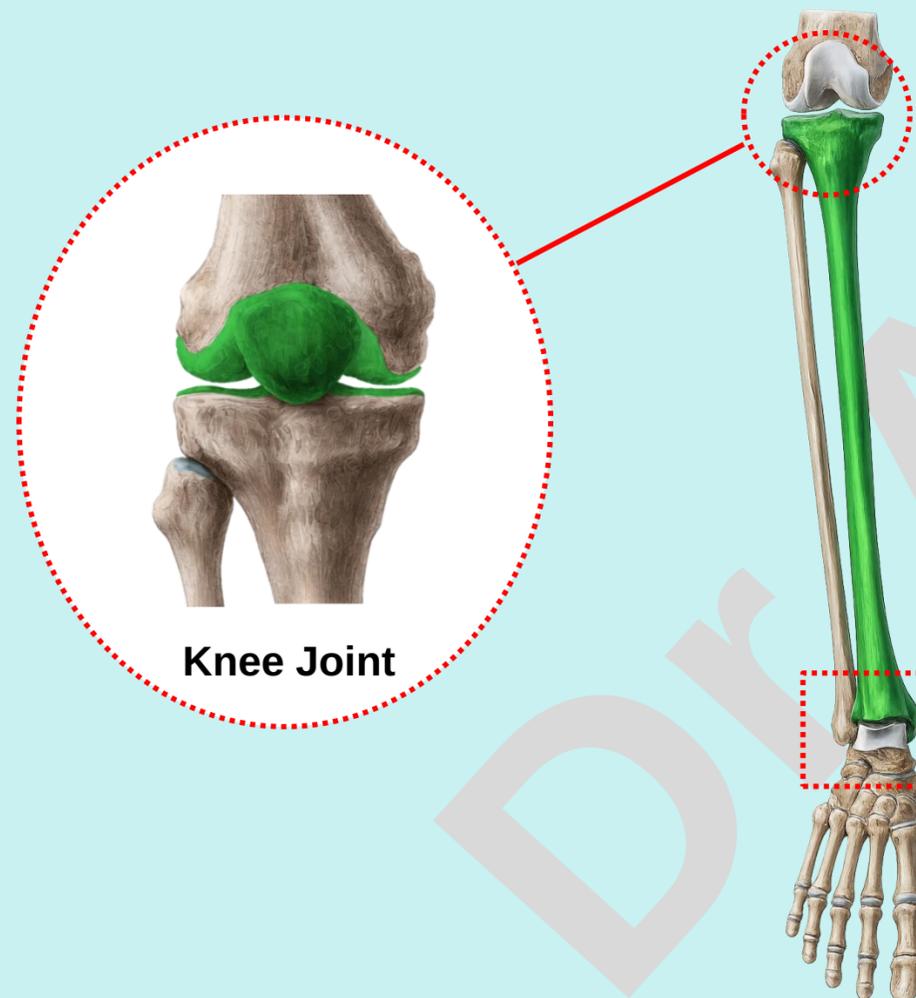
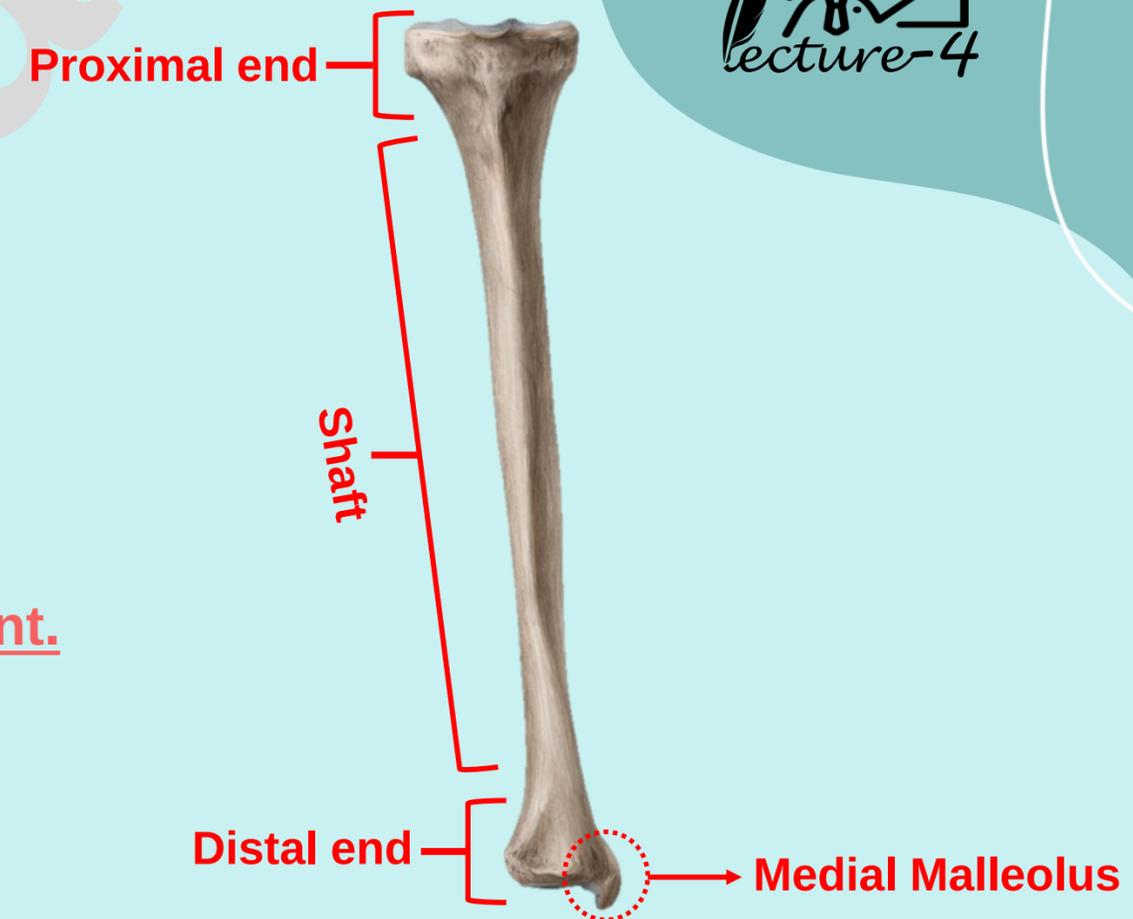
➤ Leg region contains two bones:

1. **Tibia (medial)**
2. **Fibula (lateral)**



1. Tibia :

- The medial bone of the leg.
- A long bone with a **proximal end**, **shaft**, and **distal end**.
- The distal end has a medial projection known as **Medial Malleolus**
- The proximal end articulates with the femur, forming the **knee joint**.
- The distal end articulates with the talus and fibula, forming the **ankle joint**.



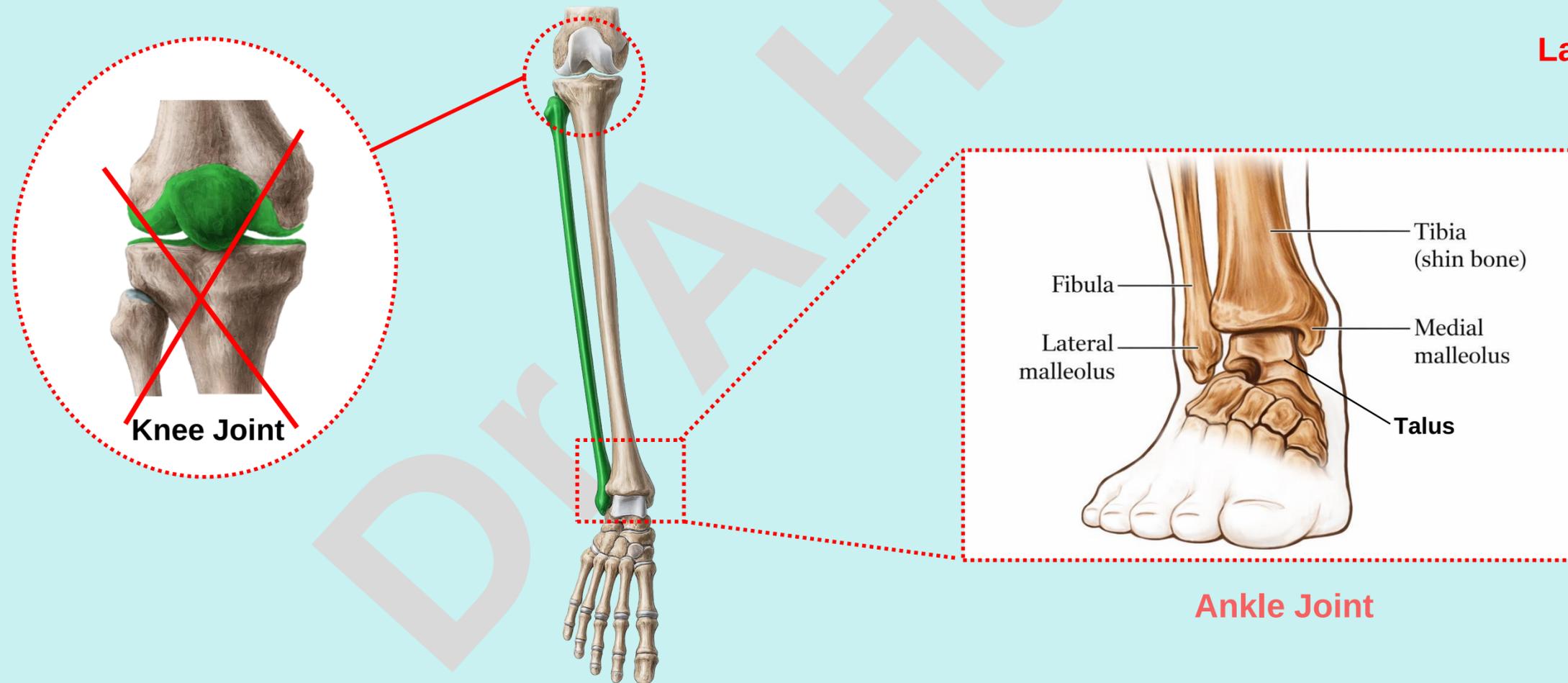
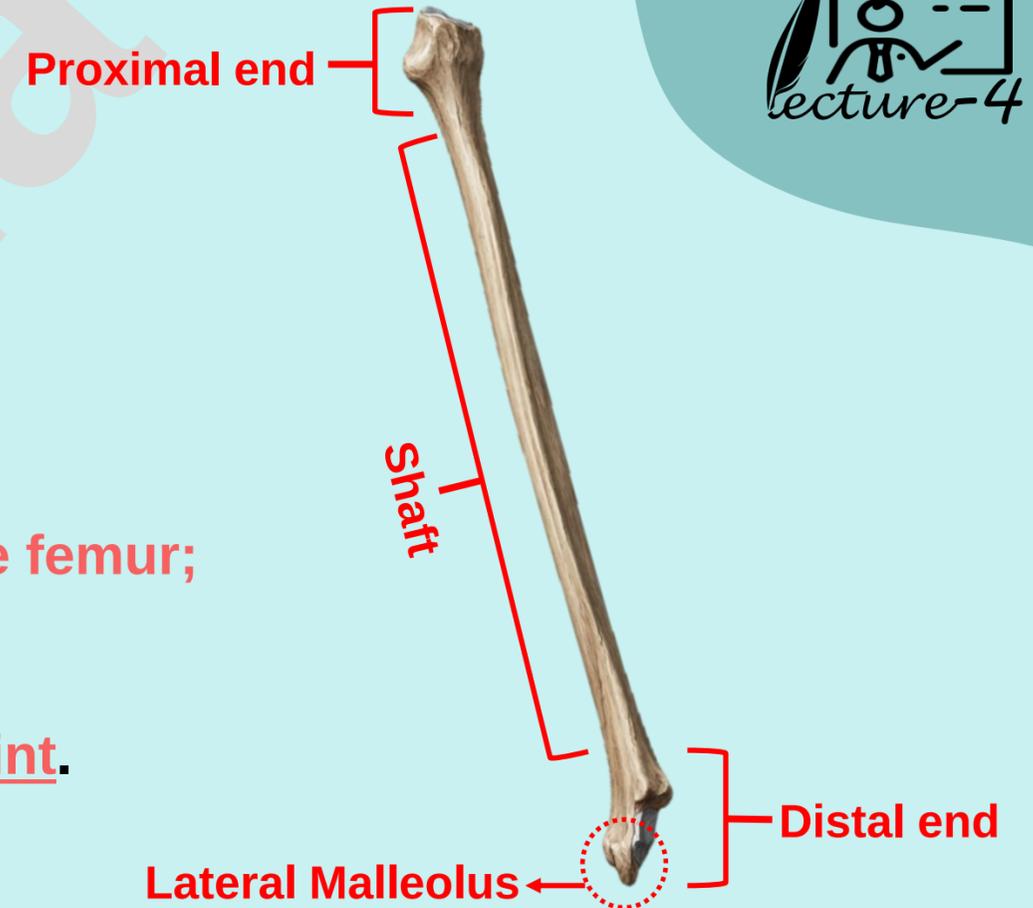
# Lower Limb Bones

## 3. Leg

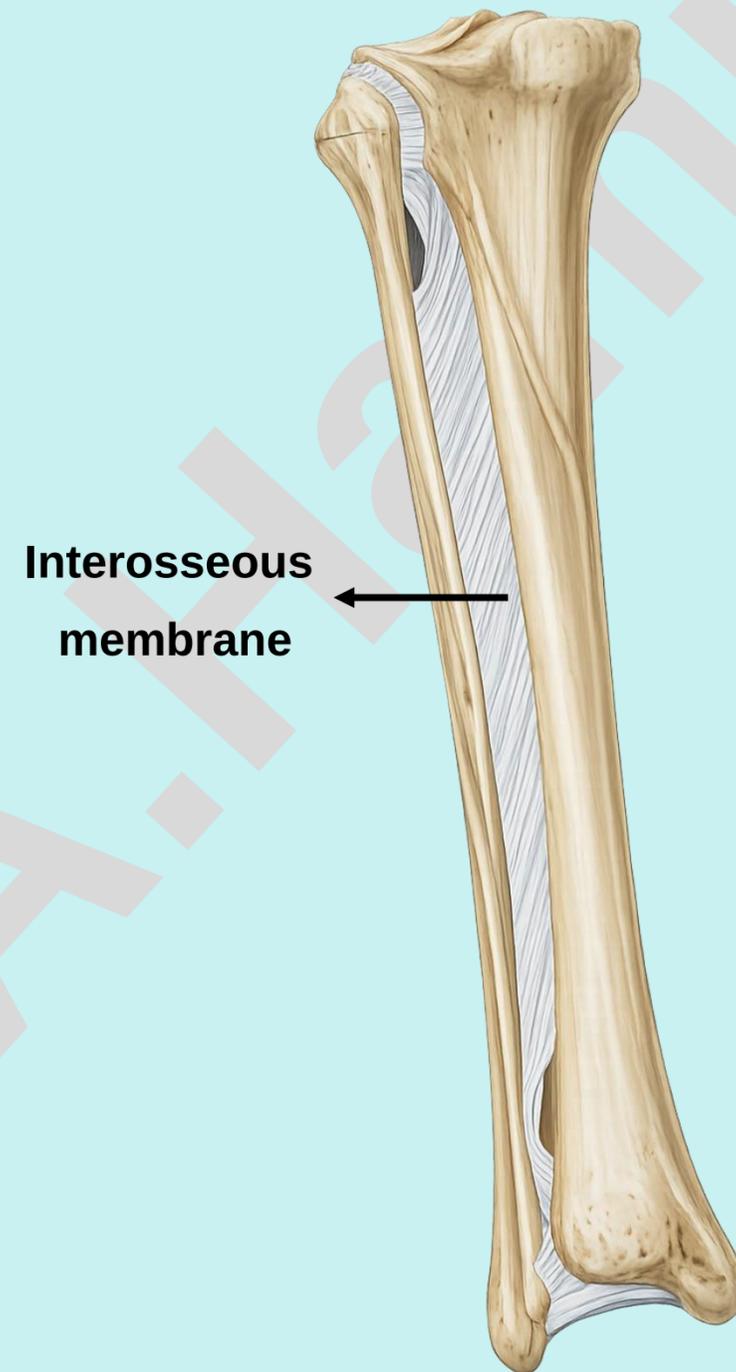
### 2. Fibula :



- The lateral bone of the leg
- A long bone with a **proximal end**, **shaft**, and **distal end**.
- The distal end has a lateral projection known as the **Lateral Malleolus**
- The proximal end articulates with the tibia (**does not articulate with the femur; therefore, it is not part of the knee joint**)
- The distal end articulates with the talus and tibia, forming the **ankle joint**.



- The tibia and fibula are connected by an interosseous membrane

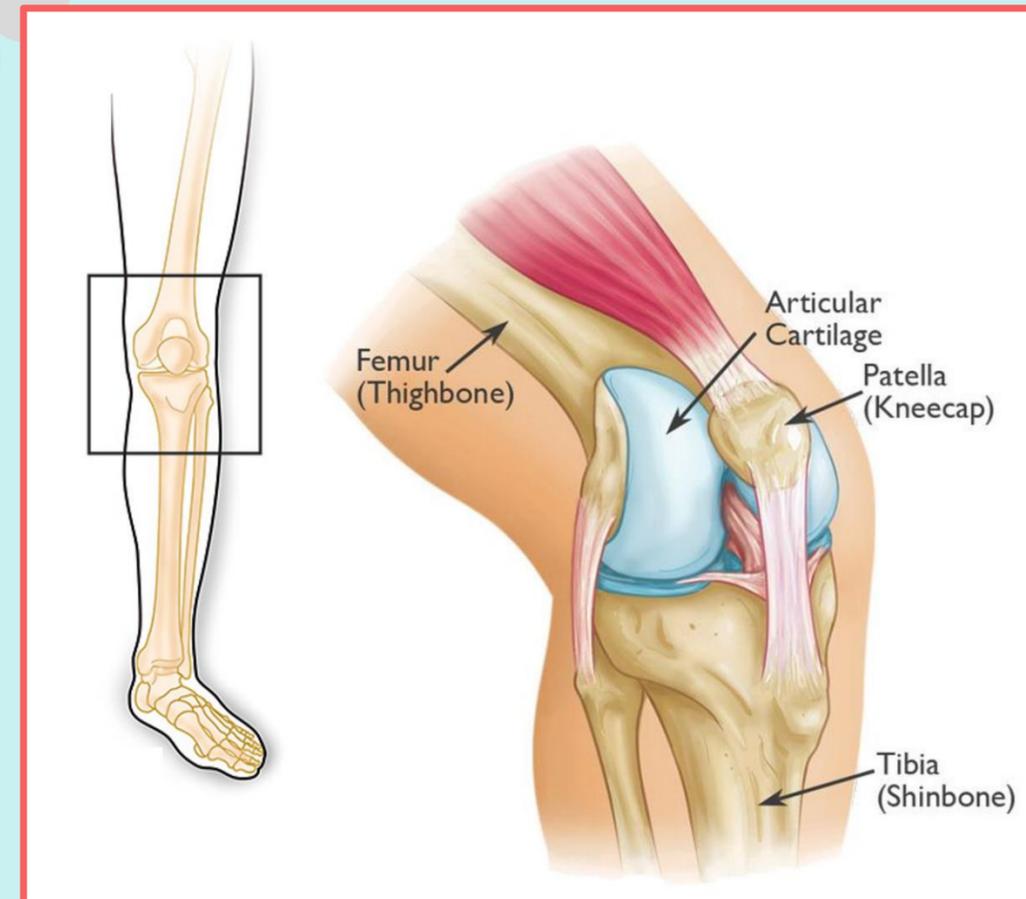


## Lower Limb Bones

### Patella (kneecap)



- A small, sesamoid, triangular bone located anterior to the knee joint.
- Embedded in the quadriceps tendon and articulates with the femur.
- Covers and protects the anterior aspect of the knee joint.



➤ Foot region contains 3 groups of bones:

1. Tarsal Bones :

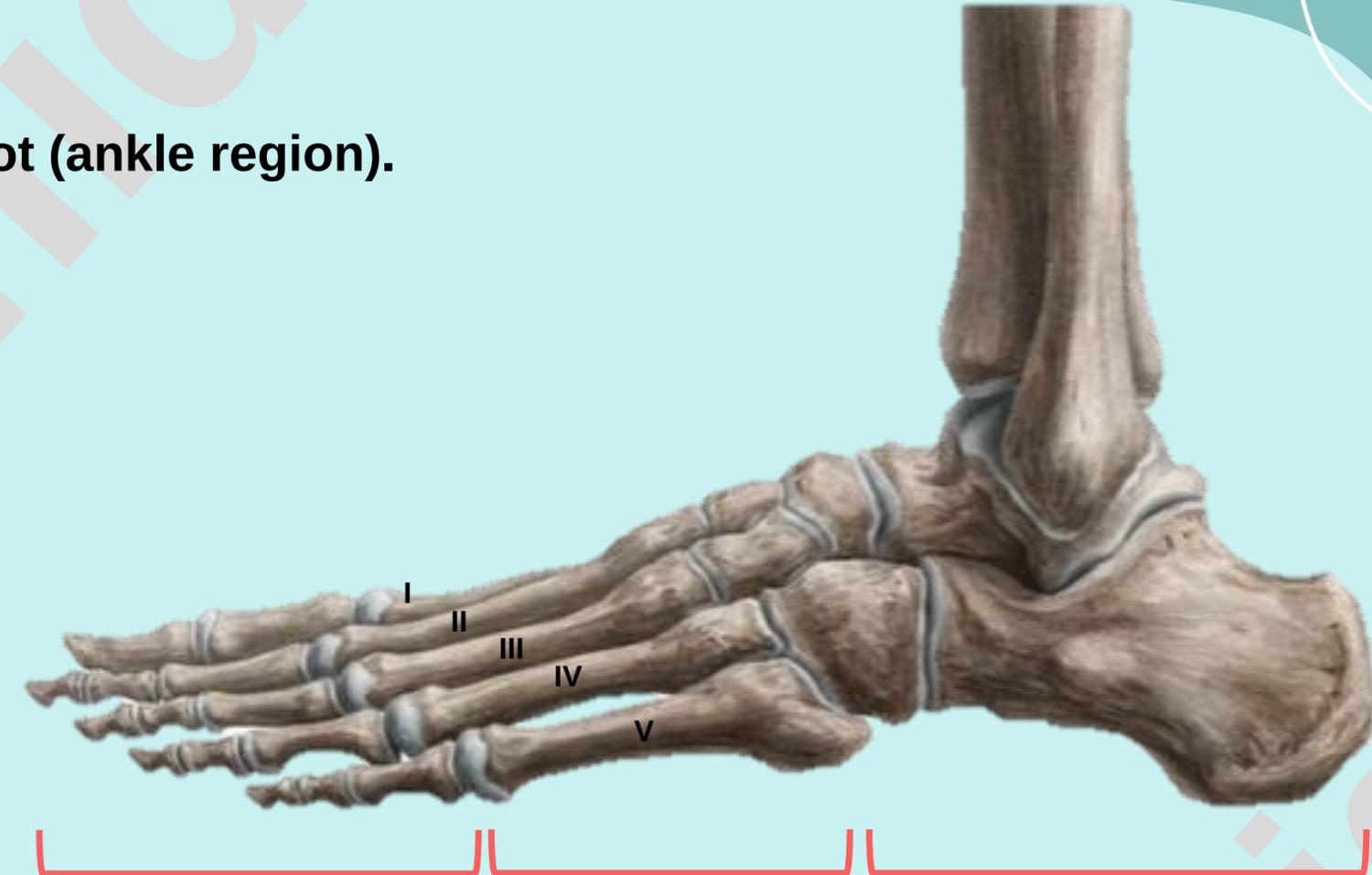


- Seven short bones forming the posterior part of the foot (ankle region).

2. Metatarsal Bones :



- Five long bones forming the instep
- Numbered I–V from big toe to little toe.
- Each Metatarsal bone is a short long bone and consists of a **head**, **shaft**, and **base**.



3. Phalanges:



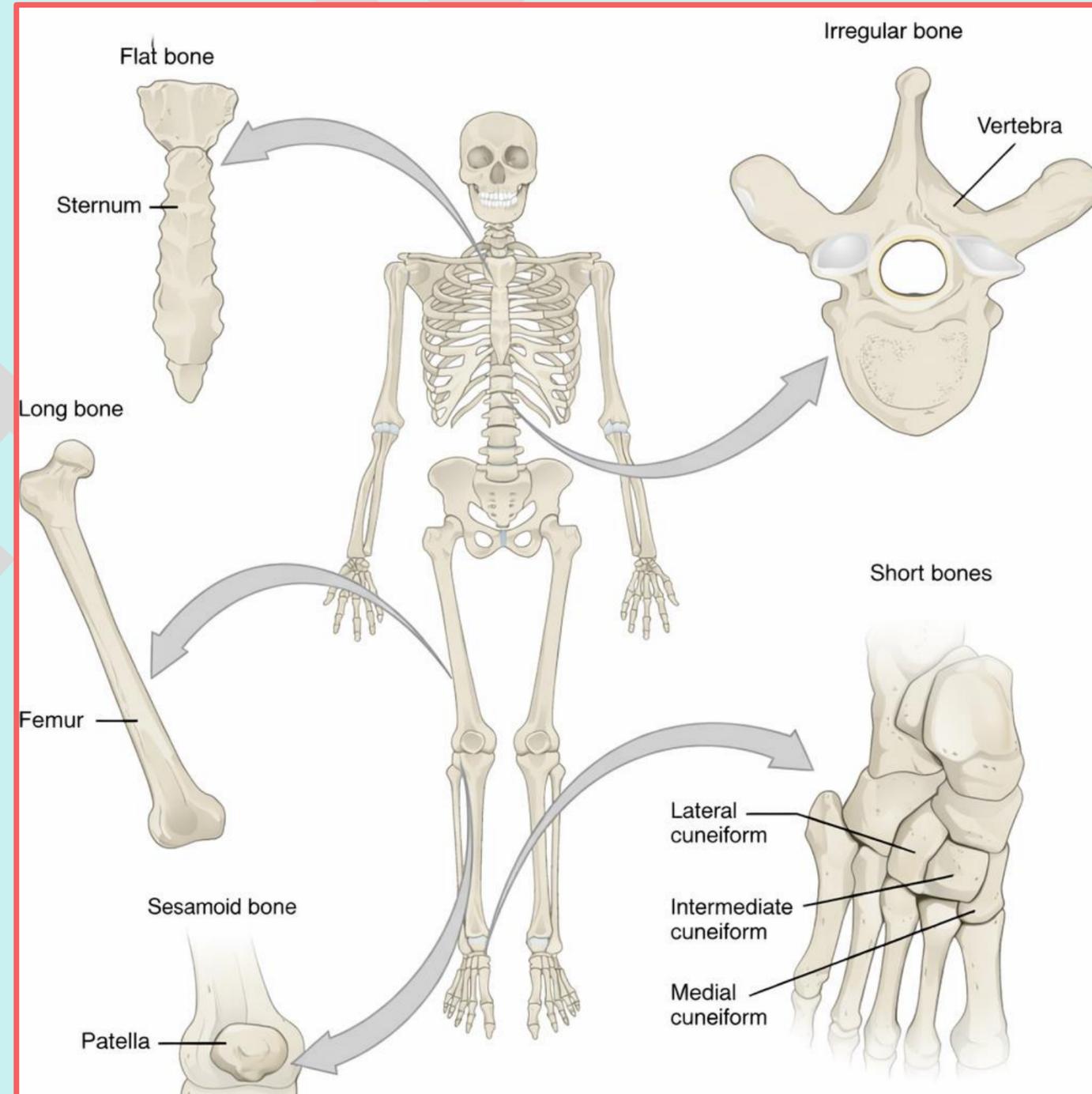
- Bones of the toes; each toe has three phalanges (**proximal**, **middle**, **distal**), except the big toe, which has two phalanges (**proximal** and **distal**).
- Each phalanx consists of a **head**, **shaft**, and **base**.

# 2

# Skeletal System

➤ Bones are classified according to their shape into:

1. Long bones
2. Short bones
3. Flat bones
4. Irregular bones
5. Sesamoid bones



# 2

# Skeletal System

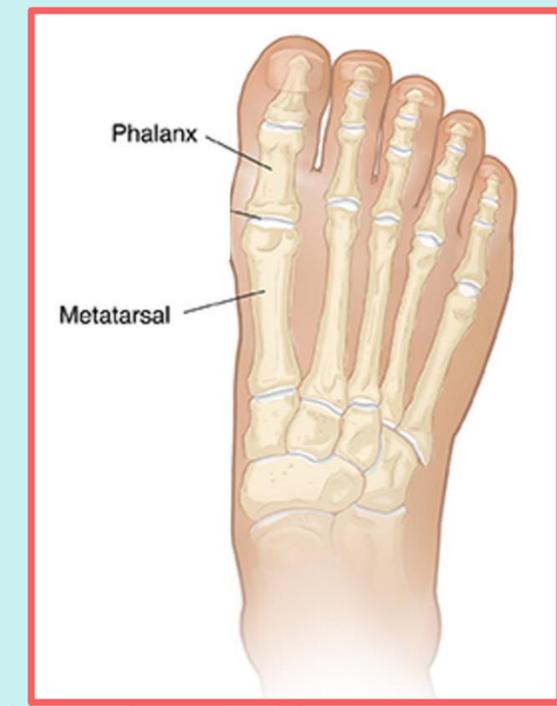
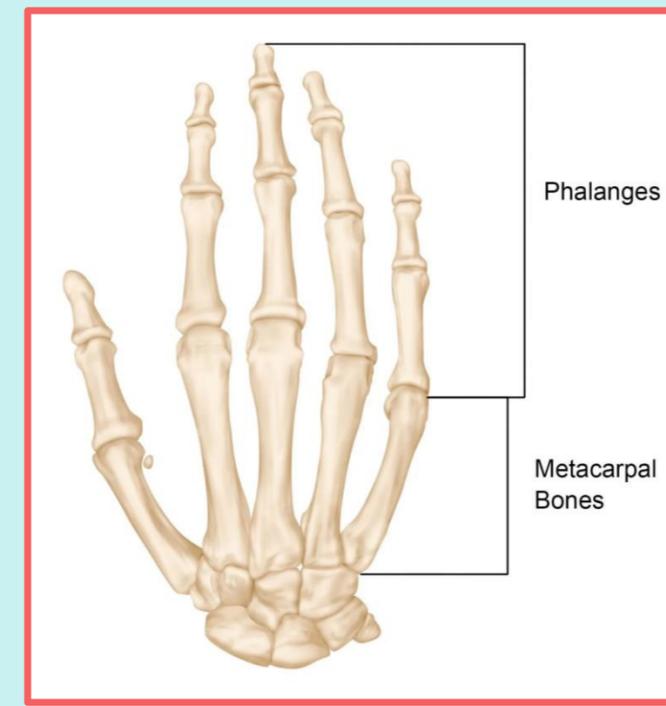
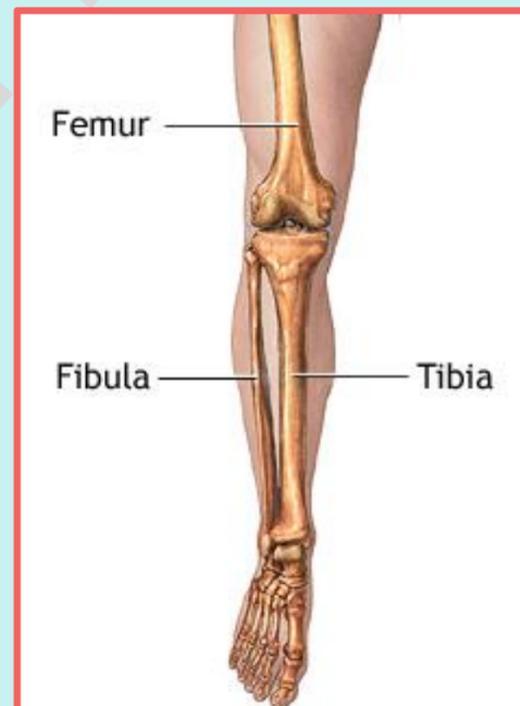
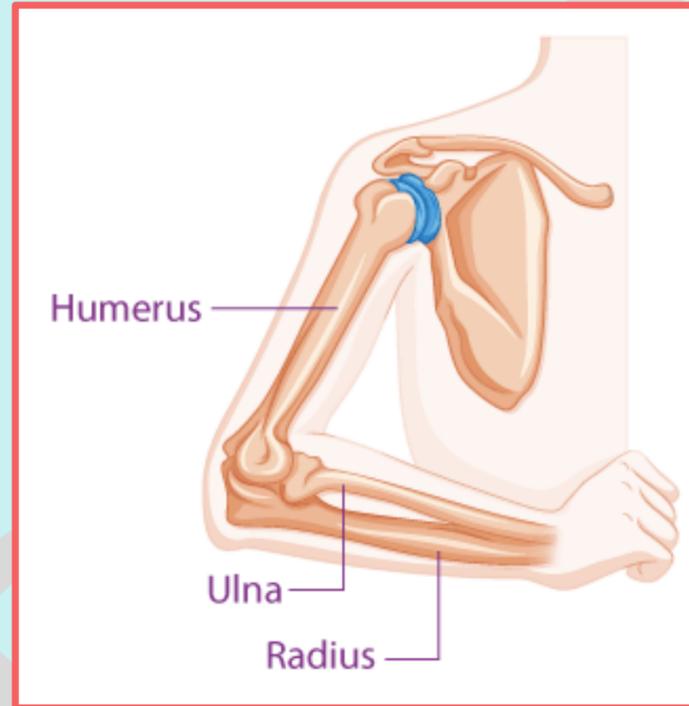
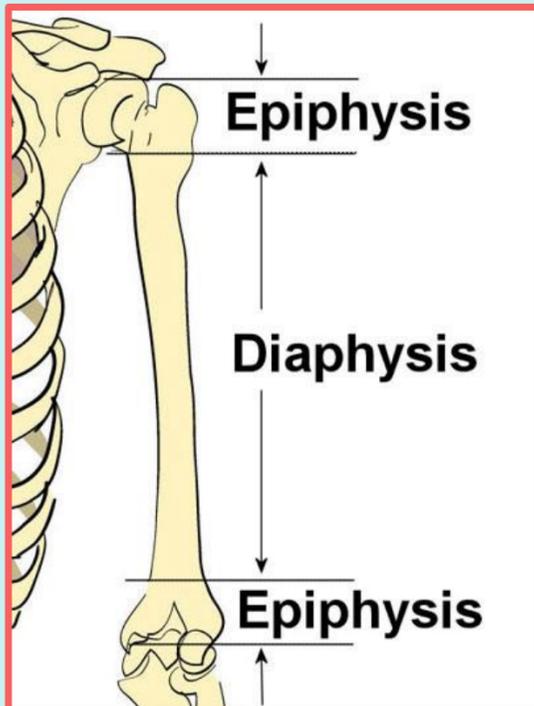
## 1. Long Bones

### Description

- Cylindrical in shape, longer than they are wide.
- Consist of a shaft (diaphysis) and two expanded ends (epiphyses).

### Example

- Arm (**humerus**), Forearm (**ulna, radius**), Thigh (**femur**), Leg (**tibia, fibula**), Hand (**metacarpals, phalanges**), and Foot (**metatarsals, phalanges**)

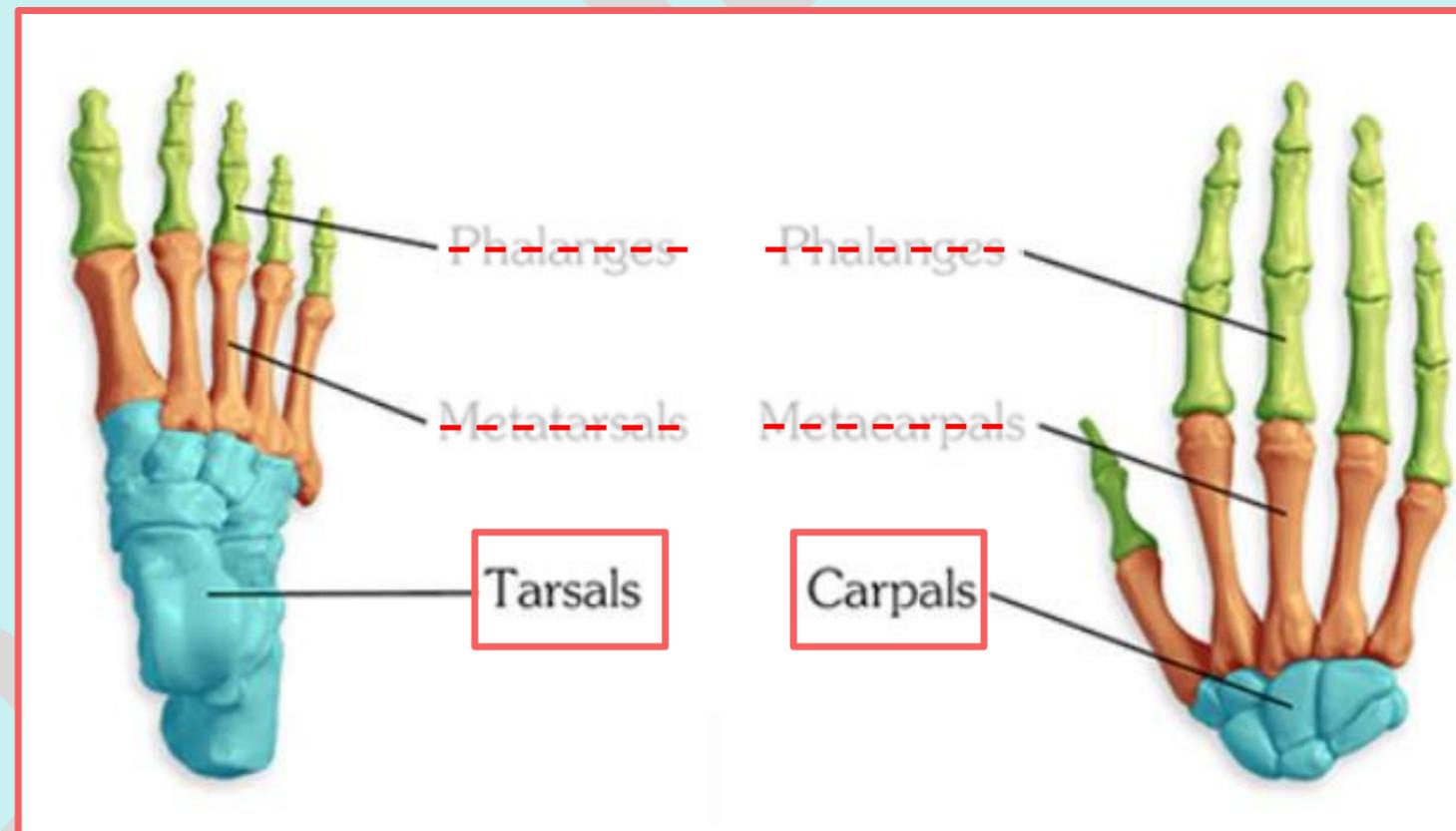


# 2

# Skeletal System

## 2. Short Bones

<b>Description</b>	<ul style="list-style-type: none"><li>• Small, cube-shaped bones, approximately equal in length, width, and thickness.</li></ul>
<b>Example</b>	<ul style="list-style-type: none"><li>• Found only in the wrists (<b>carpals</b>) and ankles (<b>tarsals</b>).</li></ul>



# 2

# Skeletal System

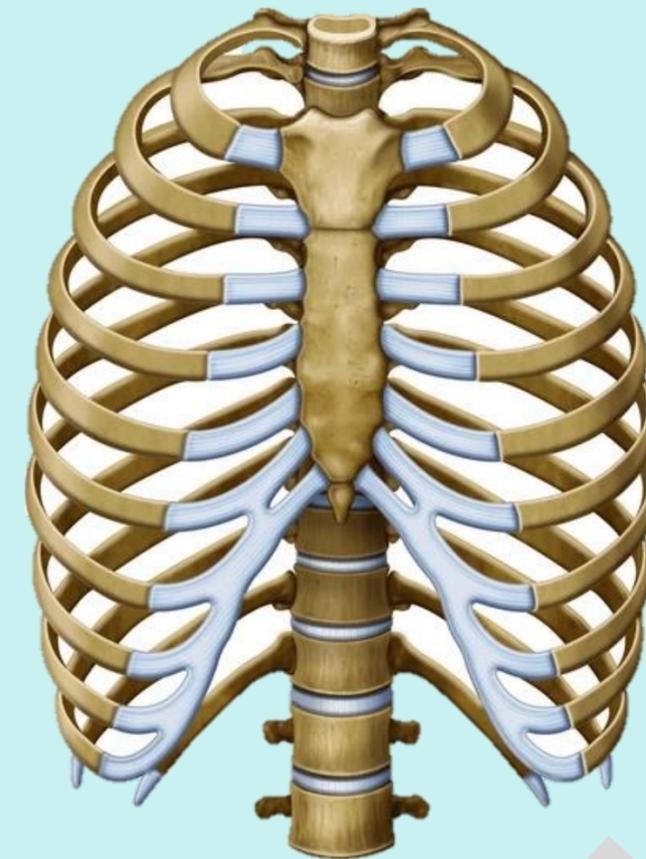
## 3. Flat Bones

### Description

- Flat and shallow plate-like bones.
- They form boundaries of certain body cavities, e.g. **cranium cavity**, **thoracic cavity**.

### Example

- **Cranial bones of the skull**, **Scapulae**, **Sternum**, and **Ribs**.



# 2

# Skeletal System

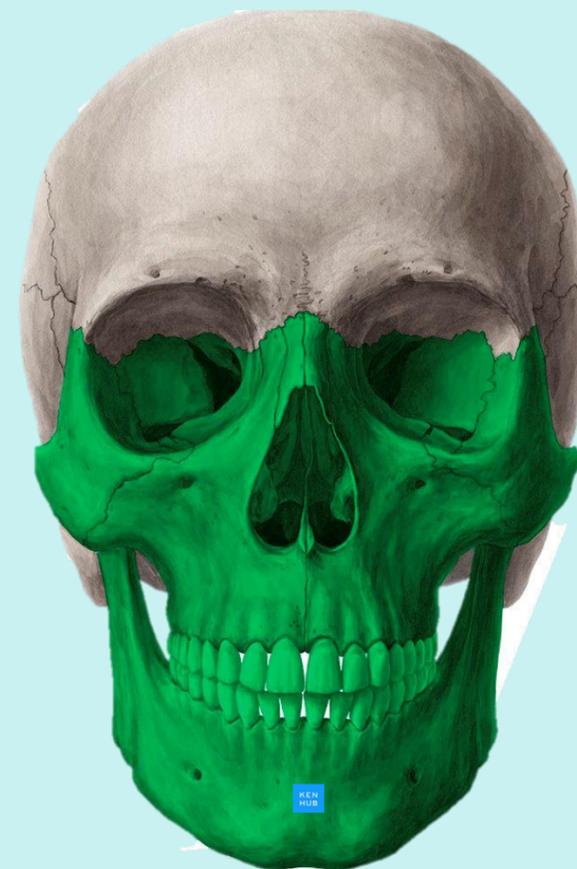
## 4. Irregular Bones

### Description

- Have complex shapes that do not fit into other categories.

### Example

- **Vertebrae.**
- **Facial bones**



# 2

# Skeletal System

## 5. Sesamoid Bones

### Description

- Small, round bones that develop and found within tendons.
- Resemble a sesame seed in shape (hence the name).

### Example

- **Patella** (kneecap).

