

Bones of Upper & Lower Limbs

"Revision"

Anatomy Team 434

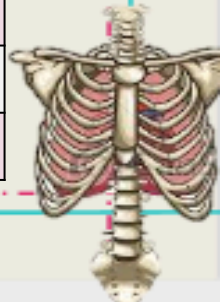
Color Index:

- **Important Points**
- Helping notes
- **Explanation**

If you have any complaint or suggestion please don't hesitate to contact us on:
AnatomyTeam434@gmail.com

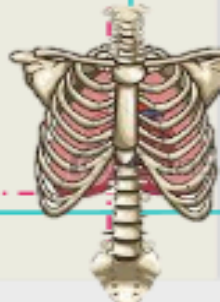
New Terms

General	Term	Meaning
Processes that helps to form joints (Articulation)	Condyle	Large, rounded articular
	Facet	Smooth, flat surface
	Head	Enlarged portion at an end of a bone
	Ramus	Branch or extension of a bone
Processes that provide for the attachment of muscles and ligaments (Projection)	Crest	Narrow ridge
	Epicondyle Linea (line)	Process on or above a condyle Narrow ridge (less prominent than a crest)
	Spine	Sharp or pointed process (spinous process)
	Trochanter	Large, irregularly shaped process (found only on the femur)
	Tubercle	Small, knoblike process
	Tuberosity	Large, knoblike process (rough)



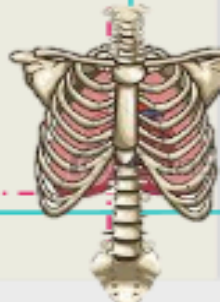
New Terms

General	Term	Meaning
Depressions or openings (may provide passageways for blood vessels and nerves)	Notch	An indentation, (incision) on an edge or surface
	Fissure	Narrow opening
	Fontanel	Membrane-covered spaces between skull bones
	Interosseous border	Between bones (the place where the two parallel bones attach together by the interosseous membrane)
	Foramen	Round opening
	Sinus	Interior cavity
	Fovea	Pit-like depression
	Meatus	Tube-like passage
	Fossa	Shallow depression
	Sulcus"groove"	Long, narrow depression
Alveolus	A pit or socket (tooth socket)	



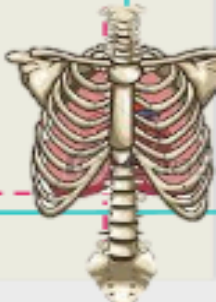
The Upper Limb

Upper Limbs Bones		Characteristic features
Pectoral Girdle	Clavicle	<ul style="list-style-type: none">- Subcutaneous." lying under the skin "- medial (Sternal) end is enlarged & triangular. $\frac{2}{3}$ and convex- lateral (Acromial) end is flattened. $\frac{1}{3}$ and concave
	Scapula	<ul style="list-style-type: none">- A triangular Flat bone (Irregular).- It has Three Processes (1)Spine(2) Acromion(3) Coracoid- Three Borders: Superior, Medial (Vertebral) & Lateral (Axillary the thickest part of the bone).- Three Angles, Two Surfaces.- Most of it is protected by muscles- Subcutaneous part----Acromion
Arm	Humerus	<ul style="list-style-type: none">- Long bone- The Most common fractures are of the Surgical Neck especially in elder people with osteoporosis- In younger people, fractures of the greater tubercle

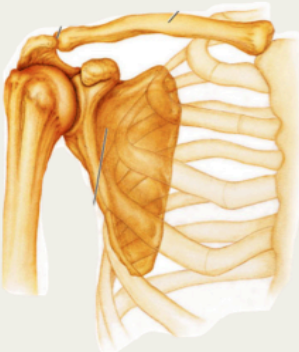
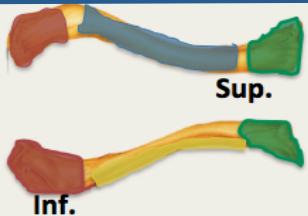
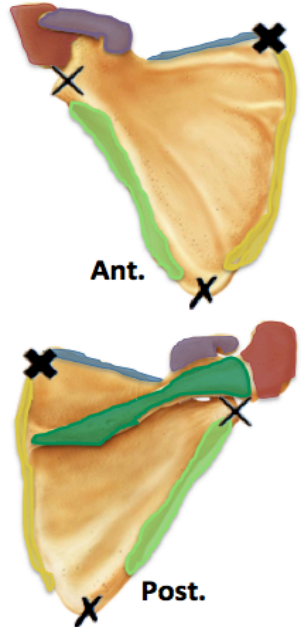


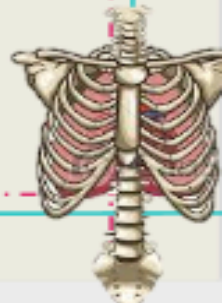
The Upper Limb

Upper Limbs Bones		Characteristic features
Forearm	Radius	<ul style="list-style-type: none">- It has a wider distal end.- It is the lateral & shorter
	Ulna	<ul style="list-style-type: none">- Proximal end is bigger than distal end.- It is the medial & longer- It is the stabilizing bone of the forearm.
Wrist	Carpals	<ul style="list-style-type: none">- Eight Carpal, short bones, arranged in two irregular rows, four for each row.- Give flexibility to the wrist
Hand	Metacarpals	<ul style="list-style-type: none">- Five Metacarpal bones.- The distal ends (Heads) articulate with the proximal phalanges to form the Knuckles of the fist.- The 1st metacarpal is the shortest and most mobile.
	Phalanges	<ul style="list-style-type: none">- Each digit has three phalanges, except the Thumb which has only two.- The middle ones are intermediate in size.- The distal ones are the smallest.

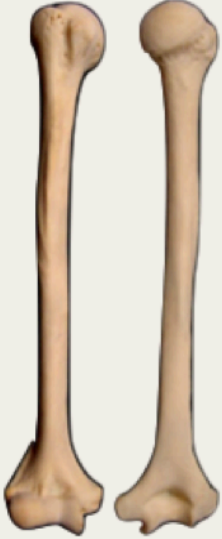
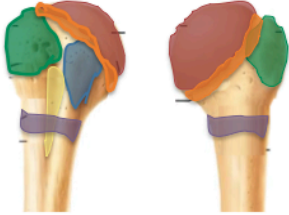




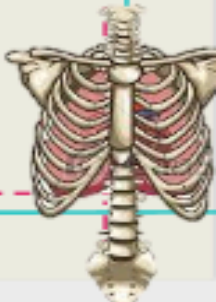
The Upper Limb

<p>PECTORAL GIRDLE</p> 	<p>CLAVICLE</p> 	<p>2 Ends: -Lateral Acromial -Medial Sternal</p>
		<p>2 Surfaces: -Sup.: Smooth Subcutaneous -Inf.: Rough</p>
	<p>SCAPULA</p> 	<p>3 Processes: Spine Acromion Coracoid</p>
		<p>3 Borders: Superior Medial (vertebral) Lateral (Axillary)</p>
		<p>3 Angles: ✕ Superior ✕ Lateral (Glenoid Cavity) ✕ Inferior</p>
		<p>2 Surfaces: -Convex Post.: Supraspinous Fossa Infraspinous Fossa -Concave Ant. (Costal): Subscapular Fossa</p>




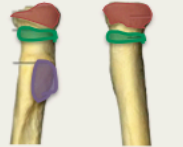




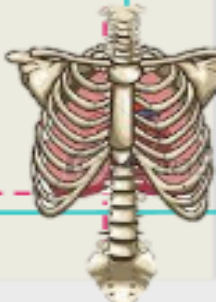
The Upper Limb

<p>HUMERUS</p>  <p>Ant. Post.</p>	<p>PROXIMAL END</p> 	<p>Head GREATER Tubercle LESSER Tubercle Intertubercular Groove Anatomical Neck Surgical Neck</p>
	<p>SHAFT</p> 	<p>Deltoid Tuberosity Spiral (radial) Groove</p>
	<p>DISTAL END</p> 	<p>Supracondylar Ridges (Medial/Lateral) Epicondyles (Medial/Lateral) Ant.: -Trochlea (ulna) -Capitulum (radius) -Coronoid Fossa -Radial Fossa Post.: -Olecranon Fossa</p>



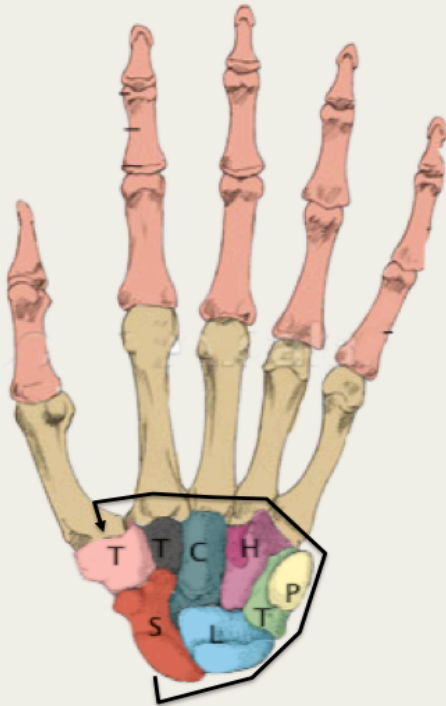
The Upper Limb

ULNA Ant. Post.	PROXIMAL END		Olecranon Process (elbow) Coronoid Process Tuberosity of Ulna Trochlear Notch (humerus) Radial Notch
	SHAFT		Sharp Interosseous Border (Lateral) 3 Surfaces: Anterior, Medial, Posterior
	DISTAL END		Head Styloid Process
RADIUS Ant. Post.	PROXIMAL END		Head Neck Radial (bicipital) Tuberosity
	SHAFT		Lateral Convex
	DISTAL END		Ulnar Notch Radial Styloid Process Dorsal Tubercle



The Upper Limb

WRIST



**8 Carpals: “So Long To Pinky,
Here Comes The Thumb”**

Proximal Row:

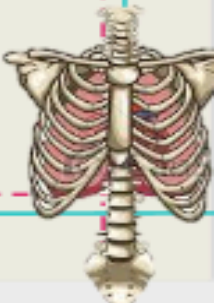
- 1- Scaphoid
- 2- Lunate
- 3- Triquetral
- 4- Pisiform

Distal Row:

- 5- Hamate
- 6- Capitate
- 7- Trapezoid
- 8- Trapezium

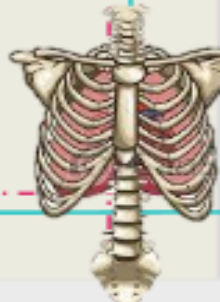
5 Metatarsals

14 Phalanges



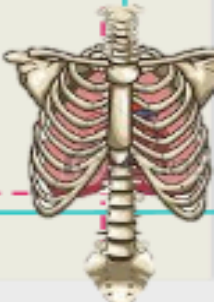
The Lower Limb

Lower Limbs Bones	Characteristic features
Femur	<ul style="list-style-type: none">- Articulation: with hipbone above and patella and tibia below- Structures: head, neck, greater and lesser trochanters, intertrochanteric line (iliofemoral ligament attachment), intertrochanteric crest (has quadrate tubercle), linea aspera (ridge on POSTERIOR PART), epicondyles, condyles, patellar groove (anterior), and intercondylar notch (posterior).- Position: head is medial + upward- shaft convex + smooth anteriorly- Shaft is rough + concave posteriorly
Patella	<ul style="list-style-type: none">- Largest sesamoid bone- anterior part is subcutaneous- its posterior surface articulates with the condyles of femur- Apex is inferior- gives attachment to quadriceps femoris muscle
Tibia	<ul style="list-style-type: none">- Upper end: 2 condyles + intercondylar area (eminence)- Shaft: tibial tuberosity- Lower part subcutaneous- Soleal line posteriorly- Lower end: articulates with talus- Has fibular notch – medial malleolus (medial surface: subcutaneous)- Lateral surface: articulates with talus)- Position: upper end is large- Medial malleolus is downward and medial- Shaft has sharp anterior border




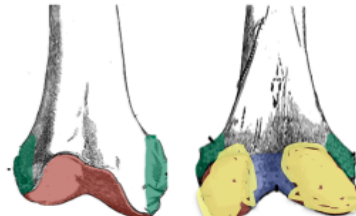


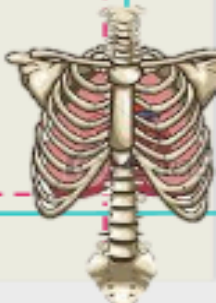
The Lower Limb

Lower Limbs Bones	Characteristic features
Fibula	<ul style="list-style-type: none">- lateral bone of the leg- <u>takes no part in knee joint articulation BUT it has to do with the ankle joint</u>- has lateral malleolus at the distal end and its medial surface articulates with the talus to form the ankle joint !
Tarsals	<ul style="list-style-type: none">- 7 bones (<u>calcaneum – talus – navicular – cuboid – 3 cuneiforms</u>)- Talus: for ankle joint- Calcaneus: largest bone of the foot + forms the heel of the foot
Metatarsals + Phalanges	<ul style="list-style-type: none">- <i>Metatarsals</i>: numbered from medial to lateral (<u>opposite to the hand ==> lateral to medial</u>)- <i>Phalanges</i>: 3 for each toe except big toe has 2 only- long bones




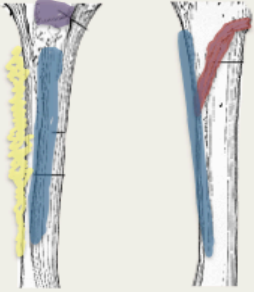
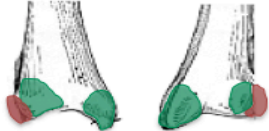


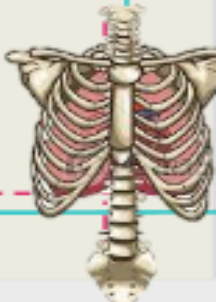
The Lower Limb

 <p>FEMUR</p> <p>Ant. Post.</p>	<p>UPPER END</p> 	<p>Head: ✱Fovea Capitis</p>
	<p>SHAFT</p> 	<p>Neck</p> <p>GREATER Trochanters LESSER Trochanters Ant.: Inter-trochanteric LINE Post.: Inter-trochanteric CREST</p>
	<p>LOWER END</p> 	<p>Ant.: -Smooth and round</p> <p>Post.: -Gluteal Tuberosity -Linea Aspera > Supracondylar Ridges (Medial/Lateral) -Popliteal Surface</p>
		<p>Condyles (Medial/Lateral) Epicondyles (Medial/Lateral) Articular Patellar Surface Intercondylar notch/fossa</p>





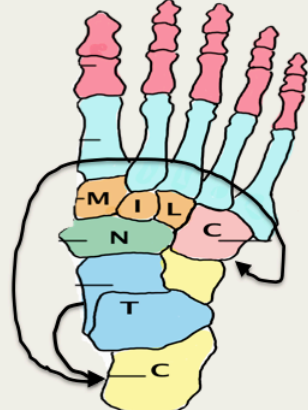


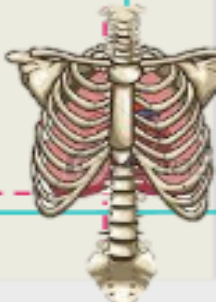
The Lower Limb

PATELLA	UPPER SURFACE		<p>Ant.: Rough and Subcutaneous Post.: (Knee Joint) Articulate w/Condyles of femur</p>
	MARGINS		<p>Upper/Medial/Lateral: Attach to Quadriceps Femoris Muscles Inferior Apex: Attach to Tuberosity of Tibia by Ligamentum Patellae</p>
TIBIA	UPPER END		<p>Condyles: (LARGE Medial/small Lateral) Intercondylar Area</p>
	SHAFT		<p>Tibial Tuberosity 3 Borders: -Anterior (Sharp/Subcutaneous) -Medial -Lateral (Interosseous Border) 3 Surfaces: -Posterior (Soleal Line) -Medial (Subcutaneous) -Lateral</p>
	LOWER END		<p>Medial Malleolus Surfaces: -Medial > Subcutaneous -Lateral > Articulate w/Talus (Ankle Joint) Fibular Notch: (Distal Tibiofibular Joint)</p>



The Lower Limb

FIBULA	 <p>Ant. Post.</p>	UPPER END		Head
		SHAFT		Styloid Process
		LOWER END		Neck
FOOT 				4 Borders: -Medial (Interosseous Border)
				4 Surfaces
				Lateral Malleolus (subcutaneous) Medial Surface: Articulate w/Talus (Ankle Joint)
				7 Tarsals: "Tiger Cubs Need MILC"
				<ol style="list-style-type: none"> 1- Talus (ankle joint) 2- Calcaneus (Largest, Heel) 3- Navicular 4- Medial cuneiform 5- Intermediate cuneiform 6- Lateral cuneiform 7- Cuboid
				5 Metatarsals
				14 Phalanges





Good Luck with all
the revision!!!

GOOD
LUCK

Done by:
Noha AlGwaiz & Tariq AlHassan

