

وسهلا



أهلا

يُمنع أخذ السلايدات بدون  
إذن المحرر واي اجراء  
يخالف ذلك يقع تحت طائلة  
المسؤولية القانونية  
جميع المعلومات للاستخدام  
التعليمي فقط

الأستاذ الدكتور يوسف حسين

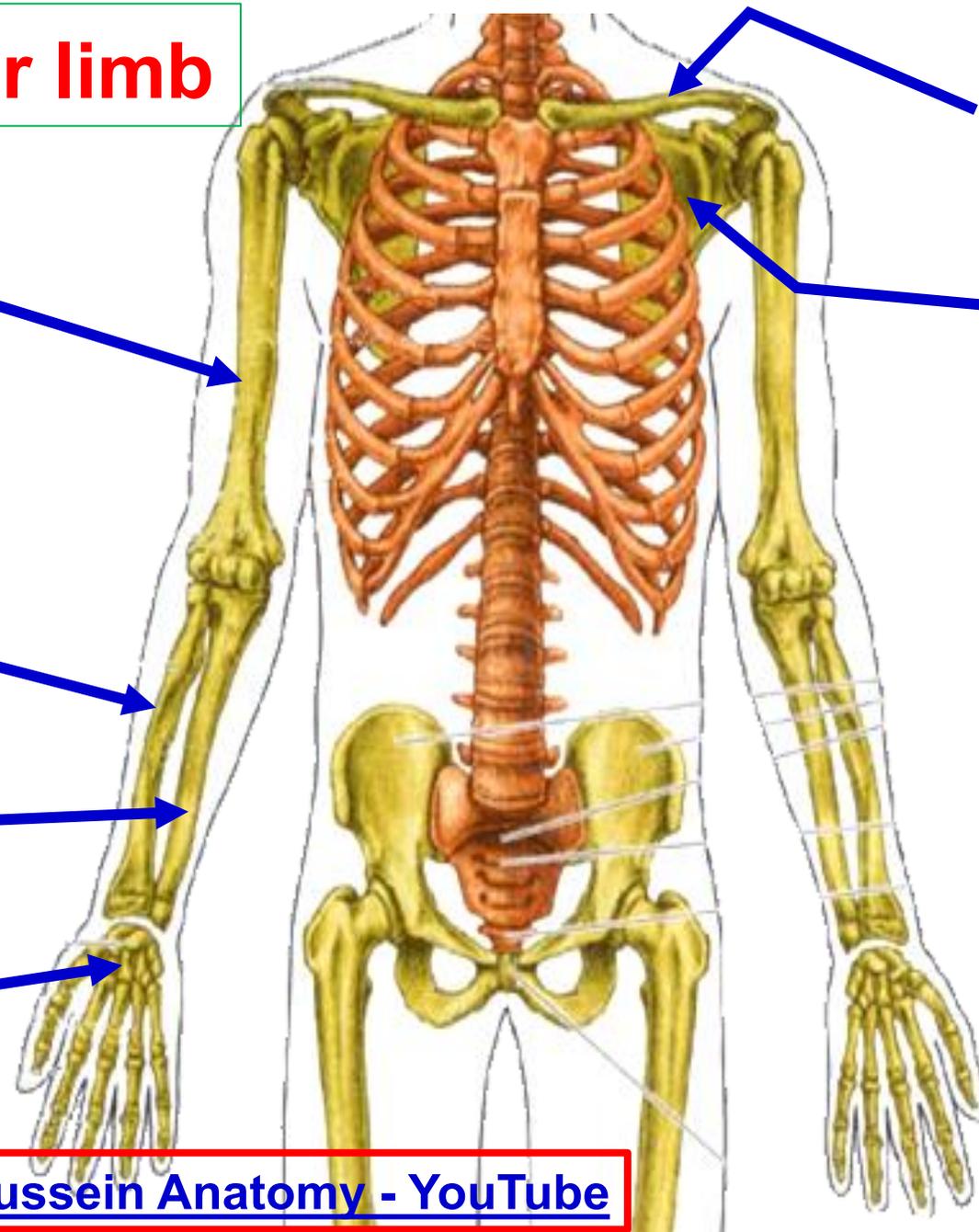
كلية الطب - جامعة مؤتة - الأردن

دكتورة من جامعة كولونيا المانيا

Prof. Dr. Youssef Hussein Anatomy - YouTube

الواتس 00201224904207

## ❖ Bones of the upper limb



Clavicle

Scapula

Humerus

Radius

Ulna

Hand

Human skeleton  
is composed of  
**206 bones**

- 86 paired
- 34 single.

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# Clavicle

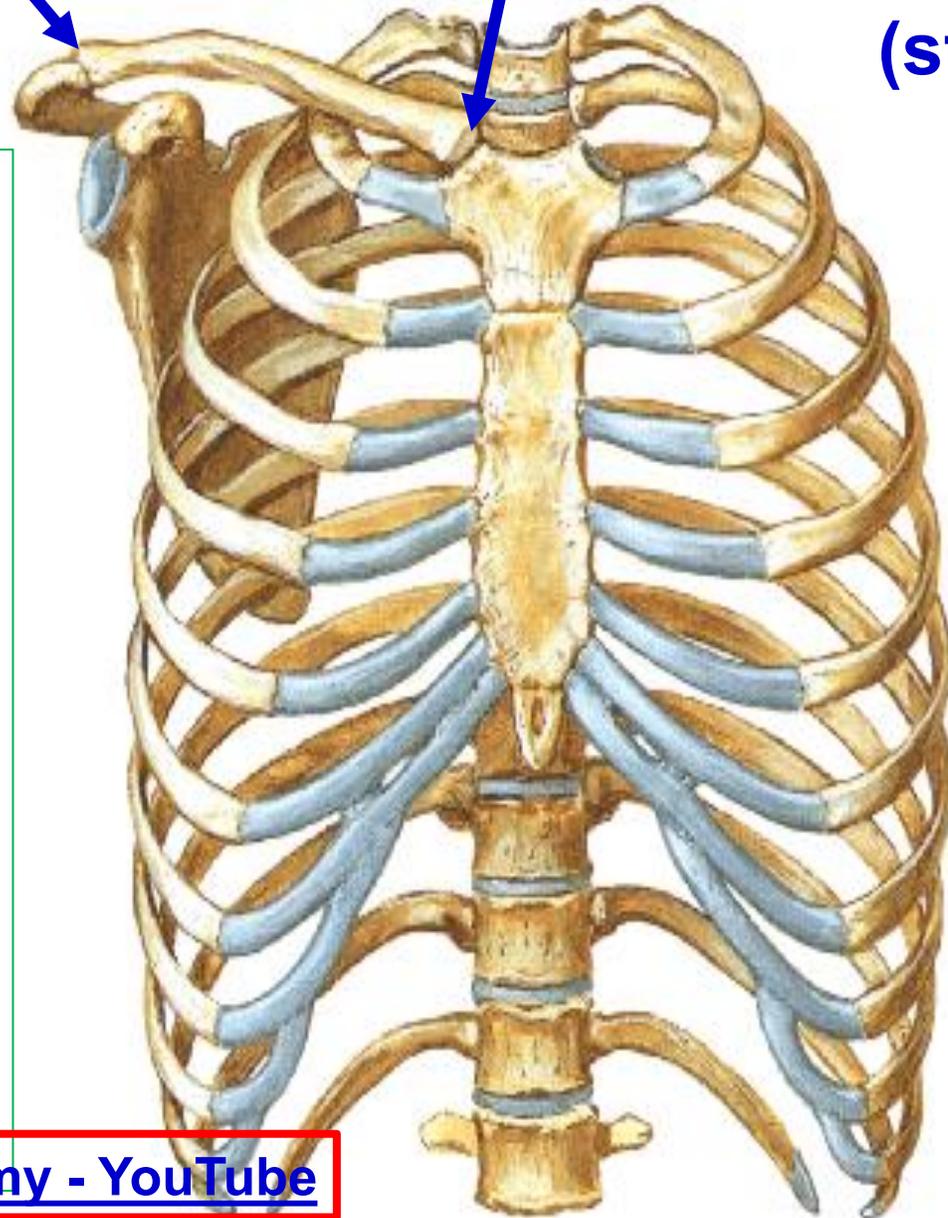
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**Lateral end  
(acromial)**

**Medial end  
(sternal)**

**\*\* How to identify the side of a clavicle**

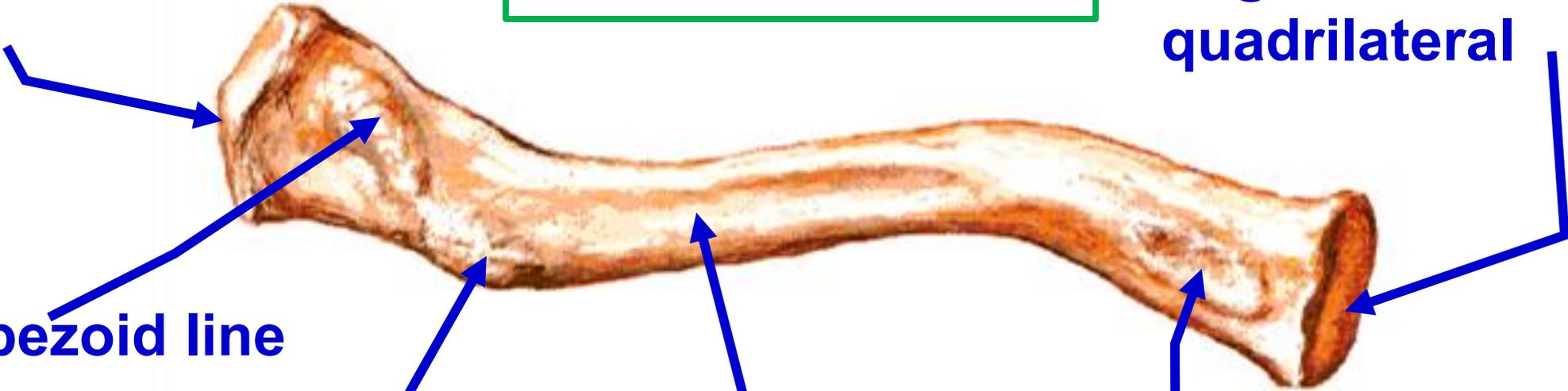
- The **medial end** is bulky and quadrilateral while the **lateral end is flattened**.
- The **medial 2/3** of the shaft is **convex anteriorly**.
- The **Superior surface** is **smooth** while the inferior surface shows a shallow groove in its middle third.



**Lateral end (acromial)**  
flattened

**Inferior surface**

**Medial end (sternal)**  
large and  
quadrilateral



**Trapezoid line**

**Conoid tubercle related to  
posterior border**

**Groove to  
subclavius muscle**

**Rough for  
costoclavicular  
ligament**  
Superior surface is smooth

**Lateral end  
(acromial)**

**Medial end  
(sternal)**

**It articulates with the acromion process of the scapula to form **acromioclavicular joint.****

**This end articulates with the clavicular notch of manubrium sterni and the first costal cartilage to form **sternoclavicular joint.****

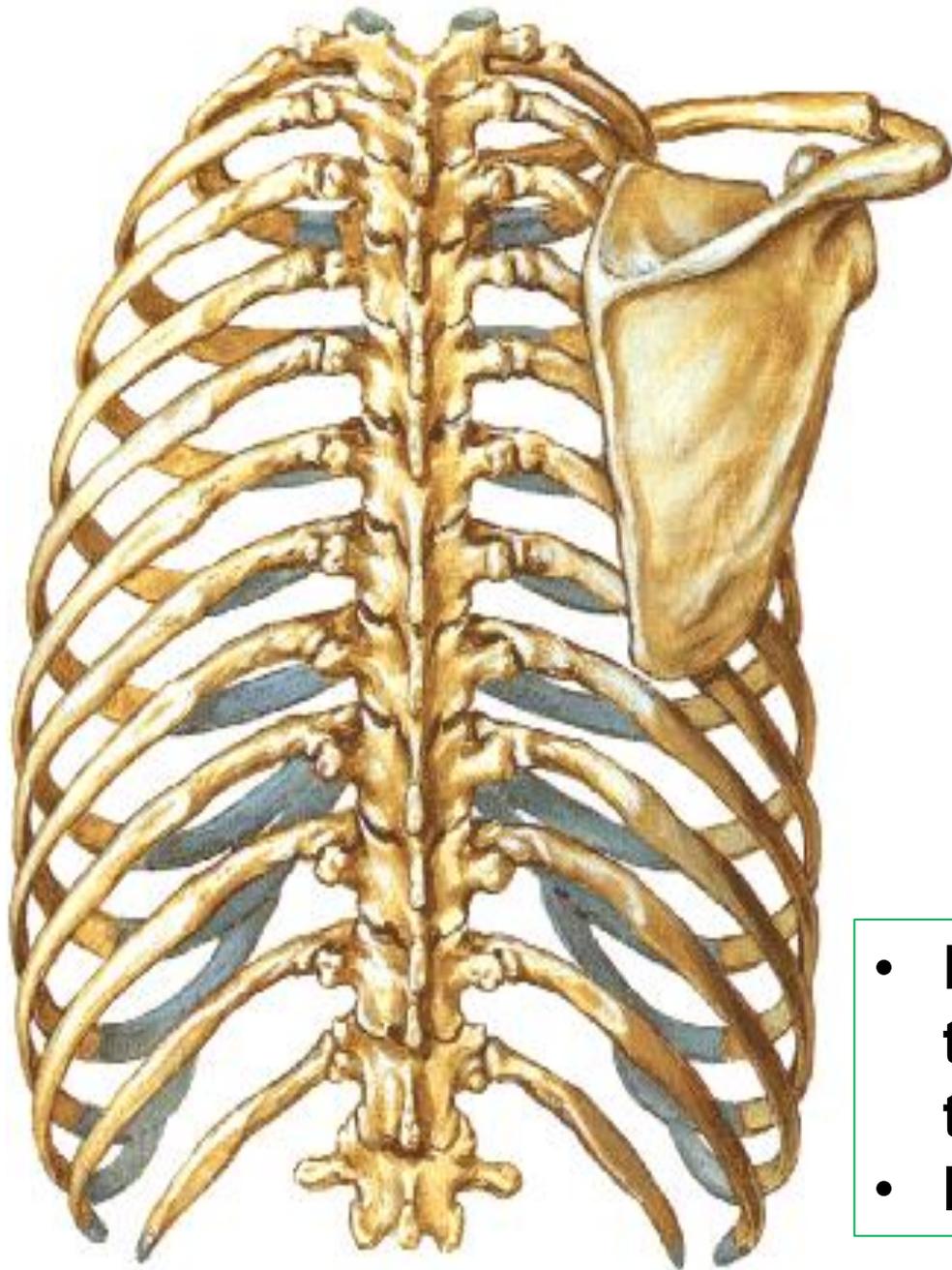


- **Medial (Sternal) end:** large and **quadrilateral**.
- **Lateral (Acromial) end: flattened**
  - **Shaft**
- It has 2 curvatures resembling the **letter S** between both ends.
- The medial 2/3 are convex (محدب) anteriorly while the lateral 1/3 is convex posteriorly.
- The **medial 2/3 has 4 surfaces**
  - 1) Anterior, 2) posterior, 3) superior and 4) Inferior.
- The **lateral 1/3 is flattened** has
  - 2 surfaces:** superior and inferior;
  - b- 2 borders:** anterior and posterior.

- **Although it is a long bone, it has unusual features:**
- **It lies horizontally.**
- **It has no medullary cavity.**
- **It ossifies in membrane not in cartilage**
- **It is the 1<sup>st</sup> bone to ossify intrauterine.**
- **It is the commonest bone to be fractured in the body**

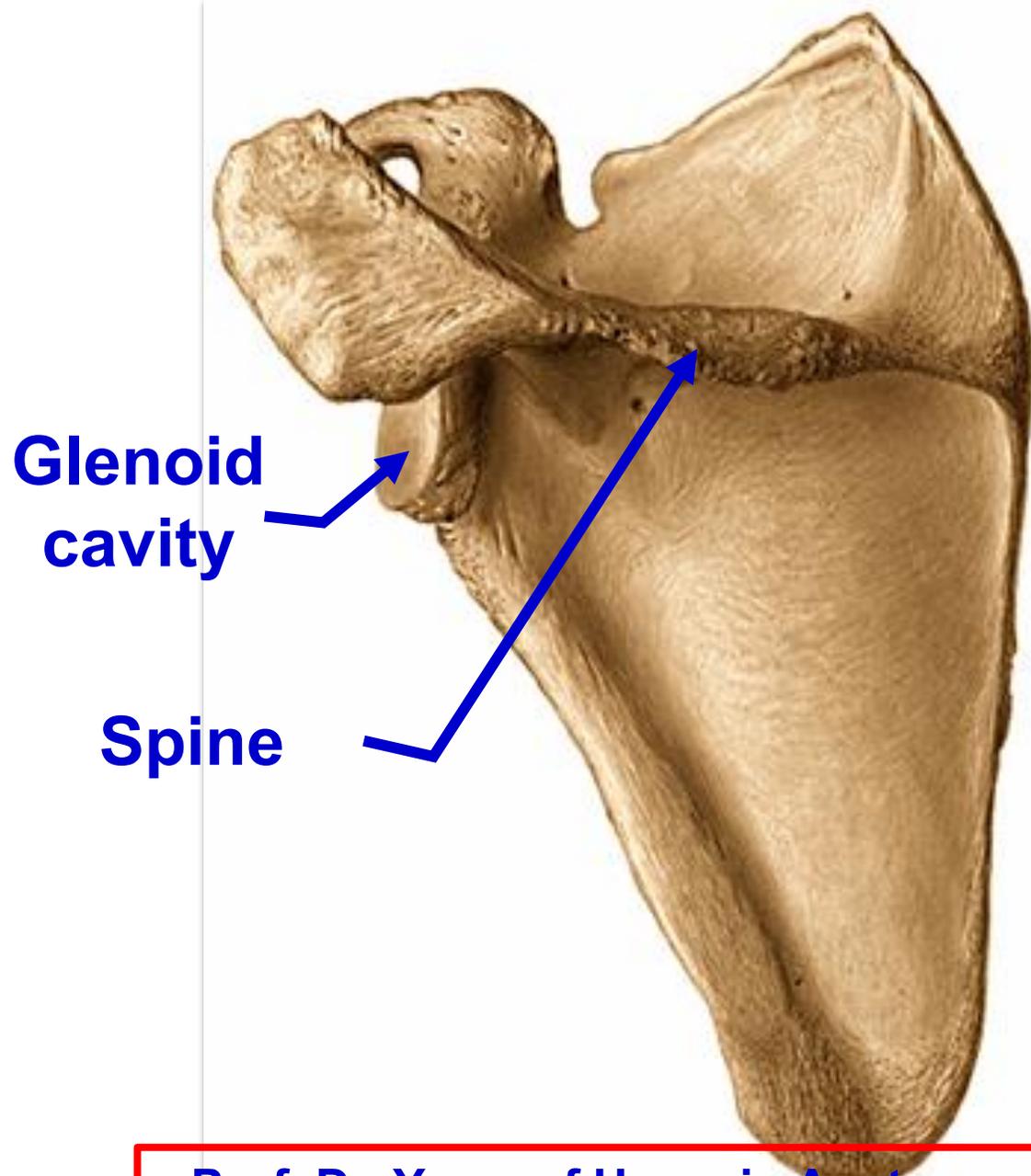
**\*\* Functions of the clavicle:-**

- 1) **It transmits the weight of the upper limb to the axial skeleton.**
- 2) **It braces back the shoulder thus allowing the upper limb to be suspended free away from the trunk.**



# Scapula

- Flat triangular bone which lies on the back of the upper part of the thoracic cage on each side.
- It extends from the 2nd- to 7th rib



**\*\* Identification of the side of the scapula;**

-The **glenoid cavity** is directly **laterally and superior**.

-The **spine** is attached to the **posterior** surface.

**It has 2 surfaces, 3 angles, 3 borders and 3 processes.**

**Ventral**

**2 Surfaces**

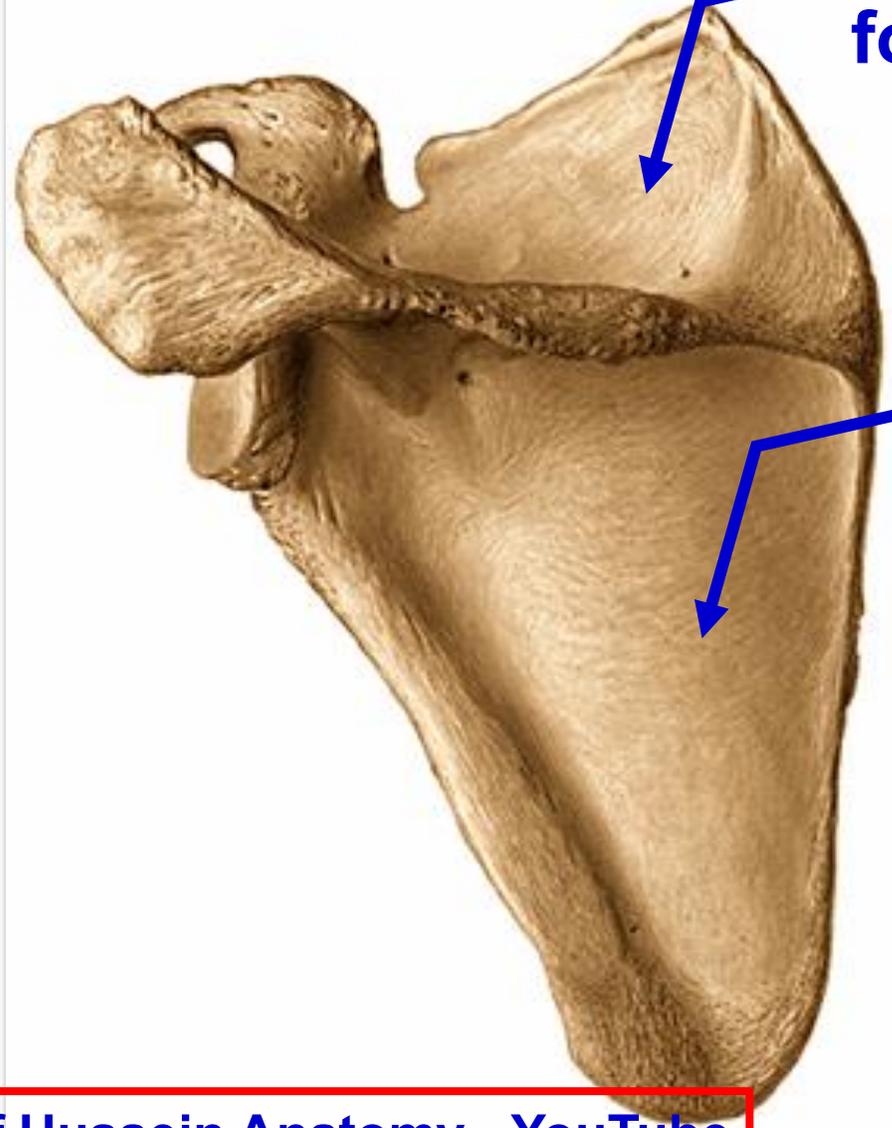
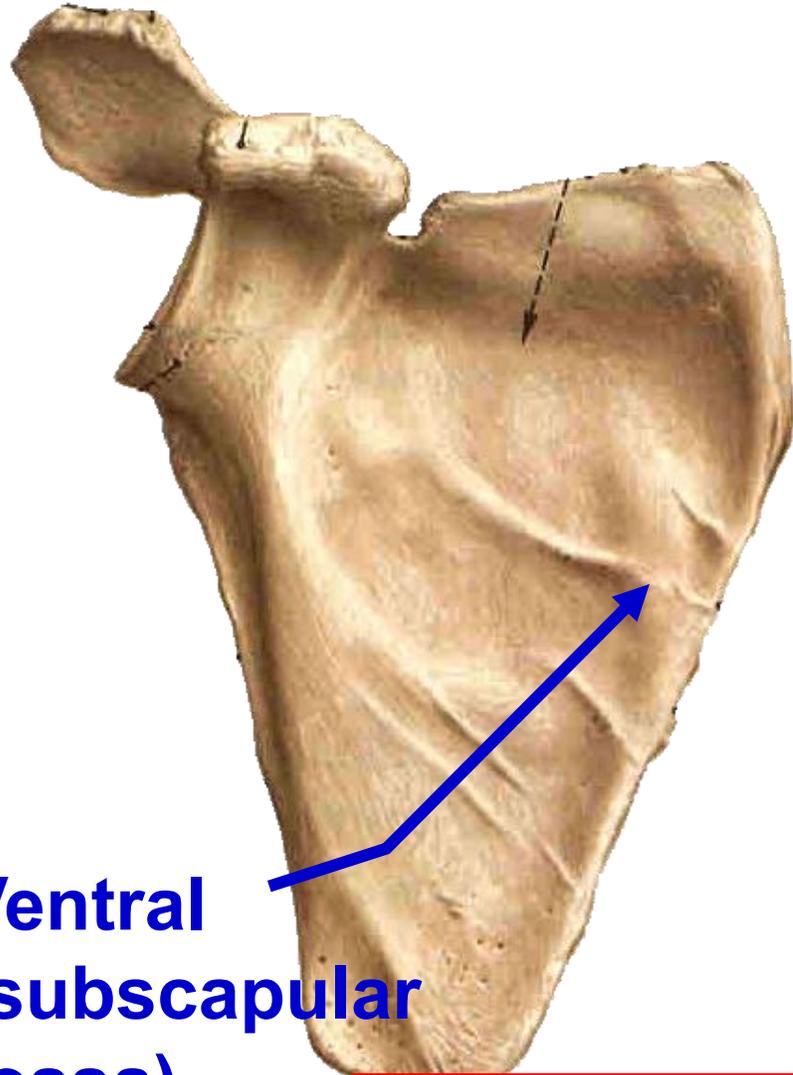
**Dorsal**

**Supraspinous  
fossa**

**Infraspinous  
fossa**

**Ventral  
(subscapular  
fossa)**

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# 3 Border & 3 Angle

**Supraglenoid tubercle**

**Lateral angle (Glenoid cavity)** articulates with the head of the humerus to form the **shoulder joint**.

**Infraglenoid tubercle**

**Lateral border**

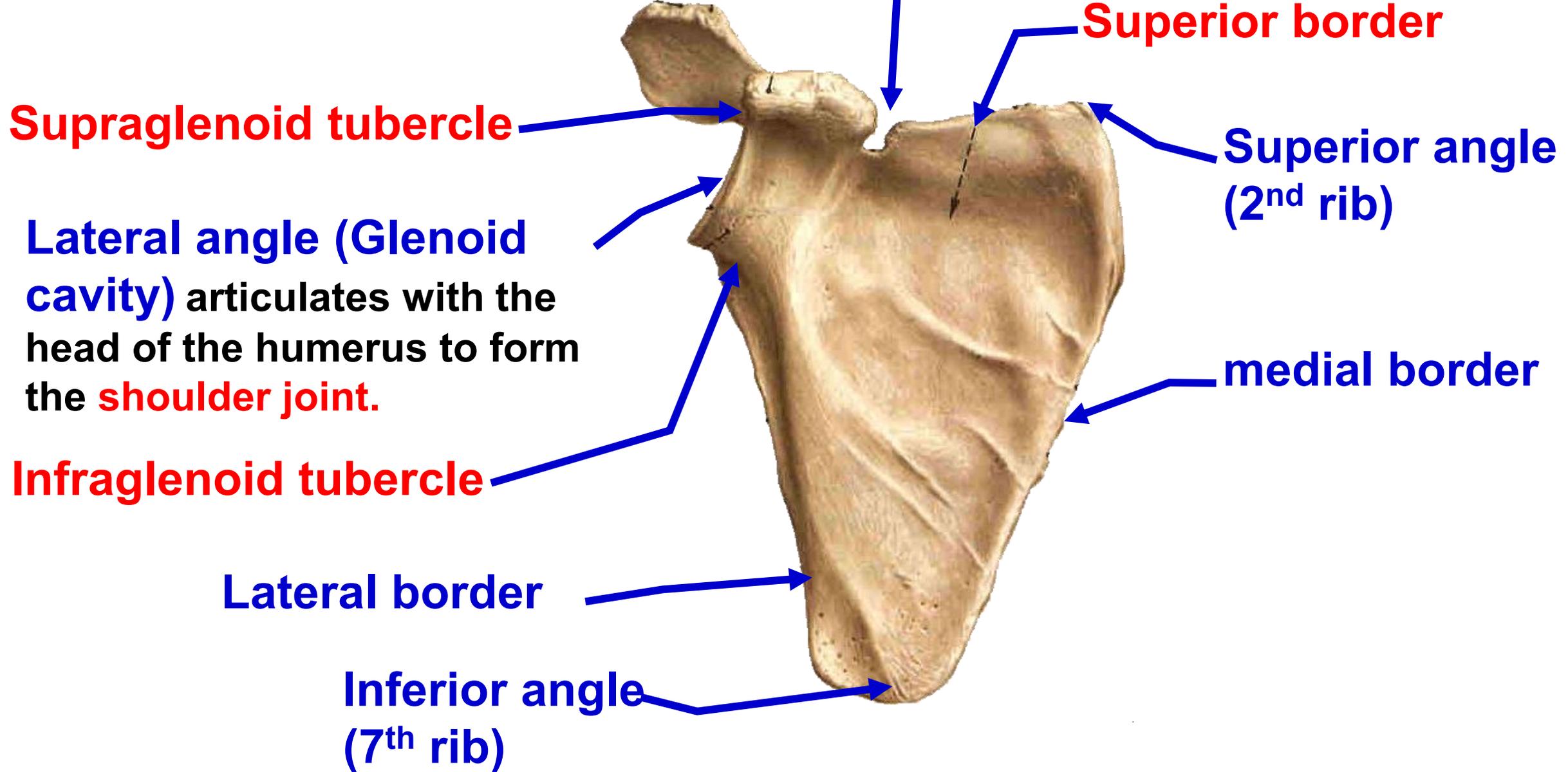
**Inferior angle (7<sup>th</sup> rib)**

**Suprascapular notch**

**Superior border**

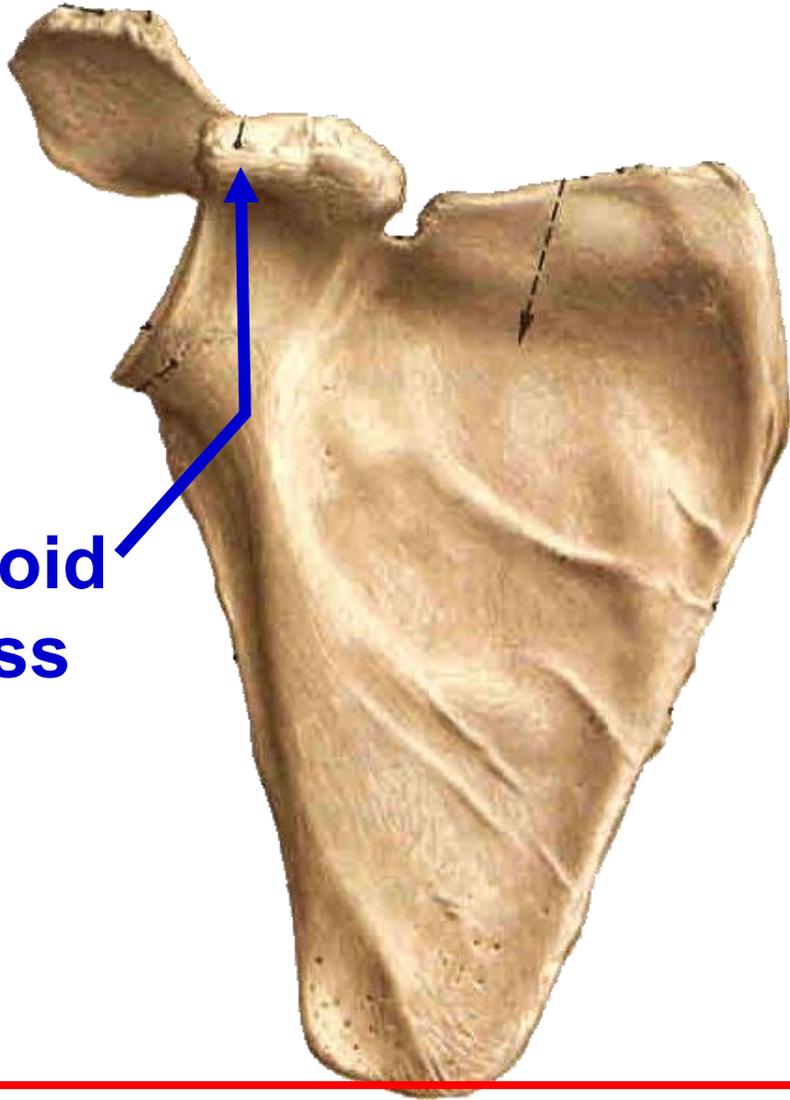
**Superior angle (2<sup>nd</sup> rib)**

**medial border**



**3 Processes**

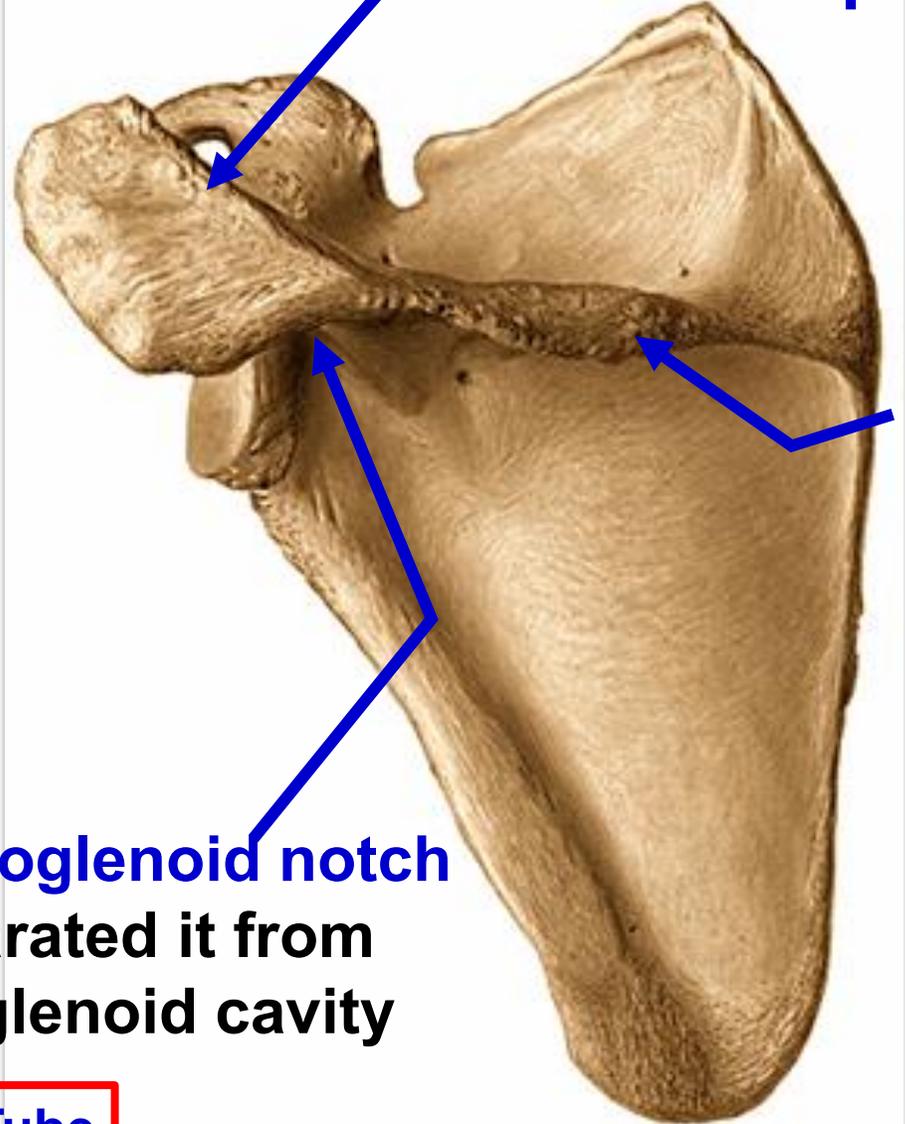
**Coracoid process**



**Medial border of Acromion process**

**Spine**

**Spinoglenoid notch separated it from the glenoid cavity**



## Processes

**1- Spine:** is a triangular process attached to the **dorsal** surface.

- **Posterior** or **free** border is broad and called the **crest of the spine**.

- It has 2 lips upper and lower lips and intermediate area in between showing a rough tubercle near its medial end.

- **Lateral** border separated from the glenoid cavity by **spinoglenoid notch**.

- This notch connects the supraspinous fossa with the infraspinous fossa.

- **Medial** end is the **root of the spine**.

**2 - Acromion:** This process is continuous with the spine.

- It has **2 surfaces**,

a) **Upper** subcutaneous surface.

b) **Lower** smooth slightly concave surface.

- It has **2 borders**,

a) **Medial** border carries the **clavicular facet** which articulates with the acromial (lateral) end of the clavicle to form the **acromioclavicular joint**, - This border is continuous with the upper lip of spine.

b) **Lateral** border which is continuous with the lower lip of the crest of the spine.

**3 - Coracoid process:** attached to the superior aspect of the head.

- It is bent anteriorly so that, in the resting position, its tip points exactly forwards

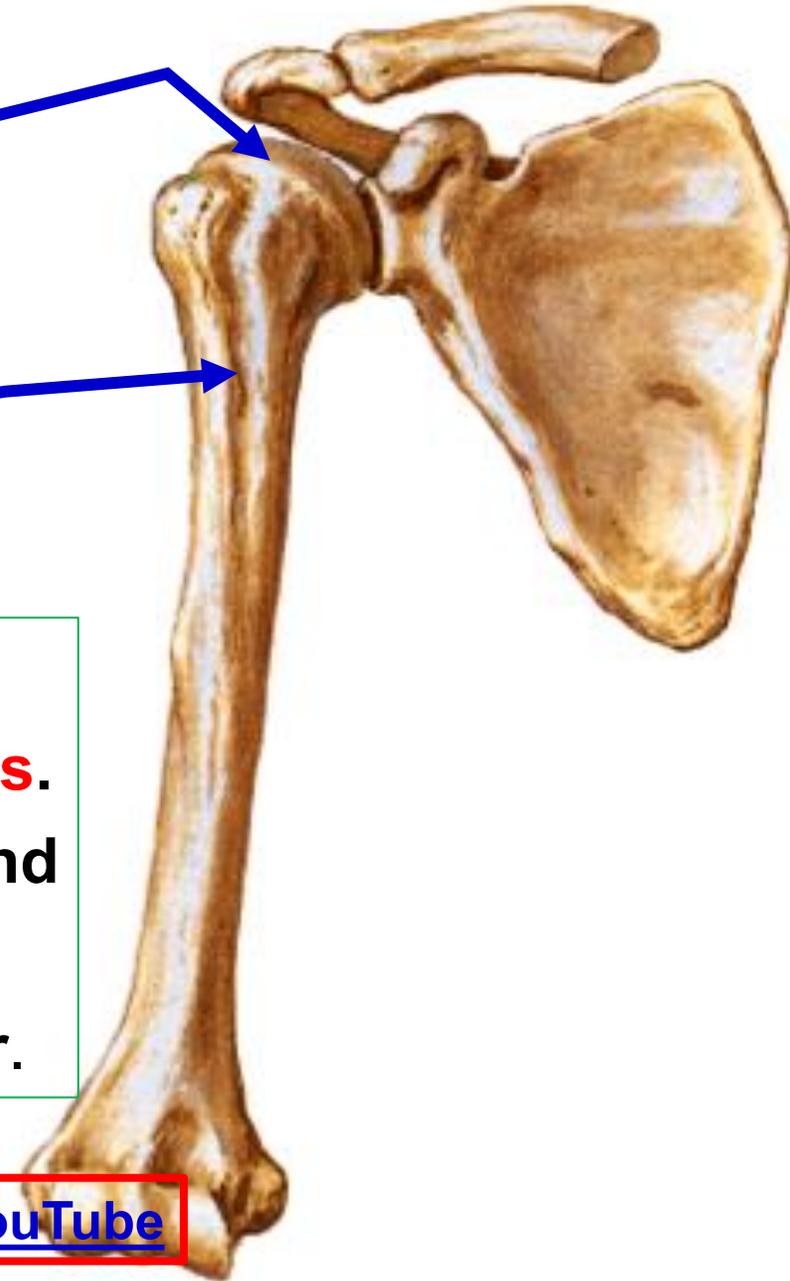
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# Humerus

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**Head of humerus**

**Bicipital groove**



**-This is the bone of the arm.**

**\*\* How to identify the side of the humerus.**

1- The **head** is directed **superior and medially**.

2- The **bicipital groove** is directed **anterior**.

## Upper end

Head of humerus

Anatomical neck

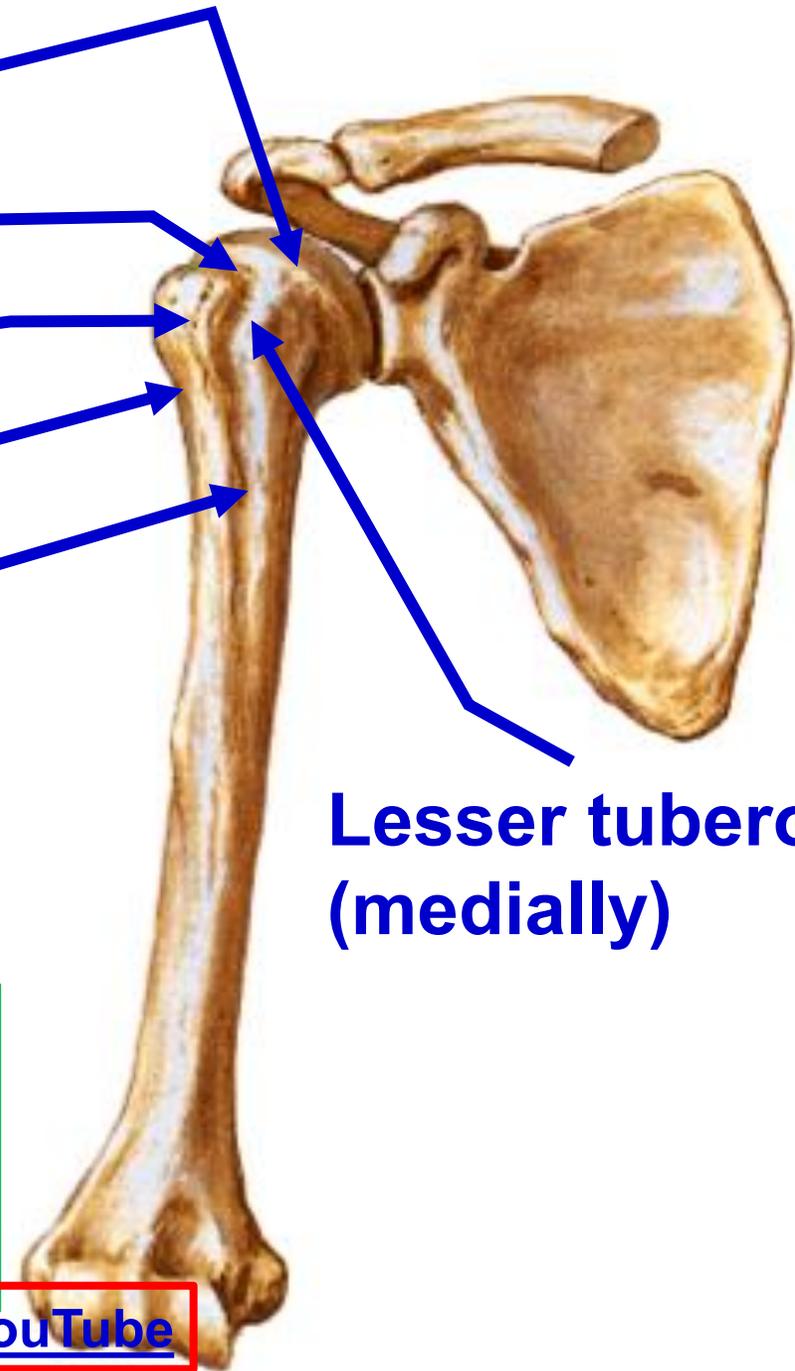
Greater tuberosity

Surgical neck

Bicipital groove  
(Intertubercular groove)

Lesser tuberosity  
(medially)

- **Anatomical neck:** constriction just beyond the head
- **Surgical neck:** constriction just below the head and two tuberosities



# Anterior

Lat . Lib of bicipital groove

**Deltoid tuberosity**

Anterior border

**Anterolateral surface**

Lateral supracondylar ridge

Med . Lib of bicipital groove

Floor of Lib of bicipital groove

**Anteromedial surface**

Medial supracondylar ridge

# Posterior

Oblique ridge

**Spiral groove**

Posterior surface

**Anterior**

**Posterior**

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**Radial fossa**

**Coronoid fossa**

**Olecranon fossa**

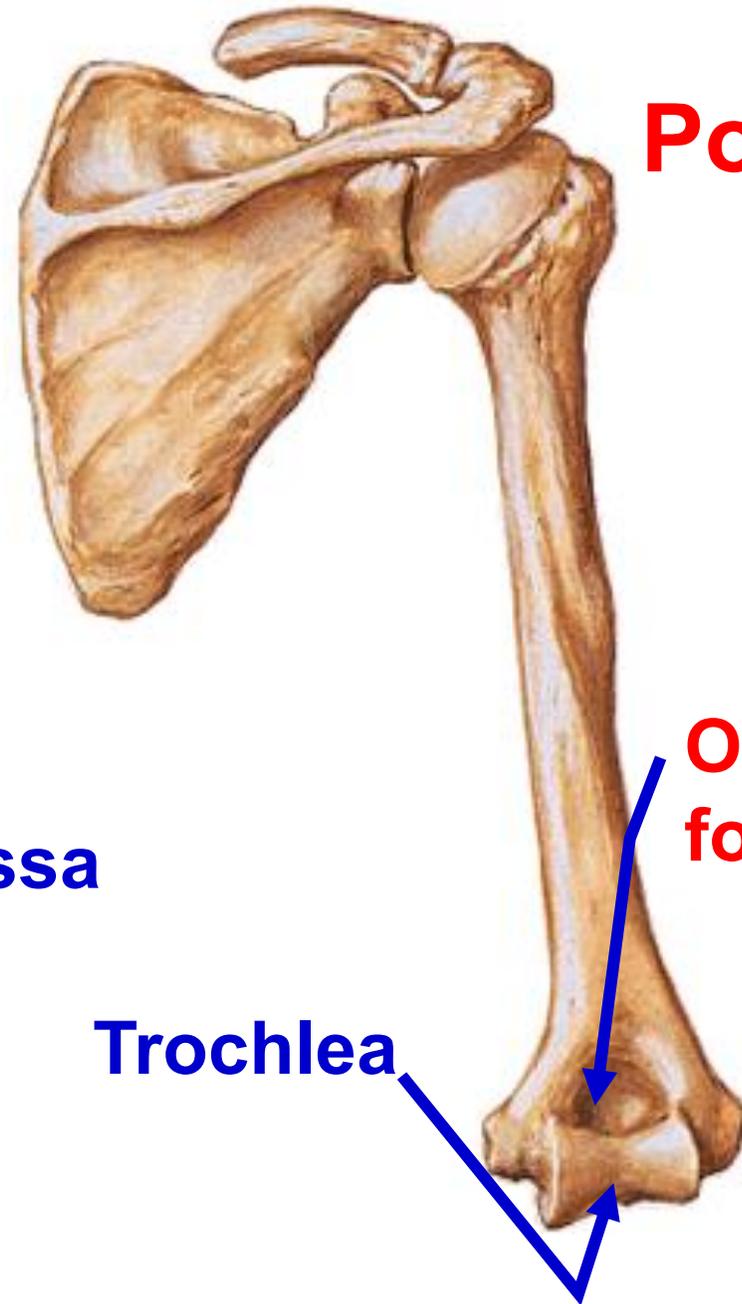
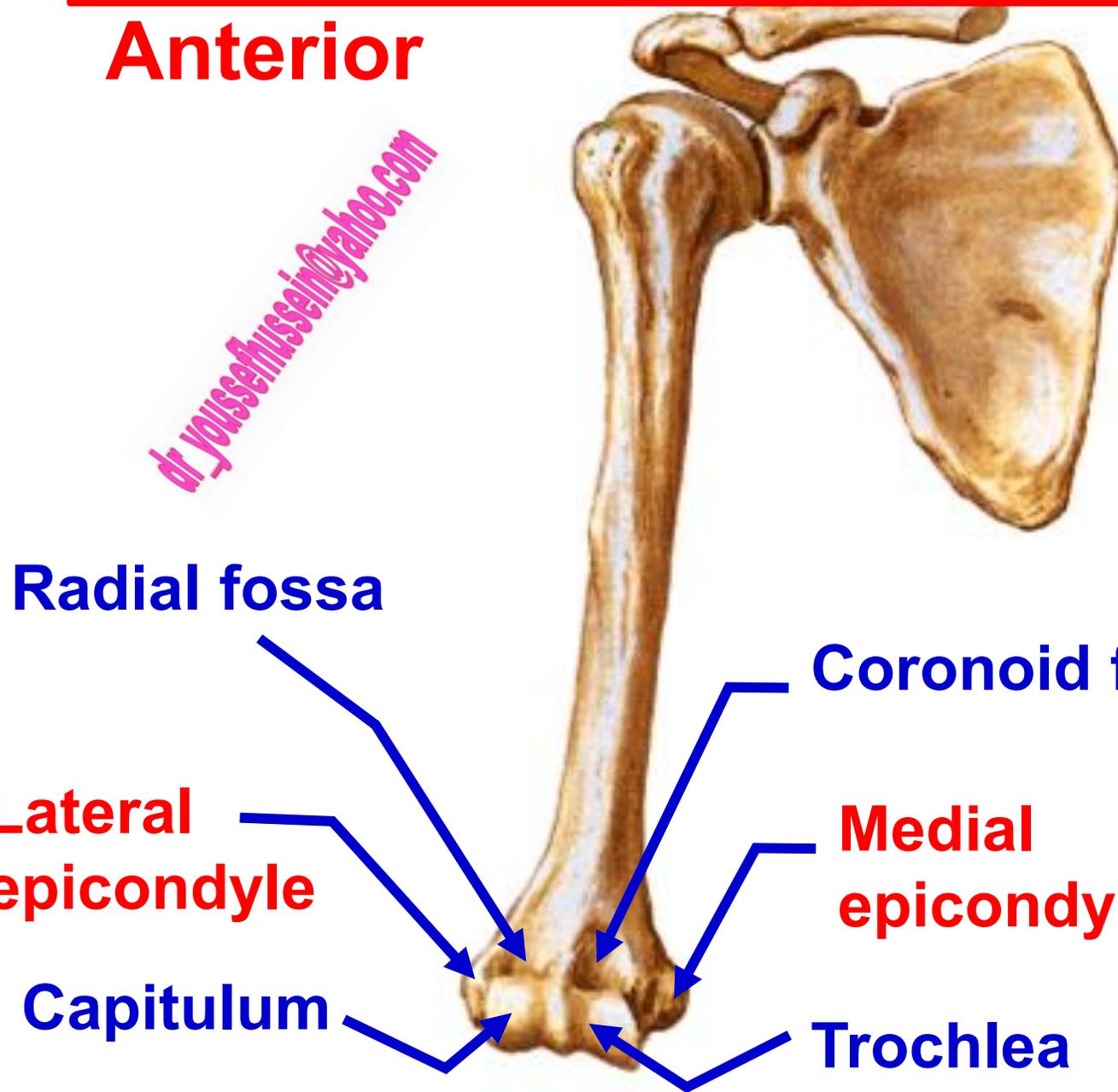
**Lateral epicondyle**

**Medial epicondyle**

**Trochlea**

**Capitulum**

**Trochlea**



## ❖ Shaft

- The shaft has 3 borders and 3 surfaces.

a) **Anterior border**; which is continuous above with the lateral lip of the bicipital groove.

b) **Medial border**: which is continuous above with the medial lip of the bicipital groove.

- Its lower part is sharp and forms the **medial supracondylar ridge**.

c) **Lateral border**: which is ill-defined superiorly.

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- In the middle of the shaft it is cut by the spiral (radial) groove.

- The lower part of this border is sharp and forms the **lateral supracondylar ridge**.

**\*\* The surfaces are:**

a) **Anteromedial surface**: Superiorly it becomes narrowed to form the floor of the **bicipital groove**.

b) **Anterolateral surface**, Just above the middle of the shaft, it carries **deltoid tuberosity**.

c) **Posterior surface**: The **spiral groove** begins slightly above its middle and extends obliquely downwards, laterally and forwards across the lateral border to the anterolateral surface. [Prof. Dr. Youssef Hussein Anatomy - YouTube](#)

- This surface may show an **oblique rough strip** above the spiral groove.

## ❖ Lower end

- It is formed of articular and non articular parts:

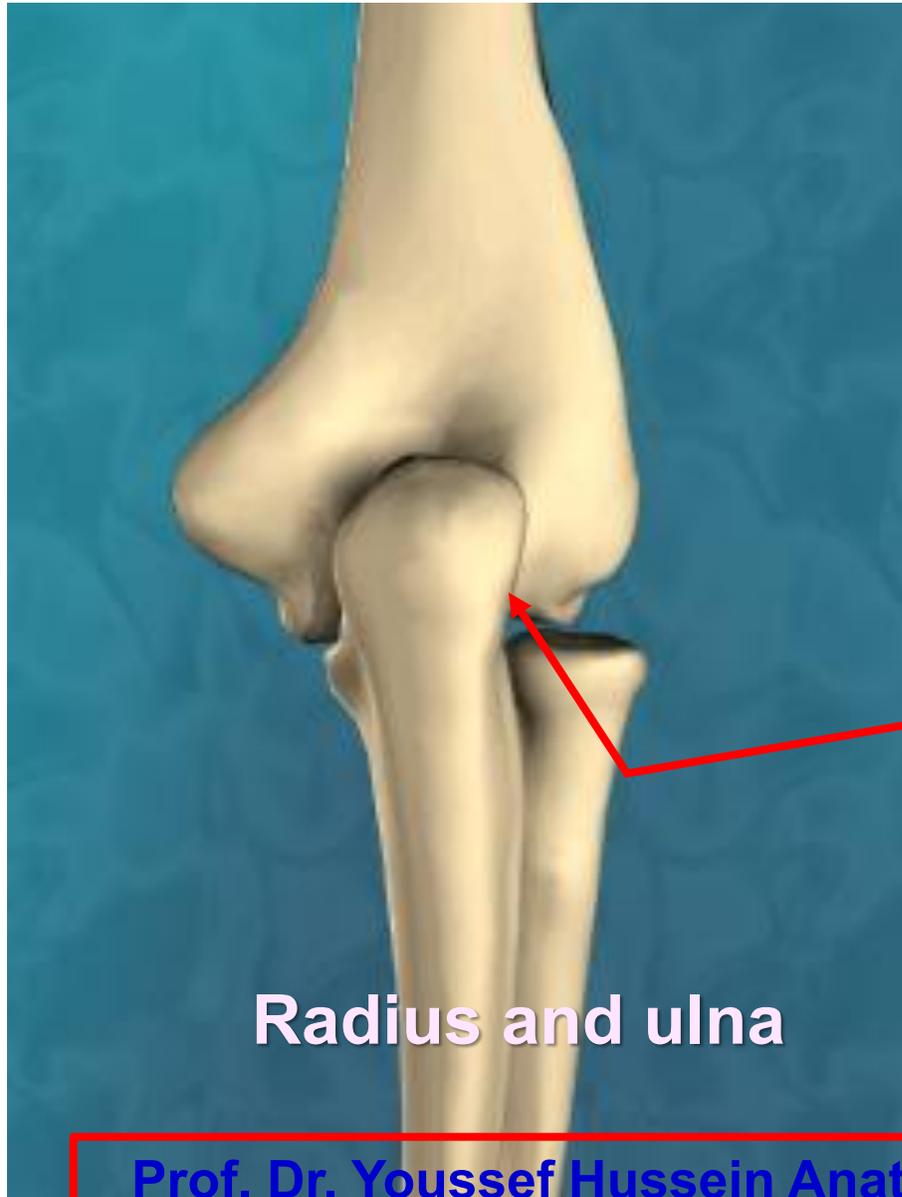
### A- Articular Parts:

- 1- **Trochlea**, is the **medial** position. It is a pulley بكرة shaped surface.
- 2- **Capitulum** is **the lateral** in position.

### B- Non-articular part:

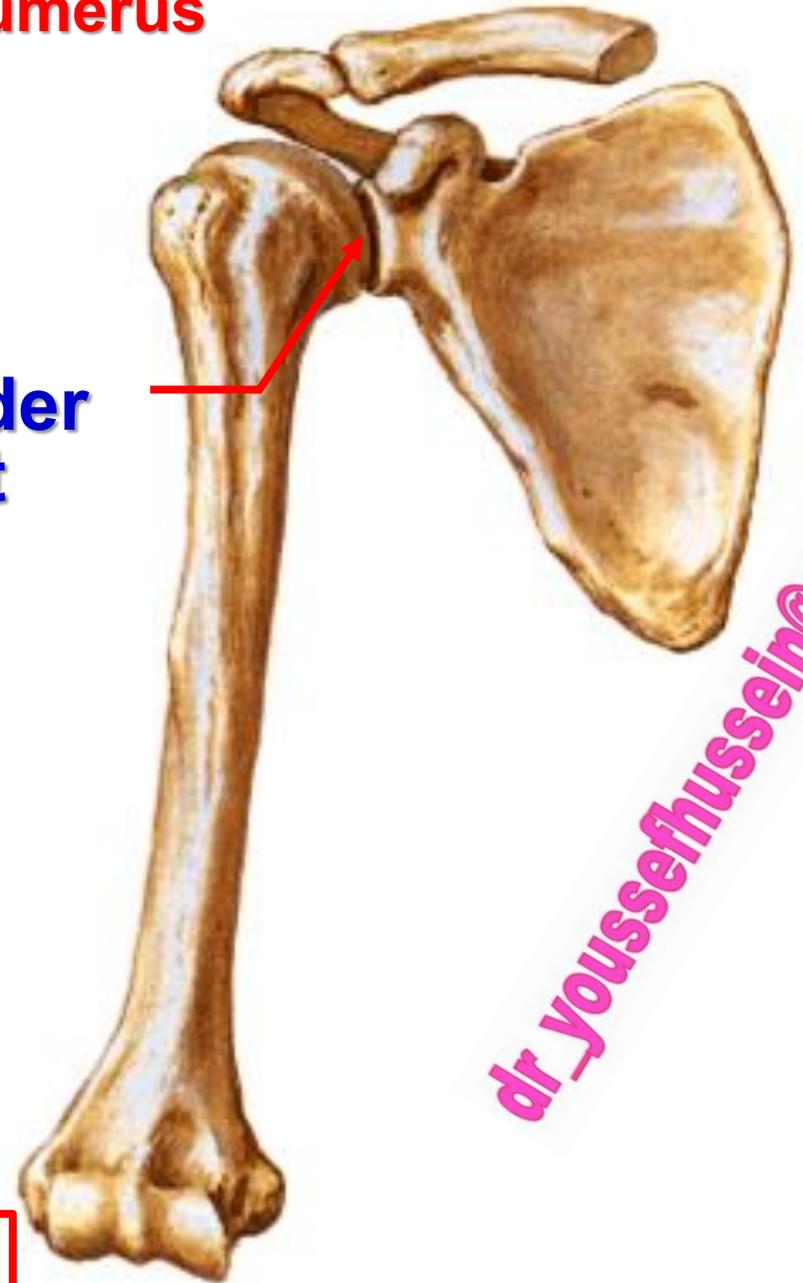
- 1- Medial epicondyle, projects more than the lateral epicondyle.
- 2- Lateral epicondyle.
- 3- **Coronid fossa**, a small depression above the trochlea **anterior**.
- 4- **Olecranon fossa**, well defined depression above the trochlea **posteriorly**.
- 5- **Radial fossa**, a depression above the capitulum **anteriorly**.

## Joints related to Humerus

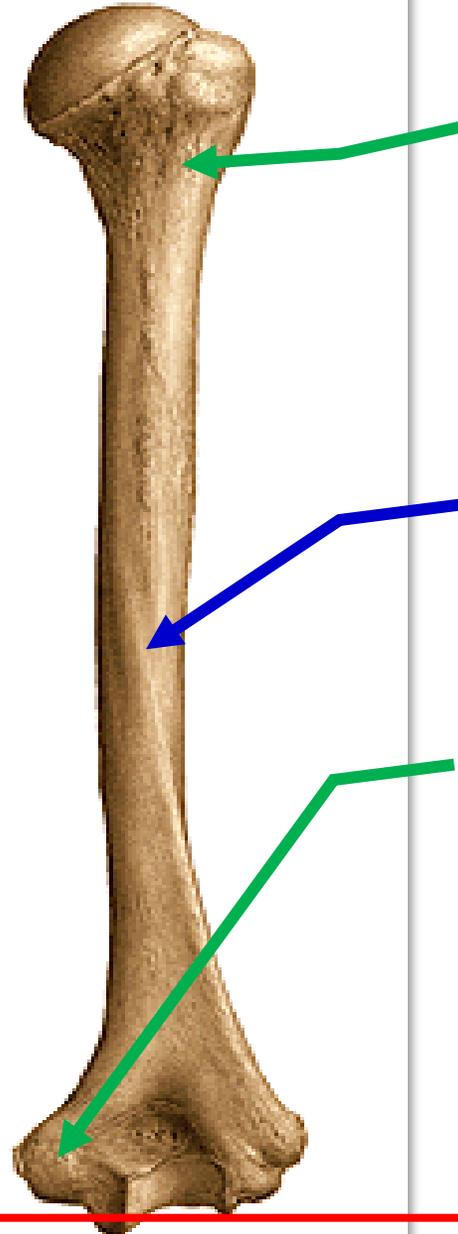
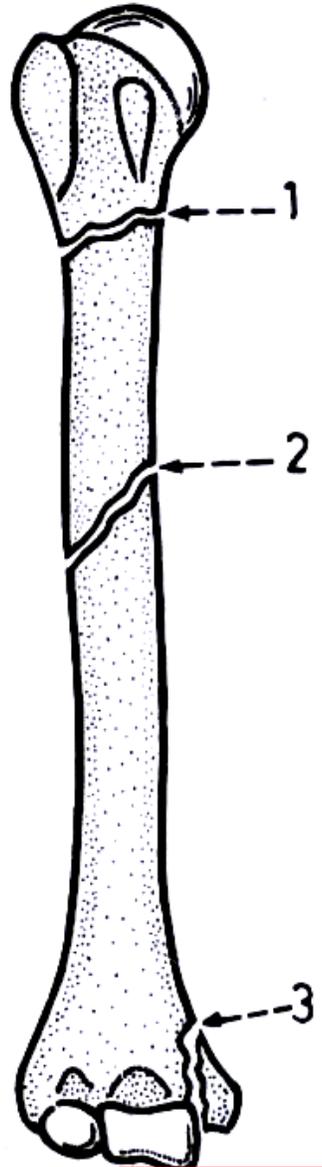


Shoulder joint

Elbow joint



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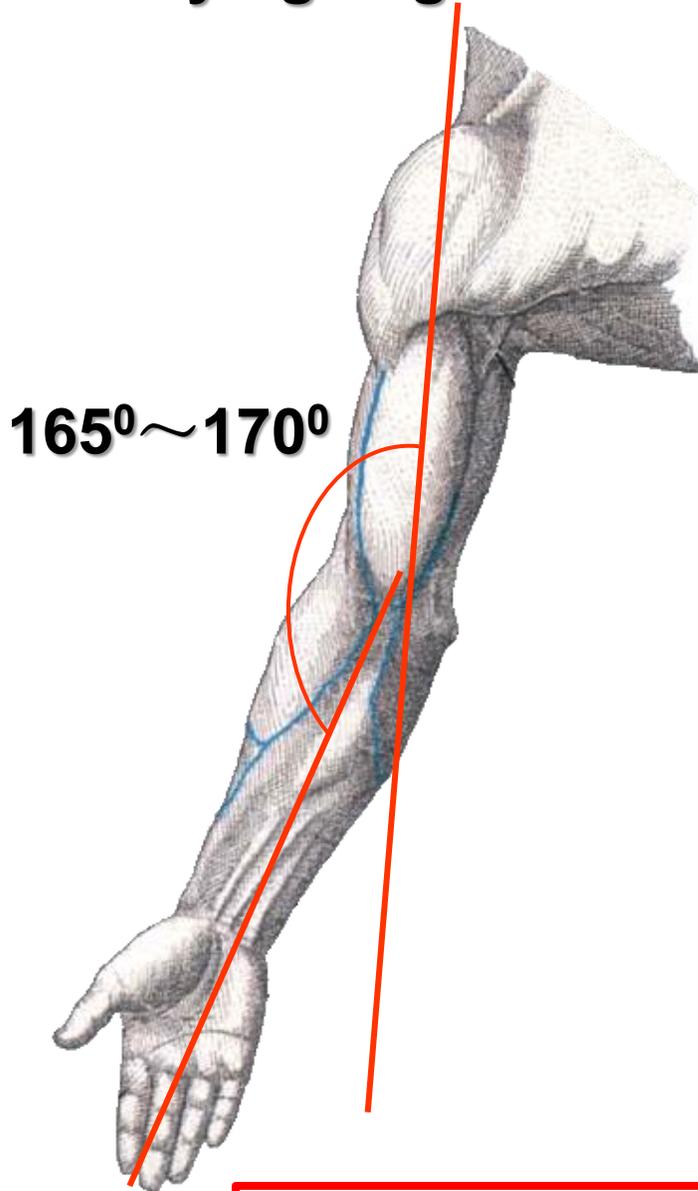


- **Axillary nerve and posterior circumflex humeral vessels** behind the surgical neck, anterior circumflex humeral vessels in front the surgical neck.
- **Radial nerve accompanied by profunda brachii vessels** in the spiral groove.
- **Ulnar nerve, superior ulnar collateral** behind the medial epicondyle.

**Nerves and vessels related to Humerus**

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## Carrying angle



## \*\* Carrying angle

- It is the angle between the long axis of arm and long axis of **extended supinated forearm**.
- It is opened **laterally** and measure about 165 - 170 degree.
- It is **more in female** than male.
- **It disappears in** pronation of the extended forearm.
- **It is caused by**
  - 1) Projection of the medial edge of the **trochlea** more than the lateral.
  - 2) Obliquely of the upper articular surface of the **coronoid** process of ulna



[https://www.youtube.com/channel/UCVSNqbibj9UWYaJdd\\_cn0PQ](https://www.youtube.com/channel/UCVSNqbibj9UWYaJdd_cn0PQ)



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*Thank You*

*Questions*

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