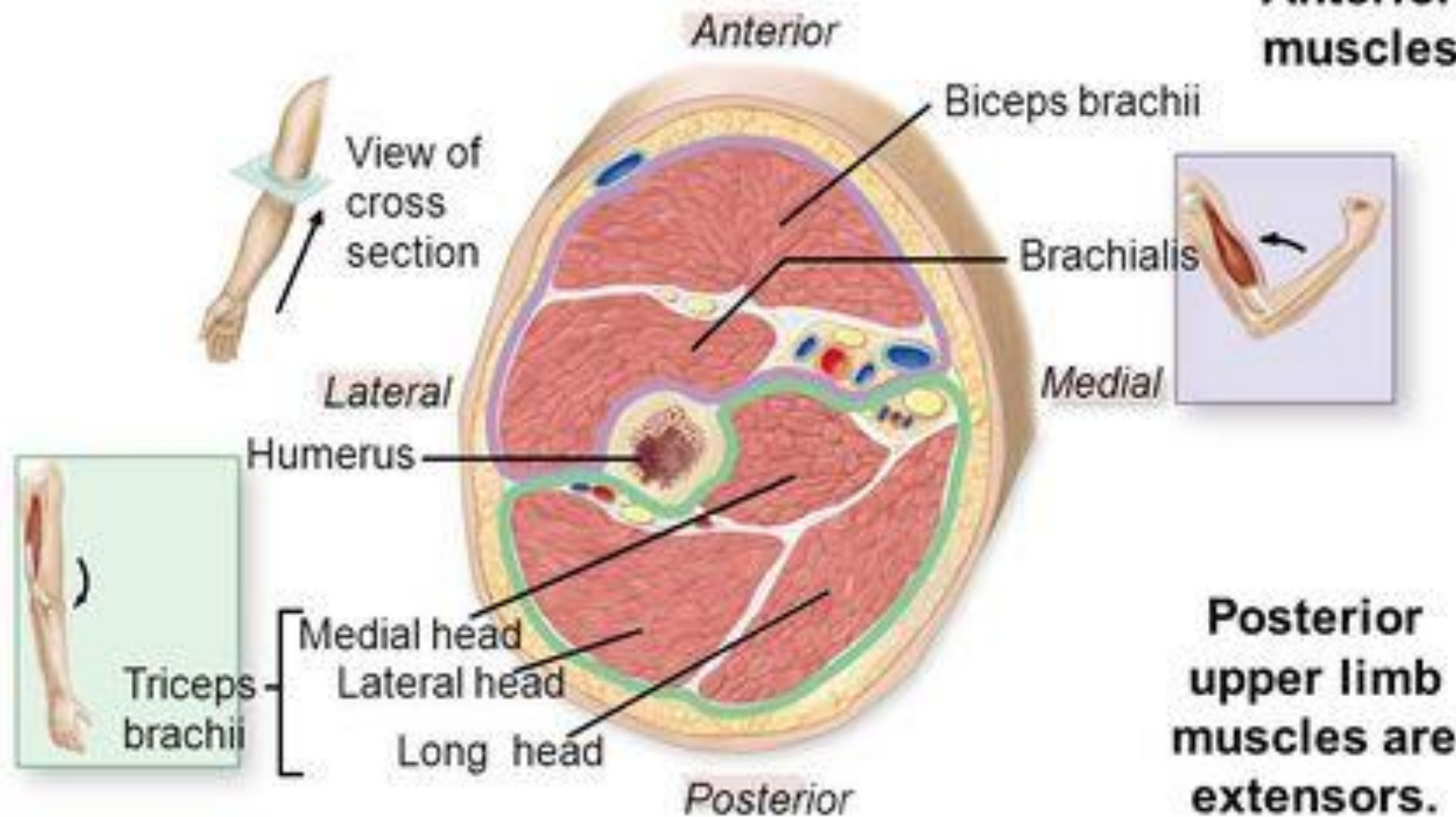


# ANATOMY OF THE ARM

**DR. DALIA M. BIRAM**

Fig. 12.6

**Anterior upper limb muscles are flexors.**



**Posterior upper limb muscles are extensors.**

## **Compartments of the arm:**

**It is divided into 2 compartments anterior and posterior by:**

**The deep fascia of the arm.**

**The humerus.**

**The lateral and medial intermuscular septa.**

### **Medial intermuscular septum**

**It is a fascial sheet that connects the medial supracondylar ridge of the humerus with the deep fascia of the arm.**

**It is pierced by **ulnar nerve** at the middle of the arm.**

**Lateral intermuscular septum: It is a fascial sheet that connects the lateral supracondylar ridge of the humerus with the deep fascia of the arm.**

**It is pierced by **radial nerve** at the junction between middle and lower thirds of the humerus**

# ANTERIOR COMPARTMENT OF THE ARM

- **Contents:**

- 1. Flexor muscles; coracobrachialis, brachialis and biceps brachii.**
- 2. Brachial artery and its 2 venae comitantes.**
- 3. Basilic vein (at the upper half of the arm).**
- 4. Median nerve.**
- 5. Ulnar nerve (in the upper half of the arm).**
- 6. Musculocutaneous nerve.**

# 1-Coracobrachialis muscle:

## **Origin:**

Tip of coracoid process (with short head of biceps brachii).

## **Insertion:**

Middle of medial aspect of the humerus.

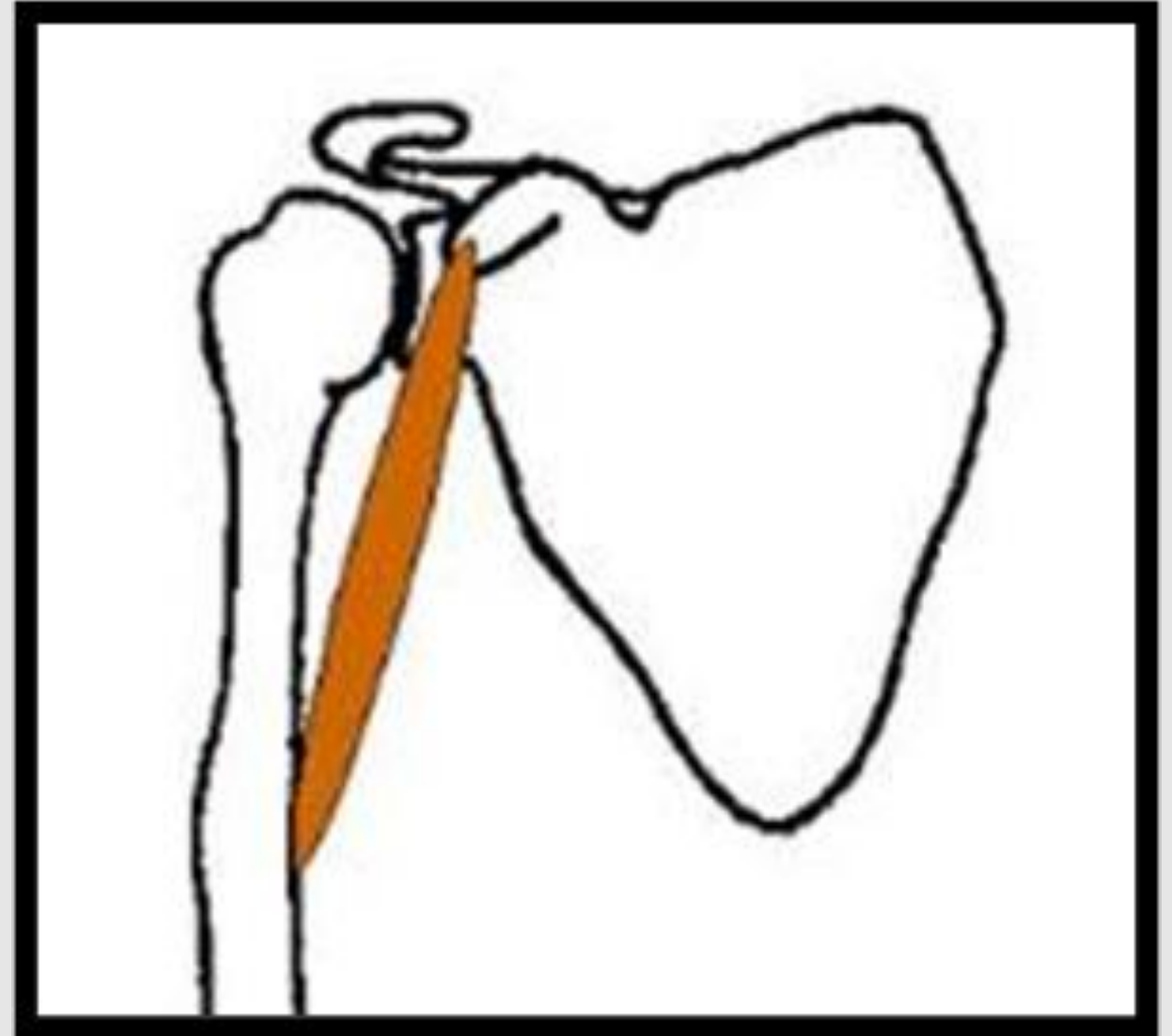
## **Nerve supply:**

Musculocutaneous nerve.

## **Actions:**

It helps in flexion and adduction of the arm.

•



# Changes that occur at the level of insertion of coracobrachialis

1. **The ulnar nerve;** pierces the medial intermuscular septum to reach the posterior compartment.
2. **The radial nerve & profunda brachii artery;** descend on the back of humerus through the spiral groove.
3. **The median nerve,** crosses in front of brachial artery from lateral to medial.
4. **The basilic vein;** pierces the deep fascia to ascend medial to brachial artery.
5. **The medial cutaneous nerve of the arm and forearm;** pierces the deep fascia to pass through the superficial fascia.
6. **The nutrient artery of the humerus** enters into the bone.

# 2- Biceps brachii muscle

- **Origin:**

1. **Short head:** from the tip of coracoid process.
2. **Long head:** from the supraglenoid tubercle of the scapula (intracapsular, extrasynovial).

**Insertion:**

1. **Posterior part of the radial tuberosity.**
2. **Bicipital aponeurosis into the deep fascia of the cubital fossa.**

**Nerve supply:**

**Musculocutaneous nerve.**

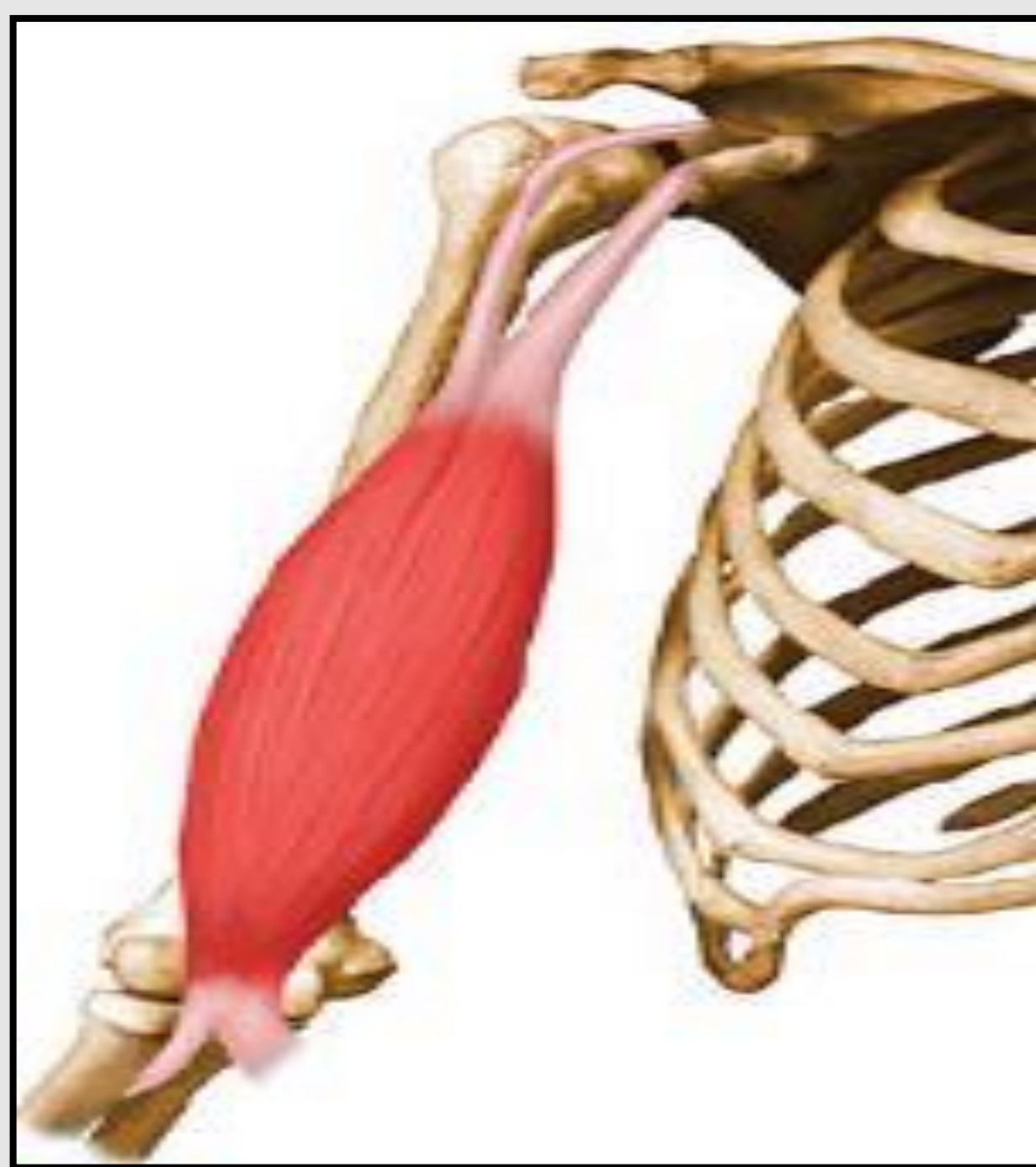
**Actions:**

**Flexor of the elbow.**

**Powerful supinator of the flexed forearm.**

**Long head helps in stabilization of shoulder joint.**

**N.B.** The bicipital aponeurosis separates the brachial artery from median cubital vein.



### 3- Brachialis muscle:

**Origin:**

From the lower half of the front of the shaft of humerus and the front of the 2 intermuscular septa.

**Insertion:**

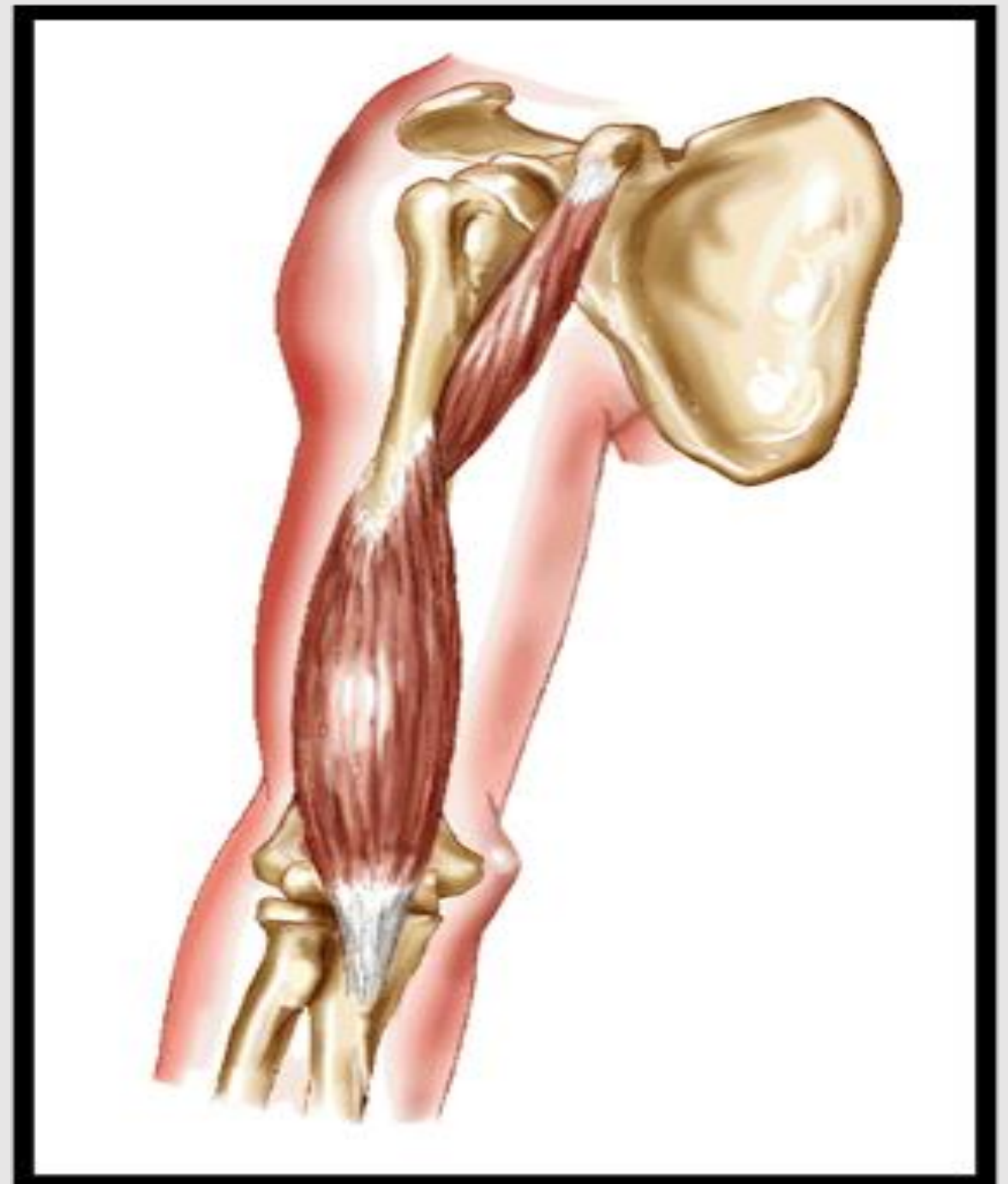
Coronoid process of ulna and ulnar tuberosity.

**Nerve supply:**

Musculocutaneous nerve & radial nerve for its lateral part.

**Action:**

The muscle is the main flexor of elbow joint





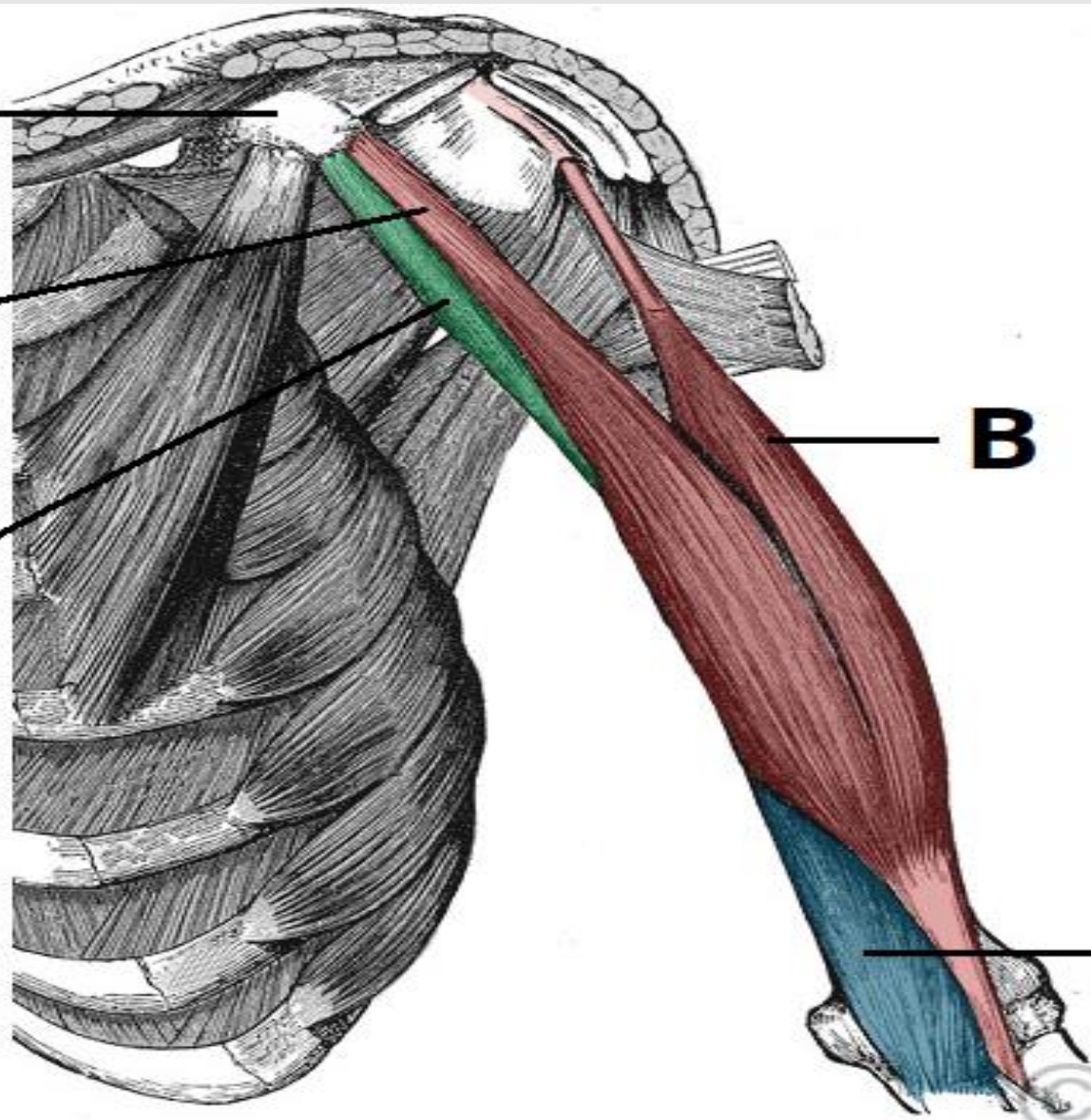
**Coracoid  
process**

**C**

**A**

**B**

**D**



# -Musculocutaneous nerve (C5, 6, 7)

## **Origin:**

It is a branch of the lateral cord of brachial plexus

## **Course & relations:**

The nerve descends lateral to 3<sup>rd</sup> part of axillary artery. then pierces the coracobrachialis.

It pass between biceps and brachialis

Then pierce the deep fascia to be superficial

## **Termination:**

It terminates by continuing as the lateral cutaneous nerve of the forearm

## **Branches:**

1-**Muscular** branches to:-

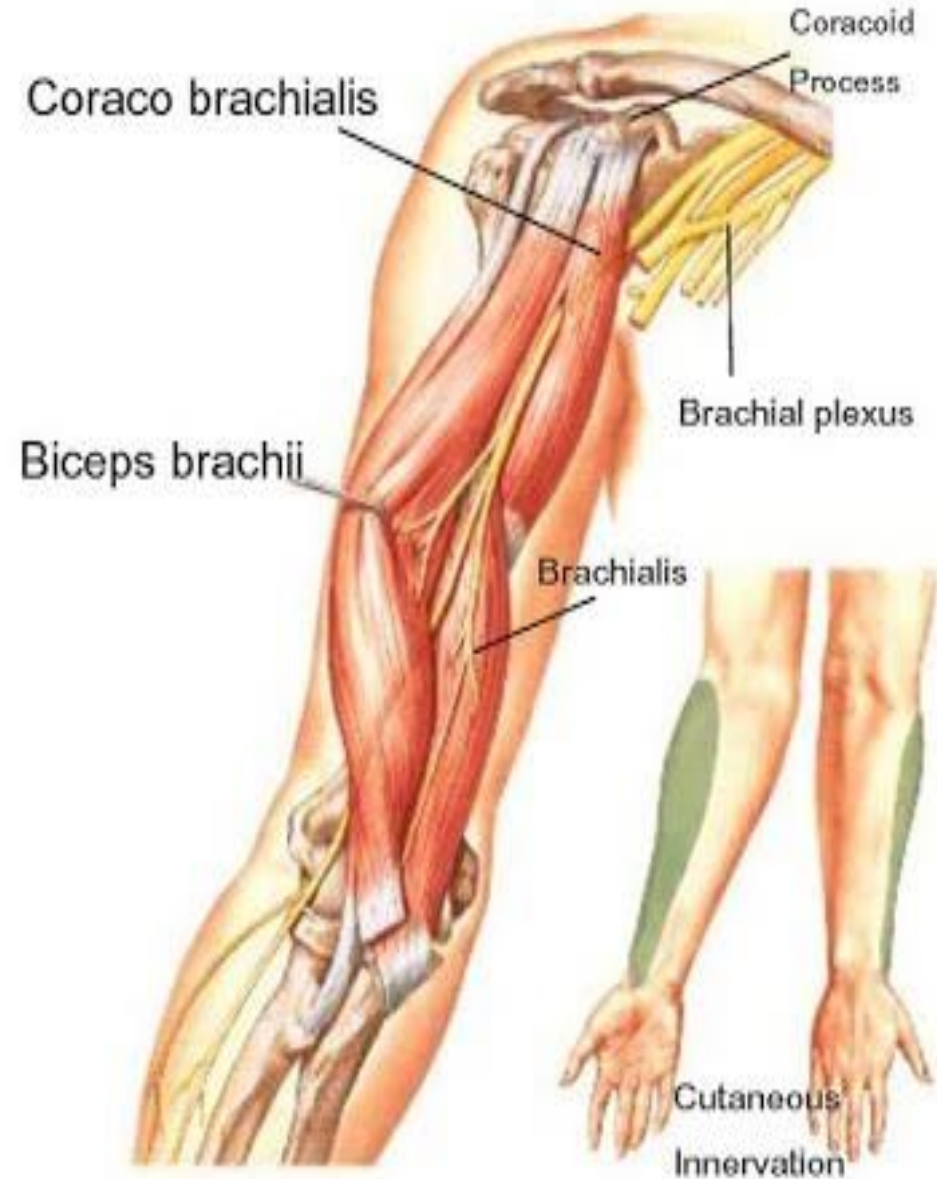
2 heads of biceps brachii.

Coracobrachialis.

The greater part of brachialis.

• 2-lateral **cutaneous** nerves of forearm.

## Musculocutaneous Nerve



# POSTERIOR COMPARTMENT OF THE ARM

## Triceps muscle

### Origin:

1. Long head; from the infraglenoid tubercle.
2. Lateral head; from back of humerus above the spiral groove.
3. Medial head; from back of humerus below the spiral groove.

### Insertion:

Olecranon process of ulna.

### Nerve supply:

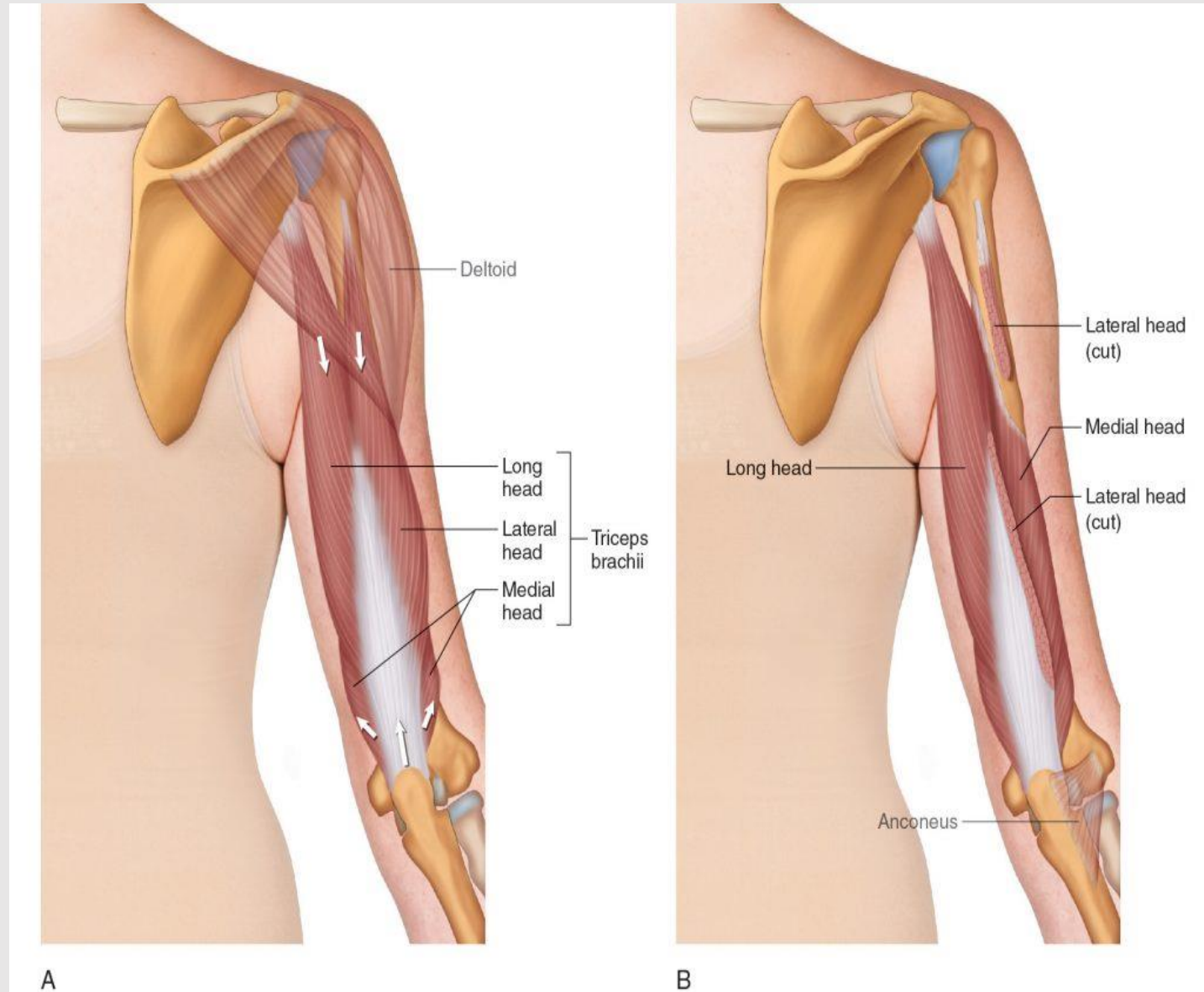
Radial nerve.

### Actions:

Main extensor of the elbow.

Long head shares in stability of shoulder.

The long head helps in adduction of abducted arm.



# CUBITAL FOSSA

- **The cubital fossa is a triangular depression in the front of the elbow.**

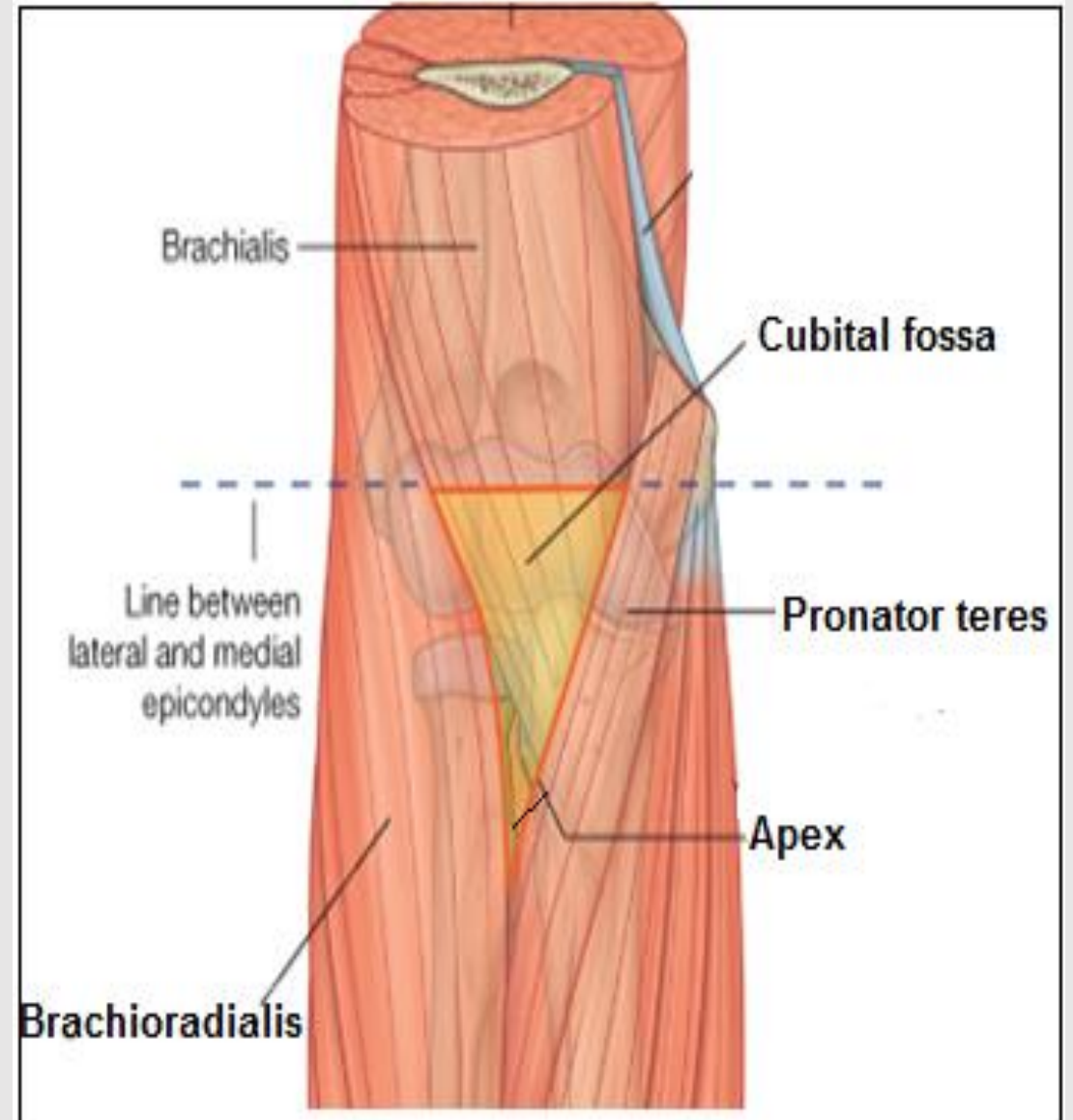
- **Boundaries**

1. **Medial boundary; pronator teres muscle.**

2. **Lateral boundary; brachioradialis muscle.**

3. **Base; directed upwards and is formed by an imaginary line connecting the two humeral epicondyles.**

- **Apex:** Directed downwards and formed by the point of overlap of brachioradialis over pronator teres.

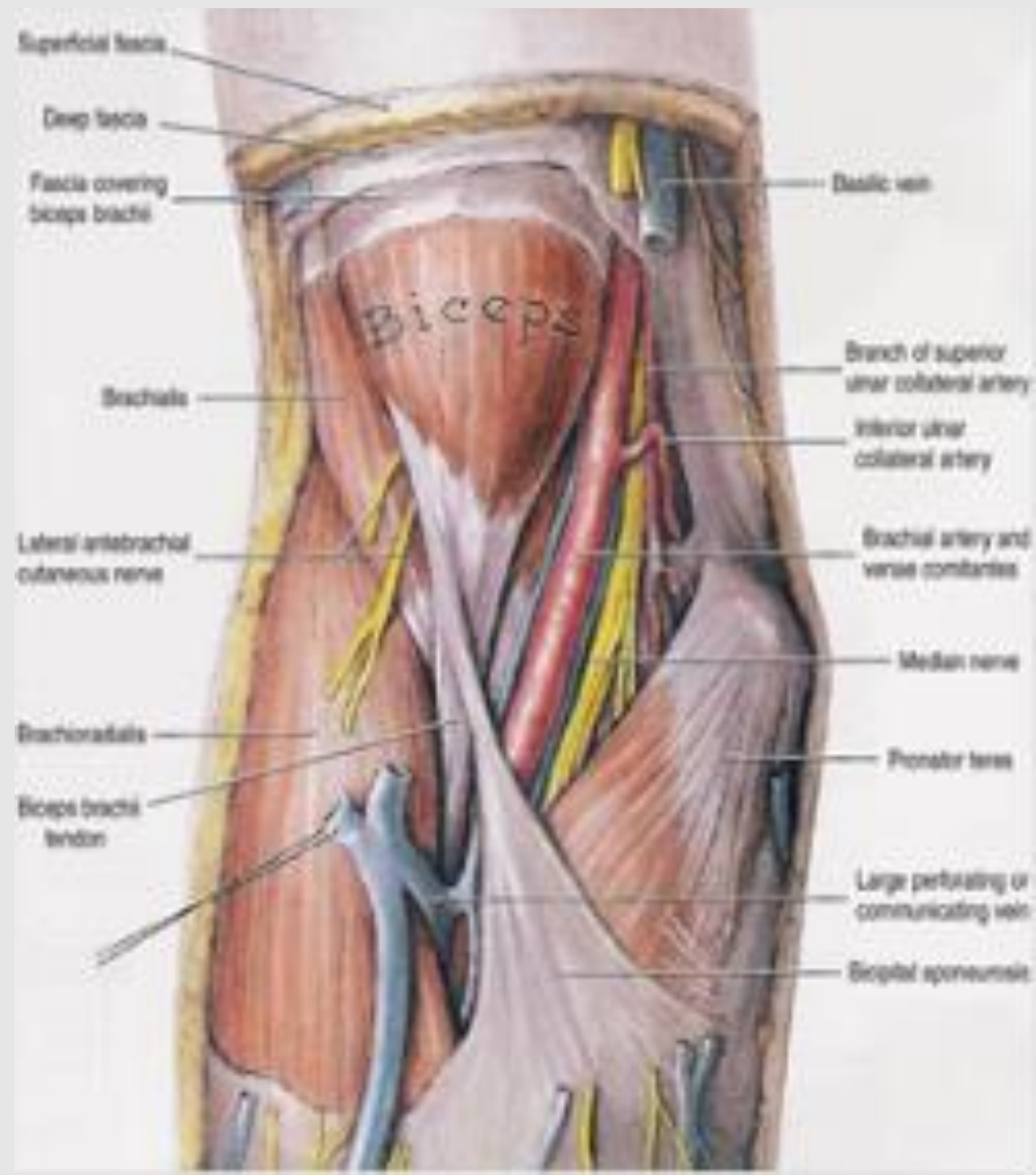


- **Roof:** is formed by:

- **Skin.**
- **Superficial fascia containing median cubital vein, parts of basilic and cephalic veins, medial and lateral cutaneous nerves of forearm.**
- **Deep fascia.**
- **Bicipital aponeurosis.**

- **Floor:**

- **Brachialis muscle (medially) and supinator muscle (laterally)**



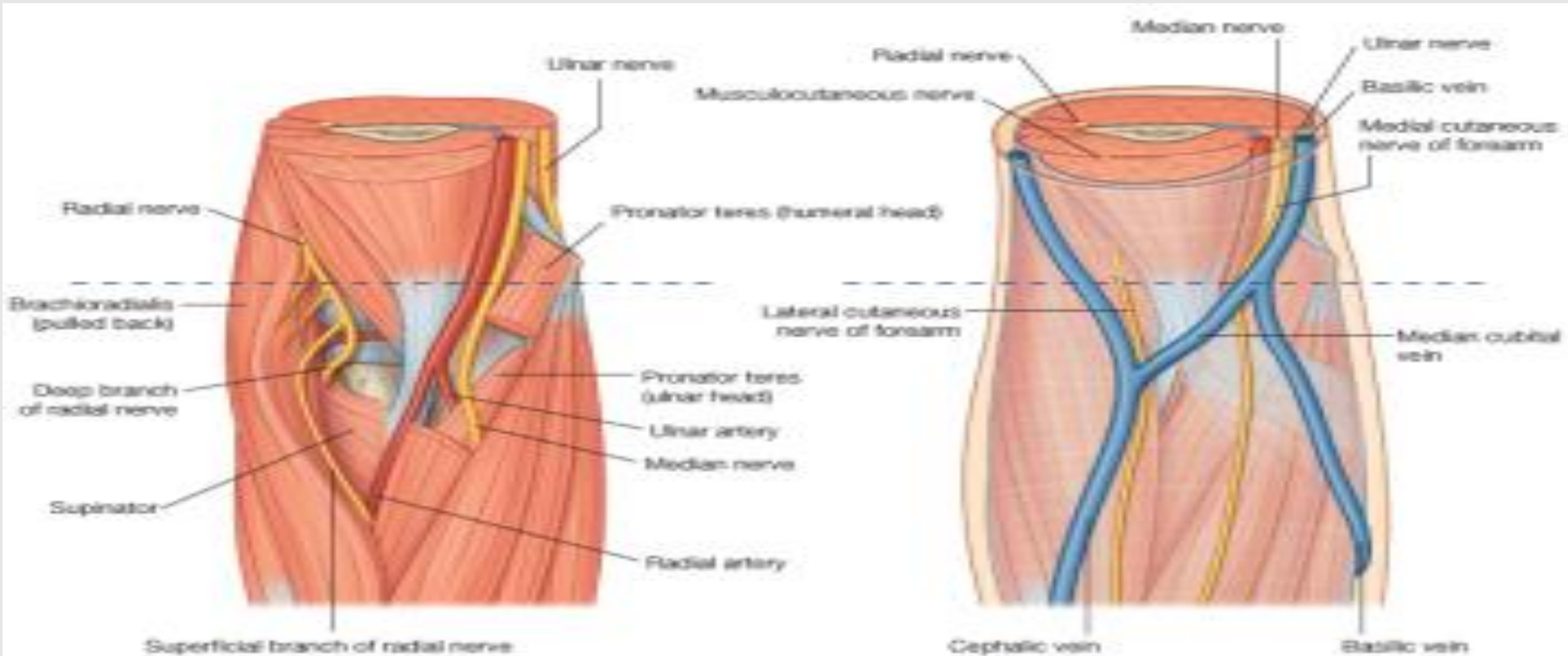
# Contents: From lateral to medial

Biceps tendon.

Brachial artery.

Median nerve.

Radial nerve



# Elbow Joint

## Type of joint:

**Synovial, Uniaxial, Hinge.**

## Articular surfaces

**The elbow joint is a composite joint formed of two parts:**

**Humero-ulnar part;** the articulation is between the trochlea and trochlear notch of the ulna.

**Humero-radial part;** articulation is between the capitulum and the upper surface of the head of the radius.

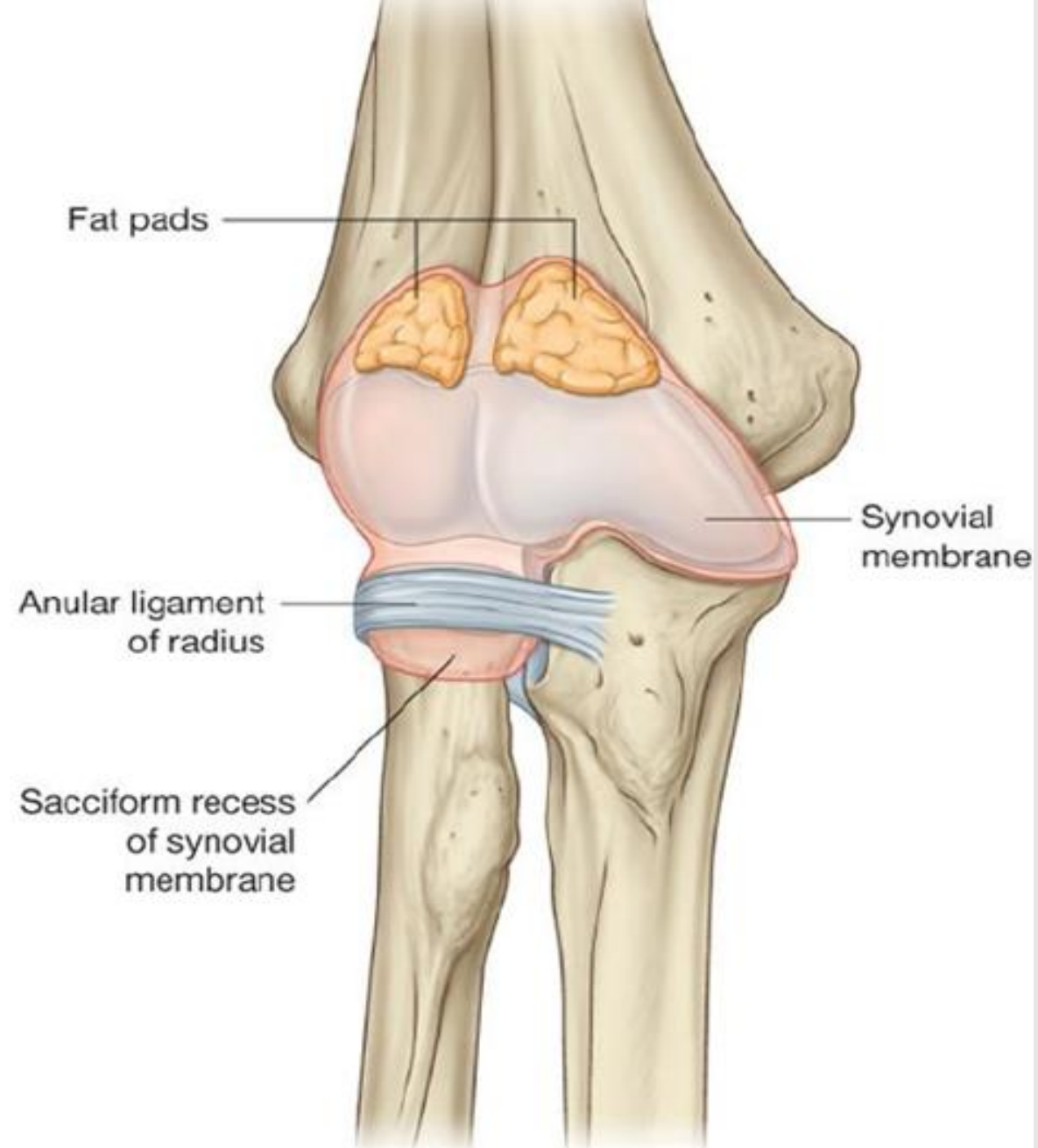


- **CAPSULE**

- The capsule is attached to the margins of the articular parts of bones.
- The capsule is attached inferiorly to the annular ligament so the elbow joint is continuous with the superior radioulnar joint (the 2 joints together form the cubital articulation).

- **Synovial membrane**

- It lines all the structures inside the capsule of the elbow joint EXCEPT the articular cartilage.
- Inferiorly, it is continuous with the synovial membrane of the superior radioulnar joint.



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Figure 7.72 Synovial membrane of elbow joint (anterior view).



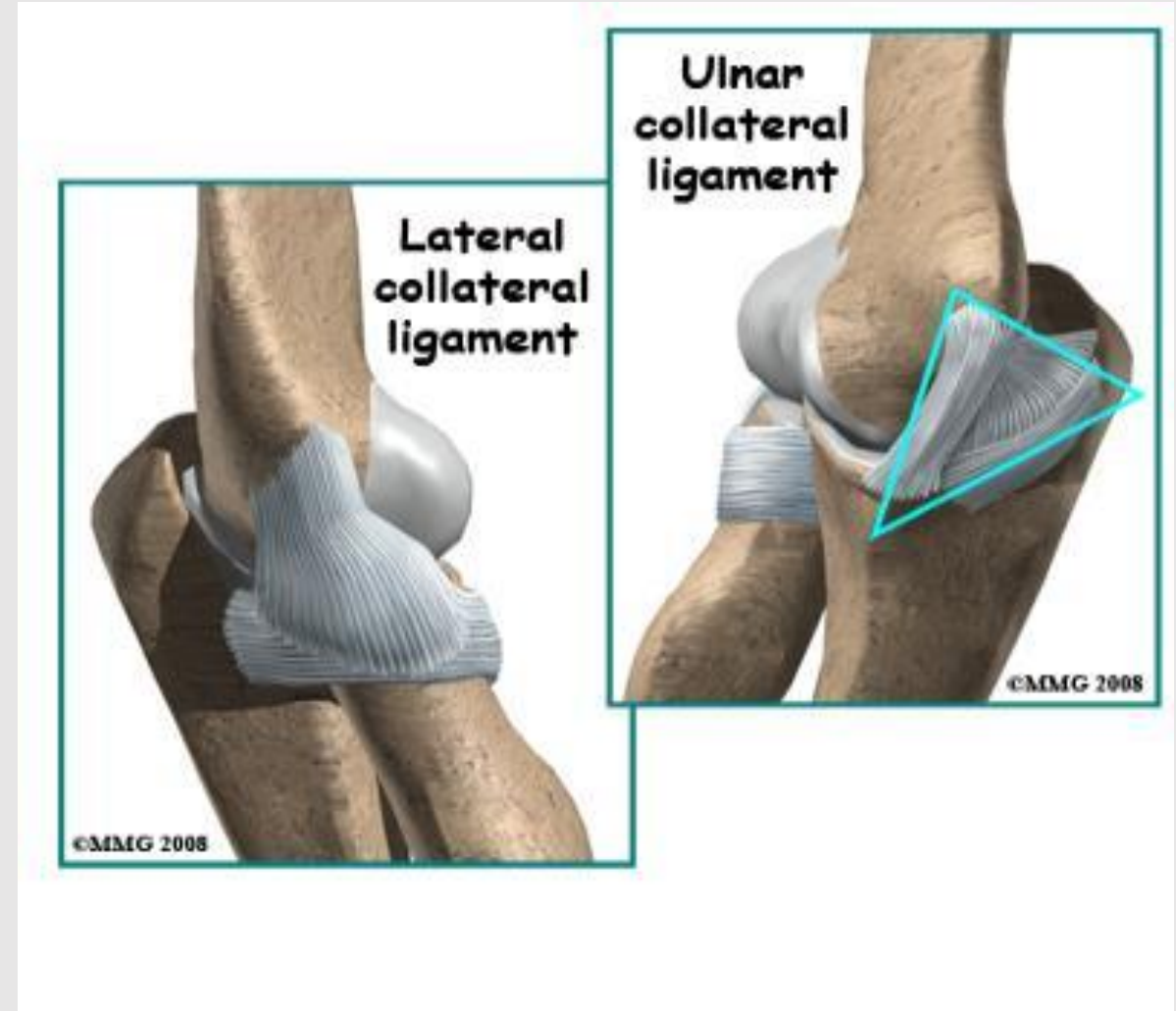
# LIGAMENTS RELATED TO ELBOW JOINT

## **Ulnar collateral (medial) ligament:**

it is a thick triangular ligament closely related to ulnar nerve. The ligament is attached to the medial epicondyle superiorly and the medial surface of upper end of ulna.

## **Radial collateral (lateral) ligament:**

it is a triangular ligament that connects the lateral epicondyle to the upper border of annular ligament



### **Annular ligament:**

- It is a strong fibrous band that is attached to the margins of the radial notch of ulna and surrounds the circumference of head of radius
- The upper border is continuous with the capsule of elbow joint while the lower border is free surrounding the neck of radius.

### **Movements of elbow joint:**

The joint is uniaxial HINGE joint, so it moves around one transverse axis.

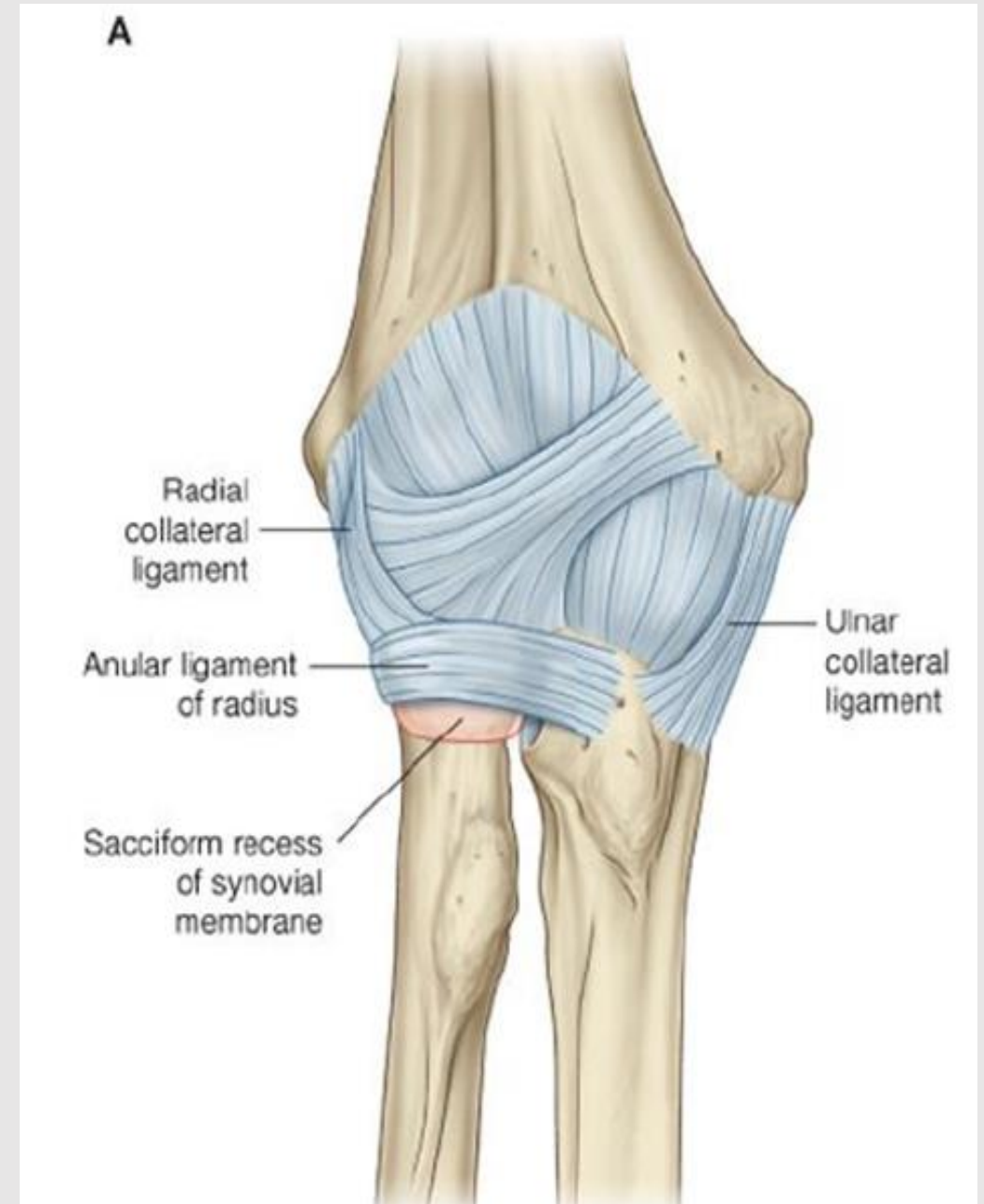
The movements are flexion- extension.

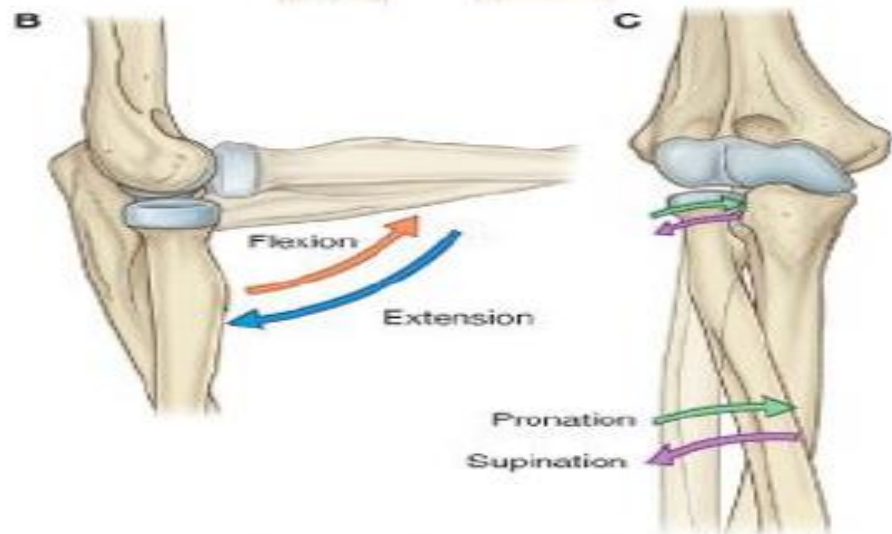
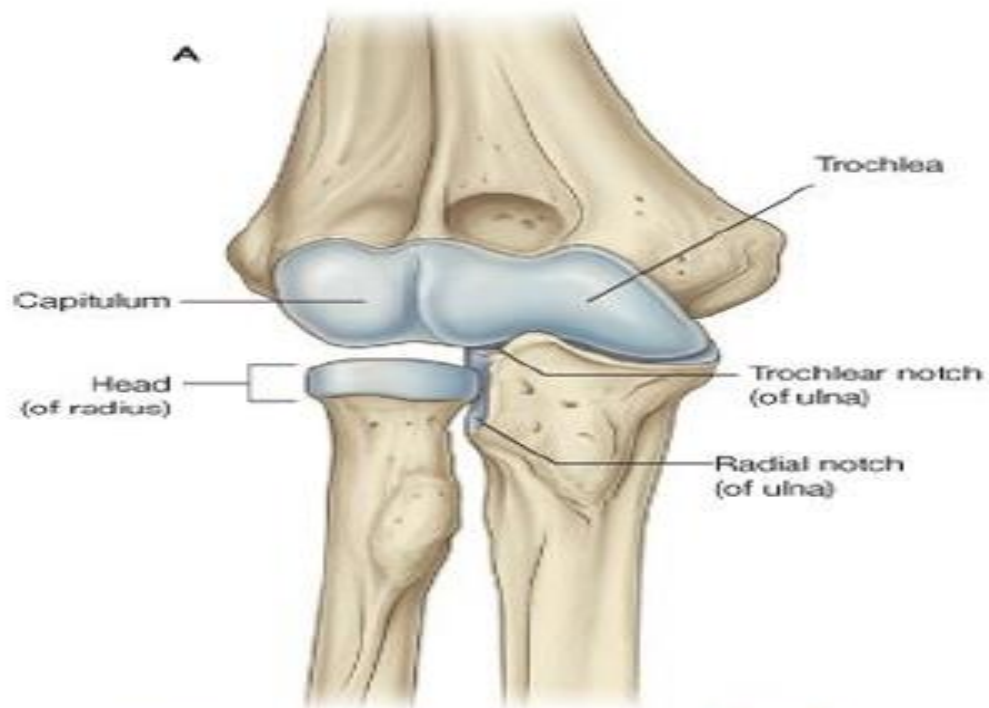
During **flexion** of elbow the head of radius lies inside the radial fossa above the capitulum, and the coronoid process of ulna lies inside the coronoid fossa above the trochlea.

While in **extension**, the olecranon process lies inside the olecranon fossa.

**Flexion:** This movement is done by the brachialis, biceps and brachioradialis.

**Extension:** This movement is done by the triceps and anconeus.





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Figure 7.71 Components and movements of the elbow joint. **A.** Bones and joint surfaces. **B.** Flexion and extension. **C.** Pronation and supination. **D.** Radiograph of a normal elbow joint (anterior-

Thank you