

Elbow Joint



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Basic concepts

- Joint: a place where two bones meet

Joint



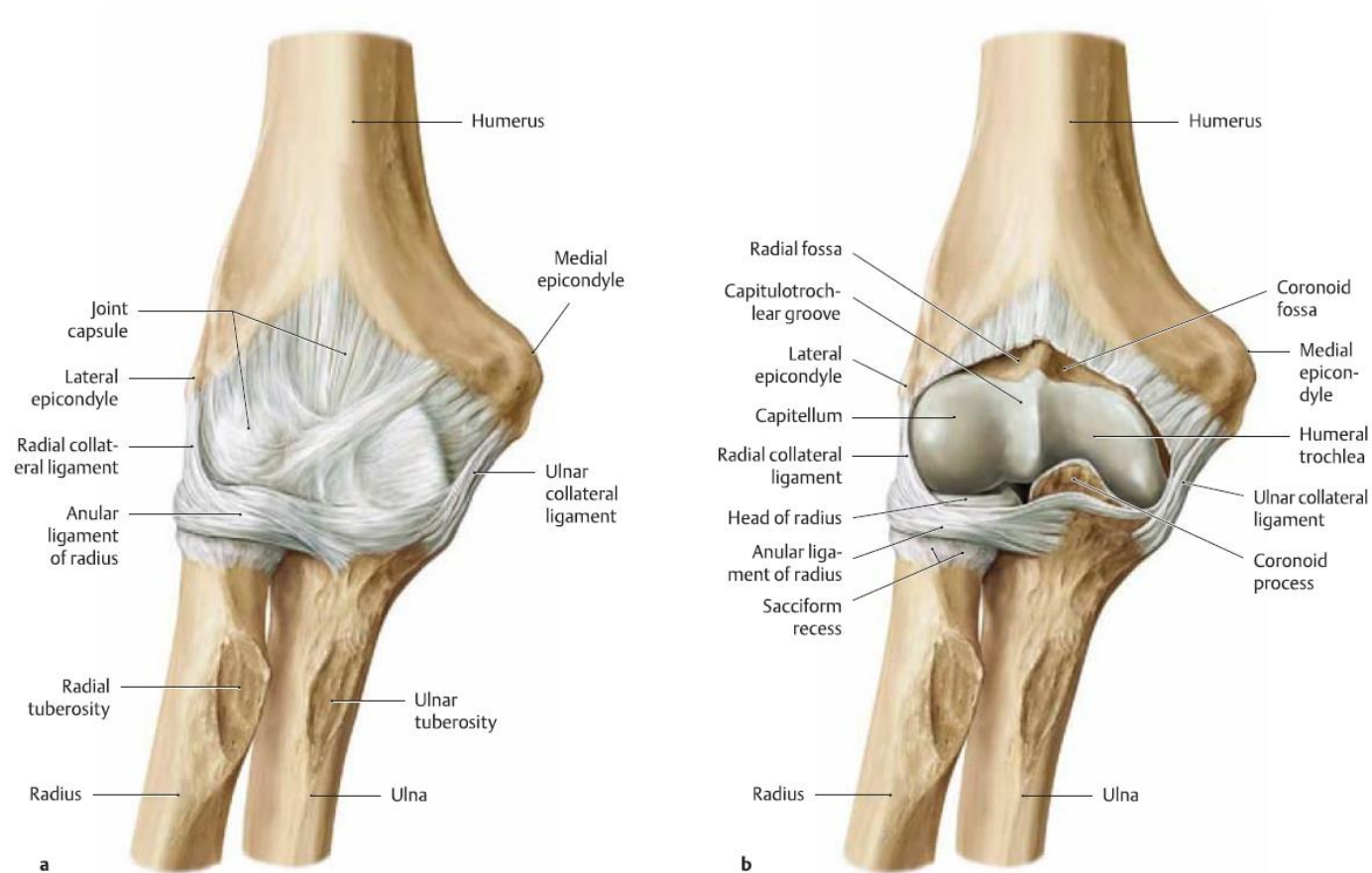
Continuous (synarthrosis)

- Syndesmosis
- Synchondrosis
- Synostosis

Interrupted (Diarthrosis)(Synovial)

- Uniaxial
 - Hinge
 - Pivot
- Biaxial
 - Ellipsoid(condyloid)
 - Saddle
- Multiaxial
 - Ball and socket

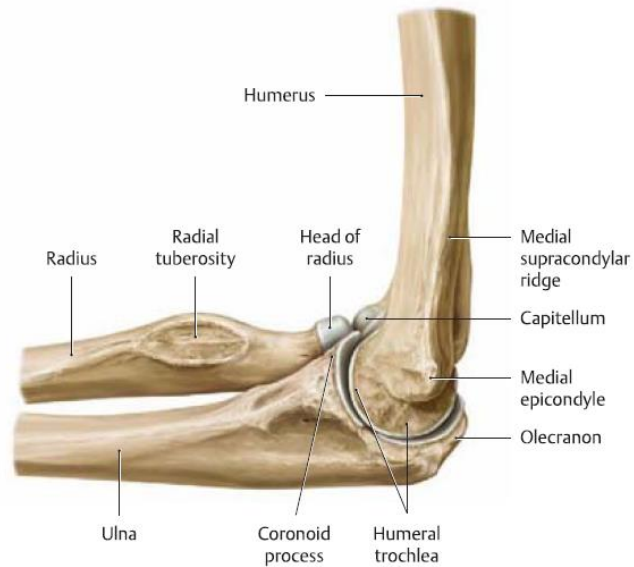
In the Elbow 3 bones meet , therefore it is a compound joint!



Components:

- **Humeroulnar**

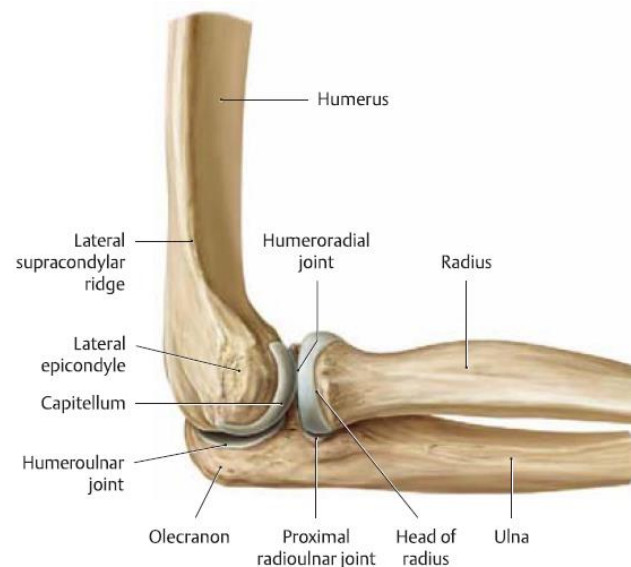
- Between Trochlea and Trochlear notch
- Hinge joint



d Medial view

- **Humero radial**

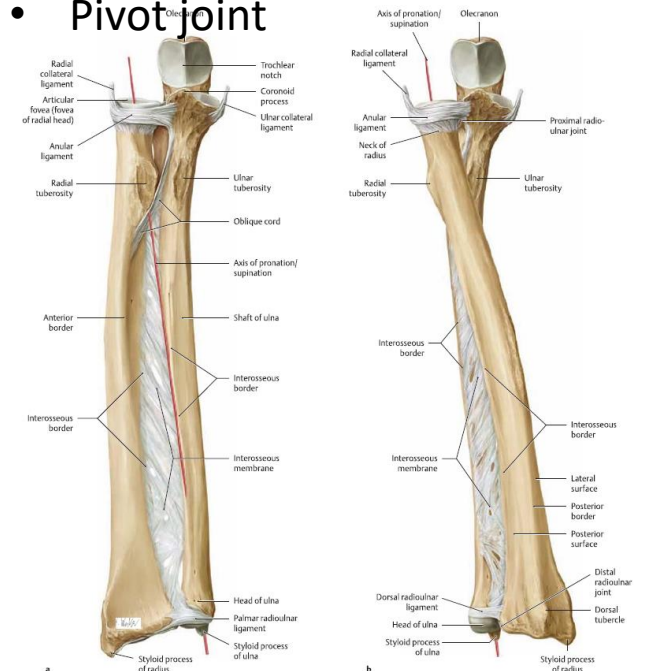
- Between Capitulum and Radial fovea
- Ball and socket joint



c Lateral view

- **Radioulnar (proximal)**

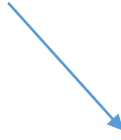
- Between Articular circumference and Radial notch
- Pivot joint

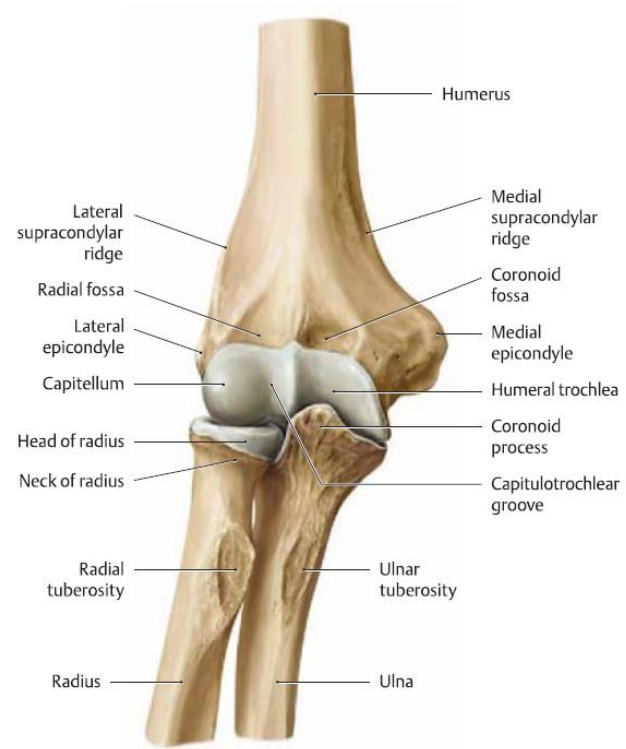


Trochoginglymus

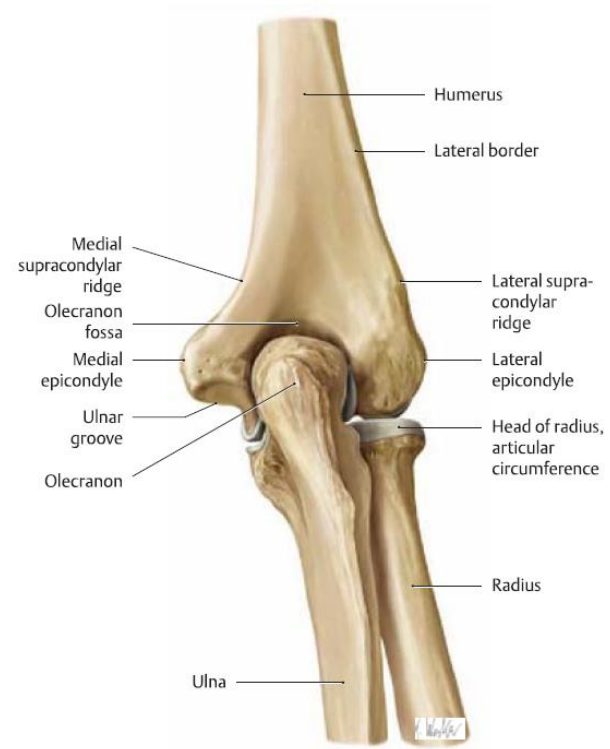
Pivot

Hinge

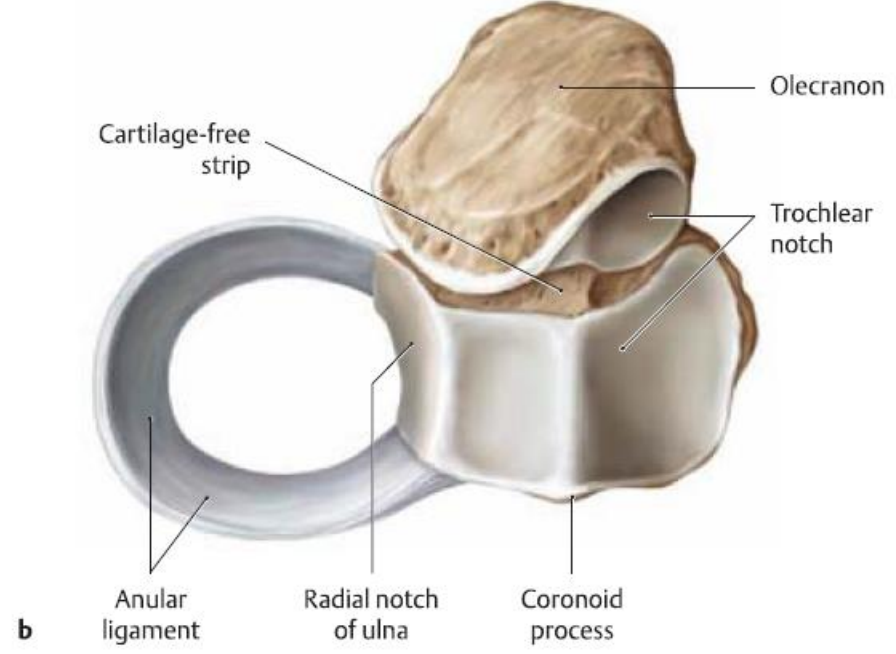
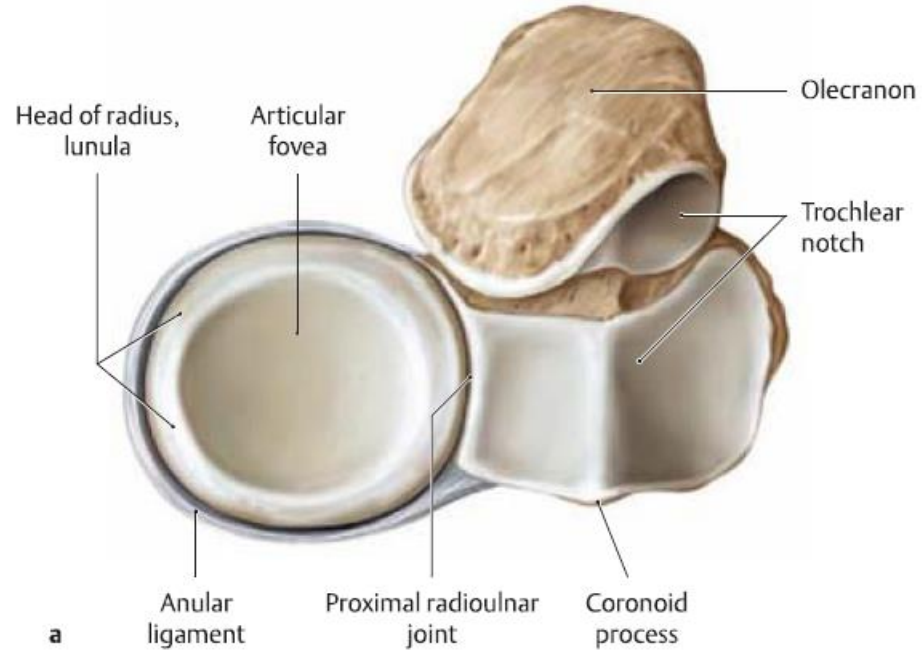




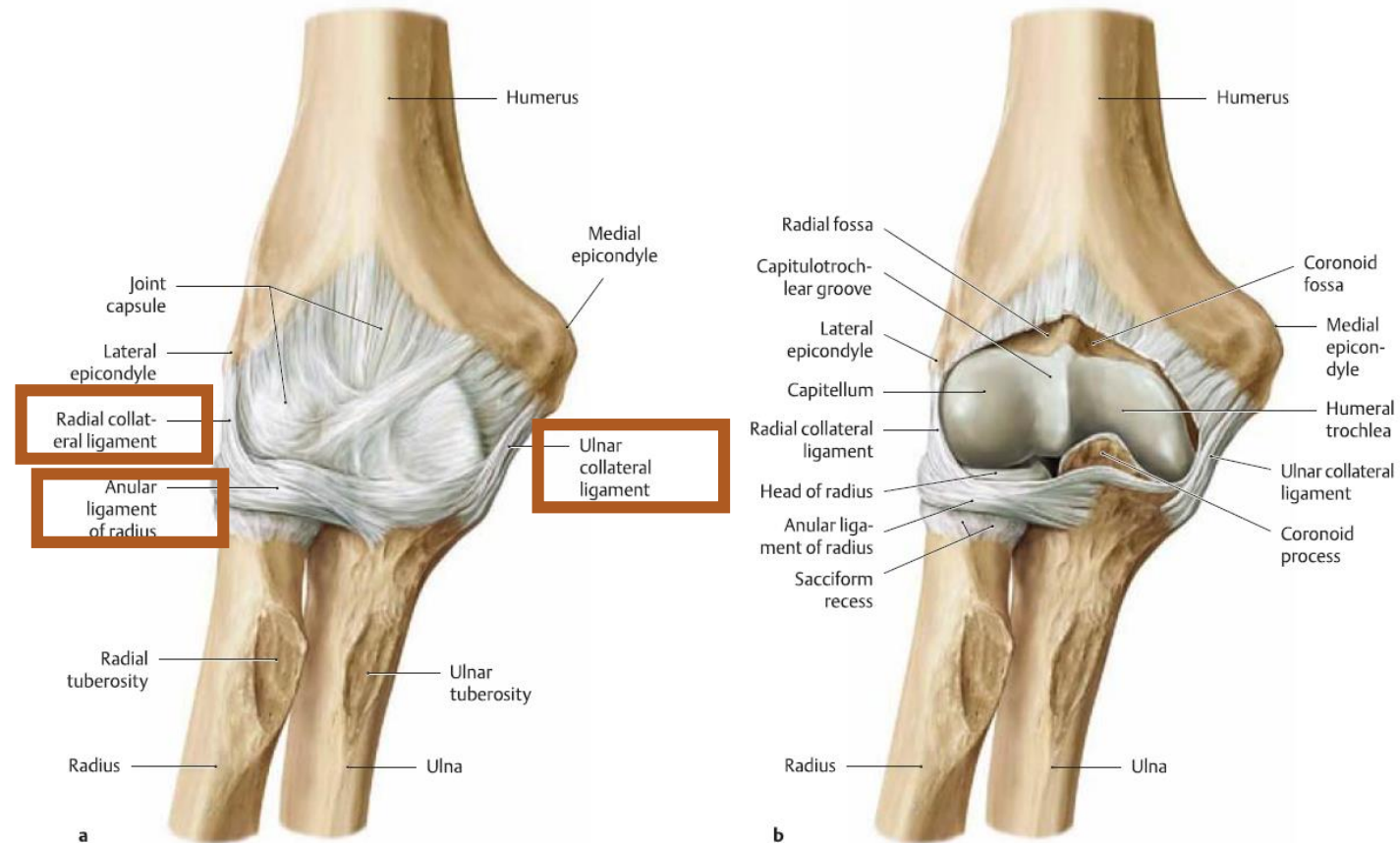
a Anterior view



b Posterior view

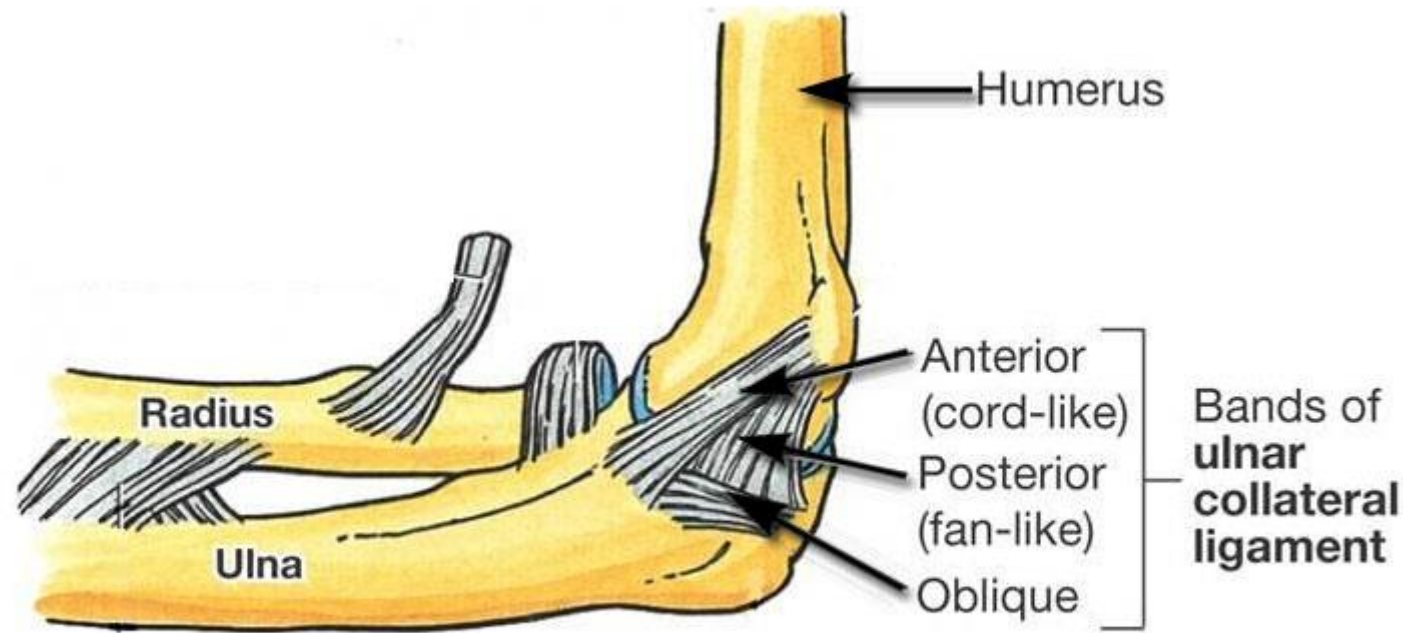


Joint capsule and ligaments

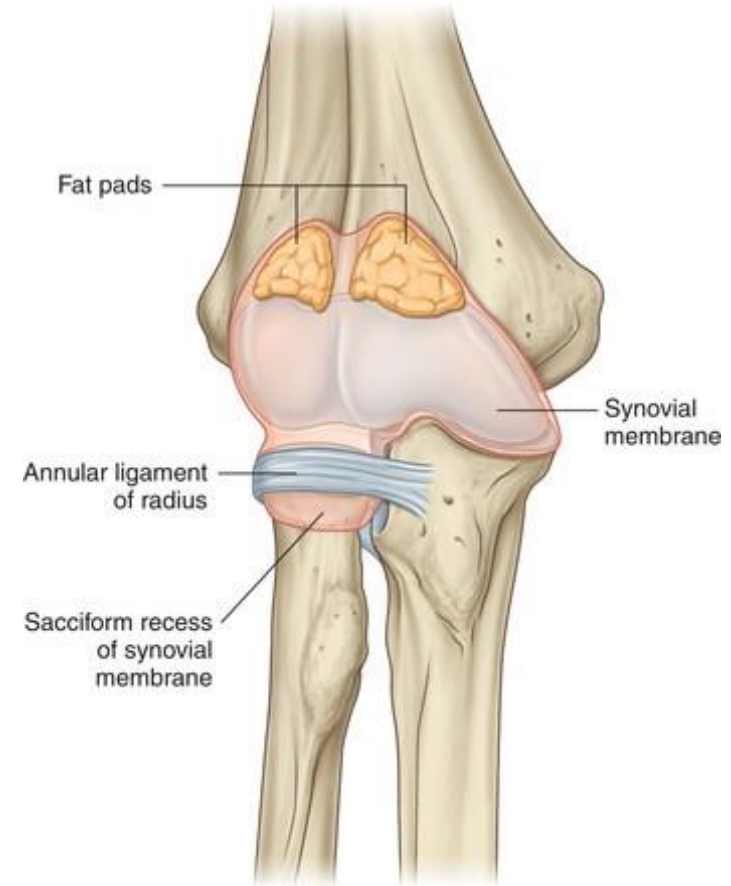


- **Where there is a Hinge, there are collateral ligaments!**
- **Interosseous membrane and oblique cord also help in stabilizing the joint**

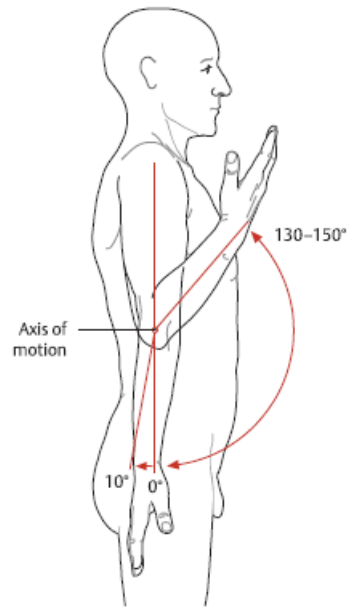
Ulnar collateral ligament



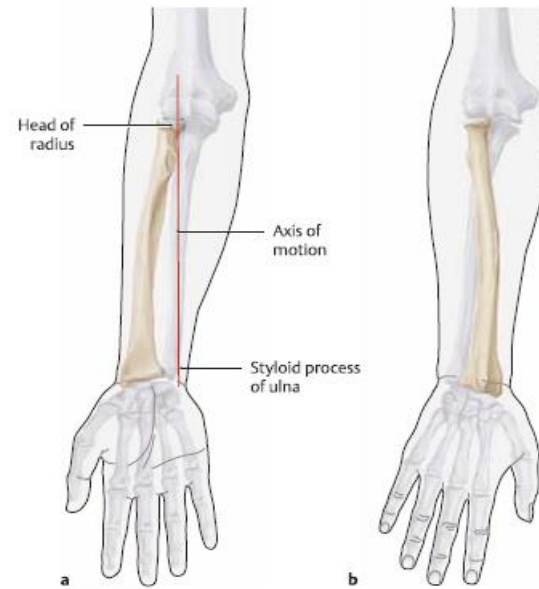
Synovial membrane



Motions of the elbow joint

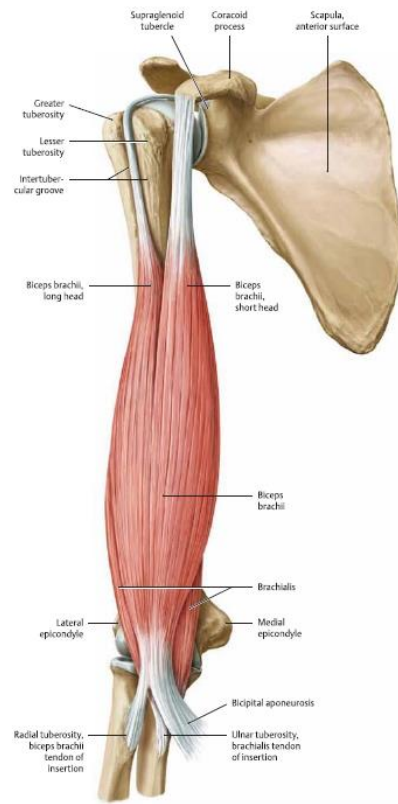


Flexion / Extension

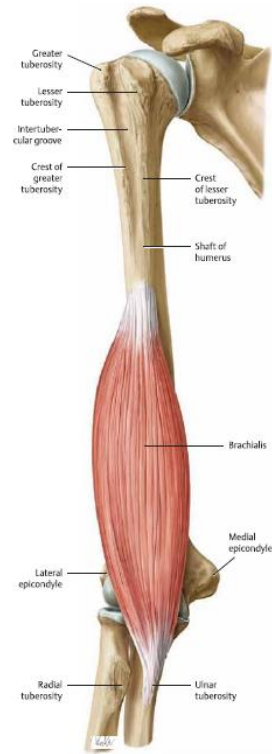


Supination / Pronation

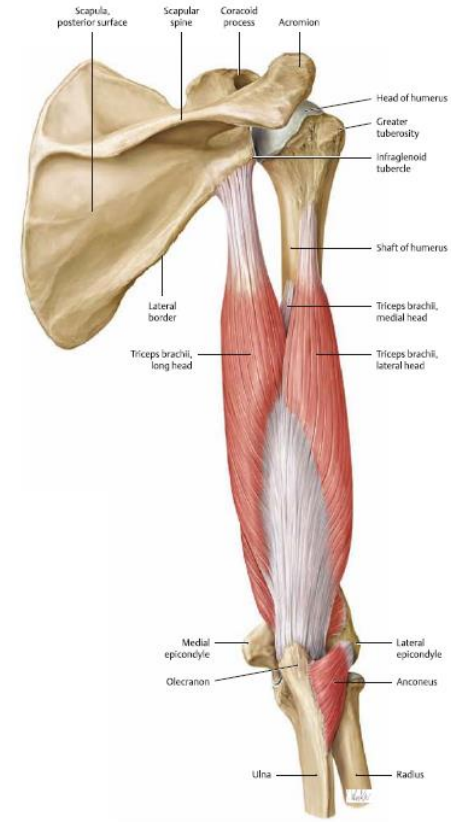
Muscles acting on the elbow joint



C The biceps brachii and brachialis
Right arm, anterior (ventral) view.



D The brachialis
Right arm, anterior (ventral) view.



B The triceps brachii and anconeus
Right upper arm, posterior (dorsal) view.

Flexors of the arm

Extensors of the arm

Anterior Compartment of the Forearm

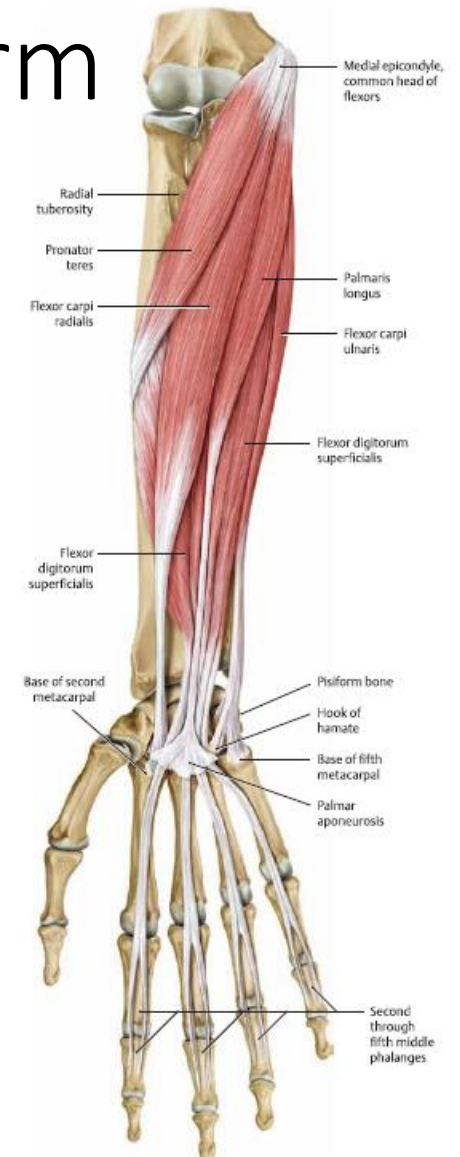
Superficial muscles (x5)

- Pronator teres
- Flexor Carpi Radialis
- Flexor Digitorum Superficialis
- Palmaris Longus
- Flexor Carpi Ulnaris

Deep Muscles (x3)

- Flexor Digitorum Profundus
- Flexor Pollicis Longus
- Pronator Quadratus

- ✓ All the superficial muscles of the flexor compartment originate from the medial epicondyle
- ✓ All the superficial muscles of the flexor compartment of forearm run over the elbow joint as well, and can weakly bring about flexion of the elbow joint



C The superficial flexors (pronator teres, flexor digitorum superficialis, flexor carpi radialis, flexor carpi ulnaris, and palmaris longus)

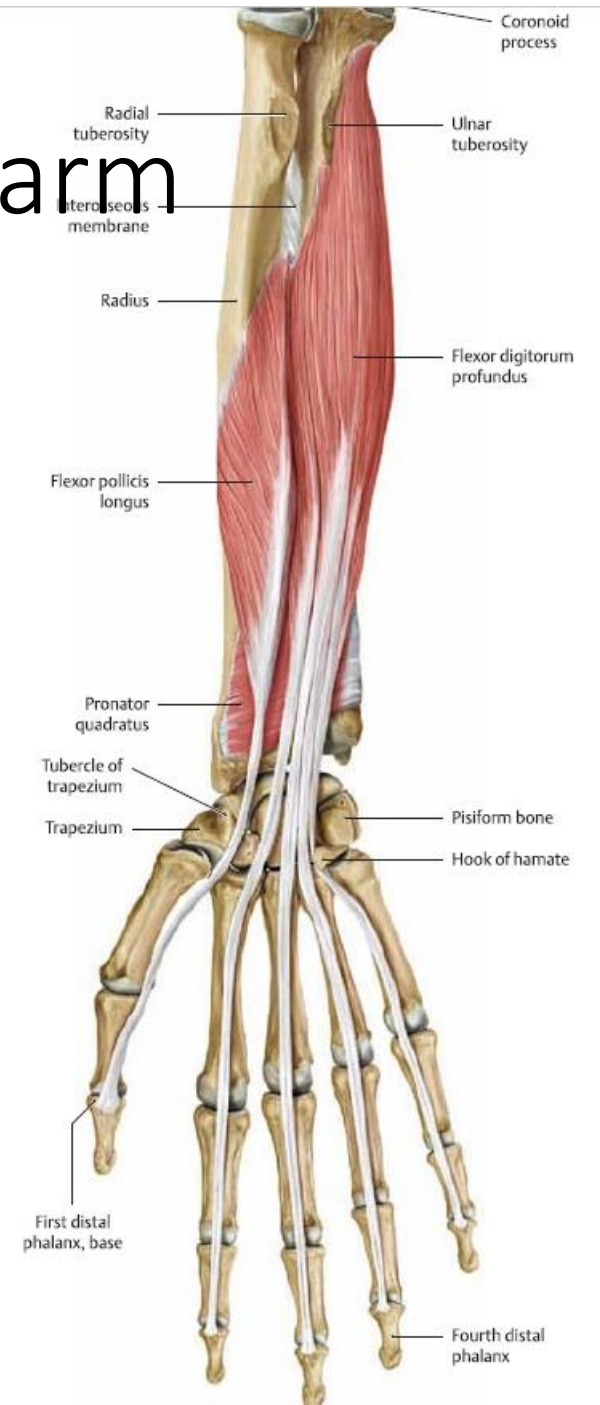
Anterior Compartment of the Forearm

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- Flexor Carpi Ulnaris

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Posterior Compartment of the Forearm

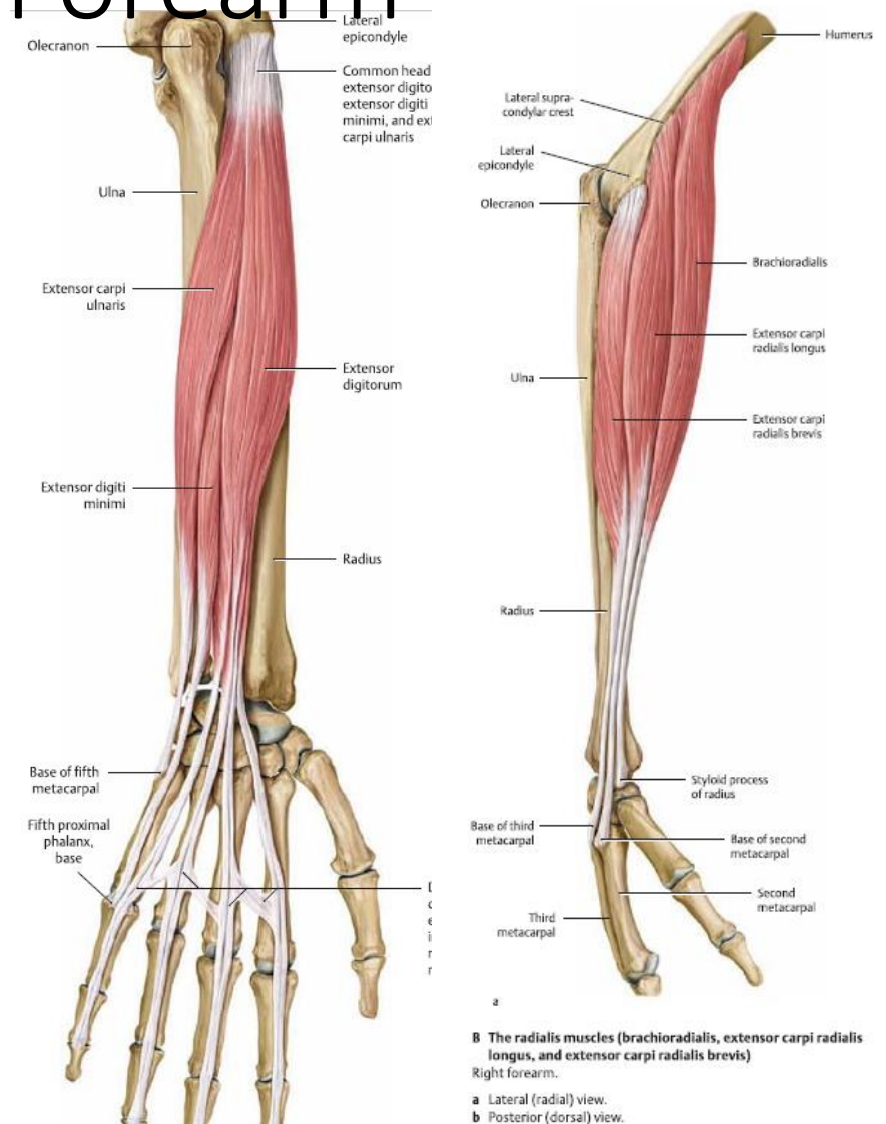
Superficial muscles (x6)

- Brachioradialis
- Extensor Carpi Radialis Longus
- Extensor Carpi Radialis Brevis
- Extensor Digitorum
- Extensor Digiti Minimi
- Extensor Carpi Ulnaris

Deep Muscles (x5)

- Supinator
- Abductor Pollicis Longus
- Extensor Pollicis Brevis
- Extensor Pollicis Longus
- Extensor Indicis

- ✓ All the superficial muscles of the extensor compartment originate from the lateral epicondyle (EXCEPT: Brachioradialis)
- ✓ All superficial muscles in the extensor compartment of forearm act on elbow joint as well, and can weakly extend the elbow joint (EXCEPT: Brachioradialis Flexes the elbow)



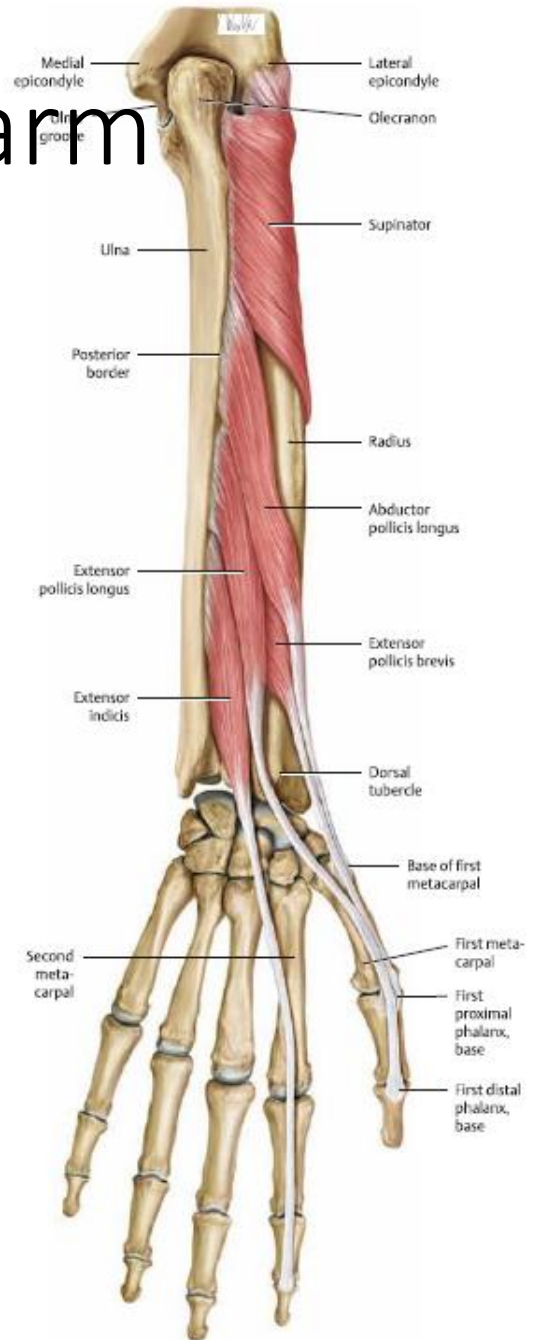
Posterior Compartment of the Forearm

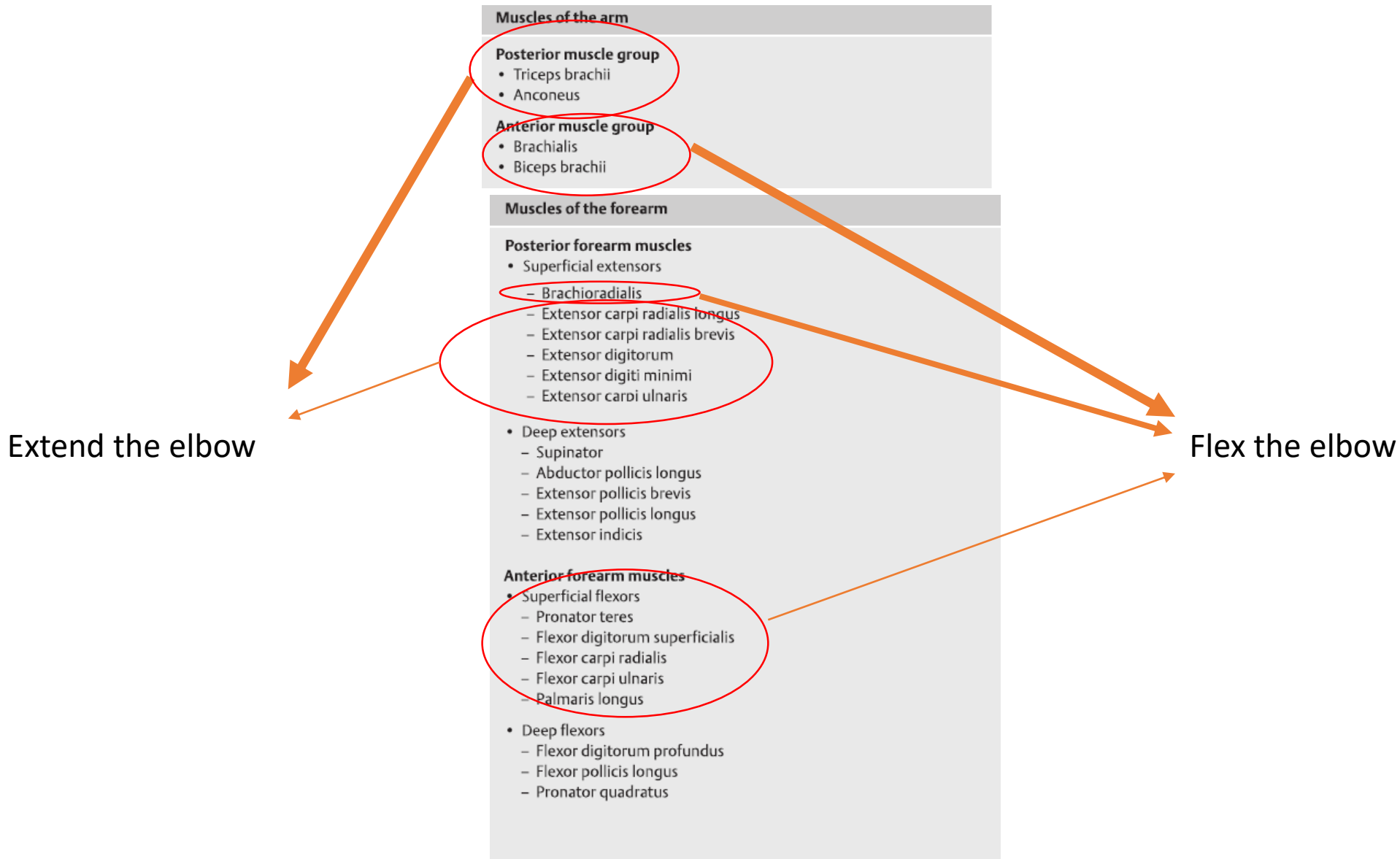
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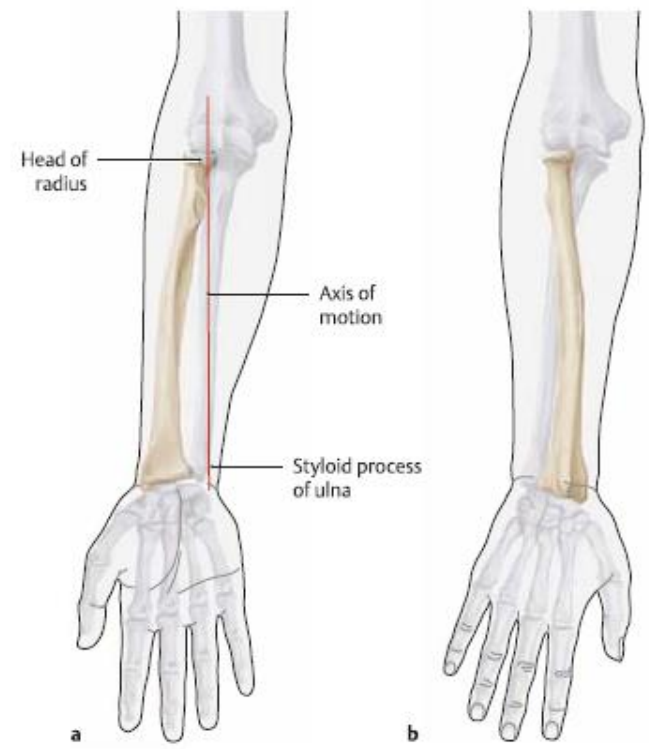
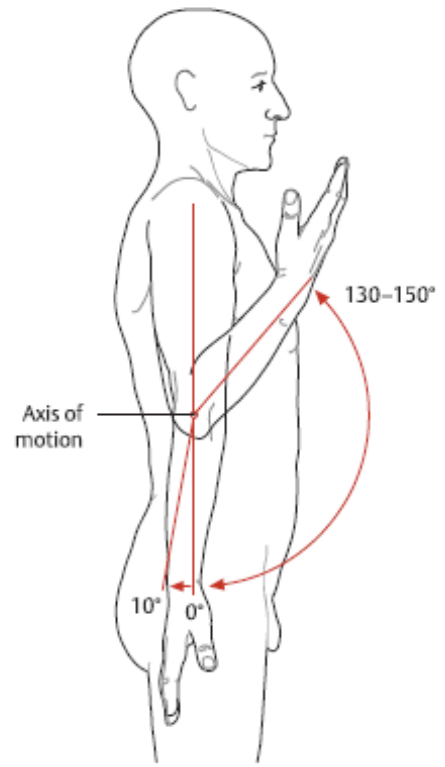
- Brachioradialis
- Extensor Carpi Radialis Longus
- Extensor Carpi Radialis Brevis
- Extensor Digitorum
- Extensor Digiti Minimi
- Extensor Carpi Ulnaris

Deep Muscles (x5)

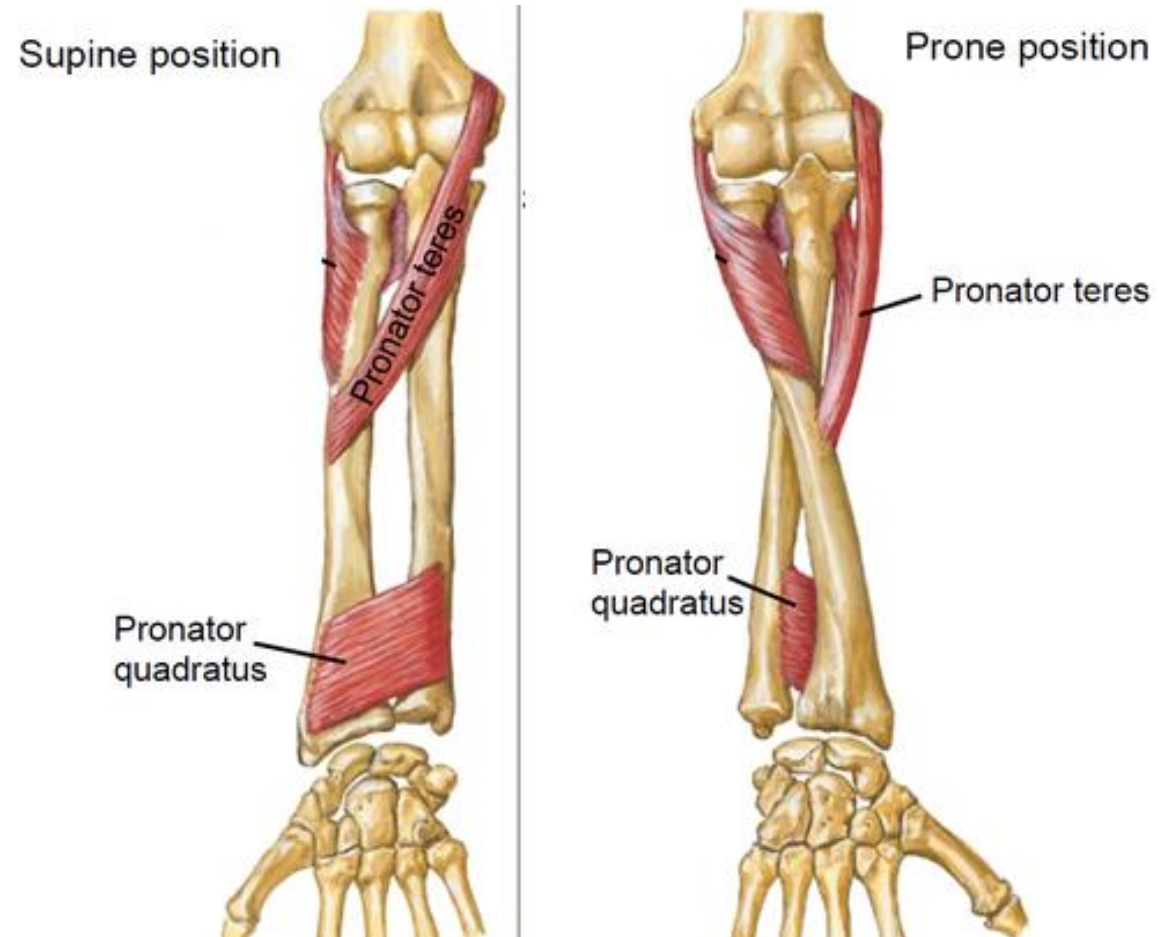
- Supinator
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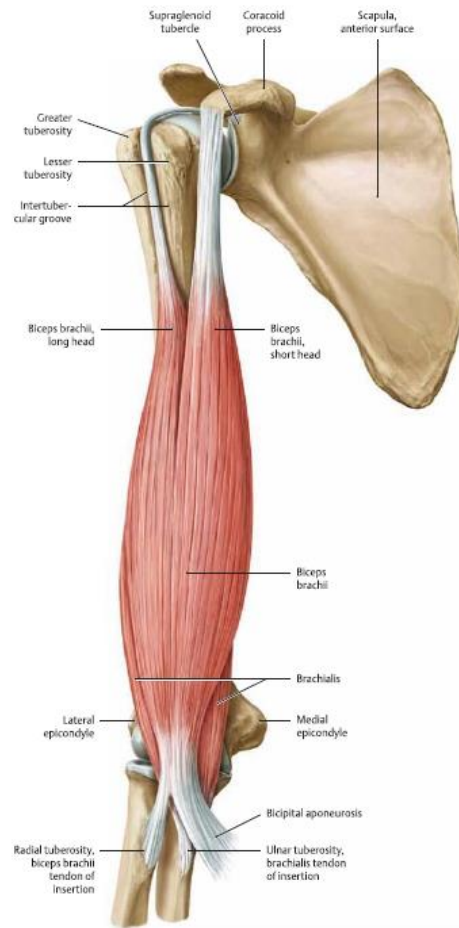




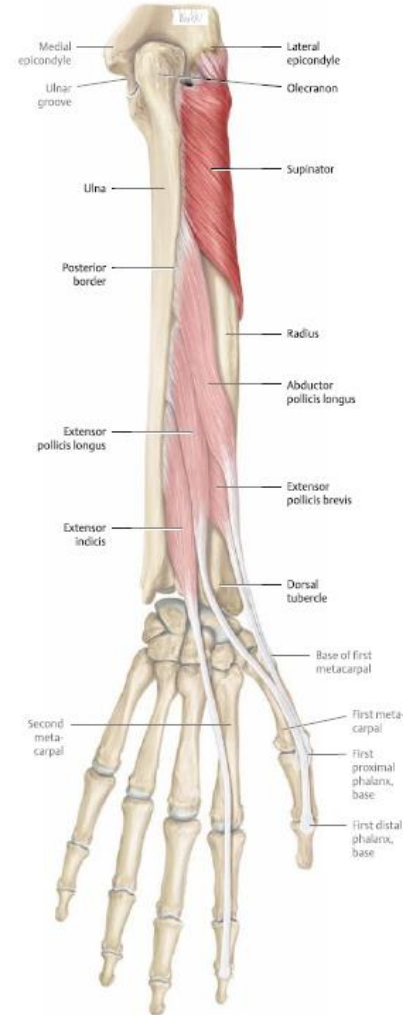
Pronators



Supinators



C The biceps brachii and brachialis
Right arm, anterior (ventral) view.



Cubital Fossa

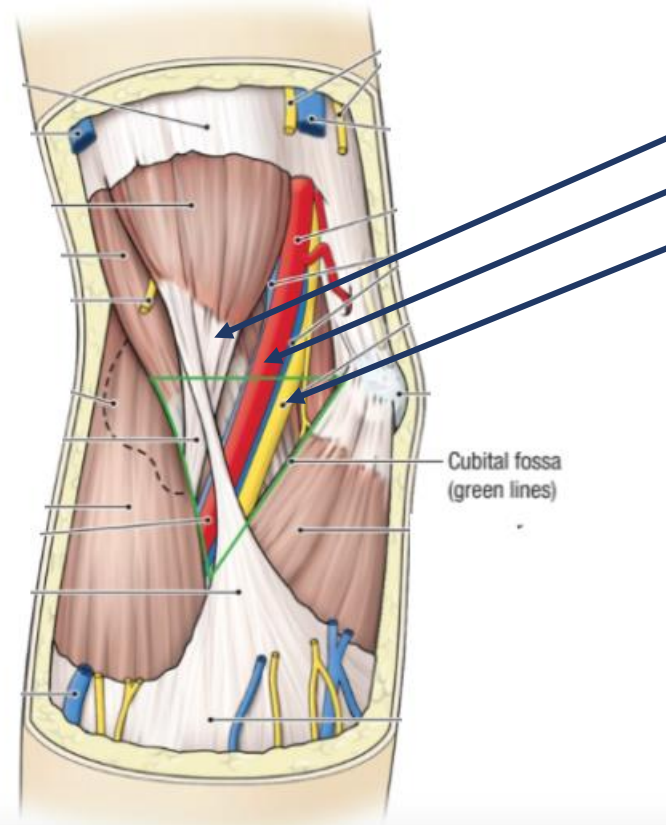
Borders:

- Pronator Teres
- Brachioradialis
- Line through epicondyles

- Floor: Brachialis muscle

Contents:

- Tendon of Biceps
- Brachial Artery
- Median Nerve



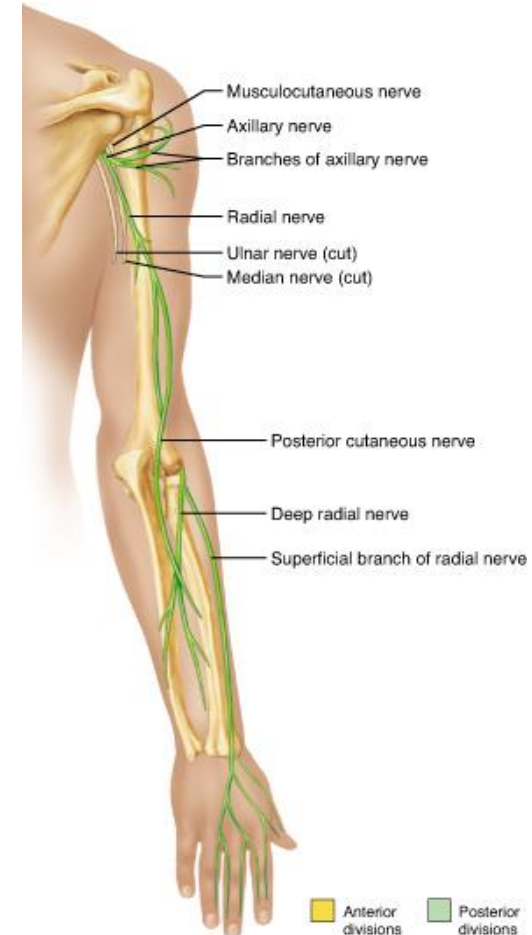
Superficially you may find the **median cubital vein** and **cutaneous nerves**

Innervations of Arm muscles

- Anterior Compartment :
Musculocutaneous n.



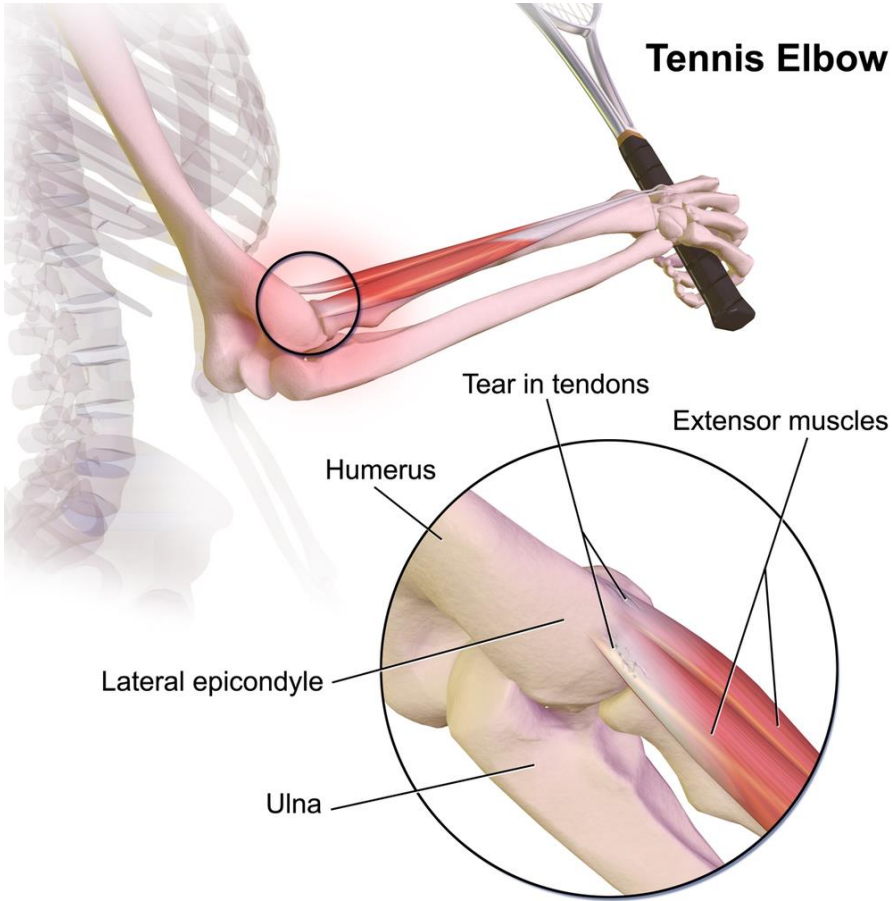
- Posterior Compartment :
Radial Nerve



Innervations of Forearm muscles

- Anterior Compartment : Median Nerve
 - Except : Flexor Carpi Ulnaris and $\frac{1}{2}$ of Flexor Digitorum profundus
=> Ulnar nerve!
- Posterior Compartment : Radial Nerve

Tennis elbow



Golfer's elbow

Pain over medial epicondyle
due to chronic injury to the
tendons of forearm flexors

Can happen in tennis players
too

Which sport has the highest risk for it?





In the clinic



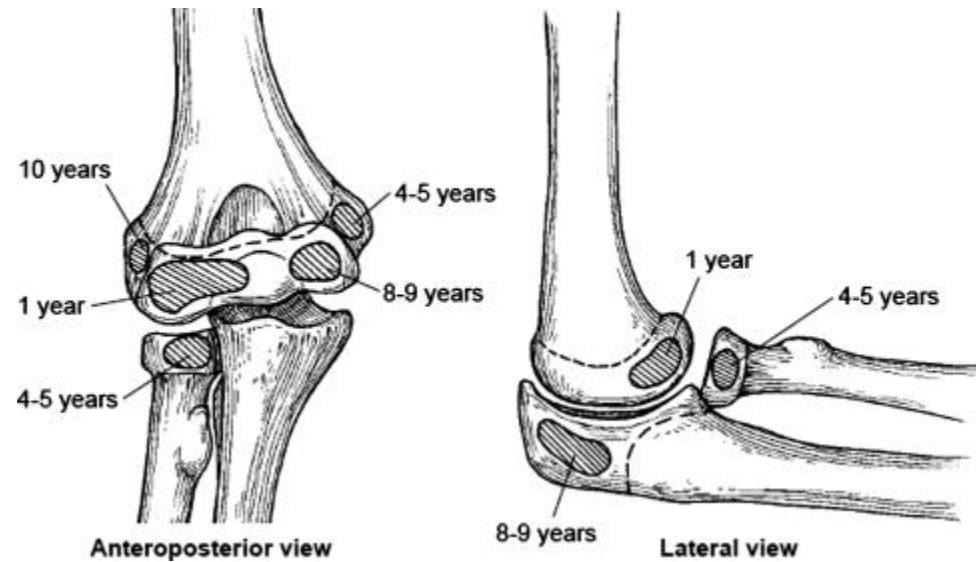
In the clinic



In the clinic



Ossification pattern



Sharp injury to the cubital region, what caused this?



Thank you for your attention!

