

JOINTS OF THE UPPER LIMB

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Lecture Outline

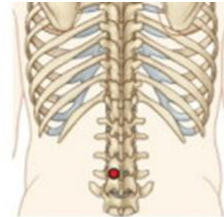
- Review 3 types of joints
- Types of synovial joints
- Individual joints of Upper limb

Types of synovial joints

- Six (6) in numbers
- Based on
 - the shape of articulating surfaces and/or
 - type of movement permitted



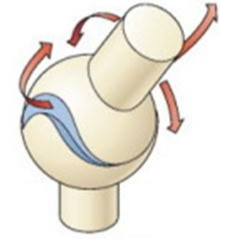
1 Plane joint



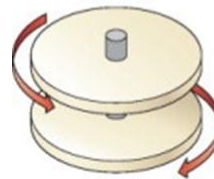
4 Ellipsoid joint



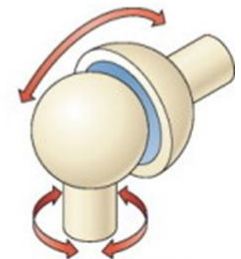
2 Hinge joint



5 Saddle joint



3 Pivot joint



6 Ball and socket joint

Types of synovial Joints...

- Plane Joint

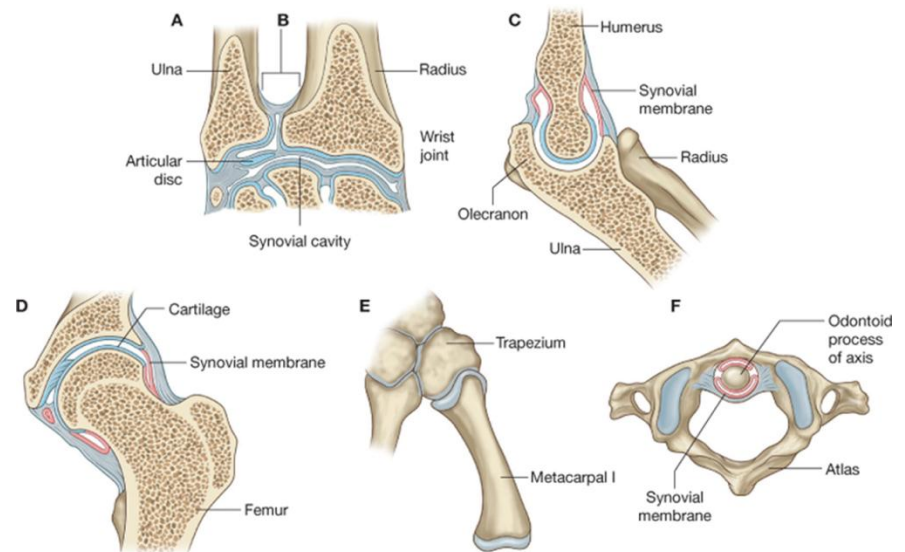
- Flat articulating surfaces.
- Uniaxial
- Gliding or sliding movement. E.g. acromioclavicular joint.

- Hinge Joint (Ginglymus)

- Uniaxial
- Flexion and extension e.g. elbow joint.

- Pivot Joint

- Uniaxial
- Rotation . e.g. atlantoaxial



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- A. Condylar (wrist). B. Gliding (radioulnar). C. Hinge or ginglymus (elbow).
D. Ball and socket (hip). E. Saddle (carpometacarpal of thumb).
F. Pivot (atlanto-axial).

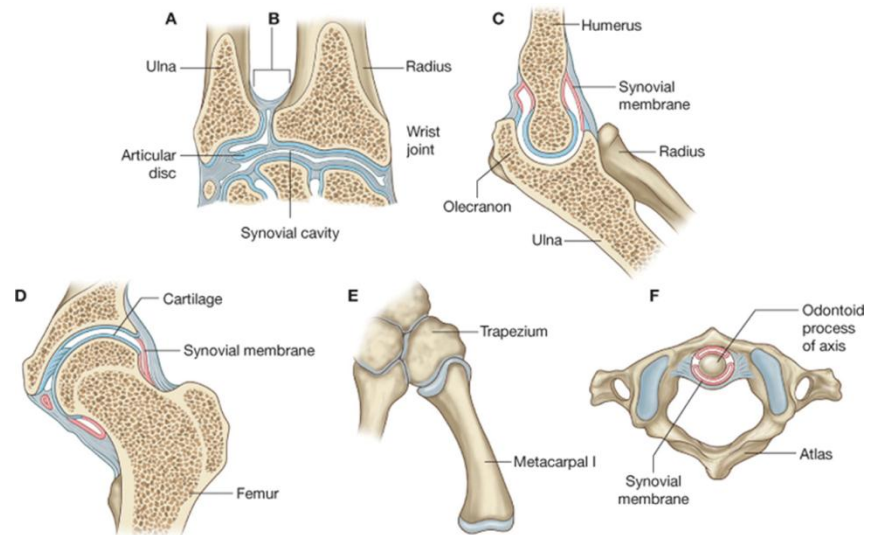
Types of synovial Joints...

- Condyloid Joint

- Biaxial with round or socket surfaces.
- Movement: Flexion - Extension, Abduction - Adduction.
- E.g. Knuckle (metacarpophalangeal)
- Variation is ellipsoidal joint - oval & socket surfaces.

- Saddle Joint

- Biaxial with concave & convex surfaces.
- E.g. 1st carpometacarpal joint



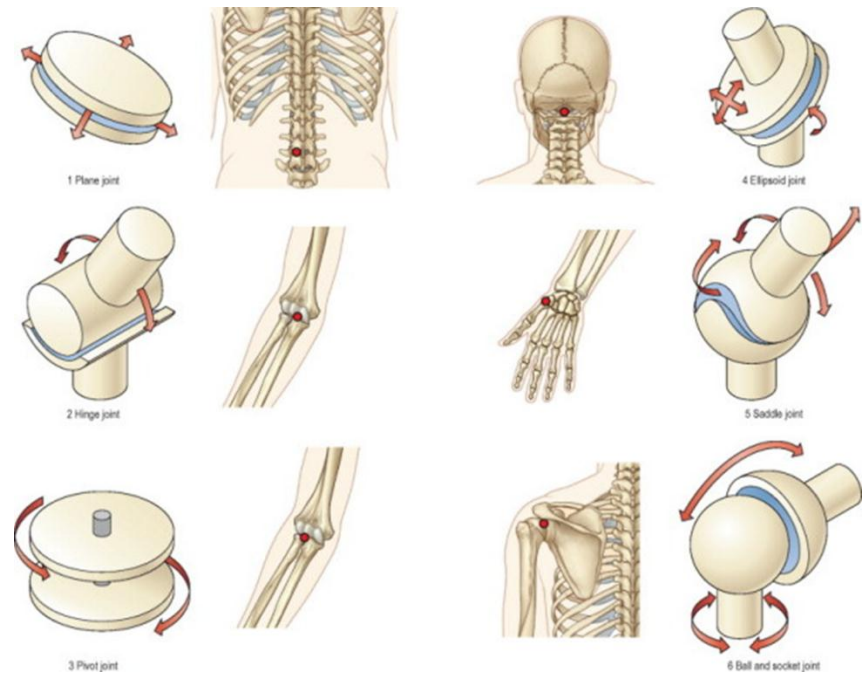
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- A. Condyloid (wrist). B. Gliding (radioulnar). C. Hinge or ginglymus (elbow).
- D. Ball and socket (hip). E. Saddle (carpometacarpal of thumb).
- F. Pivot (atlanto-axial).

Types of synovial Joints...

- Ball & Socket Joint

- Multiaxial: spheroidal surface into socket.
- Movements: Flexion, Extension, Abduction, Adduction, Medial/lateral rotation, circumduction
- E.g. shoulder & hip joints.

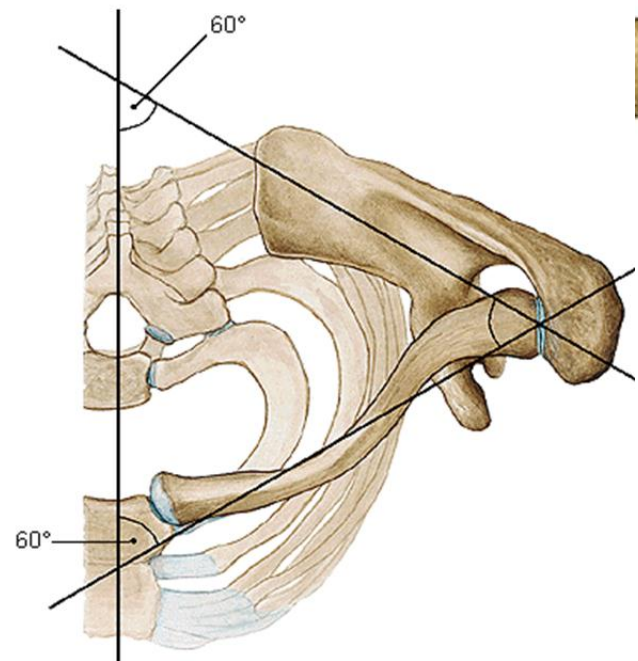
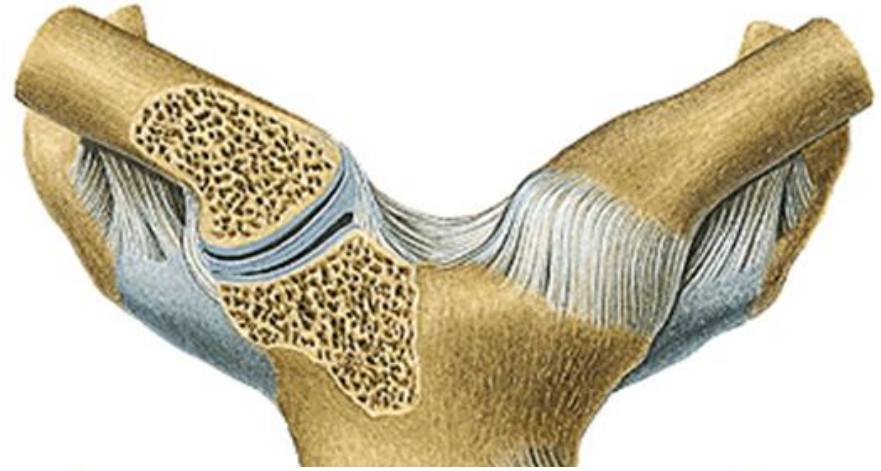


Joints of Upper limb

- Sternoclavicular & Acromioclavicular Joints
- Shoulder (Glenohumeral) Joint
- Elbow Joint
- Proximal & Distal Radioulnar Joints
- Wrist Joint (Radiocarpal) Joints
- Intercarpal Joints
- Joints of the Hand

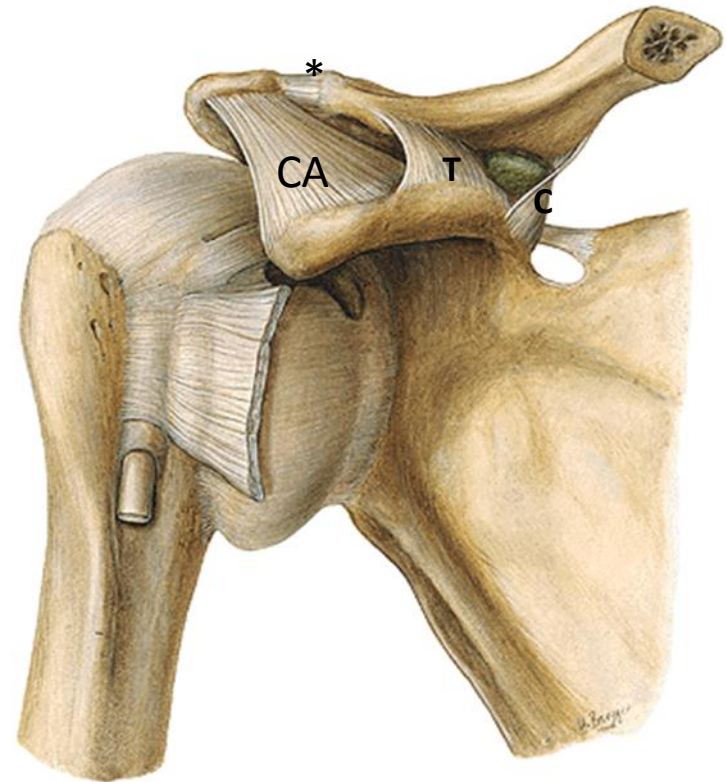
Sternoclavicular Joint

- Saddle type
- Fibrocartilaginous articular cartilage.
- Articular disc divides cavity into 2 and prevents medial displacement of clavicle. Also acts as shock absorber
- Ligaments:
 - Ant. & post sternoclavicular,
 - interclavicular
 - costoclavicular (strong and provides lateral reinforcement and limits elevation of clavicle)
- Movements: Flexion, Extension, Abduction, Adduction, Medial & lateral rotation



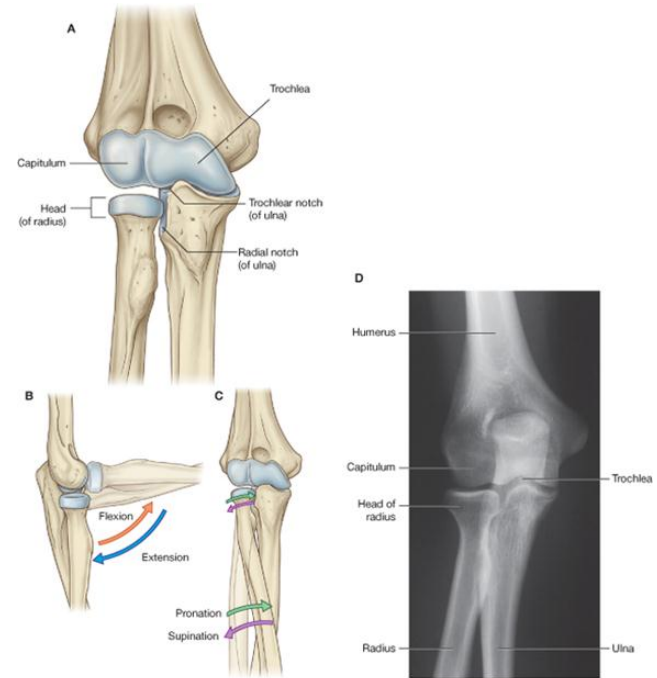
Acromioclavicular Joints

- Plane type
- Fibrocartilaginous cartilage with incomplete articular disc
- Ligament:
 - *Acromioclavicular
 - Coracoacromial (CA)
 - Coracoclavicular (conoid [C] and trapezoid [T] parts)
- Movement:
 - Gliding & sliding in anteroposterior direction

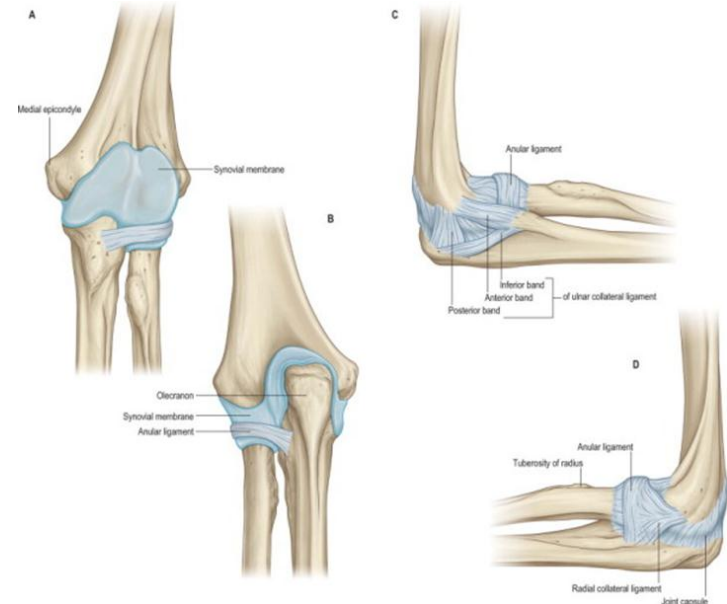


Elbow Joint

- Hinge
- Articular capsule also encloses proximal radioulnar joint
- Ligaments
 - Radial & Ulnar Collateral
- Movement:
 - Flexion and Extension
- Subluxation ('pulled elbow')

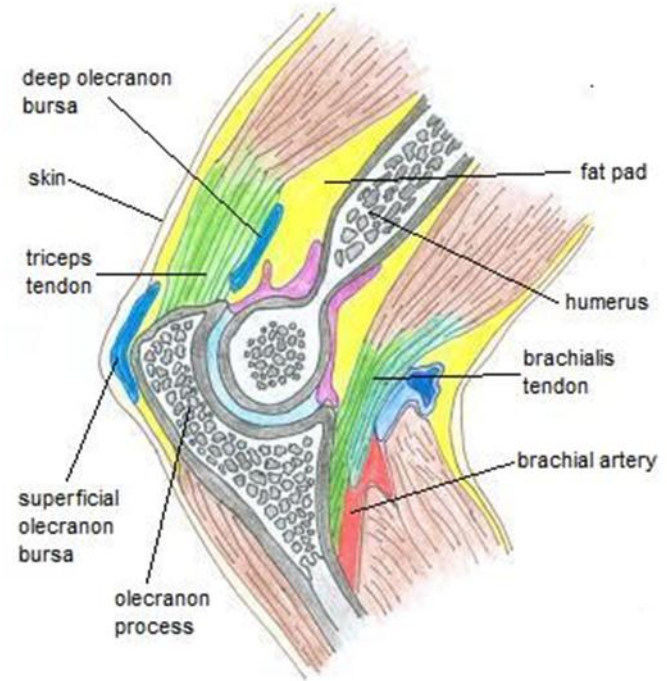


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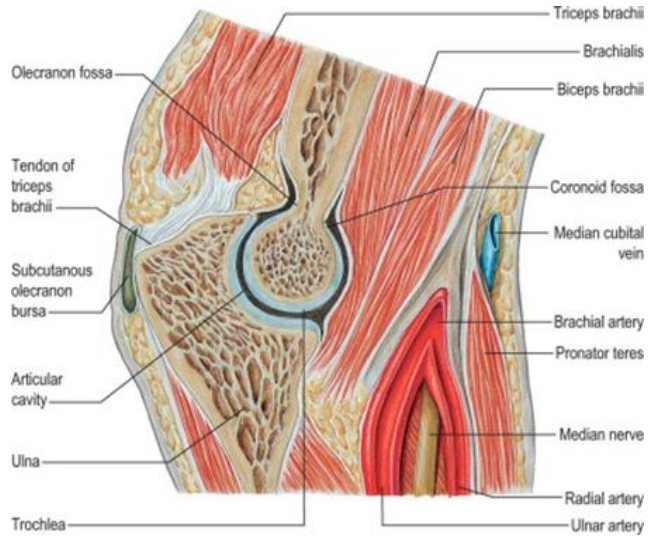


Elbow Joint Bursae

- Intratendinous
- Subtendinous (deep olecranon)
- Subcutaneous (superficial olecranon)
 - Student's elbow



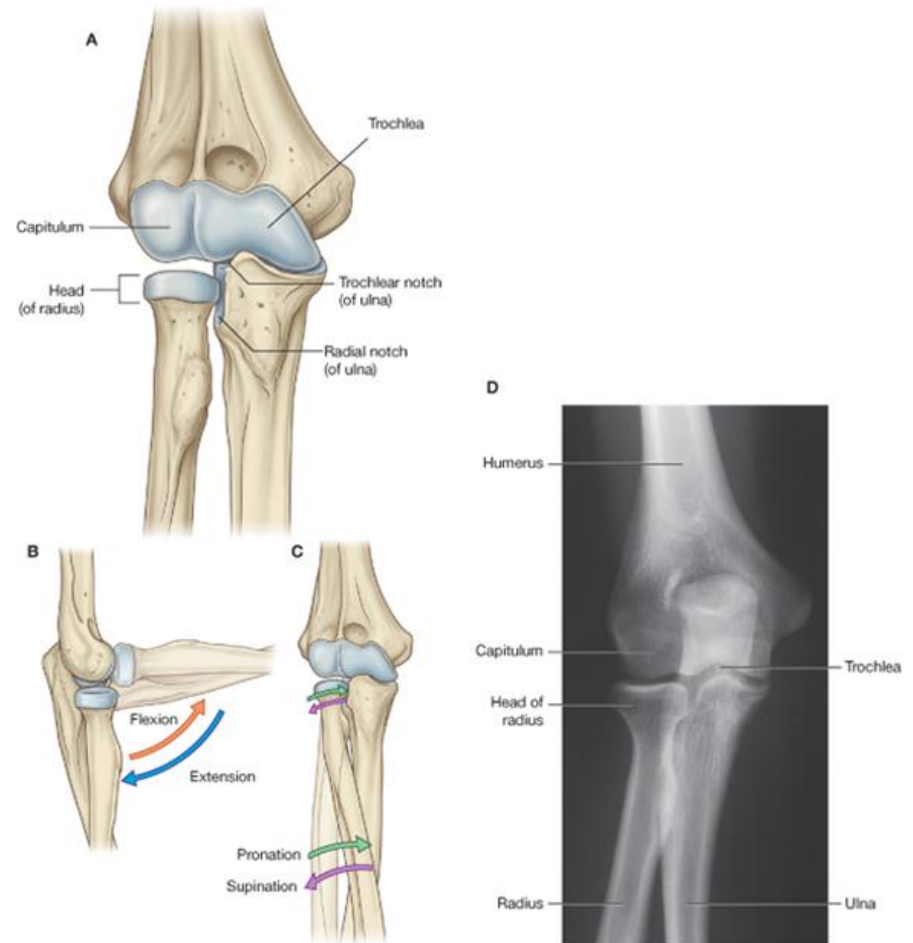
CROSS SECTION OF ELBOW JOINT SHOWING BURSAE



Κόστη Ωλεκράνου, ή Ορογονοθηλακίτις Αγκώνος
Olecranon Cyst, or Elbow Bursitis
Photo: Dr. Harry Gouvas, MD, PhD

Proximal Radioulnar Joint

- Pivot
- Capsule continuous with that of the elbow joint
- Ligament:
 - Annular
- Movement:
 - Rotation of head of radius in pronation & supination



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Distal Radioulnar Joint

Pivot type

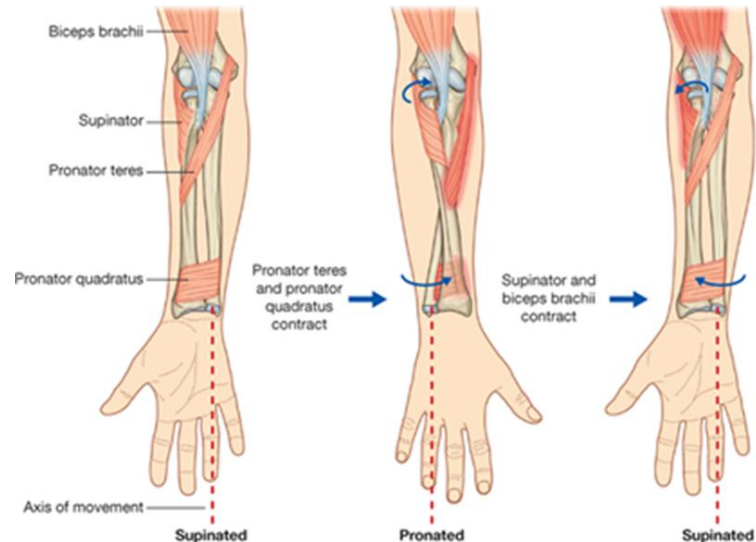
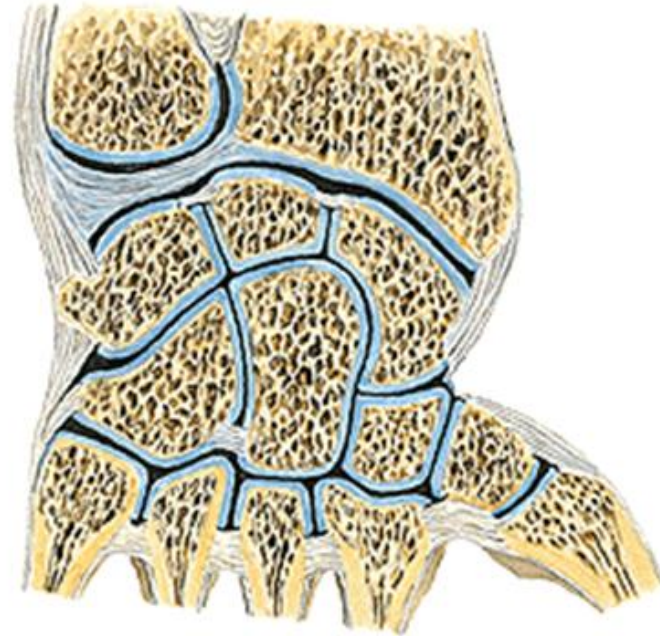
Articular cartilage is fibrocartilaginous

Ligaments:

Anterior & posterior

Movements:

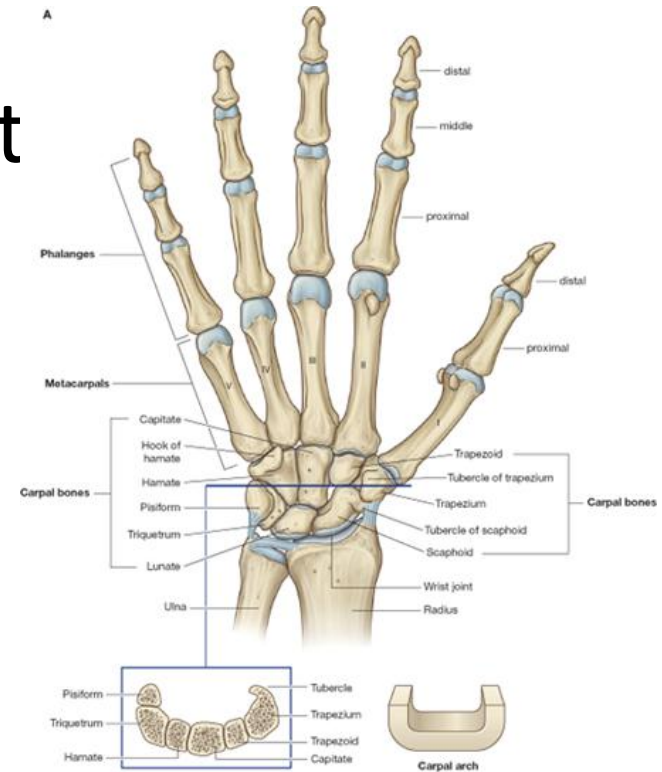
Rotation of head of ulnar in pronation & supination



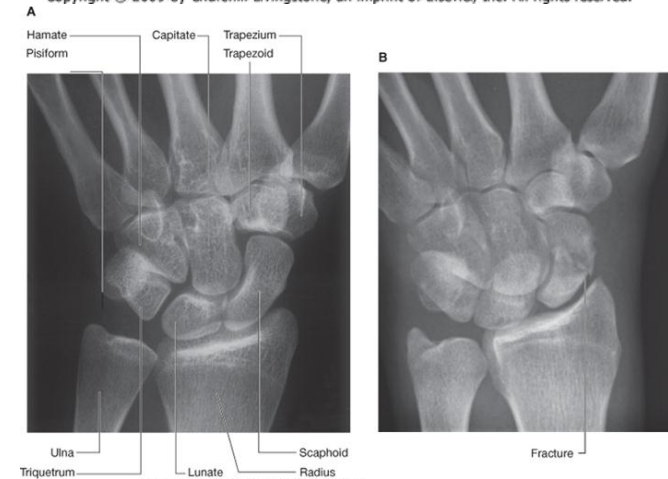
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Wrist (Radiocarpal) Joint

- Condyloid
- Ligament:
 - Palmar and dorsal radiocarpal, ulnar & radial collateral
- Movements:
 - Flexion, Extension, Abduction (radial deviation), Adduction (ulnar deviation)



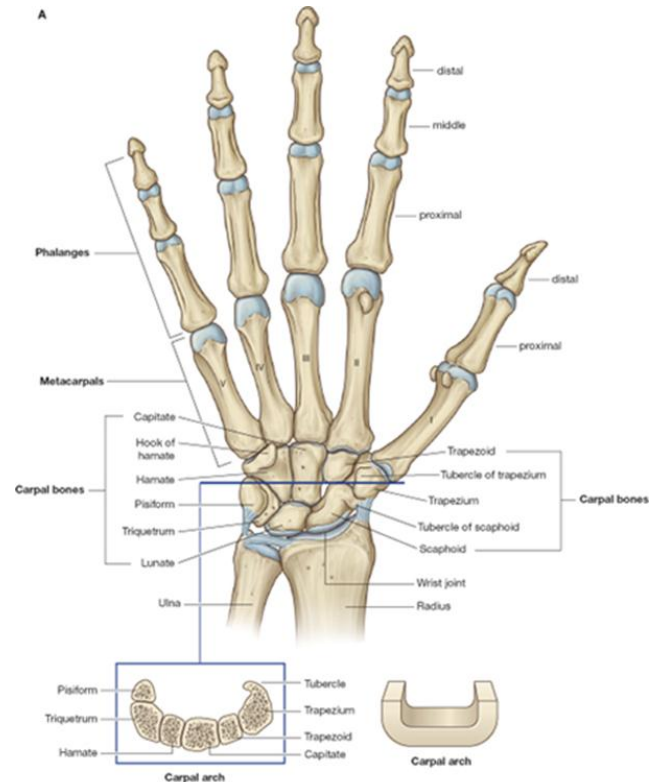
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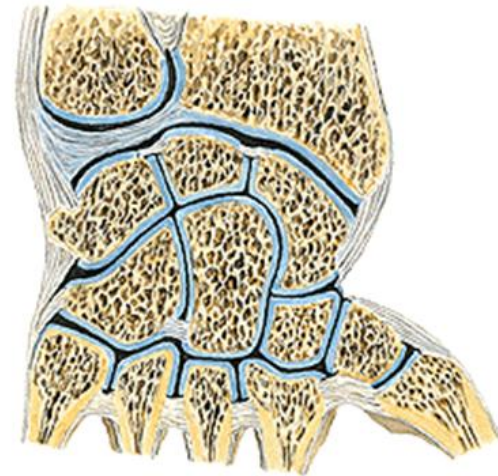
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Intercarpal Joint

- Plane
- Ligaments:
 - Anterior, posterior, & interosseus
- Movements:
 - Gliding & sliding

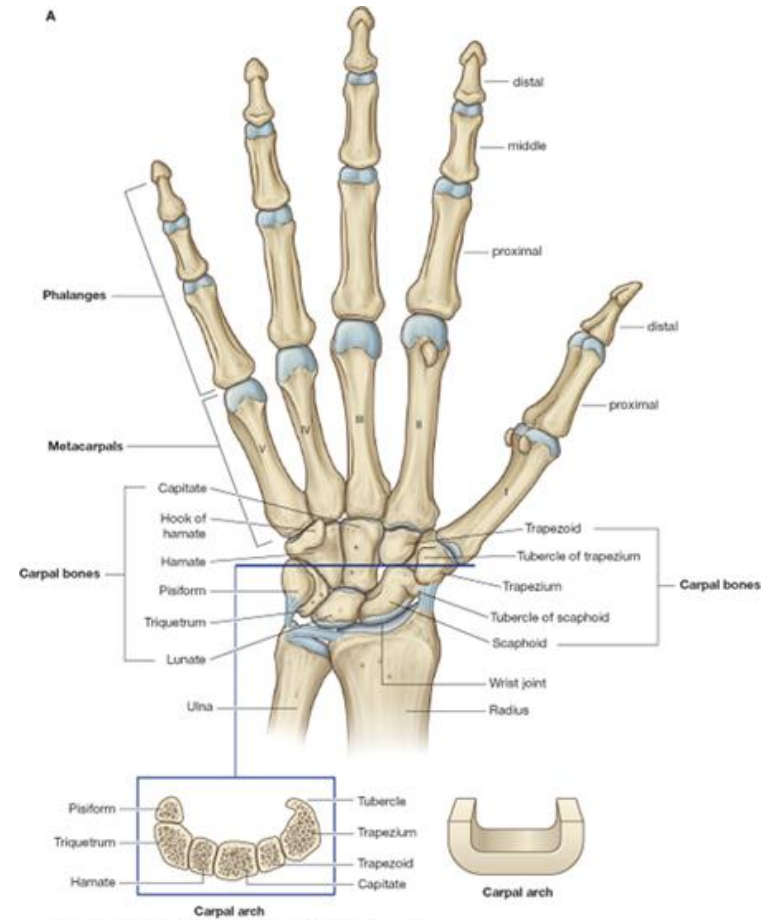


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Carpometacarpal & Intermetacarpal

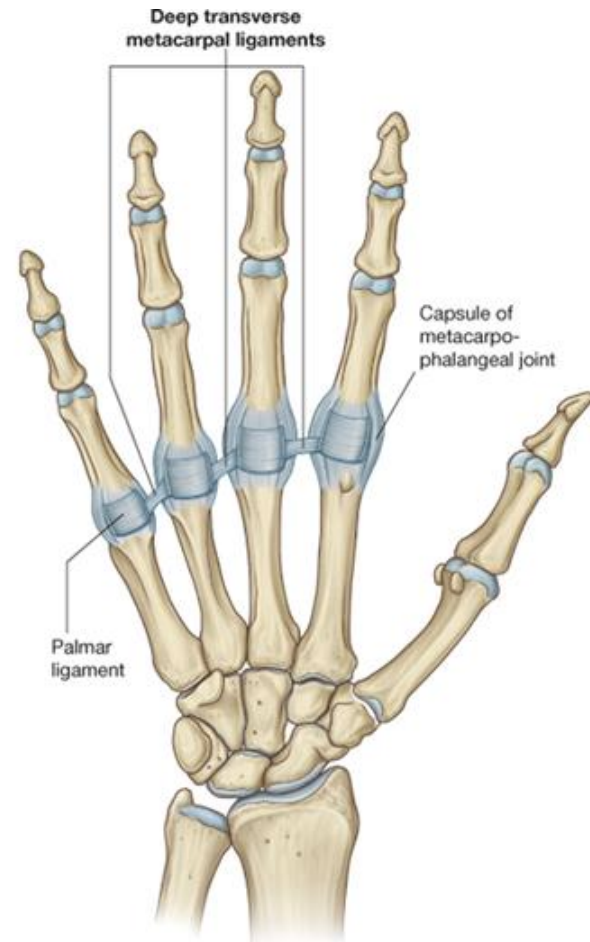
- Plane except thumb (saddle)
- Ligament:
 - Palmar and dorsal carpometacarpal and intermetacarpal
- Movements:
 - Thumb (Flexion, Extension, Abduction -Adduction, Opposition (CMC of thumb), Circumduction)



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Metacarpophalangeal Joint

- Condylloid
- Ligaments
 - Palmar and dorsal Metacarpophalangeal, deep transverse metacarpal
- Movement:
 - Thumb (Flexion, Extension, Abduction - Adduction, circumduction (2nd - 5th)



Interphalangeal Joint

- Hinge
- Ligaments
 - Palmar and dorsal interphalangeal , collateral
- Movements:
 - Flexion and extension



X-type MCQ Question

Joints of the upper limb:

- a. glenohumeral joint most commonly dislocates superiorly and posteriorly.
- b. the inferior radioulnar joint is involved in pronation-supination.
- c. movements at the interphalangeal joints are flexion and extension.
- d. metacarpophalangeal joints are of the condyloid type.
- e. inflammation of the elbow joint bursa is common in the subcutaneous bursa.

Answer to MCQ Question

Joints of the upper limb:

- a. glenohumeral joint most commonly dislocates superiorly and posteriorly. **F**
- b. the inferior radioulnar joint is involved in pronation-supination. **T**
- c. movements at the interphalangeal joints are flexion and extension. **T**
- d. metacarpophalangeal joints are of the condyloid type. **T**
- e. inflammation of the elbow joint bursa is common in the subcutaneous bursa. **T**