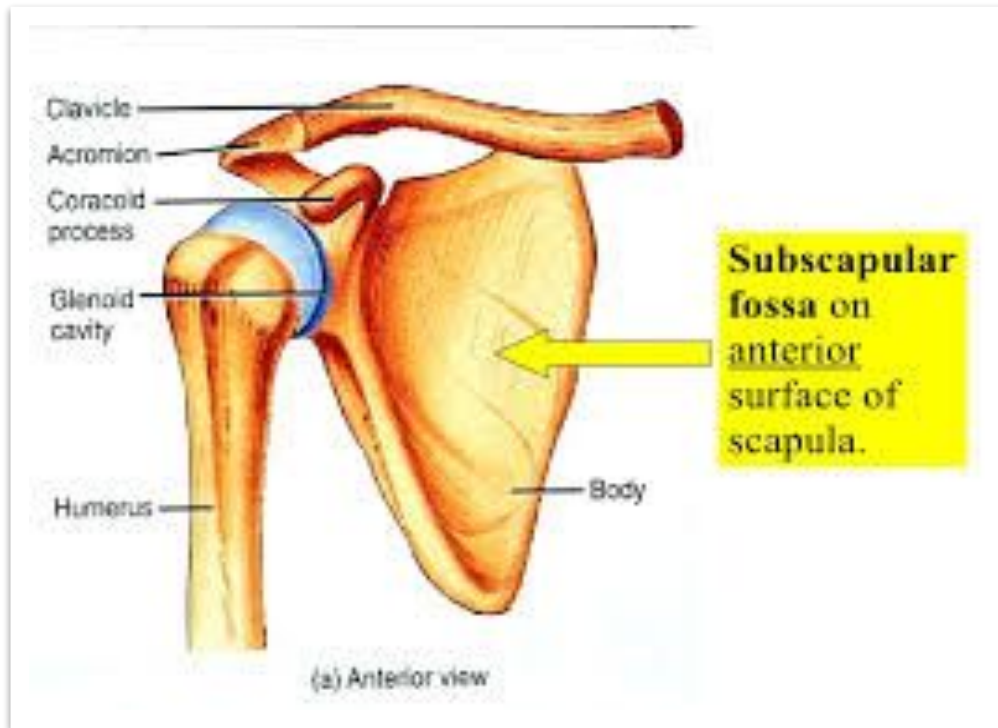


APPENDICULAR SKELETON

INTRODUCTION

- **Appendicular Skeleton-**
 - includes the bones of the shoulder (pectoral) girdle and upper extremities, the pelvic girdles and the lower extremities
- **Pectoral Girdle: “chest”**
 - comprised of the clavicle and the scapula
 - the upper limb is suspended from it
 - keeps shoulders in front and to the side
 - “MOBILITY”
- **Pelvic Girdle: “hip”**
 - lower limbs
 - keeps legs out to the sides
 - “STABILITY”

THE PECTORAL GIRDLE



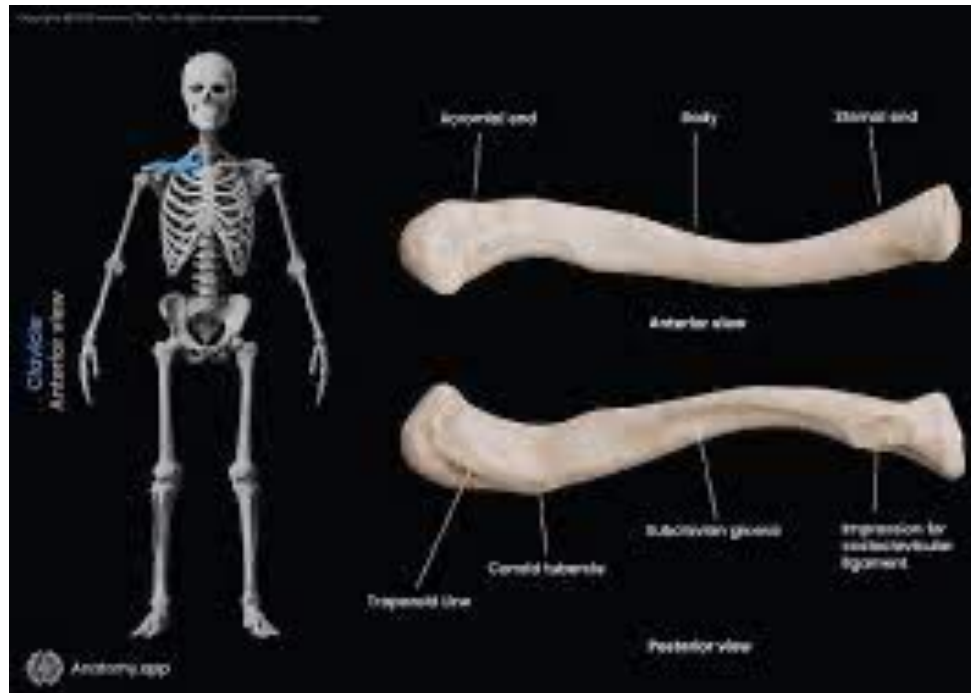
THE PECTORAL GIRDLE

- made up of:
 - clavicle and scapula
- they wrap around each side of the thorax
- the scapula is suspended from the clavicle & rests against the ribs
 - the scapula is freely moving

*Note:

- the only attachment of the appendicular skeleton to the axial skeleton is at the sternum

THE CLAVICLE



CLAVICLE

- Clavicula in Latin means:
 - a "key"
- The length of the clavicles determines the broadness of the shoulders
- is an "S" shaped bone:
 - the medial end is **convex** anteriorly
 - the lateral end is **concave** anteriorly
- function of curves of the clavicle:
 - absorb force
 - dissipate force
 - elevation of the shoulder for shoulder movement (abduction)
- most frequently fractured bone in the body
- the fracture commonly occurs in the middle 1/3 at the junction of the curves

CLAVICLE

◉ articulations:

■ medial end

- articulates with the sternum at the clavicular notch
- creates: sternoclavicular joint (SC joint)

■ lateral end

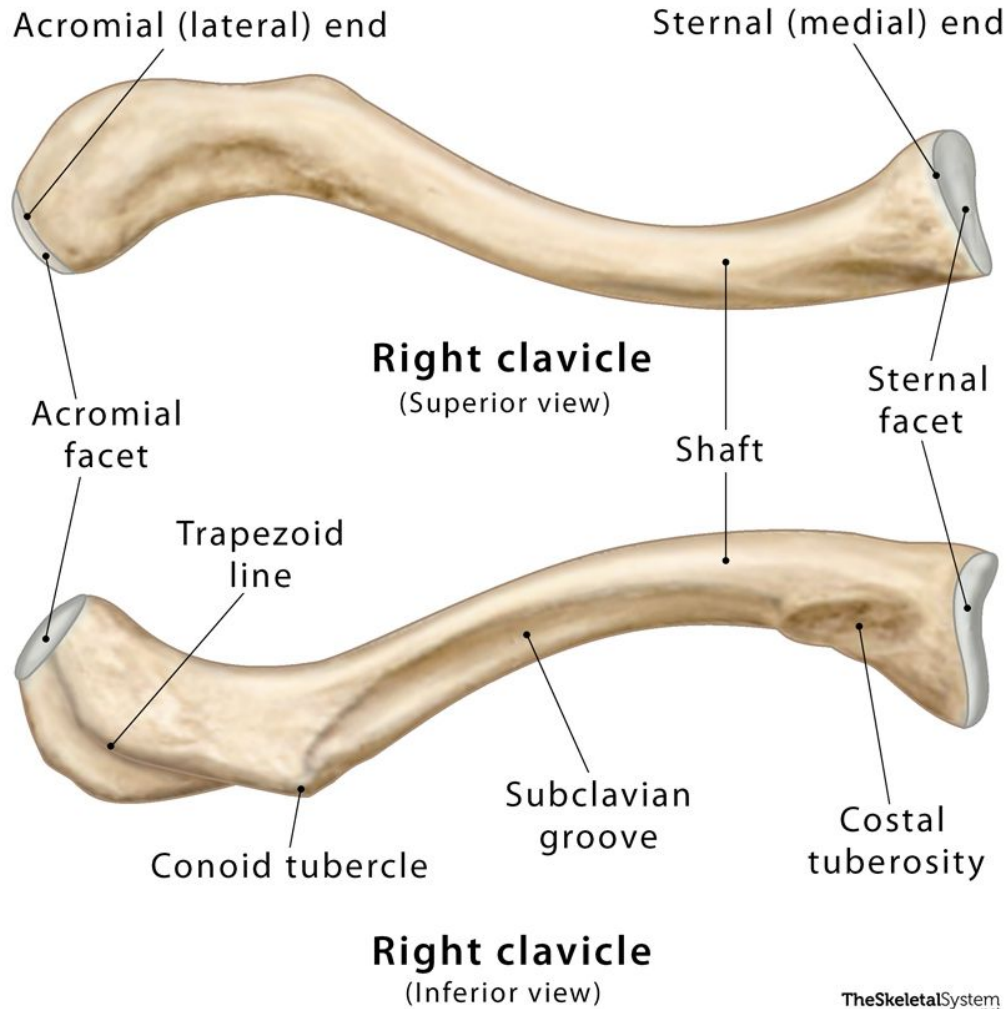
- articulates with the acromion process of the scapula
- creates: acromioclavicular joint (AC joint)

CLAVICLE

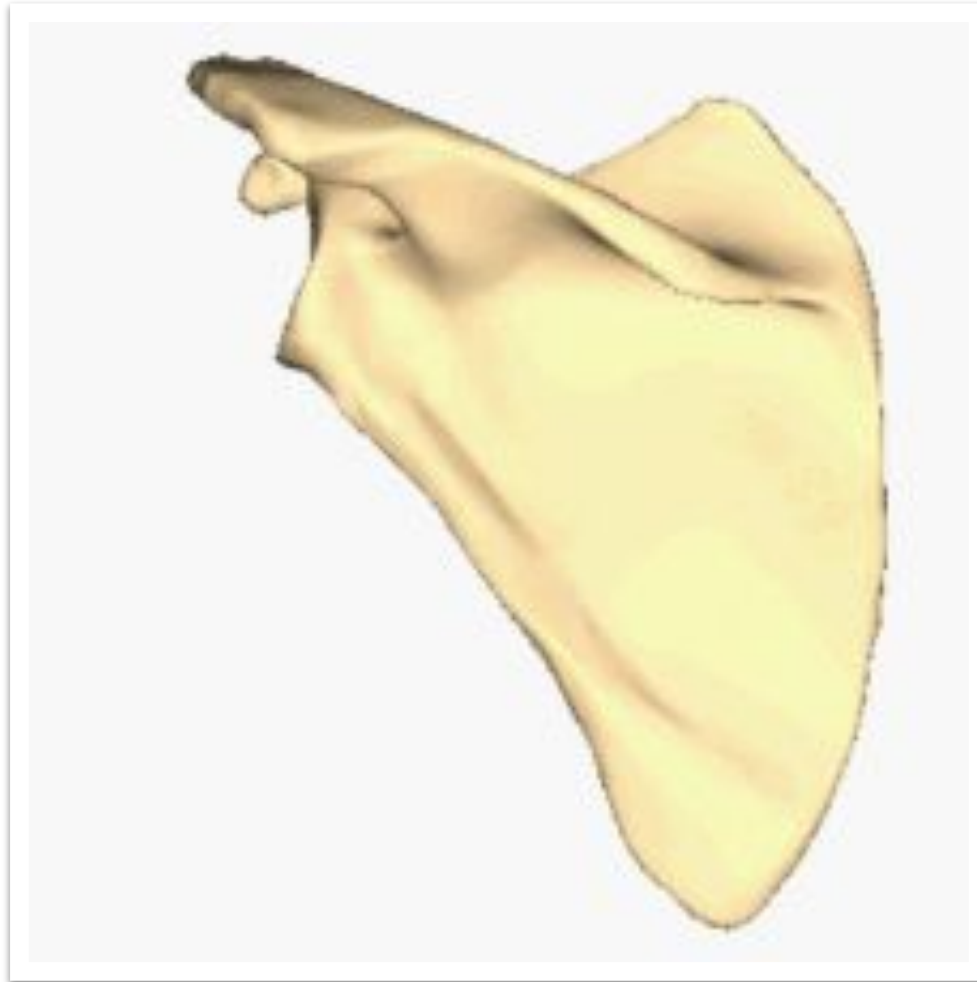
Landmarks:

- ⦿ acromial end (laterally)
 - acromial facet
- ⦿ sternal end (medially)
 - sternal facet
- ⦿ subclavian groove (inferiorly)
- ⦿ trapezoid line (inferiorly)
- ⦿ costal tuberosity (inferiorly)
- ⦿ conoid tubercle (inferiorly)

Clavicle



SCAPULA



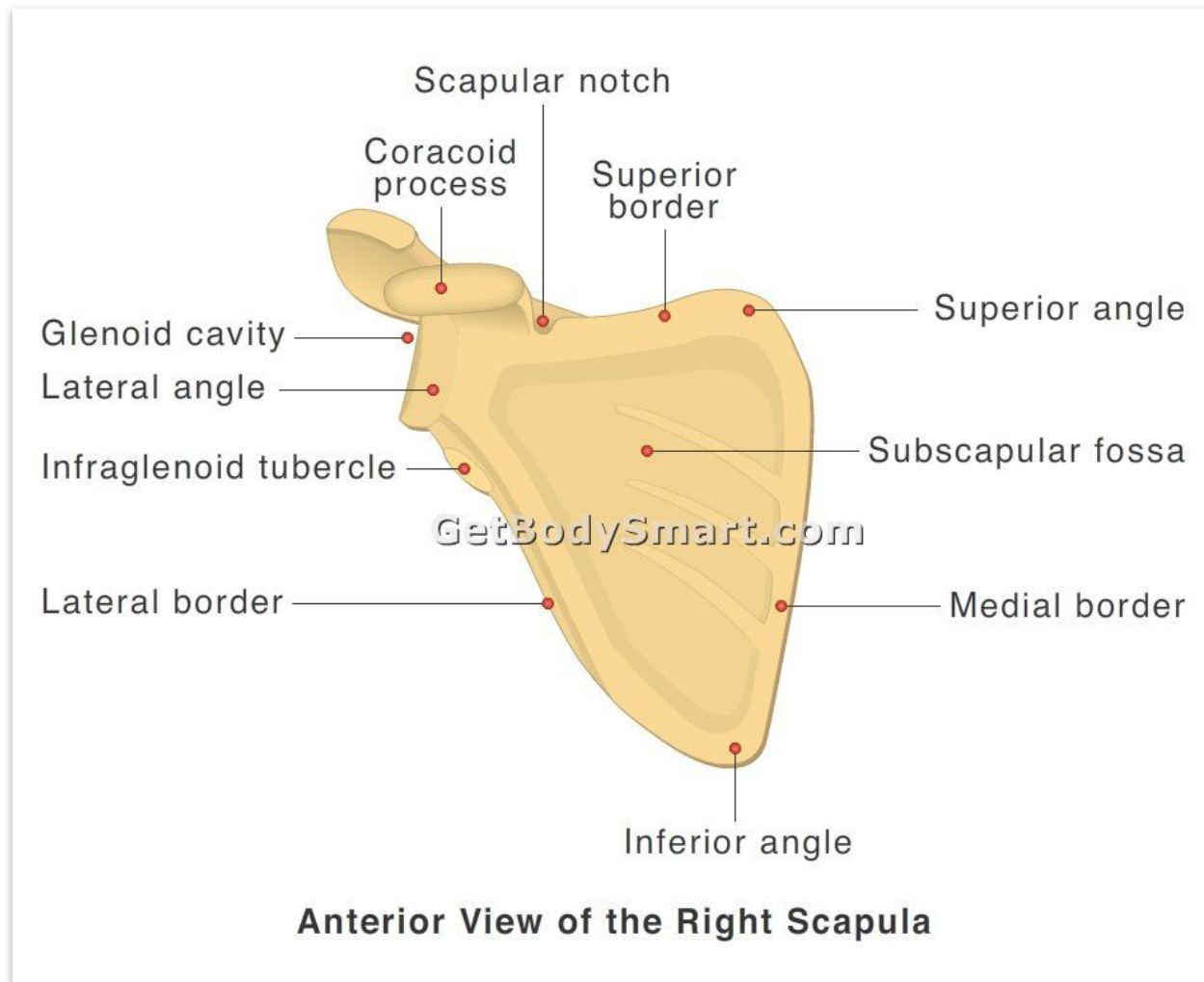
SCAPULA

- aka: spade
- thin, flat, triangular shaped bone with 3 borders
 - NOT attached to the chest wall
 - held against the ribs by muscles
 - arms are suspended from the scapula
 - creates: glenohumeral joint (GH joint)

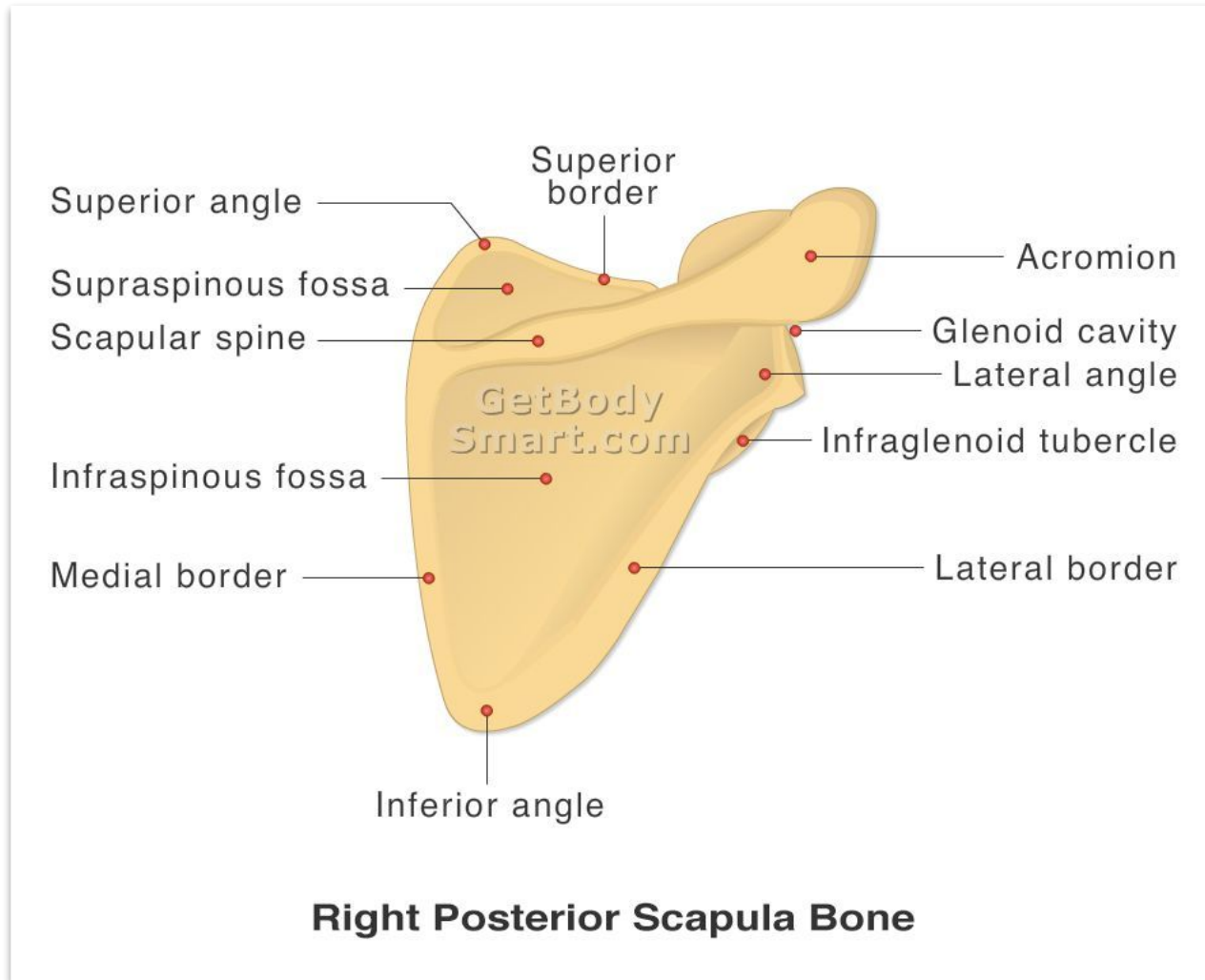
Landmarks

- anterior surface
- posterior surface
- borders:
 - vertebral (medial) border
 - axillary (lateral) border
 - superior border
- scapular notch
- superior angle
- inferior angle
- spine of the scapula
- infraglenoid tubercle
- supraglenoid tubercle
- supraspinous fossa
- infraspinous fossa
- glenoid fossa
- subscapular fossa
- acromion process
- coracoid process

ANTERIOR VIEW OF SCAPULA



POSTERIOR VIEW OF SCAPULA

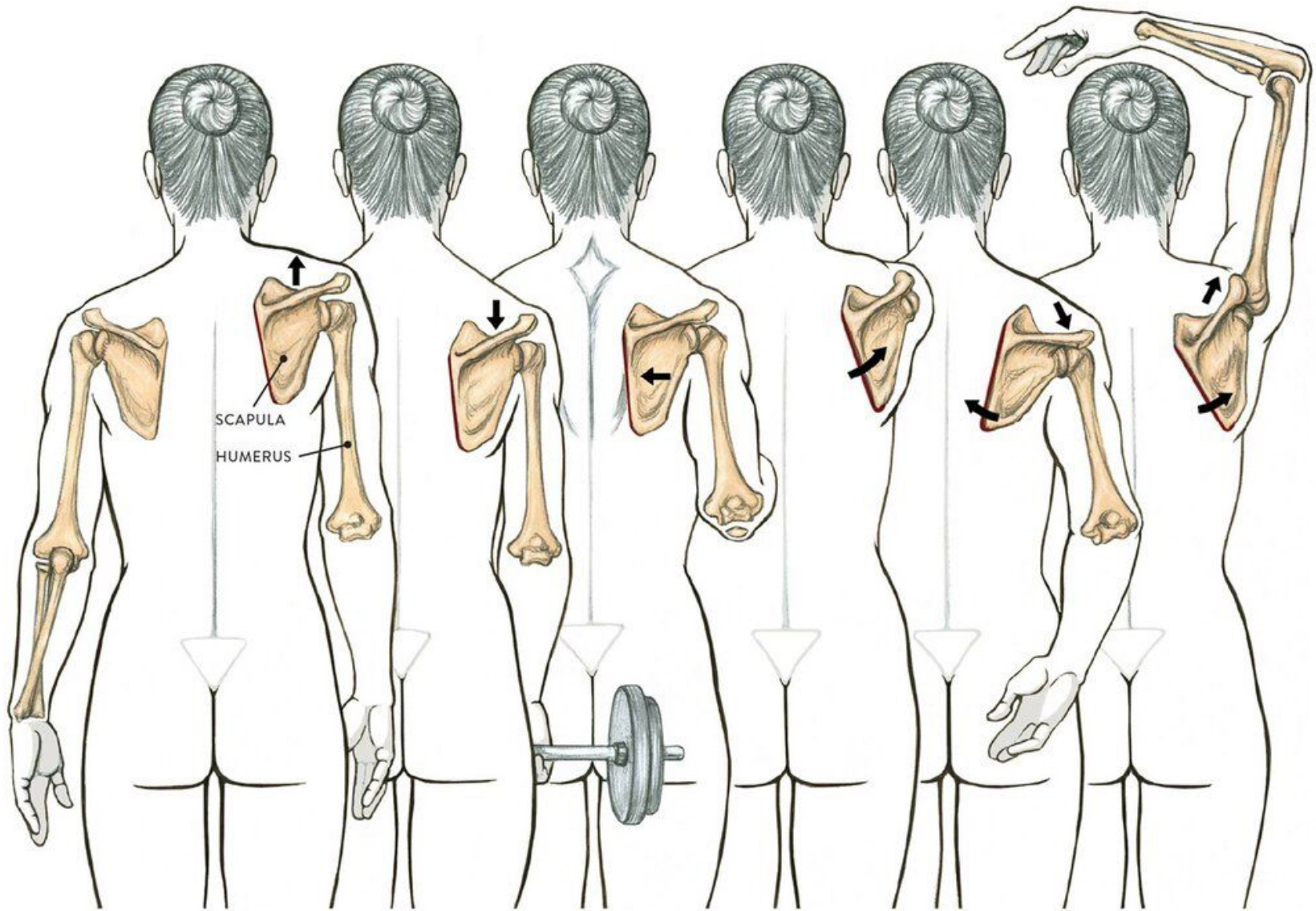


MOVEMENTS OF THE PECTORAL GIRDLE

- ◉ Elevation & Depression
- ◉ Protraction & Retraction
- ◉ Upward & Downward Rotation

*Note

- ◉ movements of the pectoral girdle seldom occur in isolation
- ◉ the glenohumeral joint is required for both scapular & humeral motion
- ◉ motion of the humerus and scapula together are known as **scapulohumeral motion**



1. Elevation of right scapula

2. Depression of scapula

3. Adduction of scapula

4. Abduction of scapula

5. Downward rotation of scapula

6. Upward rotation of scapula

JOINTS OF THE PECTORAL GIRDLE

Sternoclavicular (SC) Joint:

- ⦿ location:

- medial end of the clavicle
- glides in the clavicular notch of the manubrium of the sternum

Classifications:

- ⦿ functional: diarthrotic, uniaxial
- ⦿ structural: synovial, plane

Parts of the SC Joint

Articular disc

- fibrocartilage
- absorbs force
- makes the articular surfaces more congruent

Articular capsule

- surrounds the joint
- a synovial membrane lines the capsule

Capsular ligaments

- anterior and posterior sternoclavicular ligaments
 - attachments: sternum & clavicle
- prevents displacement of clavicle from sternum
- very strong & rarely injured
- interclavicular ligament

Accessory Support of SC Joint

Costoclavicular ligament

- ◉ immediately lateral to the joint

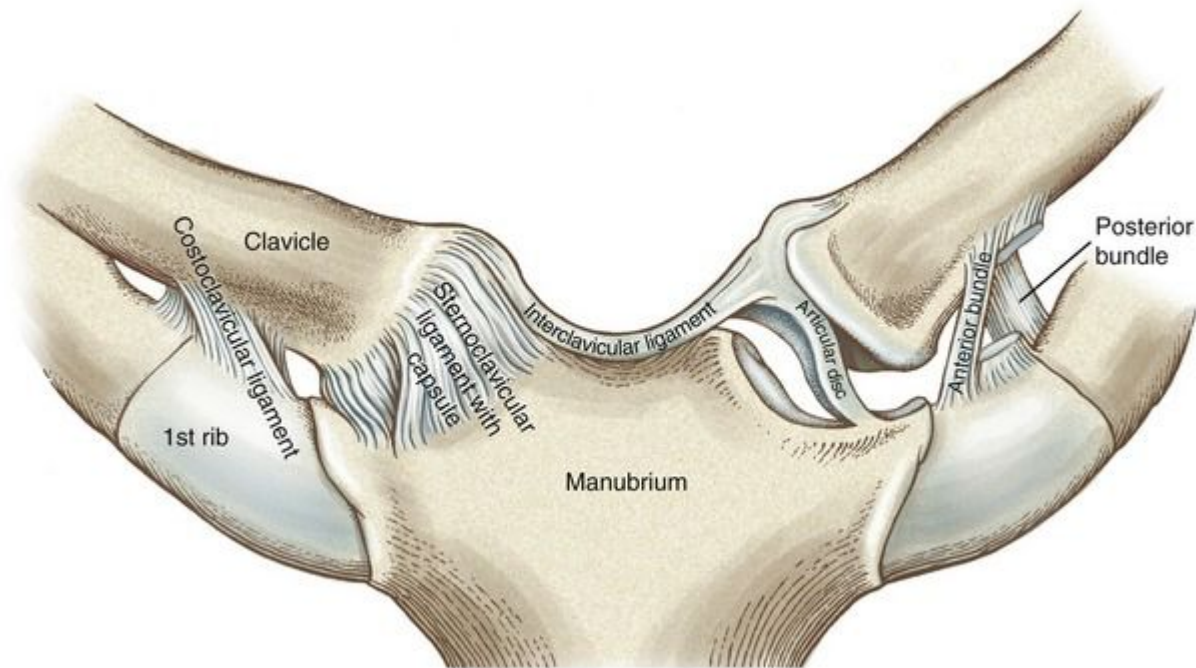
Subclavius muscle

- ◉ lateral to the costoclavicular ligament

Function:

- ◉ both allow the lateral clavicle quite a bit of movement

SC Joint



[Sternoclavicular Joint - Location & Movements - Human Anatomy | Kenhub](#)

ACROMIOCLAVICULAR JOINT

- ◉ point of the shoulder
 - palpable round eminence

Location:

- ◉ articulation between the lateral end of the clavicle and the acromion process of the scapula

Classification:

- ◉ Functional: diarthrosis, uniaxial
- ◉ Structural: synovial, plane

*Note:

- ◉ AC separations occurs here

THE JOINT CAPSULE

- ◉ Articulating surfaces:
 - lined with fibrocartilage
- ◉ Joint cavity:
 - partially divided by an articular disc
 - a wedge of fibrocartilage suspended from the upper part of the capsule

LIGAMENTS OF THE AC JOINT

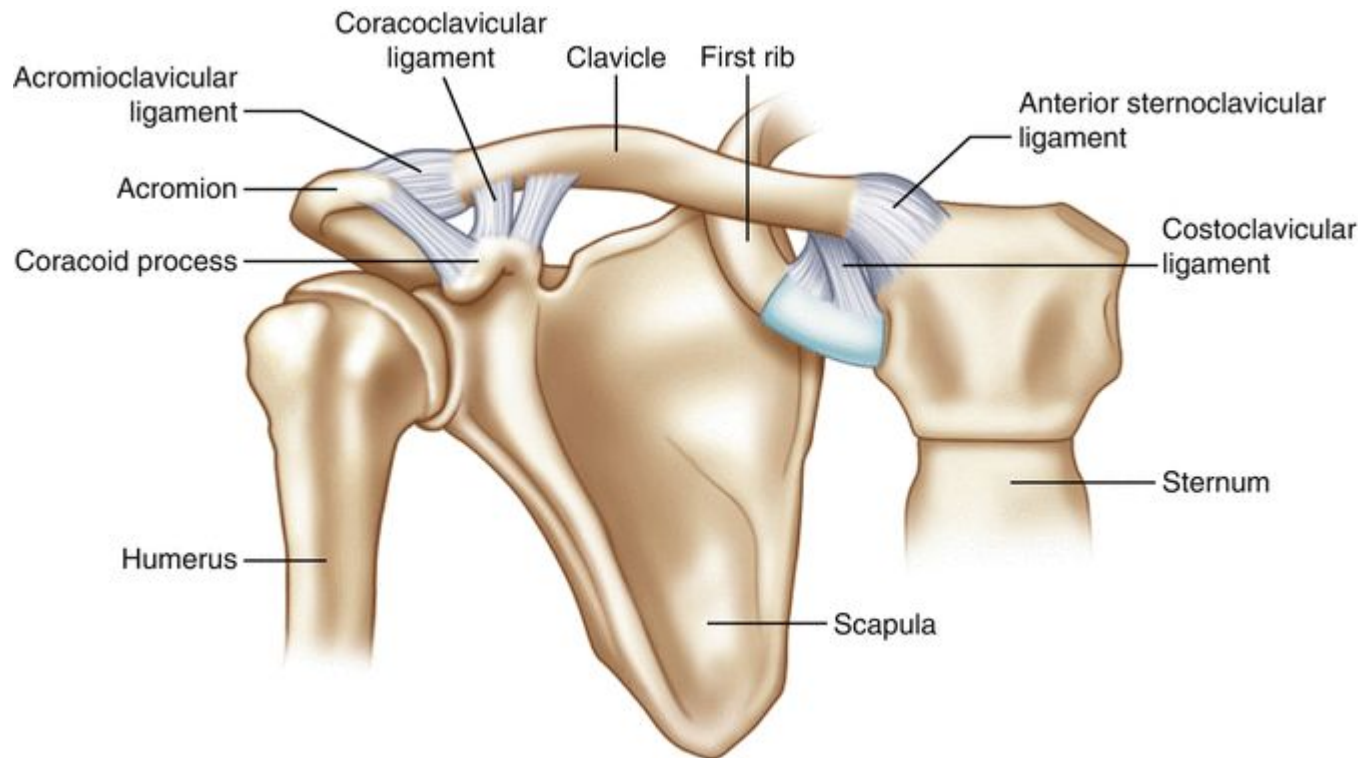
Ligaments:

- ◉ acromioclavicular ligament
 - runs horizontally from the acromion to the lateral clavicle
 - covers the joint capsule, reinforcing its superior aspect

- ◉ coracoclavicular ligament =
 - made up of two ligaments:
 - conoid
 - runs vertically from the coracoid process of the scapula to the conoid tubercle of the clavicle
 - trapezoid
 - runs from the coracoid process of the scapula to the trapezoid line of the clavicle

Functionally:

- ◉ very strong in structure
- ◉ effectively suspending the weight of the upper limb from the clavicle



[Acromioclavicular Joint - Location & Function - Human Anatomy | Kenhub](#)

COMMON AC JOINT DYSFUNCTION

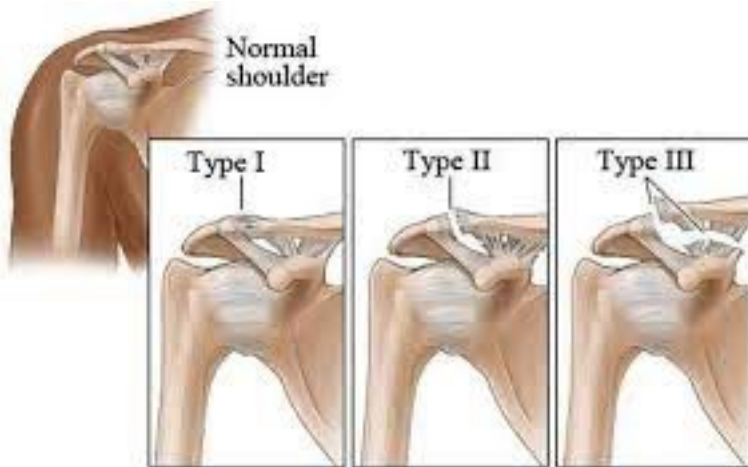
⦿ Shoulder Separations

- 1st Degree - Acromioclavicular ligament stretches or tears
- 2nd Degree - Acromioclavicular ligament and the trapezoid ligament tear
- 3rd Degree - Acromioclavicular ligament tears, trapezoid and conoid ligaments tear completely

⦿ Step Deformity

- Named because of the obvious structural bump after the clavicle separates from the acromion
- The clavicle is lying higher than the acromion, looking like a “step”

AC DYSFUNCTION IMAGE



THE HUMERUS



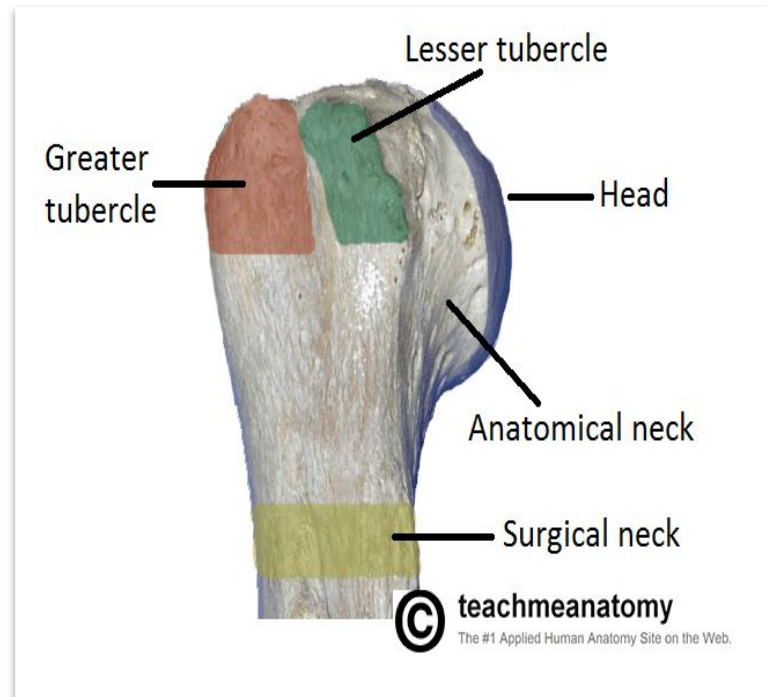
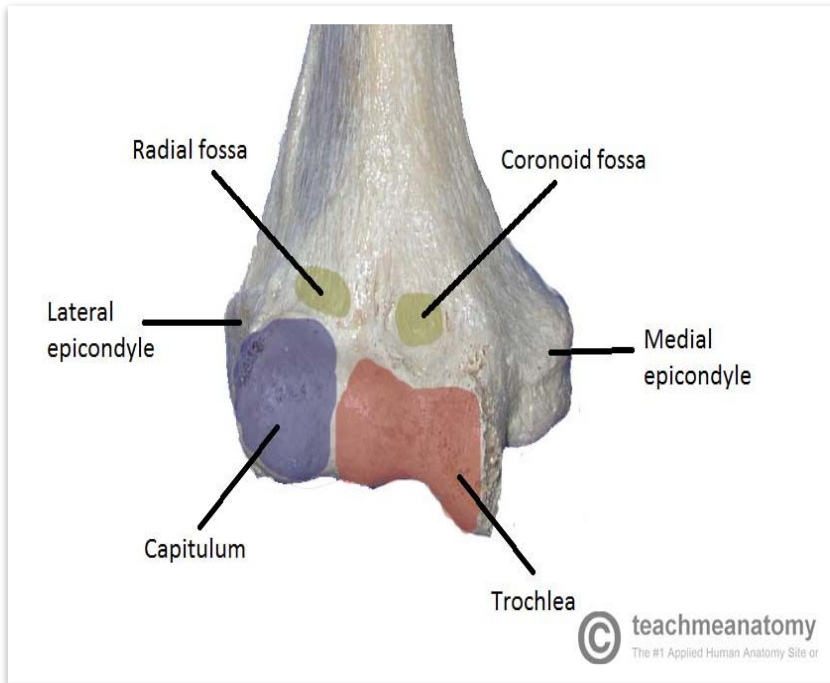
HUMERUS

- ⦿ long bone of the upper arm
- ⦿ joins it to the shoulder and forearm
- ⦿ proximally:
 - articulates with the scapula
 - forms the glenohumeral joint
- ⦿ distally:
 - articulates with the radius & ulna
 - forms the humeroulnar joint

LANDMARKS

- ⊙ head of the humerus
- ⊙ anatomical neck
- ⊙ greater tubercle
- ⊙ lesser tubercle
- ⊙ surgical neck
- ⊙ intertubercular sulcus (bicipital groove)
- ⊙ body (shaft)
- ⊙ deltoid tuberosity
- ⊙ radial groove
- ⊙ capitulum
- ⊙ radial fossa
- ⊙ trochlea
- ⊙ coronoid fossa
- ⊙ olecranon fossa
- ⊙ medial epicondyle
- ⊙ lateral epicondyle
- ⊙ medial supracondylar ridge
- ⊙ lateral supracondylar ridge

Landmarks



GLENOHUMERAL JOINT

- ⦿ aka: shoulder joint

Articulation:

- ⦿ loose union between the scapula and the humerus
 - glenoid fossa of the scapula
 - head of the humerus

Classifications:

- ⦿ functional:
 - diarthrotic, multiaxial
- ⦿ structural:
 - synovial, ball and socket

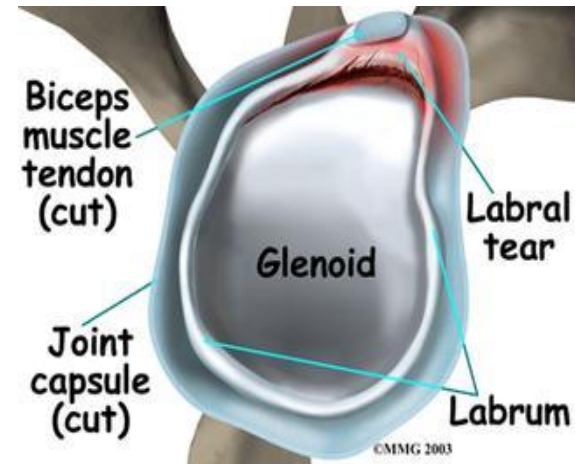
*Note:

- ⦿ 3 Degrees of Freedom
- ⦿ stability and security are sacrificed in favor of mobility
- ⦿ dislocations of this joint are common

ARTICULAR SURFACES

Glenoid Fossa

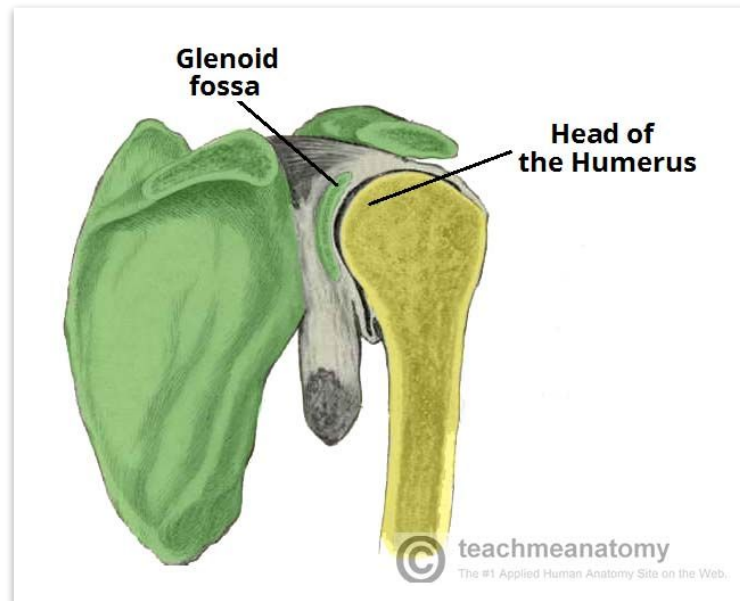
- pear shaped and wider inferiorly
- faces anteriorly, laterally and inferiorly
- hollow and concave
- bordered by the **glenoid labrum**
 - peripheral rim of fibrocartilage functions to:
 - deepens the socket
 - increases surface area
 - gives the joint a slight amount of stability



ARTICULAR SURFACES

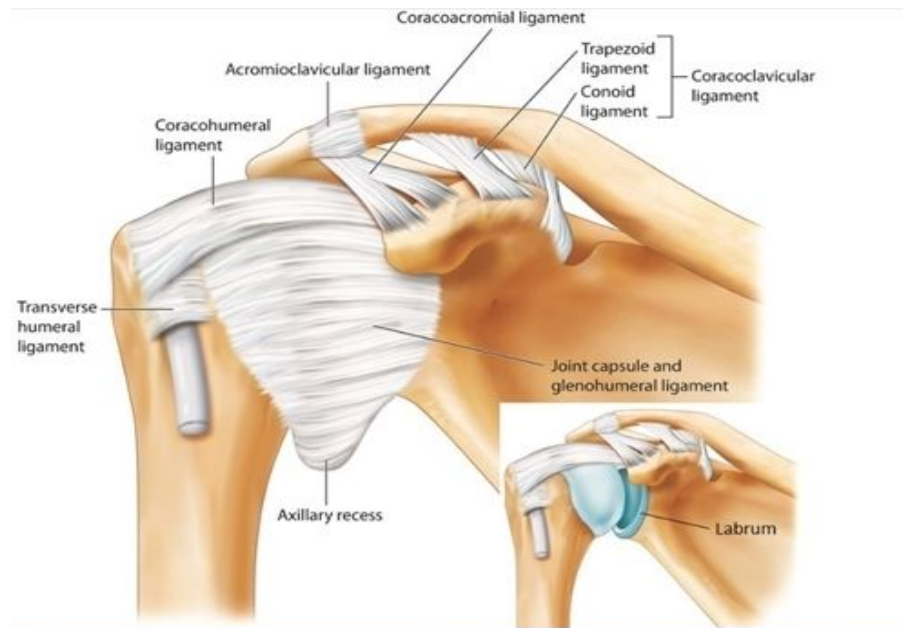
Head of the Humerus

- 1/3 of the head (ball) articulates with the glenoid fossa (socket) at any time
- most of the head is in contact with the synovial capsule and lined with hyaline cartilage



JOINT CAPSULE

- ◉ extends from the anatomical neck of the humerus → the border of the glenoid fossa
- ◉ the joint capsule is lax, permitting greater mobility (particularly abduction)



BURSAE OF THE GH JOINT

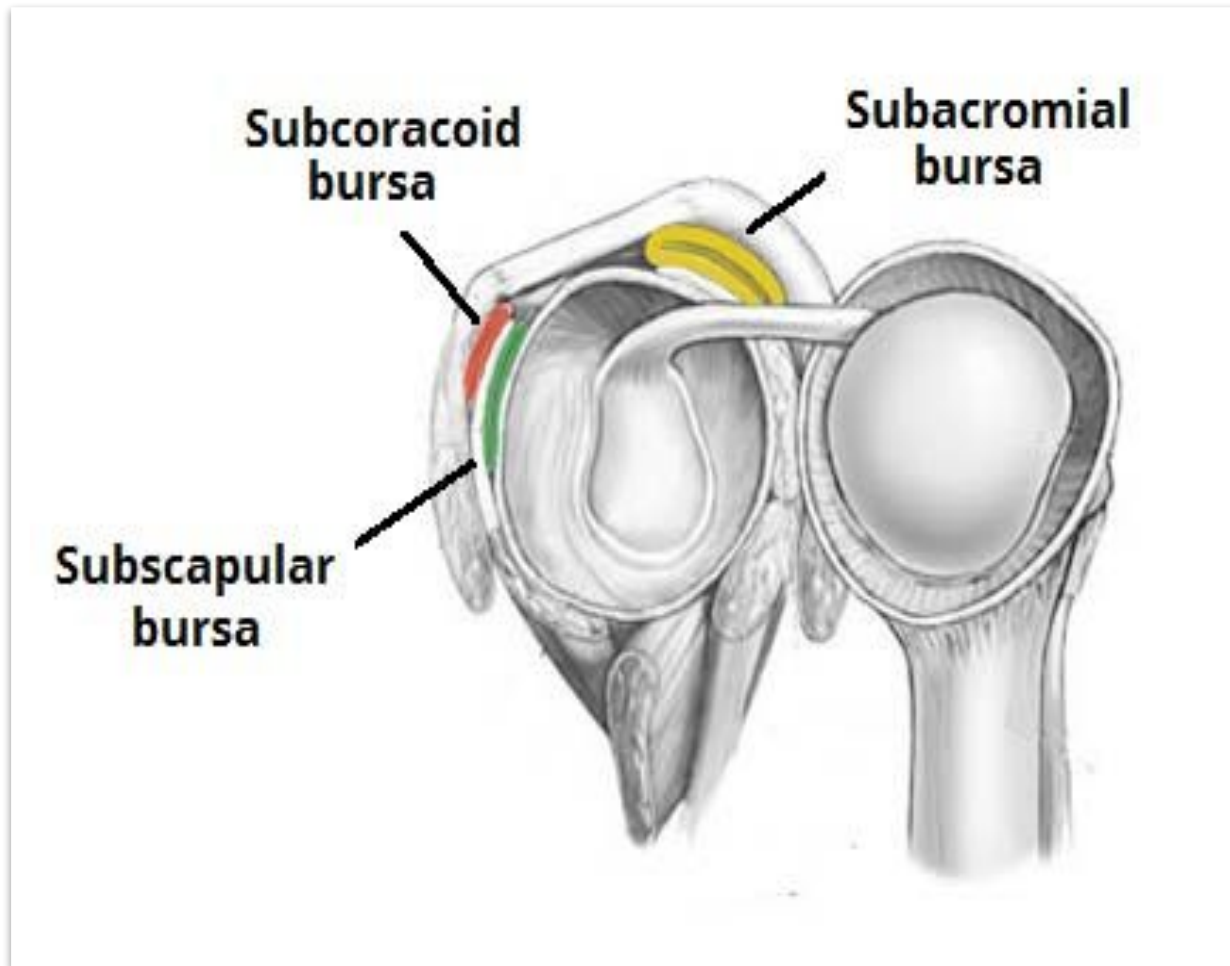
Bursae:

- ◉ present to reduce friction in the shoulder joint
- ◉ The bursae that are important clinically are:
 - Subacromial
 - located inferiorly to the deltoid and acromion, and superiorly to the supraspinatus tendon and the joint capsule
 - supports the deltoid and supraspinatus muscles
 - inflammation of this bursa is the cause of several shoulder problems
 - Subscapular
 - located between the subscapularis tendon and the scapula
 - it reduces wear and tear on the tendon during movement at the shoulder joint

*Note:

- ◉ There are others in the surrounding muscle and tendon tissues

BURSAE IMAGE



LIGAMENTS OF THE GH JOINT

Capsular Ligaments

■ Glenohumeral ligaments

- superior, middle and inferior bands
- run from the glenoid cavity to anatomical neck of the humerus
- stabilize the anterior aspect of the joint

■ Coracohumeral ligament

- runs from the base of the coracoid process to the greater tubercle of the humerus
- supports the superior part of the joint capsule

■ Transverse humeral ligament

- runs from the greater tubercle to lesser tubercle
- holds the tendon of the long head of the biceps in the bicipital groove

ACCESSORY STRUCTURES

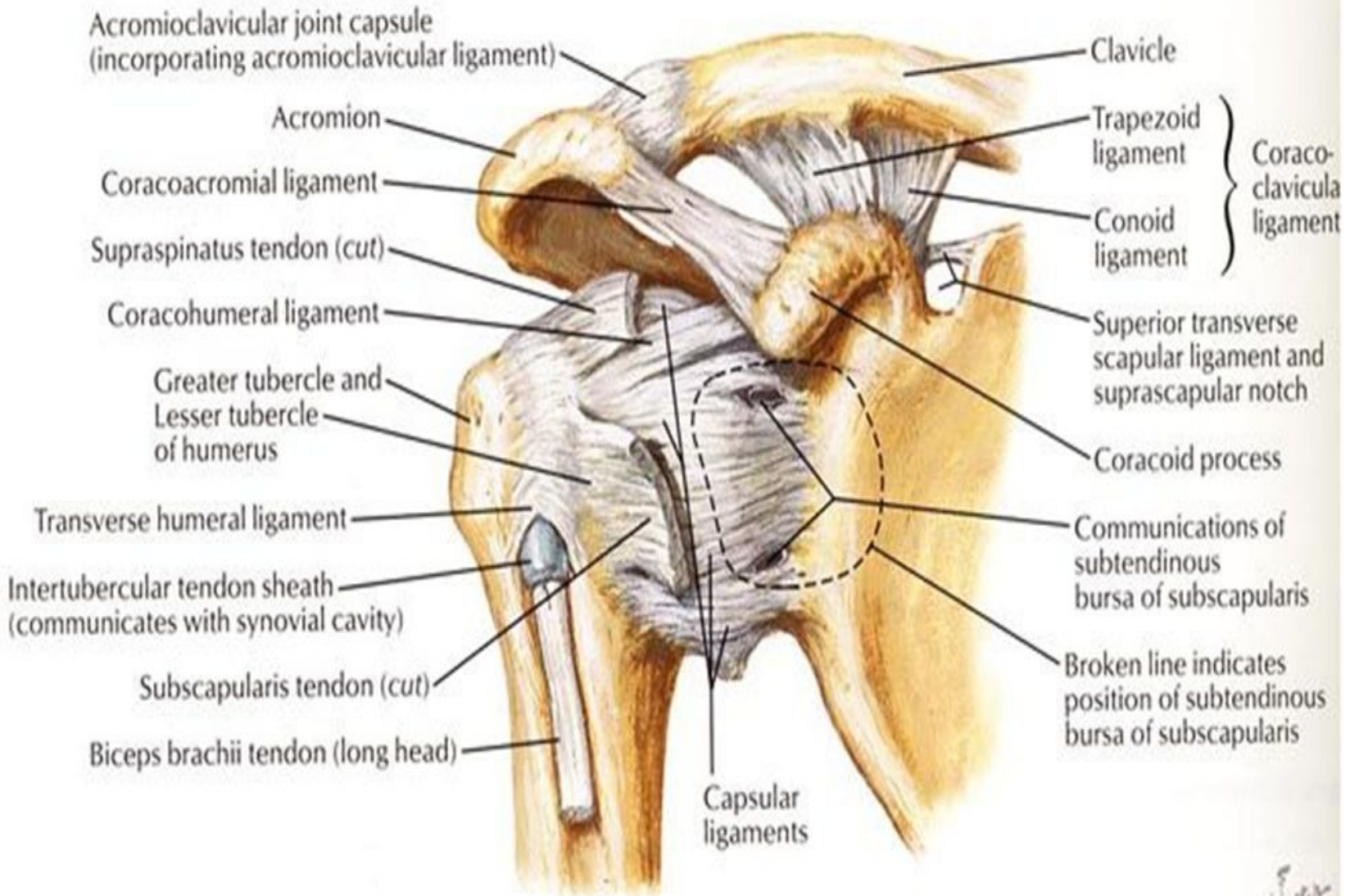
Coracoacromial ligament

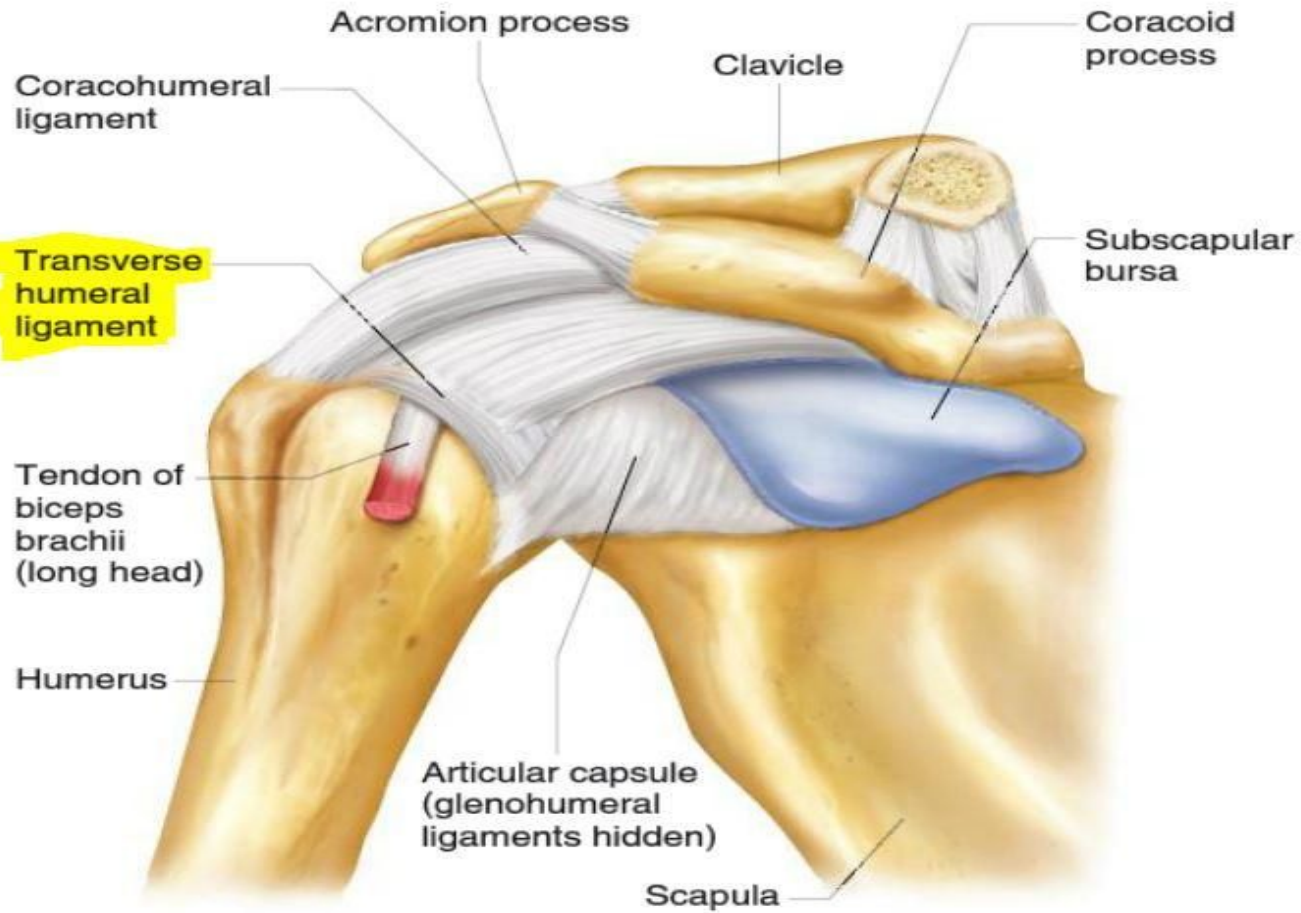
- between the acromion and coracoid processes
- overlies the GH to form a coracoacromial arch
- functions to prevent superior displacement of the humeral head

Muscles

- the majority of the stability of the GH joint is provided by the tendons of the SITS muscles (supraspinatus, infraspinatus, teres minor, subscapularis)

Anterior view





(a)

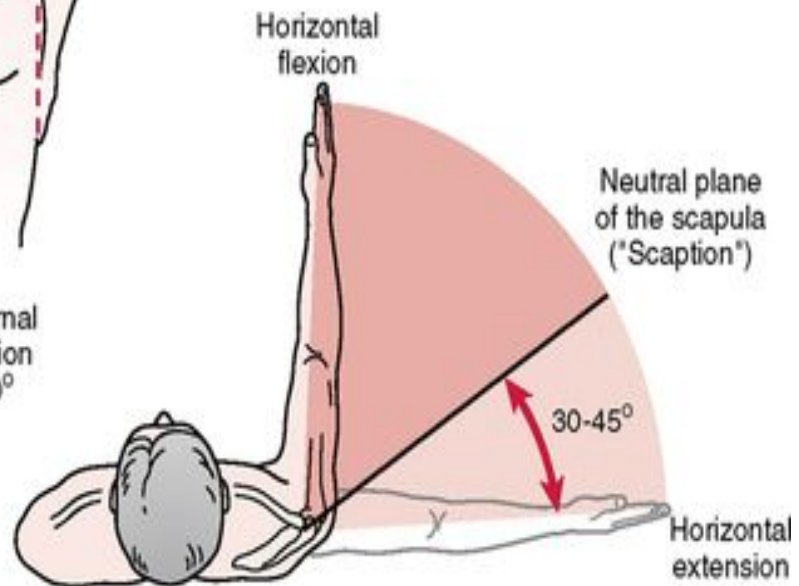
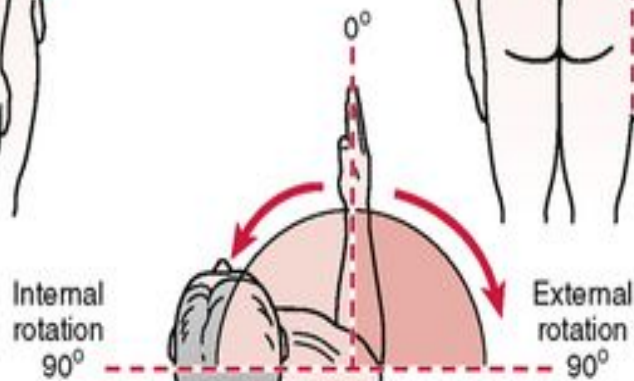
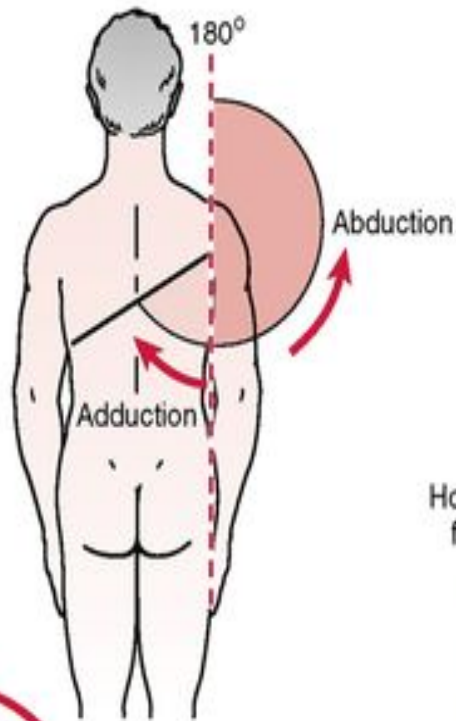
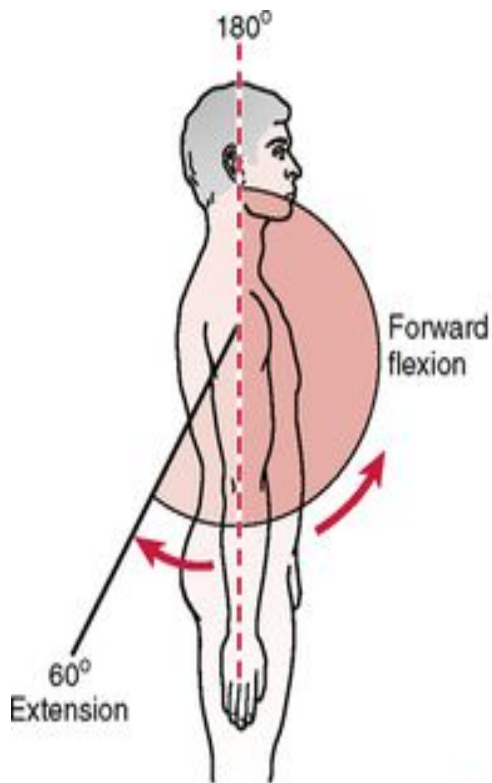
Video

[Shoulder Anatomy Animated Tutorial](#)

MOTIONS OF THE SHOULDER

- ◉ Flexion/Extension
- ◉ Abduction/Adduction
- ◉ Medial Rotation/Lateral Rotation
- ◉ Circumduction
- ◉ Horizontal Abduction
- ◉ Horizontal Adduction

- ◉ These movements rarely occur separately from the movements at the scapula
 - what is the movement between the scapula and humerus called?



A

B

BONES OF THE FOREARM

Radius

Location:

- ◉ lateral - radial (thumb) side of the forearm

Articulation:

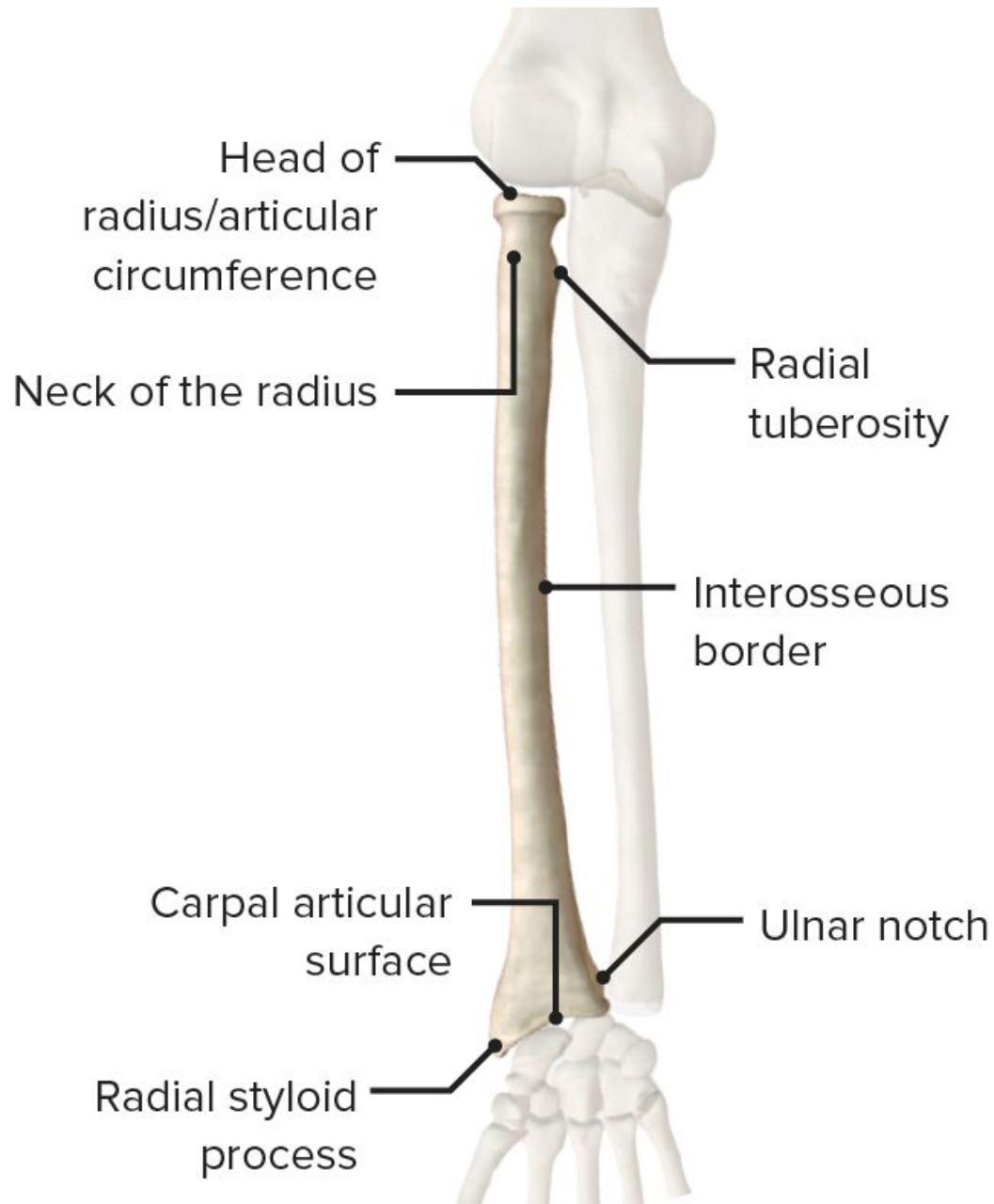
- ◉ distally
 - end is larger and terminates as the radial styloid process laterally
 - with the carpal bones of the wrist: scaphoid, lunate, triquetrum = the wrist joint
- ◉ proximally
 - recognizable by its small rounded head - shaped like a disc
 - head articulates with the capitulum of the humerus and the radial notch of the ulna

*Note

- ◉ difficult to tell left from right
 - the sharp border faces medially to the interosseous membrane & ulna
 - radial tuberosity is inferior to the radial head and medial but somewhat anterior on the shaft
 - the ulnar notch (of the radius) is distal & medial
 - articulates with the head of the ulna

Landmarks

- ⦿ head of the radius
- ⦿ neck
- ⦿ radial tuberosity
- ⦿ shaft
- ⦿ styloid process of the radius
- ⦿ ulnar notch



BONES OF THE FOREARM

Ulna

Location:

- ◉ medial - ulnar (little finger) side of the forearm
- ◉ NOT part of the “wrist joint”
- ◉ is part of the elbow joint:
 - humeroulnar joint
- ◉ proximally:
 - radial notch faces laterally & articulates with the radial head
 - end is shaped like an ice cream scoop
 - the inner portion of the scoop is the trochlear notch
 - fits into trochlea of the humerus
- ◉ distal
 - head is small and terminates as the ulnar styloid process, medially

Landmarks

- Olecranon
- Coronoid process
- Trochlear notch
- Radial notch
- Tuberosity of ulna

SHAFT OF THE ULNA

Ulnar shaft:

- ◉ triangular in shape
- ◉ three borders and three surfaces
- ◉ as it moves distally, it decreases in width

- ◉ The three surfaces:
 - anterior
 - posterior
 - medial

- ◉ The three borders:
 - posterior
 - interosseous
 - anterior

DISTAL ULNA

- ◉ the distal end is much smaller in diameter than the proximal end
- ◉ it is mostly unremarkable, terminating in a rounded head, with a distal projection - the ulnar styloid process
- ◉ the head articulates with the ulnar notch of the radius to form the distal radioulnar joint

Radial notch —
Head of radius —
Olecranon process —
Trochlear notch —
Coronoid process —
Ulnar tuberosity —

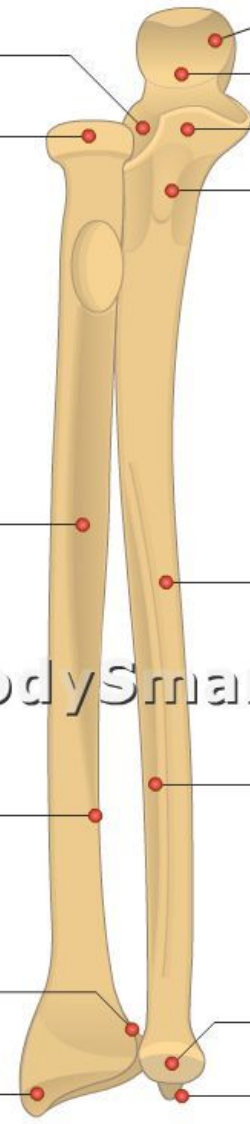
**Right Radius and Ulna;
Anterior View**

Shaft of radius —
Shaft of ulna —

GetBodySmart.com

Interosseous border —
Interosseous border —

Ulnar notch —
Radial styloid process —
Head of ulna —
Ulnar styloid process —

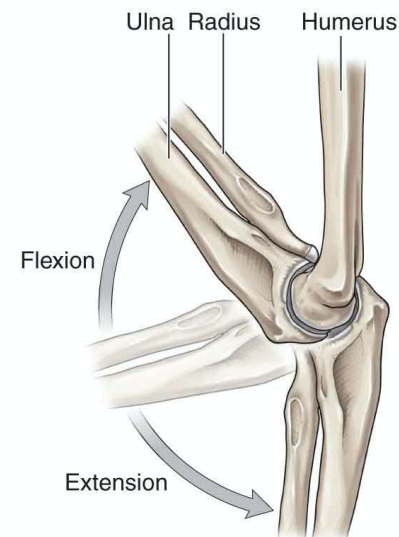
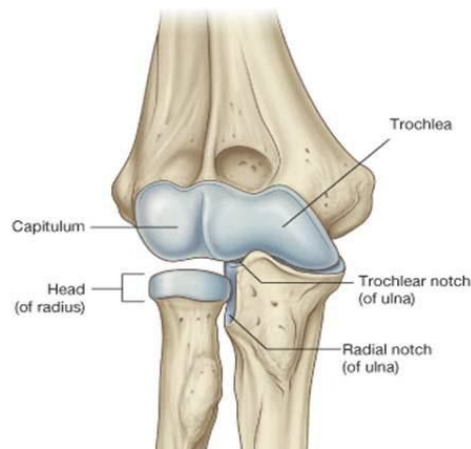
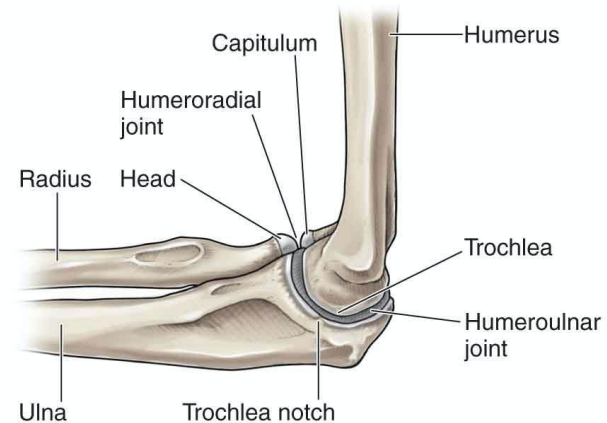


HUMEROULNAR JOINT

- ◉ aka: trochlear joint

Classification

- ◉ Functional: diarthrotic, uniaxial
- ◉ Structural: synovial, hinge
- ◉ one degree of freedom
 - flexion & extension



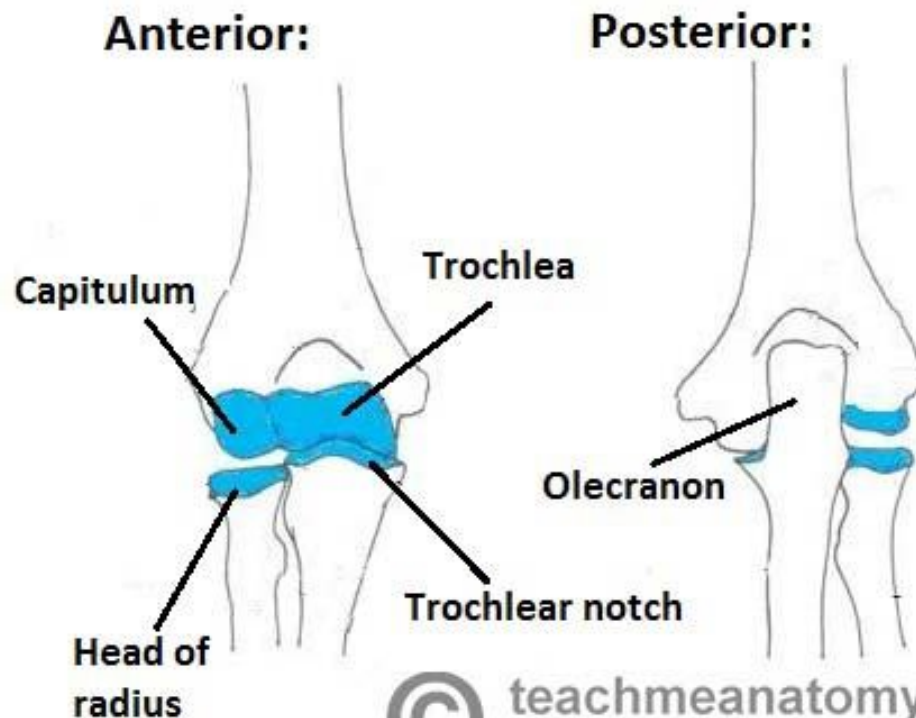
ARTICULATIONS

- two separate articulations:
 - trochlear notch of the ulna and the trochlea of the humerus
 - head of the radius and the capitulum of the humerus

*Note:

- The proximal radioulnar joint is found within same joint capsule of the elbow, but most resources consider it as a separate articulation

ARTICULATION IMAGE



teachmeanatomy

The #1 Applied Human Anatomy Site on the Web.

JOINT CAPSULE

- thickened medially and laterally to form collateral ligaments
 - stabilize the flexing and extending motion of the arm
- thin & baggy, anteriorly and posteriorly
 - proximally
 - attaches above the olecranon fossa posteriorly and at the coronoid and radial fossae anteriorly
 - distally
 - attaches below the coronoid process of the ulna and the annular ligament

BURSAE

Bursae in the elbow:

- Intratendinous
 - located within the tendon of the triceps brachii

- Subtendinous
 - between the olecranon and the tendon of the triceps brachii
 - reduces friction between the two structures during extension and flexion of the arm

- Subcutaneous
 - between the olecranon and the overlying connective tissue

BURSAE IMAGE



LIGAMENTS

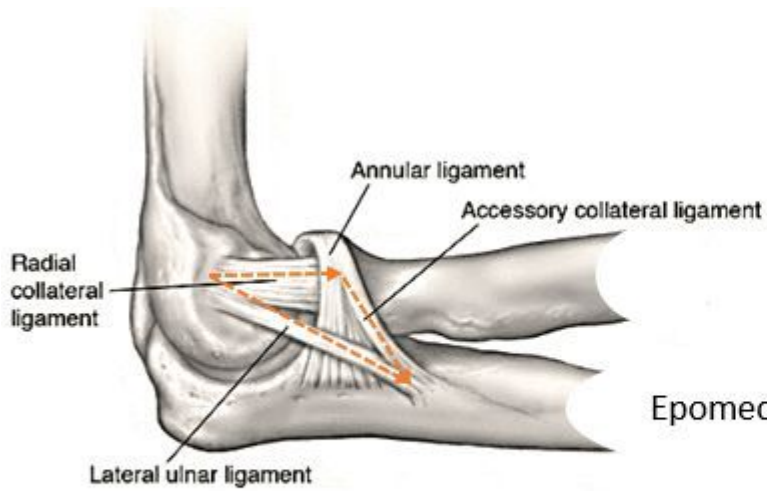
- ⦿ The capsule is thickened on both sides by:
 - Medial (Ulnar) Collateral Ligament (MCL) of the elbow
 - fan shaped
 - has thicker fibers anteriorly and posteriorly along with some lateral fibers
 - attachments: medial epicondyle of the humerus to the proximal aspect of the ulna
 - prevents valgus stress (force from the lateral side pushing medially)
 - Lateral (Radial) Collateral Ligament (LCL) of the Elbow
 - extends like a cord along the lateral side of the elbow
 - also fan shaped
 - attachments: lateral epicondyle of the humerus, annular ligament (around the radial head) - attached to the ligament to prevent any interference with pivoting motion of the radius
 - prevents varus stress (force from the medial side)

LIGAMENTS

- the radial head is held in place by the **annular radial ligament**

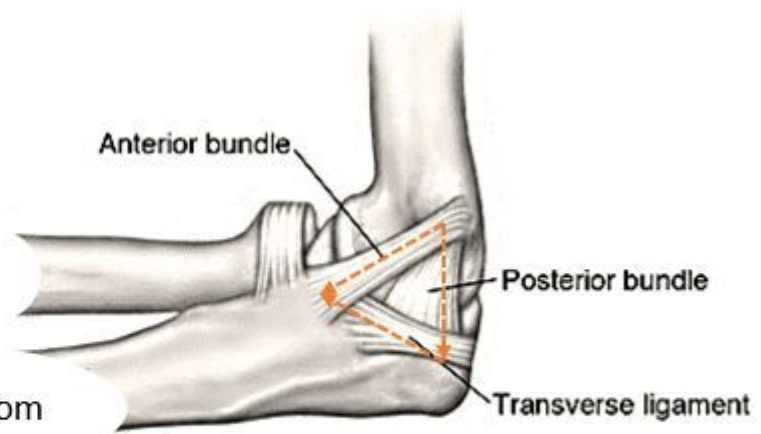
annular ligament:

- forms a 'collar' around the joint
- lined with a synovial membrane, reducing friction during movement
- movement is produced by the head of the radius rotating within the annular ligament



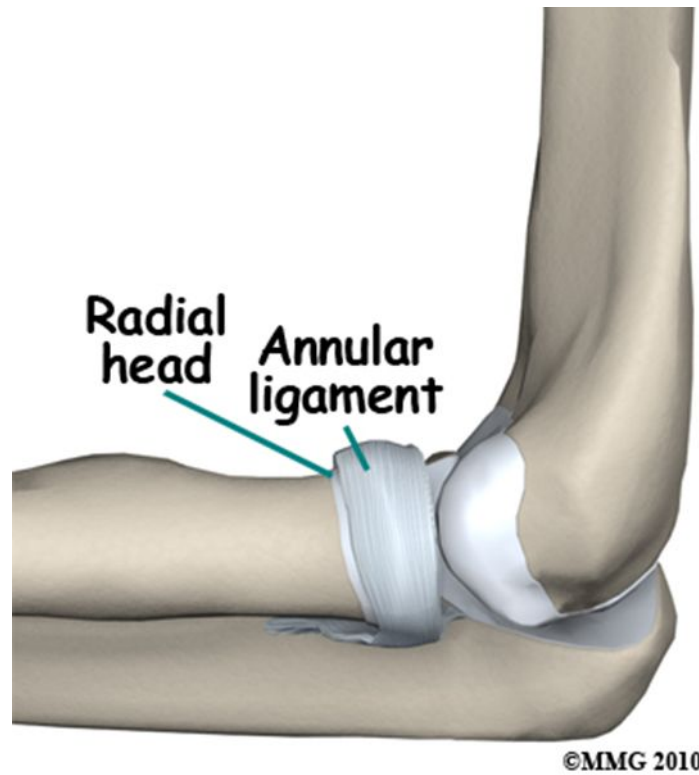
Lateral collateral ligament complex

Epomedicine.com



Medial collateral ligament complex

ANNULAR LIGAMENT



FLEXION AT THE ELBOW JOINT

During flexion →

- trochlear notch (ulna) moves on the trochlear surface (humerus)
- radial head glides on the capitulum

Full flexion →

- coronoid process (ulna) sits in coronoid fossa (humerus)
- radial head rests in the radial fossa (humerus)

EXTENSION AT THE ELBOW JOINT

During extension →

- trochlear notch (ulna) still glides on trochlear surface (humerus)
- trochlea is thicker medially therefore the ulna migrates laterally creating the carrying angle

Carrying angle →

- formed by the long axis of the humerus and the long axis of the ulna, normal for men: 5-10 degrees ; women 10-15 degrees

At full extension →

- olecranon process (ulna) is locked in olecranon fossa (humerus)
- radial head articulates with the inferior portion of the capitulum (humerus)



Cubitus varus



Normal



Cubitus valgus

PROXIMAL RADIOULNAR JOINT

- ◉ located near the elbow
- ◉ articulation:
 - head of the radius & radial notch of the ulna

Classification

- ◉ Functional: diarthrotic, uniaxial
- ◉ Structural: synovial, pivot
- ◉ 1 degree of freedom
 - supination and pronation



DISTAL RADIOULNAR JOINT

- ◉ proximal to the wrist joint

Classifications

- ◉ functional: diarthrotic, uniaxial
- ◉ structural: synovial, pivot

- ◉ Supination and pronation

Movement:

- ◉ the ulnar notch of the radius slides anteriorly over the head of the ulna during such movements

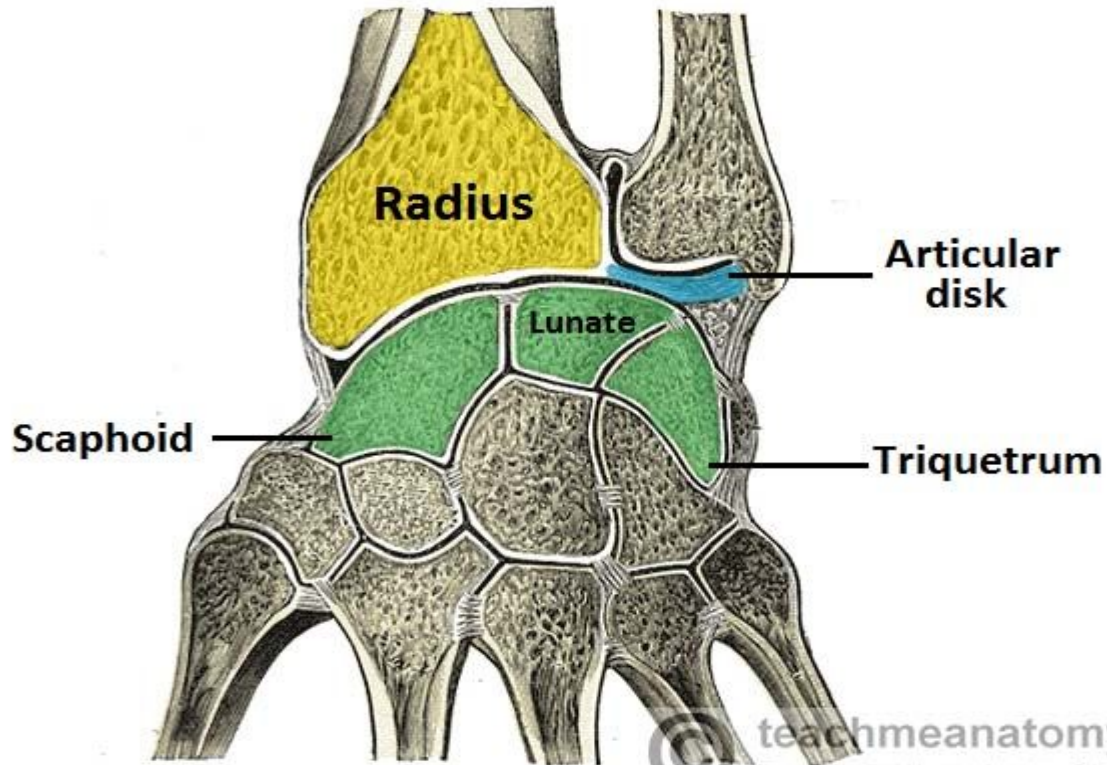
ARTICULATIONS

- the distal end of the radius → head of the ulna
- an articular disc is located between the 2 bones
 - functions
 - binds the radius and ulna together & holds them together during movement at the joint
 - separates the distal radioulnar joint from the wrist joint
 - excludes ulna from wrist joint

*Note:

- crossing over the radius occurs on the ulna during pronation

Articulating Disc



INTEROSSEOUS MEMBRANE

- sheet of connective tissue that joins the radius and ulna together between the radioulnar joints
- goes from medial radial border to lateral ulnar border
- small holes appear in the sheet of connective tissue for the forearm vasculature

- Three major functions:
 - holds the radius and ulna together during pronation and supination - provides additional stability
 - attachment for muscles of the forearm
 - transfers forces from the radius to the ulna

MOTION AT THE DISTAL RADIOULNAR JOINT

Supination and pronation

Note:

- ⦿ the following must be in place for pronation and supination to occur:
 - radial head and ulna must be “fixed” by the annular ligament
 - the radius spins on the capitulum and crosses over the ulna

Video

[Elbow Anatomy Animated Tutorial](#)

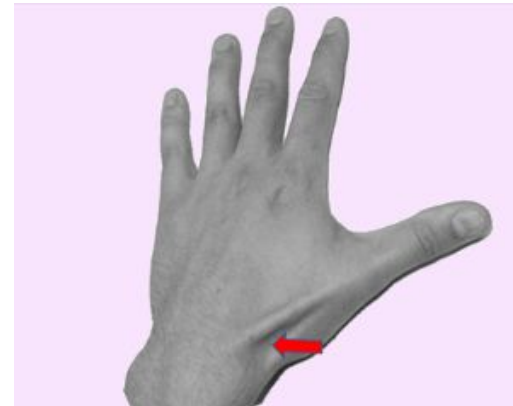
THE CARPAL BONES

⦿ proximal Row

- always run laterally → medially
- “Sally - Likes - To - Party”

⦿ scaphoid

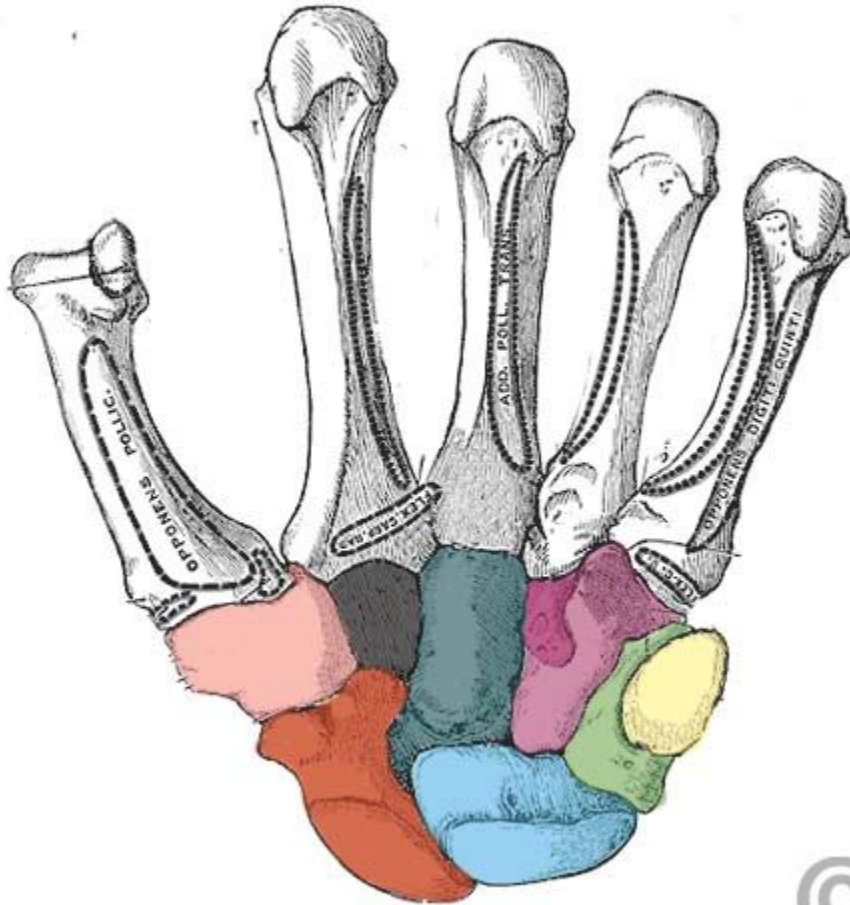
- canoe like shape
- most lateral of the proximal row
- carpal bone most often broken
 - lack of blood supply
- located in the floor of the anatomical snuff box



CARPAL BONES

- **lunate**
 - half moon in shape
 - dislocates easily
- **triquetrum**
 - triangular in shape
 - articulates with the articular disc of the ulna
- **pisiform- shape of a “P”**
 - shape of a pea
 - sits anteriorly on the triquetrum
 - sesamoid bone
 - within the tendon of flexor carpi ulnaris

CARPAL BONES



- Scaphoid
- Lunate
- Triquetrum
- Pisiform
- Trapezium
- Trapezoid
- Capitate
- Hamate



teachmeanatomy

The #1 Applied Human Anatomy Site on the Web.

CARPAL BONES

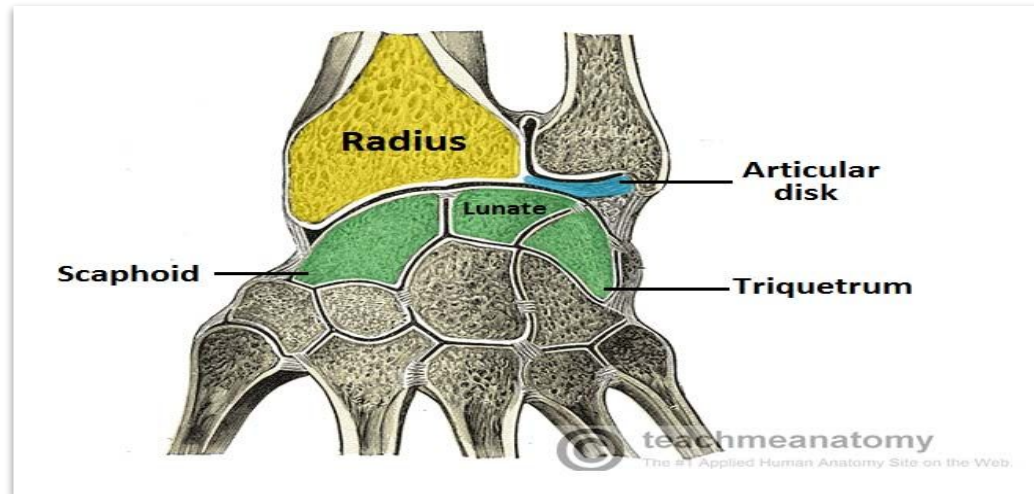
- **Distal Row**
 - always run laterally → medially
 - “Try - To - Call - Her”
- **trapezium**
 - 4 sided
 - participates in the saddle joint of the thumb
 - “UM” = thUMB
- **trapezoid**
 - 4 sided
- **capitate**
 - large round head
- **hamate**
 - has a hook (“hook of hamate”)

THE WRIST AND HAND

- anatomical name: radiocarpal joint

Classifications:

- Functional: diarthrotic, biaxial
- Structural: synovial, ellipsoid (condyloid)

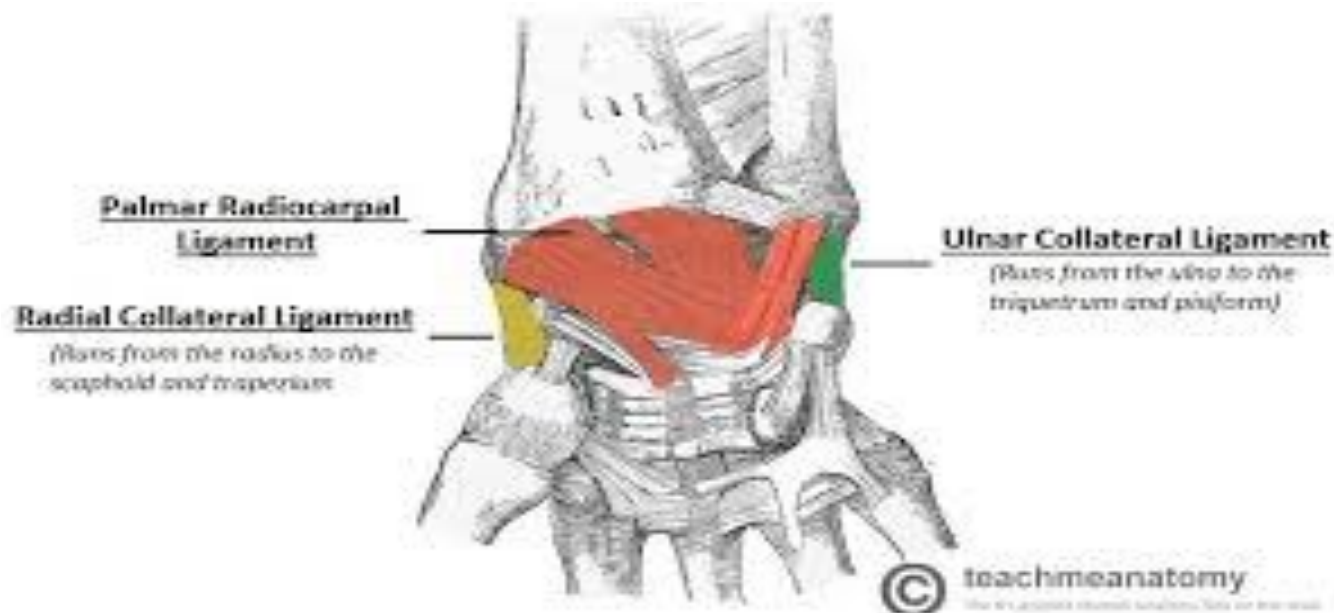


ARTICULATIONS OF RADIOCARPAL JOINT

- the wrist joint is formed by:
 - distally
 - proximal row of the carpal bones
 - excluding pisiform
 - proximally
 - the distal end of the radius & the articular disk
- the carpal bones form a **convex** surface that articulates with the **concave** surface of the radius and articular disk

JOINT CAPSULE

- the wrist has an extensive capsule that includes the wrist joint and the carpometacarpal joints
- however - it excludes the thumb



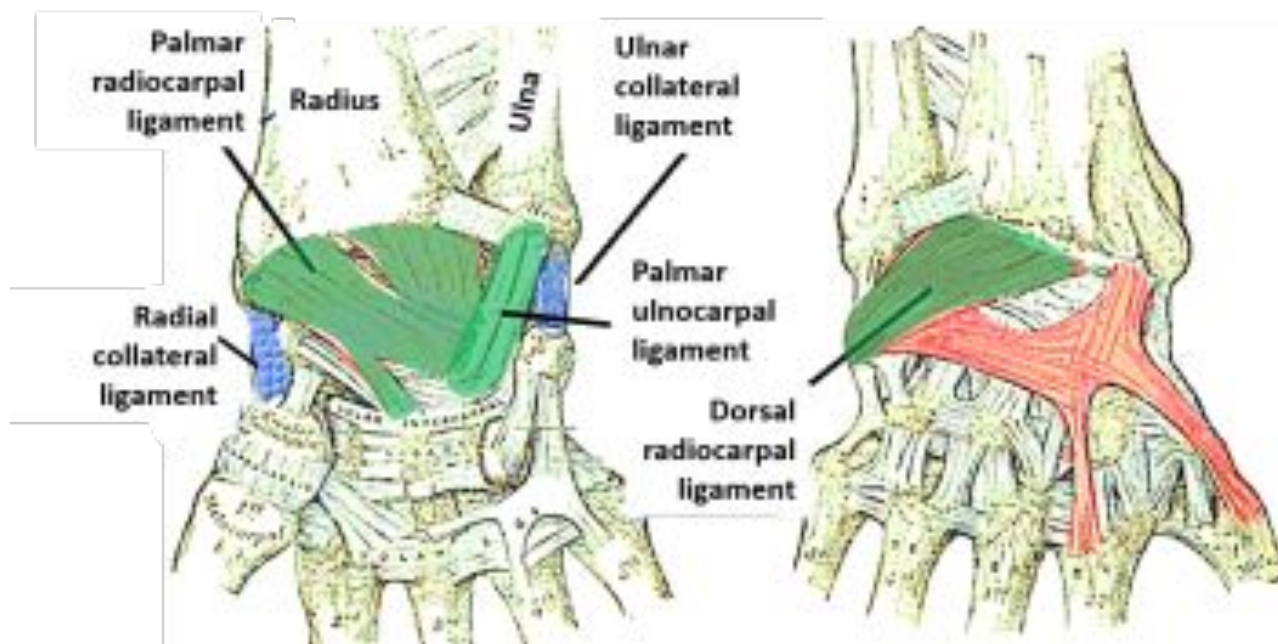
LIGAMENTS

- ⦿ There are four ligaments of note in the wrist joint
- ⦿ Palmar radiocarpal ligament
 - found on the palmar (anterior) side of the hand
 - passes from the radius to both rows of carpal bones
 - function:
 - increases stability
 - ensures that the hand follows the forearm during supination
- ⦿ Dorsal radiocarpal ligament
 - found on the dorsum (posterior) side of the hand
 - passes from the radius to both rows of carpal bones
 - function:
 - contributes to the stability of the wrist
 - ensures that the hand follows the forearm during pronation

LIGAMENTS

- ◉ Ulnar collateral ligament
 - runs from the ulnar styloid process to the triquetrum and pisiform
 - works in union with the other collateral ligament to prevent excessive medial joint displacement
- ◉ Radial collateral ligament
 - runs from the radial styloid process to the scaphoid and trapezium
 - works in union with the other collateral ligament to prevent excessive lateral joint displacement

Ligaments of Wrist joint



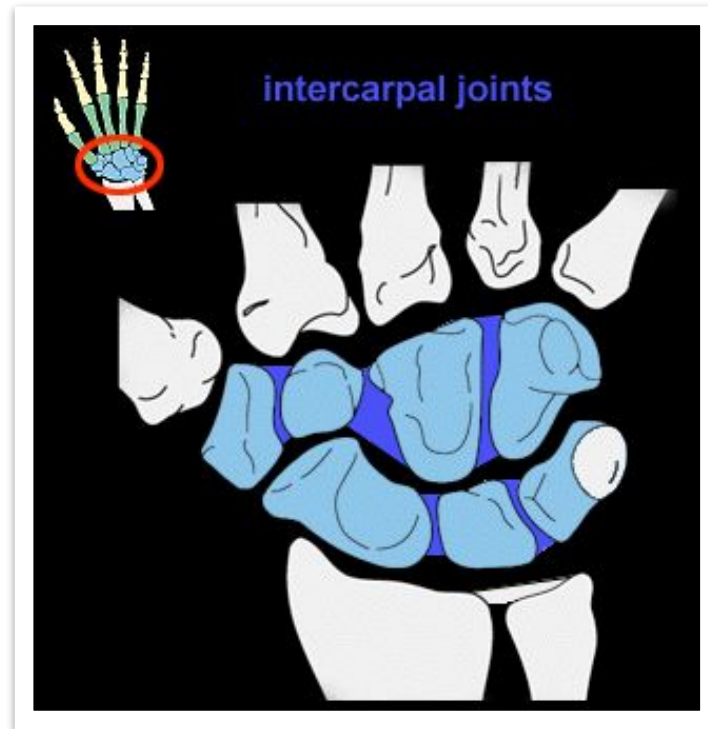
MOTIONS OF THE WRIST

Radiocarpal Joint:

- ⦿ ellipsoid type synovial joint
- ⦿ allows for movement along two axes
 - flexion, extension, adduction (ulnar deviation) and abduction (radial deviation)
- ⦿ all the movements of the wrist are performed by the muscles of the forearm.

CARPAL JOINTS

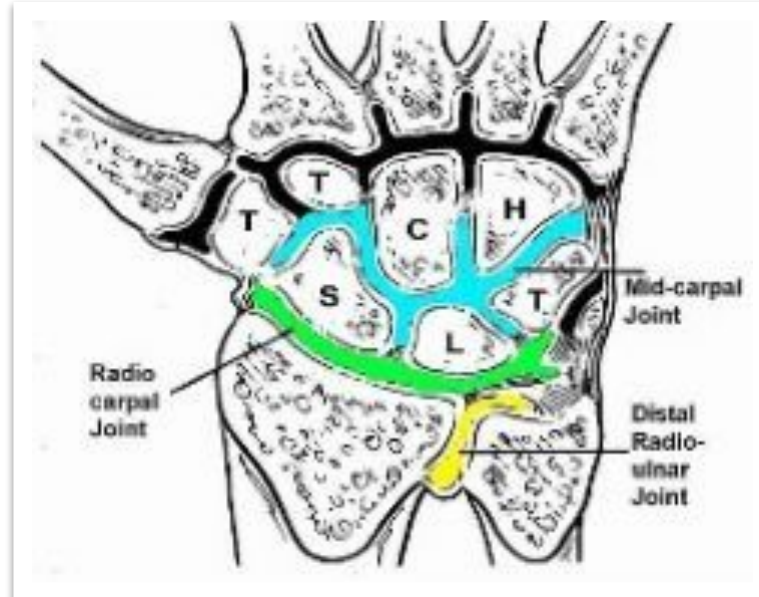
- ◉ The Intercarpal Joints
 - joints between each carpal bone
 - Functional: diarthrotic, uniaxial
 - Structural: synovial, plane



CARPAL JOINTS

◉ The Midcarpal Joint

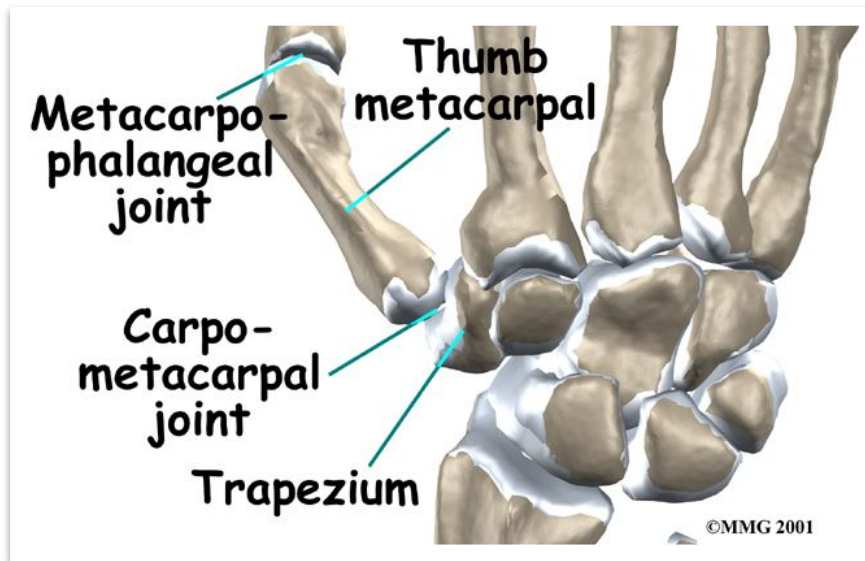
- the joint between the proximal row and the distal row of carpals
- functional: diarthrotic, uniaxial
- structural: synovial, plane



CARPAL JOINTS

○ Carpometacarpal Joints

- articulations between the carpal bones and the metacarpal bones of the hand
- functional: diarthrotic, uniaxial
- structural: synovial, plane

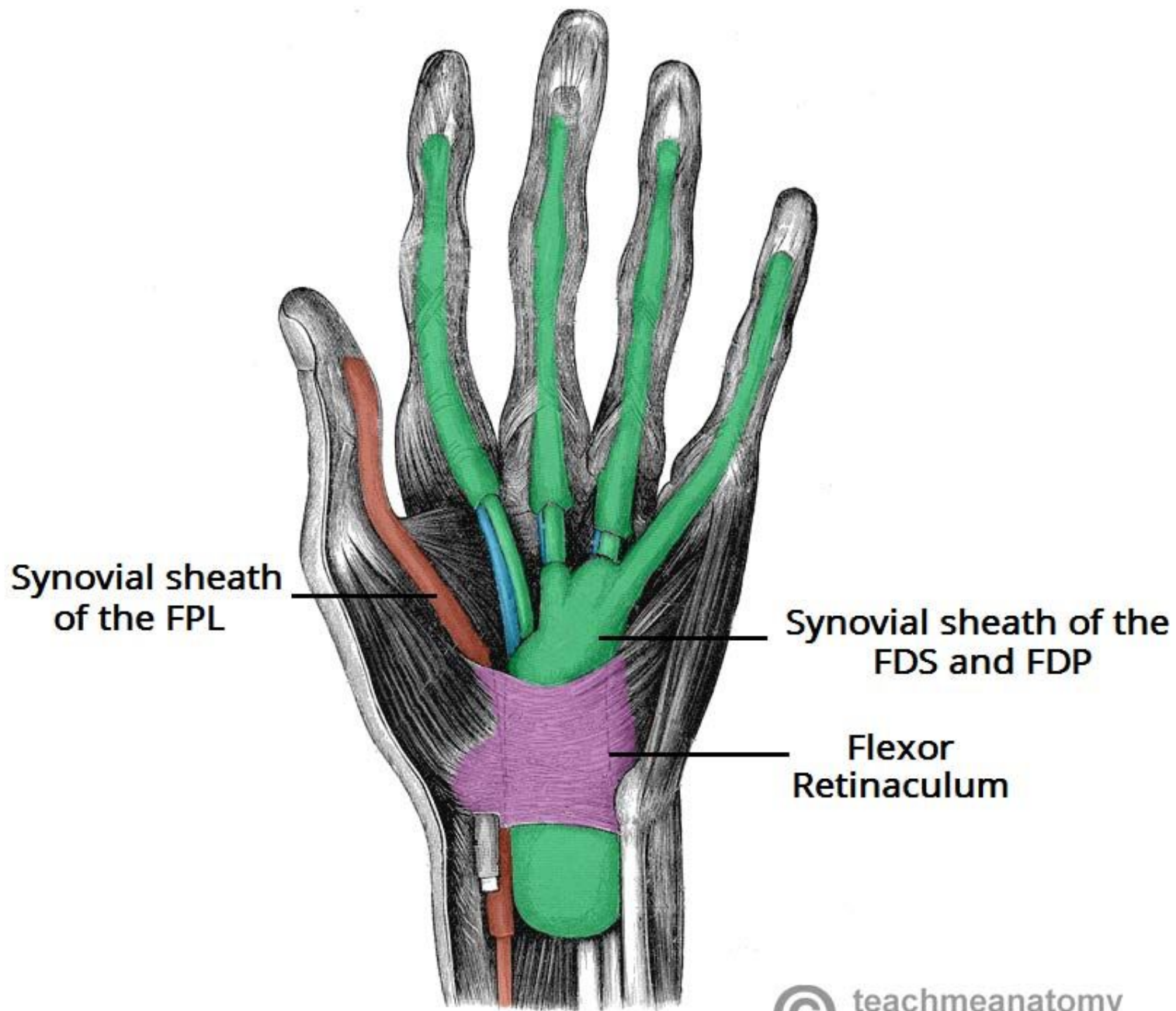


FLEXOR RETINACULUM

- The carpals form a concave surface
 - this orientation allows for us to grasp objects
- The flexor retinaculum is:
 - a band of dense connective tissue
 - runs from the scaphoid and trapezium on the lateral side of the wrist to the pisiform and hamate on the medial side of the wrist
 - it emphasizes the concavity
 - creates a tunnel called the carpal tunnel
 - flexor tendons and the median nerve run through the carpal tunnel

Carpal Tunnel Syndrome:

- occurs when the retinaculum becomes too tight from overuse or the tendons within the carpal tunnel become hypertrophied, therefore decreases the space within the carpal tunnel
- these occurrences put pressure on the median nerve leading to altered sensations in the hand



METACARPOPHALANGLAL JOINTS

- made up of the bones of the hand
- there are 5 metacarpals which make up the palm of the hand
- numbered 1 to 5 beginning with the thumb
 - ex: 5th metacarpal is on the ulnar side of the hand (pinky finger)
- the metacarpal consists of:
 - base (proximally), a shaft, and a head (distally)
- the head is what we consider to be the knuckle of the hand
 - metacarpophalangeal (MCP) joint

METACARPOPHALANGEAL JOINT TYPE AND MOTION

- ⦿ the MCP joints are
 - Functional - diarthrotic, biaxial
 - Structural - synovial, ellipsoid

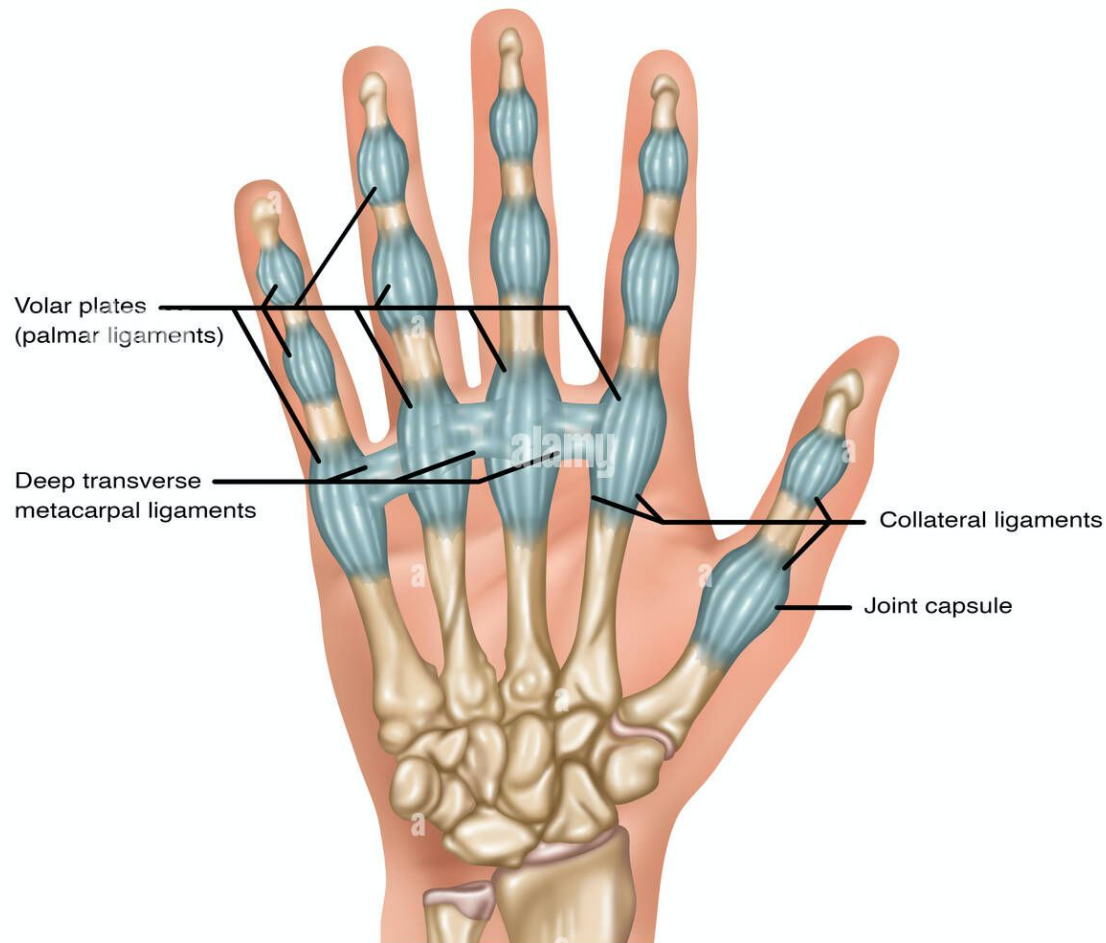
- ⦿ Motions Available
 - Flexion
 - Extension
 - Abduction
 - Adduction

- ⦿ in abduction & adduction the middle finger is the point of reference

LIGAMENTS

- Collateral ligaments
 - fan shaped
 - on the radial and ulnar sides of the joints
 - tight in flexion (opposite to that of most joints)
- Palmar plates (ligaments)
 - square shaped ligaments
 - located on the anterior surface to protect the tendons
 - tendons rub the anterior surface of the joints
 - dense CT that thickens the capsule
 - the collateral attach to the palmar plates
- Deep Transverse Ligament of the Palm
 - each palmar plate is attached to adjacent plates by strong fibrous bands that bind the metacarpal heads together except for the first digit (thumb) which is NOT webbed

LIGAMENTS OF THE FINGERS



INTERPHALANGEAL JOINT

- phalanges make up the fingers (digits) of the hand
 - the thumb has 2 phalanges
 - proximal and a distal phalanx
 - the remaining four digits are made up of 3 phalanges
 - proximal, middle, distal phalanx
- the joints between phalanges are called interphalangeal joints

INTERPHALANGEAL JOINT TYPES

- ◉ 1. Proximal Interphalangeal (PIP) Joint
 - the first joint after the metacarpalphalangeal joint (2-5)
- ◉ 2. Distal Interphalangeal (DIP) Joint
 - the joints closest to the end of the fingers (2-5)
- ◉ 3. Interphalangeal Joint
 - only one IP joint in the thumb

Classifications:

- Structurally - synovial, hinge
- Functionally - diarthrotic, uniaxial

LIGAMENTS

- ◉ PIP and DIP joints are supported medially and laterally with collateral ligaments (radial & ulnar)
- ◉ Palmer plates also reinforce the anterior aspect of the joints
- ◉ There are no transverse ligaments in the digits of the hand as they would otherwise cause a webbing of the fingers

FIRST CARPOMETACARPAL JOINT

- ⦿ aka: pollex, thumb

Location:

- ⦿ at the base of the thumb
 - in the palm of the hand

Classification:

- ⦿ functional: diarthrotic, biaxial
- ⦿ structural: synovial, saddle

*Note:

- ⦿ allows for opposition to occur
- ⦿ thumbs face medial and lateral vs digits that face anteriorly & posteriorly
 - thumb is at right angles to the rest of the digits)

MOVEMENTS OF THE THUMB

- ◉ flexion/extension: occur in the frontal plane
- ◉ abduction/adduction: occur in the sagittal plane
- ◉ opposition: flexion with slight rotation to move toward the fifth finger



Abduction

Adduction

Extension

Flexion

Opposition

Reposition

- ◉ Hand Anatomy Animated Tutorial

