Shoulder

- Pectoral girdle (shoulder girdle)
- Scapula
- Proximal end of Humerus
- Clavicle
Scapula

- 3 angles
  - Superior
  - Inferior
  - Lateral

- 3 borders
  - Medial
  - Lateral
  - Superior

- 2 surfaces

- 3 processes
  - Acromion
  - Spine
  - Coracoid

Posteriors view: Right Scapula
Scapula ● 2 surfaces: Costal (Anterior), Posterior

Posterior view: Right Scapula

Costal (Anterior) view: Right Scapula
Scapula

- Glenoid cavity: Glenohumeral joint
- Infraglenoid tubercle
- Supraglenoid tubercle
Scapula

- Supraglenoid tubercle: long head of biceps brachii

Anterior view: Right Scapula
Scapula

- Infraglenoid tubercle: long head of triceps brachii

Anterior view:
Right Scapula (with biceps brachii removed)
Posterior surface of Scapula, Right

- Acromion; Spine; Spinoglenoid notch
- Suprspinatous fossa, Infraspinatous fossa
Costal (Anterior) surface of Scapula, Right

- Subscapular fossa: Shallow concave surface
  - for subscapularis
Superior border
- Coracoid process
- Suprascapular notch
- Suprascapular nerve

Bone: Upper limb - 9
Clavicle

- S-shaped
- Acromial end: smaller, oval facet
- Sternal end: larger, quadrangular facet, with manubrium, 1st rib
- Conoid tubercle
- Trapezoid line
Clavicle

- Conoid tubercle: inferior surface, lateral 1/3; **conoid ligament**
- Trapezoid line: lateral roughing; **trapezoid ligament**
- Coracoclavicular ligament = conoid + trapezoid

Anterior view:
Right scapula + clavicle
Sternoclavicular joint

- ant. & post. sternoclavicular lig.; costoclavicular lig., interclavicular lig.
Acromioclavicular joint

- Coracoclavicular lig., Coracoacromial lig.

Anterior view:
Right scapula + clavicle
Surface anatomy of scapula
Humerus: proximal end

- Head
  - Half-spherical; glenoid cavity
- Anatomical neck
- Narrow constriction below head

Anterior view: Right Humerus
Humerus: proximal end

- Greater tubercle
  - Supraspinatus
  - Infraspinatus
  - Teres minor
- Lesser tubercle
  - Subscapularis

Anterior view: Right Humerus
Humerus: proximal end

- Intertubercular sulcus (bicipital groove)
- Long head of biceps brachii
- Deltoid tuberosity
- Lateral surface
- Deltoid

Anterior view: Right Humerus
Neck: anatomical vs. surgical

- Surgical neck: between expanded part and narrow shaft; injury upon fracture; passing of *axillary nerve* and *post. circumferentia humeral artery*
Surgical neck of humerus: axillary n & circumf. a

Posterior view:
Right Humerus
Humerus: Shaft and distal end

- Borders
  - Anterior, lateral, medial

- Surfaces
  - Anterolateral, anteromedial, posterior surfaces

Posterior view: Right Humerus
Humerus: posterior surface

- A diagonal line from surgical neck to deltoid tuberosity; lateral head of triceps brachii
- **Spiral groove:** radial nerve, profunda brachial artery
- Middle part with coracobrachialis
Fracture of Humerus
Humerus: Distal end

- 1 condyle
  - Capitulum, Trochlea
- 2 epicondyles
  - Medial, Lateral
- 2 supracondylar ridge
  - Medial, Lateral
- 3 fossa
  - Coronoid, Radial, Olecranon
Capitum of humerus

- **Capitulum**
  - Lateral, hemispherical
  - with radius
  - Not visible posteriorly
Trochlea of humerus

- Trochlea
  - Medial one, “pulley”
  - With ulnar (trochlea notch)
  - Extending posteriorly

Posterior view: Right Humerus
Trochlea of humerus

Lateral view

Trochlear notch

Coronoid process of ulna

Radius

Trochlea

Olecranon

Proximal radioulnar joint
Epicondyles of humerus

- Medial epicondyle: Palpable on medial side of elbow
- Ulnar nerve around posterior surface
- Lateral epicondyle: Palpable on lateral side of elbow
Humerus: Fossa-1

- Anterior
  - Radial fossa: above capitum
  - Coronoid fossa: above trochlea
Humerus: Fossa-2

- Posterior
  - Olecranon fossa: the largest

Posterior view: Right Humerus
Ulna: proximal end

- Trochlear notch
- Olecranon: anterior surface forming
- Coronoid process
- Radial notch: lateral surface
- Tuberosity of ulna for brachialis m.
Bone: Upper limb

Ulna: proximal end (Med./Post. view)

- Lateral head of triceps brachii
- Radial groove of humerus
- Long head of triceps brach
- Medial head of triceps brach
- Lateral head of triceps brachii
- Olecranon
- Coronoid process
- Roughening for triceps attachment
- Roughening for anconeus
- Subcutaneous surface
Ulna: prox. end (Lat. / Post. view)

- Radial notch for head of radius
- Fossa for radial tuberosity: inferior to radial notch for pronation / supination
- Supinator crest
Ulna: Shaft

- triangular in cross section: **interosseous border**; ant. border; posterior border: subcutaneous (distally to styloid proc.)
Ulna: Distal end

- styloid process
- inf. radio-ulnar joint
- articular disc of radiocarpal joint attaches to the base of styloid proc.
Radius: proximal end-1

- Head
  - Disc-shaped in horizontal plane
  - Circular, superior, with capitum
  - Broad medially, with radial notch of ulnar
- Neck
  - Between head and radial tuberosity
Radius and humerus
Radius: proximal end-2

- Radial tuberosity
- For biceps brachii
- Oblique line
- Continues diagonally from tuberosity
Radial tuberosity and Biceps brachii
Radius: Shaft

- curved and convexed laterally
- triangular shape in cross section
- Interosseous border; Ant. border; Post. border
Radius: Distal end

- quadrangular in cross section; concave distal end for wrist joint
- styloid process: 1-2 cm lower than the styloid process of Ulna
- **dorsal tubercle** on post. surface: tendon of **extensor pollicis longus** loops at here
Shoulder joint (GlenoHumeral ligament)

- Glenoid labrum: fibrocartilage
- Glenoid cavity
- Humeral head
Shoulder joint

- Transverse humeral lig.: bicipital groove
- Coracohumeral lig.
Rotator cuff

- Supraspinatus
- Infraspinatus
- Teres minor
- Subscapularis
Movements of shoulder girdle

- Abduction
- Adduction
- Lateral rotation
- Medial rotation
Elbow joint

- Capitulum: Head of radius
- Trochlea: Olecranon
Elbow joint

- Annular lig.: head of radius to radial notch; 4/5 ring
Elbow joint

- Annular lig.
- Radial collateral lig.
- Ulnar collateral lig.
RadioUlnar joint

- Anular ligament
- Head of radius
- Olecranon (cut)
- Radial notch of ulna
- Trochlear articulating surface

Superior view of transverse section of proximal radioulnar joint
RadioUlnar joint
Radio-Ulnar joint: Proximal

- Sup. radio-ulnar joint: between Head of radius and Radial notch of ulna; for pronation and supination

![Diagram of radial-ulnar joint with labels for Head of radius, Trochlear notch, Trochlea, Capitulum, Radial tuberosity, Fossa for Radial tuberosity, Pronation, and Supination.](image)
Bones of Hand

- Carpal bones
- Metacarpals
- Phalanges
Carpal bones: proximal row (rad. side → ulnar side)

- scaphoid, lunate, triquetral (triquetrum), pisiform
Carpal bones: distal row (rad. side → ulnar side)

- trapezium, trapezoid, capitate, hamate
Carpal arch; Carpal tunnel

- Laterally: tubercles of scaphoid, trapezium
- Medially: pisiform, triquetrum, hook (hamulus) of hamate
- flexor retinaculum; carpal tunnel (long flexor tendons + median n.)
Carpal tunnel
1st metacarpal

- Articulates with trapezium: saddle joint
- Thumb: proximal and distal phalanges face medially; action: flex./ext.; abd./add.
- Metacarpophalangeal and interphalangeal joint with strong collateral lig.
2nd-5th metacarpals

- **2nd metacarpal**: articulates with trapezium, trapezoid, capitate, and base of 3rd metacarpal
- Firmly held, no independent movement with carpal bone
Phalanges

- Phalanx: base, shaft (body), head
- Thumb: proximal, distal phalanx
- 2nd-5th digits: proximal, middle, distal phalanx