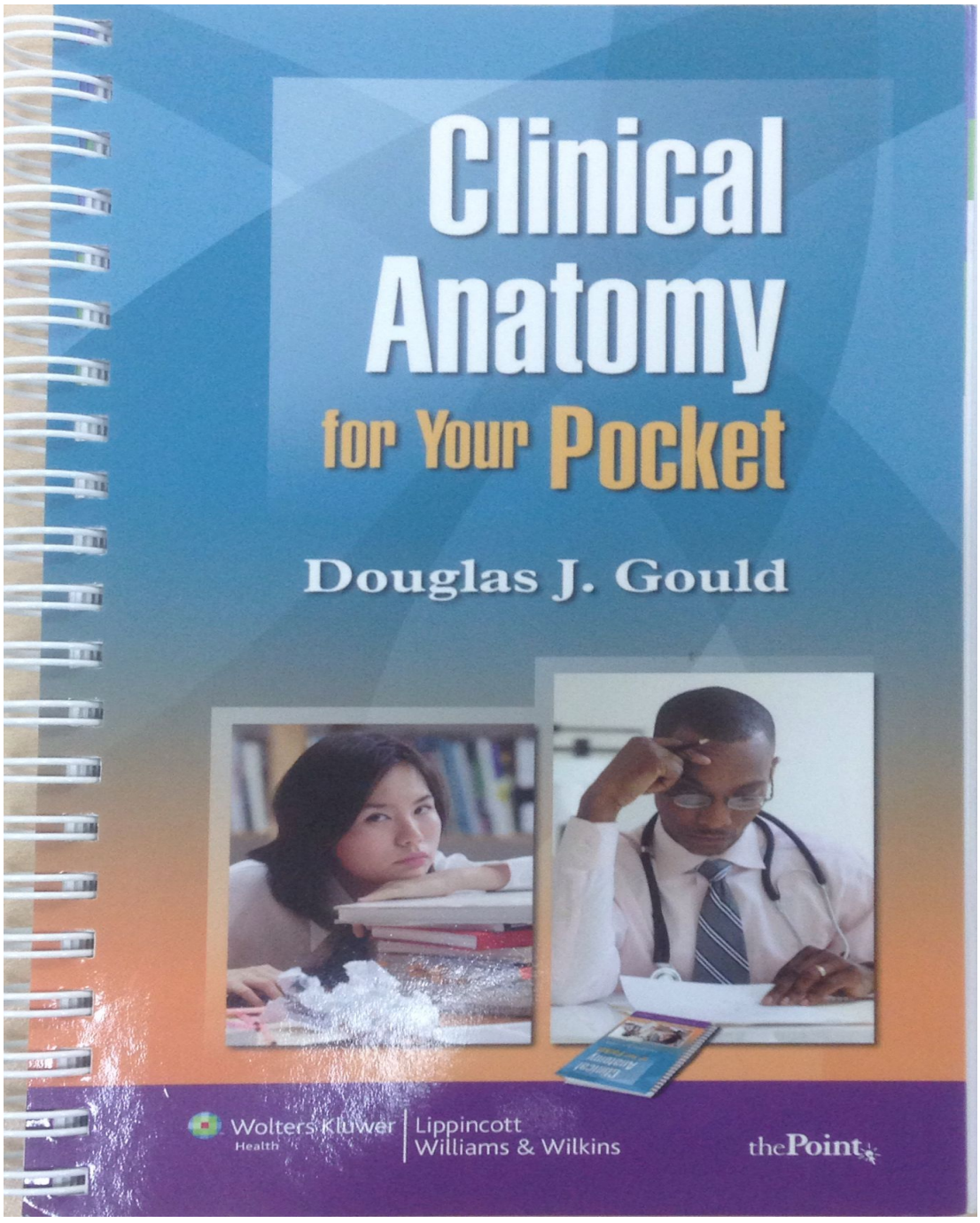
Helping file for the upper limb
Resource: CLINICAL ANATOMY for your pocket

Anatomy Team 433



## Bones of the shoulder

(Figure 6-1)

| Bone | Feature | Significance |
|---|---|---|
| Clavicle | Shaft | • S-shaped, serves as strut to suspend limb away from body<br>• Protects neurovascular bundle serving upper limb<br>• Attachment for pectoralis major—clavicular head, sternocleidomastoid—clavicular head, trapezius, subclavius, and deltoid |
| | Acromial end | Articulates with the acromion of the scapula at acromioclavicular joint |
| | Sternal end | Articulates with the manubrium of the sternum at sternoclavicular joint |
| Scapula | Spine | • Divides posterior aspect of scapula into supra- and infraspinous fossae<br>• Attachment for trapezius and deltoid |

*(continued)*

## Bones of the shoulder *(continued)*

| Bone | Feature | Significance |
|---|---|---|
| | Supraspinous fossa | Attachment for supraspinatus |
| | Infraspinous fossa | Attachment for infraspinatus |
| | Subscapular fossa | Attachment for subscapularis |
| | Acromion | • Expanded, lateral end of spine, forms "point" of the shoulder<br>• Articulates with acromial end of clavicle<br>• Attachment for trapezius and deltoid |
| | Glenoid fossa | • Articulates with head of humerus at glenohumeral joint<br>• Deepened by glenoid labrum |
| | Supraglenoid tubercle | Attachment for long head of biceps brachii |
| | Infraglenoid tubercle | Attachment for long head of triceps brachii |
| | Coracoid process | • Attachment for biceps brachii (short head), coracobrachialis, and pectoralis minor muscles<br>• Attachment for coracoclavicular and coracoacromial ligaments and the costocoracoid membrane |
| | Suprascapular notch | • Transmits the suprascapular nerve<br>• Bridged by the superior transverse scapular ligament<br>• The omohyoid attaches medial to the notch |
| | Inferior angle | Attachment for teres major and serratus anterior |
| | Medial border | Attachment for levator scapulae, rhomboids (major and minor) and serratus anterior |
| | Superior angle | Attachment for levator scapulae |
| | Lateral border | Attachment for teres minor |

# ARM REGION

## Bones of the arm

(Figures 6-1, 6-3, and 6-7)

| Bone | Characteristic | Significance |
|---|---|---|
| Humerus | Head | Articulates with glenoid fossa of the scapula to form glenohumeral joint |
| | Greater tubercle | • Lateral aspect of humerus<br>• Attachment for supraspinatus, infraspinatus, and teres minor |
| | Lesser tubercle | • Medial aspect of humerus<br>• Attachment for subscapularis |
| | Anatomical neck | Attachment for glenohumeral joint capsule |
| | Surgical neck | • Common site for humeral fracture<br>• Distal to greater and lesser tubercles<br>• Axillary nerve and posterior humeral circumflex artery are found nearby and are subject to injury during fracture at the neck |
| | Intertubercular groove (bicipital groove) | • Located between the greater and lesser tubercles<br>• Transmits tendon of the long head of the biceps brachii<br>• Bridged by the transverse humeral ligament<br>• Lateral lip attachment for pectoralis major<br>• Floor attachment for latissimus dorsi<br>• Medial lip attachment for teres major |
| | Lateral epicondyle | Attachment for common extensor tendon of the forearm and the supinator |
| | Medial epicondyle | Attachment for common flexor tendon of the forearm and pronator teres |
| | Lateral supracondylar ridge | Attachment for brachioradialis, extensor carpi radialis longus and medial head of triceps brachii |
| | Medial supracondylar ridge | Attachment for brachialis and the medial head of triceps brachii |
| | Trochlea | Articulates with trochlear notch of ulna |
| | Capitulum | Articulates with head of radius |
| | Radial fossa | Receives the head of the radius during forearm flexion |
| | Olecranon fossa | Receives olecranon of the ulna during forearm extension |
| | Coronoid fossa | Receives coronoid process of ulna during forearm flexion |

### Bones of the arm *(continued)*

| Bone | Characteristic | Significance |
|---|---|---|
| | Radial (spiral) groove | • Transmits the deep brachial artery and radial nerve<br>• Separates the proximal attachments of the lateral head (lateral to groove) and medial head (medial to groove) of the triceps brachii |
| | Deltoid tuberosity | Attachment for deltoid |

## FOREARM REGION

### Bones of the forearm

(Figures 6-1 and 6-7)

| Bone | Characteristic | Significance |
|---|---|---|
| Radius | Head | • Articulates with capitulum of humerus and radial notch of ulna<br>• Held in place by the anular ligament |
| | Radial tuberosity | Attachment for biceps brachii |
| | Ulnar notch | Articulates with head of ulna |
| | Styloid process | Attachment for brachioradialis and radial collateral ligament |
| Ulna | Olecranon | Attachment for flexor carpi ulnaris (ulnar head), triceps brachii, anconeus, and ulnar collateral ligament |
| | Coronoid process | • Articulates with coronoid fossa of humerus during flexion<br>• Attachment for pronator teres, flexor digitorum superficialis and ulnar collateral ligament |
| | Trochlear notch | Articulates with trochlea of humerus |
| | Ulnar tuberosity | Attachment for brachialis |
| | Radial notch | Articulates with head of radius |
| | Supinator crest | Attachment for supinator |
| | Supinator fossa | |
| | Head | Articulates with ulnar notch of radius and articular disc of the wrist |
| | Styloid process | Attachment for ulnar collateral ligament |

# HAND REGION

## Bones of the hand

(Figures 6-1 and 6-4)

| Bone | Characteristic | Significance |
|---|---|---|
| Scaphoid | Tubercle | • Attachment for abductor pollicis brevis, opponens pollicis, flexor pollicis brevis, radial collateral ligament, and flexor retinaculum (tubercle)<br>• Articulates with radius, trapezium, lunate, capitate, and trapezoid<br>• Most commonly fractured carpal bone |
| Lunate | Crescent-shaped | • Articulates with radius, scaphoid, triquetrum, capitate, and hamate<br>• Most frequently dislocated carpal bone |
| Triquetrum | Pyramid-shaped | • Articulates with pisiform, hamate and lunate<br>• Attachment for ulnar collateral ligament |
| Pisiform | Spheroidal | • Articulates with triquetrum<br>• Attachment for flexor retinaculum, flexor carpi ulnaris, and abductor digiti minimi |
| Trapezium | Tubercle | • Attachment for flexor retinaculum, opponens pollicis, abductor pollicis brevis, and flexor pollicis brevis<br>• Articulates with scaphoid, 1st and 2nd metacarpals, and trapezoid |
| Trapezoid | Wedge-shaped | Articulates with scaphoid, 2nd metacarpal, trapezium, and capitate |
| Capitate | Head | • Attachment for adductor pollicis<br>• Articulates with scaphoid; lunate; 2nd, 3rd, and 4th metacarpals; trapezoid; and hamate<br>• Largest carpal bone |
| Hamate | Hamulus | Attachment for flexor retinaculum, opponens digiti minimi, flexor carpi ulnaris, flexor digiti minimi; articulates with lunate, 4th and 5th metacarpals, triquetrum, and capitate |

## Bones of the hand *(continued)*

| Bone | Characteristic | Significance |
|---|---|---|
| Metacarpals (5) | Heads | Articulate with proximal phalanges |
| Proximal phalanges (5) | | Articulate with more distal phalanges |
| Middle phalanges (5) | | |
| Distal phalanges (4) | Tuberosity | Ungual tuberosity supports the fingernail |