

Muscles

I. Muscles Connecting Upper Extremity to the Trunk

- A. Latissimus dorsi
 - attachments – from lower thoracic spinous processes, thoracolumbar fascia & iliac crest to the medial lip of the intertubercular sulcus of the humerus
 - actions – humeral adduction, extension & medial rotation
 - innervation – thoracodorsal nerve
- B. Levator scapulae (C4–5)
 - attachments – from the upper cervical transverse processes to the superior angle of scapula
 - actions – elevation & inferior rotation of the lateral angle of the scapula
 - innervation – dorsal scapular nerve
- C. Pectoralis major
 - attachments – from clavicle, costal cartilages, sternum to the lateral lip of the intertubercular sulcus of the humerus
 - actions – humeral adduction, flexion & medial rotation
 - innervation – medial & lateral pectoral nerves
- D. Pectoralis minor
 - attachments – from ribs 3–5 to the coracoid process of the scapula
 - actions – scapular protraction & assists with depression of the shoulder (assists with forced inspiration [with scapular fixation])
 - innervation – medial & lateral pectoral nerves
- E. Rhomboids (C4–5)
 - attachments – from the lower cervical & upper thoracic spinous processes to the medial border of the scapula
 - actions – scapular retraction & inferior rotation of the lateral angle
 - innervation – dorsal scapular nerve
- F. Serratus anterior (C5–7)
 - attachments – from the upper 8–10 ribs to the deep, medial border of the scapula
 - actions – scapular protraction & upward rotation of the lateral angle of the scapula
 - innervation – long thoracic nerve
- G. Subclavius
 - attachments – from 1st rib & costal cartilage to inferior middle third of clavicle
 - actions – depresses point of shoulder
 - innervation – nerve to subclavius
- H. Trapezius
 - attachments – from the superior nuchal line, external occipital protuberance, ligamentum nuchae, & cervical & thoracic spinous processes to the clavicle, acromion & scapular spine
 - actions – scapular elevation, depression, retraction & superior rotation of the lateral angle
 - innervation – accessory nerve (motor innervation) & C3–5 (sensory)
- I. Omohyoid (see head & neck)

II. Scapular

- A. Deltoid (C5–6)
 - attachments – from the clavicle, acromion & spine of the scapula to the deltoid tuberosity of the humerus
 - actions – humeral flexion, medial rotation, abduction, extension & lateral rotation
 - innervation – axillary nerve
- B. Subscapularis
 - attachments – from the subscapular fossa to the lesser tubercle of the humerus
 - actions – stabilizes the glenohumeral joint, and medially rotates & adducts humerus
 - innervation – upper & lower subscapular nerves
- C. Supraspinatus
 - attachments – from the supraspinous fossa to the greater tubercle of the humerus
 - actions – initiates humeral abduction
 - innervation – suprascapular nerve (C5,6)
- D. Teres major
 - attachments – from the inferior angle of the scapula to the medial lip of the intertubercular sulcus of the humerus
 - actions – humeral adduction & medial rotation
 - innervation – lower subscapular nerve

- E. Infraspinatus (C5–6)
attachments – from the infraspinous fossa to the greater tubercle of the humerus
actions – stabilizes glenohumeral joint, and lateral rotation of humerus
innervation – suprascapular nerve
- F. Teres minor (C5–6)
attachments – from the lateral border of the scapula to the greater tubercle of the humerus
actions – stabilizes glenohumeral joint, and lateral rotation of humerus
innervation – axillary nerve

III. Muscles of the arm

- A. Biceps Brachii (C5,6)
attachments – from coracoid process (short head) and supraglenoid tubercle (long head) of the scapula to the radial tuberosity & the deep antebrachial fascia (through the bicipital aponeurosis)
actions – flexion of the arm & forearm, & supination of the forearm
innervation – musculocutaneous nerve
- B. Brachialis
attachments – from the distal anterior shaft of the humerus to the coronoid process & ulnar tuberosity
actions – flexion of the forearm
innervation – musculocutaneous & radial nerves
- C. Coracobrachialis
attachments – from the coracoid process to the proximal medial shaft of the humerus
actions – flexion & adduction of arm
innervation – musculocutaneous nerve
- D. Triceps (C7,8)
attachments – from the infraglenoid tubercle of the scapula (long head), & proximal posterolateral (lateral head) & distal posteromedial (medial) shaft of the humerus to the olecranon process of the ulna
actions – extension of the arm (long head) & extension of the forearm (long, lateral & medial heads)
innervation – radial nerve

IV. Muscles of the forearm

- A. Abductor pollicis longus
attachments – from proximal posterior radius, ulna & interosseous membrane to the anterior base of the 1st metacarpal & trapezium
actions – abducts and extends thumb at carpometacarpal joint
innervation – radial nerve
- B. Anconeus
attachments – from posterior lateral epicondyle of humerus to lateral olecranon and shaft of ulna
actions – extension of forearm
innervation – radial n.
- C. Brachioradialis
attachments – from the lateral supracondylar ridge of the humerus to the distal radius adjacent to the styloid process
actions – flexes forearm
innervation – radial nerve
- D. Extensor carpi radialis brevis
attachments – from the lateral epicondyle of the humerus (common extensor origin) to the base of the 3rd metacarpal
actions – extends & abducts hand at wrist
innervation – radial nerve
- E. Extensor carpi radialis longus
attachments – from the lateral supracondylar ridge of the humerus to the base of the 2nd metacarpal
actions – extends & abducts hand at wrist
innervation – radial nerve
- F. Extensor carpi ulnaris
attachments – from the lateral epicondyle of the humerus (common extensor origin) to the base of the 5th metacarpal
actions – extends & adducts hand at wrist
innervation – radial nerve
- G. Extensor digitorum
attachments – from the lateral epicondyle of the humerus (common extensor origin) to the extensor expansions of digits 2–5
actions – extends phalanges (MP) and hand at wrist
innervation – radial nerve

- H. Extensor digiti minimi
attachments – from the lateral epicondyle of the humerus (common extensor origin) to the digital expansion of the 5th digit
actions – extends 5th digit (MP & IP)
innervation – radial nerve
- I. Extensor indicis
attachments – from the posterior surface of the ulna & interosseous membrane to the digital expansion of the 2nd digit
actions – extends 2nd digit (MP & IP)
innervation – radial nerve
- J. Extensor pollicis brevis
attachments – from the posterior radial surface & interosseous membrane to the base of the 1st proximal phalanx
actions – extends thumb (MP)
innervation – radial nerve
- K. Extensor pollicis longus
attachments – from the middle 1/3rd of the posterior surface of the ulna & interosseous membrane to the base of the 1st distal phalanx
actions – extends thumb (MP & IP)
innervation – radial nerve
- L. Flexor carpi radialis
attachments – from the medial epicondyle (common flexor origin) to the palmar aspect of the bases of the 2nd & 3rd metacarpals
actions – flexes & abducts hand at wrist
innervation – median nerve
- M. Flexor carpi ulnaris
attachments – from the medial epicondyle (common flexor origin) of the humerus and proximal ulnar shaft to the pisiform
actions – flexes & adducts hand at wrist
innervation – ulnar nerve
- N. Flexor digitorum profundus
attachments – from the anterior proximal 2/3rds of the ulna & interosseous membrane to the base of the distal phalanges of digits 2–5
actions – flexion of digits 2–5 (MP & IP), and flexion hand at wrist
innervation – median & ulnar nerves
- O. Flexor digitorum superficialis
attachments – from the medial epicondyle (common flexor origin) of the humerus to the sides of the middle phalanges of digits 2–5
actions – flexion of digits (MP & proximal IP), and hand at wrist
innervation – median nerve
- P. Flexor pollicis longus
attachments – from the anterior surface of the radius & interosseous membrane to the the base of the distal phalanx of the thumb
actions – flexes thumb (MP & IP)
innervation – median nerve
- Q. Palmaris longus
attachments – from the medial epicondyle of the humerus (common flexor origin) to the palmar aponeurosis
actions – flexes hand at wrist
innervation – median nerve
- R. Pronator quadratus
attachments – from the anterior surface of the distal radius to the anterior surface of the distal ulna
actions – pronates the forearm
innervation – median nerve
- S. Pronator teres
attachments – from the medial epicondyle & ulnar coronoid process to lateral aspect of the radius
actions – pronates & flexes forearm
innervation – median nerve
- T. Supinator
attachments – from the lateral epicondyle of the humerus, radial collateral ligament & supinator crest of the ulna to the lateral surface of the proximal radius

actions – supinates forearm

innervation – radial nerve

V. Muscles of the hand

A. Abductor digiti minimi (C8–T1)

attachments – from the pisiform to the ulnar side of the base of the 5th digit

actions – abducts 5th digit

innervation – deep branch of the ulnar nerve

B. Abductor pollicis brevis (C8–T1)

attachments – from the flexor retinaculum to the radial side of the base of the proximal phalanx of the thumb

actions – abducts thumb

innervation – recurrent branch of the median nerve

C. Adductor pollicis (C8–T1)

attachments – from the capitate & 2nd & 3rd metacarpals (oblique head) and the palmar aspect of the 3rd metacarpal to the base of the proximal phalanx of the thumb

actions – adducts thumb

innervation – deep branch of the ulnar nerve

D. Dorsal interossei (C8–T1)

attachments – from the adjacent sides of the metacarpals to the proximal phalangeal bases and dorsal digital expansions of digits 2–4

actions – abducts (MP), flexes (MP) & extends (IP) digits 2–4

innervation – deep branch of the ulnar nerve

E. Flexor digiti minimi brevis (C8–T1)

attachments – from the hamate to the ulnar side of the base of the proximal phalanx of the 5th digit

actions – flexes (MP) 5th digit

innervation – deep branch of the ulnar nerve

F. Flexor pollicis brevis (C8–T1)

attachments – from the flexor retinaculum & trapezium to the radial side of the base of the proximal phalanx of the thumb

actions – flexes (MP) thumb

innervation – recurrent branch of the median nerve & deep branch of ulnar n.

G. Lumbricals (C8–T1)

attachments – from the tendons of the flexor digitorum profundus to the radial side of the dorsal digital expansions of digits 2–5

actions – flexes (MP) and extends (IP) digits 2–5

innervation – deep branch of the ulnar nerve (medial two lumbricals) and median nerve (lateral two lumbricals)

H. Opponens digiti minimi (C8–T1)

attachments – from the hook of the hamate to the ulnar margin of the shaft of the 5th metacarpal

actions – opposition of 5th digit to thumb

innervation – deep branch of the ulnar nerve

I. Opponens pollicis (C8–T1)

attachments – from the flexor retinaculum & trapezium to the palmar surface of the 1st metacarpal

actions – opposition of thumb to 5th digit

innervation – recurrent branch of the median nerve

J. Palmar interossei (C8–T1)

attachments – from the palmar aspects of metacarpals 2, 4 & 5 to the dorsal digital expansions of digits 2, 4 & 5

actions – adducts (MP), flexes (MP) & extends (IP) digits 2, 4 & 5

innervation – deep branch of the ulnar nerve