

BIO 4432 – Human Anatomy*Resource #4*

The concepts this resource covers are the topics typically covered during this week of the semester. If you do not see the topics your particular section of class is learning this week, please take a look at other weekly resources listed on our website for additional topics throughout the semester.

We also invite you to look at the group tutoring chart on our website to see if this course has a group tutoring session offered this semester.

If you have any questions about these study guides, group tutoring sessions, private 30 minute tutoring appointments, the Baylor Tutoring YouTube channel or any tutoring services we offer, please visit our website www.baylor.edu/tutoring or call our drop in center during open business hours. M-Th 9am-8pm on class days 254-710-4135.

Keywords: Upper limb musculature, Muscles of the shoulder joint, Muscles of the hand, Associated nerves

Topic of the Week: Upper Limb Musculature

Muscles of the arm:

Biceps Brachii – musculocutaneous nerve

Origin:

- Short head: coracoid process
- Long head: supraglenoid tubercle of the scapula

Insertion: radial tuberosity

Action: supination and flexion of the forearm

Coracobrachialis – musculocutaneous nerve

Origin: coracoid process

Insertion: humerus

Action: flexes humerus

Brachialis – musculocutaneous nerve

Origin: humerus

Insertion: coronoid process of the ulna

Action: flexes forearm

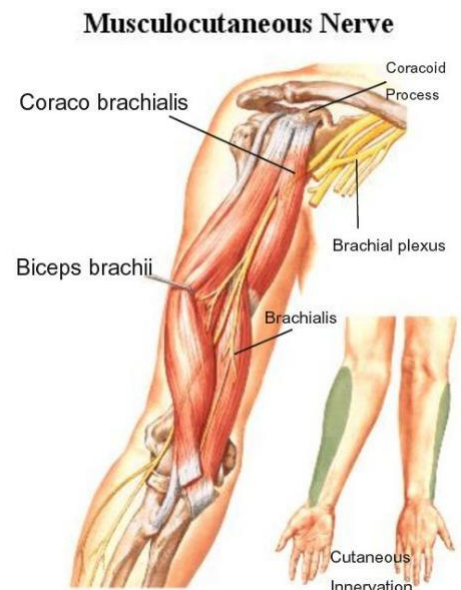
(elbow) **Triceps brachii** –

radial nerve Origin:

- Long head: infraglenoid tubercle
- Medial and lateral head: humerus

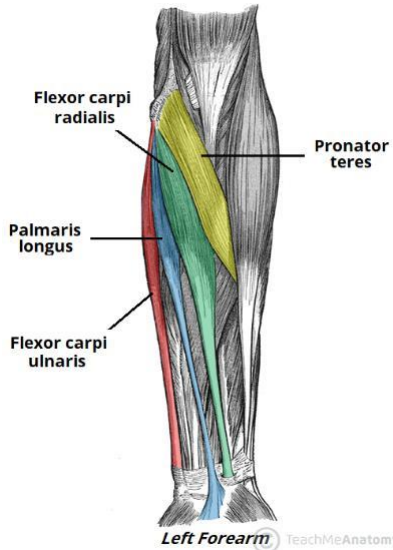
Insertion: olecranon process of ulna

Action: extends upper limb and forearm



This image was taken from examnotes.com

Muscles of the anterior forearm:



This image was taken from teachmeanatomy.com

Pronator teres – median nerve

Origin: medial supracondylar ridge

Insertion: radius

Action: pronates forearm

Flexor carpi radialis – median nerve

Origin: medial supracondylar ridge

Insertion: 2nd and 3rd metacarpals

Action: flexes forearm

Palmaris longus – median nerve

Origin: medial supracondylar ridge

Insertion: palmar aponeurosis

Action: flexes hand and wrist

Flexor carpi ulnaris – ulnar nerve

Origin: medial supracondylar ridge

Insertion: hook of hamate and pisiform

Action: flexes forearm

Deep muscles of the forearm:

Flexor digitorum superficialis – median nerve

Origin: medial epicondyle of humerus and radius

Insertion: middle phalanges

Action: flex PIP joints and metacarpophalangeal joints

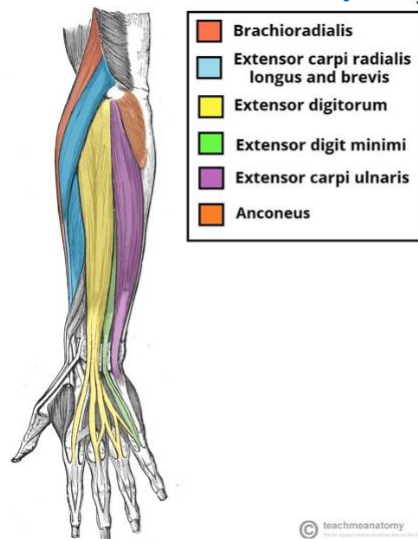
Flexor digitorum profundus – lateral tendons → median nerve; medial tendons → ulnar nerve

Origin: coronoid process of ulna

Insertion: distal phalanges

Action: flex DIP, PIP joints, and metacarpophalangeal joints

Extensor muscles of the forearm: all innervated by the radial nerve



This image is from teachmeanatomy.com.

Brachioradialis

Origin: lateral supracondylar ridge

Insertion: close to styloid process of radius

Action: ***flexes elbow*** (only muscle of the posterior forearm that is a flexor!) **Extensor carpi radialis longus and brevis**

Origin: lateral supracondylar ridge and lateral epicondyle

Insertion: metacarpals

Action: extends wrist

Extensor digitorum

Origin: lateral epicondyle

Insertion: dorsal surface of digits

Action: extends digits

Extensor carpi ulnaris

Origin: lateral epicondyle

Insertion: 5th metacarpal

Action: extends wrist

Highlight #1: Muscles of the Shoulder Joint**Deltoid – axillary nerve**

Origin: spine of scapula, acromion, and clavicle

Insertion: deltoid tuberosity

Action:

- Anterior: flexes arm
- Posterior: extends arm
- Middle: abducts arm

Latissimus dorsi – thoracodorsal nerve

Origin: ribs, iliac crest, and vertebrae

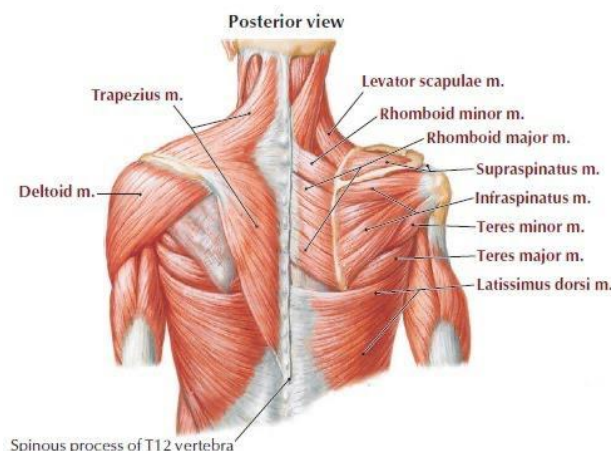
Insertion: intertubercular groove of humerus

Action: adducts, extends, and internally rotates humerus

Pectoralis major – pectoral nerves

Insertion: intertubercular groove of humerus

Action: adducts and flexes arm, medially rotates scapula



This image was taken from <https://sites.google.com/site/honkicho/shoulder/anatom>.

Rotator cuff muscles: all originate on the scapula

Supraspinatus – **suprascapular nerve**

Insertion: **greater tubercle**

Action: **abducts and laterally rotates arm**

Infraspinatus – **suprascapular nerve**

Insertion: **greater tubercle**

Action: **laterally rotates arm**

Teres minor – **axillary nerve**

Insertion: **greater tubercle**

Action: **adducts and laterally rotates arm**

Subscapularis – **upper and lower subscapular nerve**

Insertion: **lesser tubercle**

Action: **medially rotates arm**

Highlight #1: Muscles of the Hand

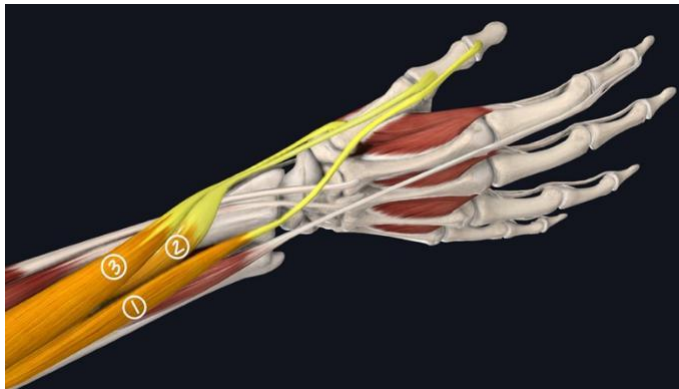
Extrinsic muscles of the hand:

Flexor pollicis longus – **median nerve**

Insertion: **distal phalanx of thumb**

Action: **flexes thumb**

Anatomical snuff box: **radial nerve**



This image is a screenshot from Complete Anatomy.

1. **Extensor pollicis longus** Insertion: **distal phalanx of thumb**
2. **Extensor pollicis brevis**
Insertion: **proximal phalanx of thumb**
3. **Abductor pollicis longus**
Insertion: **1st metacarpal**

Intrinsic muscles of the hand:

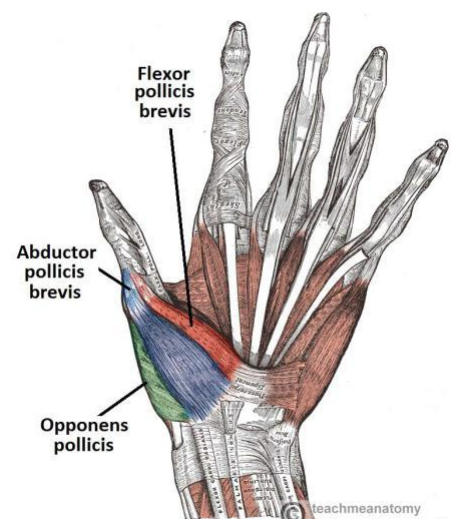
Thenar muscles – **recurrent branch of median nerve**

Abductor pollicis brevis: **abducts thumb**

Flexor pollicis brevis: **flexes thumb**

Opponens pollicis: **opposition of thumb towards pinky finger**

Hypothenar muscles – **ulnar nerve**



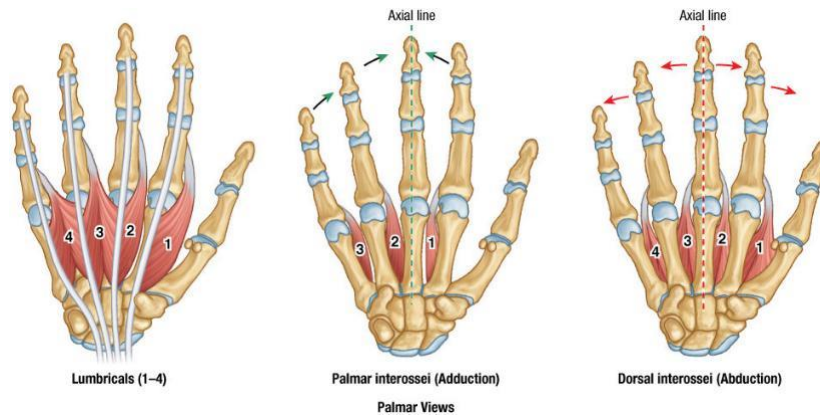
This image was taken from teachmeanatomy.com.

Abductor digiti minimi: abducts pinky

Flexor digiti minimi: flexes pinky

Opponens digiti minimi: opposition of pinky towards thumb

Lumbricals and interossei



This image was taken from MCAT Memoranda.

Lumbricals – lateral 2 → median nerve, medial 2 → ulnar nerve
 Origin: tendons of flexor digitorum profundus

Insertion: extensor expansion

Action: flex metacarpophalangeal joints and extend interphalangeal joints

Interossei – ulnar nerve

Palmar interossei: adduct digits toward midline (PAD)

- Middle finger and thumb do not have palmar interossei

Dorsal interossei: abduct digits away from midline (DAB) and flex MCP joints and extend IP joints

- Thumb and little finger do not have dorsal interossei

Week 6 Knowledge Checkpoint:

1. Which of the following muscles is LEAST likely to be affected in the presence of an ulnar nerve lesion?

- Palmar interossei
- Lateral two lumbricals
- Dorsal interossei
- Medial two lumbricals
- Abductor digiti minimi

2. The rotator cuff will be affected by an injury to which of the following muscles?

- Deltoid
- Sternocleidomastoid
- Pectoralis minor
- Subscapularis

3. Which of the following muscles is supplied the recurrent branch of the median nerve? A. Flexor digiti minimi brevis
B. Dorsal interossei
C. Abductor pollicis brevis
D. Flexor digitorum profundus
E. Palmaris brevis
-

THINGS YOU MAY STRUGGLE WITH!

1. ***As usual, the volume of material:*** The upper limb muscles are a typically difficult topic so be sure you're exposing yourself to the material frequently and in a variety of ways. The lower limb muscles are similarly named to the upper limb, so it's going to be easy to confuse them. Make sure you get these solidified for before next week!
2. ***Innervation:*** It may be helpful to create a chart and organize which muscles are innervated by each nerve. If that's not your style of learning, figure out how to organize the muscles in a way that works best for you!

CONGRATS: You made it to the end of the resource! Thanks for checking out these weekly resources! Don't forget to check out our website for group tutoring times, video tutorials and lots of other resources: www.baylor.edu/tutoring!

Answers

1. B
2. E
3. C