**BIO 4432 – Human Anatomy**  
*Week 6 – Week of 02/21/2022*

Happy week 6! The material starts to get more difficult from this point on, so be sure to keep up with your lectures and studying. Remember this resource isn’t meant to cover everything Dr. Parizi covers, just highlight the major topics of the week. Y’all are doing great!

**Remember:** The tutoring center offers free individual and group tutoring for this course. Our group tutoring session will be Thursdays from 6:45-7:45 PM in the basement of Sid Rich, room 74. You can reserve your spot at [https://baylor.edu/tutoring](https://baylor.edu/tutoring). Hope to see you there!

**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

[Image: This image was taken from examnotes.com]
**Muscles of the anterior forearm:**

**Pronator teres** — **median nerve**
- Origin: medial supracyondylar ridge
- Insertion: radius
- Action: pronates forearm

**Flexor carpi radialis** — **median nerve**
- Origin: medial supracyondylar ridge
- Insertion: 2nd and 3rd metacarpals
- Action: flexes forearm

**Palmaris longus** — **median nerve**
- Origin: medial supracyondylar ridge
- Insertion: palmar aponeurosis
- Action: flexes hand and wrist

**Flexor carpi ulnaris** — **ulnar nerve**
- Origin: medial supracyondylar 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**
**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

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**Highlight #1: Muscles of the Shoulder Joint**

**Deltoid**  –  *axillary nerve*  
Origin: spine of scapula, acromion, and clavicle  
Insertion: deltid 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/honkichoi/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

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**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

**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
Abductor digiti minimi: abducts pinky
Flexor digiti minimi: flexes pinky
Opponens digiti minimi: opposition of pinky towards thumb

Lumbricals and interossei

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 palmer 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

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**Week 6 Knowledge Checkpoint:**

1. Which of the following muscles is LEAST likely to be affected in the presence of an ulnar nerve lesion?
   A. Palmar interossei
   B. Lateral two lumbricals
   C. Dorsal interossei
   D. Medial two lumbricals
   E. Abductor digiti minimi

2. The rotator cuff will be affected by an injury to which of the following muscles?
   A. Teres major
   B. Deltoid
   C. Sternocleidomastoid
   D. Pectoralis minor
   E. 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!
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Answers
1. B
2. E
3. C