

## Chapter 10: Muscular System: Gross Anatomy

### I. General Principles

#### A. General Terminology

1. Tendons attach \_\_\_\_\_
2. What is an aponeurosis? \_\_\_\_\_
3. The points of muscle attachment are called \_\_\_\_\_ & \_\_\_\_\_
4. How is the "origin" defined? \_\_\_\_\_
5. How is the "insertion" defined? \_\_\_\_\_
6. What is the "belly" of a muscle? \_\_\_\_\_
7. What is an agonist? \_\_\_\_\_
8. What does an antagonist muscle do? \_\_\_\_\_
9. Muscles that work together to create a movement are called \_\_\_\_\_
10. What is a "prime mover"? \_\_\_\_\_
11. What does a "fixator" do? \_\_\_\_\_

#### B. Muscle Shapes

1. The shape and size of any given muscle greatly influences:
  - a. Degree \_\_\_\_\_ &
  - b. Amount \_\_\_\_\_
2. Describe the pennate arrangement of muscle fasciculi: \_\_\_\_\_  
\_\_\_\_\_
  - a. What does unipennate mean? \_\_\_\_\_
  - b. How are fasciculi arranged in a bipennate muscle? \_\_\_\_\_
  - c. What is a multipennate muscle shape? \_\_\_\_\_
3. Describe the parallel arrangement of muscle fasciculi: \_\_\_\_\_  
\_\_\_\_\_
  - a. This arrangement allows them to \_\_\_\_\_ than pennate
  - b. How does the force of contraction in parallel muscles compare to that in pennate muscles? \_\_\_\_\_
    1. What accounts for this difference? \_\_\_\_\_
4. Describe the convergent arrangement of muscle fasciculi: \_\_\_\_\_  
\_\_\_\_\_

- a. This results in a \_\_\_\_\_ shape to the muscle
  - b. How does the force of contraction compare to a parallel muscle? \_\_\_\_\_
5. Describe the circular arrangement of muscle fasciculi: \_\_\_\_\_
- \_\_\_\_\_
- a. These muscles act as a \_\_\_\_\_ to close the \_\_\_\_\_
6. List the specific shapes that a muscle may have: (Use Figure 10.2 as needed)
- a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
  - e. \_\_\_\_\_
7. What does digastric mean? \_\_\_\_\_
8. What does bicipital mean? \_\_\_\_\_

C. Nomenclature

1. Define the following terms, which may be associated with muscle names:
  - a. Location terms:
    1. Pectoralis \_\_\_\_\_
    2. Gluteus \_\_\_\_\_
    3. Brachial \_\_\_\_\_
  - b. Size terms:
    1. Maximus \_\_\_\_\_
    2. Minimus \_\_\_\_\_
    3. Longus \_\_\_\_\_
    4. Brevis \_\_\_\_\_
  - c. Shape terms:
    1. Deltoid \_\_\_\_\_
    2. Quadratus \_\_\_\_\_
    3. Teres \_\_\_\_\_
  - d. Orientation terms:
    1. Rectus \_\_\_\_\_
    2. Oblique \_\_\_\_\_

- e. Origin and Insertion terms:
  - 1. May simply be the names of the bones:
    - a. Sterno- \_\_\_\_\_
    - b. Cleido- \_\_\_\_\_
    - c. Mastoid \_\_\_\_\_
  - 2. Brachium \_\_\_\_\_
- f. Terms associated with number of heads:
  - 1. Biceps \_\_\_\_\_
  - 2. Triceps \_\_\_\_\_
- g. Function terms:
  - 1. Abductor \_\_\_\_\_
  - 2. Adductor \_\_\_\_\_
  - 3. Masseter \_\_\_\_\_

D. Movements Accomplished by Muscles

- 1. The force of muscle contraction is called \_\_\_\_\_
  - a. This force is applied to \_\_\_\_\_ resulting in \_\_\_\_\_
- 2. Define the term lever: \_\_\_\_\_
- 3. Define the term fulcrum: \_\_\_\_\_
- 4. The force of a body part that has to be moved is called \_\_\_\_\_
- 5. Which body structure represents the following parts of a lever system:
  - a. Fulcrum \_\_\_\_\_
  - b. Lever \_\_\_\_\_
  - c. Pull \_\_\_\_\_
- 6. In a class I lever system the fulcrum is located \_\_\_\_\_
   
\_\_\_\_\_
  - a. An example of this system in the human body would be: \_\_\_\_\_
   
\_\_\_\_\_
- 7. In a class II lever system the fulcrum is located \_\_\_\_\_
   
\_\_\_\_\_
  - a. An example of this system in the human body would be: \_\_\_\_\_
   
\_\_\_\_\_

8. In a class III lever system the pull is located \_\_\_\_\_  
\_\_\_\_\_
- a. An example of this system in the human body would be: \_\_\_\_\_  
\_\_\_\_\_
9. Which class of lever system is most common in the body? \_\_\_\_\_

## II. Head Muscles

### A. Head and Neck Muscles

1. Flexors of the head and neck \_\_\_\_\_
2. Posterior neck muscles are involved in \_\_\_\_\_
3. Rotation and abduction of the head are accomplished by muscles of:
  - a. \_\_\_\_\_ &
  - b. \_\_\_\_\_
4. The sternocleidomastoid muscle is the \_\_\_\_\_ of the \_\_\_\_\_
  - a. What movement occurs if only the left sternocleidomastoid is contracted?  
\_\_\_\_\_
  - b. What movement occurs if both are contracted? \_\_\_\_\_

### B. Facial Expression

1. What are the muscles of the face attached to? \_\_\_\_\_
2. What does the occipitofrontalis do? \_\_\_\_\_
3. What muscle closes the eyes? \_\_\_\_\_
4. What muscle raises the upper eyelid? \_\_\_\_\_
  - a. What causes ptosis of an eyelid? \_\_\_\_\_
5. List the muscles involved in kissing:
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
6. List the muscles involved in smiling:
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_

7. What muscle is involved in sneering? \_\_\_\_\_

8. List the muscles involved in frowning:

a. \_\_\_\_\_

b. \_\_\_\_\_

c. \_\_\_\_\_

### C. Mastication

1. Chewing involves forcefully \_\_\_\_\_ the mandible as well as \_\_\_\_\_ and \_\_\_\_\_ excursion of the mandible.

2. Which muscles involved in mastication are some of the strongest muscles of the body? \_\_\_\_\_

### D. Tongue Movements

1. List the roles the tongue plays in mastication and speech:

a. \_\_\_\_\_

b. \_\_\_\_\_

c. \_\_\_\_\_

d. \_\_\_\_\_

2. Functionally intrinsic muscles of the tongue \_\_\_\_\_

3. Functionally extrinsic muscles \_\_\_\_\_

4. Intrinsic muscles are named for \_\_\_\_\_

5. Extrinsic muscles are named for \_\_\_\_\_

### E. Swallowing and the Larynx

1. Describe how the hyoid muscles can depress the mandible: \_\_\_\_\_

\_\_\_\_\_

2. Describe how the hyoid muscles can elevate the larynx: \_\_\_\_\_

\_\_\_\_\_

3. What muscles are constricted for swallowing?

a. \_\_\_\_\_

b. \_\_\_\_\_

4. What muscle is important for equalizing pressure within the middle ear?

a. \_\_\_\_\_

## F. Movements of the Eyeball

1. The superior rectus moves the eyeball so you look \_\_\_\_\_
2. The inferior rectus moves the eyeball so you look \_\_\_\_\_
3. The lateral rectus moves the eyeball so you look \_\_\_\_\_
4. The medial rectus moves the eyeball so you look \_\_\_\_\_
5. The superior oblique moves the eyeball so you look \_\_\_\_\_
6. The inferior oblique moves the eyeball so you look \_\_\_\_\_

## III. Trunk Muscles

### A. Muscles Moving the Vertebral Column

1. Muscles of the deep group extend from \_\_\_\_\_ to \_\_\_\_\_
2. Muscles of the superficial group extend from \_\_\_\_\_ to \_\_\_\_\_
3. List the three subgroups that form the erector spinae group of muscles:
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  1. Which subgroup accounts for most of the muscle mass in the lower back? \_\_\_\_\_

### B. Thoracic Muscles

1. Which muscles elevate the ribs during inspiration?
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
2. Which muscles depress the ribs during forced expiration?
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
3. What is the shape of the diaphragm? \_\_\_\_\_
  - a. How does its shape change when it contracts? \_\_\_\_\_

### C. Abdominal Wall

1. Anterior abdominal muscles \_\_\_\_\_ & \_\_\_\_\_ the vertebral column
2. When the vertebral column is fixed they aid in such functions as:
  - a. Forced \_\_\_\_\_

- b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
  - e. \_\_\_\_\_
3. What is the linea alba? \_\_\_\_\_
  4. The muscle on either side of the linea alba is called \_\_\_\_\_
  5. What are tendinous intersections? \_\_\_\_\_
  6. What is the linea semilunaris? \_\_\_\_\_
  7. List the three layers of abdominal muscles from superficial to deep:
    - a. \_\_\_\_\_
    - b. \_\_\_\_\_
    - c. \_\_\_\_\_

#### D. Pelvic Floor and Perineum

1. What two muscles form most of the pelvic floor (pelvic diaphragm)?
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
2. What is the perineum? \_\_\_\_\_
  - a. The anterior half is called \_\_\_\_\_
  - b. The posterior half is called \_\_\_\_\_
3. What two muscles make up the urogenital diaphragm?
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_

### IV. Upper Limb Muscles

#### A. Scapular Movements

1. List the muscles attaching the scapula to the thorax:
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
  - e. \_\_\_\_\_

- f. \_\_\_\_\_
- 2. These muscles also move the scapula or act as \_\_\_\_\_

**B. Arm Movements**

- 1. List the two muscles that attach the arm to the thorax:
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
- 2. List the three movements of the shoulder made by the deltoid muscle:
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
- 3. Collectively the muscles that hold the head of the humerus in the glenoid fossa are called \_\_\_\_\_

**C. Forearm Movements**

- 1. Extension of the elbow is due to contraction of:
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
- 2. Flexion of the elbow is due to contraction of:
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
- 3. Supination of the forearm is due to contraction of:
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
- 4. Pronation of the forearm is due to contraction of:
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_

**D. Wrist, Hand, and Finger Movements**

- 1. Most of the anterior forearm muscles cause \_\_\_\_\_
- 2. Most of the posterior forearm muscles cause \_\_\_\_\_
- 3. What is the retinaculum? \_\_\_\_\_
- 4. List the two anterior muscles that flex the wrist:
  - a. \_\_\_\_\_



- b. \_\_\_\_\_
5. List the three posterior muscles that extend the wrist:
- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
6. List the muscles involved in flexion of the digits (excluding the thumb):
- a. \_\_\_\_\_
- b. \_\_\_\_\_
7. List the muscles involved in extension of the digits (excluding the thumb):
- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
8. List the muscles involved in movement of the thumb:
- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
9. List the intrinsic hand muscles responsible for abduction of the fingers:
- a. \_\_\_\_\_
- b. \_\_\_\_\_
10. Which intrinsic muscle is responsible for adduction of the fingers?
- a. \_\_\_\_\_
11. What muscles form the "thenar eminence"?
- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
12. What muscles form the "hypothenar eminence"?
- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
13. Muscles of the thenar eminence are involved in control of the \_\_\_\_\_
14. Muscles of the hypothenar eminence are involved in control of the \_\_\_\_\_

## V. Lower Limb Muscles

### A. Thigh Movements

1. List the two anterior muscles that flex the hip:
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
    1. These two muscles are collectively referred to as \_\_\_\_\_
    2. When the thigh is fixed these muscles \_\_\_\_\_
2. List the four posterolateral muscles of the hip: (Use Table 10.18 as needed)
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
    1. These muscles all \_\_\_\_\_ & \_\_\_\_\_ the thigh either laterally or medially
    2. In addition the gluteus maximus \_\_\_\_\_ the hip
    3. The tensor fasciae latae also \_\_\_\_\_ the hip
3. Functionally the deep hip muscles are \_\_\_\_\_
4. Which muscles tilt the pelvis during walking? \_\_\_\_\_ & \_\_\_\_\_
5. Define the hip movements caused by the following groups of thigh muscles:
  - a. Anterior thigh muscles \_\_\_\_\_
  - b. Posterior thigh muscles \_\_\_\_\_
  - c. Medial thigh muscles \_\_\_\_\_

### B. Leg Movements

1. Anterior Thigh Muscles
  - a. List the muscles that make up the quadriceps femoris group:
    1. \_\_\_\_\_
    2. \_\_\_\_\_
    3. \_\_\_\_\_
    4. \_\_\_\_\_
      - a. Functionally this group of muscles \_\_\_\_\_

- b. In addition the rectus femoris \_\_\_\_\_
  - b. Functionally the sartorius:
    - 1. Flexes \_\_\_\_\_
    - 2. Laterally \_\_\_\_\_
- 2. Medial thigh muscles are involved in \_\_\_\_\_ of the thigh
  - a. In addition, the gracilis \_\_\_\_\_
- 3. Posterior Thigh Muscles
  - a. List the muscles that compose the hamstrings:
    - 1. \_\_\_\_\_
    - 2. \_\_\_\_\_
    - 3. \_\_\_\_\_
    - a. Functionally these muscles all \_\_\_\_\_ the knee and \_\_\_\_\_ the leg either laterally or medially
    - b. In addition, the semitendinosus \_\_\_\_\_ the hip

C. Ankle, Foot, and Toe Movements

- 1. The anterior leg muscles are \_\_\_\_\_ muscles involved in
  - a. \_\_\_\_\_ & \_\_\_\_\_ or \_\_\_\_\_ of the foot &
  - b. \_\_\_\_\_ of the toes
- 2. Functionally the superficial muscles on the back of the leg \_\_\_\_\_
  - a. These muscle all attach to the common \_\_\_\_\_ or \_\_\_\_\_ tendon
  - b. They include:
    - 1. The muscles that form the bulge of the calf:
      - a. \_\_\_\_\_
      - b. \_\_\_\_\_
    - 2. The small \_\_\_\_\_ muscle
- 3. What is the function of the deep muscles of the posterior leg compartment?  
\_\_\_\_\_
- 4. What is the function of the lateral leg muscles? \_\_\_\_\_