

Name \_\_\_\_\_ Date \_\_\_\_\_

## Chapter 5 Lab Investigation: Muscles

### Purpose

In this activity you will look at the microanatomy of muscle cells, and you will identify muscle locations on your body.

### Background

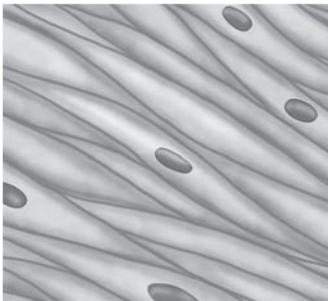
Tendons can be felt through the skin. Muscle contractions can be observed and felt as skin movement.

### Materials

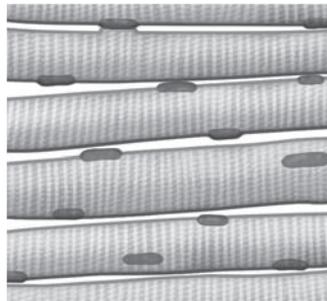
your textbook, your body

### Procedure

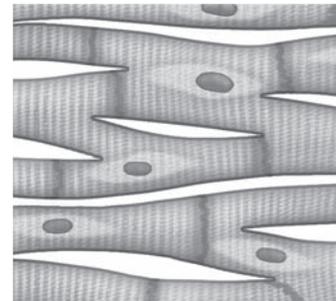
#### *Muscle Cell Microanatomy*



A.



B.



C.

To answer the following six questions, refer to the muscle tissue drawings above.

1. In which drawing(s) are the cells striated? \_\_\_\_\_
2. In which drawing(s) are the cells spindle-shaped? \_\_\_\_\_
3. In which drawing(s) are the cells branched? \_\_\_\_\_
4. In which drawing(s) do the cells have only one nucleus? \_\_\_\_\_
5. Which drawing(s) shows smooth muscle tissue? \_\_\_\_\_
6. Which drawing(s) shows voluntary muscle tissue? \_\_\_\_\_

#### *Muscle and Tendon Identification: Upper Limb*

1. Place the fingers of your left hand on the dorsal surface of your right forearm at the distal end of the radius and ulna.
2. Wiggle your fingers. Feel your tendons move and watch your skin move at the proximal end of the radius and ulna.
3. Where are the muscles that are causing your fingers to move located? \_\_\_\_\_
4. On the ventral surface of your right elbow, find the biceps tendon that inserts on the radius. Follow the tendon to the biceps brachii.
5. Wrap your left hand around your right upper arm so you are touching both the biceps brachii and the triceps brachii.
6. Flex and extend your forearm.

7. Which muscle flexes your forearm? \_\_\_\_\_
8. Which muscle extends your forearm? \_\_\_\_\_

### ***Muscle and Tendon Identification: Head***

1. Place your hands on the posterior ends of your mandible. Clench your teeth together. Feel the muscle contract.
2. Place your hands at your temples and again clench your teeth. Do you feel movement? \_\_\_\_\_  
Name the two muscles that you just located, that are involved in clenching your teeth:
3. \_\_\_\_\_
4. \_\_\_\_\_
5. Find your sternocleidomastoid muscle, slightly posterior and inferior to your ear, and the trapezius muscle in the back of your neck. Flex and extend your head.
6. Which muscle flexes the head? \_\_\_\_\_
7. Which muscle extends the head? \_\_\_\_\_

### ***Muscle and Tendon Identification: Lower Limb***

1. While sitting in a chair, locate your Achilles tendon, just proximal to your heel. Follow it to the gastrocnemius muscle.
2. Feel your Achilles tendon as you dorsiflex and plantar flex your foot.
3. During which movement is your Achilles tendon stretched tight and elongated? \_\_\_\_\_
4. During which movement does it feel like your Achilles tendon is shorter? \_\_\_\_\_
5. Feel the dorsal side of your knee, lateral and medial, to find the hamstrings. How many can you feel?  
\_\_\_\_\_
6. Flex your lower leg. What group of muscles causes this movement? \_\_\_\_\_
7. Place your hand on the ventral surface of your upper leg and extend your lower leg. Feel for movement.
8. What group of muscles caused the movement described in #7? \_\_\_\_\_

## **Conclusions**

*Select the correct answer from the two choices.*

1. Contractions of muscles that can be felt as tendon movement on the dorsal surface of the forearm cause the fingers to (flex, extend).
2. Contractions of muscles that can be felt as tendon movement on the ventral surface of the forearm cause the fingers to (flex, extend).
3. Contractions of muscles on the dorsal surface of the neck cause head (flexion, extension).
4. Contractions of muscles on the ventral surface of the neck cause head (flexion, extension).
5. Contractions of muscles on the ventral surface of the leg cause lower leg (flexion, extension).
6. Contractions of muscles on the dorsal surface of the leg cause lower leg (flexion, extension).