Muscular System

The function of **muscles** is to cause *movement*. To make this movement possible, all muscles are capable of **contracting** – shortening in length. When muscles contract they exert force and pull parts of the body closer together. In the human body, muscles come in three different varieties named for where they are found or what they look like: skeletal muscles, cardiac muscles, and smooth muscles. In this lab, we will focus on **skeletal muscles** – those muscles that are attached to and move the skeleton.

Each skeletal muscle is a separate organ made of a number of different tissues types: muscle tissue, connective tissue, blood vessels, and connections to the nervous system. Most skeletal muscles span joints and connect different bones (or other body tissues) together by or through tendons or aponeuroses. When the skeletal muscle contracts these two different parts of the body are brought closer together. The two ends of each skeletal muscle are called the **origin** and the **insertion**. At the origin the skeletal muscle attaches to a bone that is *less likely to move* when the muscle contracts. At the insertion the skeletal muscle is attached to a structure that is *more likely to move*. When a muscle contracts it pulls the insertion toward the origin.

It's important to keep in mind that many bones can be the origin point of one muscle and the insertion point of a different muscle. For example, you humerus is the insertion for the pectoralis major muscle but is the origin for the biceps brachii. What matters for determining the origin and insertion is the placement of the ends of the muscle, not the bones.

You will be provided with a list of skeletal muscle names. You will be responsible for naming all of the muscle on this list from memory <u>as well as identifying an action of each</u>. When learning muscle names and actions for the first time, I suggest keeping the following points in mind.

- **Naming Muscles**: Instead of trying to memorize the names, **try to figure out why the muscles were given that name**.
  - Many muscles were named for where they are found in the body, what parts of the body they connect, what the muscle looks like, what the muscle does for an action, or a combination of these characteristics.
    - For example, the name *extensor carpi radialis* tells us the action of the muscle (it extends the wrist), that it connects to the carpals and is found on the ulna side of the forearm.
  - Those muscles named for which bones they connect often have the origin mentioned first and the insertion mentioned last.
    - For example, the *stylohyoid*'s origin is the styloid process while its insertion is the hyoid bone.
- **Muscle Actions**: All muscles cause movement. All muscles contract. Not all muscles have the same *effect* on moving the body. There are specific action terms that describe the *direction of movement*: elevate, depress, flex, extend, abduct, adduct, protract, retract, and rotate are all good examples of such directional action terms.
  - A full description of a muscle's action has two parts: 1. an action term that describes the direction of movement and 2. what part of the body moves during contraction.
    - For example the stylohyoid *elevates the hyoid*.

Directional Terms for Movements

When describing actions of muscles, you will need to be as accurate as possible. The words *moves* or *contracts* are neither specific nor descriptive and will NOT be accepted as actions. Instead, you should use one of the directional action terms given below whenever possible. Note that these directional terms specifically describe the movement of one bone in relation to another bone. The actions of those muscles that move soft tissues may use words other than those given below.

Term	Description
Elevate	
Depress	
Flex	
Extend	
Abduct	
Adduct	
Rotate	
Supinate	
Pronate	
Dorsiflex	
Plantar flex	
Invert	
Evert	

Anatomy Muscle Lab

Be able to identify on models and diagrams all of the muscles listed below. You are also responsible for knowing at least one action performed by each muscle. These muscles and actions can be found in Chapter 7 of your textbook.

Muscle Name	Action
Muscles of the Head	
Orbicularis oculi	
Orbicularis oris	
Buccinator	
Masseter	
Temporalis	
Frontalis (a.k.a. Frontal Belly of the Epicranius)	
Occipitalis (a.k.a. Occipital Belly of the Epicranius)	
Mentalis	
Muscles of the Neck	
Stylohyoid	
Mylohyoid	
Sternohyoid	
Thyrphyoid	
Sternocleidomastoid	
Platysma	
Muscles of the Anterior Trunk	
Pectoralis Major	
Serratus Anterior	
Deltoid	
External intercostals	

Anatomy Muscle Lab

Internal intercostals	
Rectus abdominis	
External abdominal oblique	
Internal abdominal oblique	
Transversus abdominis	
Muscles of the Posterior Trunk	
Latissimus dorsi	
Trapezius	
Teres major	
Rhomboids	
Erector spinae	
Psoas major	
Muscles of the Upper Arm	
Triceps brachii	
Biceps brachii	
Brachialis	
Brachioradialis	
Muscles of the Forearm	
Pronator teres	
Flexor carpi radialis	
Palmaris longus	
Flexor carpi ulnaris	
Extensor carpi radialis longus	

Anatomy Muscle Lab

Extensor digitorum	
Extensor carpi ulnaris	
Muscles of the Thigh	
Sartorius	
Gracilis	
Rectus femoris	
Vastus medialis	
Vastus intermedius	
Vastus lateralis	
Biceps femoris	
Semitendinosis	
Semimembranosus	
Gluteus maximus	
Gluteus medius	
Gluteus minimus	
Muscles of the Leg	
Gastrocnemius	
Soleus	
Fibularis longus (a.k.a. peroneus longus)	
Tibialis anterior	