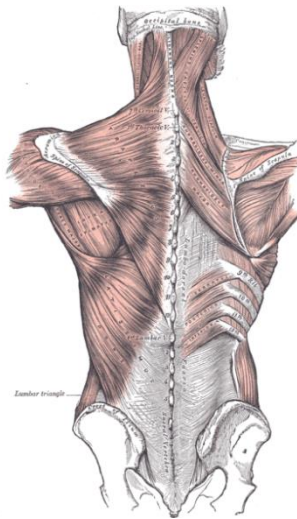


Module 6 - The Muscular System

Introduction to the Muscular System and Muscles of the Head, Neck and Shoulder



There will be three modules to cover the muscle anatomy of the body. The first module will cover the Head, Neck and Shoulder. The second module will cover the arms and trunk. The third module will cover the Hips and Legs.

Most skeletal muscles connect from one bone to another (although there are a couple of muscles in the face and neck area that don't attach to bones). So, muscles generally cross a joint. Synovial joints are the most common type of joint to be crossed so that when a muscle contracts or shortens, movement occurs at the joint. The muscle anatomy modules will require you to learn the name of the muscle, the origin and insertion and the major actions of most of the muscles listed.

If you are required to know the origin and insertion of a muscle then there will be a picture of the origin and insertion. All test questions on origin and insertion will be pictures, a short description of the action and multiple choice answers. This is the only content in Bio 264 that will be multiple choice on the exam. So, while you don't have to memorize detailed descriptions of origin, insertion and action, you do need to recognize this material enough to choose a correct answer out of a list of possible answers.

Here are a few remarks that we hope will help you in your learning of muscle anatomy.

1. Some muscles are named by their origin and insertion. If you can identify which muscles do this, you will realize that you are learning the muscle name, origin and insertion all at the same time. Watch for muscles that do this.
2. Learning muscle names can be easier if you realize that muscles are generally named because of one or more of the following descriptive concepts:
 - a. *Location*: For example, pectoralis means chest, so a muscle with this name would probably be found in the chest
 - b. *Size*: For example, maximus means large and brevis means short.
 - c. *Shape*: The deltoid is triangular and the quadratus is square.
 - d. *Orientation of the muscle fibers*: For example, the rectus is straight and the oblique is a muscle where fibers run at an oblique angle to the body.
 - e. *Origin and insertion*: For example the sternocleidomastoid gives the name of the origin and then insertion in the name.
 - f. *Number of heads*: biceps means two heads, triceps means three heads, so what do you think quadriceps means?
 - g. *Function*: An abductor abducts and an adductor adducts. A masseter helps us masticate or chew our food.
3. Origin is usually (but not always) the proximal attachment and Insertion is usually (but not always) the distal attachment.

A REMINDER...PLEASE NOTE: It will help you a lot if you keep in mind that test questions about origin, insertion and action will be multiple choice questions. So, it will be more critical that you learn to recognize pictures and descriptions of these things than it will be to reproduce all the details from memory. Only muscles with an associated picture require you to know origin, insertion and action.

LIST OF TERMS TO KNOW FOR THE MUSCLES OF THE HEAD, NECK AND SHOULDER

Muscles of the Face

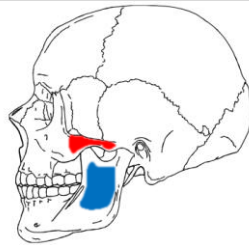
- **Buccinator**
- **Corrugator Supercilli**
- **Depressor Anguli Oris**
- **Depressor Labii Inferioris**
- **Levator Labii Superioris**
- **Mentalis**
- **Nasalis**
- **Occipitofrontalis**
 - **Frontalis**
 - **Occipitalis**
 - **Epicranial (Galea) Aponeurosis**
- **Orbicularis Oculi**
- **Orbicularis Oris**
- **Platysma**
- **Risorius**
- **Zygomaticus Major**
- **Zygomaticus Minor**

It is important that students can recognize images or models of the muscles in this list, but students are **NOT** required to learn Origin, Insertion or Action for muscles of the face.

(Epicranial Aponeurosis can also be called the "Galea" which is another acceptable term)

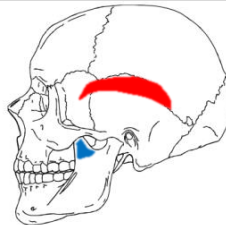
Muscles of Mastication

- **Lateral Pterygoid**
- **Masseter**



Action: Elevates and Retracts Mandible

- **Medial Pterygoid**
- **Temporalis**

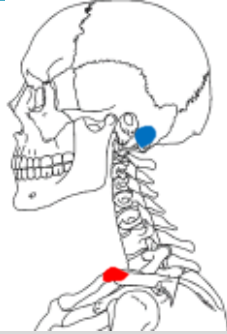


Action: Elevates and Retracts Mandible

Muscles of the Neck

- **Digastric**
- **Mylohyoid**

- **Sternocleidomastoid**

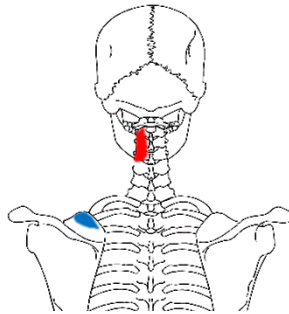


Action: Turns Head side to side and flexes the neck

- **Stylohyoid**

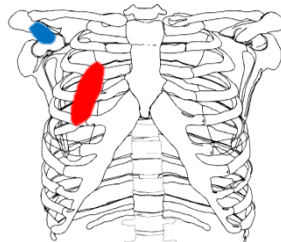
Muscles Acting on the Scapula

- **Levator Scapulae**



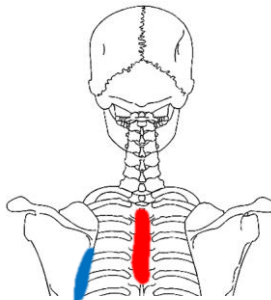
Action: Elevates the Scapula

- **Pectoralis Minor**



Action: Pulls Scapula forward and downward

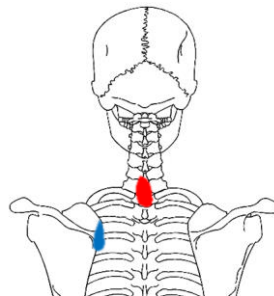
- **Rhomboideus Major**



Action: Scapular adduction and assists with scapular elevation and downward rotation.

- **Rhomboideus Minor**

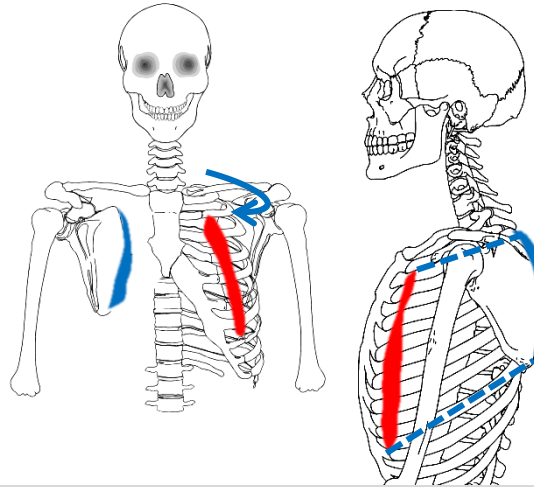
***Note:** The origin and insertion is similar for the levator scapulae, and the rhomboideus major and minor. Be sure to notice the small differences.



Action: Scapular adduction and assists with scapular elevation and downward rotation.

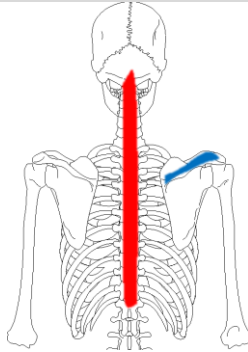
- **Serratus Anterior**

***Note:** The insertion for this muscle is a bit tricky. The picture on the left shows the ribs removed on the right side of the trunk to show where the muscle would insert for the right serratus. The left serratus would follow the ribs around and go "under" the scapular to insert on the vertebral border (see the arrow). The picture on the right side shows dashed lines to suggest that the muscle goes "under" the scapula to insert on the vertebral border.



Action: Scapular abduction (also can be called Scapular protraction).

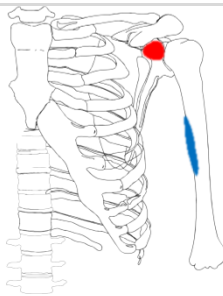
- **Trapezius**



Action: Scapular elevation, adduction and helps with upward rotation.

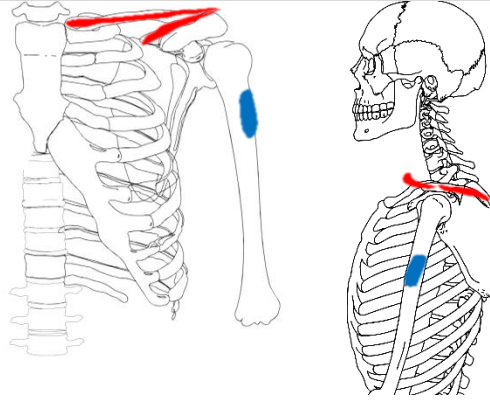
Muscles Which Move the Humerus

- **Coracobrachialis**



Action: Shoulder adduction and flexion

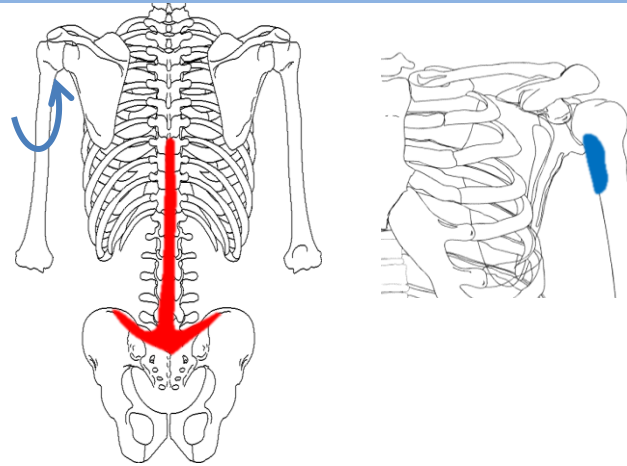
- **Deltoid**



Action: Shoulder abduction is the main action. It helps with shoulder flexion and extension as well.

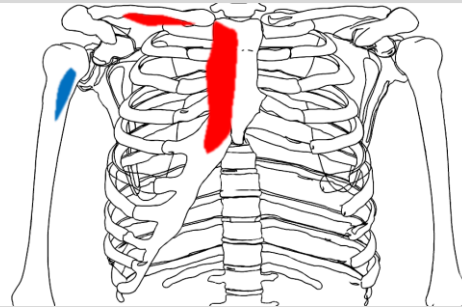
- **Latissimus Dorsi**

Note: Even though the origin of the latissimus is on the posterior trunk, the insertion is on the anterior humerus. The arrow suggests that the insertion cannot be seen because it is anterior and the picture to the right shows the anterior humerus.



Action: humerus extension, adduction and medial rotation.

- **Pectoralis Major**

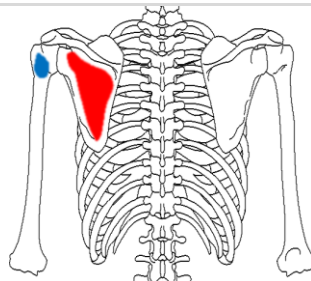


Action: humerus adduction, flexion and medial rotation.

- **Rotator Cuff**

Rotator cuff muscles are muscle that originate on the scapula and insert near the head of the humerus. The rotator cuff muscles are important for helping the humeral head glide appropriately in the glenoid cavity during large movements of the humerus. Throwing usually involves very aggressive and large movements of the humerus. One or more of the rotator cuff muscles frequently become injured in professional baseball pitchers.

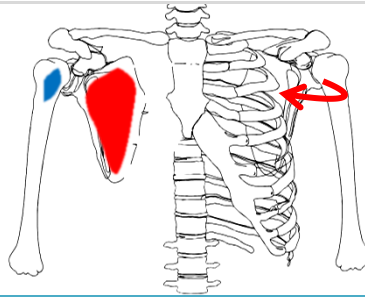
- **Infraspinatus**



Action: humerus lateral rotation, extension and holds head of humeral head during abduction.

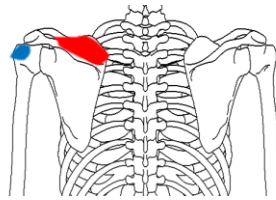
➤ **Subscapularis**

***Note:** The origin of the subscapularis is on the anterior scapula which is against the ribs. Ribs are removed on the right side of this picture to show the origin.



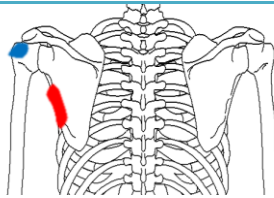
Action: humerus medial rotation and helps hold the humeral head during other shoulder movements.

➤ **Supraspinatus**



Action: humerus abduction and helps hold humeral head during abduction.

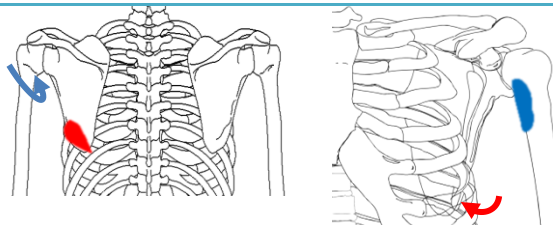
➤ **Teres Minor**



Action: humerus lateral rotation and helps hold humeral head during other shoulder movements.

• **Teres Major**

Note: Even though the origin of the teres major is on the posterior trunk, the insertion is on the anterior humerus. The arrow suggests that the insertion cannot be seen because it is anterior and the picture to the right shows the anterior humerus. This is very similar to the latissimus dorsi.



Action: humerus extension, adduction and medial rotation.