

MUSCULAR SYSTEM



The muscular system is often referred to as the machine of the body. Its main job is to provide us with movement and mobility. Though the human body itself is a complex mechanism, muscles themselves work in a very simple way. They merely contract and relax. These actions are brought about by converting chemical energy into mechanical energy. The movement produced can be classified as either voluntary or involuntary. Within the muscular system, there are three types of muscle tissues:

- Cardiac
- Smooth
- Skeletal.

The cardiac muscles are one of the involuntary muscles of our body and located only in the heart. These muscles are formed by branching fibers and controlled by impulses sent from the medulla oblongata of the brain. The smooth muscles are another grouping of involuntary muscles in our body. They make up our internal organs and aid in our digestion, circulation, urination, etc... The skeletal muscles are the only voluntary muscles of our body. They are composed of long muscle fibers and show external mobility and movement in our bodies. These are the muscles we will focus on in the rest of this section.

Skeletal muscles can be separated into groups based on their type of movement. This movement is built on the type of joint where the muscle is found. They generally act in pairs, one contracting while the other

extending: Flexors/Extensors which bend at the joint/extend at the joint (biceps/triceps) and Abductors/Adductors which pull away from the body/pull toward the body

In the prior section of the skeletal system, a separation was made between the axial skeleton and the appendicular skeleton. The same division can be made in this system as well.

The Axial Musculature arises on the axial skeleton and encompasses roughly 60 percent of the skeletal muscles. They are responsible for facial expression, eating and drinking, eye movements and all verbal communication. They are also responsible for flexing, extending and rotating the head and neck in addition to the respiratory muscles. They also include the pelvic floor muscles which comprise all movement in the openings and organs of the pelvic area

The Appendicular Musculature stabilizes or moves parts of the appendicular skeleton and includes all skeletal muscles that are not classified as axial. This includes all the muscles within the shoulders, arms, hands, pelvis, legs and feet and makes up the remaining 40 percent of the skeletal muscles.

All muscles are connected to each other and the bone through connective tissue. They consist of three parts:

- Outer – separates muscle tissues from other organs
- Central – divides the muscle into bundles
- Inner – connects the individual muscle fibers inside each bundle

These parts combine at the end of each muscle to form tendons which attach the muscle to the bone, and contain nerve and blood vessels that nourish the muscles.