Muscles

Bones and muscles work together to provide a structural framework for movement.

Like a machine, your body consists of many parts that move.

• Those parts are your bones and muscles.

Muscle Action - Voluntary

• Voluntary means that you can control it.
• Most of the time, skeletal muscles are involved in voluntary muscle movement.
• When you lift an object, it is voluntary.

Muscle Action - Involuntary

• Involuntary means you do not control the movement.
• The beating of your heart and movement of your digestive tract are both examples of involuntary muscle action.

You can voluntarily blink your eyes; however, sometimes blinking your eyes is involuntary.

The major function of the muscular system is to move bones.

• Muscles and bones work in coordination with your nervous system to move your body on demand.
• The muscular system also provides support and protection for your organs.
Skeletal, smooth, cardiac muscle, and tendons make up the muscular system.

The three types of muscle in the muscular system are skeletal, cardiac, and smooth.

Skeletal muscles are made of skeletal muscle tissue.

- Skeletal muscle tissue is made up of thousands of cylindrical muscle fibers often running the entire length of the muscle.

Tendons

- Tendons attach the muscles to bones allowing muscles and bones to work in coordination with your nervous system to move your body on demand.

Bundles of fibers are bound together by connective tissue.

- Blood vessels and nerves run through the connective tissue.
Muscle fibers contain long muscle cells each with thousands of mitochondria for energy.

- During a muscle contraction, a complex reaction causes muscle fibers to shorten.
- When the muscle relaxes, muscle fibers return to their original position.

Muscles usually work in pairs called flexors and extensors.

- If a muscle bends part of your body, it is called a flexor.
- If a muscle straightens part of your body, it is called an extensor.
- Flexor and extensor pairs provide almost all the movement of your skeleton.

During a muscle contraction, the muscle fibers get shorter.

Muscles require movement and exercise to remain strong.

- Resistance exercise requires muscles to overcome resistance (weight).
- Resistance exercise increases muscle size and strength.
Aerobic exercise like running, swimming laps, and cycling strengthens the heart and increases the endurance of skeletal muscle.