Poster Board Information

Human Muscular System

* Functions
* Movement
* Warmth
* Posture
* Muscle Properties
* Ability to contract
* Ability to be stretched
* Ability to respond to a stimulus
* Muscle Types
* Skeletal
* Smooth
* Cardiac



Human Muscular System

The primary role of the muscular system is to produce movement. As muscle tissue contracts, energy is used and heat is generated. Muscles also maintain body positions and postures, such as supporting your head or sitting.

Muscle is a unique tissue in its ability to contract (shorten). The functional unit of skeletal muscle tissue is a sarcomere, composed of actin and myosin protein filaments. When a muscle contracts, the sarcomere is shortened by actin filaments “sliding” over myosin filaments. Since a muscle fiber moves by shortening (it pulls and cannot push), muscles must work in antagonistic pairs. For example, a flexor contracts (shortens) and decreases the angle of joint while an extensor is stretched, increasing the angle of the joint. One muscle group contracts while an opposing muscle group extends. Muscle tissue is controlled and coordinated by stimuli from the nervous system.

The three types of muscle tissue are skeletal, smooth and cardiac. Skeletal muscle is attached to the skeleton with tendons and is controlled consciously. Skeletal muscle cells are long, fiber-like and multinucleated. The number of muscle fibers is fixed at birth, but protein can be added to increase the size the fiber with use and exercise. Lack of use causes muscle fibers to atrophy. Movement of smooth muscle tissue, found in internal organs, is usually involuntary. The cells of smooth muscle tissue are spindle-shaped and contain a single nucleus. Cardiac muscle, also involuntary muscle, is found only in the heart. Cardiac muscle tissue contains “gap” junctions that allow the diffusion of ions and the spread of electrical impulses from one cell to another.

**Human Muscular System Diagram**

**Picture1**

Human Muscular System

There are more than 600 voluntary muscles in the body, the strongest of which are the skeletal muscles. Skeletal muscles account for approximately 23% of a woman’s weight and approximately 40% of a man’s. Muscles work together to accomplish even simple movements.

Anatomy Worksheet

Picture2

The Muscles Functions are: 1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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3 Muscle Types are: 1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Bonus Question! What muscle do they write songs about?

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