

Consequences of Muscular System and Its Impact on Human Body

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DESCRIPTION

The muscular system is an essential part of the human body responsible for movement and maintaining posture. It is composed of three different types of muscles: skeletal, smooth, and cardiac. The skeletal muscles are the ones that attach to bones and allow us to move our body voluntarily. The smooth muscles are located in the organs and are responsible for involuntary movements, such as digestion. The cardiac muscles are located in the heart and are responsible for its contraction.

Skeletal muscles are the largest and most visible of the three types of muscles. They make up approximately 40% of the body's weight and are attached to the bones by tendons. Skeletal muscles are responsible for voluntary movement, such as walking, running, and lifting weights. These muscles work in pairs, with one muscle contracting while the other muscle relaxes. For example, when you lift your arm to wave, the biceps muscle contracts, while the triceps muscle relaxes.

Smooth muscles, also known as involuntary muscles, are found in the walls of organs and structures such as the digestive tract, blood vessels, and urinary bladder. These muscles are not under voluntary control, and their contractions are controlled by the autonomic nervous system. Smooth muscles are responsible for peristalsis, the process that moves food through the digestive tract. They also help regulate blood pressure and control the flow of blood through the body.

The cardiac muscle is a specialized type of muscle found only in the heart. It is responsible for the heart's contractions, which pump blood throughout the body. Unlike skeletal and smooth muscles, the cardiac muscle is self-stimulating, meaning that it can contract without receiving signals from the nervous system. However, the nervous system can influence the heart's contractions, and the heart rate can be increased or decreased in response to external stimuli.

Muscles are composed of thousands of muscle fibers, which are long and thin cells that contract when stimulated. Each muscle fiber contains myofibrils, which are composed of two types of protein filaments: actin and myosin. These filaments slide past each other during muscle contraction, causing the muscle to shorten and generate force. The arrangement of actin and myosin filaments gives muscles their striated appearance under a microscope. ATP is produced through a process called cellular respiration, which occurs in mitochondria within the muscle cells. During exercise, the demand for ATP increases and the body responds by increasing blood flow to the muscles and increasing the rate of ATP production.

Muscles can be trained and strengthened through exercise. Resistance training, such as weightlifting, causes the muscle fibers to tear slightly, and the body responds by repairing and strengthening them. This process is known as hypertrophy and leads to an increase in muscle size and strength. Endurance training, such as running or cycling, improves the muscles' ability to use oxygen and increases their endurance.

Muscles can also be affected by a variety of diseases and conditions. Muscular dystrophy is a group of genetic diseases that cause progressive muscle weakness and degeneration. Spinal cord injuries can also cause muscle weakness or paralysis below the site of the injury.

In conclusion, the muscular system is an essential part of the human body responsible for movement and maintaining posture. It is composed of three different types of muscles: skeletal, smooth, and cardiac. Skeletal muscles are responsible for voluntary movement, smooth muscles control involuntary movements, and cardiac muscles control the heart's contractions. Muscles are composed of muscle fibers that contract when stimulated by ATP. Muscles can be trained and strengthened through exercise, and they can be affected by various diseases and conditions.

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