

## Application of Musculoskeletal System and its Various Forms

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### DESCRIPTION

The musculoskeletal system is an essential component of human health. Skeletal, smooth, and cardiac muscle make up the muscular system, an organ system. It allows for body movement, supports posture, and moves blood throughout the body. Although some muscles, like the heart muscle are capable of complete autonomy. The neurological system controls the muscular systems in vertebrates. It makes up the musculoskeletal system, which controls how the body moves in humans, along with the skeleton system.

The human body has more than 650 muscles. Each muscle, which is made up of thousands of tiny muscle fibres, it is a type of Elastic tissue. The contraction of each muscle fibre is controlled by impulses from nerve cells. Each fibre is made up of numerous small strands called fibrils. Around joints, skeletal muscles are positioned in opposing groups are linked to bones. The central nervous system sends electrical currents through the nerves that innervate the muscles, by causing the muscles to contract. The human body has three different forms of muscle tissue are Skeletal, smooth, and cardiac muscle.

### Skeletal muscle

Skeletal muscles are parts of the vertebrate muscular system that are normally connected to the skeleton's bones through tendons. A form of striated muscle, skeletal muscle is made up of myofibrils, which are made up of muscle fibres and muscle cells. Skeletal muscle cells, which are frequently referred to as muscle fibres since they are much longer than those found in other types of muscular tissue. Skeletal muscles conduct a coordinated contraction by shortening each sarcomere in the sliding filament model. Muscular contraction is the most effective suggested

model for comprehending contraction. Actin and myosin fibres in the sarcomere contract toward one another as they overlap.

### Cardiac muscle

The thick middle layer of the heart is made up of cardiac muscle (also known as myocardium). Along with skeletal and smooth muscle, it is one of the three different types of muscles in the body. An inner endocardium and a thin outside layer known as the epicardium, and also known as visceral pericardium are surrounding by the myocardium.

### Smooth muscle

Smooth muscle is found and performs a number of jobs. It assists with digestion and nutrient absorption in the stomach and intestines. It is found throughout the urinary system, where it aids in electrolyte balance and detoxification of the body. The absence of sarcomeres and consequent lack of striations give smooth muscle by its name as an involuntary, non-striated muscle. Single-unit smooth muscle and multiunit smooth muscle are its two subgroups. The entire sheet or bundle of smooth muscle cells that make up a single-unit muscle contracts as a syncytium. The autonomic nervous system directly regulates smooth or (non-striated) muscle, which is involuntary and unable to be manipulated by conscious thought.

The musculoskeletal system is crucial to maintaining good health. Exercise stimulates the musculoskeletal system, which functions as the body's endocrine system and communicates with other bodily systems through biochemical signaling in addition to giving the body structure and the ability to move. . Skeletal muscle, smooth muscle, and cardiac muscle are the other two types of muscular tissues are found in vertebrates.

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