

1. Muscle

The term "muscle" is applied to a wide range of tissues, but in this review it is restricted to the striated muscle of the vertebrates. The term "muscle" is also used to describe the contractile tissue of the invertebrates, but this is not the case in this review.

2. Extracellular Matrix

The extracellular matrix of muscle is a complex of various components, including collagen, elastin, and proteoglycans. These components are arranged in a specific manner to provide structural support and facilitate the transmission of force during contraction.

3. Contraction of the Muscle Fiber

The contraction of a muscle fiber is a process that involves the interaction of actin and myosin filaments. This process is regulated by calcium ions and is the basis of the mechanical work performed by muscle.

4. The Role of the Sarcomere

The sarcomere is the basic unit of muscle contraction. It is a repeating unit of the myofibril, consisting of actin and myosin filaments. The length of the sarcomere determines the force of contraction.

5. The Role of the Tendon

The tendon is a cord of fibrous tissue that connects muscle to bone. It is composed of collagen fibers and is responsible for transmitting the force generated by the muscle to the bone.

6. The Role of the Nerve

The nerve is a bundle of axons that carries electrical impulses from the brain to the muscle. These impulses trigger the contraction of the muscle fiber.

7. The Role of the Blood Vessel

The blood vessel is a tube that carries blood to and from the muscle. It provides the muscle with oxygen and nutrients, and removes waste products.

8. The Role of the Connective Tissue

Connective tissue is a type of tissue that provides structural support and connects different parts of the body. In muscle, it surrounds the fibers and the entire muscle.

9. The Role of the Endothelium

The endothelium is the inner lining of blood vessels. It is composed of a single layer of cells and is responsible for regulating the flow of blood.

10. The Role of the Epithelium

The epithelium is a type of tissue that covers the surface of organs and tissues. It is composed of multiple layers of cells and is responsible for protecting the underlying tissues.

11. The Role of the Dermis

The dermis is the middle layer of the skin. It is composed of connective tissue and contains blood vessels, nerves, and hair follicles.

12. The Role of the Hypodermis

The hypodermis is the deepest layer of the skin. It is composed of adipose tissue and is responsible for insulating the body and storing energy.

13. The Role of the Epidermis

The epidermis is the outermost layer of the skin. It is composed of multiple layers of cells and is responsible for protecting the body from the environment.

14. The Role of the Subcutaneous Tissue

Subcutaneous tissue is the layer of tissue beneath the dermis. It is composed of adipose tissue and is responsible for insulating the body and storing energy.

15. The Role of the Muscular Tissue

Muscular tissue is a type of tissue that is responsible for movement. It is composed of muscle fibers and is found in all animals.

16. The Role of the Nervous Tissue

Nervous tissue is a type of tissue that is responsible for transmitting electrical impulses. It is composed of neurons and is found in all animals.

17. The Role of the Epithelial Tissue

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