

- **Connective Tissue:** The role of connective tissue in the human body is to support it by combining all types of tissue together. The skeletal tissues of the body are connected by springy tendons. Therefore, by doing this it is also able to create a mechanical framework called the skeleton, hence it plays an important role in locomotion. The properties of this tissue are that the tissue has a vast amount of intercellular substance, and have few cells which are widely separated from each other. These cells roles are to secrete enormous amounts of intercellular ground substance.
- **Nerve Tissue:** The main role of nervous tissue is to react to stimuli which are in the human beings environment and send impulses around the body. The location of nervous tissue will be of course in the nervous system, for example, brain, peripheral nerves and spinal cord. Nervous tissue has specialized cells called neurons whose role is to send and transmit impulses. The nerves of the body are made from nerve cells which are connected by connective tissue; also, the nerve is covered by a dense connective tissue called the epineurium. This epineurium break through the nerve to form the perineum which surrounds the nerve fibres. There is a loose film of connective tissue called the endoneurium; therefore, it also encases the nerve fibres.

➤ **Muscular Tissue:**

Muscular tissue is tissue that has the ability to contract and relax, therefore, this is what causes the body to have mechanical work and movement. With muscular tissue, there are two types of activities. Therefore, these activities are called voluntary and involuntary movements.

- **Voluntary Movement:** Voluntary movements are muscles which can be moved by our conscious, therefore, meaning that we are in control of our voluntary muscles. Examples of voluntary muscles are the arms, legs, toes, fingers, and many more.
- **Involuntary Movement:** Involuntary movement is when muscles in the body, such as the heart and pupils of the eyes, work without out having to control them consciously, therefore, this means that involuntary muscles are muscles which work by themselves and are out of our control. These types of muscles are normally smooth, uninucleated, and non-branching. Examples of organs that move involuntary are is the heart beat, blinking, and the movement of the alimentary canal.

### Types of Muscle Tissue

There are three types of muscle tissue; therefore, these are Smooth Muscle Tissue, Skeletal Muscle Tissue, and Cardiac Muscle Tissue.

- ✚ **Smooth Muscle Tissue:** These muscles are elongated thin cell fibres; therefore, the fibres at the end are pointed with their nucleus being a huge oval shape. The cells of smooth muscle tissue contain circular cytoplasm called the sarcoplasm; which is surrounded by a thin cell membrane. The cells also have myofibrils which lie corresponding to one another in the long axis of the cell. Smooth muscle is involuntary; therefore, this means that it controls slow involuntary movements in the body such as the contraction of muscles in the wall of the stomach and intestines. Also, the location of this type of muscle would be at the walls of hollow organs, digestive tract, walls of the bladder, uterus, ducts of glands, and blood vessels.

### **Muscle Tissue and Nervous Tissue**

- ✚ Nervous tissue has nerves which contain neurons; while muscle tissue contains myocytes which are completely different from neurons.
- ✚ The organisation of nervous tissue is different from muscle tissue; since muscle tissue is organised by fibres which are encased in connective tissue.
- ✚ Nervous tissue can transmit electrical impulses all round the body; while muscles depend on the contraction muscles, such as the heart to pump oxygen and nutrients around the body.
- ✚ The main role of nervous tissue is to send impulses around the central nervous system; while the muscle tissues role is movement.
- ✚ Muscle tissue cells usually have oval shaped nucleuses; however, in nerve cells they have one central nucleus.

### **Simple Columnar Epithelium and Ciliated Columnar Epithelium**

- ✚ Ciliated Columnar Epithelium has cilia, while simple columnar epithelium does not.
- ✚ The two different types of tissue are located in different areas of the body.
- ✚ The simple columnar tissue role is to be the sensory receptors of the body; while ciliated columnar tissue is responsible for taking bacteria and dust away from the body through the nose.

### **Glandular Epithelium and Simple Columnar Epithelium**

- ✚ Glandular Epithelium tissue contains Goblet cells; while the simple columnar tissue does not.
- ✚ The two tissues have different roles; since the Glandular tissues role is to secrete certain substances, enzymes, hormones, milk mucus in the mammary glands, sweat, wax, and saliva in the body.

### **Skeletal Muscle Tissue and Cardiac Muscle Tissue**

- ✚ Skeletal tissues are attached to the skeletal bones of the body; however, cardiac muscle tissue is located in the walls of the heart.
- ✚ Cardiac muscle tissue is involuntary, while skeletal muscle tissue is voluntary.
- ✚ Cardiac muscle tissue striations are not so visible, the sarcolemma is thinner, there are adjacent fibres, and the cardiac muscle fibres of the tissue only have one nucleus.
- ✚ Nucleuses are randomly located in the tissues.

### **Smooth and Cardiac Muscle Tissue**

- ✚ Smooth tissue has no striations; while cardiac tissue does.
- ✚ Cardiac muscles are branched with inter-calated discs; while smooth muscle is not.

### **Cardiac and Skeletal Tissue**

- ✚ Skeletal tissue is voluntary; while cardiac tissue is involuntary.
- ✚ The A-bands on Cardiac tissue are small; while in skeletal tissue they are large and thick.

### **Skeletal and Smooth Tissue**

- ✚ Skeletal Tissue is voluntary; while smooth muscle tissue is involuntary. The reason smooth tissue is involuntary is because there are no striations located in the tissues.

### **Smooth and Skeletal Muscle Tissue**

- ✚ Skeletal muscles are under voluntary control; while smooth muscle is under involuntary control.
- ✚ Smooth muscles are not striated; while skeletal muscles are.

### **References**