The Body & Its Movements

Organization And Structure Of The Body

All living things are made up of one or more cells. For this reason, cells are known as the structural units or the building blocks of life. In an organism made up of only one cell (unicellular), the single cell performs all the activities necessary for life. In an organism made up of many cells (multicellular), the various life activities are performed by different groups of cell.

A group of cells that performs a special job together is known as a tissue. Blood, bone, muscle and skin are some of the tissues in your body. For example, muscle tissues are a group of cells, specialized to contract and expand for the movement of body parts. Tissues combine to form an organ. Each organ performs some important function of the body. For example, the heart is an organ that pumps blood to various parts of the body. The eye is an organ that enables you to see. Lungs, kidneys and liver are some other organs which perform important roles in your body.

Groups of organs work together to carry out various life activities in our body. For example the food pipe, stomach, small intestine, large intestine and some other organs together help you to digest the food you eat. Such a group of organs is called an organ system. The group of organs that carry out digesti6n of food collectively form the digestive system. Some other systems in your body are: circulatory, respiratory, nervous, urinary (or excretory), reproductive, muscular and skeletal

All these systems together form your body. They all work to keep you alive. Thus, the human body, and the bodies of all multiceliul.ar living organisms, are organized as follows:

Celts —> Tissues —> Organs —> Organ systems —> Human Body

The main systems in the human body and their functions are given:

Organ System	Main Organs	Main Functions
Skeletal System	Bones	gives support to the body; protects internal organs; allows movement
Muscular System	Muscles	movement of body parts
Circulatory System	heart, blood, blood vessels	transports nutrients and oxygen to all parts of the body; transports waste
Nervous System	brain, spinal cord, nerves	controls all functions of the body
Respiratory System	nose, wind pipe, lungs	takes in oxygen and removes carbon dioxide
Digestive System	teeth, food pipe, stomach, small and large intestine	digests and absorbs nutrients necessary for growth and maintenance of the body
Excretory System	kidneys, ureters, bladder, urethra, skin	removes waste from the body
Reproductive System	female: ovaries, oviducts, uterus, vagina male: testes, sperm tube, urethra, penis	produces off springs

Movement: You walk from one place to another by using legs. You can also move different parts of your body. Does a bird or an earthworm move in the same way as you do? Each animal has its own way of moving. They may walk, run, fly, jump, hop, creep, crawl, slither, swim or move in other ways.

Some parts of your body can move more than others. What determines how much movement is possible for each part? This is determined by your bones and how they are joined to each other. Let us study about the bones in detail.

The Human Skeletal System: The bones in our body make up a framework called skeleton. The skeleton of an adult human being is made up of 206 bones. A child has many more bones. But as he grows into an adult many of the bones fuse together.

Functions of The Skeleton: The skeleton has four main functions.

SUPPORT: Your body has a number of soft organs and muscles. It is necessary to have a hard framework to support these parts, otherwise the body will collapse. Your skeleton provides this framework and holds you upright.

PROTECTION: The bones protect the organs of your body. The brain is protected by the skull; the heart and lungs by the long bones in your chest called the ribs.

MOVEMENTS: Though the individual bones are hard, several of them can move at places where they are joined to other bones. That is why you can move your arms, legs, fingers, and many other parts of your body

MAKING BLOOD CELLS: Bones are hard from outside but they are soft and spongy the inside. The inside of bones contain soft substance called the bone marrow.

Structure Of The Human Skeleton: Skeleton has four basic parts— the skull, the backbone or spine, the ribs and limbs.

The Skull: The skull is the bony structure that surrounds and protects your brain. It contains holes for your eyes, ears, nose and mouth. The upper part is made up of 8 flat bones joined together. The face and jaw contain 14 bones. Your teeth are fixed to the jaw bones. The lower jaw bone is the only movable bone in the skull. It enables you to chew food and talk.

The Backbone or Spine: There is a long hard bony structure which is not very smooth? This is the backbone. It is not smooth because it is made up of a number of small bones. It consists of 33 small bones called the vertebrae. These are joined to each other. The joints allow slight movement of the vertebrae. This is why you can bend and twist your back. The backbone is attached to the base of the skull. It forms the central supporting rod for the skeleton. Each vertebra has a hole in it. The delicate organ of your body called the spinal cord passes through these holes. Thus, the backbone protects the spinal cord. The backbone is also called the spine or the vertebral column.

The Rib Cage: There is flat curved bones under the chest. These are your ribs. The ribs are thin, flat, curved bones that form a protective cage around the organs in the upper part of the body. This is called the rib cage. The rib cage consists of 24 bones arranged in 12 pairs. All of them are joined to the backbone at the back. Most of them are joined to the breastbone in front. The last two pairs that are not joined to the breastbone are called floating ribs. The rib cage protects the heart and the lungs. It also protects parts of the stomach and the kidneys.

The Limbs (arms and legs): Nearly half of the bones are in the hands, wrists, feet and ankles. The Longest bone of the body is the thigh bone or the femur. The lower half the leg has the long skin bone and calf bone. The ankles and the feet have a number of small bones. The femur is attached to the hip bone through the hip joint.

The upper arm has one long bone called the humerus. The Lower arm has two long bones. The wrist and hands have several bones. The humerus is attached to the vertebral column through the collar bone and the shoulder blade.

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