HUMAN SKELETON

(AXIAL SKELETON AND APPENDICULAR SKELETON)

LEARNING OUTCOMES

Students will be able to:

1. define skeleton and differentiate between cartilage and bone;
2. describe the role of skeleton in support and movement;
3. explain that skeletal system is actually a dynamic, living tissue that is capable of growth, adapts to stress and repairs itself after injury;
4. describe the main components of the axial skeleton and the appendicular skeleton.

THE HUMAN SKELETON

The skeleton (From Greek skeletos = "dried-body", "mummy") is the body part that forms the supporting structure of an organism.

The **human skeleton** consists of both fused and individual bones supported and supplemented by ligaments, tendons, muscles and cartilage. It serves as a scaffold which supports organs, anchors muscles, and protects organs as the brain, lungs and heart. The biggest bone in the body is the femur in the thigh and the smallest is the staples, bone in the middle ear.

CARTILAGE

Cartilage is a type of connective tissue in the body. It is made of cells chondrocytes embedded in a matrix, strengthened with fibers and sometimes elastin, depending on the type of cartilage. There are three different types: *hyaline cartilage*, *elastic cartilage* and *fibrocartilage*.

Cartilage serves to provide structure and support to the body's other tissues without being as hard or rigid as bone. It can also provide a cushioning effect in joints.

Cartilage is *avascular*, meaning that it is not supplied by blood vessels; nutrients diffuse through the matrix. Cartilage is usually flexible, depending on the type. Some of the bodily structures that include cartilage are the ears, nose, ribcage and intervertebral discs.

Axial Skeleton

The word **"Axial"** is taken from the word "axis" and refers to the fact that the bones are located close to or along the central axis of the body

The **axial skeleton** consists of 80 bones along the central axis of the human body. It is composed of five parts; the human skull, the ossicles of the middle ear, the hyoid bone of the throat, the rib cage, sternum and vertebral column.
The axial skeleton and the appendicular skeleton together form the complete skeleton.

Appendicular skeleton

The **appendicular skeleton** is composed of 126 bones in the human body.

Functionally it is involved in locomotion (Lower limbs) of the axial skeleton and manipulation of objects in the environment (Upper limbs).

The appendicular skeleton is divided into six major regions:

Pectoral Girdles

Arm and Forearm

Hands

Pelvis

Thigh and leg

Feet

Unlike the axial skeleton, the appendicular skeleton is unfused. This allows a much greater range of motion.

The Skeletal system

Multiple Choice Questions

1.The bones included in the axial skeleton are

A. skull and pelvis.
B. skull and ribcage.
C. ribcage and pectoral girdles.
D. pelvis and pectoral girdles.

2. The appendicular skeleton

A. is responsible for locomotion.
B. is fused therefore cannot bring about movement.
C. includes the pectoral girdles only.
D. includes the spine only.

3. The cartilage is

A. another name for the bone.
B. avascular.
C. more firm than the bone.
D. present within the bone.