

Chapter 11: Skeleton - Movement and Locomotion

Human Skeleton: Overview

The human skeleton provides shape, support, and protection to the body. It also facilitates movement through joints and muscles. The skeleton consists of bones, cartilage, and joints.

Functions of the Human Skeleton

1. **Support:** Maintains body shape and posture.
2. **Protection:** Safeguards vital organs (e.g., skull protects the brain).
3. **Movement:** Bones act as levers for muscles.
4. **Mineral Storage:** Stores calcium and phosphorus.
5. **Blood Cell Production:** Bone marrow produces blood cells.

Divisions of the Skeleton

1. **Axial Skeleton:** Comprises the skull, vertebral column, ribs, and sternum. Provides central support and protects vital organs.
2. **Appendicular Skeleton:** Includes the limbs and girdles (pectoral and pelvic), allowing movement and locomotion.

Types of Joints and Their Locations

1. **Immovable Joints (Fibrous):** No movement (e.g., skull sutures).
2. **Slightly Movable Joints (Cartilaginous):** Limited movement (e.g., intervertebral discs).
3. **Freely Movable Joints (Synovial):** Allow various movements:
 - **Hinge Joint:** Movement in one plane (e.g., knee, elbow).
 - **Ball and Socket Joint:** Rotational movement (e.g., shoulder, hip).
 - **Gliding Joint:** Sliding movement (e.g., wrist, ankle).
 - **Pivot Joint:** Rotational movement around a single axis (e.g., atlas and axis in the neck).

Movement and Locomotion

Movement is the action of changing position or posture, while locomotion refers to the movement from one place to another. Muscles contract and relax to facilitate movement at joints.

Conclusion

The skeletal system, along with muscles, enables movement and locomotion, providing structure and support to the body while protecting vital organs.

