

The Skeletal System

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1. Introduction

- The skeletal system is the framework of bones that provides support, protection, and structure to the human body.
- It consists of 206 bones in adults, which are categorized into two main types: axial skeleton and appendicular skeleton.

2. Axial Skeleton

- The axial skeleton includes the skull, vertebral column, and rib cage.
- The skull protects the brain and houses sensory organs like the eyes and ears.
- The vertebral column supports the body and protects the spinal cord.
- The rib cage protects vital organs such as the heart and lungs.

3. Appendicular Skeleton

- The appendicular skeleton includes the bones of the upper and lower limbs, as well as the shoulder and pelvic girdles.
- The shoulder girdle connects the upper limbs to the axial skeleton.
- The pelvic girdle supports the lower limbs and protects reproductive organs.

4. Functions of the Skeletal System

- Support: Provides structural support for the body and helps maintain posture.
- Protection: Protects vital organs such as the brain, heart, and lungs.
- Movement: Bones act as attachment points for muscles, allowing movement.
- Mineral Storage: Stores minerals like calcium and phosphorus, essential for bone health.
- Blood Cell Production: Bone marrow produces red and white blood cells.

5. Bone Structure

- Bones are composed of living tissue, primarily collagen and calcium phosphate.
- The outer layer of bone is called compact bone, while the inner layer is spongy bone.
- Bone marrow, found inside bones, produces blood cells and stores fat.

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6. Bone Growth and Maintenance

- Bones grow and repair through a process called remodeling, where old bone is replaced with new bone tissue.
- Bone growth is regulated by hormones like growth hormone and estrogen.
- Weight-bearing exercise, adequate nutrition, and sunlight exposure are essential for bone health.

7. Common Skeletal Disorders

- Osteoporosis: A condition characterized by weakened bones, increasing the risk of fractures.
- Arthritis: Inflammation of joints, leading to pain and decreased mobility.
- Scoliosis: Abnormal curvature of the spine, affecting posture and movement.

8. Conclusion

- The skeletal system plays a crucial role in the human body, providing support, protection, and mobility.
- Maintaining bone health through proper nutrition, exercise, and regular check-ups is essential for overall well-being.