Questions related to the Bodily Organs and Systems will test your knowledge of structures and functions within the ten human organ systems that are essential to life. You may also be tested on vocabulary terms related to your understanding of anatomy. You must understand these vital body systems when caring for patient’s co-morbidities.

Please note that the ATI TEAS will only cover basic knowledge of bodily organs and systems. More in-depth knowledge will be covered in our Anatomy and Physiology Series.

Let’s get started on understanding how the bodily organs and systems are important on the ATI TEAS.

THE SKELETAL SYSTEM

The skeletal system serves several important functions in the body. It provides the framework for vital organs and protects these same organs from injury.

Bones are dynamic tissues that are made and broken down continuously. Bones are almost as strong as steel, which allows them to act as armor for soft organs. For example, the heart and lungs are protected by the sternum.
Bone cells are called osteocytes and there are two main types:
- **Osteoblasts** (oste- = bone, blast - = form new): cells that make bone
- **Osteoclasts** (oste- = bone, clast - = break down): cells that break down bone

Bone is synthesized within tubular structures called osteons, which are made of hydroxyapatite embedded in a matrix of collagen. Each osteon consists of concentric layers called lamellae, which are compact bone tissue that surround a central canal called the Haversian canal, which contains the bone’s blood supply.

There are four types of bones:
- **Long bone** has hollow shafts that contain marrow
  - Arm (humerus, radius, and ulna) and Legs (femur, tibia, and fibula)
- **Short bone** is wider than it is long
  - Metacarpals and phalanges of the hand, and metatarsals and phalanges in the feet
- **Flat bone** is not hollow, but do contain marrow
  - Scapula, ribs, and sternum
- **Irregular bone** is a non-symmetrical shaped bone
  - Vertebrae column and patella
The Skeletal System

In total, the body contains 206 bones and are classified into two groups.

- The **axial skeleton** contains the skeleton's center and includes the skull, vertebral column, and rib cage.
- The **appendicular skeleton** consists of the arms and legs, also known as appendages.

Another important function of the skeletal system is the interaction between the bone and muscles. Muscles are attached to bones by tendons, connective tissue found throughout the body. As muscles contract, tendons pull on the bones and move certain parts of the body.

There are a few common bone diseases that you should be familiar with.

- **Osteoporosis** is caused by loss of minerals from the bone, which causes its rigidity to be lost.
- **Osteogenesis imperfecta** (brittle bone disease) is caused by a genetic defect in the collagen matrix that causes bones to be brittle and break easily.

Easy way to remember tendons vs ligaments:

- The T in Tendons stands for Two = Two types tissue (bone to muscle)
- The L in Ligaments stands for Lone = One type of tissue (bone to bone)