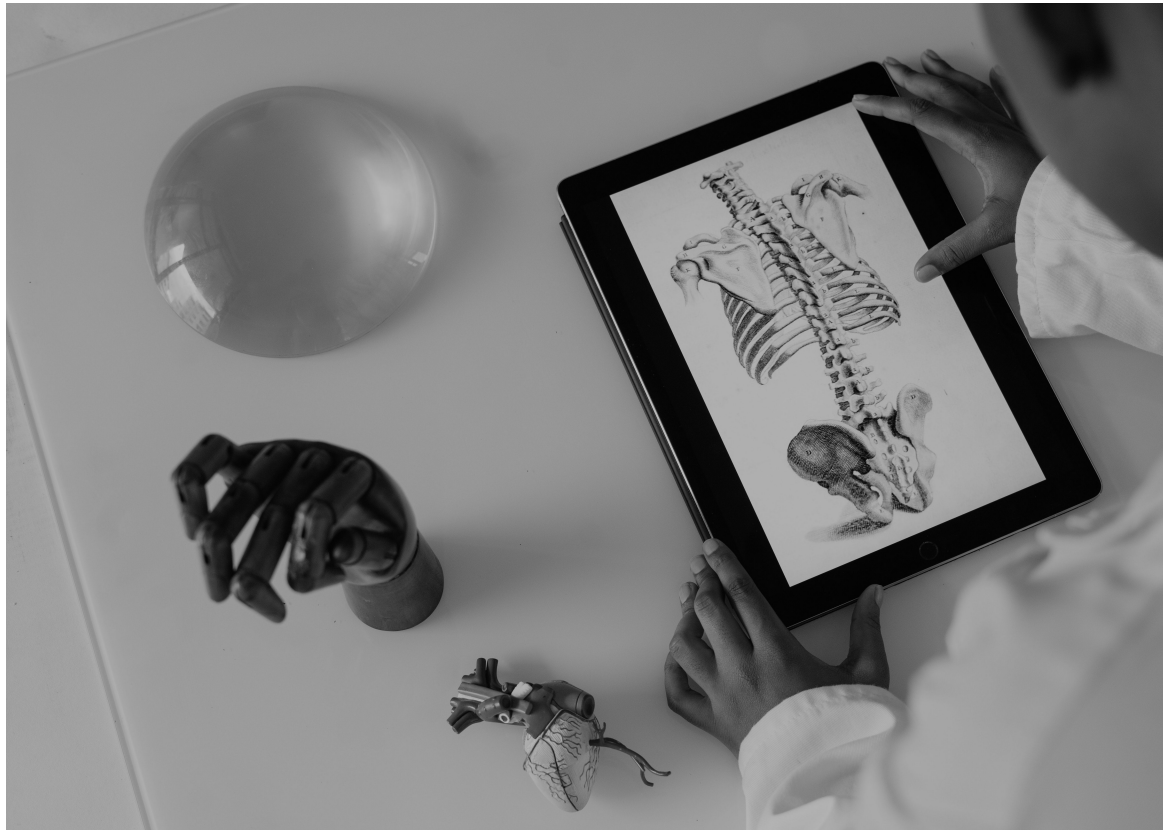


# Anatomy and Physiology of Children



# Overview of Child Anatomy and Physiology

Anatomy is the study of the body. Physiology is the study of the *function* of the body. It is important to understand the differences between adult and child/teen anatomy and physiology.

There are four components in the body which restrict or allow movement: the tissues, the skeleton system, the muscular system, and the nervous system. Let's look at each of these separately.





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# Tissues

- **Epithelial tissue** is responsible for covering internal and external surfaces of the body and all the organs in the body. The glands are also made of epithelial tissue.
- **Connective tissue** protects, supports, and connects body parts. Bones, cartilage, blood, and the connective tissue proper are considered connectives tissues.
- **Muscle tissue** is responsible for movement. There are three types of muscle tissues: skeletal muscles (related to movement), cardiac muscle (found only in the heart), and smooth muscle (visceral muscle).
- **Nervous tissue** is related to sensory response and is responsible for control of the body and communication within the body through electrical signals. The neuron is the main cell of the nervous tissue.



# Skeletal System

Our bones are constantly changing, especially for kids. We are born with approximately 270 bones, which fuse together (ossify) throughout childhood. Bones grow both lengthwise and widthwise. Our bones don't stop ossifying until we are 25. At this point, we have about 206 bones.

The main differences between the bones of a child and those of an adult is that children's bones are growing, are more elastic, and heal faster than those of adults.

Children's bones are also softer. Because they are not calcified and tend to be flexible, a child's ligaments also are more elastic.



# Muscular system

The main functions of the musculature system are to maintain posture and tone, stabilize joints, and promote movement.

It has other functions as well, such as protecting internal organs, regulating the fluid flow within the body, and supporting the proper functioning of the organs.



# Nervous System

The nervous system plays important roles, including assimilating information from the environment and orientating us to possible danger. It can be divided into two parts:

- The **central nervous system** (brain and spinal cord).
- The **peripheral nervous system** (cranial and spinal nerves, sensory and motor neurons, somatic nervous system, and *Autonomic Nervous System*).

The ***Autonomic Nervous System*** has two different parts as well: the **Sympathetic Nervous System** and the **Parasympathetic Nervous System**.

- The **Sympathetic Nervous System** is activated in situations that require alertness and energy, such as when we are doing physical activities or in moments of stress or danger
- The **Parasympathetic Nervous System** is responsible for conserving and restoring the body, the "rest and digest" state.