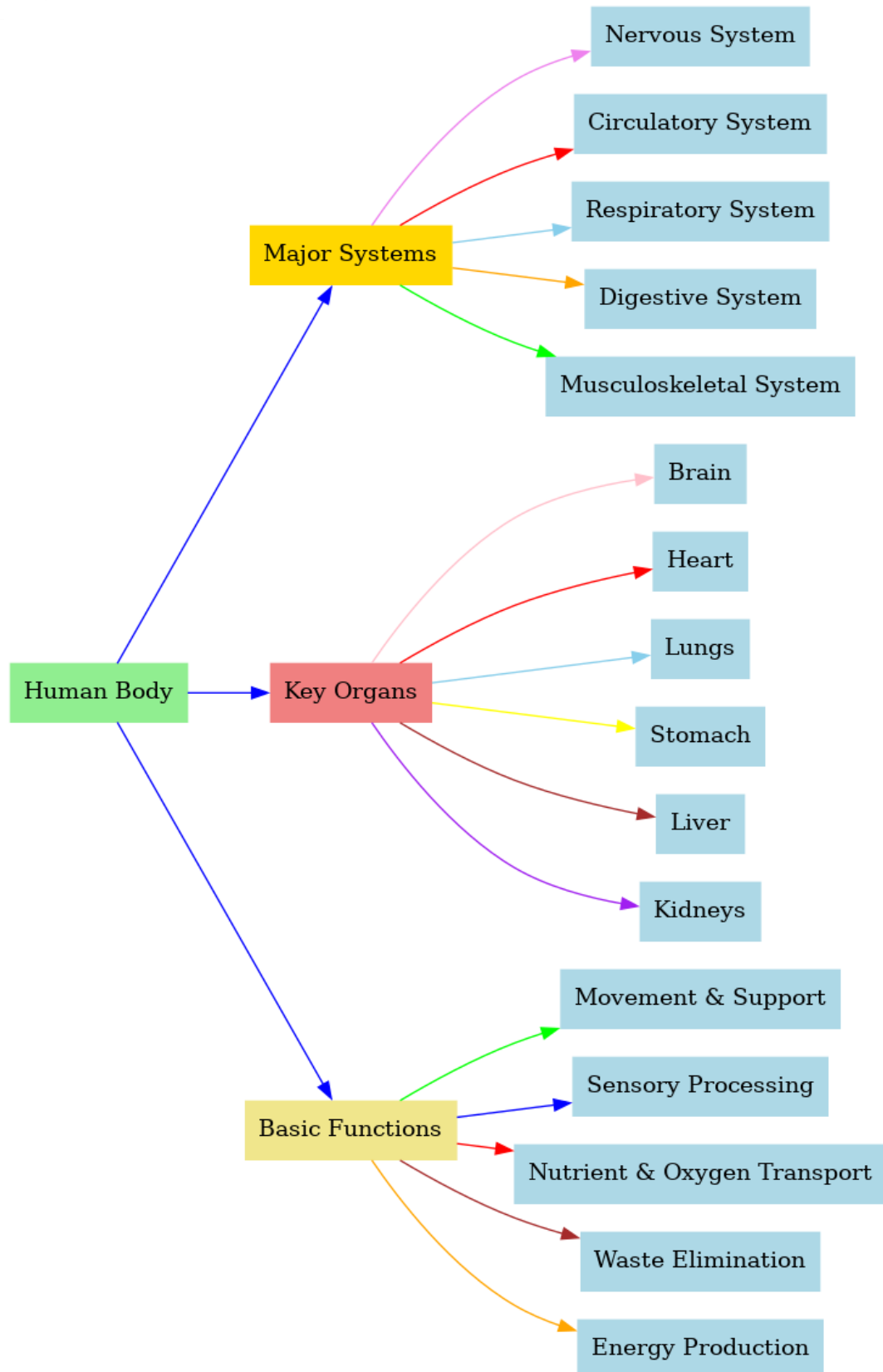


Introduction to Human Body



Definition & Scope of Anatomy and Physiology

Anatomy: Definition and Scope

- Anatomy is the study of the structure and organization of living organisms, particularly focusing on the physical makeup of the human body.

- It involves examining the body's various parts, including bones, muscles, organs, blood vessels, nerves, and tissues.

Anatomy is further divided into several branches:

1. Gross anatomy (macroscopic anatomy):

- Studies the structures visible to the naked eye, such as organs and organ systems.

2. Microscopic anatomy:

- Examines structures that can only be observed under a microscope, including cells and tissues.
- Histology and cytology are sub-disciplines within microscopic anatomy.

3. Developmental anatomy:

- Investigates the changes in an organism's structure from conception to adulthood, including embryology, which focuses on the development of an organism from fertilization to birth.

4. Comparative anatomy:

- Analyses and compares the anatomical structures of different species, providing insight into evolutionary relationships and adaptations.

Physiology: Definition and Scope

- Physiology is the study of the functions and processes of living organisms, with a particular focus on how the human body's various systems work together to maintain homeostasis.
- Physiology examines the mechanisms behind the body's functions at the molecular, cellular, tissue, organ, and system levels.

The field is divided into several branches, including:

1. Cell physiology:

- Investigates the processes and functions of cells and their components.

2. Systems physiology:

- Explores the function and interaction of specific organ systems, such as the cardiovascular, respiratory, and nervous systems.

3. Neurophysiology:

- Examines the functions and mechanisms of the nervous system, including the brain, spinal cord, and peripheral nerves.

4. Endocrinology:

- Studies the production, secretion, and action of hormones and their role in regulating the body's functions.

5. Exercise physiology:

- Focuses on the effects of physical activity on the body and its systems, including adaptations and performance optimization.

Basic Anatomical Terminology

- Basic anatomical terminology is essential for accurate and effective communication in the fields of anatomy, physiology, and medicine.
- These terms provide a **standardized way** to describe the **location, orientation, and relationships** of body structures.

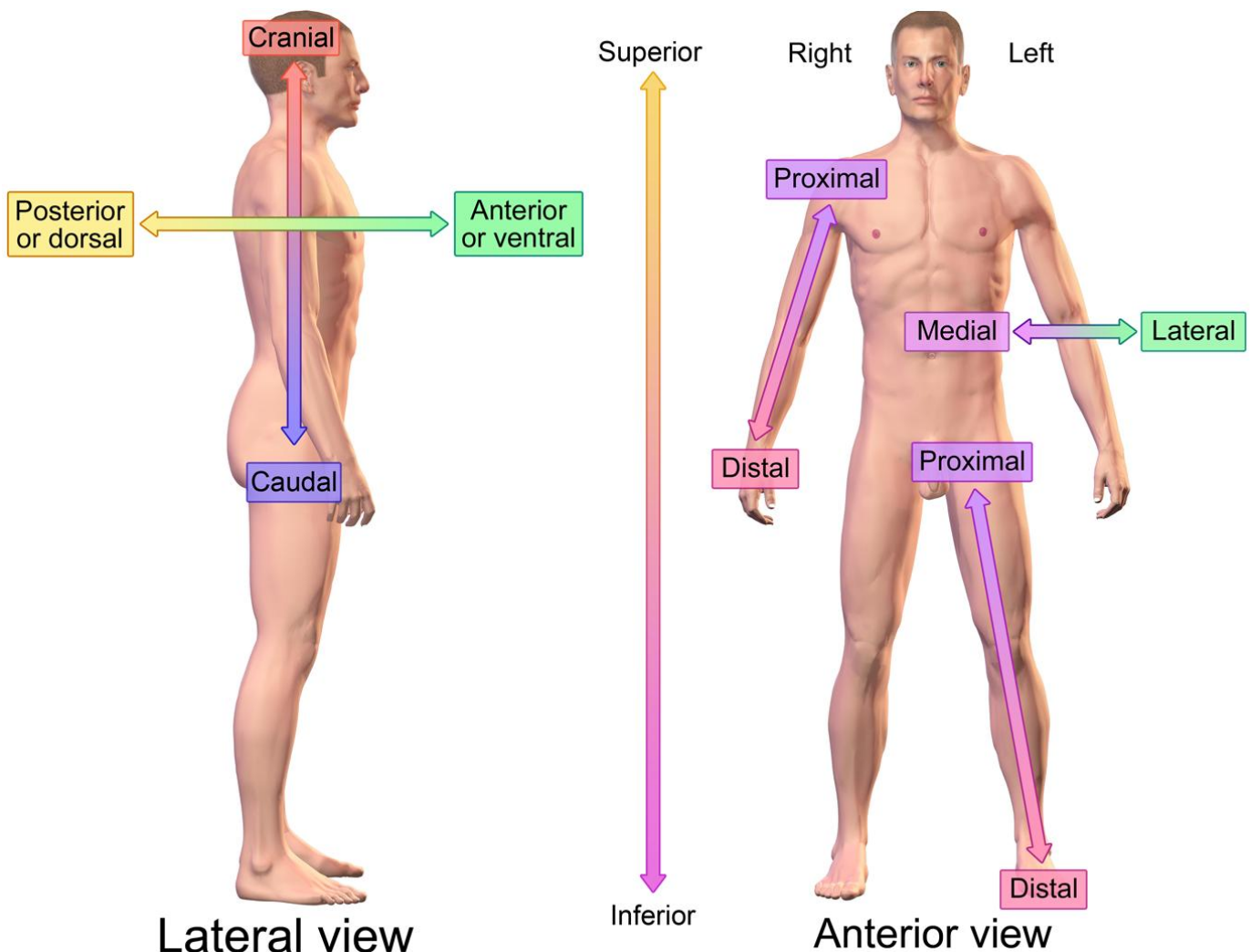
Some fundamental anatomical terms include:

1. Anatomical Position:

- A reference point for describing the location and orientation of body structures.
- The anatomical position involves the individual standing upright, facing forward, with arms at the sides, palms facing forward, and feet parallel.

2. Directional Terms:

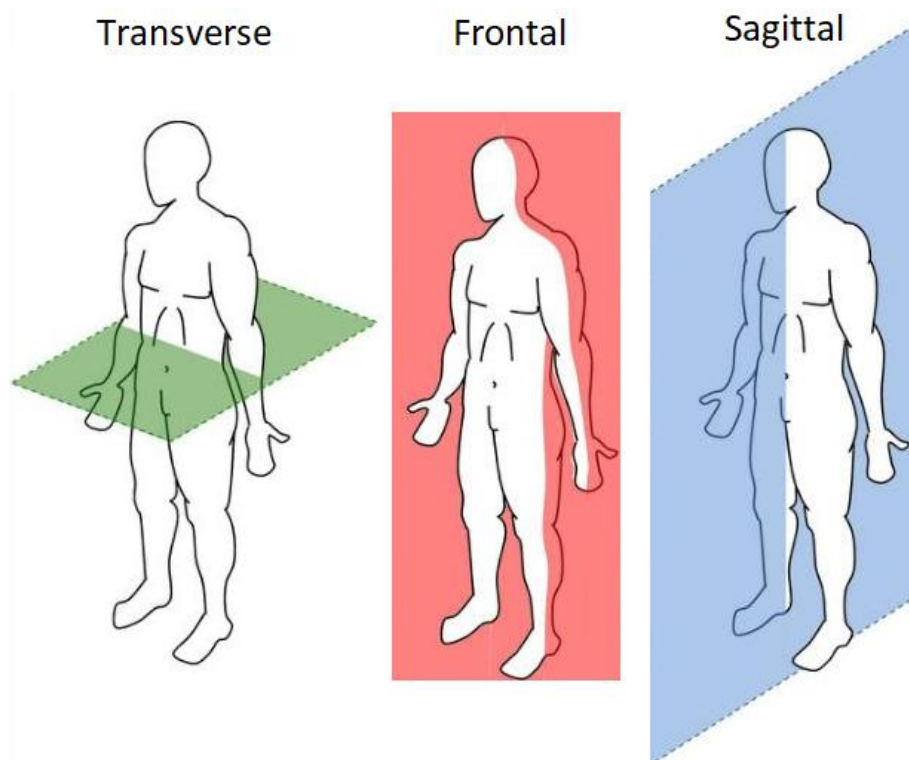
- These terms describe the relative position of body structures in relation to each other:



- **Anterior (Ventral):** Toward the front of the body.
- **Posterior (Dorsal):** Toward the back of the body.
- **Superior (Cranial):** Closer to the head or higher than another structure.
- **Inferior (Caudal):** Closer to the feet or lower than another structure.
- **Medial:** Nearer to the midline of the body.
- **Lateral:** Farther from the midline of the body.
- **Proximal:** Closer to the point of attachment or origin, typically used for limbs.
- **Distal:** Farther from the point of attachment or origin, typically used for limbs.
- **Superficial:** Closer to the surface of the body.
- **Deep:** Farther from the surface of the body.

3. Body Planes:

- Imaginary flat surfaces that divide the body or organs into sections:
 - **Sagittal Plane:** A vertical plane that divides the body into left and right sections.
 - **Midsagittal (Median) Plane:** Specifically divides the body into equal left and right halves.
 - **Coronal (Frontal) Plane:** A vertical plane that divides the body into anterior and posterior (front and back) sections.
 - **Transverse (Horizontal) Plane:** A horizontal plane that divides the body into superior and inferior (top and bottom) sections.



4. Body Cavities:

- Spaces within the body that house and protect internal organs:



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