

Scope of Anatomy and Physiology Definition of various terminologies

Human Anatomy & Physiology

Chapter-1

HUMAN ANATOMY AND PHYSIOLOGY

Anatomy:

Anatomy is a branch of science in which deals with the internal organ structure is called *Anatomy*.

- The word "*Anatomy*" comes from the Greek word "*ana*" meaning "up" and "*tome*" meaning "a cutting".
- *Father of Anatomy* is referred as "*Andreas Vesalius*".

Physiology:

- In the physiology we deals with the working principle of different body systems and interaction between each other.
- In the physiology we will discuss about metabolic pathway of body system and their activities.

Scope of Anatomy and Physiology—

(A) Branch of Anatomy:

- Development biology/Embryology—
- In this branch of Anatomy we deals with the, structural changes and structural development of sexual gametes and embryo development.
- **Sequential** development of embryo is.
Gamete formation—Fertilisation—Fallopian development of fertilise egg—Implantation—Embryo formation—Foetus development.

(2) Cell biology

- In the cell biology we will study about structural changes and structural development of cell during cell division or cell development.
- Cell is the fundamental structural and functional unit of living things.

(3) Histology-

- Histology is the study of structural changes and structural development of Tissues.

- **A group of cell having similar structure and act together to perform specific person is**
Called tissue. It is four types.
 - Epithelial tissue.
 - Connective tissue.
 - Muscular tissue.
 - Nervous tissue.

(4) Gross Anatomy

- In the gross anatomy we deals with the structure of the body that are visible to naked eye.so it is also called *Macroscopic Anatomy*.

(5) Topographic Anatomy

- In this branch we discuss about layering structure of body part, projection present on skin, and interconnecting structure of muscle, nerves and Arteries. It is also called as surface Anatomy.

(6) Radiographic Anatomy

- Study of *Anatomical structural* by using radiographic technique is known as radiographic Anatomy.
In this procedure x-ray are used for the structural representation of three dimensional object in two dimensional image.

(7) Systemic Anatomy

In the systemic Anatomy we deals with Eleven different body system of our body.

- *Integumentary/Exocrine system*
- *Endocrine system*
- *Nervous system*
- *Lymphatic/Immune system*
- *Muscular system*
- *Skeletal system*
- *Respiratory system*
- *Circulatory system*
- *Digestive system*
- *Urinary system*
- *Reproductive system*

(B) Branch of physiology—

(1) Cell physiology:

- Study of cells functions, working principle and interaction of cells with each other is called cell physiology.

(2) Endocrinology:

- Study of hormonal substances and their functions, how to control our body is known as Endocrinology.

(3) Neurophysiology

- Study of nerve cell and their functions is called *Neurophysiology*. It is also known as *messenger physiology*.

(4) Immunology

- Study of defensive mechanism in our body against disease causing agent or during disease conditions is called *Immunology*.

(5) Cardiovascular physiology

- Study of working principle/ functions of heart and blood vascular system is known as *cardiovascular physiology*.

(6) Respiratory physiology

- Study of working principle/functions of lungs and air passageway is known as *Respiratory physiology*.

(7) Pathophysiology

- Study of functions change during the disease conditions and aging is called *pathophysiology*.

Definition of various terms used in Anatomy—

- **Anterior/ventral**—Direction towards front of the body.
- **Posterior/Dorsal**—Direction towards back of the body.
- **Superior/Cranial**— Towards the head or upper/highest most point of the body of the body proper. Example – Head, Neck.
- **Inferior/Caudal**—Away from head or lower/lowest most point of the body of the body proper. Example- feet
- **Proximal end**—Starting end of the joint or attachments.
- **Distal end**—Ending end of the joint or attachments and most distant region of proximal end.

Symmetry related terms used in Anatomy—

- **Asymmetrical**—When the body parts not divided into equal half by cutting any plane.
- **Radial symmetry**—When the body parts divided into two equal half by cutting any radial plane.
- **Bilateral symmetry**—When the body parts divided into two equal half by cutting any one radial plane otherwise not.

Abdominal quadrants and including organs in Anatomy—

- **Right Upper Quadrants(RUQ)**—Gall bladder, major parts of liver, minor parts of stomach, small intestine, parts of pancreas.
- **Left Upper Quadrants(LUQ)**—Tip of liver, Spleen, major parts of stomach, parts of pancreas.
- **Right Lower Quadrants(RLQ)**—Ascending colon, caecum, appendix, right ovary, small intestine, uterus.
- **Left Lower Quadrants(LLQ)**—Descending colon, sigmoid colon, left ovary, small intestine, urinary bladder, anus.

Abdominal region and including organs in Anatomy—

- **Right Hypochondriac Region**—some part of liver, right kidney, gall bladder, parts of large/small intestine.
- **Epigastric Region**—major parts of liver, stomach ,adrenal gland, some parts of pancreas, spleen, duodenum.
- **Left Hypochondriac Region**—liver tips, stomach, spleen, pancreas, some part of left kidney, large/small intestine.
- **Right Lumber Region**—gall bladder, ascending colon, small intestine, right kidney.
- **Umbilical Region**—transverse colon, small intestine (duodenum), umbilicus (navel).
- **Left Lumber Region**—descending colon, left kidney.
- **Right Iliac Region**—appendix, caecum, starting of ascending colon.
- **Hypogastric Region**—urinary bladder, sigmoid colon, reproductive organs, rectum, anus.
- **Left Iliac Region**—descending colon.

Different positions in Anatomy—

- **Anatomical position**—The body is erect the head facing forwards arms by the side and palms of the hand facing forward is kn called Anatomical position.
- **Supine position**—when a person laying on his/her back arms by the side palm facing upwards and feet put together is known as supine position.
- **Prone position**—when a person laying on his/her face and chest arms by the side palm facing upwards and feet put together is known as prone position.
- **Lithomy position**—When a person laying on his/her back and legs are temporarily fit supported by stripe is known as lithotomy. These position mostly used in delivering of baby.

Different plane in Anatomy—

- **Mid sagittal plane**—this plane divide our body in left and right parts.
- **Coronal plane**—Coronal plane divide our body into front and back.
- **Transverse plane**—It is a horizontal imaginary plane which divide our body superior and inferior parts.

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