



Human Anatomy and Physiology



Chapter - 1

INTRODUCTION TO HUMAN ANATOMY AND PHYSIOLOGY

Anatomy

It is the scientific study of the body structure Or morphology of the body And how the body parts are organised.

यह शरीर की संरचना या शरीर की आकृति विज्ञान का वैज्ञानिक अध्ययन है और शरीर के अंग कैसे व्यवस्थित होते हैं।

Andreas Vesalius - father of anatomy

Types:

1. Gross/Macroscopic anatomy
2. Microscopic anatomy

Forms of gross anatomy

Surface anatomy	Regional anatomy	Systematic anatomy
Study of the external body.	Study of specific region of the body.	Study of organ system.

Microscopic Anatomy

• Cytology

- Study of cells like changes occurs during cell division/development etc.

• Histology

- Study of tissues
- **TYPES of tissues:**
 - ❖ Epithelial Tissue
 - ❖ Connective tissue
 - ❖ Muscular tissue
 - ❖ Nervous tissue

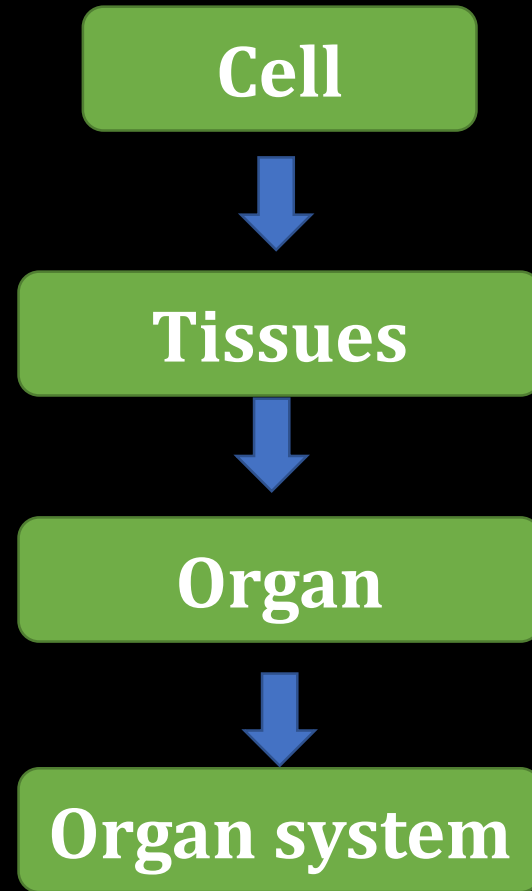
Physiology

- It is the study of normal functions of cell, tissues, organ system and organisms.

यह कोशिका, ऊतकों, अंग प्रणाली और जीवों के सामान्य कार्यों का अध्ययन है

Cell physiology	Special physiology	Pathological physiology
Study of cell	Study of specific organ For ex- cardiac physiology(study of heart function)	Study of the effect of disease on cell, tissue, organ and system.

Levels of organisation



Homeostasis

- Homeostasis is any self-regulating process by which an organism tends to maintain stability while adjusting to conditions that are best for its survival.



होमोस्टैसिस कोई स्व-विनियमन प्रक्रिया है जिसके द्वारा एक जीव अपने अस्तित्व के लिए सर्वोत्तम परिस्थितियों में समायोजन करते हुए स्थिरता बनाए रखता है।

- If homeostasis is successful, life continues; if it's unsuccessful, it results in a death of the organism.

The Nervous system

- The brain, spinal cord, nerves and the sense organs make up this complex systems by which the body is controlled and coordinated.

मस्तिष्क, रीढ़ की हड्डी, तंत्रिकाएं और इंद्रियां इस जटिल प्रणाली का निर्माण करती हैं जिसके द्वारा शरीर को नियंत्रित और समन्वित किया जाता है।

FUNCTIONS:

1. Coordinates or moderates activities of other organ systems.
2. Provides and interprets sensory information about external conditions.

The skeletal system

- The basic framework of the body is a system of 206 bones and the joints between them collectively known as the skeleton.



शरीर का मूल ढांचा 206 हड्डियों और उनके बीच के जोड़ों की एक प्रणाली है जिसे सामूहिक रूप से कंकाल के रूप में जाना जाता है।

- Functions:
 1. Provide protection and support for other tissues.
 2. Stores calcium and other minerals.
 3. Forms red blood cells.

The Endocrine System

- The scattered organs known as endocrine glands are group together because they share a similar function .



अंतःस्रावी ग्रंथियों के रूप में जाने जाने वाले बिखरे हुए अंग एक साथ समूहबद्ध होते हैं क्योंकि वे समान कार्य साझा करते हैं।

Functions:

1. Direct long term changes in the activities of the other organ system.
2. Controls many structural and functional changes during development

The Muscular System

- The muscles in the system are attached to the bones and produce movement of the skeleton composed of muscles and tendons.

प्रणाली में मांसपेशियां हड्डियों से जुड़ी होती हैं और मांसपेशियों और टेंडन से बने कंकाल में गति पैदा करती हैं।

Functions:

1. Allows manipulation of the locomotion and facial expression.
2. Maintenance posture.

The Cardiovascular system



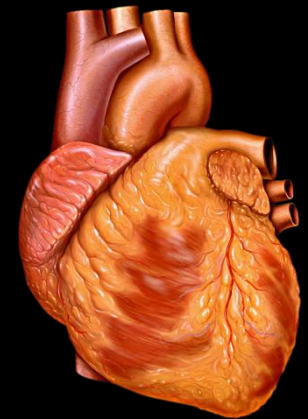
The heart and blood vessels make up the system that pumps blood to all the body tissues.



हृदय और रक्त वाहिकाएं वह प्रणाली बनाती हैं जो शरीर के सभी ऊतकों तक रक्त पंप करती हैं।

Functions:

1. The heart pumps blood.
2. The blood vessels transport blood
3. throughout the body.



जुड़िए हमारे साथ Type- DPINDIA और भेज दीजिए 9389516306

The Respiratory system

- Composed of **nasal cavity, pharynx, trachea, bronchi and Larynx.**



नाक गुहा, ग्रसनी, श्वासनली, ब्रांकाई और स्वरयंत्र से बना है।

Functions:

1. The lungs and respiratory system allow us to breathe.
2. They bring oxygen into our bodies called inspiration and send carbon dioxide out called expiration.

The Lymphatic system

- Composed of red bone marrow, thymus, spleen, lymph nodes and lymphatic vessels.



लाल अस्थि मज्जा, थाइमस, प्लीहा, लिम्फ नोड्स और लसीका वाहिकाओं से बना है।

Functions:

- It produces and releases lymphocytes
- They monitor and then destroy the foreign invaders — such as bacteria, viruses, parasites and fungi that may enter our body.

The Digestive system

- It includes the oral cavity, oesophagus, stomach, small intestine, large intestine, rectum, anus and liver.



इसमें मौखिक गुहा, ग्रासनली, पेट, छोटी आंत, बड़ी आंत, मलाशय, गुदा और यकृत शामिल हैं।

- Functions:
 1. Breaks down food into absorbable units that enter the blood.
 2. Eliminates indigestible food stuffs as feces.

Urinary system

- Composed of kidneys, ureters, urinary bladder and urethra.



गुर्दे, मूत्रवाहिनी, मूत्राशय और मूत्रमार्ग से बना है।

- Functions:

1. Eliminates nitrogenous waste from the body.
2. Regulates water, electrolyte and pH balance of the blood.

Male Reproductive system

- Composed of prostate gland, penis, testes, scrotum and ductus deferens.



प्रोस्टेट ग्रंथि, लिंग, वृषण, अंडकोश और डक्टस डिफेरेंस से बना है।

- Functions:

1. Testes produced sperm and male sex hormones.
2. Ducts and glands delivers sperm to the female reproductive tract.

Female Reproductive system



- Composed of mammary glands, ovaries, uterine tubes, uterus and vagina.



स्तन ग्रंथियों, अंडाशय, गर्भाशय नलिकाएं, गर्भाशय और योनि से बना है।

- Functions:

1. Produce eggs and female sex hormones.
2. Remaining structures serves as a sites for fertilization and development of the foetus.

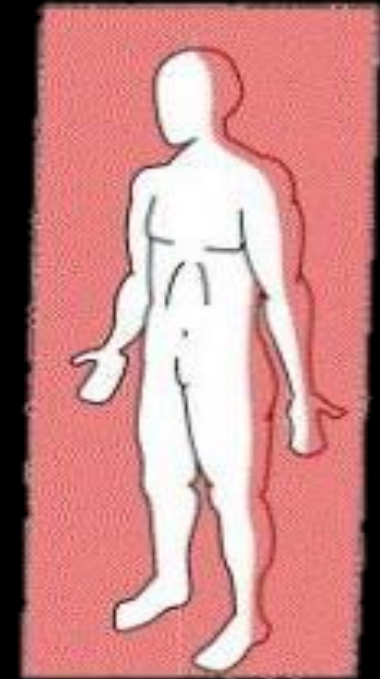
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Anatomical Terminology

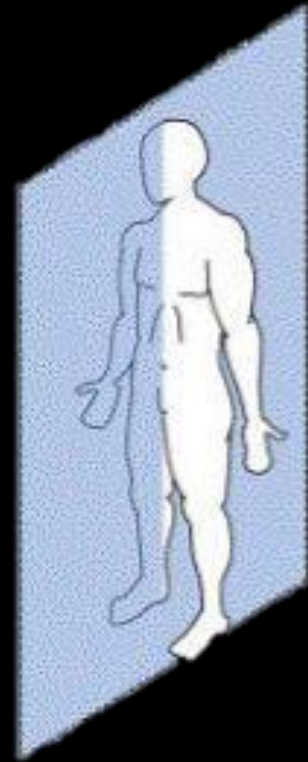
- Anterior/Ventral: In front
- Posterior/Dorsal: After, behind, toward the rear
- Distal: Away, farther from the origin
- Proximal: Near, closer to the origin
- Dorsal: Near the upper surface, toward the back
- Superior: Above, over
- Inferior: Below, under
- Lateral: Toward the side, away from the mid-line

Planes of division:

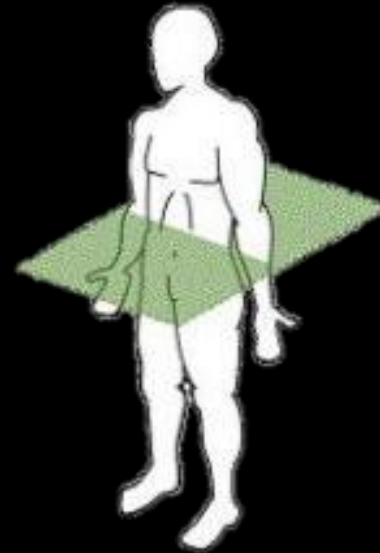
- **The frontal/coronal plane:** if the cut were made in the line with the ears and then the middle of the body you would see an anterior or ventral (front) section and posterior or dorsal (back) section.



- **The Sagittal plane:** a cut exactly down the midline of the body separating it into equal right and left half is a mid sagittal section.



- **The Transverse plane:** if the cut were made horizontally across the other two planes it would divide the body into a superior upper part and inferior lower part also called horizontal plane.





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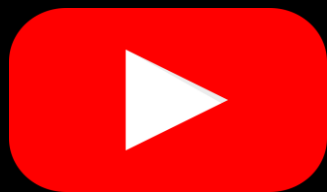
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