

UNIT-1

HUMAN Body

ARANSHA INSTITUTE
OF NURSING
ANNI 1ST YEAR
H:P (Part-B)

Structure and functions of Human Body

Integumentary system :-> skin test, skin and its structure (eg:- hairs, nails, sweat gland, oil glands).

functions :-

- protect the body.

- Help regulate body temperature.

- Eliminates some waste.

- Help make vitamin D.

- Detect sensation (eg- touch, pain, warmth, cold).

Skeletal system :- Bone, joints, their associated cartilage.

function :- support and protect the body.

Helps body movement.

store minerals and lipids.

3. Muscular System

Component :- muscle (skeletal muscle tissue, usually attach to bones).

function :-

- o) produces body movement
- o) stabilizes body position (posture)
- o) generates heat.

4. Nervous System

Component :- Brain, spinal cord, nerves, special senses organ (eg. eyes, ears).

functions

- o) Detect changes in the body internal and external environment.

5. Endocrine System :- Hormone producing gland.

hypothalamus, pituitary, parathyroid, thyroid, adrenal gland, pancreas.

function :- secrete hormone (chemical messenger) in blood that regulate body activities in target organ.

6. Cardiovascular System

Components :- Blood, heart, blood vessels.

functions

- Heart pump blood through blood vessel.
- Blood component help defend against blood disease and repair damage blood vessel.

7. Lymphatic System :- Lymphatic fluid and vessel include spleen, thymus, lymph nodes, tonsils.

function :- Return proteins and fluid to blood.

- o Carried lipid from GI tract to blood.
- o Protect against disease causing microbes.

8. Respiratory System

Lungs, pharynx, larynx, trachea, bronchial tube.

- function :- Transport O_2 from inhaled air to blood and CO_2 from blood to exhaled air.
- Helps regulate acid balance of body fluid.
 - Help to produce sound when air flow out through vocal cord.

Digestive System :- Mouth, pharynx, esophagus, stomach, large and small intestine, anus, accessory organ such as salivary gland, liver, gall bladder, pancreas.

Function :- physical and chemical breakdown of food.

- Absorb nutrients.
- Eliminate solid waste.

Urinary System :- kidney, ureters, urinary bladder, urethra.

Function :- produce, store, eliminate urine.
Eliminate waste.

Maintain acid base.

Regulation production of RBC.

Reproductive system :- Gonads (Testes in male, ovaries in female), uterine tube, uterus, vagina in female, epididymis, vas deference, penis in male.

Functions.

- Gonads produce gametes → (sperm and oocytes).
- Gonads release hormone that regulate reproduction.
- Associated organ transport and store gametes.

Body system and their function

1. Integumentary system →

- a) Skin :- Skin are the epidermis (superficial), dermis (deep).
- b) Accessory structure :- i) Hair, skin, nails
Hair consist of shaft, root hair follicle.
- ii) Sebaceous gland (oil) gland → usually connected to the hair follicles they produce sebum (oil) which moistens hairs and water proofs the skin
- iii) Sudoriferous (sweat) gland → Eccrine (whole over the body) and Apocrine sweat gland (in skin of Axillae, groin, areola).

function of skin :-

- 1) Skin maintain body shape.
- 2) Protect the underlying soft tissue and organ from mechanical injury.
- 3) prevention of water loss.
- 4) Regulate body temperature.
- 5) Excretion of waste.
- 6) Excretion of Sebum, sweat, oil.
- 7) Synthesis of D.
- 8) Store fat in subdermal portion.

Skeletal system

It consist of bone, muscle, joint together constitute the musculoskeletal system.

Parts of long bone

Epiphysis - end of the bone

Diaphysis - shaft

Metaphysis

Skeletal system

Brain
Spinal cord

Axial

80 bone

Appendicular

(126 bone)

upper } extremity
lower }

Skull - 22 bones
Cranial } bone
facial }

Cranial :- 8 bones

facial - 14 bone

Cranial 8 bones

- frontal - 1
- ethmoid - 1
- occipital - 1
- Parietal - 2
- Temporal - 2
- Sphenoid - 1

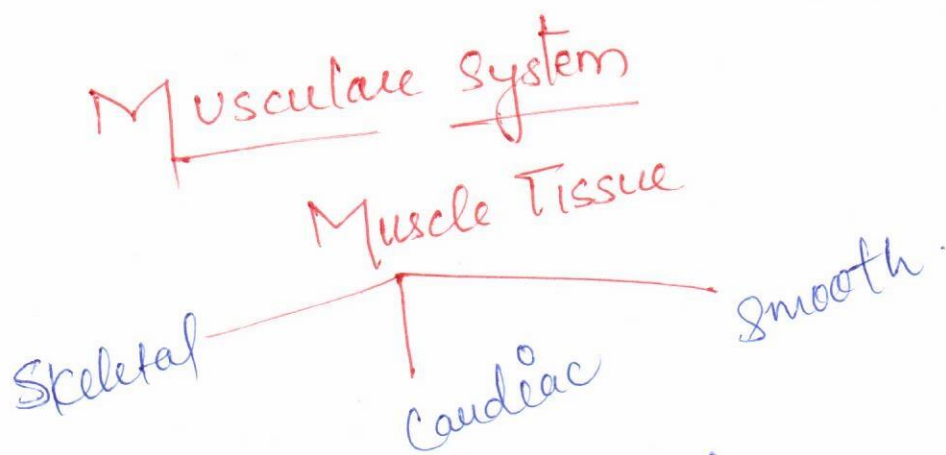
facial bone - 14

- Nasal - 2
- Maxillae - 2
- Zygomatic - 2
- Lacrimal - 2
- Palatine - 2
- inferior nasal conchae - 2
- Vomer - 1
- Mandible - 1

126
80
46

Vertebral Column : →

Vertebral Column :- 7 cervical vertebrae
12 Thoracic vertebrae
5 - lumbar vertebrae
5 - Sacrum vertebrae
1 - Coccyx.



- Skeletal muscle attach to the bone.
- Cardiac muscle attach to the wall of heart.
- Smooth muscle attach to the

function of Muscular Tissue :-

- Produce body movement.
- Stabilize body position
- Move substance within the body.
- Produce heat.

Respiratory system

function of larynx :- Mucus traps dust not removed in the upper passage.

- The cilia on epithelium move mucus and trapped particles up toward pharynx.

o The bronchial tree :- consist of trachea, primary bronchi, secondary bronchi, bronchioles

o The trachea (wind pipe) extends from the larynx to the primary bronchi

Lungs

Paired lungs in thoracic cavity enclosed by pleural membrane Outer parietal pleural and inner visceral pleura

- Three lobes in right lung
- Two lobes in left lung.

function

- Gas exchange occurs across the respiratory membrane
- It contains surfactant (eggs → lecithin)

Digestive System

- 1) Breaking down of large food molecule into the smaller one is called digestion.
- 2) The organ involved in digestion are collectively known as digestive system.
- 3) The accessory digestive organ include teeth, tongue, salivary gland, liver, gall bladder, pancrea

function of Digestive System

- Ingestion
- Secretion
- Mixing
- Digestion
- Absorption
- Defecation.

- Liver :- 1.4 kg about weight -
 - there are 2 lobes. (RE & LT).
 - Hepatocyte produce bile.

functions

1. Bile emulsifies.
 2. Metabolism of carbohydrate
 - 3) Storage of glycogen
 - 4) Metabolism of lipid.
- Excretion of bilirubin
 phagocytosis by Kupfer cells.
 Synthesis of fibrinogen.

Excretory system

The organ function of the urinary system :- kidney, ureters, bladder, urethra.

functions

Kidney filter blood, return most water and solute to the blood stream, excrete waste in the urine.

The bladder store urine temporary.
Urethra → discharge urine through the body.

Kidney → surrounded by 3 layers Renal capsule, adipose capsule, renal fascia.

Weight of the kidney is 135-150 gm.

Bean shaped.

Nephron is a functional unit of kidney

Functions of kidney

Regulation of electrolyte

Regulation of blood pH.

Regulation of Blood vol.

Regulation of B.P

Production of hormone (calcitriol, erythropoietin)

Regulation of blood glucose level.