

# ANATOMY AND PHYSIOLOGY OF HUMAN BODY



**Meladina, M. Pd**  
**Ns. Yelmi Reni Putri, S. Kep, MAN**

# ***ANATOMY AND PHYSIOLOGY OF HUMAN BODY***

**MELADINA  
YELMI RENI PUTRI**



**PT. GLOBAL EKSEKUTIF TEKNOLOGI**

## **Anatomy And Physiology of Human Body**

**Penulis :**

Meladina  
Yelmi Reni Putri

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**Editor :**

Mila Sari, S.ST, M.Si

**Penyunting :**

Tri Putri Wahyuni, S.Pd

**Desain Sampul dan Tata Letak :**

Handri Maika Saputra, S.ST

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Jl. Pasir Sebelah No. 30 RT 002 RW 001  
Kelurahan Pasie Nan Tigo Kecamatan Koto Tengah  
Padang Sumatera Barat  
Website : [www.globaleksekutifteknologi.co.id](http://www.globaleksekutifteknologi.co.id)  
Email : [globaleksekutifteknologi@gmail.com](mailto:globaleksekutifteknologi@gmail.com)

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Hak cipta dilindungi undang-undang  
Dilarang memperbanyak karya tulis ini dalam bentuk  
Dan dengan cara apapun tanpa izin tertulis dari penerbit

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First of all, the writer will say thank you to Allah who gives chance and guidance to write this book. Then, Salawat and Salam always send to the prophet Muhammad SAW who brought people from the darkness into the lightness. Because of the use of English as an international language and to compete in the global competitiveness, the students have to master English for every field of study especially in nursing context. This book is designed to guide the students to understand basic about the anatomy and physiology of human body and also the vocabularies related to nursing context. It is hoped that these materials will to support the students in their teaching and learning process.

Then, the writer will say thanks to all of the parties that helped and supported to conduct of this book until it can be published. It is hoped that it will be useful for the reader and can be applied to enlarge their knowledge. Last, suggestions are need to improve this book in the future.

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Writer

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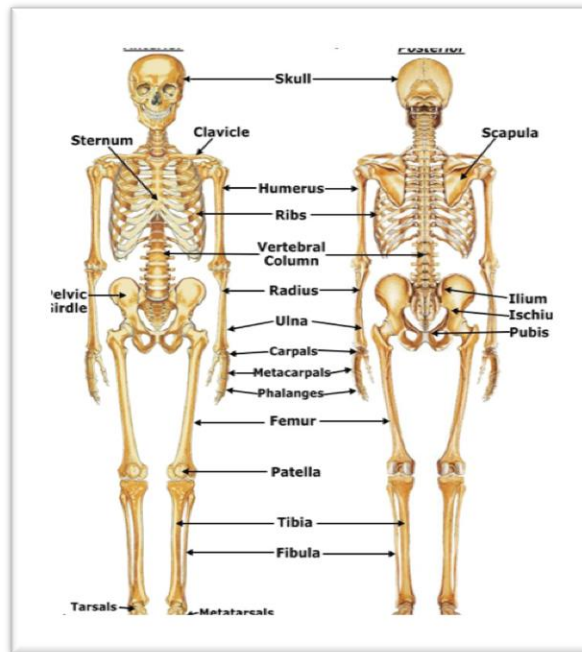
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## CHAPTER I

### MUSCULOSKELETAL SYSTEM

#### 1. Definition

Musculoskeletal System provides form, support, stability and movement to the body it is made up of the bones of the skeleton, muscles, cartilage, tendons, ligaments joints and other connective tissue



#### 1.2 Function

##### 1.The bones function:

- 1) Movement
- 2) Support
- 3) Protection
- 4) Blood Protection

##### 2.The muscles function:

- 1) Mobility
- 2) Posture
- 3) Generate Heat
- 4) Stabilize Joints

##### 3.The joints function:

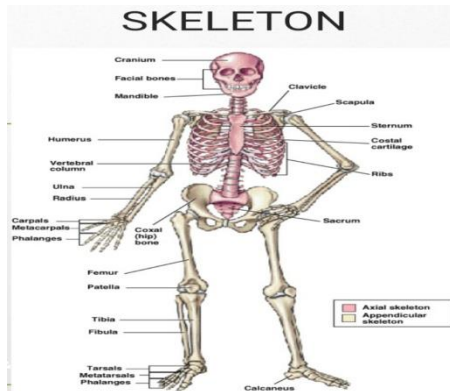
- 1) The function of the joints in human is a meeting of two bones, make the skeleton flexible

## 1.3 Organs

The musculoskeletal system is composed of various parts of the body

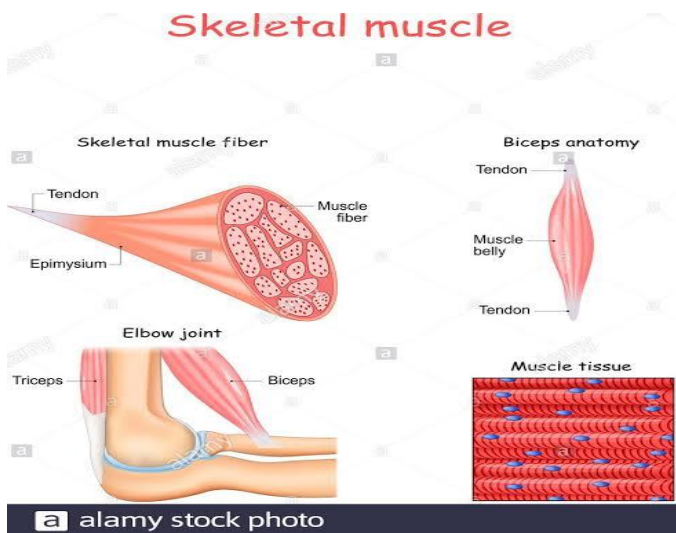
### 1. Skeleton

Functions of bones include support for soft tissues and organs, protection of organs such as the brain and spinal cord, body movement, and hematopoiesis.



### 2. Skeletal Muscle

Skeletal muscles are composed of muscle fibers that attach to bones to facilitate movement. Although some skeletal muscles move by reflex, all are controlled voluntarily.



### 3. Joints

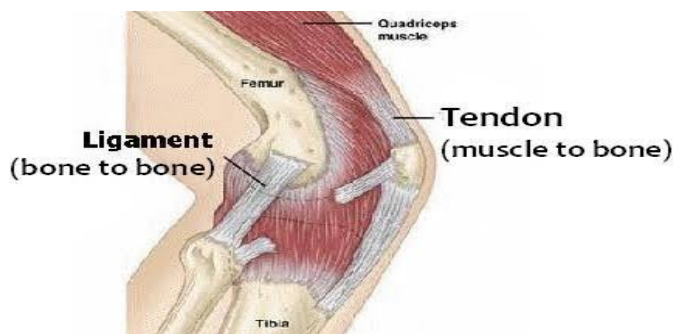
Joints are articulations where two or more bones come together. They help hold the bones firmly while allowing movement between them.



#### 4. Ligaments and Tendon

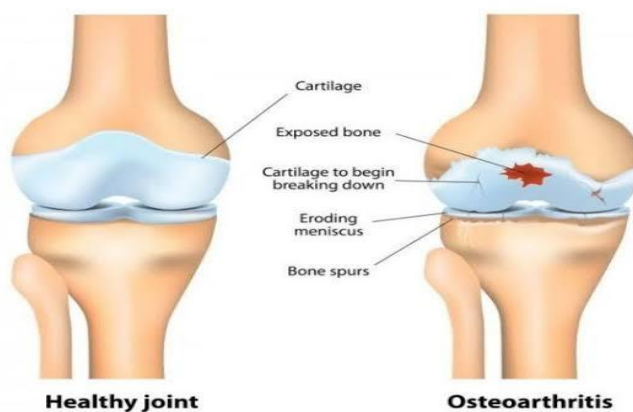
The difference between ligaments and tendons is more functional than structural.

- 1) Ligaments are strong, dense, flexible bands of connective tissue that hold bones to bones.
- 2) Tendons are strong, non-elastic cords of collagen located at the ends of muscles to attach them to bones.



#### 5. Cartilage

Cartilage is a semi smooth, gel like supporting tissue that is strong and able to support weight. The upper seven pairs of ribs are connected directly to the sternum by costal cartilage.



## **1.4 Disease**

### **1. Rheumatoid Arthritis**

Rheumatoid arthritis is an autoimmune condition, which means it's caused by the immune system attacking healthy body tissue. However, it's not yet known what triggers this. Your immune system normally makes antibodies that attack bacteria and viruses, helping to fight infection

### **2. Osteoporosis**

- 1) Estrogen Deficiencies in Women Women typically suffer estrogen deficiencies during perimenopause and menopause.
- 2) Calcium Deficiencies. Bones are constantly losing and replacing minerals.
- 3) Inactive Lifestyle.

### **3. Back pain**

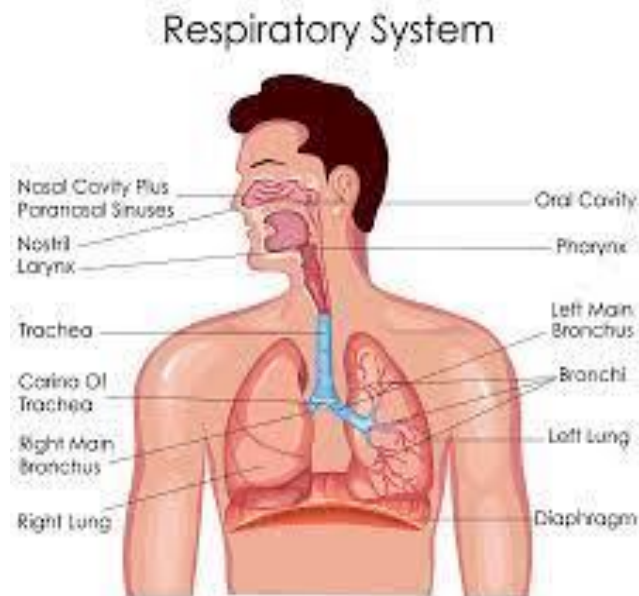
Repeated heavy lifting or a sudden awkward movement can strain back muscles and spinal ligaments. If you're in poor physical condition, constant strain on your back can cause painful muscle spasms

## CHAPTER II

### RESPIRATORY SYSTEM

#### 2.1 Definition

The respiratory is the network of organs and tissue that help our breathe. It includes our airways, lungs and blood vessels



#### 2.2 Function

1. Allows you to talk and smell
2. Warms air to match your body temperature and moisturize it to the humidity level your body needs
3. Delivers oxygen to the cell in your body
4. Removes waste gases, including carbon dioxide from the body when you exhale
5. Protects your airways from harmful substances and irritants

#### 2.3 Organs

1. Nasals Cavity

The first organ that helps our breathing process is the nasal cavity. The nasal cavity is the space the entry of air for our breathing

2. Larynx

The second organ is the larynx. The larynx also knows serves of the attachment site for the vocal cords or membranes

3. Trachea

The third organ is the trachea. The trachea is located in front of the esophagus and consists of a ring cartilage

4. Bronchi

The bronchi are the branches of the windpipe that connect the trachea and lungs

5. Bronchiolus

Bronchiolus are bronchial branches found in the lungs

6. Lungs

The lungs are located in the chest cavity and consists of 3 lobes in the right lung and 2 lobes in the left lung

## **2.4 Disease**

1. Pneumonia

An infection that causes inflammation of the air sacs in one or both lungs, which can be filled with fluid

2. Asthma

Asthma can be caused by dust, cigarette smoke, animal dander, cold air, physical activity, viral infection or even exposure to chemicals

3. Acute Respiratory Infection

Acute respiratory infection or ARI is an infection in the respiratory tract, which causes symptoms of cough, runny nose, accompanied by fever

4. Bronchitis

Bronchitis occurs when the tubes that carry air to the lungs or bronchi become inflamed

## **CHAPTER III**

### **CARDIOVASKULAR SYSTEM**

#### **3.1 Definition**

The cardiovascular system is the organ of blood circulation consisting of the heart, components of blood and blood vessels that function to deliver and drain supply of oxygen and nutrients to all body tissues that are needed in the process of body metabolism. The cardiovascular system requires many mechanisms that vary so that its regulatory function can respond to body activities, one of which is increase blood supply activity so that tissue activity can be fulfilled.

#### **3.2 Function**

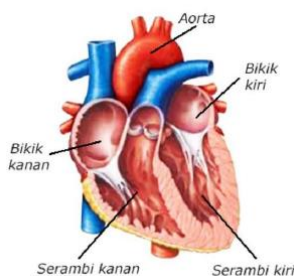
The human circulatory system has a very important role for the body. Not only does it circulate nutrients and oxygen throughout the body, this system also plays a role in metabolic processes. Therefore, it is important to always maintain the health and smoothness of the circulatory system.

The human circulatory system also has various other functions, including:

1. Removing the rest of the metabolic process in the form of carbon dioxide through the lungs
2. Distributes hormones throughout the body
3. Keeps body temperature stable
4. Maintain the performance and function of various organ systems in the body
5. Supports wound or injury recovery process

#### **3.3 Organ Cardiovascular System**

##### **1. Heart**



The heart is one of the vital organs in the human body that functions to pump blood throughout the body. The heart is located in the center of the chest cavity,

precisely behind the left side of the breastbone. The size of an adult heart is approximately slightly larger than a fist.

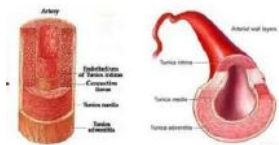
Inside the heart, there are four chambers which are divided into two chambers (ventricles) and two atria (atria). The left atrium and ventricle of the heart contain clean oxygen-rich blood, while the right ventricle and atrium contain dirty blood.

The four chambers in the heart are also equipped with four valves that function to keep blood flowing in the right direction.

## 2. Blood vessels

Blood vessels are part of the circulatory system that functions to circulate blood from the heart to various organs and body tissues and vice versa. There are two types of blood vessels in the body, namely:

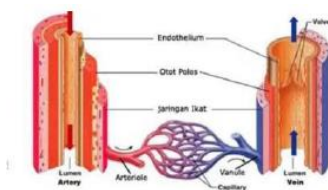
### 1) Arteries



These blood vessels carry oxygen-rich blood from the heart to all tissues and organs of the body, except for the pulmonary arteries.

Clean blood is pumped out of the heart going through the main blood vessel (aorta) from the left ventricle of the heart. The aorta then branches into smaller arteries (arterioles) that spread throughout the body.

### 2) Veins



Veins function to carry blood from all tissues and organs of the body back to the heart, either from the whole body or from the lungs.

Large veins (vena cava) carry dirty blood containing carbon dioxide from all over the body to the lungs and exchanged for oxygen through the process of breathing. Meanwhile, the pulmonary veins (pulmonary veins) carry clean, oxygen-rich blood from the lungs to the heart.

### 3. Blood

Blood is the most important component of the human circulatory system. Blood acts as a carrier of nutrients, oxygen, hormones, and antibodies throughout the body. Not only that, the blood also transports toxic substances and metabolic wastes, such as carbon dioxide, to be removed from the body.

Human blood consists of several parts, which include:

- 1) Blood plasma is a yellowish liquid that contains various important substances, such as hormones and proteins.
- 2) Red blood cells (erythrocytes) function as carriers of oxygen and carbon dioxide.
- 3) White blood cells (leukocytes) are a major component of the immune system. These blood cells are in charge of detecting the presence of harmful foreign objects, such as toxic substances and germs, and then fighting them so that the body is protected from various diseases.
- 4) Blood platelets (platelets) are needed by the body to support the blood clotting process when an injury or injury occurs.

## 3.4 Disease

### 1. Arrhythmia

Arrhythmia is a condition when the heart has an abnormal beat or rhythm, such as too fast, slow, or irregular. Arrhythmias occur when the electrical impulses that control the heart rate don't work properly.

### 2. Coronary heart disease (CHD)

Coronary heart disease is a blockage or narrowing in the coronary arteries caused by plaque buildup. This condition reduces the blood supply to the heart. If not treated immediately, CHD can lead to heart attacks, arrhythmias, and heart failure.

### 3. Cardiomyopathy

Cardiomyopathy is a disorder of the heart muscle. Cardiomyopathy can cause serious complications, such as heart failure, blood clots, cardiac arrest, and heart valve disorders.

#### 4. Stroke

Stroke is a disease that occurs when the blood supply to the brain is interrupted due to blockage or rupture of a blood vessel. Without an adequate blood supply, the brain will not get oxygen and nutrients. As a result, cells in the brain will be damaged.

#### 5. Deep vein thrombosis (DVT)

Deep vein thrombosis or deep vein thrombosis is a condition where a blood clot forms in a vein. Usually this condition occurs in the thighs and calves. In some cases, these blood clots can travel to the lungs and cause serious complications, such as pulmonary embolism.

#### 6. Peripheral artery disease

Peripheral arterial disease (PAD) is a condition when blood flow to the legs is blocked due to plaque buildup in the arteries. This makes the legs lack blood supply, causing pain when walking.

#### 7. Heart attack

When a blood vessel that delivers blood to the heart is blocked by a blood clot. The heart muscle does not get blood and dies. In this condition, if you are not treated by the medical team quickly. This can lead to fatalities that lead to death. Early indications of a heart attack can be marked by the appearance of general symptoms such as left chest pain, cold sweats, not feeling well, shortness of breath and dizziness.

## **CHAPTER IV**

### **DIGESTIVE SYSTEM**

#### **4.1 Definition**

Digestive system is made up of the gastrointestinal (GI) tract and your liver, pancreas and gallbladder. The GI tract is a series of hollow organs that are connected to each other from your mouth to your anus. The organs that make up your GI tract, in the order that they are connected, include your mouth, esophagus, stomach, small intestine, large intestine and anus. and all those organs help the body break down and absorb food.

#### **4.2 Function**

The heart pumps blood through closed vessels to every tissue within the body. The blood itself then delivers Trusted Source nutrients and oxygen to all cells in the body. Without blood, the cells and tissues would not function at their total capacity and would begin to malfunction and die.

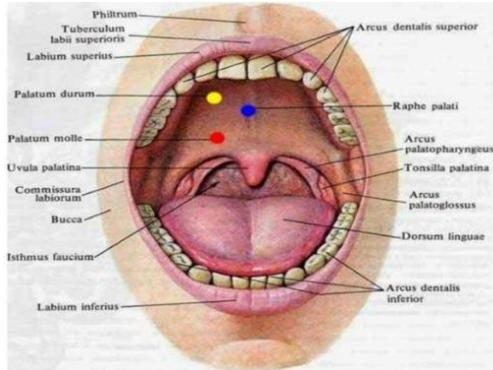
The cardiovascular system has three major functions: transportation of materials, protection from pathogens, and regulation of the body's homeostasis.

1. *Transportation:* The cardiovascular system transports blood to almost all of the body's tissues. The blood delivers essential nutrients and oxygen and removes wastes and carbon dioxide to be processed or removed from the body. Hormones are transported throughout the body via the blood's liquid plasma.
2. *Protection:* The cardiovascular system protects the body through its white blood cells. White blood cells clean up cellular debris and fight pathogens that have entered the body. Platelets and red blood cells form scabs to seal wounds and prevent pathogens from entering the body and liquids from leaking out. Blood also carries antibodies that provide specific immunity to pathogens that the body has previously been exposed to or has been vaccinated against.
3. *Regulation:* The cardiovascular system is instrumental in the body's ability to maintain homeostatic control of several internal conditions. Blood vessels help maintain a stable body temperature by controlling the blood flow to the surface of the skin. Blood vessels near the skin's surface open during times of overheating to allow hot blood to dump its heat into the body's surroundings. In the case of hypothermia, these blood vessels constrict to keep blood flowing only to vital organs in the body's core. Blood also helps balance the body's pH due to the presence of bicarbonate ions, which act as a buffer solution. Finally, the albumins in blood plasma help to balance the osmotic concentration of the body's cells by maintaining an isotonic

environment.

## 4.3 Organs

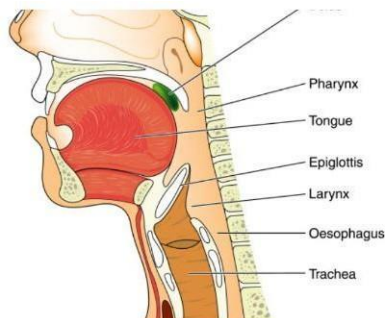
### 1. Mouth



The mouth is the beginning of the digestive tract. In fact, digestion starts before you even take a bite. Your salivary glands get active as you see and smell that pasta dish or warm bread. After you start eating, you chew your food into pieces that are more easily digested.

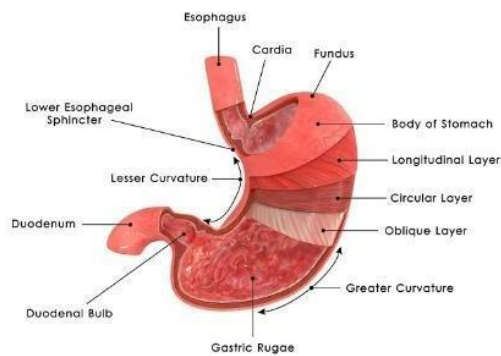
Your saliva mixes with the food to begin to break it down into a form your body can absorb and use. When you swallow, your tongue passes the food into your throat and into your esophagus.

### 2. Esophagus



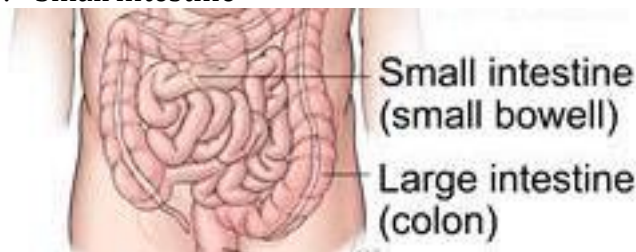
Located in your throat near your trachea (windpipe), the esophagus receives food from your mouth when you swallow. The epiglottis is a small flap that folds over your windpipe as you swallow to prevent you from choking (when food goes into your windpipe). A series of muscular contractions within the esophagus called peristalsis delivers food to your stomach.

### 3. Stomach



The stomach is a hollow organ, or "container," that holds food while it is being mixed with stomach enzymes. These enzymes continue the process of breaking down food into a usable form. Cells in the lining of your stomach secrete a strong acid and powerful enzymes that are responsible for the breakdown process. When the contents of the stomach are processed enough, they're released into the small intestine.

#### 4. Small intestine

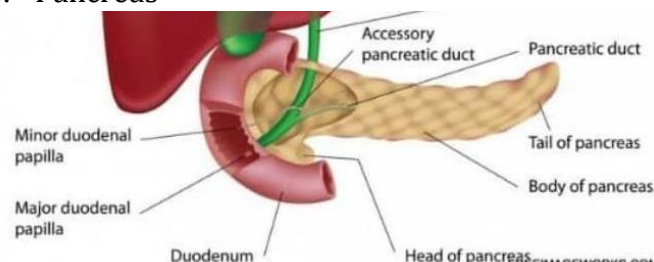


Made up of three segments — the duodenum, jejunum, and ileum — the small intestine is a 22-foot long muscular tube that breaks down food using enzymes released by the pancreas

and bile from the liver. Peristalsis also works in this organ, moving food through and mixing it with digestive juices from the pancreas and liver.

The duodenum is the first segment of the small intestine. It's largely responsible for the continuous breaking-down process. The jejunum and ileum lower in the intestine are mainly responsible for the absorption of nutrients into the bloodstream.

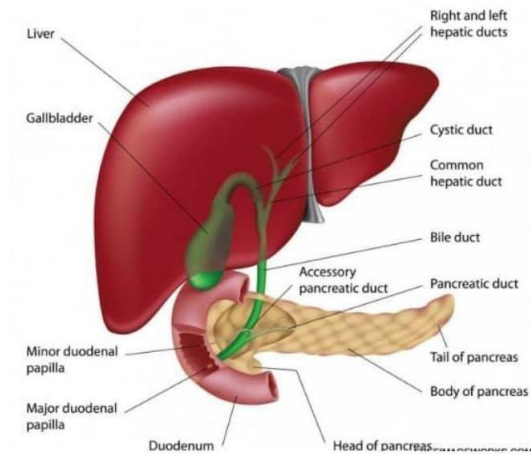
#### 5. Pancreas



The pancreas secretes digestive enzymes into the duodenum that break down protein, fats and carbohydrates. The pancreas also makes insulin, passing it directly into the bloodstream. Insulin is the chief hormone in your body for metabolizing

sugar.

## 6. Liver



The liver has many functions, but its main job within the digestive system is to process the nutrients absorbed from the small intestine. Bile from the liver secreted into the small intestine also plays an important role in digesting fat and some vitamins.

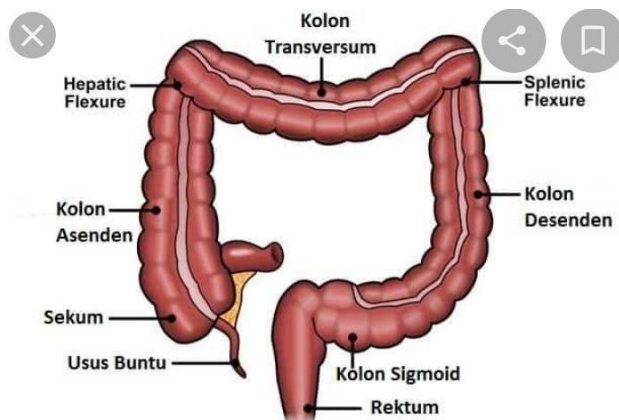
The liver is your body's chemical "factory." It takes the raw materials absorbed by the intestine and makes all the various chemicals your body needs to function.

The liver also detoxifies potentially harmful chemicals. It breaks down and secretes many drugs that can be toxic to your body.

## 7. Gallbladder

The gallbladder stores and concentrates bile from the liver, and then releases it into the duodenum in the small intestine to help absorb and digest fats.

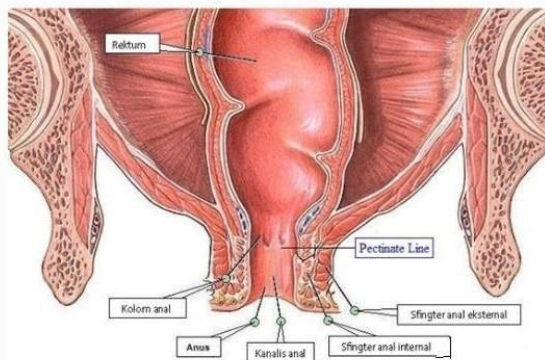
## 8. Colon (Large Intestine)



The large intestine, or colon, is responsible for processing waste so that emptying the bowels is easy and convenient. It's a 6-foot long muscular tube that connects the small intestine to the rectum.

The large intestine is made up of the cecum, the ascending (right) colon, the transverse (across) colon, the descending (left) colon, and the sigmoid colon, which connects to the rectum.

## 9. Rectum and Anus



The rectum is a straight, 8-inch chamber that connects the colon to the anus. The rectum's job is to receive stool from the colon, let you know that there is stool to be evacuated (pooped out) and to hold the stool until evacuation happens. When anything (gas or stool) comes into the rectum, sensors send a message to the brain. The brain then decides if the rectal contents can be released or not.

The anus is the last part of the digestive tract. It is a 2-inch long canal consisting of the pelvic floor muscles and the two anal sphincters (internal and external). The lining of the upper anus is able to detect rectal contents. It lets you know whether the contents are liquid, gas or solid.

## 4.4 Disease

Short-term or temporary conditions that affect the digestive system include:

- 1) Constipation: Constipation generally happens when you go poop (have a bowel movement) less frequently than you normally do. When you're constipated, your poop is often dry and hard and it's difficult and painful for your poop to pass.
- 2) Diarrhea: Diarrhea is when you have loose or watery poop. Diarrhea can be caused by many things, including bacteria, but sometimes the cause is unknown.
- 3) Heartburn: Although it has "heart" in its name, heartburn is actually a digestive issue. Heartburn is an uncomfortable burning feeling in your chest that can move up your neck and throat. It happens when acidic digestive juices from your stomach go back up your esophagus.
- 4) Hemorrhoids: Hemorrhoids are swollen, enlarged veins that form inside and

outside of your anus and rectum. They can be painful, uncomfortable and cause rectal bleeding.

- 5) Stomach flu (gastroenteritis): The stomach flu is an infection of the stomach and upper part of the small intestine usually caused by a virus. It usually lasts less than a week. Millions of people get the stomach flu every year.
- 6) Ulcers: An ulcer is a sore that develops on the lining of the esophagus, stomach or small intestine. The most common causes of ulcers are infection with a bacteria called *Helicobacter pylori* (*H. pylori*) and long-term use of anti-inflammatory drugs such as ibuprofen.
- 7) Gallstones: Gallstones are small pieces of solid material formed from digestive fluid that form in your gallbladder, a small organ under your liver.

Common digestive system diseases (gastrointestinal diseases) and disorders include:

- 1) GERD (chronic acid reflux): GERD (gastroesophageal reflux disease, or chronic acid reflux) is a condition in which acid-containing contents in your stomach frequently leak back up into your esophagus.
- 2) Irritable bowel syndrome (IBS): IBS is a condition in which your colon muscle contracts more or less often than normal. People with IBS experience excessive gas, abdominal pain and cramps.
- 3) Lactose intolerance: People with lactose intolerance are unable to digest lactose, the sugar primarily found in milk and dairy products.
- 4) Diverticulosis and diverticulitis: Diverticulosis and diverticulitis are two conditions that occur in your large intestine (also called your colon). Both share the common feature of diverticula, which are pockets or bulges that form in the wall of your colon.
- 5) Cancer: Cancers that affect tissues and organs in the digestive system are called gastrointestinal (GI) cancers. There are multiple kinds of GI cancers. The most common digestive system cancers include esophageal cancer, gastric (stomach) cancer, colon and rectal (colorectal) cancer, pancreatic cancer and liver cancer.
- 6) Crohn's disease: Crohn's disease is a lifelong form of inflammatory bowel disease (IBD). The condition irritates the digestive tract.
- 7) Celiac disease: Celiac disease is an autoimmune disorder that can damage your small intestine. The damage happens when a person with celiac disease consumes gluten, a protein found in wheat, barley.

## CHAPTER V

### ENDOCRINE SYSTEM

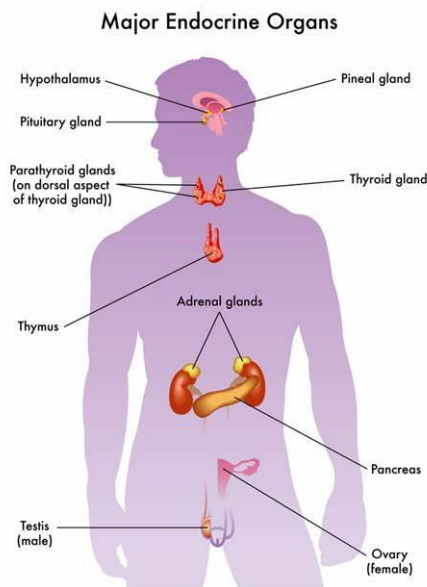
#### 5.1 Definition

The endocrine system is a network of glands in your body that make the hormones that help cells talk to each other. They're responsible for almost every cell, organ, and function in your body.

#### 5.2 Function

1. Makes hormones that control your moods, growth and development, metabolism, organs, and reproduction
2. Controls how your hormones are released
3. Sends those hormones into your bloodstream so they can travel to other body parts
4. Organs

#### 5.3 Organs



##### 1. Hypothalamus

Hormone in Hypothalamus:

- 1) Corticotrophin-releasing hormone (CRH): Stimulates the pituitary to release adrenocorticotrophic hormone (ACTH)
- 2) Gonadotropin-releasing hormone (GnRH): Stimulates the pituitary to release luteinizing hormone (LH) and follicle-stimulating hormone (FSH)

- 3) Thyrotropin-releasing hormone (TRH): Stimulates the pituitary to release thyroid-stimulating hormone (TSH)
- 4) Growth hormone-releasing hormone: Stimulates the release of growth hormone (GH) from the pituitary
- 5) Somatostatin: Inhibits the release of GH from the pituitary
- 6) Dopamine: inhibits the release of prolactin from the pituitary

## 2. Pituitary gland

### 1) Anterior pituitary gland

Hormone in Anterior pituitary gland:

- a. ACT: Stimulates the release of hormones from the adrenal
- b. LH: In women, stimulates the production of sex hormones (i.e., estrogens) in the ovaries as well as during ovulation; in men, stimulates testosterone production in the testes
- c. FSH: In women, stimulates follicle development; in men, stimulates sperm production
- d. TSH: Stimulates the release of thyroid hormone
- e. GH: Promotes the body's growth and development
- f. Prolactin: Controls milk production (i.e., lactation)

### 2) Posterior pituitary gland

Hormone in Posterior pituitary gland:

- a. Vasopressin: Helps control the body's water and electrolyte levels
- b. Oxytocin: Promotes uterine contraction during labor and activates milk ejection in nursing women.
- c. Adrenal cortex
- d. Cortisol: Helps control carbohydrate, protein, and lipid metabolism; protects against stress
- e. Aldosterone : Helps control the body's water and electrolyte regulation

## 3. Gonads

### 1) Testes

- a. Testosterone: Stimulates development of the male reproductive organs, sperm production, and protein anabolism.

### 2) Ovaries

- a. Estrogen (produced by the follicle) : Stimulates development of the female reproductive organs
- b. Progesterone (produced by the glands for corpus luteum) : Prepares uterus for pregnancy and mammary lactation

4. Thyroid gland

- a. Thyroid hormone (i.e., thyroxine [T4] and triiodothyronine [T3]) : Controls metabolic processes in all cells
- b. Calcitonin: Helps control calcium metabolism (i.e., lowers calcium levels in the blood).

5. Parathyroid gland

- a. Parathyroid hormone (PTH): Helps control calcium metabolism (i.e., increases calcium levels in the blood).

6. Pancreas

- a. Insulin: Helps control carbohydrate metabolism (i.e., lowers blood sugar levels)
- b. Glucagon: Helps control carbohydrate metabolism (i.e., increases blood sugar levels)

## **CHAPTER VI**

### **REPRODUCTIVE SYSTEM**

#### **6.1 Definition**

The reproductive system or genital system is a system of sex organs in organisms that work together for reproductive reproduction.

#### **6.2 Function**

##### **1. Male**

The male reproductive system performs the following functions:

- 1) Testis produces reproductive cells by a process called spermatogenesis and also secretes the male sex hormone – testosterone.
- 2) Epididymis stores sperms and maturation of sperms takes place here.
- 3) Vas deferens help in the transmission of mature sperms.
- 4) Semen is a secretion of accessory sex glands and mucus. The secretion of the Cowper's gland, being alkaline, neutralizes the acidity of urine in the urethra.
- 5) Seminal vesicles help in the production of many of the constituent ingredients of semen.
- 6) Prostate glands help in the production of the fluid that nourishes and activates the spermatozoa to swim.
- 7) Bulbourethral glands secrete mucus that serves for lubrication.

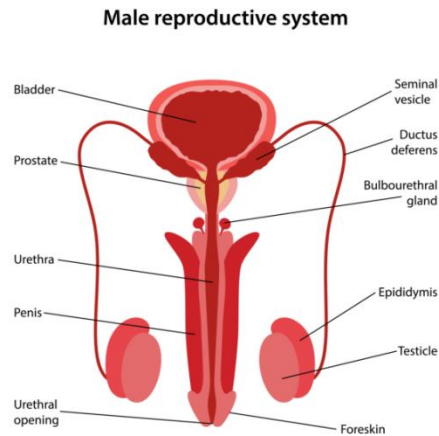
##### **2. Female**

The female reproductive system performs the following functions:

- 1) It produces the female gametes called the eggs or ova.
- 2) It provides a site for fertilization.
- 3) It secretes sex hormones like oestrogen and progesterone.
- 4) It provides a site for the development of the foetus.

#### **6.3 Organs of Reproductive System**

##### **1. Male**



### 1) Testes

The testicles are oval in shape and located outside the abdominal cavity within a pouch called the scrotum. They are the primary male reproductive organ and are responsible for testosterone and sperm production.

### 2) Epididymis

The epididymis is a single convoluted tubule of about 6m6m in length located along the posterior surface of the testes. It transports and stores sperm cells that are produced in the testes. In the head of the epididymis, the sperms undergo physiological maturation, acquiring increased motility and fertilization capacity.

### 3) Vas Deferens

The sperm duct, also known as vas deferens, originates from the network called rete testis. Vasa Deferentia (Vas deferens) is a continuation of cauda epididymis.

### 4) Ejaculatory Ducts

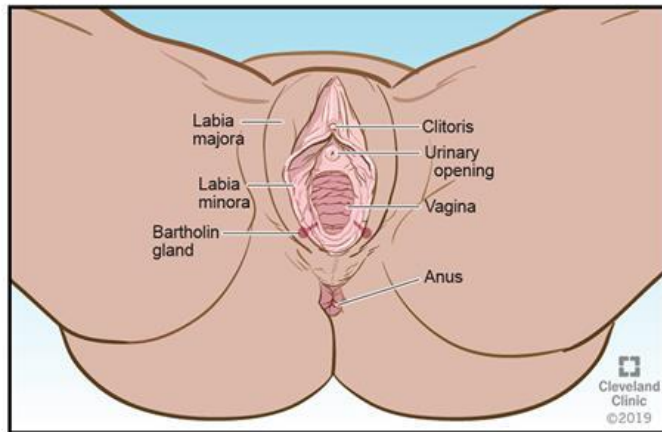
Ejaculatory ducts are formed by the fusion of the vas deferens and the seminal vesicles. The ejaculatory ducts empty into the urethra.

### 5) Urethra

The urinary duct originates from the neck of the urinary bladder and opens to the exterior at the tip of the penis. It helps in passing out both semen and urine and is commonly known as the urinogenital duct. The penis is the external genitalia in human males. It is made up of a special erectile tissue that helps in the erection of the penis to facilitate insemination.

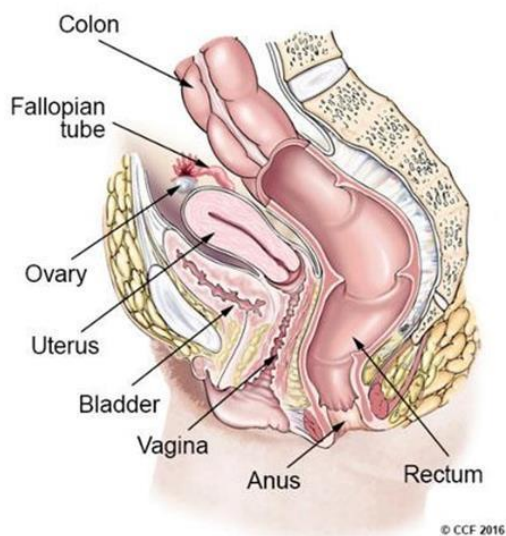
## 2. Female

The main external structures of the female reproductive system include:



- 1) Labia majora: The labia majora (“large lips”) enclose and protect the other external reproductive organs. During puberty, hair growth occurs on the skin of the labia majora, which also contain sweat and oil-secreting glands.
- 2) Labia minora: The labia minora (“small lips”) can have a variety of sizes and shapes. They lie just inside the labia majora, and surround the openings to the vagina (the canal that joins the lower part of the uterus to the outside of the body) and urethra (the tube that carries urine from the bladder to the outside of the body). This skin is very delicate and can become easily irritated and swollen.
- 3) Bartholin’s glands: These glands are located next to the vaginal opening on each side and produce a fluid (mucus) secretion.
- 4) Clitoris: The two labia minora meet at the clitoris, a small, sensitive protrusion that is comparable to the penis in males. The clitoris is covered by a fold of skin, called the prepuce, which is similar to the foreskin at the end of the penis. Like the penis, the clitoris is very sensitive to stimulation and can become erect.

The internal reproductive organs include:



- 1) Vagina: The vagina is a canal that joins the cervix (the lower part of uterus) to the outside of the body. It also is known as the birth canal.
- 2) Uterus (womb): The uterus is a hollow, pear-shaped organ that is the home to a developing fetus. The uterus is divided into two parts: the cervix, which is the lower part that opens into the vagina, and the main body of the uterus, called the corpus. The corpus can easily expand to hold a developing baby. A canal through the cervix allows sperm to enter and menstrual blood to exit.
- 3) Ovaries: The ovaries are small, oval-shaped glands that are located on either side of the uterus. The ovaries produce eggs and hormones.
- 4) Fallopian tubes: These are narrow tubes that are attached to the upper part of the uterus and serve as pathways for the ova (egg cells) to travel from the ovaries to the uterus. Fertilization of an egg by a sperm normally occurs in the fallopian tubes. The fertilized egg then moves to the uterus, where it implants to the uterine lining.

## **6.4 Disease of Reproductive System**

### **1. Male**

#### **1) Gynecomastia**

This disorder is due to abnormal enlargement of breasts in men. It is mainly attributed to hormonal imbalance. Once the male hormone androgen takes over after puberty, the development of breasts stops. Usually, gynecomastia afflicts only one breast.

#### **2) Hydrocele**

In this disease, fluid accumulates in and around the testes. It is usually reported in older males of age 40 and above. A direct physical injury to testes or other internal disturbances are usually the cause of hydrocele. This is an asymptomatic condition and it may further lead to testicular tumors if it goes untreated for a longer time.

#### **3) Priapism**

This condition refers to painful erection. Normally, when the penis gets erect, the corpora cavernosa and the corpus spongiosum become engorged with blood so as to render the hardness to the penis. In priapism, the enlarged parts become tender and painful, leading to constant pain during erection. Although, the person may experience pleasurable sensation for some time, the pain quickly takes over again.

#### **4) Prostate Disorders**

Prostate gland is a major functional gland in men. Any abnormality or dysfunction with this gland results in plethora of diseases and disorders. Enlarged prostate and prostate cancer are such diseases that mainly afflict men in sixties and seventies.

b. Female

1) Amenorrhea

Amenorrhea refers to a condition in which an individual fails to menstruate. It is classified into two types, primary and secondary amenorrhea. Primary amenorrhea is the abnormal delay for the menstrual cycle to initiate, whereas secondary amenorrhea is the abrupt cessation of menstrual cycle after years of regular menses. Secondary amenorrhea occurs in women who have not yet reached perimenopausal age.

2) Cervical Erosion

Cervical erosion is the condition in which ulcers are formed in the cervix. It is characterized by bright red or pink spots around the cervical opening. During the onset of the disease, patches of mucous are shed by the body.

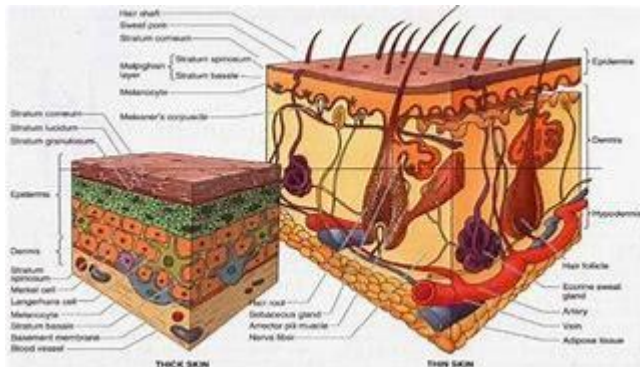
3) Cervicitis

It is basically an inflammation of uterine cervix. Many mucous glands are present in this region which constantly keep the vagina lubricated. However, this creates a conducive environment for the growth of bacteria and other microbes. Thus, vaginal infections can be transmitted to the uterine cervix, leading to cervicitis.

4) Oligomenorrhea

Oligomenorrhea is a condition characterized by prolonged gaps between two menses. Typically, a woman menstruates every 25 to 30 days, however, in oligomenorrhea, the woman only menstruates for 4 to 9 times in a year. Oligomenorrhea may cause due to estrogen deficiency and may lead to infertility.

## CHAPTER VII INTEGUMEN SYSTEM



### 7.1 Definition

The integumentary system is made up of several organs and structures including the skin, hair, nails, glands, and nerves. The skin and its associated structures also retain bodily fluids, eliminate waste products, and regulate the body's temperature. The integumentary system works with all other bodily systems—such as the nervous, cardiovascular, and digestive systems—to accomplish all the jobs it performs in helping to maintain the stability of the internal body.

### 7.2 Function

Overall, the integumentary system functions to guard the body, providing a barrier to infection and shielding the body against temperature changes and the adverse effects of potentially harmful substances (such as UV light).

#### 1. Protection from Injury

The skin is made up of a very tough type of protein called keratin that is the primary type of skin in the outermost layer, the epidermis.

Keratin helps protect tissues, organs, and structures from injury, like:

- 1) Cuts
- 2) Scratches
- 3) Abrasions

#### 2. Protection Against Ultraviolet Rays

Not only does the skin provide a very strong barrier against infections in the body, but it also prevents damage to the body from certain harmful substances, such as ultraviolet (UV) light from the sun (or other sources, such as tanning beds). The skin responds to UV rays by producing the pigment melanin in cells called melanocytes. If overexposure to the sun occurs, inflammation occurs and the skin becomes reddened.

and flushed in response to dilatation of the blood vessels in the dermis. As melanin is produced, the skin begins to tan; the melanin absorbs the UV light, preventing damage to the DNA of the cell.

### 3. Maintenance of Body Temperature

One of the most important functions of the skin is to help maintain the body's core temperature. The center in the brain that helps regulate temperature—called the hypothalamus—prompts skin changes in response to a change in the body's internal temperature.

The vast blood supply in the skin can help regulate temperature; as the blood vessels dilate, it allows for heat loss. When the vessels constrict, heat is retained. This process lends itself to the regulation of the body's core temperature.

### 4. Sensory Nerves

Sensory nerves are abundant in the top layer of the skin (the epidermis); these nerves transmit feelings of:

- 1) Pain
- 2) Heat
- 3) Other sensations experienced by the skin

### 5. Metabolism

Skin metabolism is the rate at which new skin cells turn over; this occurs between the epidermal and dermal cells that work together to regulate collagen production and repair UV light damage, aging, and other damage caused to the skin.

### 6. Absorption and Secretion

The skin is responsible for excreting various substances, including:

- 1) Small amounts of carbon dioxide
- 2) Sweat
- 3) Water
- 4) Waste products (such as excess sodium chloride and urea)

## **7.3 Organs**

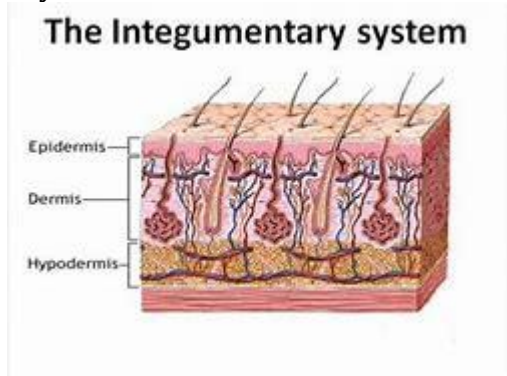
### 1. Skin

The skin is the largest and heaviest organ of the body. To function as a protective barrier, it must cover the entire outside of the body, from the top of a person's head to the end of the toes. The skin is approximately 2 mm (0.079 inches) thick and in its entirety weighs nearly 6 pounds.

Although there may be some differences in the skin from one person to another (such as the color, texture, and thickness), all skin has a few primary similarities. For example, every person's skin is comprised of different types, including:

- 1) Thick and hairless: Located on body parts that are frequently used and involve a lot of friction (such as the soles of the feet and palms of the hands).
- 2) Thin and hairy: The most predominant type of hair on the body, located everywhere, except areas covered by thick and hairless skin.

### Layers of the Skin



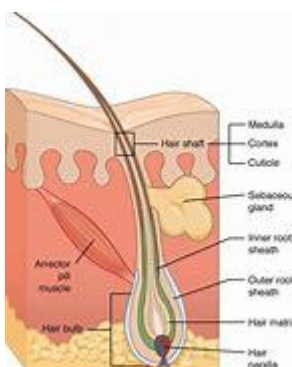
There are two layers of the skin:

- 1) The epidermis: The outer layer of the skin that makes up its strong protective covering.
- 2) The dermis: Located under the epidermis; most of the structures of the skin are located in the dermis (such as various types of glands and hair follicles).

The fatty layer of the skin is a layer of subcutaneous (under the skin) tissue, also known as the hypodermis.<sup>1</sup> The fatty layer serves many different functions, including:

- 1) Providing a cushion for the skin
- 2) Storing fuel for the body (in the form of fat cells)
- 3) Insulating the body, helping to maintain its stable temperature

### 2. Hair

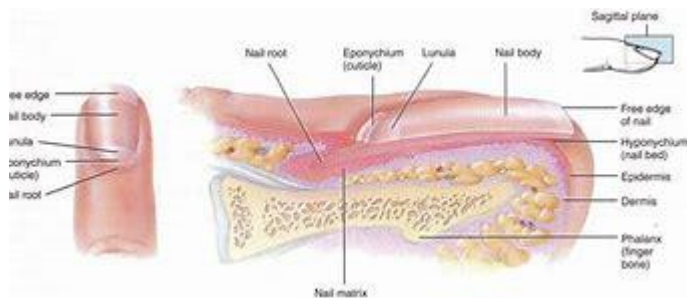


Hair serves to:

- 1) Help protect the skin
- 2) Regulate body temperature
- 3) Lend itself to the evaporation and perspiration process
- 4) Help with the nerve sensing functions of the integumentary system

Hair is primarily comprised of a fibrous protein and contains a very small amount of lipids (fats) and water. Hair comes from follicles, which are simple organs made up of cells called epithelial cells.<sup>3</sup> Epithelial cells are the cells that line the organs and function to provide a protective barrier.

### 3. Nails



Just like other body parts, nails consist of several segments, including:

- 1) The nail plate: The part of the nail that is visible.
- 2) The nail bed: The skin that lies beneath the nail plate.
- 3) The cuticle: The thin line of tissue that is located at the base of the nail and overlaps the nail plate.
- 4) The nail folds: The folds of the skin located on the sides of the nail plate.
- 5) The lunula: The white-colored half-moon-shaped area located at the base of the nail plate.
- 6) The matrix: Part of the nail that is not visible, located underneath the cuticle, this is the area responsible for the growth of the fingernail.

The function of the nail is:

- 1) Protection: Protects the fingers and toes from injury or trauma.
- 2) Sensation: Assists with the sense of touch.

### 4. Glands

The integumentary system has four types of exocrine glands, which secrete some type of substance outside the cells and body. The four exocrine glands associated with the integumentary system include:

- 1) **Sudoriferous glands:** Sweat glands that are hollow, cylindrical structures under the skin; they excrete sweat via very small openings at the skin's surface. The purpose of sudoriferous glands is to emit perspiration to help cool the body off when the body temperature rises.

- 2) **Sebaceous glands:** Very small tubular-shaped glands, located in the dermis, which are responsible for releasing oil into the hair follicle to help lubricate and protect the hair shaft, keeping it from becoming hard and brittle.
- 3) **Ceruminous glands:** Located in the ear canal, ceruminous glands function along with sebaceous glands to produce ear wax (medically coined cerumen). Cerumen is important in its role as a protective mechanism, keeping foreign invaders (such as bacteria and fungus) at bay and guarding the ear against any type of physical damage.
- 4) **Mammary glands:** There are two mammary glands located one at each side of the front of the chest wall. Both men and women have mammary glands, but in men, these glands are underdeveloped. In females, the glands function to produce breastmilk after giving birth. The mammary glands are semicircular in shape in young females, but later the glands begin to lose their shape. A single mammary gland weighs about 500 to 1000 grams (1.1 to 2.2 pounds)

## 7.4 Disease

### 1. Basal Cell Carcinoma

Basal cell carcinoma is a form of cancer that affects the mitotically active stem cells in the stratum basale of the epidermis. It is the most common of all cancers that occur in the United States and is frequently found on the head, neck, arms, and back, which are areas that are most susceptible to long-term sun exposure. Although UV rays are the main culprit, exposure to other agents, such as radiation and arsenic, can also lead to this type of cancer.



### 2. Squamous Cell Carcinoma

Squamous cell carcinoma is a cancer that affects the keratinocytes of the stratum spinosum and presents as lesions commonly found on the scalp, ears, and hands. It is the second most common skin cancer. The American Cancer Society reports that two of 10 skin cancers are squamous cell carcinomas, and it is more aggressive than basal cell carcinoma. If not removed, these carcinomas can metastasize. Surgery and radiation are used to cure squamous cell carcinoma.



### 3. Melanoma

A melanoma is a cancer characterized by the uncontrolled growth of melanocytes, the pigment-producing cells in the epidermis. Typically, a melanoma develops from a mole. It is the most fatal of all skin cancers, as it is highly metastatic and can be difficult to detect before it has spread to other organs. Melanomas usually appear as asymmetrical brown and black patches with uneven borders and a raised surface.



### 4. Skin Disorders

Two common skin disorders are eczema and acne. Eczema is an inflammatory condition and occurs in individuals of all ages. Acne involves the clogging of pores, which can lead to infection and inflammation, and is often seen in adolescents.

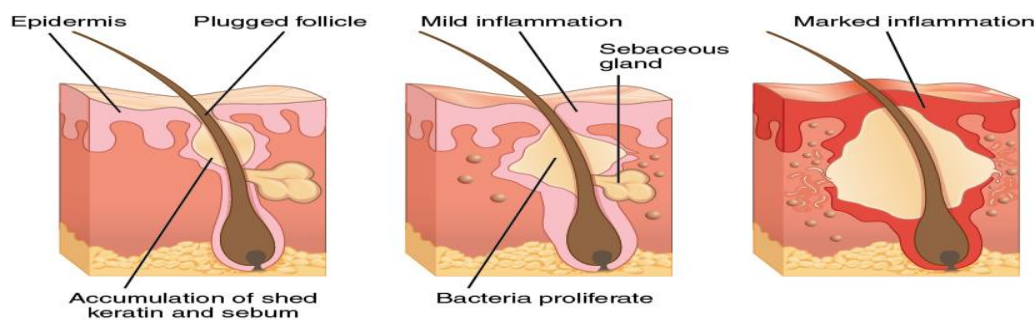
#### 5. Eczema

Eczema is an allergic reaction that manifests as dry, itchy patches of skin that resemble rashes. It may be accompanied by swelling of the skin, flaking, and in severe cases, bleeding. Many who suffer from eczema have antibodies against dust mites in their blood, but the link between eczema and allergy to dust mites has not been proven.



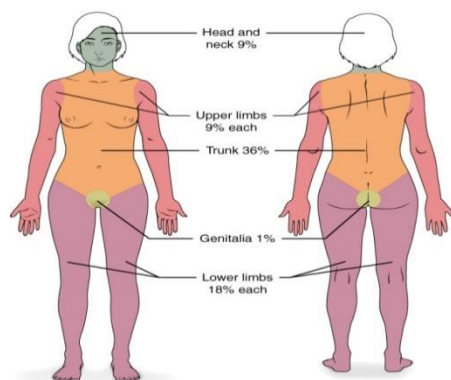
## 6. Acne

Acne is a skin disturbance that typically occurs on areas of the skin that are rich in sebaceous glands (face and back). It is most common along with the onset of puberty due to associated hormonal changes, but can also occur in infants and continue into adulthood. Hormones, such as androgens, stimulate the release of sebum. An overproduction and accumulation of sebum along with keratin can block hair follicles. This plug is initially white. The sebum, when oxidized by exposure to air, turns black. Acne results from infection by acne-causing bacteria (*Propionibacterium* and *Staphylococcus*), which can lead to redness and potential scarring due to the natural wound healing process.



## 7. Burns

A burn results when the skin is damaged by intense heat, radiation, electricity, or chemicals. The damage results in the death of skin cells, which can lead to a massive loss of fluid. Dehydration, electrolyte imbalance, and renal and circulatory failure follow, which can be fatal. Burn patients are treated with intravenous fluids to offset dehydration, as well as intravenous nutrients that enable the body to repair tissues and replace lost proteins. Another serious threat to the lives of burn patients is infection. Burned skin is extremely susceptible to bacteria and other pathogens, due to the loss of protection by intact layers of skin.



## **CHAPTER VIII**

### **NEOROBEBHAVIOR SYSTEM**

#### **8.1 Definition**

The Neurobehavior is a subspecialty of neurology capable of studying the neurological basis of behavior, memory and cognition, the impact of nerve damage and disease on these functions, and their treatment.

Neurons are the working unit of the central nervous system. Consists of 12 cranial nerves, all spinal nerves, and their branches. Its function as a conductor of information in the form of stimuli or impulses. With the presence of these nerve cells, both organs and movement systems can respond as they should.

#### **8.2 Function**

The main function is to receive, process and convey stimuli from all organs. This function will work well if there is coordination between sensory functions, regulatory functions, and motor functions.

##### **1. Central nerve system**

The central nervous system controls all the regulation and processing of stimuli, starting from regulating thoughts, movements, emotions, breathing, heart rate, the release of various hormones, body temperature, to the coordination of all nerve cells to perform regulatory functions in the body.

##### **2. Peripheral nervous system**

The main function of the peripheral nervous system is to receive stimuli and transmit all responses that have been processed by the central nervous system. This system consists of several functions and parts, namely:

##### **3. Sensory function**

This part serves to receive every stimulus or impulse, both from outside and inside the body. Stimuli received can be in the form of light, temperature, smell, sound, touch, pressure.

##### **4. Motor function**

The motor part plays a role in providing a response or body reaction to stimuli that have been processed by the central nervous system. When affected by disorders, for example due to motor nerve disease, the body cannot move normally or even cannot move at all.

##### **5. somatic function**

In addition to these two functions, the peripheral nervous system also manages the responses of all involuntary activities, such as the flight-or-fight response and vice versa.

For example, when experiencing a threat, the body will respond to the situation by increasing the pulse rate, increasing the respiratory rate, and increasing blood flow. After the perceived threatening situation has been resolved, the body will return the response to normal conditions.

### **8.3 Organs**

1. Brain: The brain is the control center whose job is to regulate all functions in the body, from movement, secretion or releasing hormones, thinking or cognitive power, sensation, to emotions.
2. Spinal cord: The spinal cord is part of the central nervous system. Some reflex stimuli can pass through the spinal cord without passing through the brain.
3. Nerve cells (neurons): Neurons are the working unit of the central nervous system. Consists of 12 cranial nerves, all spinal nerves, and their branches. Its function as a conductor of information in the form of stimuli or impulses.

### **8.4 Disease**

#### **1. Meningitis**

Meningitis or inflammation of the lining of the brain is one type of neurological disease that is often experienced by a person, especially in infants, children, and adolescents. Inflammation of the lining of the brain is generally caused by a viral or bacterial infection, but it can also occur due to non-infectious diseases, such as drug allergies or sarcoidosis.

#### **2. Stroke**

Stroke is one of the biggest non-communicable diseases causing death in the world, including in Indonesia. This neurological disease occurs due to disruption of blood supply to the brain due to blockage or rupture of blood vessels.

#### **3. Multiple Sclerosis**

Multiple sclerosis is a type of neurological disease that has a high risk of affecting the brain and spinal cord.

#### **4. Epilepsy**

Epilepsy also known as epilepsy, is a neurological disease caused by abnormal electrical activity in the brain. This disease can cause sufferers to experience repeated seizures without a clear trigger.

#### **5. Bell's Palsy**

Bell's palsy is a neurological disease that causes weakness or temporary paralysis of the muscles in the face. This condition occurs when the peripheral nerves that control facial muscles become inflamed, swollen, or compressed.

## **CHAPTER IX**

### **URINARY SYSTEM**

#### **9.1 Definition**

The urinary system, also known as the renal system or urinary tract, consists of the kidneys, ureters, bladder, and the urethra. The purpose of the urinary system is to eliminate waste from the body, regulate blood volume and blood pressure, control levels of electrolytes and metabolites, and regulate blood pH.

#### **9.2 Function**

The main functions of the urinary system and its components are to:

1. Regulate blood volume and composition (e.g. sodium, potassium and calcium)
2. Regulate blood pressure.
3. Regulate pH homeostasis of the blood.
4. Contributes to the production of red blood cells by the kidney.
5. Helps synthesize calcitriol (the active form of Vitamin D).
6. Stores waste products (mainly urea and uric acid) before it and other products are removed from the body.

#### **9.3 Organ**

**Kidneys:** The kidneys are a pair of bean-shaped organs which filter blood and produce urine. They remove wastes, control the body's fluid balance, and keep the right levels of electrolytes. Kidneys are the most complex and critical part of the urinary system.

1. **Ureter:** Urine passes from the renal tube through tubes called ureters and into the bladder.
2. **Bladder:** The bladder is flexible and is used as storage until the urine is allowed to pass through the urethra and out of the body.
3. **Urethra:** Duct that transmits urine from the bladder to the exterior of the body during urination. The female and male urinary system are very similar, differing only in the length of the urethra.

#### **9.4 Disease**

1. **Nephrosis** - a noninflammatory disease of kidneys.
2. **Nephrolith** - a kidney stone.

3. Urethritis – inflammation of the urethra, the final pathway for urine in both sexes, and the common pathway for urine and semen in the male.
4. Nocturia – frequently getting up and urinating during the night.
5. Enuresis – involuntary release of urine, most often in reference to “bedwetting.”
6. Nephrologist – I am hoping by now, you would know this is a physician specializing in kidney diseases.
7. Urologist – a physician specializing in the genitourinary tract, which includes kidneys, urinary bladder and urethra of both men and women and the prostate and testes in men.
8. Cystoscopy – looking into the urinary bladder with a fiberoptic instrument.

## CHAPTER X GLOSSARIUM

### 10.1 Medical Devices Vocabulary

1. Thumb Forceps (Pinset Anatomis)



3. Bandage (Perban)



2. Surgical Forceps (Pinset Sirurgis)



4. Crutches (Kruk)



### Medical Devices Vocabulary

5. Wheel Chair (Kursi Roda)



7. Needle (Jarum Suntik)



6. Medical Glove (Sarung Tangan Medis)

8. Infusion Set (Set Infus)



### Medical Devices Vocabulary

9. Heart Monitor Rate (Monitor Detak Jantung)    11. First Aid Kit (Alat Pertolongan Pertama)



10. Antiseptic Gel (Gel Antiseptik)  
(Monitor Tekanan Darah)



12. Blood Pressure Monitor



### Medical Devices Vocabulary

13. Mask (Masker)  
Oksigen)    15. Oxygen Mask (Makser



14. Otoscope (Otoskop)



16. Stethoscope (Stetoskop)



**Medical Devices Vocabulary**

17. Arm Sling (Penyangga Lengan)



19. Syringe (Sput/suntikan)



18. Refleks Hammer (Palu Refleks)



20. Thermometer (Termometer)



**Medical Devices Vocabulary**

21. Tongue Spatel (Spatel Lidah)



Perban)

23. Bandage Scissor (Gunting



22. X-Ray (Sinar X)

24. Elastic Tape (Pita Elastis)



## Medical Devices Vocabulary

25. Gauze (Kain Kasa)



27. Band-Aid (Plester Luka)



26. Test Tube (Tabung Reaksi)



28. Walker (Alat Bantu Jalan)



## Medical Devices Vocabulary

29. IV Bag (Kantong Infus)



Badan)

30. Medicine Cup (Cangkir Obat)

31. Weight Scales (Timbangan)

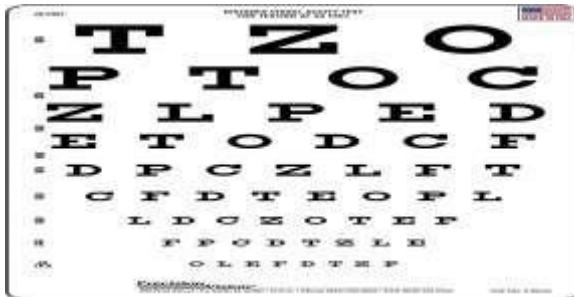


32. Microscop (Mikroskop)



### Medical Devices Vocabulary

33. Eye Chart (Bagan Mata)



35. Infusion Pole (Tiang Infus)



34. Sphygmomanometer (Tensimeter Pasien)



36. Bed Patients (Tempat Tidur)



### Medical Devices Vocabulary

37. Alcohol Swab (Kapas Alkohol)



39. Ointment (Salep)



38. Medical Glasses (Kacamata Medis)

40. Trolley (Troli)



### Medical Devices Vocabulary

41. Blood Bag (Kantong Darah)



Urin)

42. Cannula (Kanula)



43. Foley Chatheter (Kateter



44. CT Scanner (Alat CT Scan)



### Medical Devices Vocabulary

45. Decongestant Spray (Obat Semprot Hidung) 47. Dialysis Machine (Mesin Cuci Darah)



46. Defibrillator (Alat Kejut Jantung Organ Dalam)



48. Endoscope (Alat Periksa



### Medical Devices Vocabulary

49. Heating Pad (Bantal Pemanas)



uap)

50. Incubator (Inkubator)



51. Nebulizers (ubah obat jadi



52. Medical Laser (Laser Medis)



### Medical Devices Vocabulary

53. Stretcher (Tandu)



Gendang Telinga)

54. Tourniquet (Torniket)

55. Tympanometer (Alat Cek



56. MRI Scanner (Alat Scan MRI)



### **Medical Devices Vocabulary**

57. Bed Pan (Pispot)



Vagina)

58. Oxygen Tube (Tabung Oksigen)  
Kolostomi)



59. Vaginal Speculum (Spekulum



60. Colostomy Bag (Kantong



### **Medical Devices Vocabulary**

61. Bowl (Kom)



63. Kidney Dish (Bengkong)



62. Glucometer (Alat Cek Gula Darah)

64. Sterile Instrument Box (Bak

Instrument)



### Medical Devices Vocabulary

65. Suture (Benang Jahit)



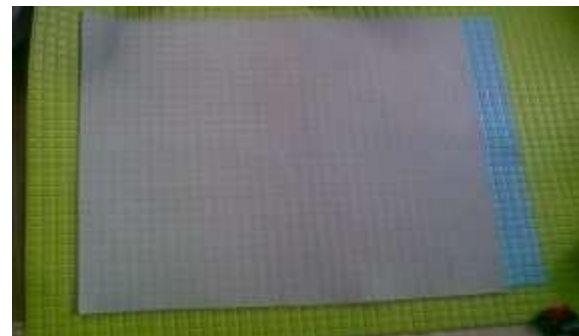
67. Tray (Baki)



66. Hecting Needle (Jarum Jahit)  
(Perlak/Pengalas)



68. Plastic Covered



### Medical Devices Vocabulary

69. Spitting Mug (Pot Sputum)



71. Stomach Tube (Selang NGT)



70. Arterial Forcep (Klem Arteri)  
Rekam Jantung)

72. Electrocardiograph (Alat



## Medical Devices Vocabulary

73. Suction Catheter (Slang Suction)



Peralatan Medis)

74. Suction Pump (Mesin Suction DJJ)



75. Autoclave (Alat Steril



76. Fetal Doppler (Alat deteksi



## 10. 2 Hospital Facilities Vocabulary

77. Emergency Room (Ruang Gawat Darurat)



79. Ward (Bangsal)



78. Waiting Room (Ruang Tunggu)

80. Pharmacy (Apotek)



### **Hospital Facilities Vocabulary**

81. Nurse Station (Ruang Perawat)



Istirahat Dokter)

83. Doctor's Lounge (Ruang



82. Information Center (Pusat Informasi)  
Jenazah)



84. Body Death Room (Kamar



### **Hospital Facilities Vocabulary**

85. Surgery Room (Ruang Operasi)



Rawat Anak)

87. Pediatric Ward (Ruang



86. Laboratory (Laboratorium)

88. Maternity Ward (Ruang

Rawat Ibu Melahirkan)



### **Hospital Facilities Vocabulary**

89. Dentistry Clinic (Klinik Gigi)  
Rawatan Lansia)



91. Geriatric Ward (Ruang



90. Delivery Room (Ruang Bersalin)  
Rawat Kelainan Tulang



92. Orthopedic Ward (Ruang



### **Hospital Facilities Vocabulary**

93. Out Patient Department (Pasien rawat jalan) 95. Intensive Care Unit (Unit Perawatan Intensif)



94. X-Ray Department (Ruang Radiologi)



Perawatan Tinggi)  
**Hospital Facilities Vocabulary**

96. High Care Unit (Unit



97. Neonatal Intensive Care Unit (ICU Bayi)



99. Polyclinic (Poliklinik)



98. Anesthetic (Unit Anestesi)  
Psikiater)



100. Psychiatry Unit (Unit



### **Medical Devices Vocabulary**

101. Underpad (Alas Bawah)



103. Alcohol Detector



102. Pad (Pembalut)



(Pendeteksi Kadar Udara)

**Medical Devices Vocabulary**

104. Smoker Lyzer CO detector



105. X Ray Film Reviewer (Alat Hasil Rontgen)



107. Surgery Table (Meja



106. Examination Bed (Ranjang Periksa Pasien)



108. Blood Transfusion Chair (Kursi Transfusi



Darah)

**Medical Devices Vocabulary**

109. Surgery Lamp (Lampu Operasi)



111. Body Bag (Kantong Mayat)



110. Infusion Pump (Pompa Infus)  
(Pendingin Penyimpan Mayat)



**Medical Devices Vocabulary**

112. Mortuary Refrigerator



113. Bilirubin Meter (Alat ukur kadar bilirubin)  
(Ambeyen)



115. Wind Ring (Bantal



114. Penlight (Senter Medis)



Aliran Udara Paru-Paru)

116. Peak Flow Meter (Pengukur



### **Medical Devices Vocabulary**

117. Mucus Extractor (Slang Penghisap Lendir)



119. Urine Bag (Kantong Urin)



118. Laryngeal Mirror (Cermin Laring)



120. Laboratory Coat (Jas



Laboratorium)

### **10.3 Health Profession Vocabulary**

121. Anesthetist (Ahli Bius)



123. Aurist (Dokter Telinga)



122. Attending Doctor (Dokter Jaga)



Jantung)

**Health Profession Vocabulary**

124. Cardiologist (Dokter



125. General Doctor (Dokter Umum)  
Darah)



127. Hematologist (Spesialis



126. Nurse (Perawat)



128. Midwife (Bidan)



**Health Profession Vocabulary**

129. Neurologist (Spesialis Syaraf)



131. Orthopedic (Dokter Tulang)



130. Nutritionist (Ahli Gizi)



**Health Profession Vocabulary**

132. Pediatrician (Dokter Anak)



133. Otolaryngologist (Spesialis THT)



135. Psychiatrist (Psikiater)



134. Physiotherapist (Fisioterapi)



Paru-paru)

136. Pulmonologist (Spesialis



## **Health Profession Vocabulary**

137. Radiologist (Radiolog)



139. Therapist (Ahli Terapi)



138. Veterinarian (Dokter Hewan)



140. Paramedics (Paramedis)



## **Health Profession Vocabulary**

141. Ophthalmologist (Dokter Mata Medis)



143. Dietician (Ahli Diet)



142. Home Health Care Nurse (Perawat di rumah) 144. Family Doctor (Dokter Keluarga)



## **Health Profession Vocabulary**

145. Dermatologist (Dokter Kulit)  
Spesialis Tenggorokan)



147. Throat Specialis (Dokter



146. Dentist (Dokter Gigi)



148. Yoga Instructor (Instruktur



- Yoga)  
**Health Profession Vocabulary**

149. Surgeon (Dokter Bedah)



150. Psychologist (Psikolog)



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