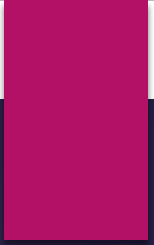




Medical Terminology Overview

WEEK 1



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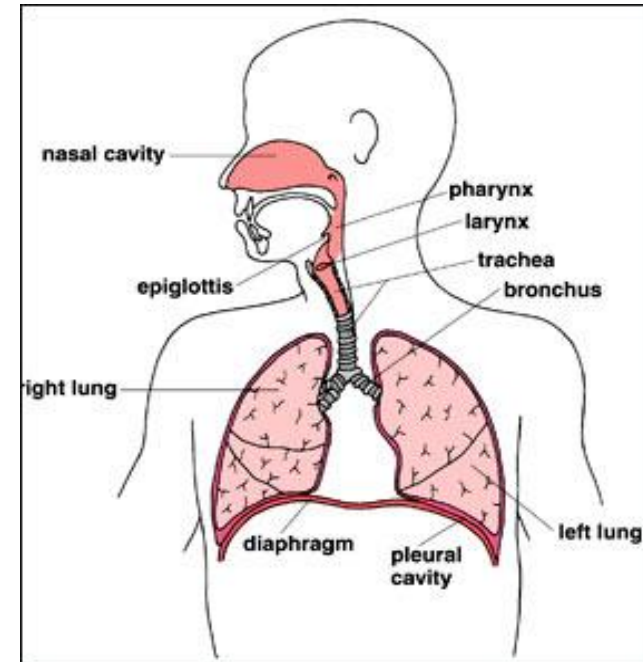
11 Human Organ Systems

1. Respiratory System
2. Digestive System
3. Cardiovascular System
4. Urinary System
5. Skeletal System
6. Muscular System
7. Lymphatic System
8. Endocrine System
9. Nervous System
10. Reproductive System
11. Exocrine System
(Integumentary System)

Day 1: Respiratory System

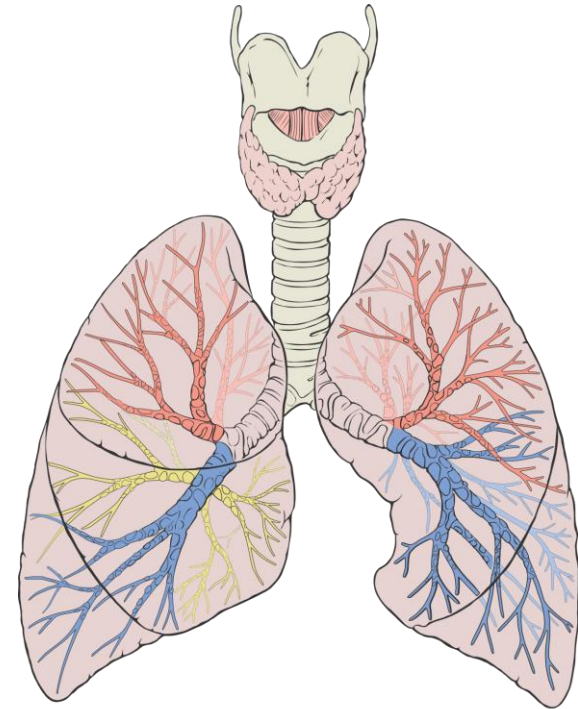
Respiratory System

- ▶ The respiratory system includes air passages (airways) and the lungs. It is responsible for taking in oxygen and removing carbon dioxide.



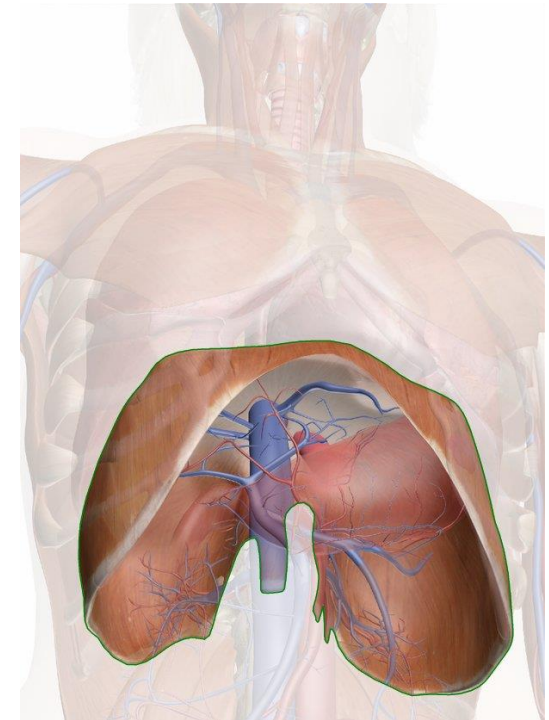
Lungs

- ▶ The lungs are a pair of spongy, air-filled organs located in the chest.
- ▶ Lungs take in oxygen from the atmosphere and moves it through the bloodstream. They also release carbon dioxide from the bloodstream back into the atmosphere. The right lung is bigger than the left lung—the left lung shares its space with the heart.



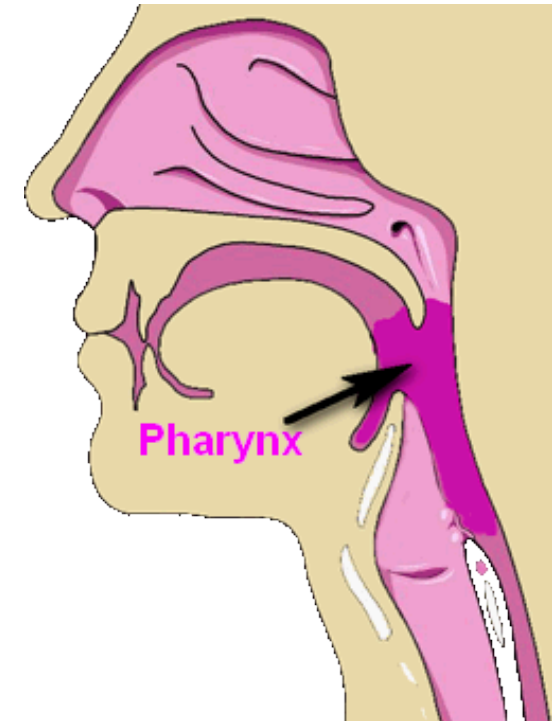
Diaphragm

- ▶ The thoracic diaphragm is a sheet of skeletal muscle that separates the heart and lungs from the abdominal cavity.
- ▶ The diaphragm is the main muscle for breathing. As the diaphragm contracts, the lungs draw in air.



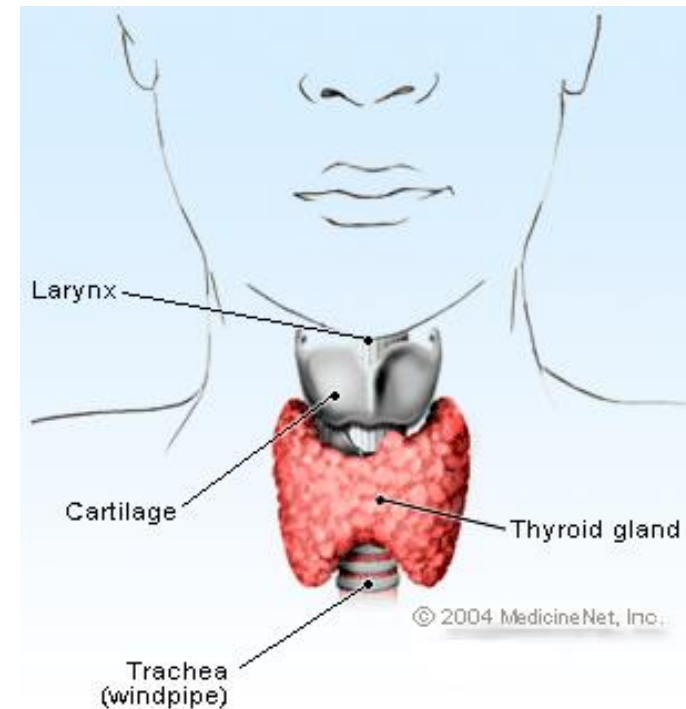
Pharynx

- The technical name for your throat is pharynx. It is a tube that carries food to your esophagus and air to your windpipe and larynx.



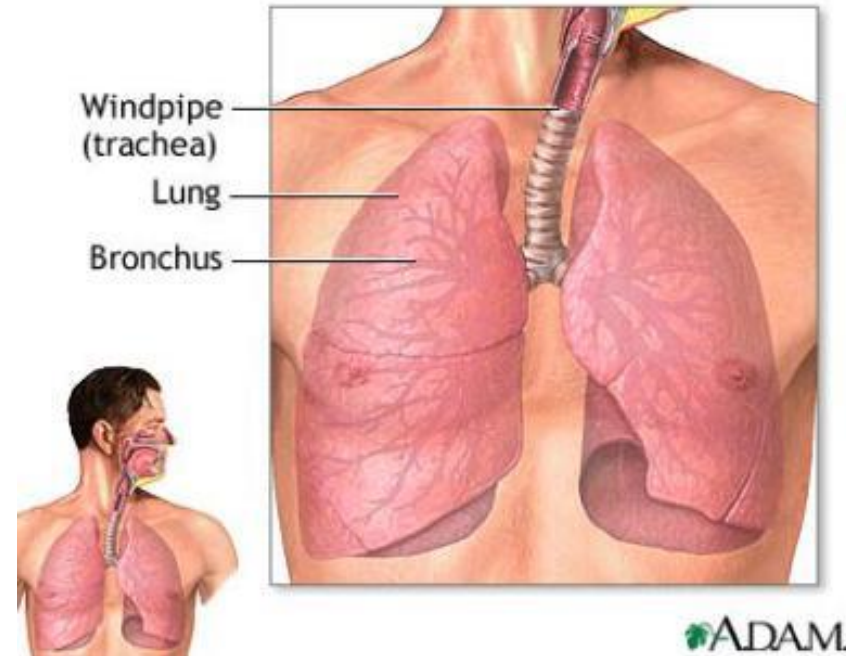
Larynx

- ▶ The larynx is the portion of the breathing, or respiratory, tract containing the vocal cords which produce vocal sound. It is located between the pharynx and the trachea. The larynx, also called the voice box, is a 2-inch-long, tube-shaped organ in the neck.
- ▶ We use the larynx when we breathe, talk, or swallow. Its outer wall of cartilage forms the area of the front of the neck referred to as the "Adams apple." The vocal cords, two bands of muscle, form a "V" inside the larynx.
- ▶ The esophagus, a tube that carries food from the mouth to the stomach, is just behind the trachea and the larynx. The openings of the esophagus and the larynx are very close together in the throat. When we swallow, a flap called the epiglottis moves down over the larynx to keep food out of the windpipe.



Trachea

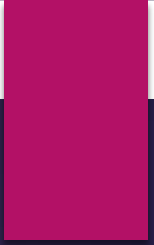
- ▶ Your trachea, or windpipe, carries oxygen-rich air to your lungs. It also carries carbon dioxide, a waste gas, out of your lungs. When you inhale, air travels from your nose, through your larynx, and down your windpipe. The windpipe splits into two bronchi that enter your lungs.





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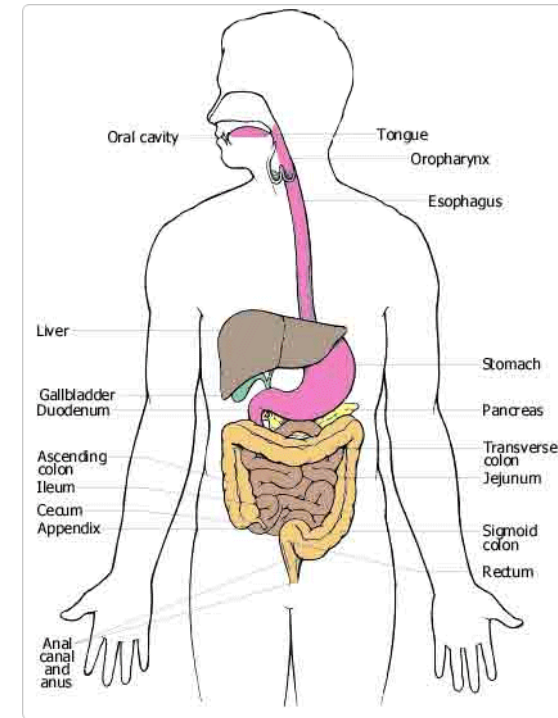
Day 2: Digestive System



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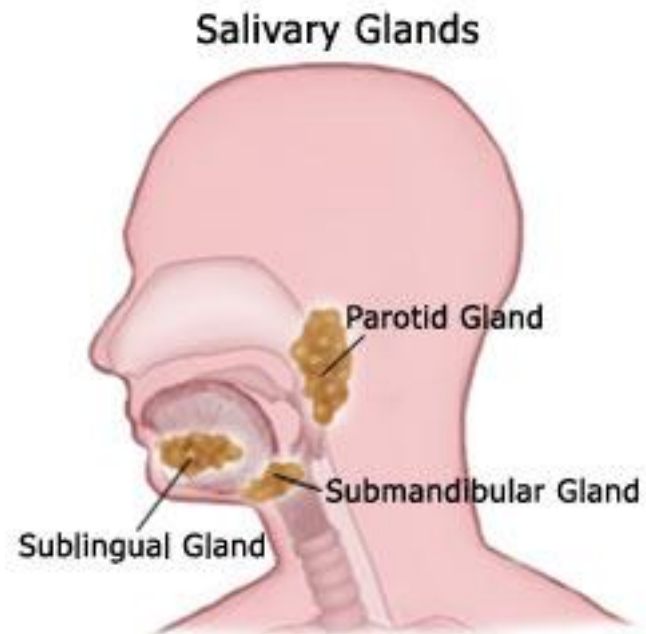
Digestive System

- The digestive system is made up of the digestive tract – a series of hollow organs joined in a long, twisting tube from the mouth to the anus – and other organs that help the body break down and absorb food.



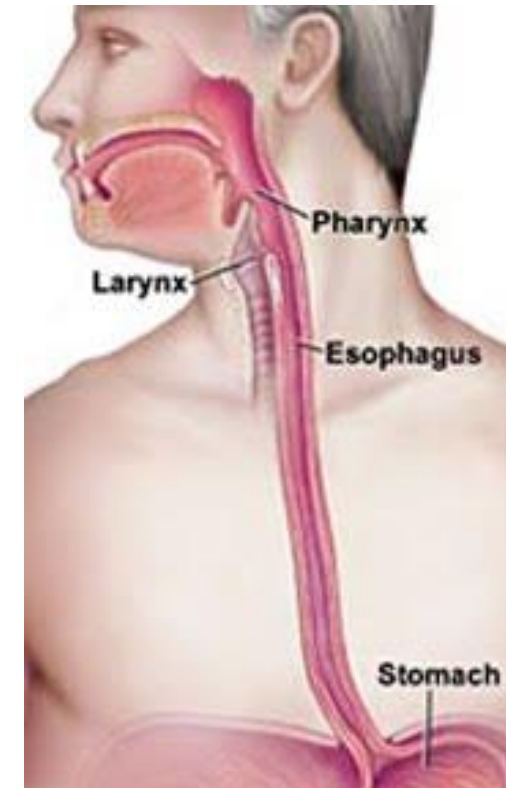
Salivary Glands

- ▶ The salivary glands are found in and around your mouth and throat. We call the major salivary glands the parotid, submandibular, and sublingual glands. They all secrete saliva into your mouth.
- ▶ Besides these glands, there are many tiny glands called minor salivary glands located in your lips, inner cheek area, and extensively in other linings of your mouth and throat.
- ▶ Salivary glands produce the saliva used to moisten your mouth, initiate digestion, and help protect your teeth from decay.



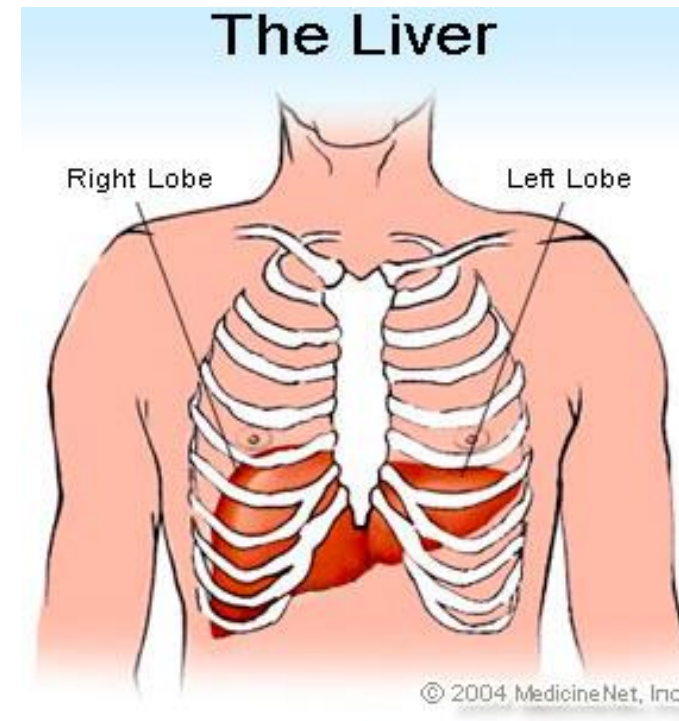
Esophagus

- The esophagus is the tube that carries food, liquids, and saliva from your mouth to the stomach.



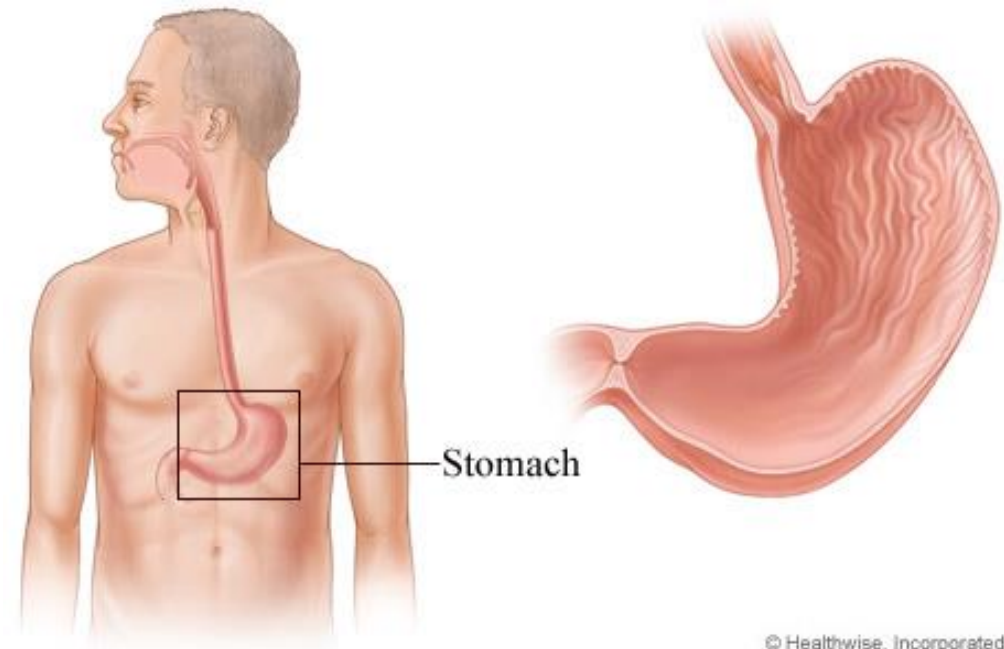
Liver

- ▶ The liver, the largest solid organ in the body, is located in the upper abdomen.
- ▶ It performs nearly 500 important and complex functions. Some of these functions are to:
 - ▶ Metabolize (break down) fats, carbohydrates, and proteins so they can be absorbed or stored for later use
 - ▶ Produce bile to aid in intestinal absorption (by breaking down fats)
 - ▶ Detoxify drugs, alcohol, environmental toxins, and harmful substances created by the body



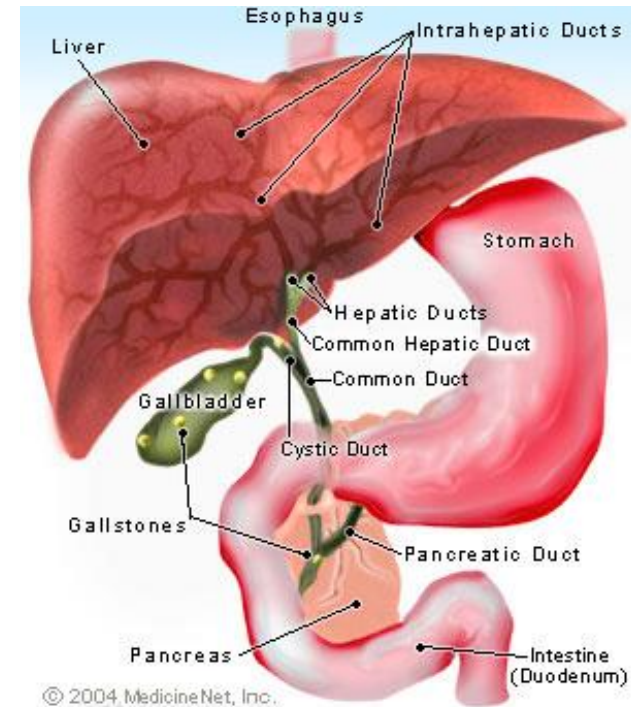
Stomach

- ▶ The stomach **begins** the process of breaking down food into molecules small enough to be absorbed through the capillaries (found in the small intestine) into the blood. In response to the arrival of food, glands present in the lining of the stomach produce stomach acid. This acid helps to break the food down into smaller, easier to digest fragments and kills bacteria contained in the swallowed food or saliva. Muscles in the wall of the stomach help to move the food and acid around making sure that they mix thoroughly. By the time food is ready to leave the stomach, it has been processed into a thick liquid of partly-digested food called chyme. Muscular movements in the lower part of the stomach push the chyme down towards the small intestine.



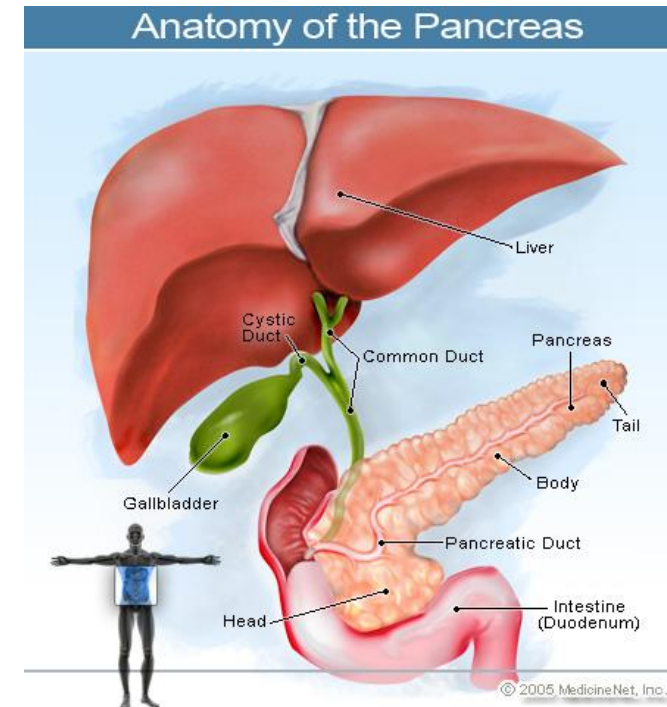
Gallbladder

- The gallbladder, located just below the liver, stores the bile secreted by the liver. During a fatty meal, the gallbladder contracts, delivering the bile through the bile ducts into the intestines to help with digestion. An abnormal composition of bile may lead to the formation of gallstones which may cause inflammation of the gallbladder.



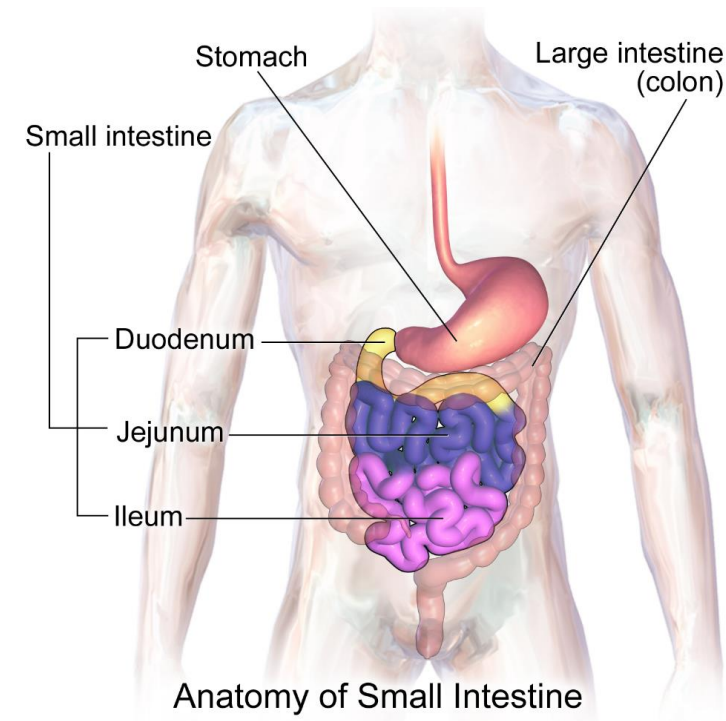
Pancreas

- ▶ The pancreas is a gland organ in the digestive and endocrine systems. It makes pancreatic juices (enzymes) that help digest food (in the small intestine). As pancreatic juices are made, they flow into the main pancreatic duct. This duct joins the common bile duct, which connects the pancreas, liver and gallbladder to the small intestine.
- ▶ The pancreas also makes hormones (glucagon and insulin) that help control blood sugar levels. Glucagon raises the amount of sugar in the blood and insulin lowers it.



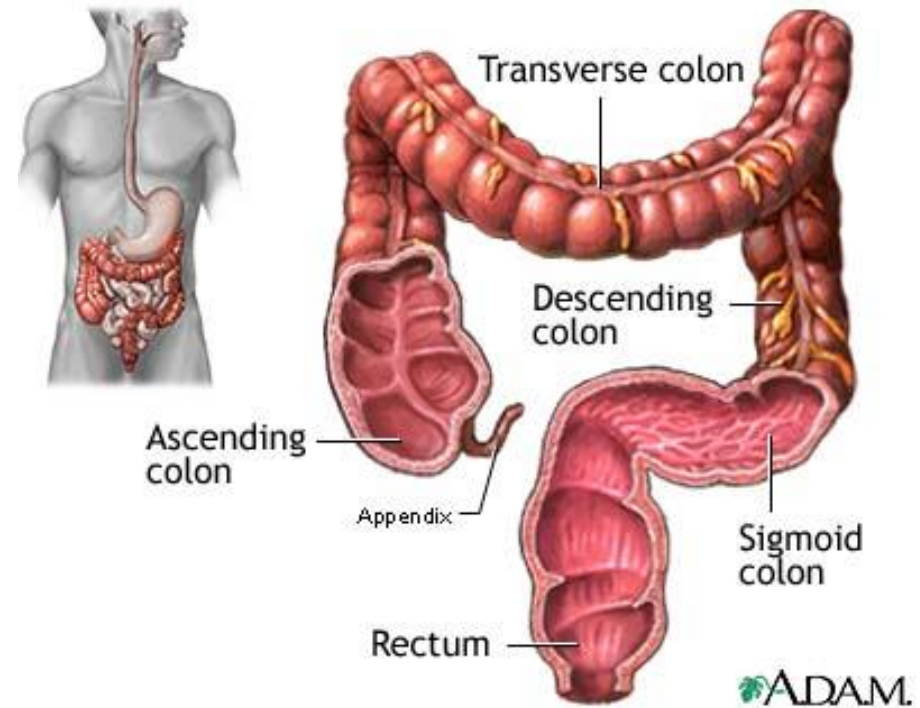
Small Intestine

- ▶ The **small intestine** or **small bowel** is the part of the gastrointestinal tract between the stomach and the large intestine, and is where a lot of the digestion and absorption of food takes place. The small intestine has three distinct regions – the duodenum, jejunum, and ileum. The primary function of the small intestine is the absorption of nutrients and minerals from food
- ▶ In the duodenum portion of the small intestine, the chyme created in the stomach is further broken down as it mixes with bile secreted from the gallbladder (where it was stored after coming from the liver), the juices (enzymes) from the pancreas, and enzymes secreted by glands in the walls of the intestine.
- ▶ In the jejunum and ileum (the second and third parts of the small intestine), important nutrients are absorbed through capillaries and transported by blood to the liver. The liver processes these nutrients and then delivers them to the cells of the body.



Large Intestine

- ▶ The large intestine's main function is to remove water from the undigested matter it receives from the small intestine and form solid waste that can be excreted.

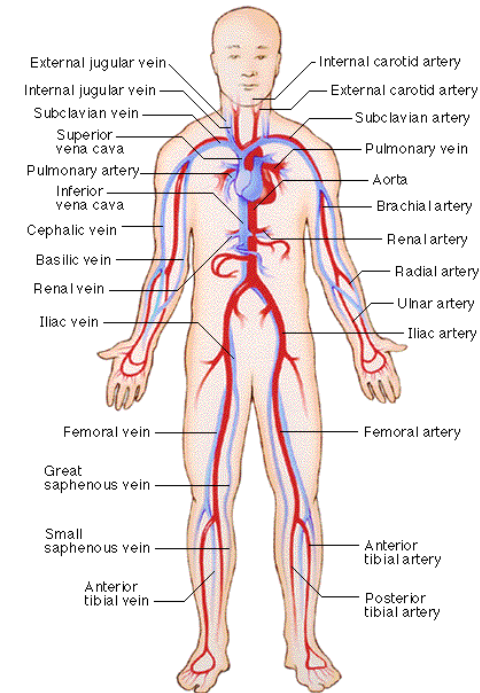




Day 3: Cardiovascular and Nervous Systems

Circulatory or Cardiovascular System

- ▶ The main parts of the circulatory system are the heart, blood, and blood vessels. Together, they provide a continuous flow of blood to the body, supplying the organs and tissues with oxygen and nutrients. The heart pumps blood to the arteries. The arteries take the oxygenated blood throughout the body. The veins take blood containing carbon dioxide back to the heart, which then releases it in the lungs.

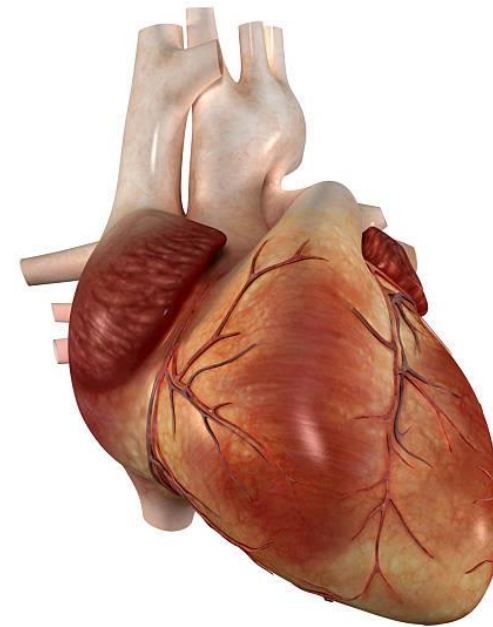




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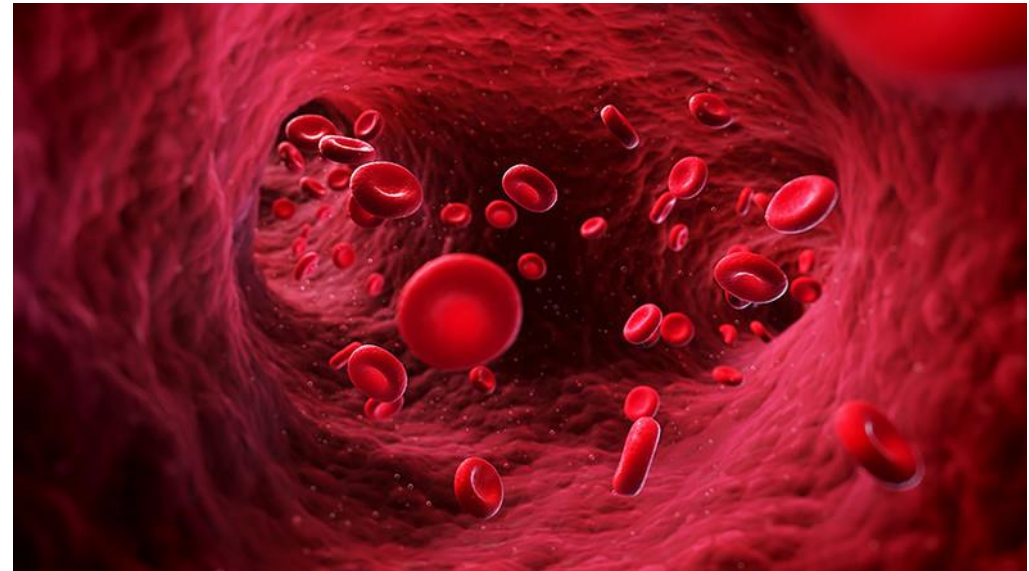
Heart

- ▶ The heart pumps blood through the blood vessels. It receives blood low in oxygen and pumps it through the lungs where it receives oxygen and gives off carbon dioxide.
- ▶ The heart is located between the lungs, in the middle compartment of the chest. It is divided into 4 chambers: upper left and right atria, and lower left and right ventricles.



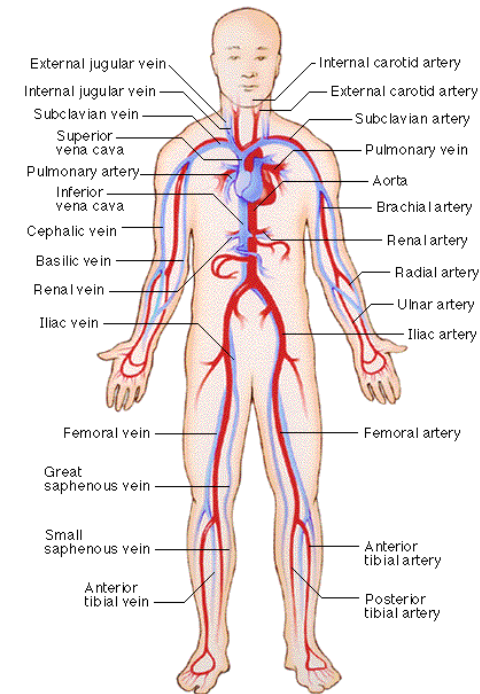
Blood

- ▶ Blood is a body fluid that delivers necessary nutrients and oxygen to the cells and transports metabolic wastes away from those cells.
- ▶ Blood is circulated throughout the body by the pumping action of the heart.



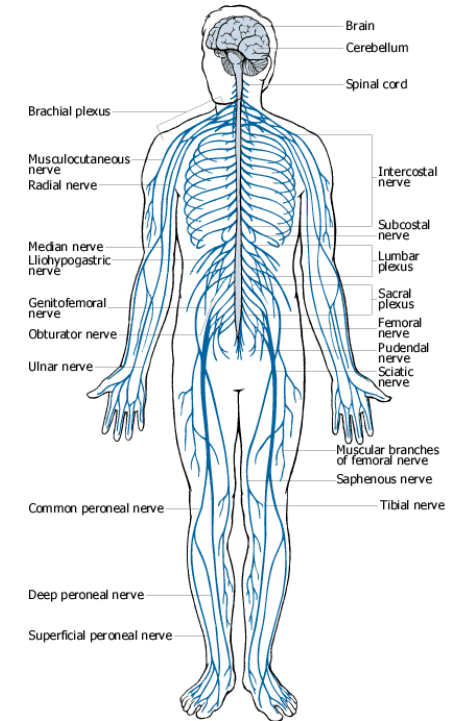
Blood Vessels

- ▶ Blood flows through blood vessels to the lungs, dropping off carbon dioxide and picking up oxygen. This happens when you breathe in and out. A similar process takes place when blood flows through the blood vessels leading to and from organs of the body to the heart.
- ▶ The arteries carry blood full of oxygen from the heart to other organs in the body. Arteries are red in color because the blood they transport has oxygen in it. Arteries are thicker because blood flows through them with tremendous force.
- ▶ Blood vessels that are very small (those located farther away from the heart) are called capillaries. Capillaries connect arteries and veins and carry blood to and from the trillions of cells in the body. They are so thin that nutrients can pass directly through them.
- ▶ Veins carry blood low in oxygen back to the heart from other organs. Veins are blue because the blood they carry has carbon dioxide in it. Their walls are not as thick because the blood going through them flows at a slower rate.



Nervous System

- ▶ The nervous system controls all of the body's voluntary and involuntary functions (except for those controlled by the heart's electrical system) and has three functions: sensory, integrative, and motor. The sensory function allows us to detect external and internal stimuli. The integrative function, performed by the brain, receives incoming information and processes it. The motor function occurs when the brain decides a response is needed.
- ▶ **Two main parts of the nervous system:**
- ▶ **Central nervous system:** brain and spinal cord
- ▶ **Peripheral nervous system:** somatic and autonomic nervous systems
- ▶ Somatic nervous system: carries motor and sensory information; responsible for all voluntary muscle movements; processes sensory information from external stimuli
- ▶ Autonomic: sympathetic nervous system (fight or flight); parasympathetic nervous system brings all systems of the body back to normal



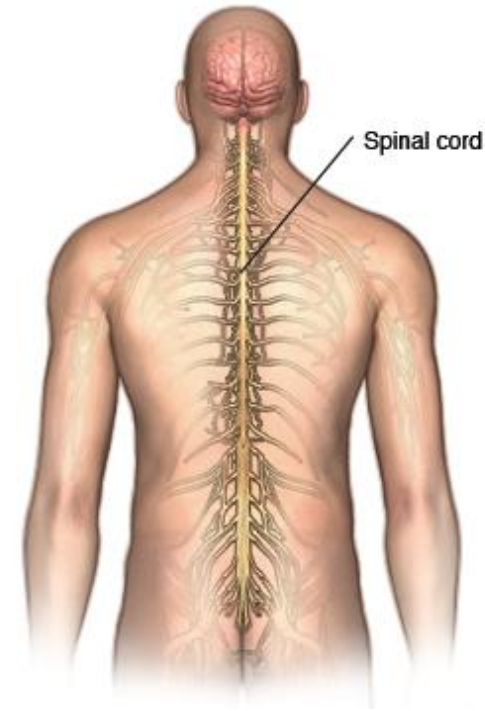
Brain

- ▶ **Cerebrum:** largest part of the brain
 - ▶ Responsible for memory, speech, senses, emotional response, etc.
 - ▶ It has 2 hemispheres and 4 lobes; each doing a different job
- ▶ **Cerebellum:** below and behind the cerebrum and is attached to the brain stem
 - ▶ Controls muscle tone, balance, coordination, posture
- ▶ **Brain stem:** divided into midbrain, pons, and medulla oblongata
 - ▶ Governs respiration, blood pressure, taste, some reflexes, and fight/flight response
- ▶ **Diencephalon:** inside the cerebrum above the brain cell; divided into thalamus, hypothalamus, and epithalamus
 - ▶ Controls food intake, sensory function, and body's sleep cycle



Spinal Cord

- ▶ The brain and spinal cord make up the central nervous system
- ▶ Long bundle of nervous tissue and support cells that extends from the brainstem to the lumbar region of the vertebral column
- ▶ 4 regions: cervical, thoracic, lumbar, and spinal nerves
- ▶ 31 spinal cord nerve segments in humans
- ▶ ~45 cm in men and ~43 cm in women
- ▶ Primary functions are to transmit nerve signals and coordinate many reflexes



Neurons

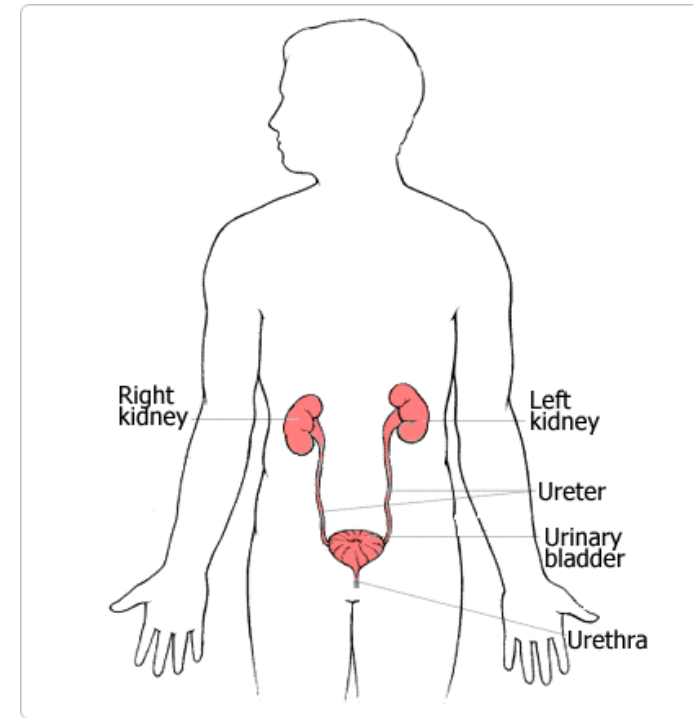
- ▶ Basic units of the brain and nervous system
- ▶ Responsible for receiving sensory input from the world, sending motor commands to our muscles, and relaying electrical signals
- ▶ ~100 billion neurons

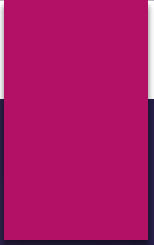


Day 4: More Systems

Urinary System

- ▶ Your urinary system is responsible for the formation and excretion of urine. The digestive system rids the body of solid waste. The lungs rid the body of carbon dioxide. Other wastes are produced when the cells burn food for energy. The urinary system removes these wastes from the blood. It also maintains water balance within the system.

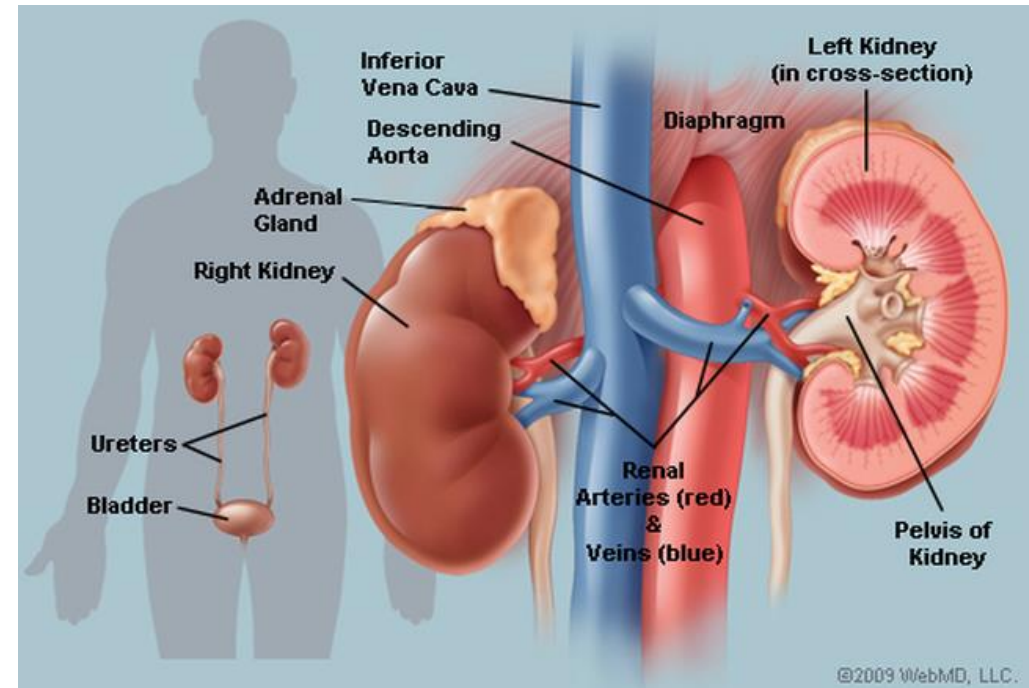




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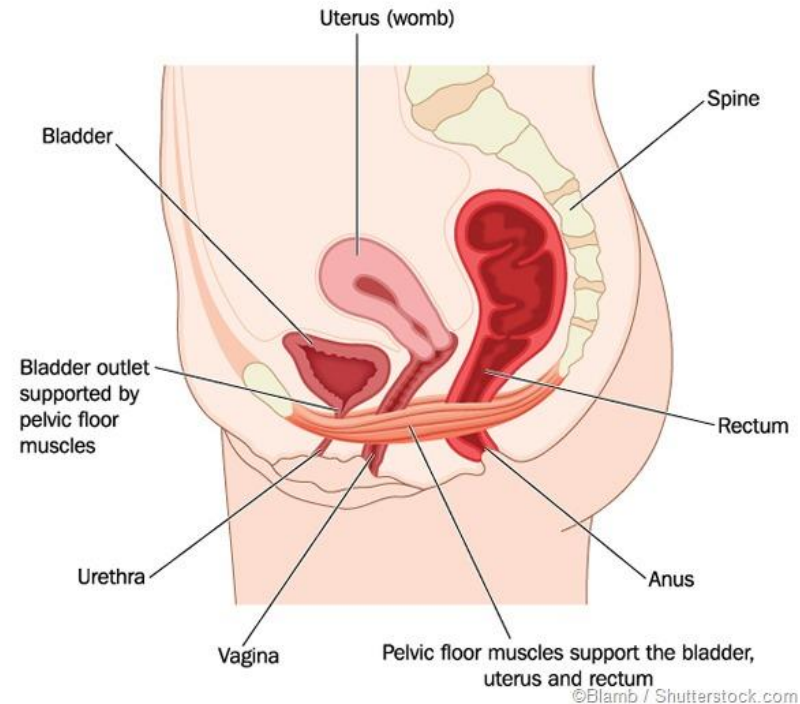
Kidneys

- The kidneys are bean-shaped organs, each about the size of a fist. They are located near the middle of the back, just below the rib cage, one on each side of the spine. The kidneys are sophisticated filtering machines. Every day, a person's kidneys process about 200 quarts of blood to filter out about 2 quarts of waste products and extra water. The wastes and extra water become urine, which flows to the bladder through tubes called ureters.



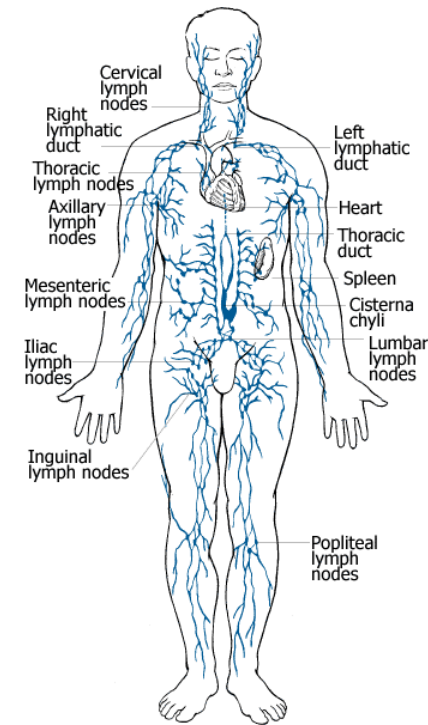
Bladder

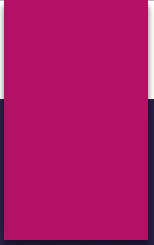
- ▶ The bladder is a balloon shaped sac located at the base of the pelvis. It stores urine until the urine is released through the urethra.
- ▶ The typical human bladder can typically hold 300 to 500 ml of urine before needing to release.



Lymphatic System

- ▶ The lymphatic system consists of lymphatic vessels that help the body get rid of toxins, waste, and other unwanted materials. Its main function is to transport lymph (fluid containing white blood cells) throughout the body. Lymph nodes, found in the lymph vessels, are packed tightly with white blood cells that protect the body against infection.





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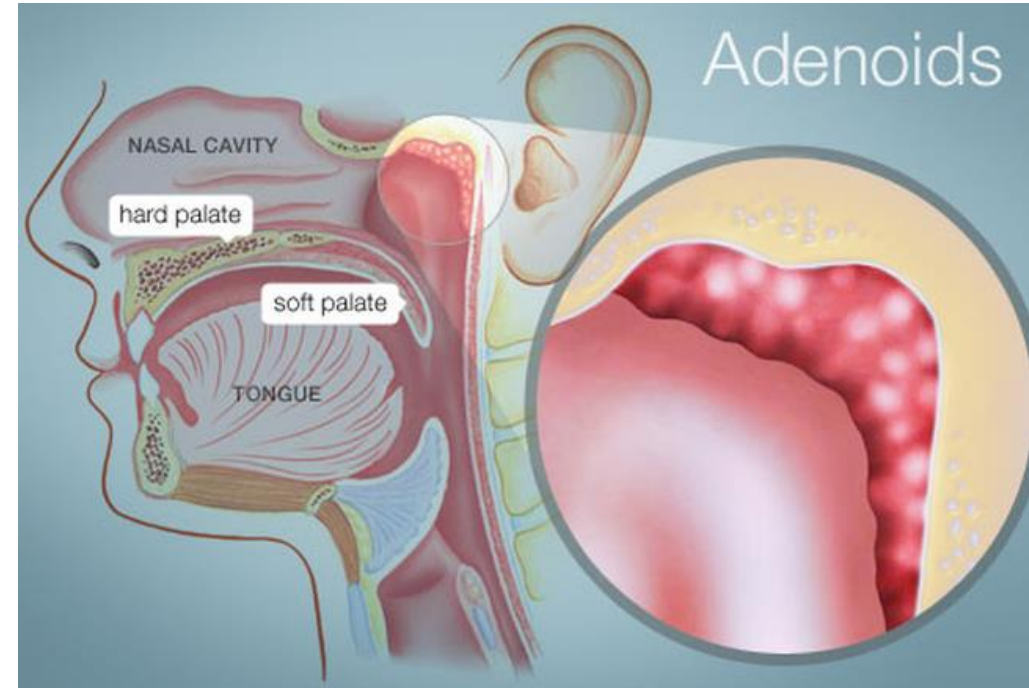
Tonsils

- ▶ Pair of lymphatic cells found at the pharynx (at the back of the throat)
- ▶ Proteins called antibodies are produced in the tonsils to kill germs and prevent throat and lung infections.



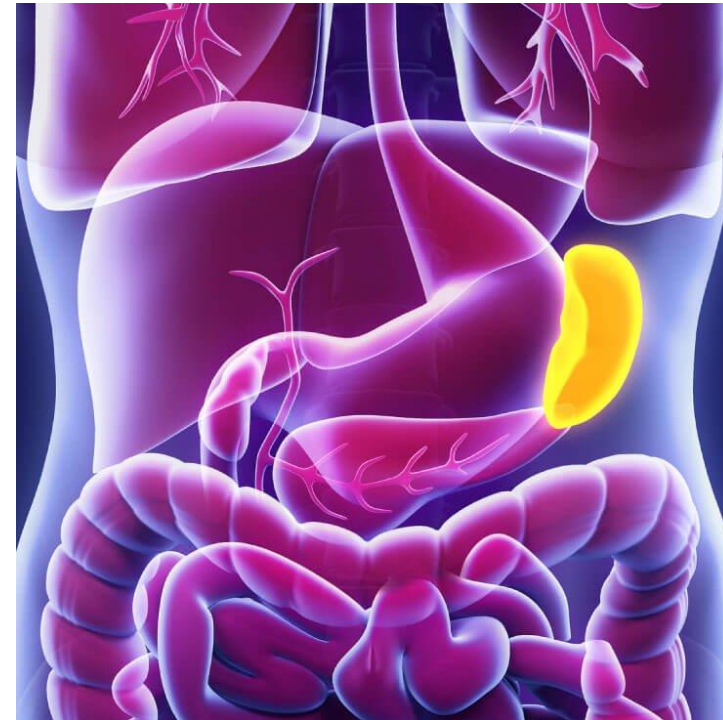
Adenoids

- Mass of soft tissue behind the nasal cavity. The adenoids and tonsils work by trapping germs coming in through the mouth and nose



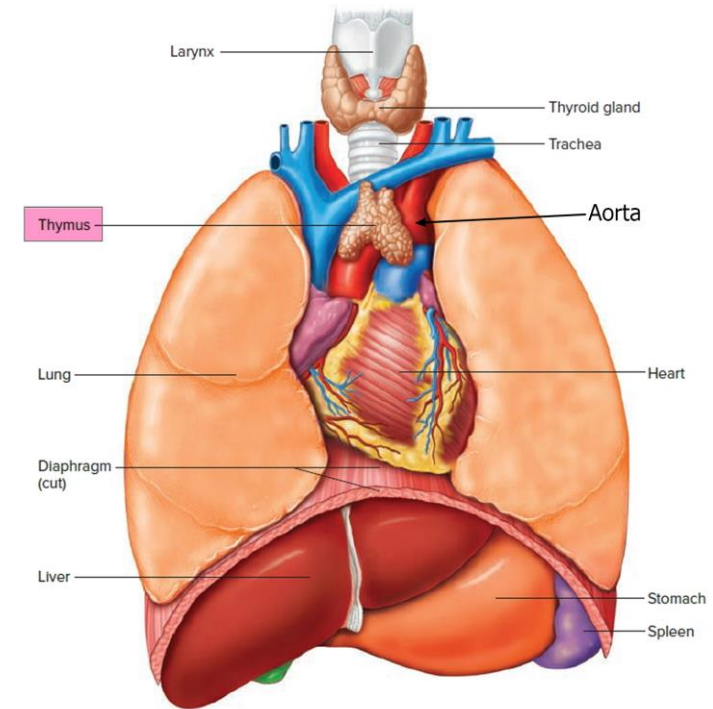
Spleen

- ▶ Located in the upper far left of the abdomen, to the left of the stomach.
- ▶ ~4 inches long
- ▶ Protected by the rib cage
- ▶ The spleen filters blood. Old red blood cells are recycled in the spleen. Platelets and white blood cells are stored in the spleen. It helps fight certain kinds of bacteria that cause pneumonia and meningitis.



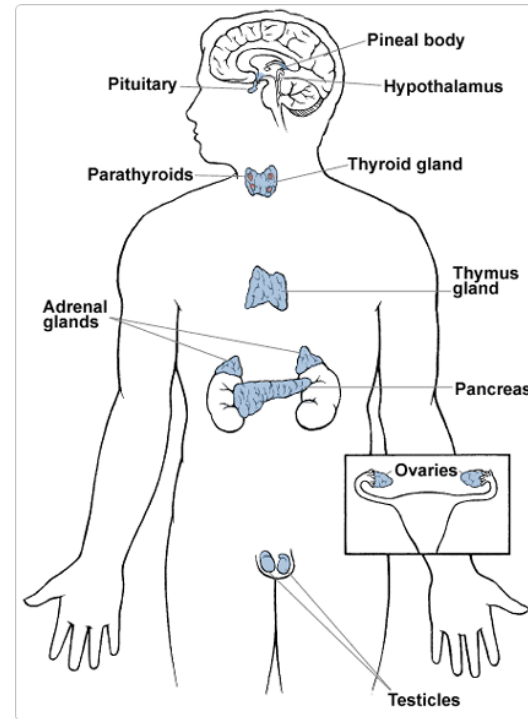
Thymus

- ▶ Specialized primary lymphoid organ
- ▶ Located in the back of the vertebrates
- ▶ Produces T cells to attack foreign substances



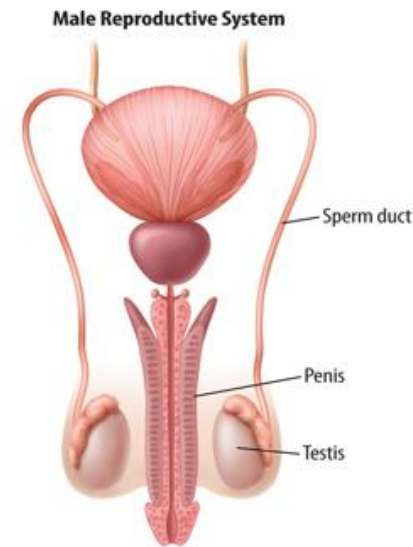
Endocrine System

- ▶ The endocrine system is a collection of glands that produce hormones that regulate the body's growth, metabolism, and sexual development and function. The hormones are released into the bloodstream and transported to tissues and organs throughout the body.

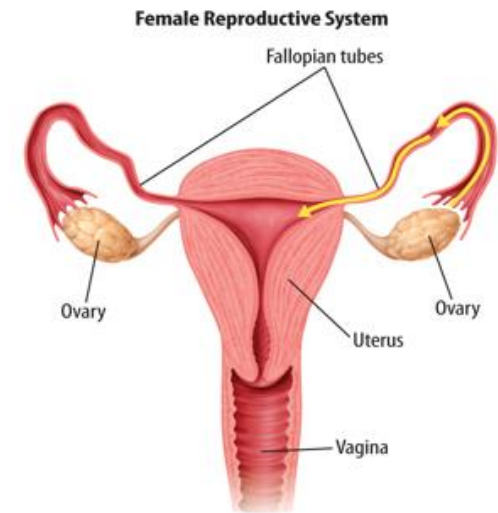


Male and Female Reproductive Systems

- The reproductive system or genital system is a system of organs which work together for the purpose of reproduction. The major organs of the human reproductive system include the external genitalia (penis, scrotum, and vulva) as well as a number of internal organs including the gonads (testicles and ovaries.)



The organs of the male reproductive system produce sperm and deliver it to the female reproductive system.

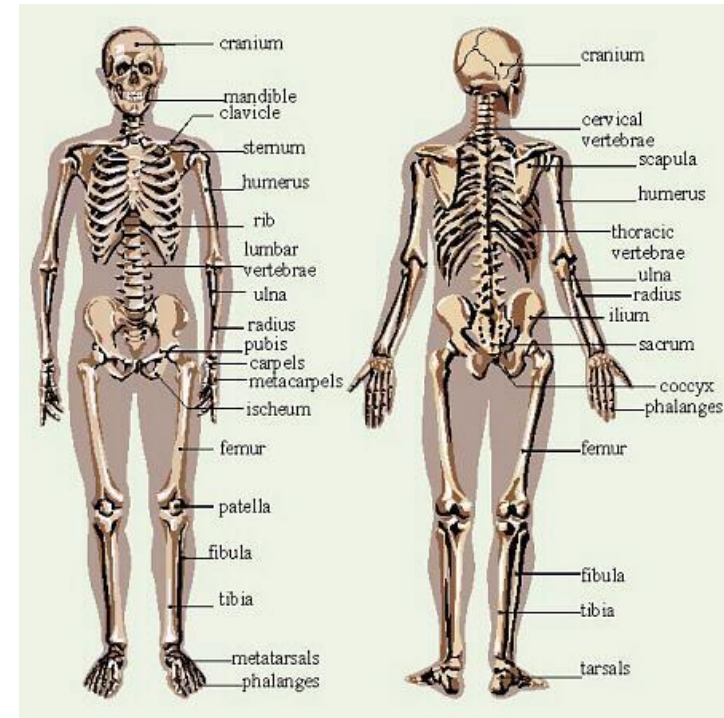


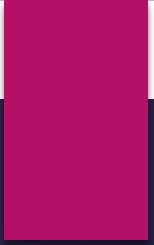
The female reproductive system produces eggs and provides a place for a new human to grow and develop before birth.

Day 5: Other Organ Systems

Skeletal System

- The skeletal system is made up of organs called bones. These 206 bones protect vital organs; produce red and white blood cells; store minerals; and, in combination with muscles, support the body and help it to move.





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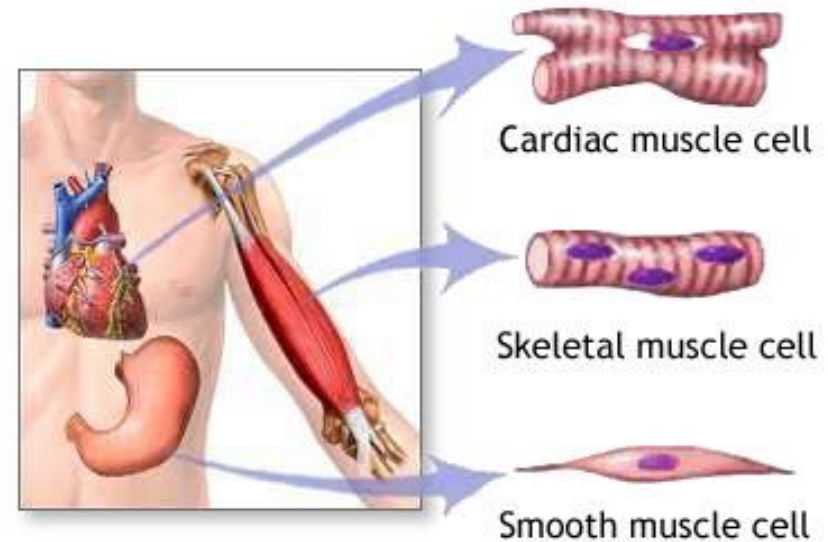
Muscular System

▶ Three types of muscle tissue:

- ▶ Visceral (smooth) muscle: Weakest muscle; makes organs (stomach, intestines, and blood vessels) contract to move substances through the organ
- ▶ Cardiac muscle: Found in the heart; pumps blood throughout the body
- ▶ Skeletal muscle: The only voluntary muscle in the body; contracts to move parts of the body closer to the bone

▶ Functions:

- ▶ Produces body movements
- ▶ Stabilizes body positions
- ▶ Regulates organ volume
- ▶ Moves substances within the body
- ▶ Generates heat





<https://www.youtube.com/watch?v=rMcg9YzNSEs>

Exocrine/Integumentary System

- The integumentary system is the organ system that protects the body from damage and acts as the body's first line of defense against infection, temperature change, and other challenges to homeostasis. This system is made up of the skin, sweat and oil glands, nails, and hair. It is the largest organ system in the body.

