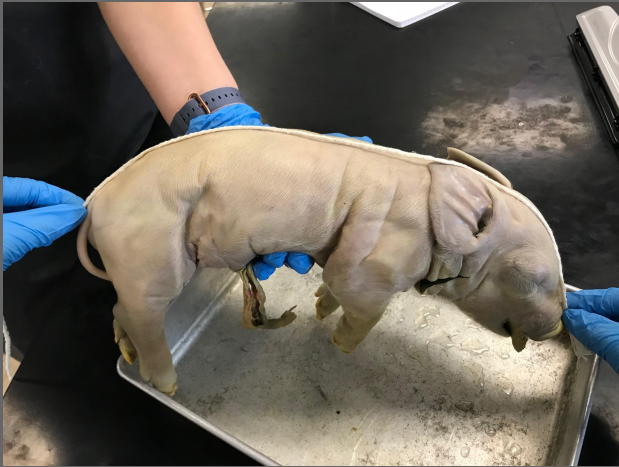


Hi... My name is Josh!

I am a full term fetal pig straight from the womb.

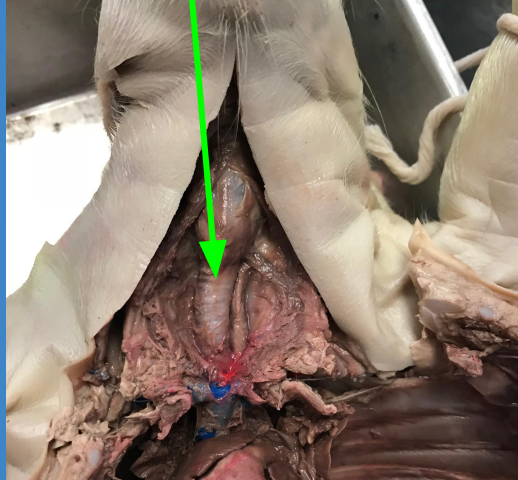
I am a boy. You can tell that I am a boy because of my urogenital opening located posterior to my umbilical cord and my scrotum ventral to my anus. I am a chunkier boy.



The Trachea

What's the Trachea???

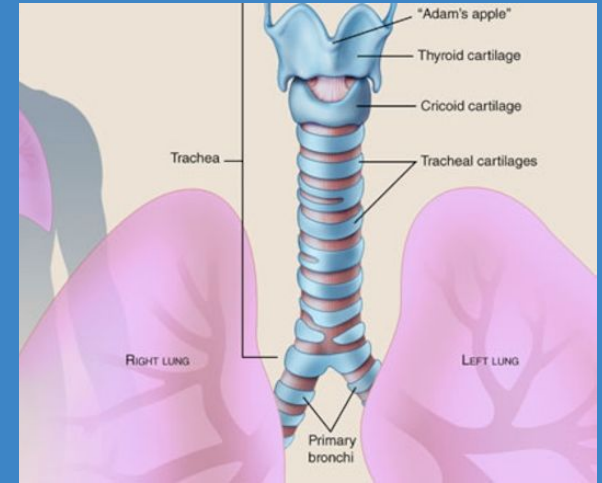
The trachea is a wide, hollow tube that connects the larynx to the bronchi at the top of the lungs.



What does it do?

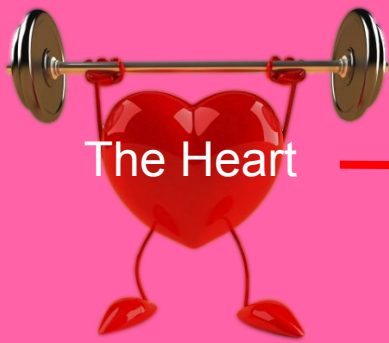
The trachea is vital in providing air flow to and from the lungs. There is also a layer of mucus lining the trachea which protects the lungs by trapping inhaled particles, preventing them from entering the lungs.

The epiglottis is a tissue that covers the entrance to the trachea, ensuring that food and liquids go to the esophagus instead of the lungs.

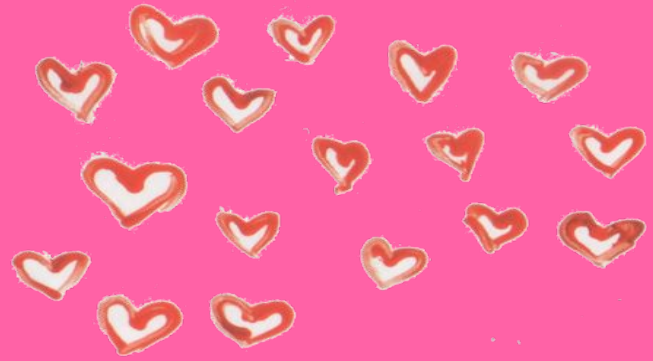
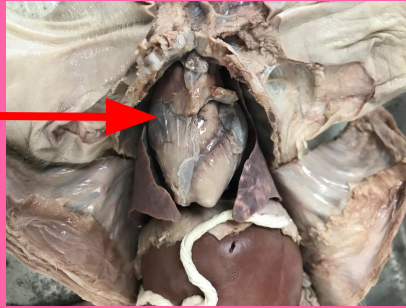


Fun Facts!!!!

- The trachea is held open by 16-20 rings of cartilage.
- Half of the trachea is located in the chest and the other half is in the neck.

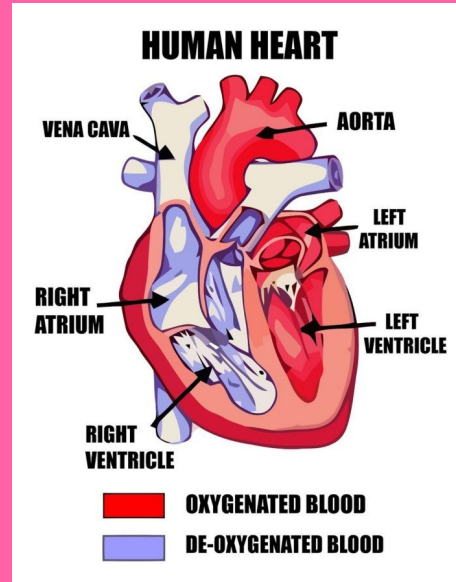


The Heart



Function and Structure:

The heart is a muscle broken into four chambers which are separated by the septum. The right atrium pumps deoxygenated blood into the right ventricle. The right ventricle then pumps blood into the pulmonary artery which leads to the lungs. There, gas exchange occurs and the oxygenated blood travels back to the heart through the pulmonary veins to the left atrium. The left atrium pumps blood into the left ventricle which pumps blood to the aorta. The aorta carries blood out to the body.

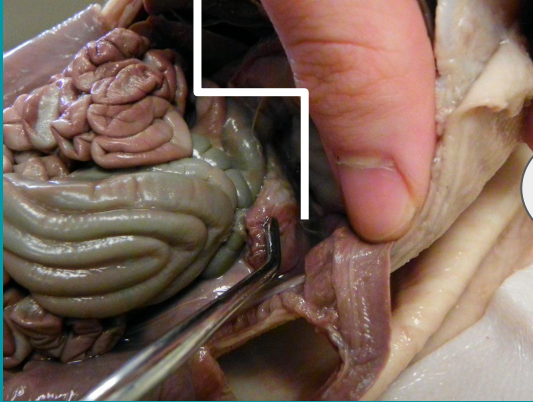


Miscellaneous Facts:

- The adult heart beats about 100,000 times a day.
- Your heart is around the size of your fist.
- Each minute our hearts pump about 1.5 gallons of blood.
- The first heart cell starts to beat as early as 4 weeks.

Pancreas

The Pancreas



Function:

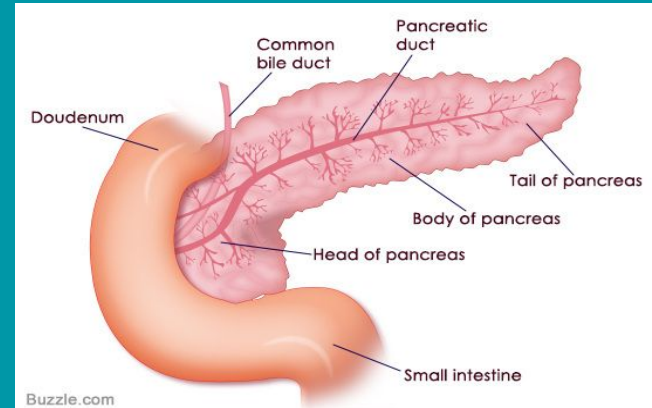
The pancreas produces hormones that regulate blood sugar levels, produces enzymes that break down carbohydrates, proteins, lipids, and nucleic acids, and produces a base called sodium bicarbonate that quickly neutralizes stomach acid.

Common Diseases:

- ★ Pancreatitis
- ★ Pancreatic Cancer
- ★ Type 1 Diabetes
- ★ Exocrine Pancreatic sufficiency

Structure:

The pancreas is a long gland located just behind the stomach. The pancreas itself is composed of two glands: the exocrine gland and the endocrine gland. The exocrine gland secretes enzymes for digestion, and the endocrine gland secretes hormones into the bloodstream.



Kidneys

Misc. Facts

- End to end, our nephrons stretch to nearly 50 miles long.
- Each kidney is about the size of a human fist.
- Kidney stones form from salt and mineral build-ups in the kidney.
- Sometimes, when children are born with only one kidney, that kidney grows so its weight equals the weight of two kidneys combined.

The kidney filters the blood and eliminates waste

Glomerulus & Bowman's Capsule

The blood is filtered through a dense network of capillaries. The glomerulus filters everything out of the blood and sends into the proximal tubule.

Proximal Convoluted tubule kidney

The blood is reabsorbed in a process called reabsorption. Salts, amino acids, fats and glucose are filtered out and reabsorbed through capillaries.

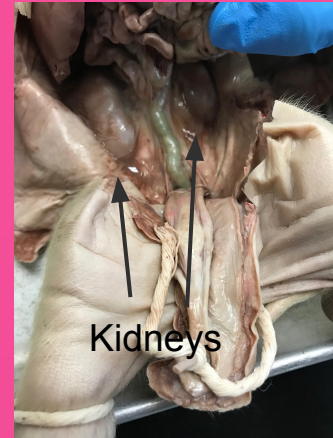
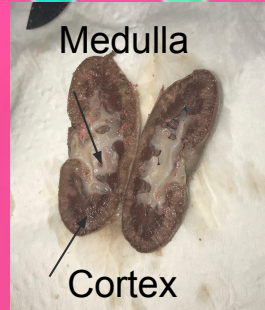
Collecting duct

Transports urine to the ureter.

salt

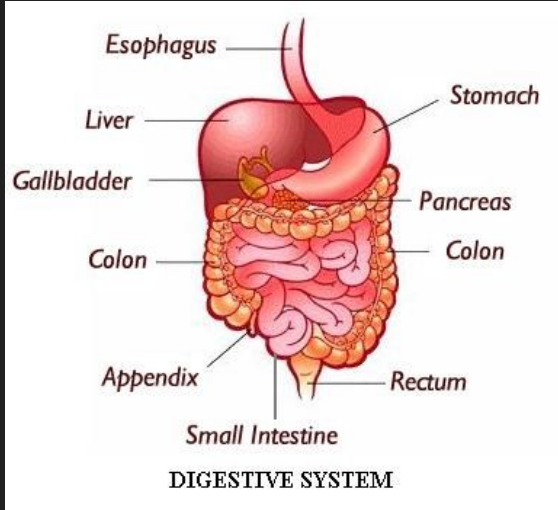
Loop of henle

Absorbs water from the filtrate (Medulla is concentrated with salt and attracts water).



Millions of filter systems, known as nephrons, exist within the kidneys and filter out impurities, excrete wastes, and return blood.

The Liver



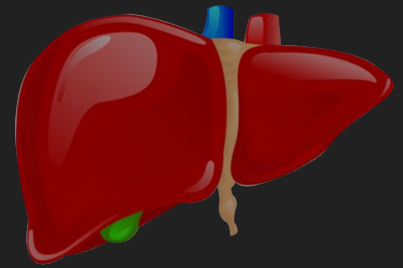
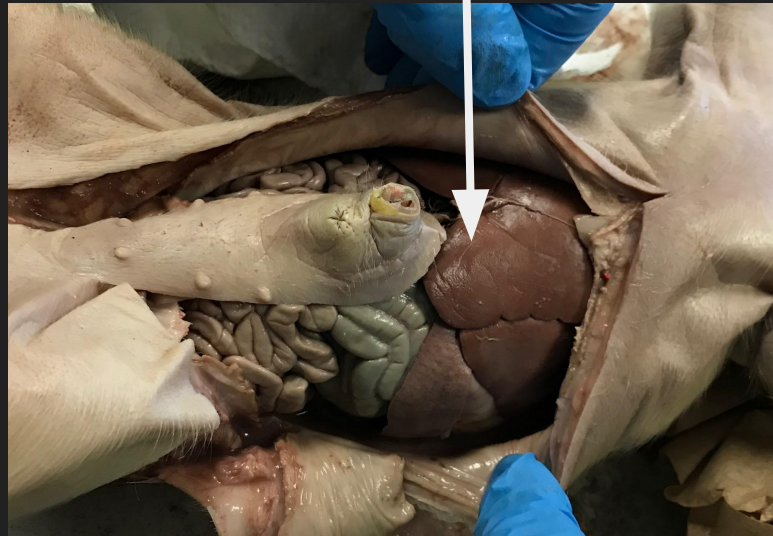
Functions:

The liver's main function is to filter blood coming from the digestive tract before passing it on to the rest of the body. It also produces bile which helps break down fats and carry away wastes in the small intestine. The liver detoxifies harmful substances that enter the body.

Misc. Facts:

The liver is the second biggest organ next to the skin. The human liver is about the size of a football. Any living thing that has a spinal cord has a liver. The liver is the only organ that can regenerate itself and it only needs 25% of its original tissue to do so. In other words, you could donate over half your liver and it would return to its original size in nearly two weeks!

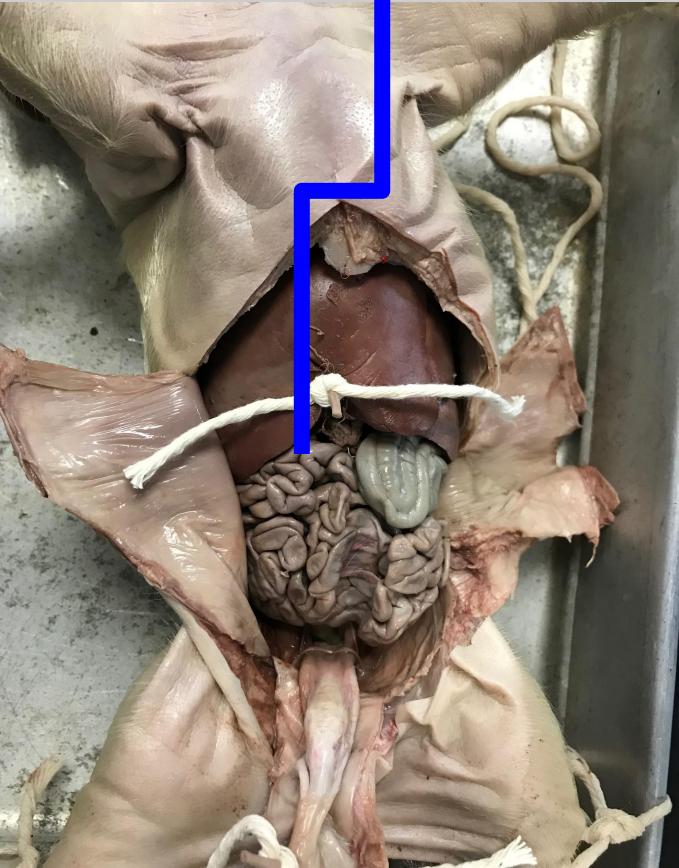
Fetal Pig Liver



Structures:

The liver is a large, meaty, reddish-brown organ, that feels rubbery to the touch. It sits right above the gallbladder along with parts of the pancreas and intestines. These organs all work together to process, absorb, and digest food. The liver has a left lobe and a right lobe. Both lobes are covered in thousands of lobules which connect to small ducts that connect to larger ducts to form the common hepatic duct. This duct transports bile to the gallbladder and parts of the small intestine.

Small Intestine



Function

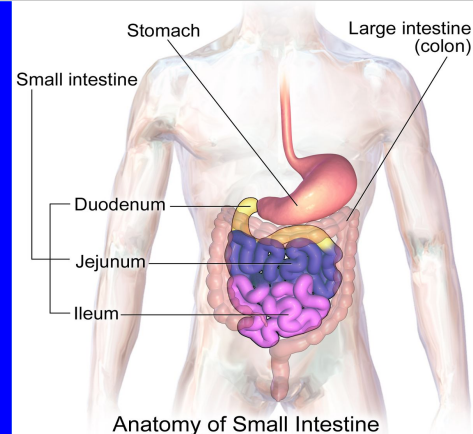
- Mixes chyme with enzymes and digestive fluids from the pancreas, the liver, and the lining of the duodenum, (the first part of the small intestine)
- Breaks down fats, proteins, and carbs into fatty acids, amino acids, and glucose so the intestine wall can absorb nutrients.
- Absorbs all vitamins and minerals from the food

Structure

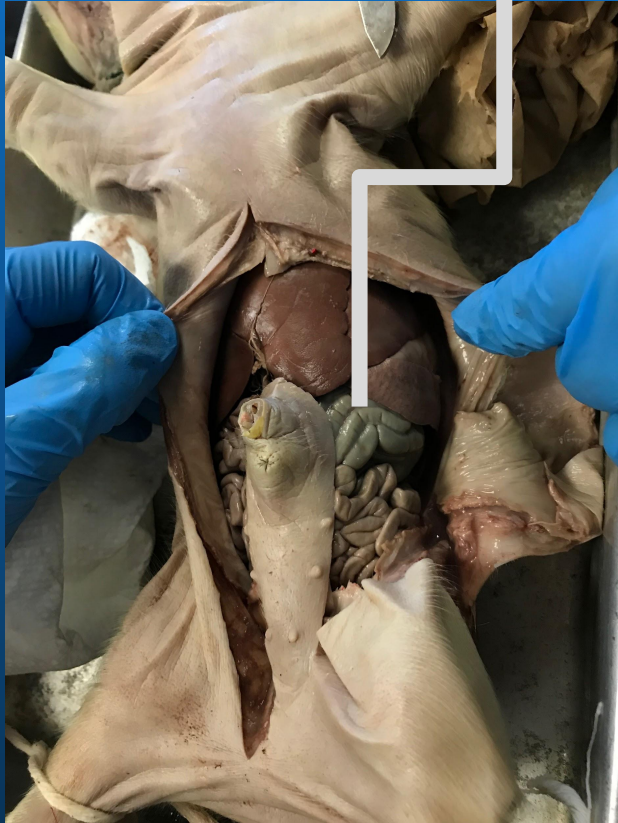
- The small intestine is composed of small projections called villi. The villi are covered with thousands of projections called microvilli. The villi and microvilli make the small intestine have a large surface area to help absorption.

Miscellaneous Facts

- The small intestine in an average human is 6 meters long, (20 feet).
- When too much food is eaten, the muscles of the small intestine cramp up, (causing a stomach ache).
- About 50 tons of food and water pass through a human's small intestine throughout his or her life.



The Large Intestine



Function

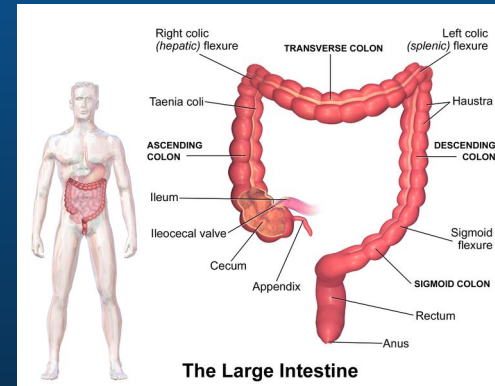
- Absorbs water from the remaining food in the digestive tract
- Pushes the indigestible foods through the digestive tract
- Converts digested foods in feces and passes it to the rectum where it is pushed out through the anus.

Structure

- The large intestine is attached to the small intestines and begins at the right hip. The food travels upward in the ascending colon. It makes a turn into the transverse colon where food is further broken down by bacteria. Feces are formed and travel down the descending colon into the rectum, where the feces are stored.

Miscellaneous Facts

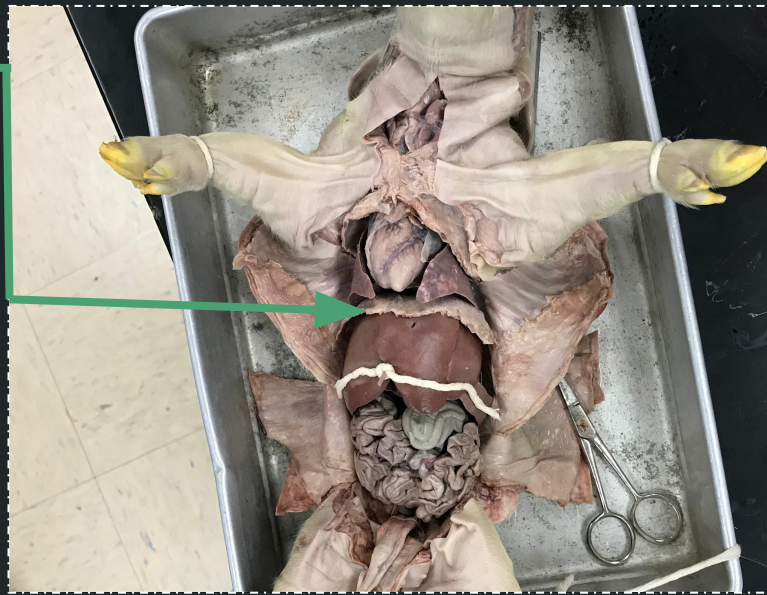
- A human can survive without a large intestine. They would just need to drink more water.
- On average, a large intestine processes 50 tons of food throughout a lifetime.



Diaphragm

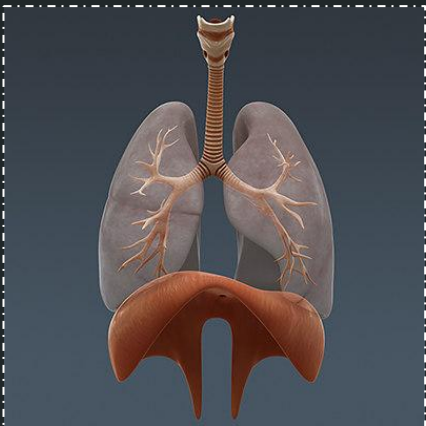
Misc. Facts:

- When your diaphragm gets irritated, it contracts and forces air out of your lungs -- hiccup!
- The diaphragm separates the thorax from the abdomen.
- Humans cannot live without a diaphragm.



Structure:

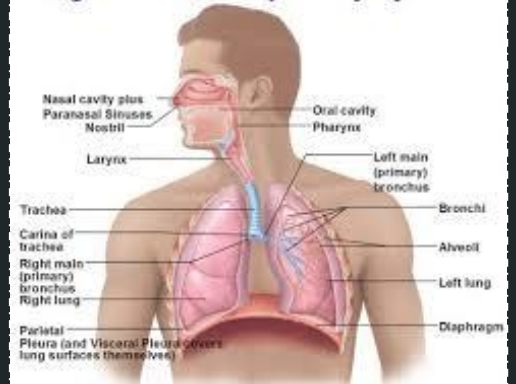
The diaphragm is a dome shaped muscle located at the bottom of the chest cavity. Openings in the diaphragm allow the esophagus, nerves, descending aorta, and inferior vena cava to pass between the thoracic and abdominal cavities.



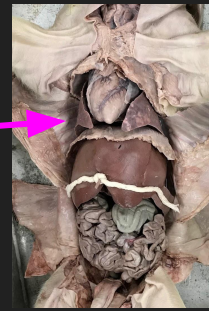
Function:

The diaphragm plays the most important role in our breathing process. It is responsible for changing the pressure in the chest cavity controlling inhalation and exhalation. When you inhale, the diaphragm flattens down, which increases the volume of the chest cavity. The pressure thus decreases, allowing air to fill into the lungs. When you exhale the exact opposite happens, and the diaphragm returns so its dome shape and relaxes.

Organs of the Respiratory System



Lungs



Structure:

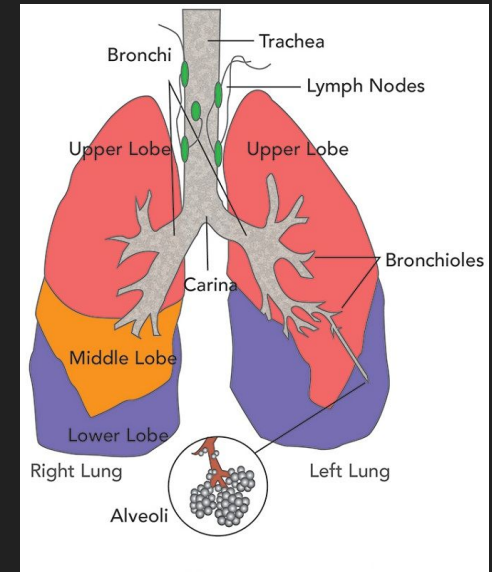
Lungs are tissue sacs located under the ribs and above the diaphragm. Oxygen goes through the trachea into bronchi. The bronchus each lead to a lung where they branch into tubes called bronchioles. The bronchi and bronchioles both control the size of air passages. They continue down and are then broken down into air sacs called alveoli. In the alveoli, gas exchange occurs.

Function:

The main function of the lungs is to go through the process known as gas exchange. When oxygen enters the alveoli, the oxygen diffuses into capillaries that are surrounding it (the capillaries are less concentrated). Hemoglobin attaches with oxygen and it gets carried with blood. The carbon dioxide that is in the blood diffused into the less concentrated alveoli. It is then exhaled.

Miscellaneous Facts:

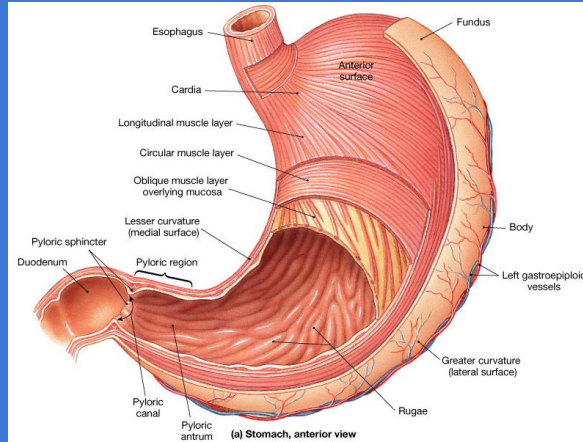
- 15 to 20 breaths are taken every minute.
- On average, men's lungs are larger than woman's lungs.
- The left lung is wider but shorter than the right lung so the liver can fit below it.



The Stomach

Function:

The stomach continues the chemical and mechanical digestion that began in the mouth. Once the food enters the stomach from the esophagus, the stomach secretes hydrochloric acid and an enzyme called pepsin that breaks down and digests the food. There are also muscles along the walls of the stomach, called rugae, that contract causing a churning motion within the stomach. The churning motion breaks up the food so that the hydrochloric acid and enzymes can digest the food. Protein digestion also begins here.

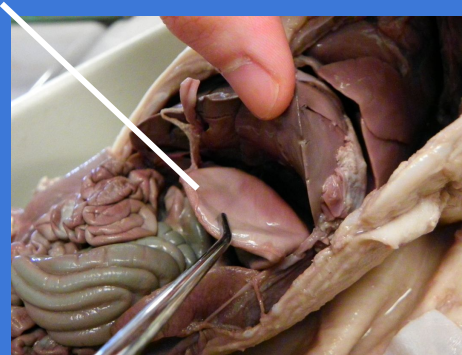


Fun Facts:

- When you blush the lining of your stomach turns red just like your face!
- The acid in the stomach is so strong that the stomach has to produce a new layer of mucus every two weeks so that the acid doesn't eat through the stomach walls!
- Burping is caused by the need to get rid of the excess air in the stomach that is swallowed when food and drinks are consumed!
- The scientific term for a stomach "rumble" is 'Borborygmi.'
- Stomach acid can dissolve many common metals!
- All stomachs are the same size, no matter the size of the person!



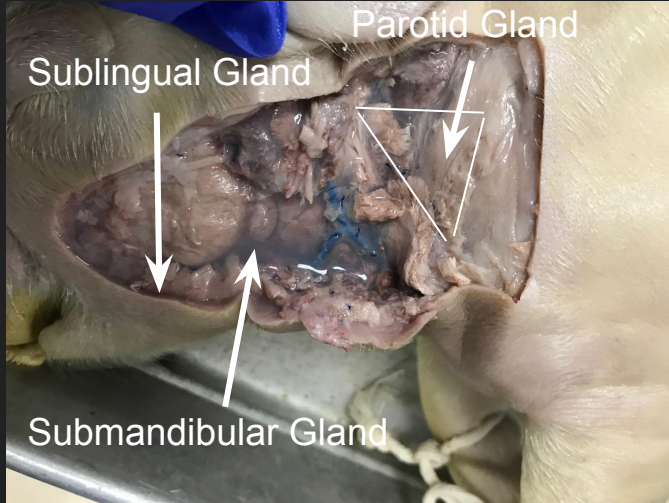
The Stomach



Structure:

The stomach is made up of three layers of muscles. Each muscle layer is striated in different directions, so that when they all contract together a churning motion occurs. This churning motion, along with the muscles lining the walls of the stomach (rugae) aid in the mechanical digestion of food.

The Salivary Glands



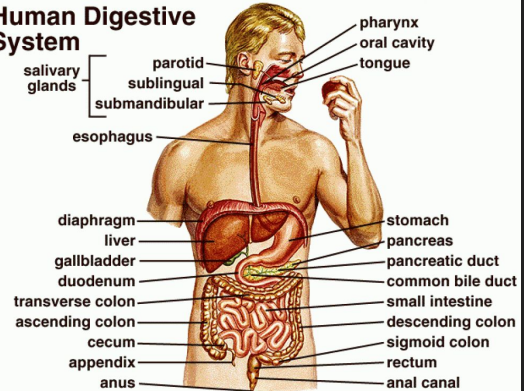
Structure:

There are three different salivary glands: parotid, sublingual, and submandibular. The parotid is the largest; it is triangular shaped and one gland is located in each cheek. Two sublingual glands are located under the tongue, and two submandibular glands are located under the floor of the mouth.

Functions:

The salivary glands aid in the digestion of food by secreting saliva. The saliva makes it easier to chew by moistening the food; it begins the process of chemical digestion. The saliva also contains enzymes: amylase and lysozyme. Amylase breaks down the chemical bonds in starches, forming sugars. Lysozyme helps fight infection by digesting the cell walls of many bacteria that enter the mouth. The glands work together to keep the mucous membrane of the mouth and pharynx moist to help lubricate food as it passes through.

Human Digestive System



Misc. Facts:

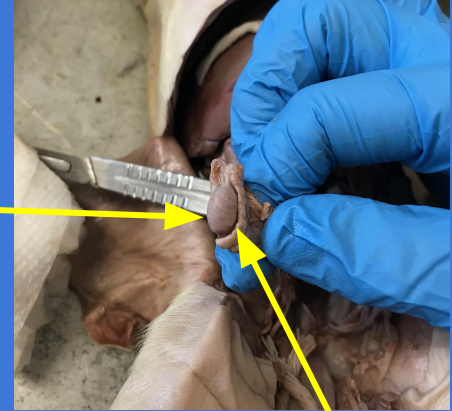
The parotid is the largest of the salivary glands. The salivary glands generally make between one and two liters of liquid a day and about 10,000 gallons during a lifetime. When we sleep, less saliva is produced. This allows bacteria to build up and cause bad breath in the morning.

Boy Reproductive System

The reproductive system's job is to produce sperm.

Main organ of the male reproductive system:

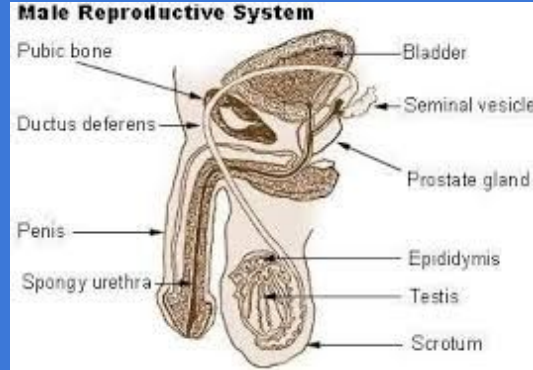
The Testes



Epididymis.

Function of the testes:
The function of the testes is to produce gametes; male gametes are called sperm. The sperm, then, are responsible for the fertilization of female eggs.

Structure:
Located in the testes are seminiferous vessels. These vessels are tiny tubules where sperm develop. Attached to the outside of each testis is the epididymis; here, sperm mature and are stored. From here, vas deferens carry the mature sperm and seminal fluid (secreted from glands located along the way) to the urethra where it travels out the penis.



Miscellaneous Facts:

- In three mL of semen, there is approx. 270 million sperm.
- The average penis size is less than six inches.



Penis

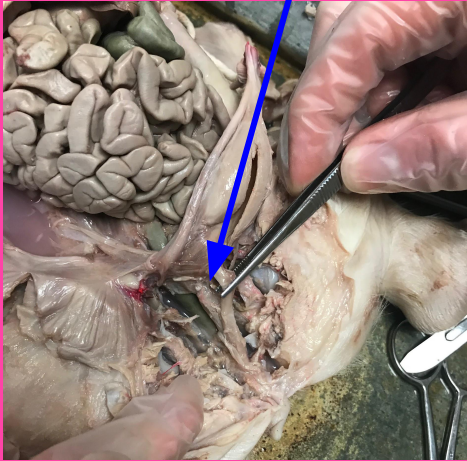
Girl Reproductive System

The reproductive system's job is to produce egg cells and to protect developing embryo.

Main organ of the female reproductive system:

The Ovaries

Vagina



Function of the ovaries:
The main function of the ovaries are to produce gametes; female gametes are called egg cells.

Structure:

The egg cells are produced in the ovaries. Then the egg cells are pushed through the fallopian tubes into the uterus. The uterus protects the developing embryo. Inferior to the uterus is the vagina. The vagina is an opening between the uterus and the outside of your body that allows the uterus lining to be discharged. The vagina also receives the penis.

Miscellaneous facts:

- A uterus can expand 500 times its original size.
- A vagina will change colors depending on arousal or hormone levels.

