
(Name)

Anatomy and Physiology

Task 1

(Date)

Dissection

Describe the similarities and differences between the fetal pig heart and the sheep heart.

The similarities of the fetal pig heart and the sheep heart include:

- a. 2 atria and 2 ventricles
- b. Same structure for blood flow
- c. Pale pink/brown color

The differences of the fetal pig heart and the sheep heart include:

- a. The fetal pig heart is smaller than the sheep heart
- b. The sheep heart's left ventricular wall is thicker than the fetal pig heart's

*Describe the **four** valves of the heart, including their name, location, and function.*

Tricuspid Valve

- a. Location: Between the right atrium and right ventricle
- b. Function: The 3 valves prevent backflow of blood into the right atrium from the right ventricle

Pulmonic Valve:

- c. Location: Between the right ventricle and pulmonary artery
- d. Function: Prevents the backflow of blood into the right ventricle and allows blood to leave the heart via the pulmonary artery

Mitral Valve:

- e. Location: Between the left atrium and left ventricle
- f. Function: The 2 valves prevent the backflow of blood into the left atrium from the left ventricle

Aortic Valve:

- g. Location: Between the left ventricle and the aorta
- h. Function: To prevent the backflow of blood into the left ventricle and allows blood to leave the heart via the artery

Discuss the similarities and differences between the left and right sides of the heart.

The similarities between the left and right sides of the heart include:

- a. Both include an atrium and a ventricle
- b. Both have 2 valves that prevent the backflow of blood
- c. Both are the same color and consist of cardiac muscle
- d. Both are separated by the cardiac septum

The differences between the left and right sides of the heart include:

- a. The left side of the heart wall is thicker than the right
- b. The right side gets deoxygenated blood from the body and pumps it to the lungs whereas the left side gets oxygenated blood and pumps it to the body

- c. The left side of the heart has more pressure than the right side so it can get blood to the body

Compare the structure of the atrioventricular valves to the structure of the semilunar valves.

The structure of the atrioventricular valves (tricuspid and mitral) differ from the structure of the semilunar valves in that they are large valves that look like leaflets. They are connected by chordae tendinae to papillary muscles. Constant pressure from the ventricles prevents the leaflets from going backwards. Semilunar valves are smaller and are able to prevent going backwards and are absent of chordae tendinae or papillary muscles.

Describe the appearance of the papillary muscles.

Papillary muscle appearance is similar to the cardiac muscle except it has string like appendages (chordae tendinae) pulling the papillary muscles from the interior wall of the heart which attach to the tricuspid or mitral valves.

Describe the path that blood takes starting in the right atrium and ending in the superior/inferior vena cava.

The path that blood takes starting in the right atrium and ending in the superior/inferior vena cava is as follows: Right atrium → tricuspid valve → right ventricle → pulmonic valve → pulmonary artery → lungs → pulmonary veins → left atrium → mitral valve → left ventricle, aortic valve → aorta → body → superior/inferior vena cava

Compare the structure of the trachea to the structure of the esophagus.

The trachea extends from the neck to the chest and splits into the bronchi of the lungs. It is slightly shorter than the esophagus. It looks like a column of rings which is flexible. In comparison, the esophagus is slightly longer than the trachea, is made of smooth muscle tissue and has sphincters at each end. The esophagus is in front of the trachea.

Describe how the structures of the respiratory system (i.e., trachea, bronchi, and lungs) relate to their functions.

- a. Trachea: The structure of the trachea relates to its function because it is a tube with ring-like structures holding it open so air can pass from the oral/nasal cavity into the bronchi of the lungs. It stays open at all times to allow inspiration and expiration.
- b. Bronchi: The structure of the bronchi relates to its function because it attaches to the trachea and separates into the right and left lobes of the lungs. It is made of smooth muscle which have rings of cartilage to keep the bronchi from closing. The right bronchus is shorter than the left and is more vertical to allow division into the 3 lobes. Attached to the bronchi are bronchioles that filtrate into the space of the lungs and have alveoli at the ends which allow the exchange of carbon dioxide and oxygen.
- c. Lungs: The structure of the lungs relates to their function because they are made of sponge-like smooth muscle which can expand and contract as air is coming in and out of the lungs. The lungs take up most of the space in the chest cavity and house the bronchi, bronchioles and alveoli which are necessary for oxygen delivery to the body.

Describe the texture of the lungs.

The texture of the fetal pig lungs is smooth, slimy and firm. Usually lungs have a sponge-like texture since air is passing through but because the pig has never breathed air, the lungs are firm.

Describe the similarities and differences between the left lung and the right lung.

Similarities between the left lungs and the right lung:

- a. Both include bronchi, bronchioles and alveoli
- b. Both are made up of firm smooth muscle
- c. Both have the same color

Differences between the left lungs and the right lung:

- a. The right lung is larger with 4 lobes.
- b. The left lung is smaller with 3 lobes.

Compare the structure of the fetal pig kidneys to the structure of the sheep kidneys.

Fetal pig kidney structure compares to the sheep kidney structure in that both are bean shaped red/brown organs. They both have ureters which drain urine into the bladder from the kidney. Differences between the two include the fetal pig kidney is smaller than the sheep kidney and the sheep kidney has more fatty tissue surrounding the kidney than the fetal pig.

Describe the location of the kidneys in the fetal pig.

The fetal pig kidneys are located towards the back of the abdomen behind the abdominal organs. There is one on each side, left and right. They both have ureters that attach medial to the bladder.

Describe the path that urine takes to exit the body, starting in the kidney.

Nephron → glomerulus → Bowman's capsule → proximal convoluted tubule → loop of Henle → distal convoluted tubule → collecting duct → minor calyx → major calyx → renal pelvis → ureter → bladder → urethra

Describe the endocrine organs that are located in the throat region (e.g., function and appearance).

Thymus gland:

- a. Function: The thymus protects the body with immune cells.
- b. Appearance: The thymus is above the heart on both sides of the neck. Its appearance is lumpy.

Thyroid gland:

- a. Function: The thyroid is important for regulating metabolism.
- b. Appearance: Small, brown/purple gland between the thymus and on top of the trachea.

Describe three endocrine organs that are located in the abdominal or pelvic cavities.

- a. Adrenal glands: Small brown glands that are located near the top of each kidney.
- b. Pancreas: Yellow/brown gland that is bumpy. It is located near the bottom of the stomach.
- c. Ovaries: Small bean shaped sacs located close to the spine near the bladder on the left and right sides. They are attached to the fallopian tubes.

Describe the major digestive organs, including their name, location, relative size, and physical characteristics (e.g., color, shape, texture).

The major organs of the digestive systems include the stomach, large intestine and small intestine. The smooth, tan stomach is posterior to the larger liver. The small intestine is attached to the stomach and covers most of the abdominal cavity. It is smooth but bunched up like noodles. Next to the small intestine is the large intestine. It is darker than the tan, small intestine and has a larger diameter. It is also bunched up but appears tighter than the small intestine.

Describe the accessory digestive organs, including their name, location, relative size, and physical characteristics (e.g., color, shape, texture).

The accessory digestive organs include the liver, gall bladder and pancreas. The liver is a dark brown, lobed organ that covers most of the upper abdomen. It is smooth and firmer than other organs. The gallbladder is a small tear shaped organ lying behind the liver that is green and smooth. The pancreas is located under the stomach, above the large intestine. It has the appearance of pocked, chewed up gum.