

Lab 4: Circulation

Goals:

After this lab you should be able to:

- ✓ Describe the flow of blood through the systemic and pulmonary circuits(in both adult and fetus)
- ✓ Locate the major veins and arteries of the thoracic cavity and state where they go & come from.
- ✓ Locate the major veins and arteries of the abdominal cavity and state where they go & come from.
- ✓ Explain the function of the hepatic portal system and how blood flows through it.
- ✓ Identify the differences in appearance and function of erythrocytes, leukocytes, and platelets.

Cardiovascular System: pp. 174-177

-We covered fetal circulation last week, but be sure to review and be able to compare to adult circulation

Pulmonary Circuit: pp. 177-178

-Review circulation in the lungs (we also covered this last week)

Systemic Circuit: pp. 178- top of p.184

-Be able to identify the arteries and veins of your pig in the thoracic and abdominal cavities

-Use pp. C53-55 in order to find the vessels you are responsible for knowing

-Think of the vessels as being a road map

-names of vessels usually give you an indication of where they are going to or coming from.

You are responsible for the following vessels:

Arteries: right & left common carotid, right & left subclavian, brachiocephalic, aortic arch, arterial duct, pulmonary trunk, dorsal aorta, celiac, mesenteric, right & left renal, right & left iliac, umbilical

Veins: right & left internal jugular, right & left external jugular, right & left subclavian, anterior (superior) vena cava, posterior (inferior) vena cava, umbilical, hepatic portal (p.213), right & left renal, right & left common iliac

-use p. 213 for the hepatic portal vein (do not remove any part of the liver)

-HP vein takes blood from intestinal capillaries to the capillaries in the liver,

-DO NOT REMOVE ANY ORGANS

-Use your probe to tease away tissue and membrane to find the vessels

-If you have good veins, please let me know and do not remove them!

-you can group up with someone else to view the arteries

-Once you are confident in identifying the veins, you may remove the veins in order to find the arteries, which will be below (inferior) to the veins in most cases

-Use the demo pig to check your work (has both arteries and veins)

-Skip section 14.4 blood vessel comparison (arteries are thicker walled than veins)

-You should be able to answer *ALL* the questions on p.186

The Blood: 15.1 pp. 188-190

-Read about red blood cells (erythrocytes) and white blood cells (leukocytes)

-Use the demo microscopes under high power to locate the 4 types of white blood cells mixed in with the red blood cells

-*Neutrophil, Eosinophil, Basophil, Monocyte, Lymphocyte*

-Understand how blood flows from artery → arteriole → capillary → venule → vein

The Hepatic Portal System

- The liver performs several important functions that are important to the maintenance of blood. Two important functions include:
 1. Helping the kidneys to remove toxins from the blood (drugs, alcohol, poisons)
 2. Regulating the amount of glucose in our blood by converting it to glycogen
- After the blood travels through the lower digestive tract and its associated organs, it makes its way through the liver to be processed.
- The major vein that connects all of these organs to the liver is the **hepatic portal vessel**. After passing through the liver, the blood travels out the liver via the **hepatic vein**, then into the inferior vena cava to the heart.
- To view this pathway, look at p. 213 figure 16.13 **The Hepatic Portal System**. **Remember that the fetal pig has a different pathway than that of the adult.**

Review for Practical Exam (Labs 1-5)

Please let me know if you will be coming, otherwise I will not be staying!!!

2/27: Tuesday night- 6-7:30pm

2/28: Wednesday night- 6-7:30pm

-This will be your opportunity to use your pig for review

-You can come and go anytime during these times

-I will not be lecturing, just available for help if you have questions as you review

** Use the lab webpage (**<http://web.cortland.edu/biolab>**) for outline/review handouts and images of the pig and other specimens/stations from the labs section