Study Guide Blood vessels

1. Pay attention to structure of arteries, capillaries and veins.
2. Both arteries and veins are formed of 3 concentric layers – Tunica interna, Tunica Media and Tunica Externa. Tunica Interna has epithelium and connective tissue. Tunica media is formed of smooth muscle fibers and Tunica externa is formed of connective tissue. For an artery and vein of similar size, arteries have thicker walls than veins.
3. Elastic arteries → Muscular arteries → Arterioles → Capillaries → Venules → medium sized vein → Large Veins
4. Arterioles lack tunica externa and have only endothelium and smooth muscle fibers (tunica media).
5. Capillaries have only endothelium.
6. Heart attack: is the main cause of death in America. When one of the coronary arteries get blocked a part of heart muscles die. It is called heart attack. Obese persons are more prone to heart attacks.
7. Venous Flow - Veins have valves in them to check backflow of blood. Working skeletal muscles act like pumps and press veins to push blood towards heart.
8. Arteries = 120mm, Arterioles = 60mm, Capillaries = 25mm, Veins = 0 – 10mm
9. In arteries, Systolic pressure is 120mm/Hg and diastolic pressure is 80mm/Hg.
10. Water and solutes filter out from capillaries day and night. 24L of blood filters out per day. 20.4L is reabsorbed in venules with lower blood pressure (18mm). 3.6L of filtrate is returned to blood by Lymphatic system.
11. Learn about arteries mentioned in the lab hand out and the organs supplied by these arteries.
12. aorta → left and right coronary artery
13. aortic arch → 1. brachiocephalic 2. left common carotid 3. left subclavian
14. Brachiocephalic → 1. right subclavian 2. right common carotid
15. Thoracic aorta → esophageal A, inter costal AA supply intercostals muscles and phrenic A supplies the diaphragm.
17. Abdominal aorta divides into 2 common iliacs that supply blood to pelvis and leg of its side.
18. Main veins– External jugular from head and neck, axillary from the arm, both join to form subclavian veins.
19. Subclavians open into Brachiocephalic veins that also receive vertebral and internal jugular veins.
20. 2 brachiocephalic veins form Superior Vena cava that receives Azygos system – collects blood from chest. Superior vena cava opens into right atrium.
21. Femoral and other veins of leg form Common Iliac vein on each side.
22. Common iliac veins join to form Inferior vena cava.
23. Inferior vena cava receives blood from 4 veins. 1. suprarenal veins adrenal gland 2. gonadal from ovary or testis 3. renal veins from kidney on each side 4. hepatic veins from liver.
24. Hepatic Portal System : Note that Inferior vena cava does not receive blood from any digestive
organs other than liver. Hepatic Portal Vein is formed of 2 main veins, Superior Mesenteric and Splenic vein. 1. Superior Mesenteric collects blood from small intestine, and parts of colon and stomach. 2. Splenic vein is formed by fusion of inferior mesenteric vein from lower large intestine.

25. Inferior vena cava opens into right atrium.

Recap Blood Vessels

1. Both arteries and veins have 3 layers -----, -----, and -------- in their walls.
2. Arterioles lack ------- and have only endothelium and smooth muscle fibers.
3. Capillaries have walls made of only ---- and ----lack continuous wall.
4. ------ capillaries have small pores and exchange material faster.
5. Cerebral Circle of Willis is formed around pituitary gland by branches of ----and----arteries.
6. Blockage of a coronary artery or its branch causes death of myocardium leading to ------ ----- --.
7. Skeletal muscle pumps help in flow of blood in -----------. (arteries/veins/capillaries)
8. Arterial system has one but venous system has 2 -----------blood vessels.
9. ---------artery carries blood to arm, shoulder and head.
10. -------trunk supplies blood to liver, stomach, duodenum and spleen.
11. ----- ----- vein collects blood from intestines, stomach, pancreas and spleen and delivers it to liver.