

## BIO 1640 Lecture 3: Blood Vessels and Lymphatic System

1. The tunica interna is made of what tissue. **Simple squamous**  
The tunica media is made of what tissue. **Smooth muscle**  
What layer determines the diameter of the lumen of vessel. **Tunica media**  
What effect does nicotine on the diameter of arteries? **vasoconstriction**
2. Valves are present in which 2 vessels? **Veins and lymphatic vessels**
3. Net filtration equals? **Difference between the blood pressure (hydrostatic pressure) and the osmotic pressure; arterial end of capillary push water out of blood and venous end of capillary pulls water back into the capillary. Net filtration is loss or gain of water; how much liquid leaks out of the capillary.**
4. Most fluid and protein that escape to the interstitial fluid are returned to the blood stream how? **Lymphatic vessel.**
5. The major factor contributing to blood osmotic pressure? **Albumin**  
Loss of plasma protein will affect blood osmotic pressure how? **Goes down;** to interstitial pressure how?  
**Goes up**
6. If lymph channels are blocked what affect will this have on the quantity of interstitial fluid. **Increase, then a person have swelling.**
7. Cardiac output equals? **Directly related to blood pressure and inversely related to resistance**
8. Venous return to the heart will decrease if? **Person is breathing out; person is not moving their muscle; if the valve is not functioning.**  
People confined to bed develop edema. Why? **Because muscle is not contracting and blood did not return to the heart**
9. The function of baroreceptors is to monitor changes in? **blood pressure**  
They are located? **In carotid and aortic sinuses**  
They send nerve impulses to? **medulla oblongata**  
The carotid sinus controls? **blood pressure**  
The aortic sinus controls? **Blood pressure**  
What is function of the chemoreceptor? **Response to blood chemistry (pH and CO<sub>2</sub>)**  
Where are they located? **Carotid and antibodies**  
Decrease in oxygen levels in carotid bodies will cause? **Increase heart rate, vasoconstriction, increase breathing**

10. The vasomotor portion of the cardiovascular center controls? **Blood pressure – vasoconstriction/vasodilation**

Which vessels have the highest BP? **Arteries - Aorta; lowest? Veins**

Which vessels have the highest velocity? **Arteries – Aorta; lowest? capillaries**

11. Deficiency or excess of ADH will result in? **reduce blood volume and blood pressure**

List several events. **See attached sheet**

Blood volume is regulated by? **ADH and aldosterone (water and sodium retention)**

Deficiency or excess of aldosterone will cause? **Deficiency will reduce blood pressure and excess will cause blood pressure to go up.**

12. Define shock, vasomotion

**Shock is an insufficient perfusion of a tissue / not enough blood in the area**

**Vasomotion is the intermittent flow of blood in the capillaries.**

13. Resting pulse rate of a normal adult. **60-100 beats/min.** (It is the surge of blood to blood vessel every time the heart pump).

14. The first sound heard when measuring blood pressure corresponds to? **Systolic blood pressure (pressure in the blood when the heart is contracting)**

Systolic blood pressure is the first or second value? **First**

The effect of exercise on blood pressure? **Increase**

15. Minimal diastolic blood pressure indicating stage 1 hypertension? **140/90**

Primary hypertension is? **No one knows what is the cause pg. 732**

16. Blood from the superior sagittal sinuses enter? **Internal jugular vein**

The internal carotids are drained by? **Internal jugular vein**

17. What vessels make up the Circle of Willis? **Internal carotid artery and vertebral artery**

18. The basilar artery is formed from the union of? **Right and left vertebral artery**

The hepatic portal circulation carries blood from **digestive system** to the **liver.**

19. Superficial vein in the leg used for prolonged administration of IV fluid? **Great Saphenous veins**

Where are the hemiazygos and accessory hemiazygos vessels? **Main drainage for chest cavity**

20. Only postnatal artery that carries deoxygenated blood? **pulmonary artery**

The umbilical arteries carry oxygenated or deoxygenated blood? **deoxygenated**

21. Trace the flow of blood from the leg to an arm. **See hand out for Mastery Test**

22. Define anatomosis, anuryism pg. 741

**Anastomosis is a connection between blood vessels; provide detours if there's a blood clot**

**Anuryism is the gradual weakening of the artery, i.e. aorta and arteries feeding the brain and kidney by chronic hypertension or arteriosclerosis.**

## **Nonspecific Resistance to Disease and Immunity**

23. List some examples of nonspecific defenses and specific defenses against disease.

**Nonspecific defenses includes skin and mucous membrane, neutrophils/monocytes, inflammation, and fever**

**Specific defenses are lymphocytes → plasma → antibodies**

24. Mucus and cilia are found? **Respiratory and reproductive system**

25. Keratin provides protection by? **is a strong physical barrier to most microorganism in the skin; waterproofing**

26. Heat is a sign of inflammation because **it increases the temperature; Inflammation is the increase in blood flow to an area of damage; thus increasing the capillary permeability and liquid leaks out to form a swelling.**

26. Wandering macrophages are the same as? **Monocyte** (macrophages are in blood stream; monocyte in tissue)

27. What are some benefits of fevers? **Increase repair processes and metabolic rate**

28. Antibodies are?

They are made by what two cells? **Lymphocytes and plasma cells**

## **Lymphatic System**

29. Thoracic and right lymphatic ducts empties lymph into? **Right subclavian vein**

30. The cisterna chili receives lymph from? **Lower portion below the waist**

**31. How do lymph capillaries differ from blood capillaries? Lymph capillaries are more permeable than blood capillaries so they can easily pick up protein**

32. Where are there no lymph capillaries? **Brain, bones, teeth, bone marrow, Central Nervous System**

33. Constriction of bronchioles and rapid drop of BP (hypotension), wheezing are typical symptoms of? **Anaphylactic shock**

What chemical causes these reactions? **Release of histamine** (to dilate the capillaries and become leaky then protein leaks out of the blood resulting in low BP.

What cell releases this chemical? **basophil**

34. The thymus reaches maximum size at what age? **Before puberty pg. 779**