

## The Cardiovascular System Review Sheet

**1. Explain the difference between veins, arteries, and capillaries.**

Veins have thin walls and carry blood back into the heart. They **contain valves** to prevent back-flow. They rely on help from the skeletal muscle to move blood along. Arteries carry blood away from the heart. They have **thick muscular walls, which** flex and constrict to help move the blood along. Capillaries are the smallest and thinnest blood vessels in the body. They are so thin that the red blood cells must travel through them in single file. O<sub>2</sub> and CO<sub>2</sub> diffuse in and out of cells through these structures.

**2. What are the names of the 2 major “paths” that lead to the right atrium of the heart?**

The names are the superior and inferior vena cava. They are both systemic veins.

**3. Which three major arteries originate from the aortic arch?**

Brachiocephalic artery, which supplies blood to the brain and head. Left common carotid artery and left subclavian artery, which supply blood to the rest of the body.

**4. What is the destination of the blood leaving each of the three major arteries from the above question?**

Brachiocephalic artery, left common carotid artery, left subclavian artery, which supply blood to the brain, head, neck and upper limbs.

**5. What are pulmonary veins and arteries?**

Pulmonary veins and arteries carry blood to and from the heart and lungs where CO<sub>2</sub> is exchanged for O<sub>2</sub>.

**6. Detail the function of both the pulmonary veins and arteries. Explain where the blood is being moved and what levels of CO<sub>2</sub> and O<sub>2</sub> (high or low) each carries.**

Pulmonary arteries carry blood high in CO<sub>2</sub> and low in O<sub>2</sub> away from the heart to the lungs. Pulmonary veins carry blood low in CO<sub>2</sub> and high in O<sub>2</sub> away from the lungs to the heart.

**7. The heart is divided into 2 top chambers and 2 bottom chambers. What is the name and overall function of each of these sections?**

The top chambers are called atrium that have relatively thin walls and receive blood returning through the veins to the heart. The bottom chambers are called ventricles that have relatively thick muscular walls and force blood out of the heart into the arteries to be carried back to the various sites throughout the body.

**8. Describe the function of the left atrium.**

The left atrium receives oxygen rich blood from the lungs and pumps it to the left ventricle.

**9. Describe the function of the left ventricle.**

The left ventricle receives blood from the left atrium and pumps it to the body through the aorta.

**10. Describe the function of the right atrium.**

The right atrium receives oxygen poor blood from the superior and inferior vena cava and pumps it to the right ventricle.

**11. Describe the function of the right ventricle.**

The right ventricle receives blood from the right atrium and pumps it to the lungs through the left pulmonary artery.

**12. What is an atrioventricular valve? Name two.**

The mitral valve and the tricuspid.

**13. Describe the function of the mitral valve.**

The **mitral** valve is the valve between the left atrium and left ventricle. It prevents the back flow of blood from the ventricle to the atrium.

**14. Describe the function of the tricuspid valve.**

The **tricuspid** valve is the flap between the right atrium and the right ventricle. It is composed of 3 leaf-like parts and prevents the back flow of blood from the ventricle to the atrium.

**15. Describe what would happen if either of the atrioventricular valves leaked.**

Back flow of blood from the ventricle to the atrium would occur.

**16. What is the role of the septum?**

The septum is a muscular wall, which keeps the oxygen rich blood on the left side of the heart from every mixing with the oxygen poor blood on the right side of the heart.

**17. The characteristic sound of the normal heartbeat is typically described by what sound?**

The characteristic sound is “lub dub”.

**18. What do each of the two sounds from the above question represent in terms of the movement of the heart and its valves?**

“Lub” is the sound of the closure of the tricuspid and mitral valves. “Dub” is the beginning of ventricular diastole.

**19. If a doctor takes your pulse, what is he/she detecting?**

He/she is feeling the force created by the contraction of the ventricles, which in turn causes a surge of blood transmitted through the elastic walls of the entire arterial system where it can be detected as the pulse.

**20. Explain the difference between diastolic and systolic pressure.**

Systolic pressure is the pressure that the heart exerts when contracting. Diastolic pressure is the pressure exerted while the heart is relaxed.

**21. What is the “formula” used to convey blood pressure.**

The formula is: blood pressure = systolic/diastolic

**22. What is considered the normal resting blood pressure?**

Normal resting blood pressure is about 120 over 80.

**23. An increase in which of the two (diastolic or systolic) typically indicates the potential symptom or cause of a variety of ailments?**

Diastolic pressure.

**24. In veins little pressure remains to force the blood along. Describe how the blood is moved along.**

Blood in the veins below the heart is helped back up to the heart by the muscle pump. This is simply the squeezing effect of contracting skeletal muscles on the veins running through them. One-way flow to the heart is achieved by valves within the veins.

**25. Considering the circulatory system is a closed system, and that blood flows through arteries 2-3 times faster than it does through veins, what does this tell you about the total volume of blood in the veins vs the total volume of blood in the arteries at any given moment?**

There must be 2-3 times more blood in the veins at any given time. Vein total blood volume 64%, arteries 15%, capillaries 8%, pulmonary vessels 9 %, heart 7%.

**26. Considering that arteries are generally larger what can you infer with respect to the total number of veins vs the total number of arteries?**

There must be many more veins than arteries.

**27. Use the following terms to match up with the sections (1,2,7,8)**

**for the above diagram. (systemic vein, systemic artery, pulmonary vein, pulmonary artery)**

1=systemic vein, 2=pulmonary artery, 7=pulmonary vein, 8=systemic artery

**28. Indicate the relative levels of CO<sub>2</sub> and O<sub>2</sub> (high or low) for sections (1,2,7,8).**

1 and 2 are low in O<sub>2</sub> and high in CO<sub>2</sub>. 7 and 8 are high in O<sub>2</sub> and low in CO<sub>2</sub>.

**29. Which specific regions of the heart are represented by the numbers (3,4,5,6)?**

3 is right atrium, 4 is left atrium, 5 is right ventricle, 6 is left ventricle.

**30. What is represented by the small retangle near the top with the diagonal lines?**

The lungs.

**31. What is represented by the large retangle near the bottom with the dotted look?**

All the body systems and organs.

32. Label the diagram of the heart.

