What is the Cardiovascular System?

Worksheet

The cardiovascular system pumps blood through a closed network of arteries, veins and capillaries, driven by the heart, to circulate oxygen, nutrients, hormones and waste throughout the body.

Questions

1. Which blood vessels carry blood away from the heart?

A) Veins
B) Arteries
C) Capillaries
D) Venules

2. Where does blood pick up oxygen?

A) Liver
B) Kidneys
C) Lungs (alveolar capillaries)
D) Right atrium

3. What is cardiac output if heart rate is 80 bpm and stroke volume is 60 mL?

A) 140 mL/min
B) 4800 mL/min
C) 1.3 mL/min
D) 60 mL/min

4. Which heart chamber pumps oxygenated blood to the whole body?

A) Right atrium
B) Right ventricle
C) Left atrium
D) Left ventricle

5. Trace the path of a red blood cell from the right atrium back to the right atrium.

6. Explain why the left ventricle has thicker walls than the right ventricle.

7. A resting adult has a heart rate of 70 beats/min and a stroke volume of 70 mL. Calculate cardiac output.

8. Define: What are the four chambers of the heart?

9. Define: What is the difference between arteries and veins?

10. Define: Where does gas exchange happen in the lungs?

Answer Key

1. B) Arteries - Arteries carry blood away from the heart, usually under high pressure.

2. C) Lungs (alveolar capillaries) - Gas exchange occurs in the alveolar capillaries of the lungs.

3. B) 4800 mL/min - CO = 80 60 = 4800 mL/min.

4. D) Left ventricle - The left ventricle pumps oxygen-rich blood through the aorta to the body.

5. Right atrium tricuspid valve right ventricle Right ventricle pulmonary valve pulmonary artery lungs (gas exchange) Lungs pulmonary veins left atrium mitral valve left ventricle Left ventricle aortic valve aorta body tissues veins vena cava right atrium

6. The right ventricle only pumps blood to the nearby lungs (low pressure needed) The left ventricle must pump blood through the entire body (high pressure needed) Thicker muscular walls let the left ventricle generate the greater force required for systemic circulation

7. Cardiac output = heart rate stroke volume CO = 70 beats/min 70 mL = 4900 mL/min CO 4.9 L/min, a typical resting value

8. Right atrium, right ventricle, left atrium, left ventricle.

9. Arteries carry blood away from the heart (usually oxygenated); veins carry blood back to the heart (usually deoxygenated).

10. In the capillaries surrounding the alveoli.