**Cardiovascular System Notes Part 1**

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| **I. Overview of the Cardiovascular System**  heart     * The circulatory system can be thought of as the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the body. * A closed system consisting of the \_\_\_\_\_\_\_, blood vessels, & \_\_\_\_\_\_\_\_   + The heart pumps blood   + Blood vessels allow blood to circulate to all parts of the body * Function: Deliver \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ blood to the body cells and remove \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   **1. Description of the Heart**   * The heart is located in the \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_ between the lungs slightly to the \_\_\_\_\_\_\_\_\_ * A hollow, cone-shaped muscle about the size of a \_\_\_\_\_\_\_ * Made up of a special type of muscle called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_     **II. Anatomy of the Heart**  **1. Coverings:**   * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ – a double serous membrane * Visceral pericardium (\_\_\_\_\_\_\_\_\_\_)   + Next to heart * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   + Outside layer   + Serous fluid fills the space between the layers of pericardium   **2. Heart Walls:**   * Three layers   a] \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   * + Outside layer   + This layer is the visceral pericardium   b] \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   * + Middle and thickest layer   + Mostly cardiac muscle   c] \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   * + Inner layer   + Made of simple squamous epithelium   **3. Chambers**   * The heart has \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   **-** Left & right atria – \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  **-** Left & right ventricles - \_\_\_\_\_\_\_\_\_\_\_\_\_\_   * Chambers are separated by a \_\_\_\_\_\_\_\_\_\_\_\_           **4. Heart Valves**   * \_\_\_\_\_\_\_\_\_\_\_\_\_ are flaps of connective tissue between the atria and ventricles * Moves the \_\_\_\_\_\_\_\_\_\_ through the heart in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ * Valves open as blood is pumped through * Held in place by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (“heart strings”) * Valves are closed to prevent backflow * **Four valves**  1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ – between atria and ventricles, open valves  * left atrium 🡪 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (mitral valve) 🡪 left ventricle * right atria 🡪 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 🡪 right ventricle  1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **–** between ventricle and artery, closed valves  * right ventricle 🡪 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 🡪 pulmonary artery * left ventricle 🡪 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 🡪 aorta     **5. Major Vessels**   * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   + Blood leaves left ventricle towards body * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   + Oxygen-poor blood leaves right ventricle towards lung * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   + Superior and inferior   + Blood from the body enters the right atrium * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (4)   !Blood-supply-blue-_red-LR   * + Oxygen-rich blood from lungs enters left atrium       **III.** **Anatomy of Blood Vessels**   * **Blood Vessels** are tubes which transport blood   **A. Function:**   * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ blood * Carry out the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and waste * Regulate blood pressure * Direct blood flow   **B. Types of Blood Vessels**  **1. Arteries**   * Blood vessels which carry \_\_\_\_\_\_\_\_\_-\_\_\_\_\_\_\_ blood **\_\_\_\_\_\_\_\_\_\_** from the heart to the body. * The \_\_\_\_\_\_\_\_\_\_\_\_ is the largest artery in our body * Thick walls   **2. Capillaries**   * Microscopic blood vessels which \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ together * Where \_\_\_\_\_\_\_\_\_\_\_\_\_\_ of oxygen, carbon dioxide, nutrients, and waste \_\_\_\_\_\_\_\_\_ * One cell layer thick   **3. Veins**   * Blood vessels which carry \_\_\_\_\_\_\_\_\_\_\_\_\_- \_\_\_\_\_\_\_\_ blood from the body back \_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_ * Thin walls * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to push blood back to the heart   **C. Diseases**  1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   * The hardening of the arteries due to the formation of scar tissue * Leads to hypertension, heart attack, & stroke   2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   * Valves in the veins become weak leading to abnormal dilations in the superficial veins     3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   * Inflammation of a vein * Very serious because it can lead to blood clots (thrombosis) and death   **IV. Circulation of Blood in the Body**   * Circulation is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   **A. Movement of Blood Through Vessels**   * Most arterial blood is pumped by the heart * \_\_\_\_\_\_\_ use the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of muscles to help move blood * **The goal is to**  1. Send \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ blood to the lungs to pick up oxygen and then 2. To pump \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ blood from the heart to the body cells   **B. Three Circulation Pathways through the Heart**   1. Pulmonary circulation: from the heart to lungs 2. Systemic circulation: from the heart to the body cells 3. Coronary circulation: from the heart to the heart muscle     **1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Circulation**  **a**) Flow of blood from the heart to the lungs   * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ blood must have carbon dioxide removed, so it is sent to the lungs * **Body cells > Veins > \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ > \_\_\_\_\_\_\_\_\_\_\_\_\_ >**   **\_\_\_\_\_\_\_\_\_\_\_\_\_\_ valve > \_\_\_\_\_\_\_\_\_\_\_\_\_ > Pulmonary \_\_\_\_\_\_\_\_\_\_\_\_ valve > Pulmonary \_\_\_\_\_\_\_\_\_\_\_\_\_ > lungs**    **2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Circulation**  **a)** Flow of blood from the heart to the body cells   * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ blood coming back from the lungs is pumped to the body cells * **Lungs > Pulmonary \_\_\_\_\_\_\_\_\_\_\_ > \_\_\_\_\_\_\_\_\_\_\_\_\_ > \_\_\_\_\_\_\_\_\_ (mitral) valve > \_\_\_\_\_\_\_\_\_\_\_\_\_\_ > Aortic valve > \_\_\_\_\_\_\_\_\_\_\_ > Arteries > Body cell**   **3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Circulation**  **S**  **U**  **M**  **M**  **A**  **R**  **I**  **Z**  **E**  a) Flow of blood to the heart tissues   * The heart has its own nourishing \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ – from aorta to myocardium (heart muscle)   + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ – from the myocardium to the ventricle   **2. Coronary disorders**  a. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ – blockage of  the arterial walls due to the build up of  cholesterol that can lead to a heart attack  corona2  b. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ – blood clot that  breaks away  from its origin and is carried to a new location   * + Can lead to a heart attack if embolus blocks a coronary artery   **3. Prevention & Treatment**  a. Aspirin – reduces stickiness of platelets,  therefore prevents clots  b. Surgery  Atherosclerosis   * + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ – tube is guided through the blood vessel to the blockage where is inflated to open up the vessel or break the clot   + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ – a blood vessel from another part of the body is sutured from the aorta to the coronary artery, past the blocked area     - Allows blood to flow to cardiac muscle |