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STRUCTURE AND FUNCTION OF THE HEART AND BLOOD VESSELS OF CIRCULATORY SYSTEM

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ABOUT THE STUDY

The blood circulatory system, which includes the heart, blood arteries, and blood itself, circulates the entire body of a human or other vertebrate. It includes the cardiovascular system based on the heart and blood vessels, also known as the vascular system. The circulatory system is divided into two parts: a systemic circulation or circuit and a pulmonary circulation or circuit. The circulatory system is also known as the cardiovascular system or vascular system.

The heart's big vessels are a network of blood channels comprised of massive elastic arteries, large veins, and several smaller arterioles, capillaries, and veins. The circulatory system in vertebrates is closed, which means that blood never leaves the system of blood vessels. Arthropods, for example, have a circulatory system that is open. Sponge and comb jellies are examples of diploblasts that do not have a circulatory system. The fluid known as blood is made up of plasma, red blood cells, white blood cells, and platelets, and it circulates throughout the body transporting nutrients and oxygen to the tissues as well as waste products out of them. Proteins and minerals, as well as gases such as oxygen and carbon dioxide, hormones, and haemoglobin, are among the nutrients carried by the bloodstream. These nutrients nourish the body, help the immune system fight disease, and help the body maintain homeostasis by regulating temperature and pH. Many cardiovascular diseases can affect the circulatory system. Cardiothoracic surgeons specialize in operating on the heart and its surrounding structures, whereas cardiologists are heart specialists. Vascular surgery focuses on lymphatic and blood vessel issues.

Structure

The circulatory system includes the heart, blood arteries, and blood itself. The cardiovascular system in all animals is comprised of the heart and blood arteries. The circulatory system is further divided into the pulmonary circulation and the systemic circulation. The pulmonary circulation is a circuit loop that transports deoxygenated blood from the right heart to the lungs, where it is oxygenated, and then returns to the left heart. The left heart circulates oxygenated blood throughout the body *via* the systemic circulation, which is a circuit loop that returns deoxygenated blood to the right heart *via* the vena cava. The systemic circulation can also be defined as a macro circulation or a micro circulation. A typical adult's blood volume ranges between five and six quarts, or approximately 7% of their total body weight. Blood is made up of red blood cells, white blood cells, platelets, and plasma. The circulatory and digestive systems work together to provide the body with the nutrition it requires keeping the heart beating. Other circulatory pathways, such as the coronary circulation, cerebral circulation, renal circulation, and bronchial circulation, which supply blood to the bronchi in the lungs as well as the heart itself, are linked. The blood is kept within the vascular system due to the closed nature of the human circulatory system. Nutrients must travel through the microcirculation's minuscule blood vessels to reach organs. The lymphatic system, a vital component of the circulatory system, is made up of a network of lymphatic veins, lymph nodes, organs, tissues, and circulating lymph. This subsystem is an open system. One critical function is to transport lymph, which drains and returns interstitial fluid to lymphatic ducts, which then transport it to the heart and circulatory system. Another important job is collaborating with the immune system to provide defence against infections.

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Function

The oxygen in a sample of arterial blood chemically bonded with haemoglobin molecules in a healthy person breathing air at sea level is approximately 98.5%. 1.5% is not coupled to haemoglobin and is physically dissolved in other blood fluids. The haemoglobin molecule is the primary oxygen carrier in vertebrates.

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