МЕДИЦИНА, ПЕДАГОГИКА И ТЕХНОЛОГИЯ: ТЕОРИЯ И ПРАКТИКА
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CARDIOVASCULAR SYSTEM

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Abstract: This article provides detailed information about the cardiovascular system and its functions, as well as the mechanism of operation of the cardiovascular system.

Keywords: Heart function, blood vessels, capillary, aorta, vein, artery, stimuli, hormone, pressure, lymphatic system.

The cardiovascular system supplies blood to the whole body. It can control the speed and amount of blood flowing through the veins by responding to various stimuli. The cardiovascular system consists of the heart, arteries, veins and capillaries. The heart and blood vessels work intricately together to ensure adequate blood flow to all parts of the body. Regulation of the cardiovascular system occurs through numerous stimuli, including changes in blood volume, hormones, electrolytes, osmolarity, drugs, adrenal glands, kidneys, and others. The parasympathetic and sympathetic nervous systems also play a key role in the regulation of the cardiovascular system. Blood vessels are important because they control the amount of blood flow to certain parts of the body. Blood vessels include arteries, capillaries, and veins. Large arteries receive the highest pressure of blood flow and are thicker and more elastic to accommodate the higher pressures. Small arteries, such as arterioles, have more smooth muscle that contracts or relaxes to regulate blood flow to certain parts of the body. Arterioles experience less blood pressure, which means they don't have to be as elastic. Arterioles account for most of the resistance in the pulmonary circulation because they are stiffer than large arteries. In addition, capillaries separate from arterioles and are a single cell layer. This thin layer allows the exchange of nutrients, gases and wastes with tissues and organs. In addition, veins return blood to the heart. They contain valves to prevent backflow of blood. The cardiovascular system consists of two main loops, the systemic circulation and the pulmonary circulation. The purpose of the cardiovascular system is to ensure adequate blood circulation in the body. The

pulmonary circulation allows the blood to be oxygenated, while the systemic circulation ensures that oxygenated blood and nutrients reach the rest of the body.

Blood is a liquid consisting of plasma, red blood cells, white blood cells and platelets; it circulates throughout the body, delivering oxygen and nutrients to tissues and collecting and removing waste. Circulating nutrients include proteins and minerals, while other components include hemoglobin, hormones, and gases such as oxygen and carbon dioxide. These substances provide nutrition, help the immune system fight disease, and help maintain homeostasis by stabilizing temperature and natural pH. In vertebrates, the lymphatic system complements the circulatory system. The lymphatic system removes excess plasma (filtered from the capillaries of the circulatory system as interstitial fluid between cells) from the body's tissues through accessory pathways, which return the excess fluid to the bloodstream as lymph. The lymphatic system is a subsystem essential to the functioning of the circulatory system; without it, there would be little fluid in the blood. The lymphatic system also works with the immune system. The circulation of lymph takes much longer than blood, and unlike the closed (circulatory) circulatory system, the lymphatic system is an open system. Some sources describe this as the secondary circulatory system. The heart pumps blood through closed vessels, and blood circulates throughout the body, supplying nutrients, oxygen, hormones, and other necessary elements to every cell in the body that needs it, and removing waste from the cells to specific organs. In summary, the cardiovascular system is the transport system and the blood is the vehicle inside the animal body.

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