



System of Blood Flow through the Body

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DESCRIPTION

Blood is pushed into the body by the action of the heartbeat. With each rhythmic pump, blood is pumped out of the heart at high pressure and high speed, initially along the main artery, the aorta. In the aorta, blood moves at 30 cm/sec. As blood travels to arteries, arterioles, and finally to the capillary bed, it travels dramatically slows down to about 0.026 cm/s, 1,000 times slower than the aorta. The diameters of individual arterioles and capillaries are much narrower than the diameter of the aorta and according to the law of continuity, fluid should flow faster through smaller diameter tubes, but the total diameter of all combinations. Because of this, the speed is actually slower. Capillaries are much larger than the diameter of each aorta.

The slow movement through the capillary bed, which reaches almost every cell in the body, supports the exchange of gas and nutrients and also facilitates the diffusion of fluid into the interstitial space. After blood flows through the capillary bed to the venules, veins, and finally the main venous cavity, the flow increases again, but is still much slower than the initial velocity of the aorta. Blood moves in the vein mainly by the rhythmic movement of the smooth muscles of the blood vessel wall and the action of the skeletal muscles when the body moves. Most veins need to move blood against gravity, so a one-way valve prevents blood from flowing back into the vein. Skeletal muscle contractions help blood flow in the veins, so it is important to get up and move frequently after sitting for long periods of time to prevent blood from accumulating in the limbs. Blood flow through the capillary bed is regulated by the body's needs and directed by nerve and hormonal signals.

For example, after a large meal, vasodilation of blood vessels in the digestive system and vasoconstriction of other blood vessels direct most of the blood to the stomach. During exercise, blood is diverted to skeletal muscle by vasodilation, and blood to the digestive system is reduced by vasoconstriction. Blood that enters the bed of some capillaries is controlled by a small muscle called the anterior capillary sphincter. When the sphincter muscles are open, blood flows into the relevant branches of the capillaries. When all sphincters are closed, blood flows directly from the arterioles through the passages into the venules. These muscles allow the body to precisely control when the capillary bed receives blood

flow. At any given time, only about 510% of our capillary bed is actually perfused with blood.

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Capillaries are much larger than the diameter of each aorta. Slow moving speed through the capillary bed that reaches almost every cell of the body the heart is a complex organ. It uses 4 chambers, 4 valves, and many blood vessels to supply blood to the body. The blood flow itself is just as complicated. This is the circulatory system that moves blood from the heart to the lungs to supply oxygen. It is then released throughout the body and returned to the heart to resume the process. An important function of the cardiovascular system is the consumption, transport, and use of oxygen, whether on the move or at rest. The loss of blood flow can have serious health consequences. This article walks through this complex process step by step. It also describes how blood flow is blocked.

List of few functions of the blood

1. Blood is fluid connective tissue blood is made up of 55% plasma and 45% "formed elements" such as red blood cells, white blood cells, and platelets. Because these living cells are suspended in plasma, blood is considered liquid connective tissue (not liquid). It is the only liquid tissue in the body.
2. Blood provides the body's cells with oxygen and removes carbon dioxide blood absorbs oxygen from the air in the lungs. It carries oxygen to cells throughout the body and removes excess carbon dioxide from the cells. In the lungs, carbon dioxide from the blood moves into the air and is exhaled.

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3. Blood transports nutrients and hormones blood play a major role in digestion and endocrine function. Digested nutrients are absorbed into the bloodstream through the capillaries of the villi that line the small intestine. These nutrients include glucose, amino acids, vitamins, minerals and fatty acids. Blood also carries some hormones secreted by the glands of the endocrine system, targeting organs and tissues.

4. Blood regulates body temperature blood absorbs heat and disperses it throughout the body. Helps maintain homeostasis by releasing or maintaining heat. Blood vessels expand and contract in

response to external organisms such as bacteria, as well as internal hormones and chemical changes. These actions bring blood and heat closer to the surface of the skin or away from the surface of the skin where heat is lost.

5. Platelets clot blood at sites of injury when a blood vessel ruptures, platelets and plasma proteins work together to prevent blood loss. Platelets, also called thrombocytes, aggregate and form plugs at the site of injury. The protein forms a thread called fibrin, which completes a platelet plug or clot.