Cardiovascular Movie

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Movie Summary

Cardiovascular System - Consists of the heart, blood, and vessels. It helps regulate heat and pH level by circulating blood through 60,000 miles of blood vessels. Blood takes oxygen and nutrients to the body, and takes CO2 and waste away from the body. It circulates 36,000 gallons of blood daily.

Hematology - the study of blood

Cardiology - the study of the heart

Hemodynamic - The study of blood vessels and forces involved in the blood circulation

Function of Blood - Blood is a connective tissue made of plasma and blood cells. Plasma - a watery liquid portion of blood, and the cells or formed elements are red blood cells, white blood cells, and platelets. Blood transports O2, CO2, nutrients, waste and hormones. Diffusion through vessel walls moves and removes these items to and from the body.

The three basic functions of blood are Transportation of hormones, waste, nutrients, O2 and CO2. Regulation of pH level by use of buffers, turning strong bases and acids to weak ones. Also regulates body temperature with the water in plasma.

Protection - blood carries protective cells that help fight virus, disease, and also can clot to stop the body from loosing blood.

Components of Blood - Blood is made of 55% plasma. Plasma is 92% water and 8% solutes. Proteins, nutrients, and vitamins can be found in protien. The other 45% of blood is formed elements. Red blood cells (erythrocytes) and white blood cells (leukocytes) are found in the formed elements portion of blood. RBC come from the red bone marrow and have a protien called hemoglobin. It is red in color because it attractst oxygen. RBCs are bioconcave, (shaped like a smarty) and this gives it more surface area and flexibility. The surface area serves to carry O2 and CO2, and the flexability allow it to squeeze in between cells. RBC's do not have a nuclues and do not use O2. During breathing the hemoglobin passes O2 and CO2.

White blood cells - don't have hemoglobin, and contain nuclei. They protect the body by devouring invading organisms by phagocytosis.

Platelets - stop bleeding by forming clots.

Heart - Is made of cardiac muscle tissue, and has chambers and valves. It is designed for a lifetime of not stop work without rest. The right side of the heart pumps deoxiginated blood, and the left side pumps oxiginated blood. The top two chambers are called Atria, (left and right respectively) and the bottom two are ventricles. (Starting from top to bottom with the heart A comes before V therefore Atria is on top, and Ventricle are on the bottom). Septums seperate left from right. (like septum in the nose).

Deoxiginated blood enters the heart from superior and inferior vena cava and gathers in the right atrium. It then passes through the tricuspid valve into the right ventricle. From the right ventricle it is pumped to the lungs for O2 and return to the left atrium. From left atrium it passes through bicuspid (remember bicuspid because it is going to the left ventricular to be circulated to the body(left ventrical pumps the the rest of the body. Once it leaves the left ventricul it leaves the heart. LEFT ventrical, Left the heart. (It's going bye-bye, bicuspid) valve
to left ventricle. The left ventricle pumps the blood to the rest of the body, and for this reason the muscle wall of the left side of the heart is a little thicker than the right.

Once blood leaves the first area it is circulated to is the heart. (the heart takes care of itself). This is through the coronary artery. (coronary means crown. remember the king always is fed first so the coronary artery branches first) Quadruple bipass is when the anteior and posterior interventricular arteries and well as marginal and circumflex arteries are bipassed in the heart due to blockage.

The veins that bring deoxiginated blood from the heart are grand, middle, veins through the coronary sinus.

**Blood Vessels** from the heart the blood passes through arteries, to artiriols which are almost microscopic, to capillaries. **Capillaries** are small veins where diffusion and oxygen exchange takes place. Capillaries have thin walls to allow diffusion to take place.

Capillaries then collect in venuls, that then collect in veins. (remember arteries and atrioles go away from heart so are oxiginated, the only time this differs is to and from lungs ). Veins do not have the pressure that arteries do so they are equiped with valves that prevent the backflow of blood in veins. Veins are more numerous then arteries and will sometimes double up in channels called anastomses. Arteries don't have or need this becouse of the pressure.

Blood pressure drops as the blood get further from the heart. Changes in blood volume and viscosity as well as health and age all have an effect on the blood pressure.

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