

Circulatory & lymphatic systems

Winslow, 4-9 November 2010

References:

Hoefnagels, Mariëlle. 2009 *Biology*, 1st ed., McGraw-Hill, NY, Ch. 32.

Mader, Sylvia S. 2008 *Biology*, 9th ed., McGraw-Hill, NY, Ch. 34-35.

Ch. 34--Circulatory System Objectives

1. Discuss the functions of the circulatory system.
2. Describe the similarities and differences of the open and closed circulatory systems.
3. Describe the structure of arteries, veins, and capillaries.
4. Describe the location and function for the 4 chambers of the heart, the valves, and the blood vessels entering and leaving the heart.
5. Describe pulmonary and systemic circulation.

Circulatory system moves stuff around in the body.

Gas exchange--oxygen and carbon dioxide

Nutrients, immune cells, hormones, platelets

Open circulatory system

Heart, vessels, blood is not always enclosed by vessels.

Closed circulatory system

Heart, vessels, blood is always enclosed by vessels.

Arteries & veins

Connective tissue, smooth muscle, elastic tissue, endothelium

Capillaries only have endothelium.

Heart

Chambers

Left atrium, left ventricle, right atrium, right ventricle

Atria receive blood; ventricles pump blood.

Oxygenated blood circulates through the left chambers.

Deoxygenated blood circulates through the right chambers.

Valves

Valves regulate blood flow and insure blood does not flow backwards.

Atrioventricular valves between each atrium and corresponding ventricle.

Semi-lunar valves between each ventricle and corresponding artery.

Arteries leaving heart

Aorta, pulmonary trunk (splits into pulmonary arteries)

Veins entering heart

Superior and inferior vena cava, pulmonary veins

Pulmonary circuit--Oxygenated blood to heart and deoxygenated blood to lungs

Systemic circuit--Oxygenated blood to tissues and deoxygenated blood to heart

Lymphatic System Objectives

1. Discuss functions for the lymphatic system
2. Describe vessels, nodes, glands, and organs associated with lymphatic system.

Functions

Absorb excess fluids and fats and deliver to blood

Produce lymphocytes and defend body against pathogens

Lymph vessels, lymph nodes, tonsils, spleen, thymus, red bone marrow