

Purpose: To carry oxygen, blood, nutrients, and waste throughout the body.
Fight diseases and regulate body temperature.

CIRCULATORY SYSTEM

BLOOD COMPOSITION

MAJOR COMPONENTS

BLOOD

Made of connective tissue. Delivers new oxygen and nutrients, and carries away old carbon dioxide and waste. When oxygenated it is known as **red blood** and when deoxygenated it is called **blue blood** (even though blood is just darker red). It has of 4 parts:

RED BLOOD CELLS

Transport oxygen using hemoglobin (this makes blood red).

WHITE BLOOD CELLS

Fight infections. Only cells in blood with nucleus.

PLATELETS

Help clot blood. Too little lead to excessive bleeding. Too many cause blockages.

PLASMA

Protein liquid that suspends blood cells and transports nutrients.

CAPILLARIES

Exchanges nutrients and gases with tissues by diffusion.

VEINS

Carry blood from body back to heart. Thin walls.

ARTERIES

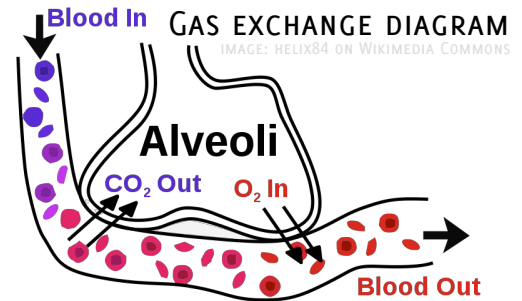
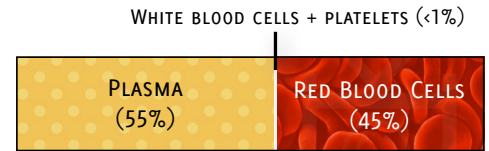
Carry blood from heart to rest of body. Thick walls.

HEART

Made of cardiac muscle, nerve, and connective tissues. Pumps blood to rest of body. Right chamber of heart pumps deoxygenated blood to lungs. Left chamber receives newly oxygenated blood and pumps it around body. Muscles and nerves of heart covered by epithelial tissue, which reduces friction and protects damage from lung movement.

KIDNEY

Cleans blood and filters waste, regulates blood pressure, produces hormones



DISORDERS

CORONARY ARTERY DISEASE

The coronary arteries are partially blocked with plaque (fat, cholesterol, etc.), so the blood flow from/to heart is decreased.
Diagnosis: x-ray or angiogram (x-ray with dye injected into blood)
Symptoms: tiredness, dizziness, pain/burning sensation in chest/arms.

HEART ATTACK

The coronary arteries are severely blocked; the heart is no longer able to receive oxygen or nutrients to function. Heart and body start to die.
Diagnosis: blood test, electrocardiogram (ECG)
Symptoms: anxiety, dizziness, chest pains, nausea, abdominal pains.

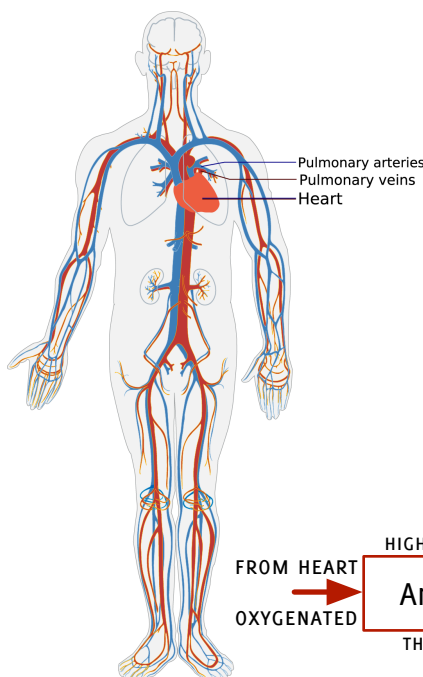
BLOOD CLOTTING

Occurs when platelet count is too low/high. Either excessive bleeding occurs, or blood clots too fast and stops blood flow.

MEASUREMENTS

PULSE: rate of heart beat (avg. 60-100 times a minute for an adult)

BLOOD PRESSURE: the maximum (systolic) and minimum (diastolic) pressure of blood between heartbeats (normal: 120/80)



PROCESS

- 1 LUNGS SUPPLY OUR BLOOD WITH OXYGEN, WHICH THE HEART PUMPS AROUND THE BODY THROUGH ARTERIES.
- 2 CAPILLARIES RECEIVE THE OXYGENATED BLOOD AND DIFFUSE IT TO NEARBY ORGANS AND TISSUES.
- 3 OXYGEN IN THE BLOOD IS TAKEN AND USED BY THE BODY. THE BLOOD BECOMES DEOXYGENATED.
- 4 THE CAPILLARIES RETURN THE DEOXYGENATED BLOOD TO VEINS, WHICH FLOW BACK TO THE HEART.

