

CIRCULATORY SYSTEM

INTRO

Your heart is a pump that pushes approximately 4 L of blood per minute through your body.

It beats an average of 70 times per minute.

If you lived to be 80 years old it would be almost 3 billion beats (3,000,000,000)

Blockages in blood vessels of the heart cause heart attacks

HEART

The heart is a muscular organ that pumps blood through your body

It has 4 chambers, 2 upper atrium chambers (plural is atria) or 2 lower ventricle chambers.

The atria is where blood comes from the body into the heart

The ventricles pump the blood out of the heart.

Because the ventricles pump blood to the whole body, they have to be very strong, so they are more muscular than the atria.

The left ventricle pumps to the whole body, except the lungs, and therefore it is the strongest

Between the right atrium/right ventricle and left atrium/ventricle are valves

Valves prevent the blood from moving backwards.

The “lub dub” sound that you hear is the opening and closing of the valves.

CIRCULATORY SYSTEM

Heart is part of the circulatory system – an enormous highway like system that moves blood throughout your body.

The “roads” of your circulatory system are called blood vessels.

If you added up the distance of all your blood vessels end to end they would be 100,000km in length – that is 2.5 times around the Earth at the equator.

TYPES OF BLOOD VESSELS

Blood is carried from your heart throughout your body in three types of blood vessels

Arteries: blood vessels that carry blood away from your heart. Most arteries carry bright red, oxygenated blood. They are thick-walled and elastic, so they can withstand the high pressure of sending blood out to the body.

The largest artery in your body is the aorta. It is the width of a penny.

Arteries keep moving away from your heart, getting smaller and smaller until they become arterioles and then finally reach the capillaries.

Capillaries: are a network of tiny blood vessels.

They are the location that oxygen, nutrients and glucose diffuse through the very thin walls of the capillaries into the fluid and cells that surround the capillaries.

In exchange carbon dioxide and other waste materials diffuse out of cells and into the capillaries.

Veins: blood vessels that carry your blood back to the heart. Most veins carry bright blue, deoxygenated blood. They are thinner walls,

because the pressure is lower, and they have valves that prevent the blood from flowing backwards.

When leaving the capillaries blood flows first into small tiny veins called venules, and then into larger veins and back to the heart.

There are two large veins that come back into the heart. The one coming from the head down into the top of the heart is the superior vena cava. The one coming the body into the bottom of the heart is the inferior vena cava.

BLOOD

Blood performs several essential functions necessary for health, including transports oxygen, nutrients and water to your cells and carries carbon dioxide and wastes away from your cells.

Blood also carries specialized cells to help fight infection.

Of the 5 L of blood in your body, 55% is a clear, yellowish liquid called plasma, which contains proteins, minerals and other substances.

The other 45% is made up of red blood cells, white blood cells and platelets.

Red Blood Cells

Every second your body produces approximately 2 million red blood cells. There are 25 trillion red blood cells total in your body as we speak.

Red blood cells carry oxygen from your lungs to the cells in your body, and carbon dioxide from your cells back to your lungs to be exhaled.

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Red Blood Cells are formed in your bone marrow, fatty tissue found inside certain bones, such as your thigh bone and hip bone. They are also produced by your liver and spleen.

White Blood Cells

Fight infection and prevent the growth of cancer.

Much larger than red blood cells.

When you get sick, the number of white blood cells increases.

Platelets

Important for clotting blood. When you get cut, platelets stop the bleeding and seal the wound by thickening the blood so a scab can form.