

Your Heart and How it Works

Your heart is a vital organ. It is a muscle that pumps blood to all parts of your body. The blood pumped by your heart provides your body with the oxygen and nourishment it needs to keep you alive and healthy. Waste products carried by the blood are removed from your body by the kidneys and lungs.

Your body has a network of blood vessels called arteries and veins, which carry the blood pumped by your heart. Your heart and these blood vessels help make up the circulatory system.

Your body contains about five litres of blood all of which passes through your heart every minute or so. But when necessary, like during exercise, your heart can pump up to four times that amount per minute.

Size and position

Your heart is about the size of your clenched fist. It lies in the front and middle of the chest, behind and slightly to the left of the breastbone

Heartbeat

At rest, the heart beats approximately 60 to 100 times a minute. In children the heart rate is higher than in adults. Over an average lifetime, the heart will beat more than a million times.

When you are physically active, excited or ill, your heart rate can rise significantly. This is a natural response to these situations.

There are two parts to each heartbeat. The first part, when the heart contracts and pumps blood, is called systole. The second part, when the heart relaxes so the chambers can refill with blood, is called diastole.

Pulse

Every heartbeat results in blood moving forward through the arteries. This can be felt as your 'pulse' by placing two fingers over the artery at your wrist. Your pulse rate tells you how fast your heart is beating.

Heart chambers

The heart has a right and a left side separated by a wall. Each side has a small collecting chamber called an atrium leading into a large pumping chamber called a ventricle. There are four chambers: the left atrium and ventricle, and the right atrium and ventricle.

The right side of the heart collects blood on its return from the rest of the body. The blood entering the right side of the heart, is low in oxygen. This is because oxygen is removed from the blood as it circulates through the body's organs and tissues. The heart then pumps the blood onwards to the lungs to receive more oxygen. Having received oxygen, the blood returns directly to the left side of the heart, which then pumps it out again to all parts of the body.

The left ventricle is larger and thicker than the right ventricle. This is because it has to pump the blood further around the body, and against higher pressure, compared to the right ventricle.

To make sure the blood flows in the correct direction, valves guard the entrance and exit of the heart's chambers.

Circulation

Your body has a network of blood vessels called arteries and veins, which carry the blood pumped by your heart. Your heart, together with these blood vessels, help make up the circulatory system.

Arteries carry blood away from the heart. The largest artery in your body is the aorta. It has branches which carry blood to your head, arms and legs, and organs inside the chest and abdomen.

The first branches of the aorta are the coronary arteries. These run back on to the surface of the heart itself to give the heart muscle its own blood supply.

Smaller branch arteries feed into even smaller blood vessels called capillaries, which cannot be seen with the naked eye. Oxygen and nutrients pass into body tissues from the capillaries; veins then carry blood back to the heart.

