



## The Heart

Your heart is really a muscle. It's located a little to the left of the middle of your chest, and it's about the size of your fist. There are lots of muscles all over your body - in your arms, in your legs, in your back, even in your behind.

But the heart muscle is special because of what it does. The heart sends blood around your body. The blood provides your body with the oxygen and nutrients it needs. It also carries away waste.

Your heart is sort of like a pump, or two pumps in one. The right side of your heart receives blood from the body and pumps it to the lungs. The left side of the heart does the exact opposite: It receives blood from the lungs and pumps it out to the body.

### We Got the Beat

How does the heart beat? Before each beat, your heart fills with blood. Then its muscle contracts to squirt the blood along. When the heart contracts, it squeezes - try squeezing your hand into a fist. That's sort of like what your heart does so it can squirt out the blood. Your heart does this all day and all night, all the time.

### Heart Parts

The heart is made up of four different blood-filled areas, and each of these areas is called a **chamber**. There are two chambers on each side of the heart. One chamber is on the top and one chamber is on the bottom. The two chambers on top are called the **atria**. If you're talking only about one, call it an atrium. The atria are the chambers that fill with the blood returning to the heart from the body and lungs. The heart has a **left atrium** and a **right atrium**.

The two chambers on the bottom are called the **ventricles**. The heart has a **left ventricle** and a **right ventricle**. Their job is to squirt out the blood to the body and lungs. Running down the middle of the heart is a thick wall of muscle called the **septum**. The septum's job is to separate

the left side and the right side of the heart.

The atria and ventricles work as a team - the atria fill with blood, then dump it into the ventricles. The ventricles then squeeze, pumping blood out of the heart. While the ventricles are squeezing, the atria refill and get ready for the next contraction. So when the blood gets pumped, how does it know which way to go?

Well, your blood relies on four special **valves** inside the heart. A valve lets something in and keeps it there by closing - think of walking through a door. The door shuts behind you and keeps you from going backward.

Two of the heart valves are the **mitral** valve and the **tricuspid** valve. They let blood flow from the atria to the ventricles. The other two are called the **aortic** valve and **pulmonary** valve, and they're in charge of controlling the flow as the blood leaves the heart. These valves all work to keep the blood flowing forward. They open up to let the blood move ahead, then they close quickly to keep the blood from flowing backward.

## **It's Great to Circulate**

You probably guessed that the blood just doesn't slosh around your body, once it leaves the heart. It moves through many tubes called arteries and veins, which together are called blood vessels. These blood vessels are attached to the heart. The blood vessels that carry blood **away from** the heart are called arteries. The ones that carry blood **back to** the heart are called veins.

The movement of the blood through the heart and around the body is called **circulation**. It is really good at it. It's so good at it that it takes less than 60 seconds to pump blood to every cell in your body.

Your body needs this steady supply of blood to keep it working right. Blood delivers oxygen to all the body's cells. To stay alive, a person needs healthy, living cells. Without oxygen, these cells would die. If that oxygen-rich blood doesn't circulate as it should, a person could die.

The left side of your heart sends that oxygen-rich blood out to the body. The body takes the oxygen out of the blood and uses it in your body's cells. When the cells use the oxygen, they make **carbon dioxide** and other stuff that gets carried away by the blood. It's like the blood delivers lunch to the cells and then has to pick up the trash!

## **Kidneys Are Filters**

Each time the blood circulates from the heart out to the body, about 20% (one fifth) of it goes through the kidneys. The kidneys filter out some of the waste before the blood heads back to the heart.

The returning blood enters the right side of the heart. It takes the blood to the lungs for a little freshening up. Carbon dioxide is left in the lungs to be removed when we exhale. What's next? An inhale, of course, and a fresh breath of oxygen that can enter the blood to start the process again. And remember, it all happens in about a minute!

## **Listen to the Lub-Dub**

When you go for a checkup, your doctor uses a stethoscope to listen carefully to your heart. A healthy heart makes a lub-dub sound with each beat. This sound comes from the valves shutting on the blood inside the heart.

The first sound (the lub) happens when the mitral and tricuspid valves close. The next sound (the dub) happens when the aortic and pulmonary valves close after the blood has been squeezed out of the heart. Next time you go to the doctor, ask if you can listen to the lub-dub, too.

## **Pretty Cool - It's My Pulse!**

Even though your heart is inside you, there is a cool way to know it's working from the outside. It's your pulse. You can find your pulse by lightly pressing on the skin anywhere there's a large artery running just beneath your skin. Two good places to find it are on the side of your neck and the inside of your wrist, just below the thumb.

You'll know that you've found your pulse when you can feel a small beat under your skin. Each beat is caused by the **contraction** (squeezing) of your heart. If you want to find out what your heart rate is, use a watch with a second hand and count how many beats you feel in 1 minute. When you are resting, you will probably feel between 70 and 100 beats per minute.

When you run around a lot, your body needs a lot more oxygen-filled blood. Your heart pumps faster to supply the oxygen-filled blood that your body needs. You may even feel your heart pounding in your chest. Try running in place or jumping rope for a few minutes and taking your pulse again - now how many beats do you count in 1 minute?

## **Keep Your Heart Happy**

Most kids are born with a healthy heart and it's important to keep yours in good shape. Here are some things that you can do to help keep your heart happy:

Remember that your heart is a muscle. If you want it to be strong, you need to exercise it.

How do you do it? By being active in a way that gets you huffing and puffing, like jumping rope, dancing, or playing basketball. Try to be active every day!

Eat a variety of healthy foods and avoid foods high in unhealthy fats, such as saturated fats and trans fats.

Don't smoke. It can damage the heart and blood vessels.

