



Curiosity Guide #505

Circulatory System

Accompanies Curious Crew, Season 5, Episode 5 (#505)

Heart Disease

Investigation #9

Description

A happy heart is a healthy heart!

Materials

- 2 identical squeezable plastic bottles
- Drill
- 2 drill bits of different sizes
- 2 straws of different diameters
- Putty or glue
- Measuring cup
- Water
- Timer
- Basins

Procedure

- 1) Drill a hole in each cap of two squeezable water bottles. One hole should be bigger than the other.
- 2) Insert a narrow straw into the smaller hole and a larger straw in the larger hole.
- 3) Seal any air gaps with putty or glue.
- 4) Fill each bottle with the same amount of water.
- 5) Screw the caps on so the bases of the straws are deeply submerged in the water.
- 6) Hold the bottles over the basins and begin to squeeze out the water.

7) Time how long it takes to remove a similar amount of water from each bottle.

My Results

Explanation

One of the problems that can affect the circulatory system is buildup of cholesterol in the arteries. Cholesterol is a wax-like substance our bodies naturally produce in the liver. People can also get cholesterol from the foods we eat, like red meat, cheese, eggs, or butter. People who have too much bad cholesterol can build up plaque on the walls of the arteries, making the flow of blood smaller. As a result, the heart has to work harder. In this example, the narrower straw represents the narrower artery that has been restricted by plaque buildup from bad cholesterol. A narrower artery takes longer to move the same amount of fluid, and in the case of our hearts, makes the heart work harder.

Talk the talk. Our bodies produce both bad and good cholesterol. Bad cholesterol is called LDL, while the good cholesterol is called HDL. You want low levels of LDL while keeping the levels of HDL high.

Think about this. We saw how the heart speeds up when we exercise, but did you know a healthy athlete can pump up to eight gallons of blood every minute? That seems like a lot, but because the heart is a muscle, that occasional extra work is great. We want strong hearts because they have a lot of beating to do every day. In fact, your heart beats about 100,000 times a day. That equals about 35 million times in just one year and more than 2.5 billion times during a lifetime. That's one amazing muscle!

Explore more. Have you ever tried to put your hand over your heart? Where did you put your hand? Surprisingly, your heart is actually centered in your chest, with just the bottom part shifting slightly to your left side. That's why you can feel your heart on the left side more easily. Our hearts and the rest of the circulatory system are incredibly powerful, so be sure to take good care of them. Take care to eat healthy, get plenty of exercise and rest, and stay at a healthy weight. Then you too can move to the beat for years to come. Remember, stay curious and keep experimenting!

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