



Clogged Arteries

How does eating “bad” food damage your circulatory system?

Description

Many people know that eating healthy food is good for their heart. But how does eating “bad food” damage your heart & arteries?

In this activity, you will model an artery and a substance called plaque that builds up inside the arteries.

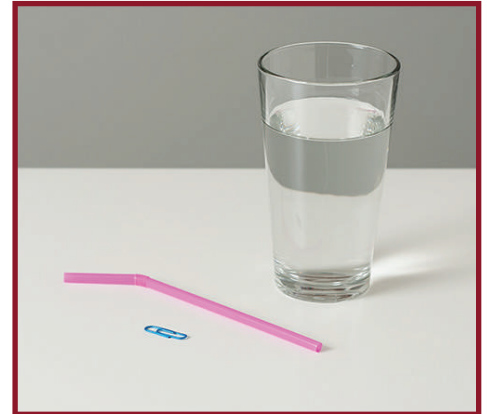
Average Level: 10 and Up



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Materials

- Drinking straw
- Glass of water
- Paper clip



Time

Preparation: 5 min
Activity: 5 min
Cleanup: 5 min

Step 1

Your arteries have a very important job. They carry oxygen-rich blood to all organs in your body that need oxygen, including your brain. Arteries are hollow tubes, kind of like drinking straws. Your heart is the muscle that forces blood to flow, or circulate, through your arteries. If your arteries get blocked, your heart can have trouble—and must work harder—as it moves blood throughout your body. Your mouth also has muscles. Use the straw to take a drink of water from the glass. How easy or hard is it for your mouth to force water through the straw so you can drink?



Step 2

Your arteries can get clogged with plaque, which is partly made up of fat and cholesterol from foods you eat. Over time, the blockage in your arteries limits blood flow so your body does not get as much oxygen. Put a paper clip on your drinking straw, to squeeze it at one spot. From outside the straw, the paper clip narrows and blocks the hollow part of the straw. Plaque narrows and blocks the hollow part of an artery, but from the inside.



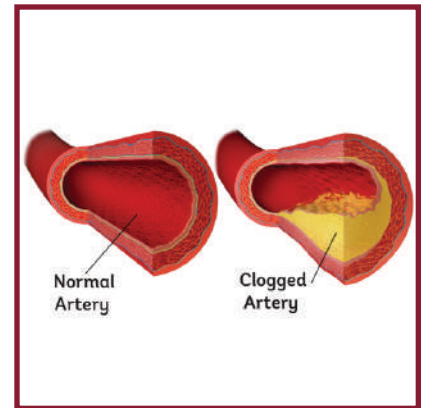
Step 3

With the paper clip on your straw, take a drink from your glass of water. Compared to before, how easy or hard is it for your mouth to force water through the straw so you can drink?



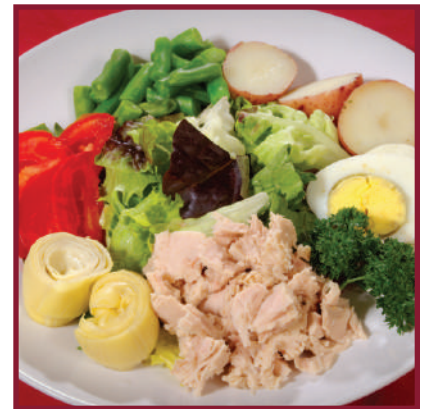
What's Going on?

Your heart is a muscle that pumps blood through arteries to all parts of your body. When you drank water from the straw, your mouth represented the heart and the straw represented an artery. Habits like eating too much high fat food, not exercising, and smoking can cause a sticky substance called plaque to build up inside your arteries. This makes the arteries narrower. When you pinched the straw with a paperclip, you narrowed the space for water to flow, just like when an artery becomes clogged. Drinking water with the pinched straw is much harder, just like it's harder for a heart to pump blood if arteries are full of plaque.

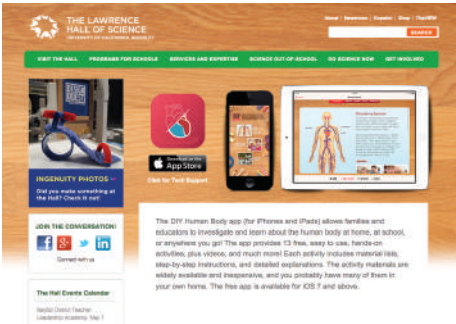


Eating Healthy

Plaque that forms in arteries is made of fat, cholesterol, calcium, and other substances. High levels of bad cholesterol in your blood lead to plaque formation. What you eat, and other factors like genetics, affect the levels of cholesterol in your blood. Doctors can measure the levels to help you stay healthy. Eating healthy when you're young helps keep your blood cholesterol levels healthy now and when you're older. How do you prevent high amounts of bad cholesterol in your blood? Choose healthy foods like whole-grain breads and cereals, fruits and vegetables, lean milk and meat, and soy foods like tofu. Try to avoid too much red meat, whole milk, and fried foods like doughnuts and fried potatoes.



Learn More



For more info and other activities, visit:

LawrenceHalofScience.org/do_science_now/diy_human_body

Credits



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