THE HEART

Student Pages

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Principal funding from Science Education Partnership Awards
National Center for Research Resources
National Institutes of Health

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Classroom Activities

Dr. Allevable and Regenerobot’s Exploration Adventure ESL
Heart Activity I: Student Pages

Just beat it!

**Teaching Point**
Science students will understand the function of “cholesterol” in the human body and model the effects of cholesterol in order to demonstrate their understanding.

10 minute mini-lesson + 40-50 minute activity

What is cholesterol?

**Cholesterol** is a waxy, fat-like substance that is found in the body’s cells—including blood cells. 3/4 of the cholesterol in your body comes from your own body! The other 1/4 comes from the food you eat!

Your body needs cholesterol to make vitamins and certain hormones. Hormones are chemicals that have very special jobs! Hormones make men grow hair on their face, for example. They also help give women higher voices than men. Hormones make males and females different in many ways. You need cholesterol to help make hormones!

Is cholesterol good or bad?!

**Do** you remember one of the reasons that we NEED cholesterol? We need it to make HORMONES! So, cholesterol is a good thing. However, too much cholesterol can be very bad. When cholesterol builds up in our blood stream, it causes **plaque** to form on the walls of our blood vessels.

**Plaque** is a sticky substance that sticks to the sides of the blood vessel. When plaque forms, we call it coronary heart disease.

When cholesterol builds up in our blood stream, it causes plaque to form on the walls of our blood vessels.
Why is plaque bad for me?

**Plaque** in the blood vessels BLOCKS the flow of blood and does not allow blood to go into the heart like it should.

**Blood** vessels carry blood to all the organs in the body, like the heart. Blood carries air (oxygen) and food to each cell in the heart. Without food and oxygen, the cells of the heart begin to die!

When the cells of the heart begin to die, it causes an interruption in heart beats. We call this interruption a heart attack.

**Plaque** can build up in other parts of the body too and cause serious health problems. Plaque in some blood vessels, like the ones leading into your brain, can become blocked too. When the blood vessels going to the brain become BLOCKED it can cause a stroke. A stroke is a very serious injury to the brain.

**What causes cholesterol?**

**Remember** that \( \frac{3}{4} \) of the cholesterol in your body is made by your own body! But \( \frac{1}{4} \) of the cholesterol in your body comes from the food you eat!

**Eating** unhealthy foods is the biggest cause of plaque. Remember that plaque is the sticky stuff that builds up in the blood vessels. It comes from too much cholesterol in the body.

**Other** causes of plaque are smoking cigarettes, drinking too many alcoholic beverages, and being very overweight.

**Sometimes** we are just unlucky—and inherit the genes that cause cholesterol from our parents!
**Task**
You will use empty toilet paper rolls and clay to show how cholesterol can build up in a blood vessel. You will build your own blood vessel and then discuss the questions with a partner.

**Procedure**
1. Gather all materials.

2. Tear 4 small pieces of clay and stick them—flat—to the sides of your cardboard tube. Sketch what you see when you look into the tube.

3. Tear 6 small pieces of clay and stick them—flat—to the sides of your cardboard tube. You can overlap the new pieces with the old ones. Sketch what you see when you look into the tube.

4. Tear 6 more small pieces of clay and stick them—flat—to the sides of your cardboard tube. You can overlap the new pieces with the old ones. Sketch what you see when you look into the tube.

**Materials Needed:**
- 2 cardboard tubes (1 for each partner)
- Clay
Reflection
Answer these questions.

1. What does the clay in your tube represent?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

2. What do you think the toilet paper roll represents?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

3. What is happening as you put more and more clay into your tube?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

4. How is your cardboard tube like a blood vessel?

Alike Different
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

“Eating a balanced diet and doing regular exercise are the best ways to prevent heart disease!”
Extension
Discuss with your class what you and your partner learned about blood vessels and cholesterol by doing this project.

Discussion
You probably know a lot about healthy foods!
Talk with your class and your teacher about some healthy foods that you can eat to help avoid high cholesterol as an adult.

Healthy Foods that I can eat are:

______broccoli______               ________________
__________________  ________________
__________________  ________________
__________________  ________________
__________________  ________________
__________________  ________________
__________________  ________________

Want to Fight Cholesterol? Here’s How!
To lower one's bad cholesterol and enjoy a healthier lifestyle, follow these healthy tips!

◊ GET MOVING! Getting regular exercise can make a huge difference in lowering cholesterol. Keeping fit and in shape may improve your cholesterol level. Do things you like to do and ALWAYS have fun with exercise.
◊ Regular medical check-ups.
◊ Take your MULTIVITAMIN! A multivitamin/mineral supplement can possibly lower your risk for heart disease and stroke, which can be caused by high cholesterol. Look for a multivitamin that contains folic acid, vitamin B and fish oil.
◊ GO FIBER RICH! Consume foods that are rich in fiber, such as: fruits, vegetables, whole grains and beans.

Milk and broccoli are examples of healthy foods! Can you think of more examples?

GET THE LOW DOWN!
Learn more from the American Heart Association's "The Cholesterol Low Down" at http://www.cholesterollowdown.org/