Body Story: Heart Attack: Teacher’s Guide

Grade Level: 6-8  Curriculum Focus: Life Science  Lesson Duration: Three to four class periods

Program Description
An intricate system of vessels, arteries, muscles, and electrical impulses, the cardiovascular system keeps oxygen-rich blood pumping through our bodies. But what happens when that system is challenged by fatty cholesterol plaque? Journey inside a 45-year-old man’s body to experience a heart attack up close.

Onscreen Questions
Before watching the video
- What do you know about heart attacks, their causes, and their effects on the body?
- What types of medical intervention has science discovered to help people survive and recover from them?
- As you watch the program, note information that supports or contradicts your understanding of heart attacks.

After watching the video
- In the program, John’s lifestyle contributed to his heart attack. Discuss ways people can make choices that promote having a healthy heart.
- Name factors that may cause us to make unhealthy choices.

Lesson Plan
Student Objectives
- Factors controllable and uncontrollable that put a person at greater risk for developing heart disease.
- Lifestyle choices can encourage good cardiovascular and general health.
Materials

- Paper
- Pens or pencils
- Library or Internet references with estimated caloric, fat, and cholesterol contents of common foods, including restaurant and fast-food items
- Library or Internet references about the circulatory system, heart disease, and high blood pressure (optional)

Procedures

1. Explain that risk factors for heart disease are controllable (weight, diet, and amount of exercise) and uncontrollable (age, sex, and family history of heart disease). By managing controllable risk factors, a person can lessen the overall risk of heart disease.

2. Tell students that they will analyze two controllable risk factors: eating and exercise habits. They will also suggest ways to promote their own cardiovascular health.

3. For seven days students will record their daily diet. For homework ask each student to bring in two intact nutrition labels. Review the information on the labels. Try to find a reference with nutritional information for fruits, vegetables, restaurant items (including fast food), and other unlabeled foods. Have students complete the following chart.

4. At the end of the week, have students total their calories, fat calories, and cholesterol and determine the percentage of fat calories. (The average healthy teenager usually requires between 2,000 and 2,200 calories a day; fat calories should total less than 30 percent and cholesterol less than 300 milligrams.)

5. Students will record their physical activities for seven days: the type of exercise (aerobic or anaerobic) and the amount of time. Aerobic activities (bicycling, running, walking rapidly, swimming, vacuuming, and so on) use many large muscles for an extended period of time, giving the heart and lungs a continuous workout. Anaerobic activities (weightlifting, sprinting, baseball, laundry, and so on) build and use muscles, but they lack the continuous nature. (The ideal is to engage in some form of physical activity each day, with at least 30 minutes of aerobic activity at least four times a week.)

6. At the end of the week, ask students to write a brief paragraph summarizing what they’ve learned about two of their risk factors for heart disease and how they could improve their diets and physical activities if necessary.

Assessment

Use the following three-point rubric to evaluate students’ work during this lesson.

- **3 points**: Students kept careful and complete records of daily food intake and physical activities; determined the correct total amounts of their calories, fat calories, and cholesterol and determined the percentage of fat calories; wrote an accurate paragraph summarizing their own risk factors and ways to improve them.
• **2 points**: Students kept mostly complete records of daily food intake and physical activities; determined most of the correct total amounts of their calories, fat calories, and cholesterol and determined the percentage of fat calories; wrote a mostly accurate paragraph summarizing their own risk factors and ways to improve them.

• **1 point**: Students kept incomplete records of daily food intake and physical activities; determined some correct total amounts of their calories, fat calories, and cholesterol but did not determine the percentage of fat calories; wrote an inaccurate paragraph summarizing their own risk factors and ways to improve them.

**Vocabulary**

**cardiopulmonary resuscitation (CPR)**
*Definition*: A method of artificially providing oxygen and a heartbeat to someone who has stopped breathing or whose heart has stopped
*Context*: After the woman suffered a heart attack, the paramedics performed cardiopulmonary resuscitation to start her heart beating again.

**cholesterol**
*Definition*: A soft, waxy substance produced in the liver and found in foods with animal fats
*Context*: The human body needs some cholesterol to function normally, but most of what it requires is manufactured in the liver.

**coronary arteries**
*Definition*: Blood vessels attached to the heart muscle that provide it with oxygenated blood
*Context*: On the heart’s surface are the coronary arteries, which feed the heart’s own muscular walls.

**hypertension**
*Definition*: Condition in which the pressure of blood circulating in the body is too great, which can damage a blood vessel; also called high blood pressure
*Context*: Stress, being overweight, a salty diet, and a lack of exercise are contributing factors to hypertension.

**Academic Standards**

**National Academy of Sciences**

This lesson plan addresses the following science standards:

- Life Science: Structure and function in living systems

**Mid-continent Research for Education and Learning (McREL)**

McREL's Content Knowledge: A Compendium of Standards and Benchmarks for K-12 Education addresses 14 content areas. To view the standards and benchmarks, visit link:  
http://www.mcrel.org/compendium/browse.asp

This lesson plan addresses the following national standards:

- Science—Life Sciences: Understands the structure and function of cells and organisms
- Language Arts—Writing: Uses the general skills and strategies of the writing process

**Support Materials**

Develop custom worksheets, educational puzzles, online quizzes, and more with the free teaching tools offered on the Discoveryschool.com Web site. Create and print support materials, or save them to a Custom Classroom account for future use. To learn more, visit

- http://school.discovery.com/teachingtools/teachingtools.html