

Coronary Heart Disease

GCSE Biology · Written to the shared content for AQA, Edexcel and OCR

Name _____ Class _____ Date _____

1. Worked example

Explain how coronary heart disease can lead to a heart attack. (3 marks)

Step 1 · Cause

Layers of fatty material build up inside the coronary arteries, narrowing them.

Step 2 · Effect on blood flow

Less blood flows to the heart muscle, so it receives less oxygen.

Step 3 · Result

Heart muscle cells cannot respire aerobically and may die; if an artery is blocked completely, part of the heart stops working (a heart attack).

Answer: Fatty build-up → narrowed coronary arteries → less oxygen to heart muscle → muscle damaged

Check: Name the CORONARY arteries, not just 'arteries'.

2. Now try one with the steps

An artery's internal diameter narrows from 4.0 mm to 1.0 mm. Calculate the percentage decrease in diameter. (2 marks)

Step 1 · Change

Step 2 · Percentage

Answer:

3. Practice

Show your working. The marks tell you how much is expected.

1. Name the arteries that supply the heart muscle with blood. [1]

2. What builds up inside arteries in coronary heart disease? [1]

3. Describe what a stent is and how it helps. [2]

4. State how statins reduce the risk of coronary heart disease. [1]

5. Give one disadvantage of taking statins. [1]

6. Describe two ways a heart valve can be faulty. [2]

7. Compare mechanical and biological replacement valves. [2]

8. Explain why patients with a donor heart must take immunosuppressant drugs. [2]

9. An artery lumen narrows from 5.0 mm to 2.0 mm. Calculate the percentage decrease. [2]

10. Give one advantage of an artificial heart over a donor heart. [1]

11. In a trial, 1200 people took a statin; 36 had a heart attack in five years. Calculate the percentage. [2]

12. Explain why halving the diameter of an artery reduces blood flow far more than by half. [2]

13. Suggest why an artificial heart is usually used only temporary measure. [2]

14. Evaluate the use of a heart transplant to treat heart failure. [4]

4. Before you hand it in

"In coronary heart disease the heart's chambers fill with fat."

Fatty material narrows the coronary arteries that supply the heart muscle.

"The heart doesn't get enough blood because it is full of blood already."

Heart muscle gets its oxygen and glucose from the coronary arteries.

"Statins remove the fat from arteries."

Statins reduce blood cholesterol, slowing the rate at which fatty material builds up.