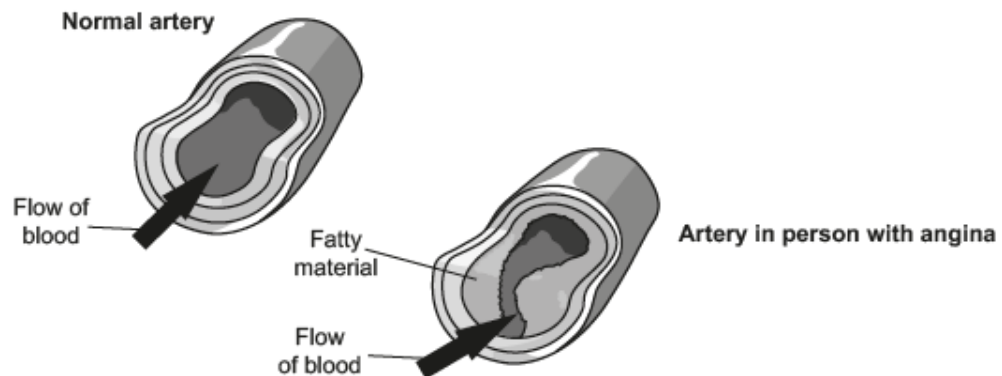


GCSE Biology A (Gateway)

J247/02 B4-B6 and B7 Foundation (Foundation Tier)

Question Set 25

- 1 Angina is caused by a problem in the arteries that supply the heart muscle.
Fatty material (cholesterol) builds up in these arteries.



- (a) In angina the heart muscle starts to carry out anaerobic respiration.
Explain why this happens.

Use the information in the diagram and your biological knowledge.

[3]

if the coronary arteries become blocked with cholesterol, then the heart muscle has an insufficient blood supply. So, it is not receiving enough oxygen to respire aerobically, so reverts to doing so anaerobically, in order to generate energy to pump blood around the body.

(b) Angina is often the first sign of a disease called coronary heart disease (CHD).

The table is used to estimate the risk of getting CHD. The more points a person scores, the higher the risk of getting CHD.

Risk factor	Number of points		
	1	2	3
Age in years	<20	21–30	31–40
Blood cholesterol level	Low	Medium	High
Number of cigarettes smoked per day	0	1–10	11–20
Mass	Below average	Average	Above average
Number of parents with coronary heart disease (CHD)	0	1	2

(i) How many points are scored by smoking 20 cigarettes a day? **3** [1]

(ii) What is the effect of age on the chance of getting CHD? [1]

The older you get, the more likely you are to get CHD.

(iii) Here is some information about two people.

Person A	
25 years old	2
Non-smoker	1
Low blood cholesterol level	1
Average mass	2
One parent with CHD	2

Person B	
19 years old	1
Smokes 20 cigarettes a day	3
Low blood cholesterol level	1
Below average mass	1
No parents with CHD	1

[3]

Use the table to work out whether Person A or Person B is most likely to develop CHD.

Show how you worked out your answer.

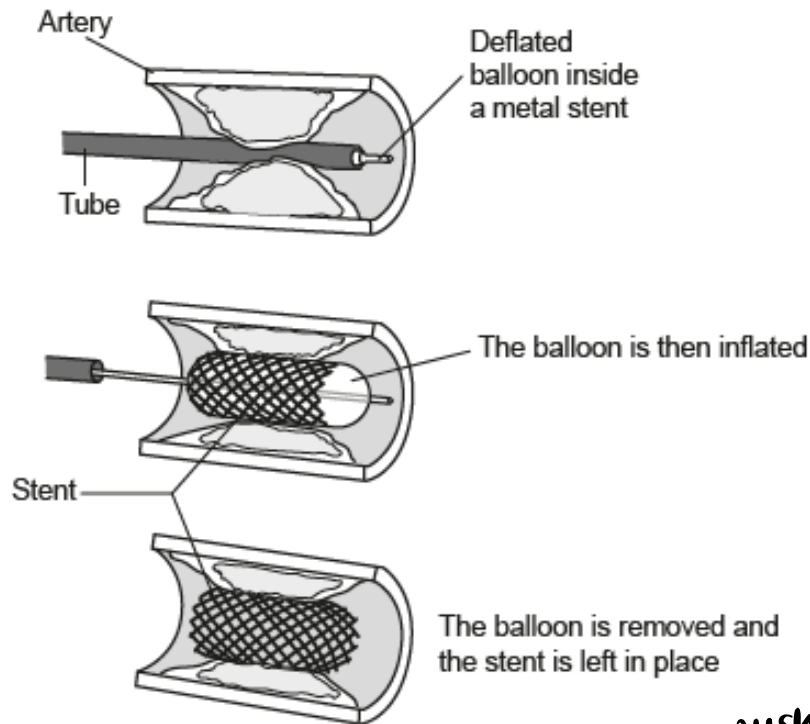
$$\text{total for A: } 2 + 1 + 1 + 2 + 2 = 8$$

$$\text{total for B: } 1 + 3 + 1 + 1 + 1 = 7$$

Person A has a higher score, so is most likely to develop CHD.

(c) There are several treatments for coronary heart disease (CHD).

One of these is an operation. In this operation, doctors insert a metal grid called a stent into the artery.



(i) Look at the diagram.

Why does using a stent help treat CHD?

It opens up the blocked artery, so more blood can flow through and the heart is not deprived of oxygen or glucose.
 → pushes away the plaque formed on walls

[2]

(ii) Taking a drug called statins is a treatment for CHD.

The drug is taken every day and lowers the level of cholesterol in a person's blood. Suggest one **advantage** and one **disadvantage** of taking statins.

Advantage... reduced risk of heart attack

Disadvantage... inconvenience of having to take the drug every day.

[2]

Total Marks for Question Set 25: 12

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