19 What is produced by anaerobic respiration in human muscles?

	carbon dioxide	lactic acid	water
A	✓	✓	✗
B	✓	✗	✓
C	✗	✓	✗
D	✗	✗	✓

key

✓ = substance is produced

✗ = substance is **not** produced

17 A person exercised vigorously for one minute and then rested for one hour.

Which statements about lactic acid are correct?

1 During exercise, lactic acid is produced in the muscles and diffuses into the blood.

2 The blood transports lactic acid to the liver.

3 Lactic acid is broken down by anaerobic respiration.

A 1, 2 and 3 **B** 1 and 2 only **C** 2 and 3 only **D** 2 only

19 The processes listed occur in living organisms.

1 cell division

2 diffusion

3 muscle contraction

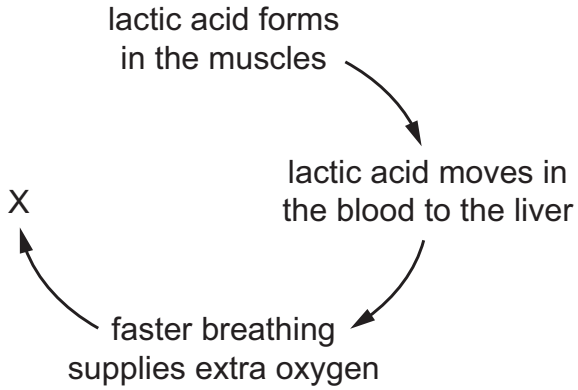
4 osmosis

Which processes require energy from respiration?

A 1, 2, 3 and 4 **B** 1 and 3 only **C** 2 and 3 only **D** 3 and 4 only

22 After a race, athletes experience oxygen debt.

The diagram shows how the oxygen debt is removed.



What happens at X?

A aerobic respiration of glucose

B aerobic respiration of lactic acid

C anaerobic respiration of glucose

D anaerobic respiration of lactic acid

20 Which sequence of statements explains the build-up and removal of an oxygen debt?

1 Anaerobic respiration occurs in muscles during vigorous exercise.

2 Faster and deeper breathing continues after exercise.

3 Glucose is converted to lactic acid.

4 Lactic acid builds up in muscles causing an oxygen debt.

5 Oxygen enables the continued aerobic respiration of lactic acid.

A $1 \rightarrow 3 \rightarrow 4 \rightarrow 2 \rightarrow 5$

B $1 \rightarrow 3 \rightarrow 2 \rightarrow 4 \rightarrow 5$

C $3 \rightarrow 4 \rightarrow 5 \rightarrow 1 \rightarrow 2$

D $3 \rightarrow 4 \rightarrow 1 \rightarrow 5 \rightarrow 2$

19 Yeast can respire aerobically and anaerobically.

For each molecule of glucose used in yeast, how many more molecules of carbon dioxide gas are produced by aerobic respiration compared with anaerobic respiration?

A 1 more

B 2 more

C 4 more

D 6 more

2 Plan an investigation to determine the effect of exercise intensity on heart rate in humans.

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