



## Exercise & Oxygen Debt

1 How does aerobic respiration differ from anaerobic respiration?

- Aerobic respiration requires oxygen
- Aerobic respiration is less efficient etc

[ 2 marks ]

2 Give two disadvantages of anaerobic respiration

- 1) Produces lactic acid which has to be removed
- 2) Less efficient than aerobic, i.e. releases less energy

[ 2 marks ]

3 Discuss the changes that take place in the body in response to exercise

- We need to get more oxygen to our tissues
- So we increase breathing rate and breathing volume
- To increase the amount of oxygen that passes into our blood stream
- We increase heart rate to pump the oxygen around the body more quickly

[ 4 marks ]

4 What is an 'oxygen debt'?

- The lactic acid produced by anaerobic respiration must be converted back to glucose using oxygen
- Oxygen debt is the quantity of oxygen that must be used to remove the lactic acid

[ 2 marks ]

5 How could you compare your heart rate before and after a race?

- Measure your pulse before the race for a given amount of time (e.g. 1 minute)
- And divide that by the time. Then do the same after the race and compare these values

[ 2 marks ]

6 An athlete takes 63 breaths in 210 seconds. What is their breathing rate?

$$210 \text{ seconds} = 210/60 \text{ minutes} = 3.5 \text{ minutes}$$
$$63 \text{ breaths} / 3.5 \text{ minutes} = 18 \text{ breaths per minute}$$

Breathing rate = ...**18**... breaths per minute

[ 2 marks ]

[ Total 14 marks ]