

Anaerobic Respiration



Effects of exercise – respiratory system

Exercise causes the muscles to use more oxygen.

This means that the lungs must work harder and faster to keep the body supplied with oxygen and also to exhale the carbon dioxide that is produced. This is why exercise makes you out-of-breath.

During **aerobic exercise**, the lungs are able to work fast enough to supply the muscles with oxygen.

During **anaerobic exercise**, the lungs can't supply enough oxygen. Once the exercise is over, breathing remains fast to repay the "oxygen debt".



What is anaerobic respiration?

Anaerobic respiration takes place **without oxygen**, and releases less energy than aerobic respiration because glucose molecules are only partially broken down.



During strenuous exercise, cells are deprived of oxygen but still need energy to work. The body responds by converting glucose into **lactic acid** and energy, leading to an oxygen “debt”.

Lactic acid causes muscle cramps. When exercise stops, oxygen levels rise, paying off the oxygen debt and oxidizing the lactic acid.



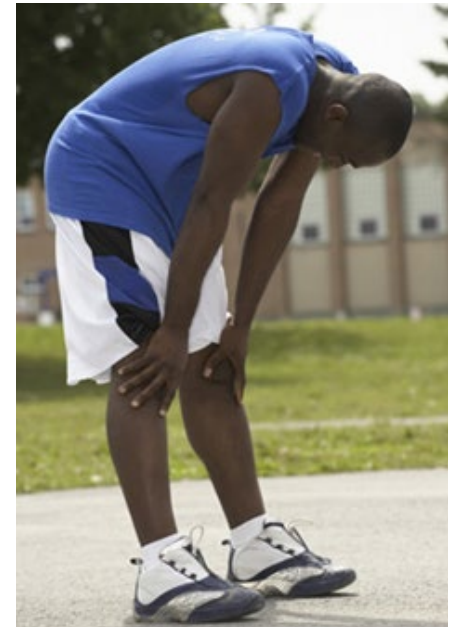
The immediate effects: lactic acid

Lactic acid is produced during anaerobic respiration. This happens when there is not enough oxygen for normal aerobic respiration to take place.

glucose → lactic acid + energy

Lactic acid is a mild toxin. It is responsible for the pain you feel in your muscles when they get tired.

When too much of it builds up in a muscle, it can prevent the muscle contracting. At this point, the performer's muscles will cramp and he or she will be forced to stop.

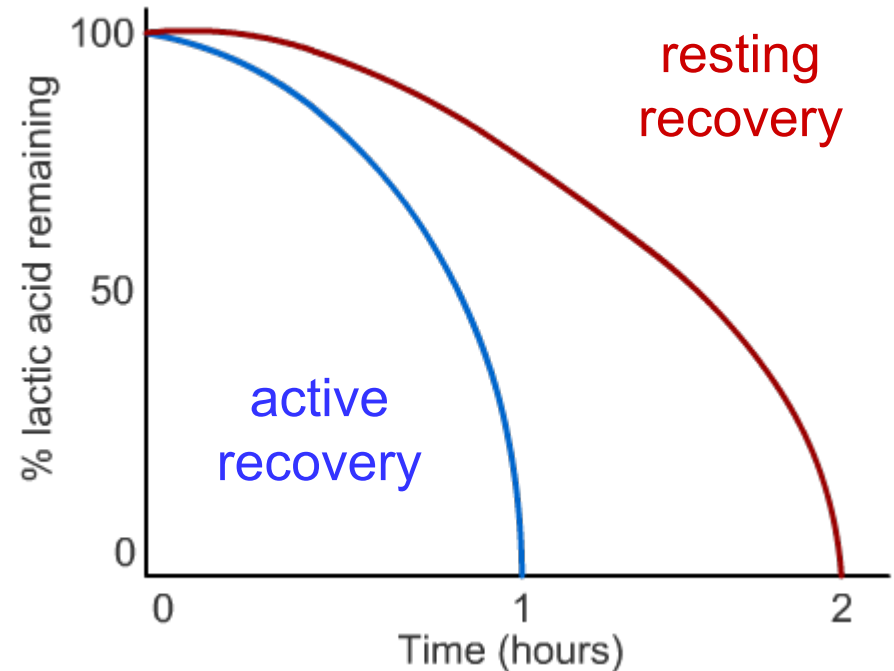


Lactic acid is produced when the body cannot supply the muscles with enough oxygen.

In this situation, the body builds up an **oxygen debt** – this is repaid by continuing to breathe heavily for a period after exercise ceases.

As more oxygen becomes available, it reacts with the lactic acid to form harmless substances.

The rate at which lactic acid is removed can be increased by performing a cool-down at the end of a session.



What are the missing words about anaerobic respiration?

1. respiration takes place when oxygen from the lungs reacts with .
2. During exercise, the muscles use oxygen so the have to work harder.
3. In respiration, the body cannot get oxygen to the muscles that need it quickly enough. Glucose is broken down into which causes the muscle to ache.

