

Paper 1: Aerobic & anaerobic exercise

Aerobic exercise:

- Uses oxygen for energy production
- Includes activities that are of a long duration
- Includes activities that are of a moderate intensity
- The heart and lungs can supply all the blood and oxygen to the working muscles to produce energy aerobically

Sports and activities:



Long distance cycling



Marathon running



Triathlon



Long distance rowing

Aerobic equation:



- Glucose and oxygen combine to release energy aerobically
- This process produces carbon dioxide, water and heat (and energy)

Anaerobic exercise:

- Does not use oxygen for energy production
- Include activities that are of a short duration
- Includes activities that are of a high intensity
- The heart and lungs cannot supply blood and oxygen to muscles fast enough to use so energy is produced anaerobically

Sports and activities:



Shot put



Sprinting



Weight lifting



Long jump

Anaerobic equation:



- Lactic acid is produced as a waste product when carbohydrates are broken down without oxygen during anaerobic respiration
- This causes muscles to become tired and work less efficient

Paper 1: Excess post-exercise oxygen consumption

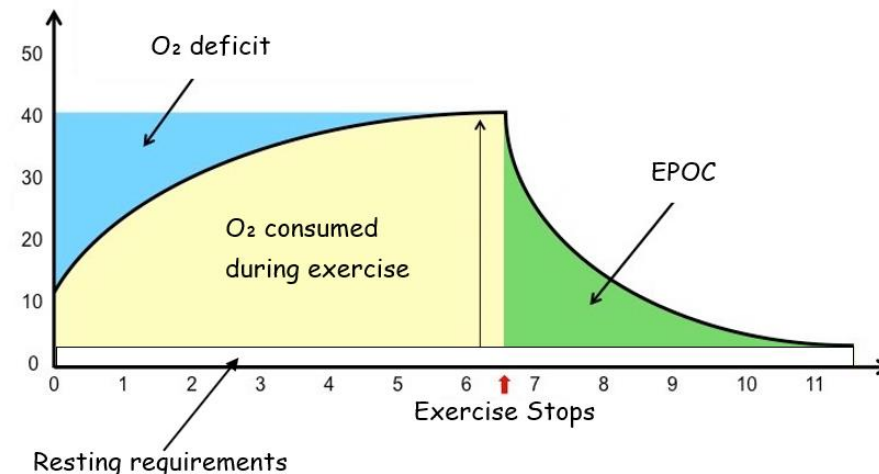
Excess post-exercise oxygen consumption (EPOC):

EPOC is the additional amount of oxygen consumed after anaerobic exercise. Sometimes EPOC is referred to as oxygen debt

EPOC:

- Refers to the amount of oxygen needed to recover after exercise
- Enables lactic acid to be converted to glucose, carbon dioxide and water
- Explains why we breathe deeply and quickly after vigorous exercise

Analysing EPOC:



Explanation

- The **resting requirement** identifies how much oxygen is required at rest
- When we start to exercise the demand for oxygen increases, it takes time to get the oxygen to the working muscles, not all the oxygen can be provided (anaerobic) we get an **O₂ deficit**
- When we stop exercising the demand for oxygen remains higher (to pay back the deficit) this is **EPOC**