

The aerobic system and the energy continuum

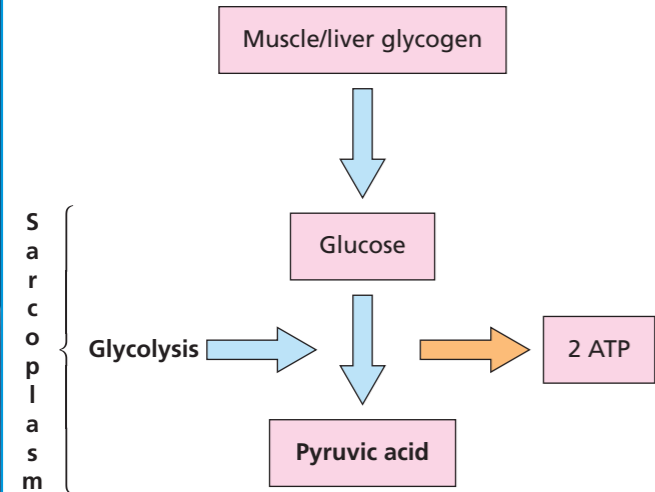
Revision notes to accompany the 'Exam focus' on pp. 5-9

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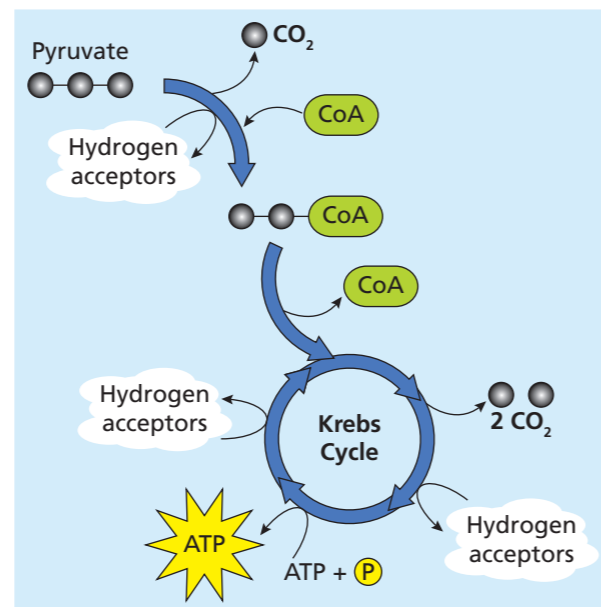
Stage 1 Glycolysis

Glycolysis involves the breakdown of glucose through a series of ten enzyme-controlled reactions, into two molecules of pyruvic acid.



Stage 2 Krebs cycle

The Krebs cycle uses oxygen to convert the acetyl group from pyruvic acid into carbon dioxide, which is eventually breathed out. Two molecules of ATP are resynthesised, and the hydrogen atoms in the acetyl group are carried by enzymes to the electron transfer chain.



The ATP-PC system produces energy rapidly, but only for a short duration of up to 10 seconds

The energy continuum refers to the contribution that the different energy systems make to the production of energy, depending on the intensity and duration of exercise.



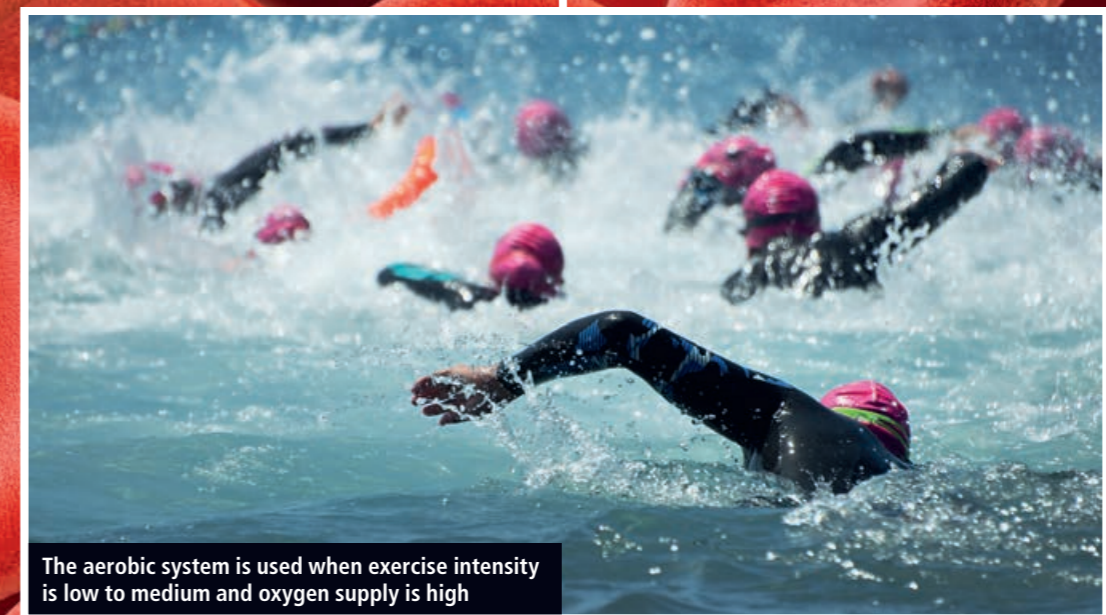
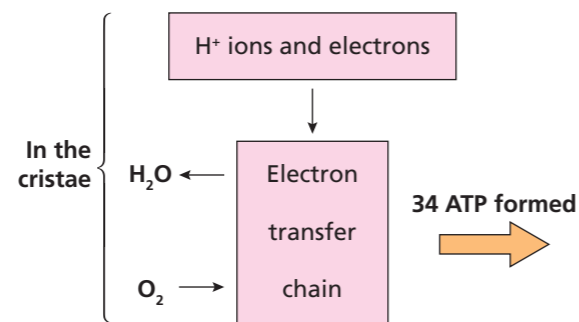
The anaerobic glycolytic/lactic acid system provides energy for high-intensity activity for up to 3 minutes. Working flat out to exhaustion results in the system lasting a much shorter time

The energy continuum

The aerobic system

Stage 3 Hydrogen transfer chain

Hydrogen formed from the Krebs cycle is split into hydrogen ions and electrons. The hydrogen ions are oxidised to form water while the hydrogen electrons provide the energy to resynthesise ATP, forming 34 ATP.



The aerobic system is used when exercise intensity is low to medium and oxygen supply is high