



Aerobic/Anaerobic Exercise / Training zones and thresholds

- Definition of aerobic / anaerobic exercise.
- Aerobic and anaerobic respiration equations.
- Training thresholds.
- Impact of lactic acid on performance.
- Oxygen Debt

Lactic Acid, the facts!

Builds up following anaerobic exercise due to a lack of oxygen present in the muscles.

This is a toxic waste product that causes your muscles to fatigue and cramp and eventually stop working.

Aerobic and Anaerobic, what do you need to know?

Aerobic Respiration

Glucose + oxygen = energy + CO₂ + water

Low intensity exercise e.g. long distance running

Anaerobic Respiration

Glucose = energy + lactic acid

High intensity activity exercise e.g. weightlifting

Aerobic Exercise

Working at a moderate intensity allowing the body time to utilise oxygen for energy production and to work for a continuous period, e.g, long-distance.

Anaerobic Exercise

Working at a high intensity level without oxygen for energy production.

VO₂ Max

The amount of oxygen an athlete can consume while exercising at maximum capacity.

Training thresholds

Aerobic training zone – 60 – 80% of maximum heart rate

How do I calculate the aerobic training zone?

Maximum heart rate = 220 – age

e.g. 220 – 20-years-old = 200 beats per minute (BPM)

60% = 0.6 x 200 = 120BPM

80% = 0.8 x 200 = 160 BPM

120 – 160 BPM

Anaerobic training zone – 80 – 90% of maximum heart rate

How do I calculate the aerobic training zone?

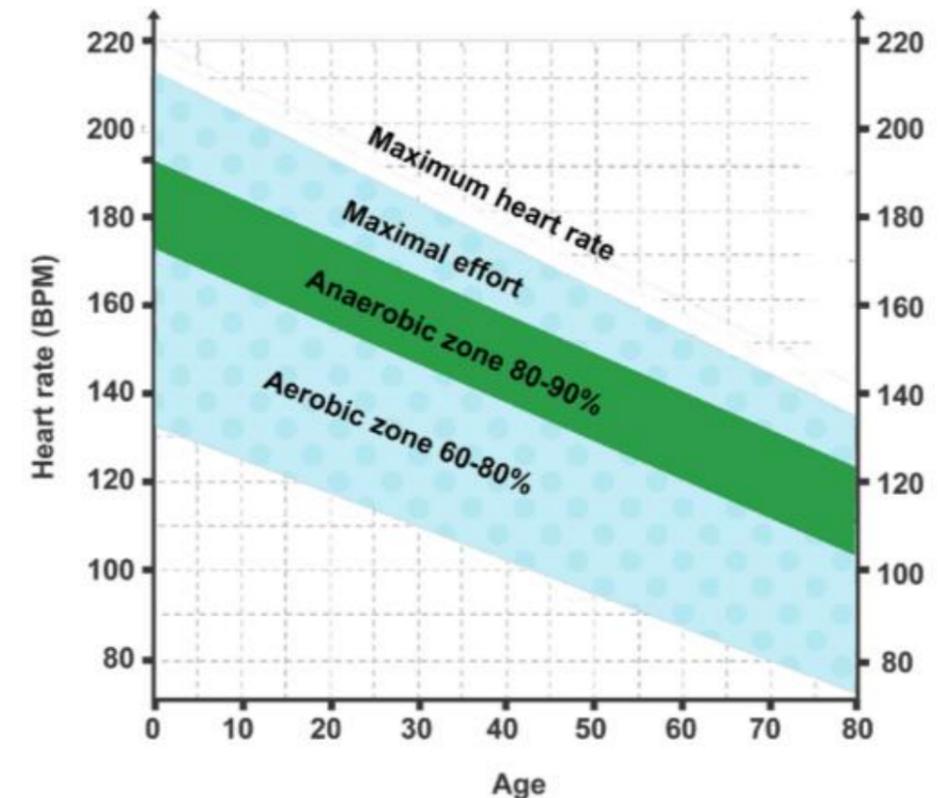
Maximum heart rate = 220 – age

e.g. 220 – 35-years-old = 185 BPM

80% = 0.8 x 185 = 148 BPM

90% = 0.9 x 185 = 167 BPM

148 – 167 BPM



What leads to oxygen debt?

We exercise anaerobically and our muscle produce energy without presence of oxygen.



Increase in CO₂ production, causing a build-up of lactic acid within the muscles.



Oxygen debt occurs as a result of these processes.



Excessive post oxygen consumption (EPOC) will take place in the form of an increased breathing rate.