

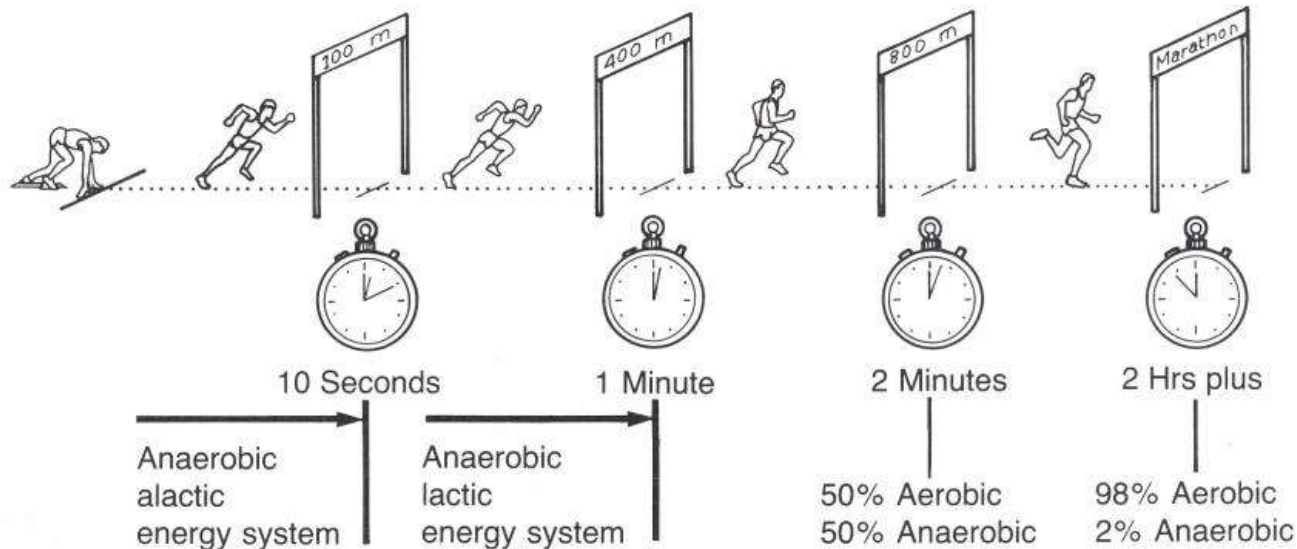
Smart Training for Endurance Athletes

Energy Demands by Event

There are three energy systems:

- **Aerobic** “energy with oxygen” system is the dominant system for exercises beyond 3 minutes (50% energy from oxygen) or marathon (99% energy from oxygen).
- **Anaerobic** “energy without oxygen” which help to produce fast bursts of energy.
 - **Anaerobic Alactic (ATP-CP)** “energy without oxygen and without lactic acid” for immediate energy for up to 10 seconds
 - **Anaerobic Lactic** “energy without oxygen and with lactic acid” which lasts 1 to 3 minutes.

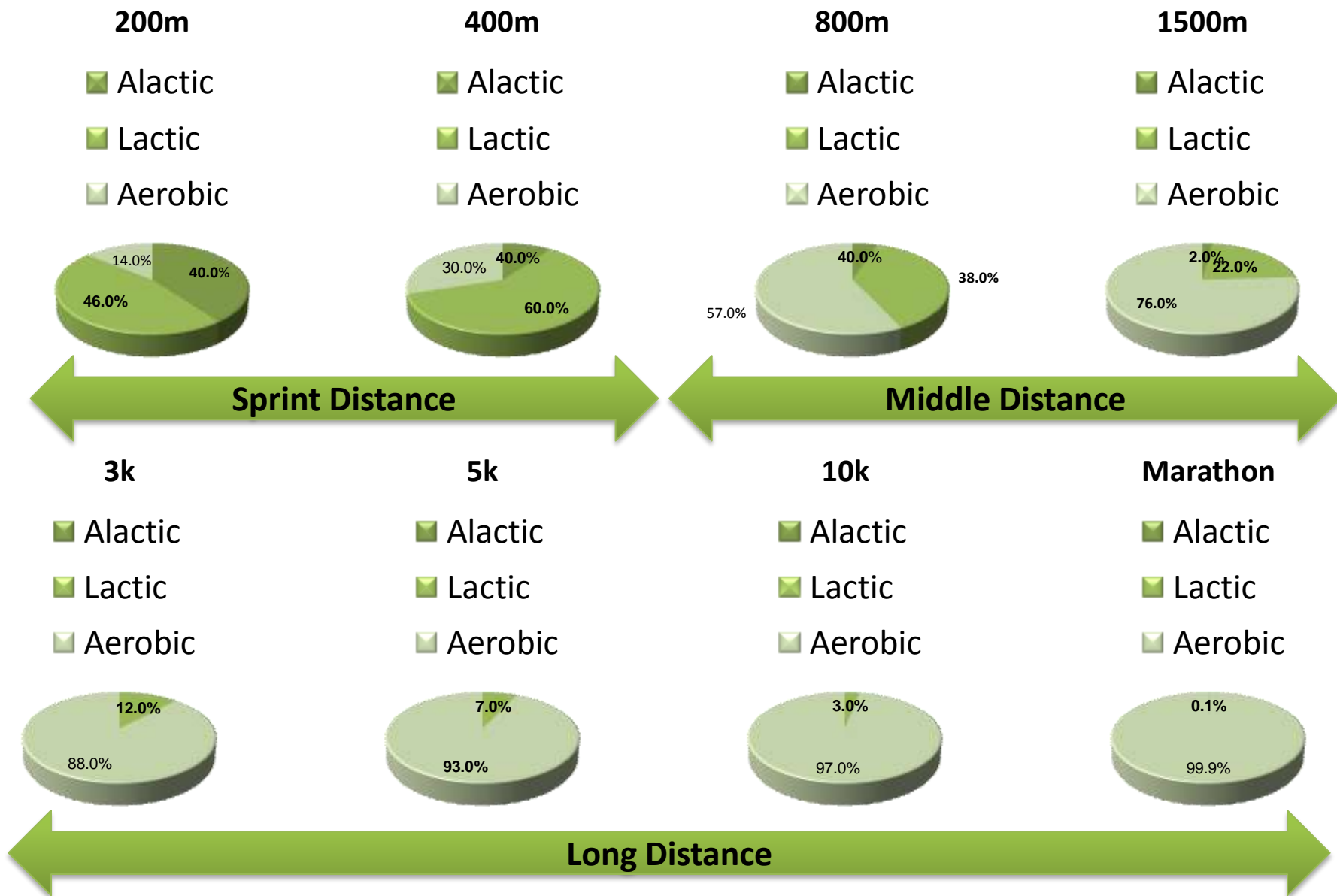
Note: When running all energy systems are in use and intensity determines which energy system is predominantly used.



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Energy Demands by Event and Distance

Source: Adapted from Matthews (1996, pp. 247-258); Peronnet and Thibault (1989, pp. 453-465); and Leger, Mercier, and Gauvin (1986, pp. 113-120).



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Training Pyramid

