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ALTITUDE AWARENESS CHARITY

Relevant Altitude Research

Training to complete at altitude: natural altitude or simulated live high: train low?

For some elite endurance athletes, major races are held at altitude. Even low altitudes (500-2,000m) can affect performance. Travelling to competition altitude 2-4 weeks prior to the event to allow for acclimatisation may reduce this effect. The primary aim of this study was to compare the effects of natural altitude training (NAT) and simulated (SIM) live-high train-low altitude training for road race walking performance. Over a 14 day period 22 elite level walkers, allocated into 3 groups, followed a structured training regimen. The low NAT participants group lived and trained at 1,380m while the SIM live-high train-low group trained at sea level (600m) and trained using normobaric hypoxia (3000m) for 14 hours a day. The participants were pre-tested and post-tested at 1,380m with a treadmill test to exhaustion a day prior to the 5 x 2km on road performance test.

The NAT group showed improved performance at the 5 x 2km race walking test compared to CON and improved VO_{2max} compared to SIM. The SIM group showed improvement of submaximal HR and maximal blood lactate on a treadmill, suggesting that performance improvements at low altitude in endurance events are possible when the test represents the competition demands/ training preparation at same low altitude.

The data from the study supports the current recommendations of travelling to the event location or a location with a similar low altitude elevation 2 weeks prior to a competition. If this is not available, simulated live-high train-low, such as an normobaric hypoxia tent could offer a potential alternative. 2 weeks of SIM training prior to a low altitude competition could provide some level of physiological adaptation that could help performance.

Carr, A.J., Garvican-Lewis, L.A., Vallance, B.S., Drake, A.P., Saunders, P.U., Humberstone, C.E. and Gore, C.J., 2019. *Training to compete at altitude: natural altitude or simulated live high: train low?. International journal of sports physiology and performance*, 14(4), pp.509-517.

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Raising Awareness about Altitude Illness

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