Maximal Oxygen uptake, Ventilatory Anaerobic Threshold and Endurance Performance in Elite Saudi Distance Runners

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ABSTRACT

Objective: To examine the relationship between maximal oxygen uptake (VO_2 max), ventilatory anaerobic threshold (VAT), and endurance running performance.

Methods: Twelve trained Saudi male distance runners completed a 15 km running race, and were later tested in the laboratory to determine their VO_2 max and VAT. Cardiorespiratory and metabolic parameters were assessed during a graded treadmill test using an automated open-circuit spirometry; VAT was determined by gas exchange method.

Result: The findings of this study indicated that the elite Saudi runners had a mean VO_2 max of about 71 ml/kg. min. It was also shown that VO_2 max had a moderately strong correlation with 15 km running time (r= -0.69). However, VAT had a much higher correlation with the 15 km running time (r= - 0.82). Furthermore, VO_2 max relative to body weight was shown to be strongly correlated with VAT (r= 0.92).

Conclusion: A 15 km endurance performance is more closely associated with VAT than with VO2 max in elite long-distance runners.