

Public Abstract

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Title:THE EFFECTS OF HIGH FAT LOADING ON SUBSTRATE UTILIZATION AND PERFORMANCE IN INTERMITTENT EXERCISE IN TRAINED ATHLETES

High intensity intermittent exercise is the most common form of exercise in competitive sport yet dietary factors that affect an athlete's performance in this capacity are rarely investigated. Purpose: The purpose of this investigation was to see if a 5 d high fat load alters substrate oxidation and performance during high intensity intermittent exercise in trained athletes. Methods: Nine wrestlers at the University of Missouri were given a 5 d supplementation of 2.2 g/Kg/d of olive oil. The subjects were tested on a 40 min intermittent bout of treadmill running at work:recovery ratios of 6:9 s and 24:36 s at speeds that produced an RER between 0.95 and 0.99 while gas was collected, then in elliptical locomotion in which distance traveled (Km) and power output (peak Km/hr) was measured during four separate 8 min maximum:active rest bouts of 15:15 s. Results: Subjects had a greater fat oxidation ($4.87\% \pm 0.07$ vs. $11.36\% \pm 1.06\%$ $P < 0.01$) after a 5 d high fat load. There was a significant improvement in 8 min high intensity intermittent performance in total distance, sprint distance, and power output ($P < 0.01$) after the 5 d high fat load. Conclusion: Five days of high fat loading increases fat oxidation without reducing glucose availability and improves performance in high intensity intermittent exercise designed to simulate a wrestling tournament in trained wrestlers.