

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

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ABSTRACT

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.