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THE EFFECT OF FISH OIL SUPPLEMENTATION ON EXERCISING HORSES

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Thirteen horses of Thoroughbred or Standardbred breeding were used to study the effect of dietary fish oil supplementation on exercising horses. Horses were assigned to either fish oil (FO, n=7) or corn oil (CO, n=6) treatment groups. The fish oil (Omega Protein, Hammond, LA) contained 11.3% eicosapentaenoic acid and 7% docohexaenoic acid. All horses received timothy hay and a mixed grain concentrate at rates necessary to meet their energy needs. Oil was topdressed on the concentrate daily at a rate of 324 mg/kg BW. Horses were exercised 5 d/wk for 9 wk in a program of increasing intensity. Blood samples were obtained on d 0 (before supplementation), d 28 and d 63. Following the 9-week training period horses performed a standard exercise test on a high speed treadmill. The exercise test consisted of a 5-min warm-up at 1.9 m/s, 0% grade, followed by a step test on a 10% grade at incremental speeds of 2 to 8 m/s. Blood samples were obtained during exercise and recovery. Serum cholesterol and lipids decreased during conditioning (P < .05) and there was a time x treatment interaction (P < .05). Compared to horses receiving CO, horses receiving FO had lower serum lipids and cholesterol at week 4 (P < .05) and lower serum triglycerides at week 9 (P < .05) .05). During exercise, heart rates were lower (P < .05) for horses receiving FO, but no differences in plasma lactate were detected (P > .05). Serum cholesterol was lower (P < .05) in horses receiving the FO treatment throughout exercise. Serum insulin and plasma free fatty acids were lower (P < .10) in horses receiving FO than in horses receiving CO during the initial stages of the exercise test (warmup to 5 m/s). Plasma glucose was lower (P < .05) for the FO group during exercise recovery from 6 min to 30 min post exercise. Addition of fish oil to the diet altered plasma lipid characteristics of horses and may have affected insulin sensitivity and glucose metabolism in response to exercise.



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