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The effect of long-chain omega-3 (EO-3™) supplementation on blood serum gamma-glutamyl transferase (GGT) levels and inflammation post-exercise in Thoroughbred racehorses

Eight fit Thoroughbred racehorses in training at the Kentucky Equine Research Performance Center in Ocala, Florida, were used in a 28-day study to assess the effect of long-chain omega-3 (EO-3™) supplementation and exercise on blood serum gamma-glutamyl transferase (GGT) levels and inflammation. The enzyme GGT breaks down glutathione, a potent antioxidant. As levels of GGT rise, less glutathione is available to neutralize free radicals, leaving more cells susceptible to the damaging effects of oxidation.

Four of the horses were supplemented daily with 60 mL (2 oz) of EO-3, while four horses served as controls and received the same feed without EO-3. All horses were fed 13-15 lb (6-7 kg) of a commercial racing feed (12% protein, 8% fat) with free-choice timothy hay. During the study the horses were galloped 3 times per week (1-1.5 miles per session) on a racetrack and jogged 3 times per week (30 min per session) on a mechanical exerciser. At the conclusion of the 28 days, the horses performed an exercise test on the racetrack that consisted of a warm-up jog, 10-furlong (2,000-m) gallop, and a 2-furlong (400-m) breeze. Blood samples were taken before exercise as well as 2 and 4 hours post-exercise.

The horses supplemented with EO-3 had significantly lower ($p < 0.05$) GGT levels 2 and 4 hours post-exercise compared to the control horses. This may have resulted from a reduction in inflammation observed post-exercise in the horses fed EO-3.

