

Newsletter

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Adding Protein to Sports Drink Improves Performance

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A sports drink containing protein with carbohydrate improves performance and decreases muscle injury, according to the results of a double-blind, placebo-controlled trial reported in the July issue of *Science & Medicine in Sports & Exercise*.

Earlier studies have shown that carbohydrate sports drinks containing carbohydrate and electrolytes are more effective than water in improving hydration and increasing endurance. This study compared Gatorade to Accelerade, a new protein-containing sports drink.

"This study provides further confirmation of the value of adding protein to a conventional carbohydrate electrolyte sports drink," lead author Michael J. Saunders, PhD, from James Madison University in Harrisonburg, Virginia, says in a new release, "Our results suggest that athletes in all sports, including running, cycling, soccer and tennis where endurance and recovery are critical would benefit from a protein-containing sports drink such as "Accelerade"

In this study, 15 male cyclists rode a cycle ergometer at 75% peak oxygen consumption per unit time (VO_{2peak}) to voluntary exhaustion, followed by a second ride 12 to 15 hours later at 85% VO_{2peak} to exhaustion. At baseline, mean VO_{2peak} was 52.6 +/- 10.3 ml/kg/minute. Subjects were randomized to receive sports drinks containing carbohydrate only (7.3%) or carbohydrate and protein (7.3% and 1.8 % concentrations). Because the drinks were matched for carbohydrate content, the carbohydrate-only drink had 20% lower total energy content.

Every 15 minutes of exercise, the cyclists drank 1.8 ml/kg body weight of assigned sports beverage and they drank 10 ml/kg body weight immediately following exercise. Subjects were blinded to treatment beverage and they repeated the same protocol seven to 14 days later with the other beverage.

In the first ride, at 75% VO_{2peak} , the cyclists rode 29% longer with the carbohydrate-only plus protein drink than with the carbohydrate-only drink (106.3 +/- 45.2 vs. 82.3 +/- 32.6 minute: $P < .05$). In the second ride, at 85% VO_{2peak} , the cyclist rode 40% longer with the carbohydrate-only plus beverage than with the carbohydrate-only beverage (43.6 +/- 12.5 vs. 31.2 +/- 8.7 minute).

Peak postexercise plasma creatine kinase (CK) levels, indicating muscle damage, were 83% lower after the carbohydrate-only plus protein trial than after the carbohydrate-only trial (216.3 +/- 122.0 vs. 1318.1 +/- 1935.6 U/L). Exercising levels of VO_2 , ventilation, heart rate, ratings of perceived exertion, blood glucose, or blood lactate were similar with both treatments.

The main study limitation is the inability to distinguish the effect of protein per se from that of added energy. The authors recommend further research to determine if these effects were the result of higher total energy content of the carbohydrate-only plus protein beverage or of specific protein-mediated mechanisms.

"Although we did not evaluate the impact of a carbohydrate-protein sports drink on every day athletes and weekend warriors, the fact that Accelerade significantly reduced muscle damage would be a great advantage because muscle soreness is a frequent post-exercise complaint," Dr. Saunders says.