

Scientific News

Nestlé Scientists Demonstrate Benefits of Nutrition for Sprint Exercise Recovery

Lausanne, SWITZERLAND 1 July 2011 – Proper nutrition before and/or after exercise is important to promote short-term recovery and to provide the basis for long-term training adaptation. For the first time, Nestlé scientists report the beneficial effects of nutrient provision before repeated high-intensity sprint exercise as a model for team sport activity. The full article is available in the [European Journal of Applied Physiology](#).

This is the first in a series of collaborative studies between scientists at the Nestlé Research Center, Lausanne, Switzerland and leading institutes for physical performance and sports nutrition research (RMIT University and Deakin University, Melbourne, Australia and McMaster University, Hamilton, Canada).

Previous research has focused exclusively on the impact of nutrition for recovery from either strength or endurance-type exercise, with little attention given to exercise which encompasses both, like repeated sprints. In the present study, well-trained, healthy athletes performed two sprint cycling sessions with either a protein-carbohydrate nutrient supplement or a non-caloric placebo taken before the exercise bout. Muscle biopsies were taken from the athletes at rest and at 15 and 240 minutes post-exercise to evaluate muscle cell signalling responses and protein synthesis.



Results revealed the novel finding that providing nutrition before a repeated sprint exercise had a beneficial effect on the cell signalling proteins that activate protein synthesis. Importantly, the synthesis of the force-generating, myofibrillar proteins was greater in the nutrient-supplemented group during the critical 4-hour recovery period after exercise. However, there was no additional benefit of nutrient consumption for the synthesis of the energy producing mitochondrial proteins after exercise. Peak and mean power outputs were similar for both groups.

“Building on the existing knowledge of purely strength or endurance exercise, this study suggests that team sports athletes and those participating in sprint-type exercise will also benefit from the ingestion of balanced nutrition to promote recovery and to rebuild muscles,” said Dr. Dan Moore, Nestlé scientist involved in the study. “Given that we discovered enhanced synthesis of the force-generating proteins during recovery, we can continue to explore the idea that, over time, this combined training and nutrition approach may translate into greater increases in muscle power for these athletes.”

Additional studies are needed to understand the full effects of nutrient ingestion on skeletal muscle adaptation in response to repeated training.



Good Food, Good Life

Article Reference:

Coffey VG, Moore DR, Burd NA, Rerечich T, Stellingwerff T, Garnham AP, Phillips SM, Hawley JA. Nutrient provision increases signalling and protein synthesis in human skeletal muscle after repeated sprints. *Eur J Appl Physiol*, 2011; published online ahead of print. doi: 10.1007/s00421-010-1768-0

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