

Ingestion of a Carbohydrate-Protein Supplement Improves Performance During Repeated Bouts of High Intensity Cycling

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One problem that athletes face in maintaining performance during repeated bouts of short term, high intensity sprinting is the depletion of glucose/glycogen. A reduction in glucose and/or glycogen is well known to have adverse effects on an athlete's performance. Ingesting an exogenous source of CHO would help maintain blood glucose during exercise. Maintaining blood glucose would aid in maintaining higher levels of glucose oxidation throughout the sprinting and delay glycogen depletion, both leading to improved performance. It also is well established that energy supplementation enhances endurance performance. However, supplementation during high intensity, short duration performance is much less clear.

PURPOSE: To determine whether a supplement with a carbohydrate-protein ratio of 4:1 (CHOP) would significantly improve sprint time in repeated bouts of high intensity cycling compared to placebo ingestion.

METHODS: Testing was conducted on 17 aerobically trained subjects on two non-consecutive days. Subjects served as their own control as they completed both the CHOP and PL conditions. Subjects completed a series of four x 2 km time trials on a cycle ergometer at a load corresponding to their lactate threshold. They ingested 354 mL of either a CHOP (Accelerade®) or a flavored placebo 15 minutes prior to their first sprint, 472 mL after the second sprint, and 295 mL after the second and third sprint. A 60 minute rest interval was provided after the first sprint, while 30 minutes separated the remaining sprints.

RESULTS: Time changes from the first to the fourth sprint were 2.4 +/- .7 sec for CHOP and 6.8 +/- 1.4 sec for PL. The CHOP condition had an average finishing time of 177 +/- 12.1 sec while the PL group finished with an average of 181 +/- 10.5 sec. Blood glucose was greater ($p < .05$) for CHOP than PL at pre and post 3rd and 4th sprints. NSD was observed between conditions for blood lactate or urinary pH.

CONCLUSION: These results indicate that sprint performance is significantly improved over a placebo when the carbohydrate/protein supplement is ingested during repeated bouts of short duration, high intensity cycling. If the 4.4 sec time differential was converted to distance it would mean finishing approximately 50 meters ahead of the next cyclist.

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