Glycogen Replenishment and Repeated Maximal Effort Exercise: Effect of Liquid Carbohydrate

Mark D. Haub, Jeffrey A. Potteiger, Dennis J. Jacobsen, Karen L. Nau, Lawrence A. Magee, and Matthew J. Comeau

Published: International Journal of Sport Nutrition, 1999, 9, 406-415

We investigated the effects of carbohydrate ingestion on glycogen replenishment and subsequent short duration, high intensity exercise performance. During Session 1, aerobic power was determined and each subject (N = 6) was familiarized with the 100-kJ cycling test (100KJ-Test). During the treatment sessions, the subjects performed a 100KJ-Test (Ride-1), then consumed 0.7 g·kg body mass^-1 of maltodextrin (CHO) or placebo (PLC), rested 60 min, and then performed a second 100KJ-Test (Ride-2). Muscle tissue was collected before (Pre-1) and after Ride-1 (Post-1), and before (Pre-2) and after Ride-2 (Post-2), and analyzed for glycogen concentration. Both treatments yielded a significant increase in glycogen levels following the 60-min recovery, but there was no difference between treatments. Time to complete the 100KJ-Test increased significantly for PLC, but not for CHO. These data indicate that the decrease in performance during Ride-2 in PLC was not the result of a difference in glycogen concentration.