

The effect of a carbohydrate mouth rinse on performance of the yo-yo intermittent recovery level 1 test with female university level hockey players

Mitchell, S. and Middleton, G.

School of Sport & Exercise Science, University of Lincoln, Brayford Campus

It has been suggested that carbohydrate mouth rinse (CHO-MR) effects short duration, high intensity exercise by activation of sensory receptors on the tongue (Carter et al., 2004: *Medicine and Science in Sports and Exercise*, 36, 2107–2111). Research has predominately focused on the effects of CHO-MR on the performance of cycling and running time trials (Painelli et al., 2010: *Nutritional Journal*, 9, 1-4). Limited research has been conducted on the effectiveness of a CHO-MR on intermittent high-intensity field-based sports performance. The aim of this study was to analyse the effects of a CHO mouth rinse on performance of the Yo-yo Intermittent Recovery Level 1 Test (IR1T) with female University standard hockey players. Following ethical approval, twelve members (mean age 20 ± 0.98 years, stature 167 ± 7.09 cm, and body mass 64.7 ± 4.96 kg) of the University of Lincoln's female 1st team volunteered for the study. The study used a single-blind counter-balanced design with repeated measures on two treatment conditions: 1) a CHO-MR, and 2) a placebo mouth rinse (PL-MR). Participants were instructed to maintain a normal diet and fasted for 12hr prior to testing. After a familiarisation test, twelve participants completed the IR1T twice, one week apart; rinsing with either a CHO-MR or PL-MR. Administration occurred before (20min prior) the IR1T and during the 10s active recovery periods, at intervals (IV) which corresponded to five level increments in speed (IV1-13.5km/h, IV2-14km/h, IV3-14.5km/h, IV4-15km/h, IV5-15km/h). At these points, rate of perceived exertion (RPE) was recorded using the traditional Borg scale. Total distance (m) achieved was recorded as the performance measure. A dependent t-test did not detect any performance improvement ($P = >0.05$) between CHO-MR (1060 ± 273 m) and PL-MR (1127 ± 402 m) trials. Multiple dependent t-tests revealed that at the first IV (SL 12.1), RPE scores were significantly different ($P = 0.006$) between CHO-MR (10.9 ± 0.79) and PL-MR (11.4 ± 1.08) trials. No differences were detected between CHO-MR and PL-MR trials during the rest of the protocol (IV2-5, all $P = >0.05$). A CHO-MR had no effect on IR1T test performance with female university level hockey players compared to a PL-MR. The participants did not experience any differences in the feeling of exertion between the two conditions as the IR1T progressed. Further research needs to illuminate any possible performance effects from CHO-MR with intermittent high intensity activity, revealing any plausible physiological mechanisms of action.

*Presented on 26.03.2013 at the British Association of Sport and Exercise Sciences Annual Student Conference 2013; Cardiff Metropolitan University.