

The Use of Global Positioning Systems to Evaluate the Effect of Protein and Carbohydrate Supplementation on Collegiate Soccer Performance

Authors : Joshua Bradley, Matthew Buns

Abstract : This study aimed to identify the effect of concurrent nutritional supplementation on soccer performance as players ingested either carbohydrate CHO (52 g of Cytocarb Maltodextrin) or a combined carbohydrate and protein PRO (Muscle Milk Pro Series 17g CHO + 50 g PRO liquid) supplement. Twelve male, junior college soccer players (age: 18 ± 6 years, wt. 73.3 ± 8.6 kg) completed three trials wearing global positioning systems (GPS) to measure total running distance and sprinting distance during soccer simulation games. The first match simulation was a baseline match with no supplementation. One hour prior to the second match, simulation players were randomly assigned to one of two supplemental groups CHO or CHO + PRO. A repeated measures ANOVA with a Greenhouse-Geisser correction revealed a statistically significant increase in the total distance run for the CHO supplementation group in comparison to the CHO + PRO group ($10.19 \pm .200$ km vs. $9.77 \pm .194$ km, $p = .035$). Although the total running distance was meaningfully influenced by the supplementation, the pattern of response for total sprinting distance was not influenced by supplementation. There was a decline in sprinting distance and total running distance from first half to second half, both for the control ($M = -0.01$ km, $SD = 0.17$) and CHO supplementation group (-0.04 km, $SD = .19$), although these differences were not statistically meaningful. There was a positive correlation between sprinting distance and total distance, which was statistically significant ($r = -.514$, $n = 36$, $p = .01$) In conclusion, supplementation influenced the pattern of activity and demonstrated between-trial differences.

Keywords : GPS, nutrition, simulation, supplementation

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