Effects of Acacia Honey Drink Ingestion during Rehydration after Exercise Compared to Sports Drink on Physiological Parameters and Subsequent Running Performance in the Heat

Authors : Foong Kiew Ooi, Aidi Naim Mohamad Samsani, Chee Keong Chen, Mohamed Saat Ismail Abstract : Introduction: Prolonged exercise in a hot and humid environment can result in glycogen depletion and associated with loss of body fluid. Carbohydrate contained in sports beverages is beneficial for improving sports performance and preventing dehydration. Carbohydrate contained in honey is believed can be served as an alternative form of carbohydrate for enhancing sports performance. Objective: To investigate the effectiveness of honey drink compared to sports drink as a recovery aid for running performance and physiological parameters in the heat. Method: Ten male recreational athletes (age: 22.2 ± 2.0 years, VO2max: 51.5 ± 3.7 ml.kg-1.min-1) participated in this randomized cross-over study. On each trial, participants were required to run for 1 hour in the glycogen depletion phase (Run-1), followed by a rehydration phase for 2 hours and subsequently a 20 minutes time trial performance (Run-2). During Run-1, subjects were required to run on the treadmill in the heat (31°C) with 70% relative humidity at 70 % of their VO2max. During rehydration phase, participants drank either honey drink or sports drink, or plain water with amount equivalent to 150% of body weight loss in dispersed interval (60 %, 50 % and 40 %) at 0 min, 30 min and 60 min respectively. Subsequently, time trial was performed by the participants in 20 minutes and the longest distance covered was recorded. Physiological parameters were analysed using two-way ANOVA with repeated measure and time trial performance was analysed using one-way ANOVA. Results: Result showed that Acacia honey elicited a better time trial performance with significantly longer distance compared to water trial (P<0.05). However, there was no significant difference between Acacia honey and sport drink trials (P > 0.05). Acacia honey and sports drink trials elicited 249 m (8.24 %) and 211 m (6.79 %) longer in distance compared to the water trial respectively. For physiological parameters, plasma glucose, plasma insulin and plasma free fatty acids in Acacia honey and sports drink trials were significantly higher compared to the water trial respectively during rehydration phase and time trial running performance phase. There were no significant differences in body weight changes, oxygen uptake, hematocrit, plasma volume changes and plasma cortisol in all the trials. Conclusion: Acacia honey elicited greatest beneficial effects on sports performance among the drinks, thus it has potential to be used for rehydration in athletes who train and compete in hot environment. Keywords : honey drink, rehydration, sports performance, plasma glucose, plasma insulin, plasma cortisol Conference Title : ICSSPH 2017 : International Conference on Sport Science and Physical Health

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