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The Effect of Differing Fluid Replacement Strategies on Running Performance

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Distance running has become an increasingly popular activity in the United States within the last several decades. In order to maximize performance and to decrease the advent of fatigue in these types of long-distance races, endurance athletes must adhere to proper hydration practices. **PURPOSE:** To determine the effects of drinking water and a carbohydrate-electrolyte supplement (CES) ad libitum and beyond the dictates of thirst on measures of hydration status and physical performance in exercise-trained individuals. **METHODS:** Eight recreational endurance runners (6 men and 2 women; age: 25.00 ± 7.19 years; weight: 68.78 ± 10.71 kg; height: 174.00 ± 7.54 cm) participated in a crossover, repeated-measures study in which they were randomly assigned to complete four 60-minute self-paced running time trials (TT) on a treadmill, using differing hydration protocols, separated by 7 days. The protocols included hydrating with water or a CES (1) according to thirst sensation (thirst driven - TD) or (2) drinking beyond the dictates of thirst (5oz every 15 minutes; programed fluid intake - PFI), as recommend by the American College of Sports Medicine. Body weight, core temperature, and urine specific gravity (USG) were measured pre-TT and post-TT. Rating of perceived exertion (RPE), perceived thirst, affect, and heart rate (HR) were recorded pre-trial, at regular 10-minute intervals during the TT, and post-trial. The distance completed was recorded at 10 minute intervals during the TT and immediately after the TT. **RESULTS:** There was no significant improvement on running performance between the four conditions (TD water: 6.89 ± 1.38 ; PFI water: 7.18 ± 0.97 ; TD CES: 7.21 ± 1.04 ; PFI CES: 7.21 ± 1.04 miles; $p = 0.226$). There were no significant differences in RPE, affect, HR, USG, body weight, and perceived thirst between the four conditions ($p > 0.05$). **CONCLUSION:** PFI offers no performance benefits over TD fluid intake during running performance lasting sixty minutes in a thermoneutral environment. There were no cardiovascular, thermoregulatory, or hydration differences between conditions. The consumption of a CES did not lead to better performance compared to water. These findings may have practical application for recreational endurance runner's hydration strategies.