A low-sugar flavored water beverage vs. plain water – is there a difference in hydration status during repeated-bout exercise?

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INTRODUCTION

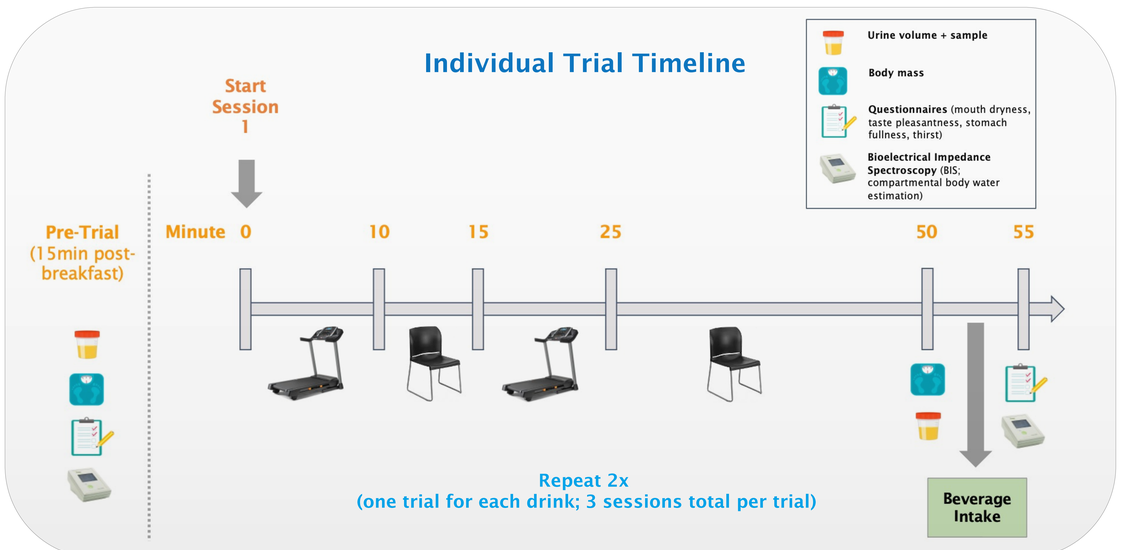
A preference to remove undue sugar from children's diets in line with accumulating health concerns is widely recognized. While forms of sugar are often inherent to oral rehydration solutions to provide energy, enhance palatability, and enhance intestinal sodium and water absorption during exercise, sport, and physical activity, evidence demonstrates that electrolytes such as sodium in a rehydration solution are predominant contributors to rehydration efficacy.

OBJECTIVE

We contrasted the impact of consuming a low-sugar flavored water beverage and an equal amount of plain water during repeated-bout exercise on selected rehydration markers in children.

METHODS

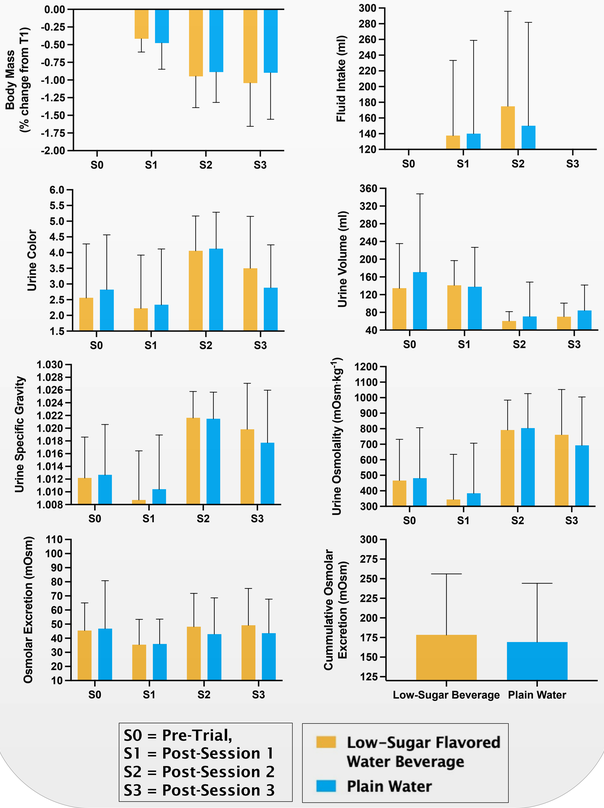
Healthy boys (n=13; 8±1y; BMI=15.8±1.1; Hispanic=2, White=11) and girls (n=7; 9±1y; BMI=16.6±2.2; Asian=1, Black=1, White=5) completed two trials in a randomized, counter-balanced, crossover fashion. Each trial included three successive 1-hour sessions each comprising repeated treadmill walking (70% HRmax; 10min X 2; 5min rest in between) followed by rest (35min) in 27-29° C and 50% RH. Participants were provided with an individualized volume of either plain water or low-sugar flavored water beverage (2.88 Kcal, 0.57g sugar, 0.03g stevia, 7.9mg sodium per 100ml) equating to 100% of sweat losses at the end of each 1-hour session. Prior to each of the two trials, participants ate a standardized meal and drank at least 237ml of plain water for dinner and breakfast. Mixed-effects analysis with Sidak's multiple comparisons tests determined significance between trials.



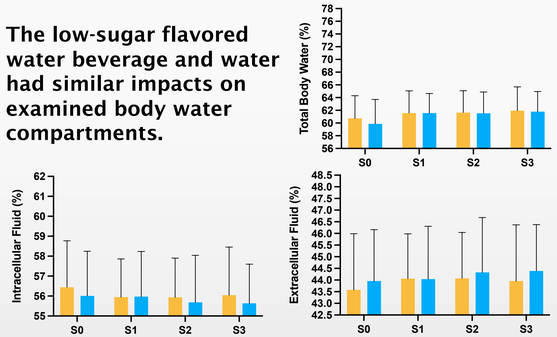
RESULTS

Participants arrived similarly hydrated for both trials. All measures but fluid intake resulted in main effects across time.

The low-sugar flavored water beverage and water had no apparent disadvantage in observed body water regulation patterns.

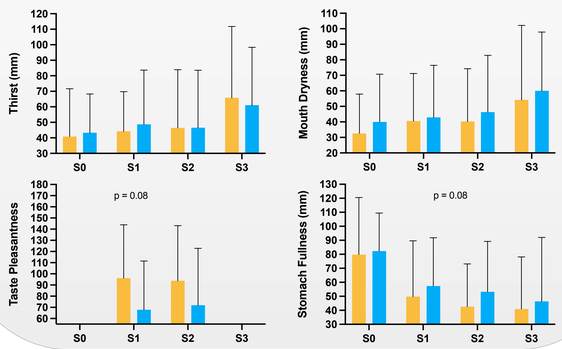


The low-sugar flavored water beverage and water had similar impacts on examined body water compartments.



The low-sugar flavored water beverage did not exacerbate thirst, mouth dryness or fullness.

These children trended towards a taste preference with the low-sugar flavored water, consistent with the literature on non-athletes who tend to consume more of a flavored beverage when given the option over plain water. However, our participants also trended toward lower perceived stomach fullness with the low-sugar flavored water, in contrast to many sports drinks that often prompt fullness.



CONCLUSION

The low-sugar flavored water beverage and plain water had similar effects in their respective impact on body water management (retention and distribution) and thus maintaining hydration status during repeated-bout, moderate exercise in warm heat, whereas the low-sugar flavored water beverage may be perceptually preferable.

Funding: Kraft Heinz Co.