

Does Sugar Help You Run??

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Purpose

To examine whether the addition of carbohydrate supplementation will yield improvement of performance when compared to simply ingesting water during middle distance running, and if improved performance is effected by the type of carbohydrate supplementation.

Methods & Materials

Participants consisted of 15 female collegiate soccer athletes aged 18-22 from Middle Tennessee State University.

Participants were randomly put into three separate groups: control group (water), Gatorade (Energy Chew + water), and Starburst (candy chew + water). Each test group (excluding the control group) consumed identical amounts of sugar (3

Gatorade Energy Chews is equivalent to 4 Starburst) equaling 8 grams of sugar. Participants also consumed identical amounts of water (including control group), which was 12oz/354mL. Each participant was assigned an individual number

to relate the participant with both her supplement and mile times, as well as keeping track of the allotted rest time. Each group ran a timed baseline mile, followed by a 15-minute break to consume their assigned supplement along with taking a brief survey to determine their perceptions of the run before and after supplementation. After completion of the first trial, the second trial began. At the finish of mile 2 the participants took the exact same survey a second time.

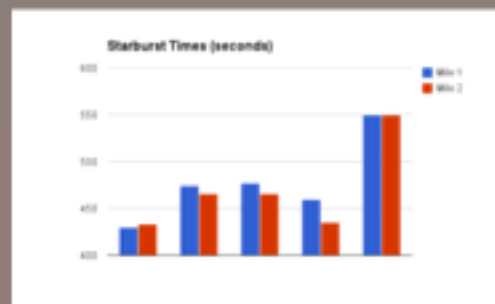
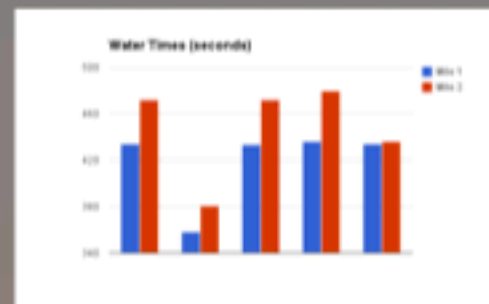


Results

It was hypothesized that both the Gatorade and Starburst groups would outperform the control group in both the time difference between miles and perceived exertion of participants, and that the Gatorade group would be more effective compared to the Starburst group. A series of paired-sample t-tests were conducted comparing the perceived exertion (PE), on a scale of 1 to 10, of participants at two separate points: after mile 1 and after mile 2.

No significant difference was found in the three groups in regards to perceived exertion: gatorade ($t(4) = -1.58, p = .189$); with a mile 1 mean of 5.60 ($sd = 1.34$) and a mile 2 mean of 6.60 ($sd = 2.30$), water ($t(4) = -2.24, p = .79$); mile 1 mean 6.60 ($sd = 2.30$) mile 2 mean 6.80 ($sd = 1.48$), or starburst ($t(4) = -1.28, p = .07$); mile 1 mean 5.20 ($sd = 2.16$) mile 2 mean 5.80 ($sd = 2.58$).

A series of paired-sample t-tests were also conducted to compare participant's mean times of miles one and two in seconds. No significant difference was found in both gatorade ($t(4) = 0.15, p = .99$); mile 1 mean 462.6 ($sd = 39.64$) mile 2 mean 462.40 ($sd = 46.86$) and starburst groups ($t(4) = 1.71, p = .16$); mile 1 mean 478.4 ($sd = 44.22$) mile 2 mean 470.0 ($sd = 21.24$). However, a significant difference of time means was found in the water group: ($t(4) = -3.82, p = .02$); mile 1 mean 419.0 ($sd = 34.12$) mile 2 mean 448.2 ($sd = 41.26$).



Conclusions

After analyzing the results, the carbohydrate supplementation groups significantly outperformed the control group ($t(4) = -3.82; p = .02$). This study reports a significant difference between the carbohydrate groups outperforming the control group during a middle distance run lasting an average of 913.5 seconds (about 25 minutes).

In general, the study reports that there was no significant difference between the carbohydrate groups in overall performance or in perceived exertion. There was a significant difference between the carbohydrate groups maintaining performance and the control group; the control group had a significantly greater drop-off in second mile times than both the Gatorade and Starburst groups.

