



THE EFFECTS OF CAFFEINE ON A TIMED TRIAL ON A CYCLE ERGOMETER

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Abstract

Some people wake up in the morning and grab that cup of coffee to get a boost of energy to get moving. Why is it that coffee is used for this? Perhaps, it's because of the ingredients found in coffee, like caffeine, in particular. Caffeine is used as a stimulant and a diuretic. A stimulant is an agent that enhances the activity of a body system or function. Because of its stimulating effects, caffeine is often used as an ergogenic aid. Caffeine can be used to stay awake or for better mental alertness in times of fatigue. An ergogenic aid is any substance that is taken with the hopes of improving performance.

Purpose

The purpose of this study was to determine if there was a positive, ergogenic effect on performance during a timed trial on a cycle ergometer.

Methods

Participants were chosen by face to face contact in the UTA Gym (MAC) and asked to estimate their daily and weekly caffeine consumption. They were then scheduled to report to the Exercise Science Research Labs on two separate days. Subjects were asked to be adequately hydrated with water prior to testing and to have consumed a light meal at least 2 hours prior to scheduled time and asked not to consume anything with caffeine on the days of testing. Subjects arrived, on testing days, and their age, height, and weight were recorded prior to testing. One day subjects consumed 12 oz. of Gatorade with 200 mg of caffeine (Caf) or Gatorade alone (Con) which was reversed on the next visit.

Methods (cont'd)

One hour later subjects participated in a timed trial (TT) by riding on a stationary cycle ergometer to see how far they could ride in 30 min. Subjects' resting heart rate (HR) and blood pressure (BP) were recorded prior to testing to ensure that no stimulants or irregular activity was being observed on the day of testing. During the exercise, HR was measured every 3rd min and BP and RPE was measured every 5th min for the 30 min ride. The Gatorades were mixed on the day of testing. The subjects returned 2 to 7 days later to do the 2nd test, ingesting the opposite from test day 1, and thus complete the protocol for the study. Significance was set at $p \leq 0.05$.

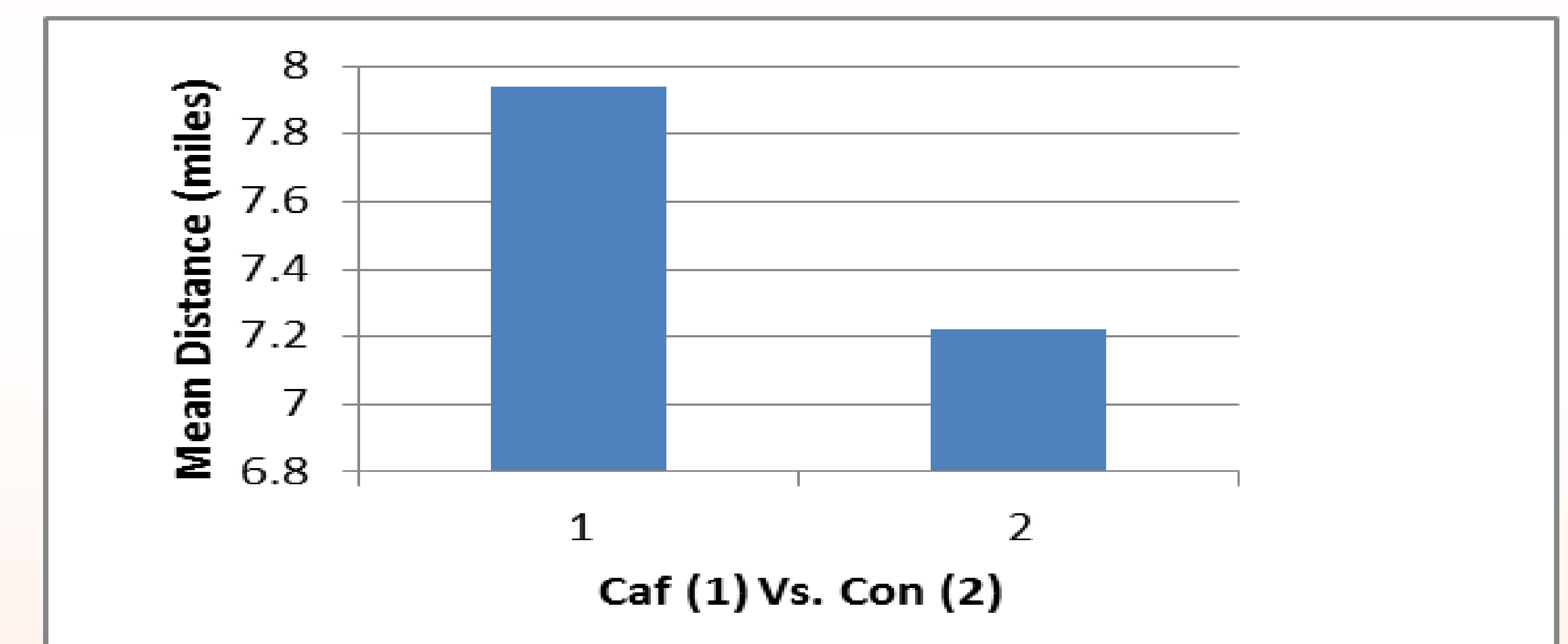


Results

5 Males: age 22.6 ± 2.57 yrs, ht 176.26 ± 5.69 cm, wt 84.6 ± 2.01 kg

Results (cont'd)

Results yielded a significant difference in distance traveled between Caf vs. Con TT ($p = 0.03$). Mean distance traveled (Caf) was 7.94 ± 0.46 miles and the mean distance traveled (Con) was 7.22 ± 0.31 miles. There was no significant difference in the physiological variables HR, SBP, DBP, or RPE between the two TT ($p > 0.05$). HR was 154.2 ± 23.5 bpm (Caf) and 154.2 ± 26.2 bpm (Con) ($p = 1$); SBP was 157.6 ± 20.0 mmHg (Caf) and 159.6 ± 26.4 mmHg (Con) ($p = 0.91$); DBP was 48.4 ± 17.7 mmHg (Caf) and 52.8 ± 15.5 mmHg (Con) ($p = 0.72$); RPE was 16.2 ± 1.3 (Caf) and 15.8 ± 2.0 (Con) ($p = 0.75$).



Conclusions

It was concluded that there was a positive, ergogenic effect on distance traveled during a timed trial on a cycle ergometer in this study. The results of the study show that subjects rode farther in the 30 min TT with Caf in Gatorade when compared to the Con (Gatorade only). Farther distance within the same TT shows that there is ability to do more work, in a cycle ergometer, with Caf, than without.