The Physiological Effects of Advocare Spark Energy on Submaximal Aerobic Exercise

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Abstract

INTRODUCTION: Advocare Spark energy is a multi-mineral supplement that incorporates ergogenic aids such as creatine and caffeine. The referred ergogenic aids are substances that enhance performance, and is one of the most studied research areas in athletic performance. Many ergogenic aids contain substances including water-soluble vitamins, added nutrients such as amino acids, and caffeine. Benefits to these ergogenic plant extracts, substances found in food (vitamin C, vitamin E, caffeine), and are found in high amounts naturally in foods. Studies have observed benefits of caffeine pre-exercise consumption on enhance endurance performance by decreasing the rate of perceived exertion. The combination of these two substances (creatinine, caffeine) and are found in high amounts naturally in foods. Studies have observed benefits of caffeine pre-exercise consumption on enhance endurance performance by decreasing the rate of perceived exertion.

PURPOSE: The purpose of this study is to evaluate the effects of Advocare Spark energy on: a 30 minute cycling test and determine if the supplement enhances cardio performance.

METHODS: Five male college aged adults (20.6 ± 2.7 years, height (178.2 ± 3.9) cm, weight (75.7 ± 4.3) kg) from the UTA Anthropology department were participants of the study. Each subject performed two 30 minute cycling sessions to 2 different Ergomedics (Spark Energy or Placebo). The HR max was measured by all 75 volunteers pre and post exercise in the test. Prior to testing, the participants were instructed to perform a 48 hour exercise fast, to avoid caffeine and alcohol intake 2 hours prior to testing. Participants were randomly assigned in a study design that allowed for the collection of data from the two supplements on a non-fasting randomly assigned 10 minute pilot testing. The variables of interest were changes to these metrics post supplementation and comparing pre- and post-intervention. Measurements were taken pre exercise (HR, VO2, distance cycled, body temperature, skin temperature, and HR max). Heart rate was measured using the Polar Heart Monitor, the rate of perceived exertion using the Borg's scale, and VO2 using the Sensormedics, used to determine the metabolic rate. All data was recorded on an Excel sheet for statistical analysis.

RESULTS: From the results collected, the HR with the placebo was 141 bpm ± 4.34 while it was 142 bpm ± 4.2 with the Spark. The VO2 max for the placebo was 4.2 ± 1.3 and 4.3 ± 1.3 with the Spark. The total distance cycled with the placebo was 14.78 ± 1.3 and 14.62 ± 1.3 km with Spark. The VO2 max for the placebo was 4.2 ± 1.3 and 4.3 ± 1.3 with the Spark. The total distance cycled with the placebo was 14.78 ± 1.3 and 14.62 ± 1.3 km with Spark. The RPE with the Spark was 14.7 ± 5 minutes was allotted to achieve 65% to 75% of heart rate. All the data was recorded on an Excel sheet for statistical analysis. The alpha level of significance was set at p<0.05.

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CONCLUSION: The results indicated that the consumption of Spark-Advocare had no significant difference on RPE, HR, total distance, and VO2. The absence of a significant difference may also be the result of differences in habitual exercise regimens and individual fitness. Caffeine is only shown to be an effective ergogenic aid in resistance training but does not show much improvement with aerobic exercise.

Results (cont’d)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>20.8</td>
<td>± 0.75</td>
</tr>
<tr>
<td>Height</td>
<td>178.2</td>
<td>± 3.9</td>
</tr>
<tr>
<td>Weight</td>
<td>75.7</td>
<td>± 4.34</td>
</tr>
</tbody>
</table>

Figure 1: Comparison of Total Distance Cycled in Control vs. Spark Energy

Figure 2: Comparison of VO2 in Control vs. Spark Energy

Figure 3: The Heart Rate Response Over Time between Placebo and Spark Energy

Figure 4: Comparison of Rate of Perceived Exertion in Control vs. Spark Energy

Conclusions

The results indicated that the consumption of Spark-Advocare had no significant difference on RPE, HR, total distance, and VO2. The absence of a significant difference may also be the result of differences in habitual exercise regimens and individual fitness. Caffeine is only shown to be an effective ergogenic aid in resistance training and shows improvement with longer times of aerobic exercise.

Purpose

The purpose of this research was to evaluate the physiological effects of Advocare Spark on a 30 minute cycling test and determine if consumption would enhance performance.