THE EFFECTS OF DIETARY NITRATE ON OXYGEN CONSUMPTION IN COLLEGE AGED MALES

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Abstract

The purpose of this study was to examine the effects of dietary nitrate on maximal oxygen consumption.

Methods

All participants were current students at the University of Texas at Arlington between the ages of 18-30 yrs. The participants were required to meet with one of the Co-Investigators (Co-PI) to review and sign the consent documents. The participants then met with one of the Co-PI for 3 successive days and ingested either 70ml of Beet It Sport Shot (400mg of nitrates) or 70ml of a Placebo (black cherry Kool Aid).

Results

Five men: age 24 ± 5.7 yrs, height 182 ± 9.0 cm, and weight 82 ± 8.5 kg. The maximal values for the subjects with the placebo were: VO$_{2\text{max}}$ = 47.4 ml/kg/min ± 8.2 (Fig 1), time to fatigue = 12.9 min ± 1.9 (Fig 2), RPE = 17.4 ± 1.7, HR$_{\text{max}}$ = 189.4 bpm ± 5.7. The values for the subjects with beetroot supplement were: VO$_{2\text{max}}$ = 50.4 ml/kg/min ± 7.2, time to fatigue = 13.1 min ± 2.0, RPE = 16.6 ± 1.67, HR$_{\text{max}}$ = 187.8 bpm ± 5.9. Statistical analysis between the two conditions indicated that there were no significant differences ($p > 0.05$).

Conclusions

The results of this study indicate that there was no significant difference between VO$_{2\text{max}}$ with or without the beetroot supplement in this group ($p = 0.55$). Additionally, there was no significant difference in time to exhaustion ($p = 0.86$). Previous studies that have provided larger amounts of beetroot juice for longer periods of time have demonstrated improvement in maximal exercise. Therefore, the lower amounts of beetroot consumed for a short period of time may have impacted the results.