

## **Dark chocolate supplementation reduces the oxygen cost of moderate intensity cycling.**

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### **Author information**

### **Abstract**

#### **BACKGROUND:**

Dark chocolate (DC) is abundant in flavanols which have been reported to increase the bioavailability and bioactivity of nitric oxide (NO). Increasing NO bioavailability has often demonstrated reduced oxygen cost and performance enhancement during submaximal exercise.

#### **METHODS:**

Nine moderately-trained male participants volunteered to undertake baseline (BL) measurements that comprised a cycle  $\dot{V}O_{2max}$  test followed by cycling at 80% of their established gas exchange threshold (GET) for 20-min and then immediately followed by a two-minute time-trial (TT). Using a randomised crossover design participants performed two further trials, two weeks apart, with either 40 g of DC or white chocolate (WC) being consumed daily. Oxygen consumption, RER, heart rate and blood lactate (BLa) were measured during each trial.

#### **RESULTS:**

DC consumption increased GET and TT performance compared to both BL and WC ( $P < 0.05$ ). DC consumption increased  $\dot{V}O_{2max}$  by 6% compared to BL ( $P < 0.05$ ), but did not reach statistical significance compared to WC. There were no differences in the moderate-intensity cycling for  $\dot{V}O_{2}$ , RER, BLa and heart rate between conditions, although,  $\dot{V}O_{2}$  and RER exhibited consistently lower trends following DC consumption compared to BL and WC, these did not reach statistical significance.

#### **CONCLUSION:**

Chronic supplementation with DC resulted in a higher GET and enhanced TT performance. Consequently, ingestion of DC reduced the oxygen cost of moderate intensity exercise and may be an effective ergogenic aid for short-duration moderate intensity exercise.