EFFECT OF NEW ZEALAND BLACKCURRANT EXTRACT ON SPORTS CLIMBING PERFORMANCE

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INTRODUCTION

Rock climbing places a high workload on the forearm flexors (Giles et al., 2006) and observations during intermittent isometric contractions have highlighted the importance of blood flow during the short recovery periods (Fryer et al., 2015).

More specifically, higher force time integral values achieved during the intermittent test by elite climbers have been attributed to improved blood flow upon release of an isometric hold (Fryer et al., 2015). Blackcurrant intake increased forearm blood flow at rest (Matsumoto et al., 2005) and increased femoral artery diameter during submaximal isometric contraction (Cook et al., 2017).

AIM

To examine New Zealand Blackcurrant (NZBC) extract as an ergogenic aid in sports climbing.

METHODS

Twenty experienced climbers (2 females) (age 23±5 yrs; height 177±8 cm; mass 71±8 kg) were tested on 3 occasions; familiarisation, after 7 days of NZBC extract (600mg∙day⁻¹ CurraNZ containing 210mg anthocyanin), and placebo (PL) (double-blind, randomized, crossover design, 14 days washout). The number of pull-ups on a finger-board (Metolius® Finger Board) until failure, 90° lock off hang time was followed by 3 climbs to volitional exhaustion on a Treadwall (Brewer Ledge M6) self-selected pace at 90° with a 20-min recovery period between climbs. Heart rate (Polar®H7), rate of perceived exertion (RPE) (Borg, 1982), climbing duration and distance were recorded.

RESULTS

NZBC extract resulted in an 8% increase in hang time when taking NZBC extract as opposed to the placebo (paired T-test, P=0.035).

Repeated measures ANOVA (supplement) revealed a 11% increase in climb duration between climb 1 and 3 with the NZBC extract; a 23% decrease in climb duration was observed in the placebo condition: interaction effect (P=0.003).

A main effect for climb for the mean heart rate was observed with it declining across the three climbs (P<0.001). No effect was seen for pull-ups, maximum heart rate, RPE or distance climbed.

CONCLUSIONS

NZBC extract improves sports climbing endurance, possibly through improved local blood flow. The improved hang time suggests that this was not dependent on release of the isometric hold as seen in previous work by Fryer et al. (2015). Future work may explore the effect of anthocyanin-rich NZBC extract on other types of climbing and conditions.

REFERENCES


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