Effect of New Zealand blackcurrant extract on substrate oxidation and cycling performance in normobaric hypoxia

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ABSTRACT
Enhanced exercise-induced fat oxidation and faster 16.1 km cycling trial performance was observed with intake of New Zealand blackcurrant (NZBC) extract at sea level (Cook et al., 2015). Effect of intake of New Zealand blackcurrant extract during exercise at altitude is not known.

INTRODUCTION
Enhanced exercise-induced fat oxidation and faster 16.1 km cycling trial performance was observed with intake of New Zealand blackcurrant (NZBC) extract at sea level (Cook et al., 2015). Effect of intake of New Zealand blackcurrant extract during exercise at altitude is not known.

AIM
To examine the effect of New Zealand blackcurrant extract on the metabolic and physiological responses and 16.1 km time trial performance during cycling in normobaric hypoxia.

METHODS
The study used a double-blind randomized cross-over design. Eleven healthy men from cycling and triathlon clubs with at least 3 years experience and cycling 8-10 hr wk⁻¹ (age: 38±1 yrs, height: 1.79±0.07 m, body mass: 76±5 kg, VO₂max: 47±8 L·min⁻¹, maximum power: 396±38 W, mean±SD) ingested NZBC extract (600 mg·day⁻¹ containing 220 mg anthocyanins) or placebo (PL) for 7 days (washout 14 days). Participants performed bouts of 10 min at 45% (117 W), 55% (161 W) and 65% VO₂max (205 W), using indirect calorimetry and blood sampling, followed by a 16.1 km time-trial on a SRM ergometer (SRM International, Germany). Participants were familiarized for the time-trial 30 min before trials in a temperature controlled (20°C) hypobaric chamber (TIS Services, Medstead, UK) in morning sessions. Data was analysed using paired t-tests. RESULTS: NZBC extract had no effect on metabolic and physiological responses (e.g., heart rate, oxygen, carbon dioxide, lactate, power, respiratory exchange ratio), but showed increased fat oxidation during normobaric hypoxia. All data is presented as mean±SD. CONCLUSION: Enhanced exercise-induced fat oxidation and increased time trial performance during cycling in normobaric hypoxia

RESULTS

- **Fat oxidation (g·min⁻¹)**
  - Placebo vs NZBC extract at 45% VO₂max, 55% VO₂max and 65% VO₂max

- **Carbohydrate oxidation (g·min⁻¹)**
  - Placebo vs NZBC extract at 45% VO₂max, 55% VO₂max and 65% VO₂max

- **Respiratory Exchange Ratio**
  - Placebo vs NZBC extract at 45% VO₂max, 55% VO₂max and 65% VO₂max

CONCLUSION
We observed enhanced exercise-induced fat oxidation and faster 16.1 km cycling time trial performance at sea level with intake of New Zealand blackcurrant extract (Cook et al., 2015). However, exercise responses and performance at an altitude of 2500 m in the present study are not affected by 7-day intake of New Zealand blackcurrant extract.

REFERENCES

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