CurraNZ Blackcurrant Improves Cycling Performance and Recovery in Trained Endurance Athletes

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INTRODUCTION

Peripheral blood flow is increased by blackcurrant intake in humans (Matsumoto et al., 2005), potentially by anthocyanin-induced vasorelaxation and vasodilation (Ziberna et al., 2013), which may affect substrate delivery, exercise performance and recovery.

AIMS

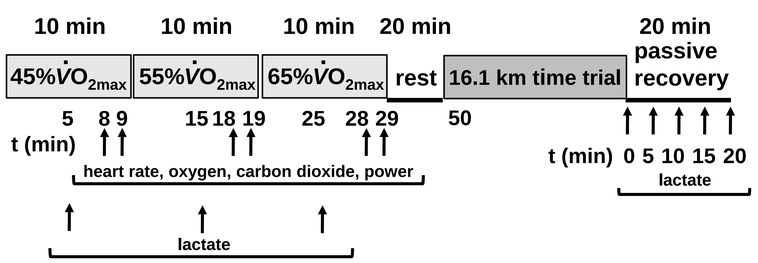
To examine the effect of 7 days CurraNZ blackcurrant on substrate oxidation during steady state cycling, 16.1 km (10 mile) time-trial performance and lactate clearance in trained endurance athletes.

METHODS

Nine male endurance athletes (club level cyclists and triathletes with >3 yrs experience; age: 35±14 years, height: 179±3 cm, body mass: 76±9 kg, BMI: 24±2, $\dot{V}O_2$max: 54±6 mL·kg^{-1}·min^{-1}, maximum power: 366±42 W, mean±SD) visited the laboratory for 4 sessions. Tests for lactate responses (4 min stages with 2 min recovery, start power 50 W with 30 W increments) and maximum oxygen uptake (start power 50 W for 4 min with 30 W·min^{-1} increments) at self-selected pedal cadence (SRM ergometer, SRM International, Germany) were performed to establish power at 45%, 55%, and 65% of $\dot{V}O_2$max.

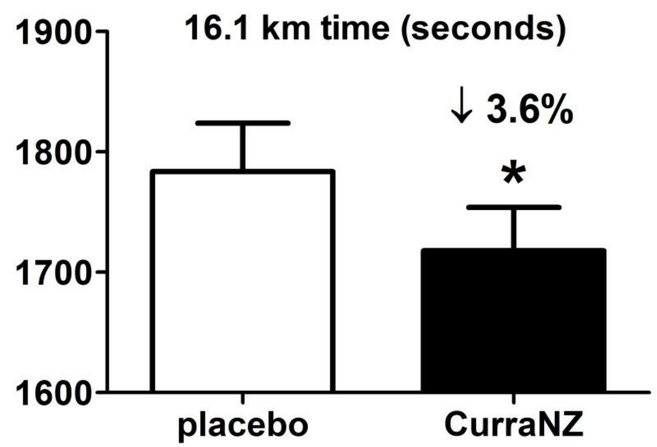
Familiarized participants were tested following 7 days of CurraNZ blackcurrant capsule intake (each containing 105 mg anthocyanin per dose of 300 mg CurraNZ) (Health Currancy Ltd, UK) or placebo. One tablet a day and a wash-out of 2 weeks.

Experimental design was double-blind and randomized. See below for protocol and measurements. Paired t-tests were used for analysis with significance accepted at p<0.05 (indicated by *).

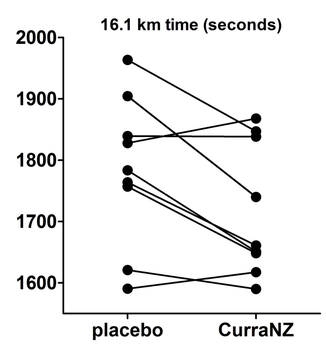


RESULTS

Heart rate, lactate, cycling economy, fat and carbohydrate oxidation were not affected during low and moderate intensity cycling (P>0.05).

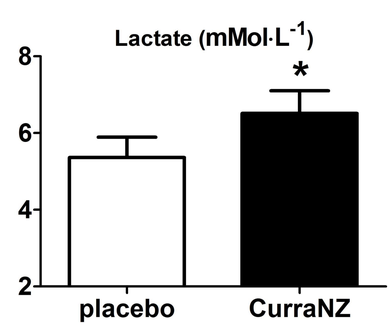


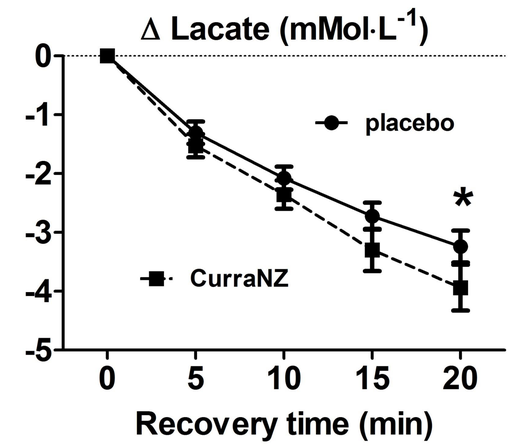
CurraNZ blackcurrant improved 16.1 km time trial performance by 3.6%



CurraNZ blackcurrant improved 16.1 km time trial performance in 78% of the participants

CurraNZ blackcurrant allowed ALL participants to have higher lactate at the end of the 16.1 km time trial





Lactate clearance was greater with CurraNZ blackcurrant in 89% of the participants at 20 min

CONCLUSION

Intake of CurraNZ blackcurrant is associated with 1) normal metabolic and physiological responses at low and moderate intensity cycling, 2) improved 16.1 km (10 mile) time-trial cycling performance, 3) potentially a higher lactate tolerance during time-trial performance, and 4) increased lactate clearance after exercise indicating improved recovery.

APPLICATION

CurraNZ blackcurrant intake has favourable implications in endurance athletes for aerobic exercise performance, lactate tolerance, and recovery.

REFERENCES

Matsumoto H, Takenami E, Iwasaki-Kurashige K, et al. Effects of blackcurrant anthocyanin intake on peripheral muscle circulation during typing work in humans. *Eur J Appl Physiol* 94(1-2):36-45, 2005.

Ziberna L, Lunder M, Tramer F, et al. The endothelial plasma membrane transporter bilitranslocase mediates rat aortic vasodilation induced by anthocyanins. *Nutr Metab Cardiovasc Dis* 23(1):68-74, 2013.

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