

Intake Duration Effects of New Zealand Blackcurrant Extract on Cardiovascular Responses During Moderate Intensity Exercise in Males (P23-015-19)

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Objectives: New Zealand blackcurrant (NZBC) is an anthocyanin-rich berry with potential effects on cardiovascular health (e.g., 7-day NZBC extract lowered total peripheral resistance at rest). We examined effects of 7- and 14-day intake of NZBC extract on cardiovascular responses during moderate intensity exercise.

Methods: Fifteen healthy men (mean \pm SD, age: 24 ± 6 yr, body mass: 79 ± 16 kg, height: 178 ± 6 cm, BMI: 24.7 ± 4.3 kg·m⁻², IPAQ score: 4534 ± 1576 MET·week⁻¹) volunteered. Resting metabolic equivalent (1-MET) was measured using Douglas bags (1-MET: 3.97 ± 0.66 ml·kg⁻¹·min⁻¹) with an incremental walking test to determine the relationship between walking speed and MET. A randomised, cross-over experimental design was used for baseline, 7-day and 14-day intake. Participants consumed 2 capsules of NZBC extract (600 mg and containing 210 mg of anthocyanins, CurraNZ™ Health Currancy Ltd., UK) with breakfast with a 14-day washout. On the morning of testing, the final 2 capsules were ingested 2-hr before

the 30-min walk at 4 ($n = 3$) or 5 ($n = 12$) METs (speed: 5.68 ± 0.67 km·hr⁻¹). Cardiovascular responses were measured at 7–10, 17–20 and 27–30 min during the walk (Portapres Model 2), averaged and analysed (ANOVA and post-hoc t-tests).

Results: Intake duration had no effect on heart rate (e.g., baseline: 102 ± 18 beats·min⁻¹), systolic blood pressure (e.g., baseline 158 ± 18 mm Hg) and ejection time (e.g., baseline: 0.28 ± 0.03 s). Cardiac output (baseline: 11.7 ± 2.0 , 7-day: 12.7 ± 2.5 , 14-day: 12.7 ± 2.1 L·min⁻¹, $P = 0.012$) and stroke volume (baseline: 114 ± 13 , 7-day: 123 ± 22 , 14-day: 126 ± 21 mL·min⁻¹, $P = 0.017$) were increased, and total peripheral resistance (baseline: 0.51 ± 0.11 , 7-day: 0.46 ± 0.17 , 14-day: 0.44 ± 0.12 mmHg·L⁻¹·min⁻¹, $P = 0.018$) and diastolic blood pressure (baseline 71 ± 9 , 7-day: 66 ± 10 , 14-day: 63 ± 11 mm Hg, $P = 0.002$) were lower for 7- and 14-day intake. Only 14-day intake resulted in lower mean arterial pressure (baseline: 93 ± 10 , 7-day: 89 ± 9 , 14-day: 87 ± 11 mm Hg, $P = 0.034$).

Conclusions: Beneficial effects of anthocyanin-rich NZBC extract intake on cardiovascular responses during moderate intensity exercise do not require long-duration intake.

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