Effects of Daily and Intermittent Intake of New Zealand Blackcurrant Extract on Cardiovascular Responses During Moderate Intensity Exercise in Males (P23-011-19)

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Objectives: Seven-day intake of anthocyanin-rich New Zealand blackcurrant extract affected exercise-induced cardiovascular responses by vasodilation. It is not known whether daily intake of NZBC extract is required for effectiveness. Effects of daily and intermittent NZBC extract intake on cardiovascular responses were examined during brisk walking.

Methods: Fifteen healthy men (mean ± SD age: 24 ± 6 yr, body mass: 79 ± 16 kg, height: 178 ± 6 cm, BMI: 24.7 ± 4.3 $kg{\cdot}m^{-2}$, IPAQ score: 4534 ± 1576 $MET{\cdot}week^{-1}$) volunteered. Resting metabolic equivalent (1-MET) was measured using Douglas bags (1-MET: 3.97 ± 0.66 $ml{\cdot}kg^{-1}{\cdot}min^{-1}$) and an incremental walking test to determine the relationship between walking speed and MET. A randomised, cross-over (14-day washout) experimental design was used for baseline, 14-day intermittent (14I, every other day), and 14-day continuous (14C, daily) intake. Participants consumed 2 capsules of NZBC extract (600 mg and containing 210 mg of anthocyanins, CurraNZ™ Health Currancy Ltd., Surrey, UK) with breakfast. On the morning of testing, the final 2 capsules were ingested 2-hr before the 30-min brisk walk at 4 ($n = 3$) or 5 ($n = 12$) METs (walking speed: $5.68 \pm 0.67\ km{\cdot}hr^{-1}$). Cardiovascular responses were measured at 7–10, 17–20 and 27–30 min during the walk by Portapres Model 2, averaged and analysed (ANOVA and post-hoc t-tests).

Results: There were no changes in 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, 14I: 12.5 ± 2.0, 14C: 12.7 ± 2.1 L·min-1, $P = 0.009$) and stroke volume (baseline: 114 ± 13, 14I: 123 ± 17, 14C: 126 ± 21 mL·min-1, $P = 0.004$) were higher, and total peripheral resistance (baseline 0.51 ± 0.11, 14I: 0.45 ± 0.09, 14C: 0.44 ± 0.12 mmHg·L-1·min-1, $P = 0.001$), diastolic blood pressure (baseline: 71 ± 9, 14I: 66 ± 9, 14C: 63 ± 11 mm Hg, $P < 0.001$) and mean arterial pressure (baseline 93 ± 10, 14I: 88 ± 9, 14C: 87 ± 11 mm Hg $P = 0.006$) were lower for 14I and 14C intake.

Conclusions: Daily intake of anthocyanin-rich NZBC extract is not required to obtain beneficial cardiovascular responses during walking.

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