



INTRODUCTION

Studies on effects of 7-day intake of New Zealand blackcurrant (NZBC) extract provided observations on changes during supine rest for cardiovascular parameters, e.g. an increase in cardiac output and decrease in total peripheral resistance [1]. It cannot be excluded that observed effects after 7-day intake were partly or wholly due to the intake on the day of testing. Acute intake of blackcurrant has been shown to reduce exercise-induced oxidative stress [2], suggesting that a build-up of anthocyanin-derived metabolites is not necessarily required to affect physiological function.

AIM

We examined the effects of an acute intake of New Zealand blackcurrant extract on cardiovascular function during supine rest in healthy males.

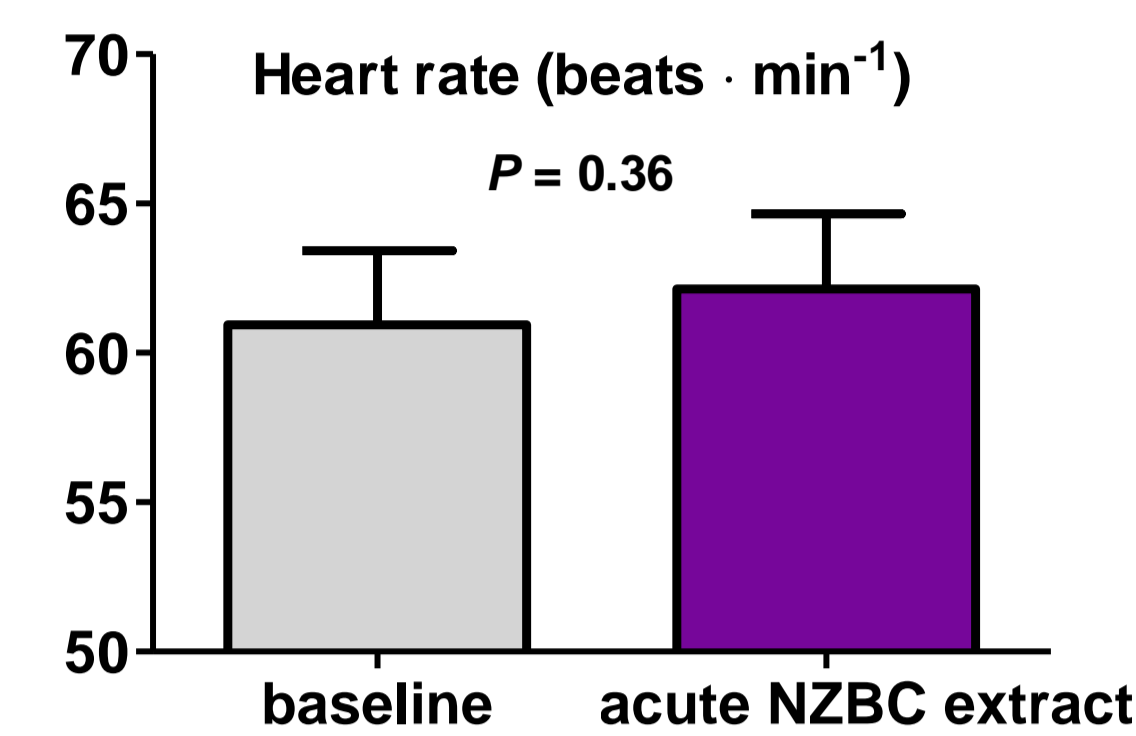
METHODS

Healthy physically active males (n=15, age: 24±6 yr, body mass: 78±16 kg, height 177±7 cm, BMI: 24.7±4.3 kg·m⁻² (8 normal weight, 6 overweight, 1 obese), body fat: 15±5%) volunteered. Participants visited the laboratory for resting measurements at baseline (no supplementation) and 2 hours after intake of two capsules with New Zealand blackcurrant extract (600 mg containing 210 mg of anthocyanins). Capsules were taken one hour after breakfast of one slice of bread and water testing. After being seated in a chair for 10 min, participants were asked to lie horizontally on a massage table for resting measurements.

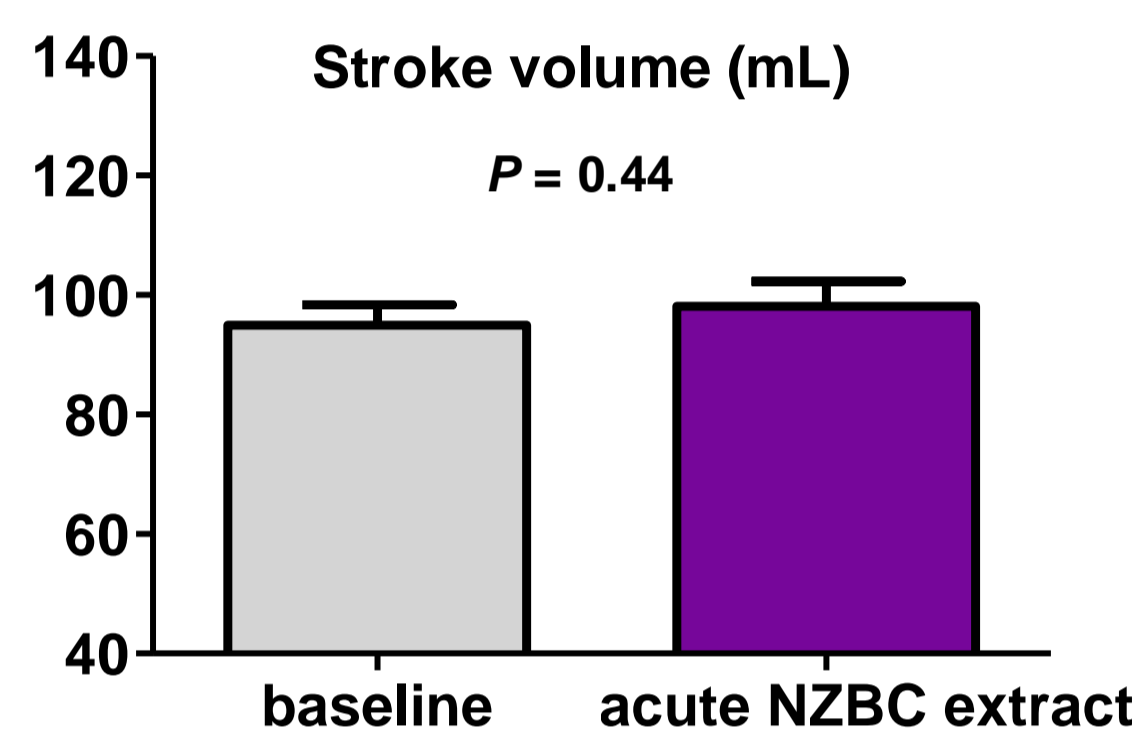
Whole body cardiovascular measurements were obtained with a beat-to-beat blood pressure monitoring system (Portapres® Model 2, Finapres Medical Systems BV, Enschede, The Netherlands). Expired air was collected for two times for 10 min with Douglas bags and volume measured. Cardiovascular observations during the 10 min with the lowest minute ventilation were analysed.



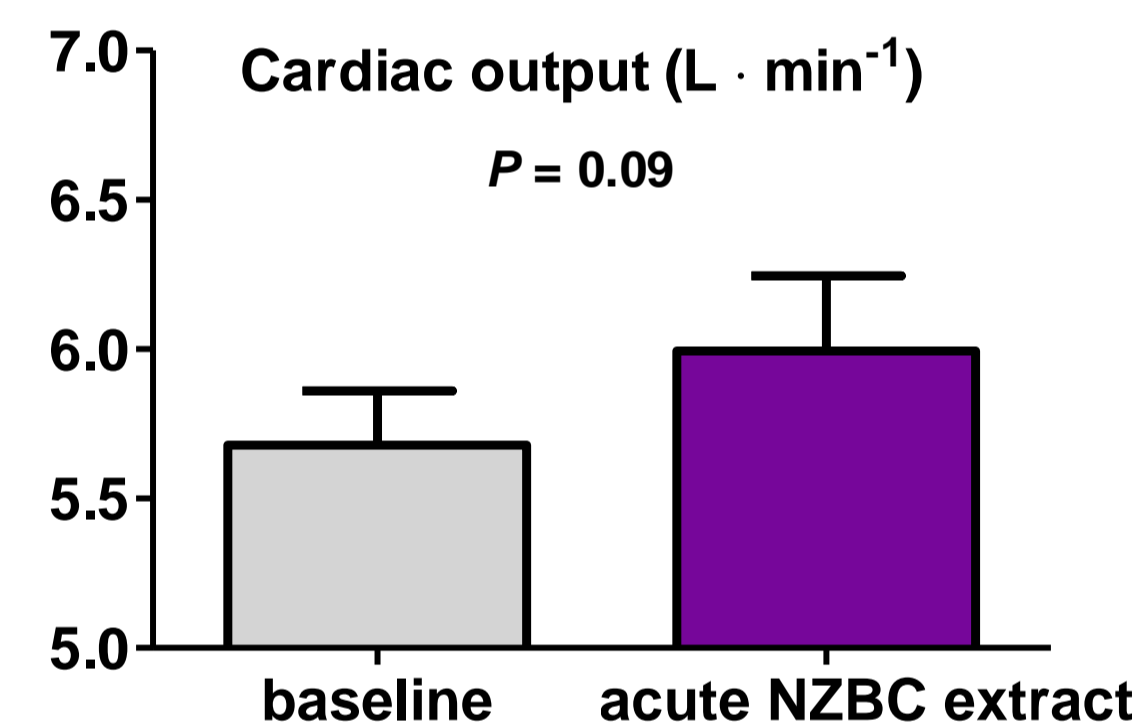
RESULTS



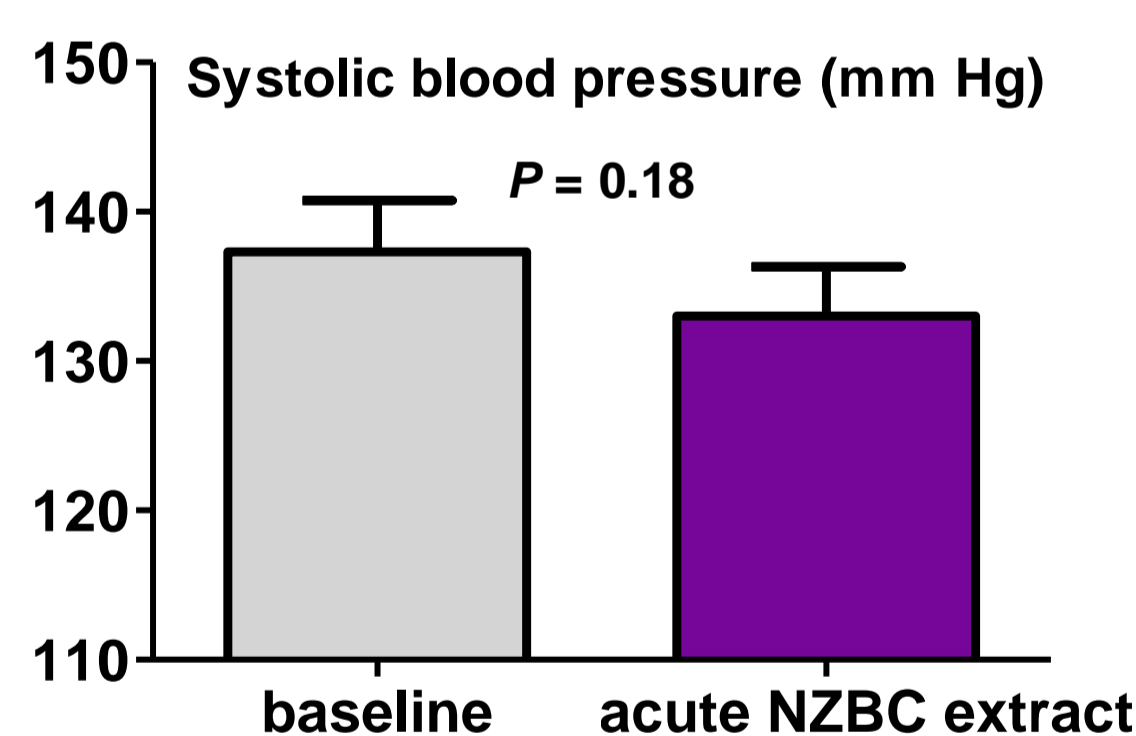
Acute intake of NZBC extract had no effect on heart rate in supine rest



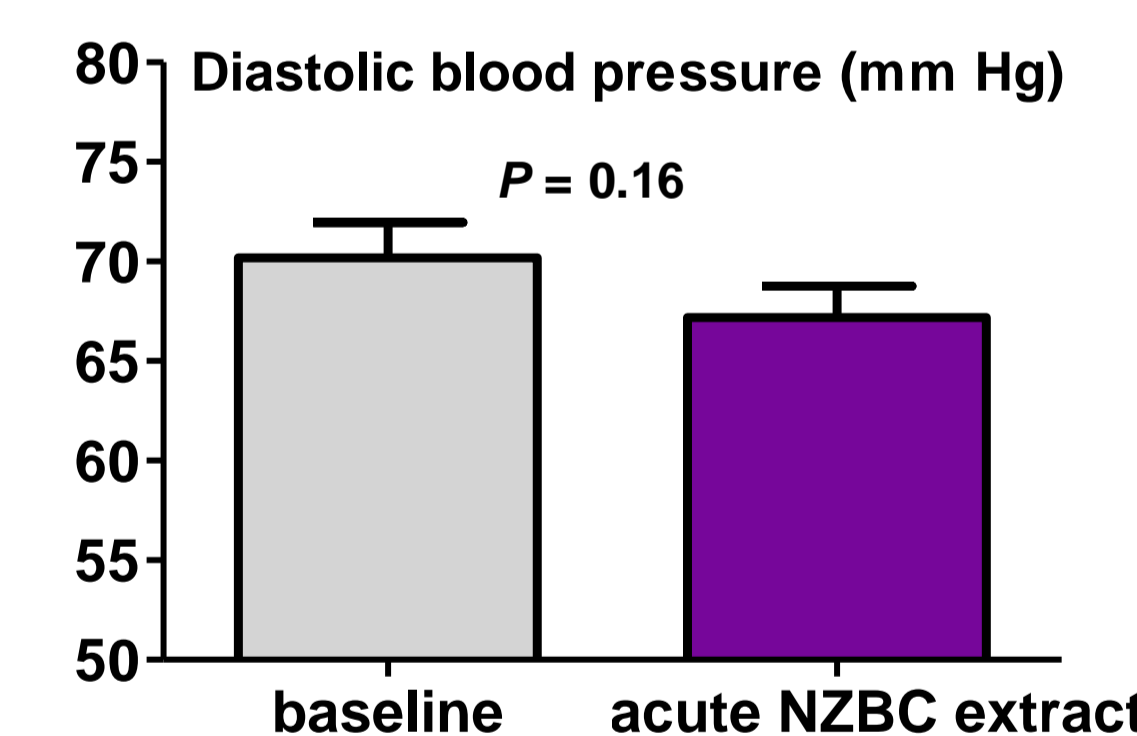
Acute intake of NZBC extract had no effect on stroke volume in supine rest



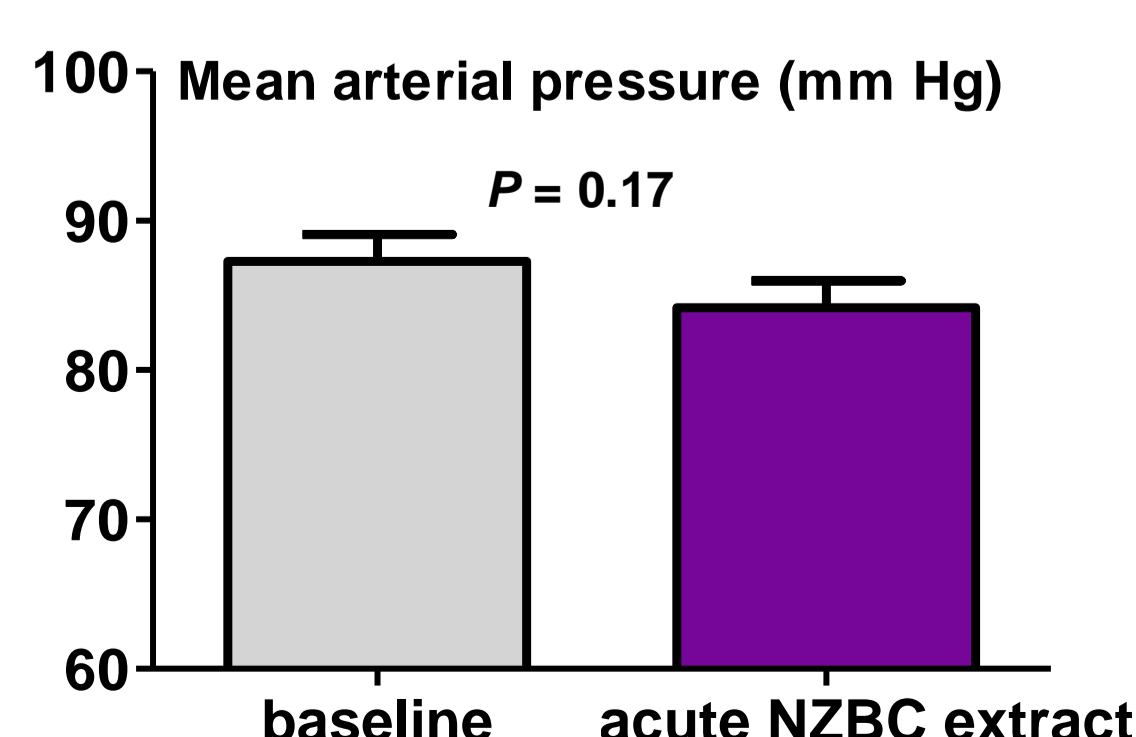
There was a trend for acute intake of NZBC extract to increase cardiac output by 5% in supine rest



Acute intake of NZBC extract had no effect on systolic and diastolic blood pressure in supine rest

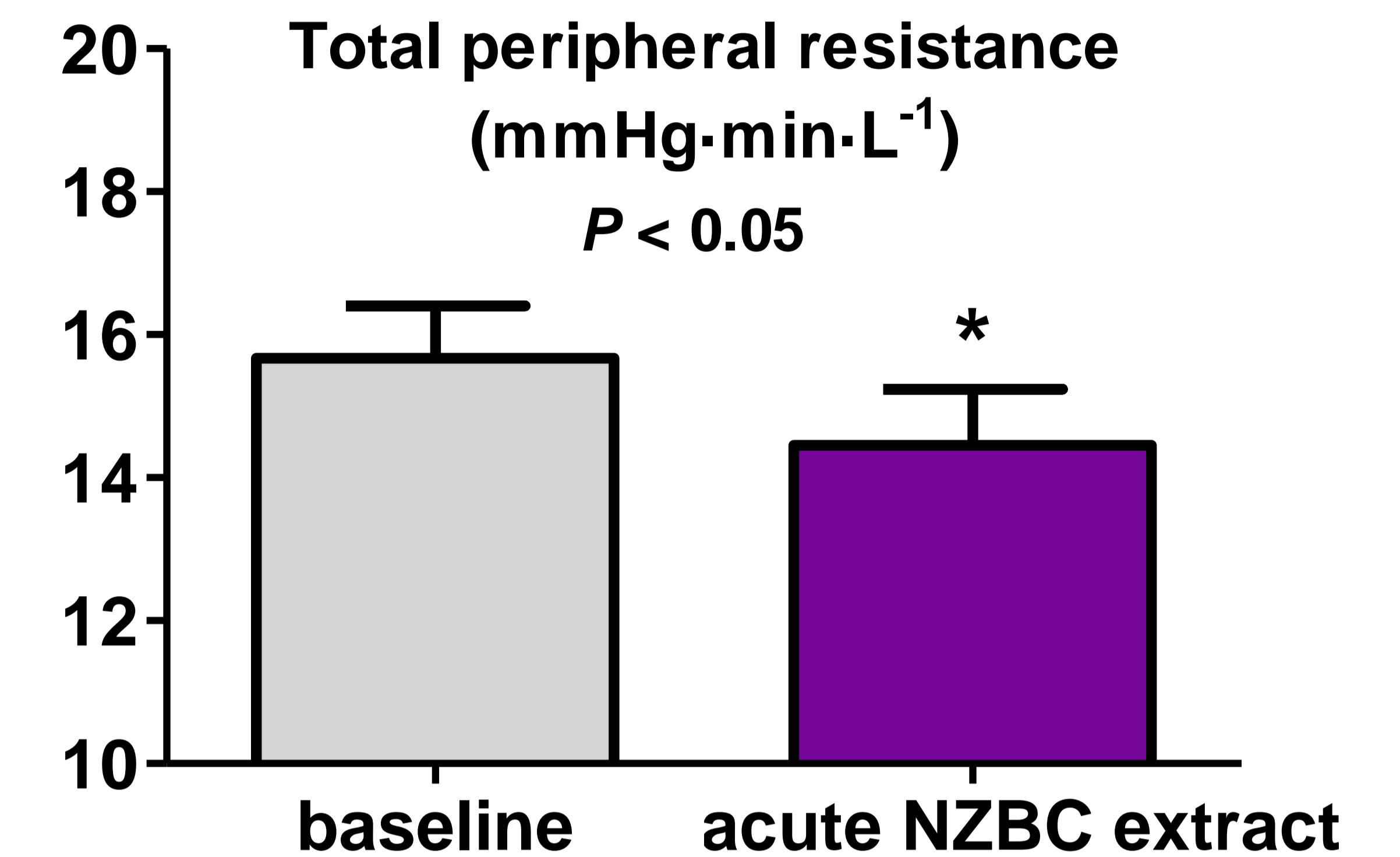


10 out of 15 participants had lower systolic and diastolic blood pressure values with acute intake of NZBC extract



Acute intake of NZBC extract had no effect on mean arterial pressure in supine rest

RESULTS CONT'D



Acute intake of NZBC extract reduced total peripheral resistance by 7% in supine rest (Cohen's d = -0.41)

CONCLUSION

In previous work, we observed with 7- and 14-day intake of New Zealand blackcurrant extract larger changes in cardiac output and total peripheral resistance (e.g. 15% and 20% [1]) than in the present study. Our observations indicate only a moderate effect on cardiovascular function at rest with acute intake. Future studies need to address whether intake of New Zealand blackcurrant extract is effective in people with hypertension or peripheral arterial disease.

REFERENCES

- [1] Cook MD, Myers SD, Gault ML, Edwards VC, Willems MET. Cardiovascular function during supine rest in endurance-trained males with New Zealand blackcurrant: A dose-response study. *European Journal of Applied Physiology*, 117(2), 247-254, 2017.
- [2] Lyall KA, Hurst SM, Cooney J, Jensen D, Lo K, Hurst RD, Stevenson LM. Short-term blackcurrant extract consumption modulates exercise-induced oxidative stress and lipopolysaccharide-stimulated inflammatory responses. *American Journal of Physiology-Regulatory, Integrative and Comparative Physiology*, 297(1), R70-R81, 2009.

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