



Effect of acute supplementation with New Zealand berry anthocyanin-enriched drink on repeated sprint performance in recreationally active males

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Consumption of 300 mg of a New Zealand berry extract containing 105 mg anthocyanins for 7 days has been shown to increase running distance during repeated sprints to exhaustion⁽¹⁾. The supplemented group also displayed higher blood lactate concentration over the first thirty minutes of recovery time⁽¹⁾. However, there is limited research available on the acute effects of berry-derived anthocyanins on sports performance. We aimed to evaluate the effect of a single dose of 12 g of a New Zealand berry anthocyanin-enriched powder (NZBP) supplement containing 120 mg of anthocyanins on sprint performance in a randomised controlled crossover trial using the modified Loughborough Intermittent Shuttle Test (m-LIST). The m-LIST protocol consisted of 6 x 15-min blocks divided into four blocks of “prescribed-pace” activity (blocks 1 - 4) (participants exercise based on audible signals) followed by two blocks of “self-paced” (blocks 5, 6) running (no audible signals) with a 3-min rest period between each block. Each block consisted of repeated sequences of 3x20 m walks at 5.4 km/h, 1x15 m sprint, 3x20 m run and 3x20 m jog. Fourteen recreationally active males (mean ± SD age: 29.53 ± 9.35 years, height: 170.84 ± 24.13 cm, weight: 76.24 ± 8.26 kg, $\dot{V}O_{2max}$: 46.64 ± 4.40 mL·kg⁻¹·min⁻¹) participated in three indoor sessions. The first session focused on a multistage fitness test (beep test) to determine $\dot{V}O_{2max}$ and the run and jog prescribed speeds for blocks 1 to 4. For the main trial visits (minimum 7-day wash-out period in between), participants consumed a body weight adjusted standardised dinner (lasagna, garlic bread, banana, and salad greens) and arrived at the laboratory fasted the next morning (between 6-7:30 am). They then consumed the study supplement (NZBP supplement or placebo mixed with 100 ml water) along with the standardised breakfast (100 g yogurt, 50 g granola, and 30 ml milk). One hour after breakfast the participants undertook a 10-min standardised warm-up, followed by the m-LIST protocol. No significant differences (two-way repeated measures ANOVA; $p = 0.286$) were found in average sprint speed from blocks 1 to 6 within or between NZBP and placebo groups. No effect of supplementation and no interaction effect was observed for sprint distance, sprint time, heart rate, reaction time, movement, or blood lactate concentration. The observed changes induced by repeated sprints on ratings of feeling scale, felt arousal scale, and perceived exertion ($p = <0.001$, all) were also not affected by supplementation ($p = 0.679$, $p = 0.288$, $p = 0.327$ respectively). Thus, an acute dose of NZBP containing 120 mg anthocyanins under the conditions reported here did not improve repeated sprint performance in recreationally active males.

Keywords: football; exercise; Loughborough Intermittent Shuttle Test; sports performance

Ethics Declaration

Yes

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Reference

1. Perkins IC, Vine SA, Blacker SD & Willems ME (2015) *Int J Sport Nutr Exerc Metab* **25**, 487–93.