**The impact of dietary nitrate supplementation on 2000 m rowing performance in well-trained, male, competitive rowers.**

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Six days of dietary nitrate supplementation (500 ml.d-1) has been shown to enhance rowing ergometer performance in junior, male rowers. More recently, concentrated dietary nitrate beverages, of smaller quantity, have emerged to the market. The aim of this study was to explore the impact of dietary nitrate ingestion on 2000m indoor rowing performance in well-trained, competitive, young adult, male rowers following a 4 day concentrated beetroot juice supplementation intervention (140 ml.d-1). A within-subjects double-blind, randomised, placebo-controlled cross-over study design was adopted. The study received institutional ethical approval. Six well-trained, male competitive rowers were voluntarily recruited (age, 22±2 years; stature, 1.83±0.09 m; body mass, 75.8±11.7 kg). Each completed three 2000 m rowing trials: Baseline (no supplementation), experimental (beetroot juice [BR] supplementation, James White Ltd, 140 ml.d-1 over 4 days) and a control (BR placebo, James White Ltd, 140 ml.d-1 over 4 days). Trial order was randomised and a wash-out period of 7 days between trials was included. Participants were asked to abstain from heavy exercise for 24 h before trials to ensure they were in a fully rested state, and asked to avoid alcohol, caffeine or any other stimulant or non-prescribed nutritional supplement for 24-48 h. Participants were instructed to ingest the BR and the BR placebo beverages in the morning and evening for the three days prior to each rowing trial, and on the day of testing consumed the BR and the BR placebo beverages 2 h prior to the rowing trial. On test days participant resting systolic and diastolic blood pressures (SBP and DBP) and heart rate (HR) were monitored in the laboratory between the point of BR or BR placebo ingestion and the start of the rowing trial. Following a self-selected warm-up,participants completed the 2000 m rowing trials at a fixed stroke rate (22-28 strokes.min-1; drag factor 135-139). HR, Blood lactate and respiratory parameters (breath-by-breath gas analysis) were recorded every 500 m. Overall performance time, and 500 m split performance times were noted. Main findings showed an improved 2000 m rowing performance following BR supplementation compared to baseline (mean±SD: 425±25 s v 431±22 s, Δ0.9%, d=-0.25) and compared to BR placebo (mean±SD: 429±26 s Δ0.9%, d=0.16). Performance improvements were also noted compared to baseline in the control (BR placebo) group (Δ0.5%, d=0.08). To conclude, BR supplementation over 4 days elicits small enhancements in 2000 m rowing performance in young, well-trained, male competitive rowers.

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