

Improved dry static apnea performance after acute dietary nitrate supplementation

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The effects of acute nitrate supplementation on resting blood pressure, and on apneic duration and post apneic SaO₂ were studied in twelve well-trained apnea divers. Subjects received 70 ml beetroot (BR) and placebo (PL) juice in a randomized, double blinded, crossover study. At 2.5 h post-ingestion, the subjects completed a series of two 2-minute static apneas separated by three minutes of rest, followed by a maximal effort apnea after 5 min rest. Relative to PL, BR reduced resting mean arterial pressure by 2% (PL: 86±7 vs. BR: 84±6 mmHg; P=0.04). The mean nadir SaO₂ after sub-maximal apneas was 97.2±1.6% in PL and 98.5±0.9% in BR (P=0.03), while it was more reduced after the longer maximal apneas in BR (P≤0.05). BR increased maximal apneic duration by 11% (P=0.04). The diving response was similar between conditions. The results show that dietary nitrate supplementation prolong apneas, likely by reducing metabolic costs.