



Nitrate supplementation: 3-5% performance benefit.

Cermak, et.al (2012), research has been happening for the last decade on nitrates. Beetroot and spinach has a high nitrate component and occurs naturally in this produce.

Cermak, et.al (2012) found 6 days of nitrate supplementation reduced VO₂ during submaximal exercise (less oxygen required to do the same amount of work at intensity below your VO₂max, Vo₂max is around upper limit of power zone 5) and improved time trial performance in a 10km TT in trained cyclists.

Key findings around nitrate research:

Double blind studies of nitrate beetroot juice and non-nitrate beetroot juice have been consuming empirical research.

Required dosage (8mmol NO₃/day), effects acutely available in 3+/days, would require 200-300g of spinach or beetroot (Lundberg & Govoni, 2004).

The nitrate ergogenic effect is potentiated in hypoxia (altitude) (Vanhatalo et.al, 2011).

Nitrates lower the ATP (currency of energy) cost of muscle-force production suggesting enhanced contractile efficiency, thus a lower VO₂ required for the same amount of work (Bailey et.al, 2010). Or a greater amount of ATP per oxygen consumed (Larsen et.al, 2011).

Sub-maximal exercise intensity of 45-65% of VO₂max output lowers vo₂ work rate by 3.5-5.1%.

A longer time to exhaustion (ultra-endurance events), (Bailey, 2010).

In time trials results have shown: 2.75% increase in performance for 4-16km TT's (Lansley, Winyard & Bailey, 2011).

Recommendations:

Beet-shots provide a commercially available solution for nitrate ingestion, even though epidemiological data do not provide strong evidence to restrict nitrate consumption (Alexander, et.al, 2008).

5-6mmol or 250-300mg of nitrates before exercise, in acute settings or prolonged use of such dosage required (Ausgov-sport).

Do not consume Nitrate close to using anti-bacteria tooth-treatment/toothpaste etc. Reduces the effectiveness of nitrate transportation via bacteria.

Or purchase of sodium nitrate may be suitable and difficult to get ones hands on.