

Beet It[®]  **SPORT**

**BEETROOT JUICE FOR
ATHLETIC PERFORMANCE**



INFORMATION FOR NUTRITIONISTS AND DIETICIANS



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ABOUT US

Beet It Sport is part of James White Drinks, a Suffolk-based soft drinks manufacturer which has been making fruit and vegetable juices for more than 30 years.

We started bottling beetroot juice in 2005 and have been supplying beetroot juice for research into dietary nitrate supplementation since 2008. In 2009, the University of Exeter published the first human study using our Beet It beetroot juice for exercise performance, and reported six days of dietary nitrate supplementation significantly reduced the oxygen cost of exercise by 5% and delayed the onset of fatigue by 16%.

Our Beet It Sport shots have since been extensively adopted by both the research community (over 300 universities and research institutions worldwide) and the elite sports world (over 150 professional sports teams) as a natural source and controlled dose of dietary nitrate (400mg per 70ml shot).

All published studies that have used our products are completely independent as we do not fund research, thus the research is not subject to funding bias.

Over one million Beet It shots are now produced annually and we export to over 25 countries worldwide, including the USA, Australia and China.

We believe our Beet It Sport products are the best – researched by the best, used by the best; that's who we are – James White: Bold By Nature.



Beet It Sport products carry the Informed Sport logo, which means they have been test by LGC's world-class sports anti-doping laboratory to ensure product trust and integrity.

With Informed Sport, athletes can be confident their reputation is in safe hands.

INTRODUCTION

Dietary supplements play an important role in an athlete's sports nutrition plan, to support general health, recovery and enhance exercise performance. However, few dietary supplements are considered to have an adequate level of scientific evidence to support their use as safe, legal and effective¹.

Over the last decade, a substantial amount of independent research, as recently acknowledged by the International Olympic Committee¹, has shown that dietary nitrate supplementation via beetroot juice can enhance performance in several sport and exercise activities when dosed sufficiently².

The purpose of this report is to summarise the scientific evidence of the benefits of beetroot juice for athletic performance in order to help dietitians, nutritionists and athlete support staff in making considered decisions regarding the use of Beet It Sport products.

The report will also allude the usage of Beet It Sport in elite sports and potential health benefits to the general 'non-athletic' population.

Beet It Sport is not intended to prevent, treat or cure disease.

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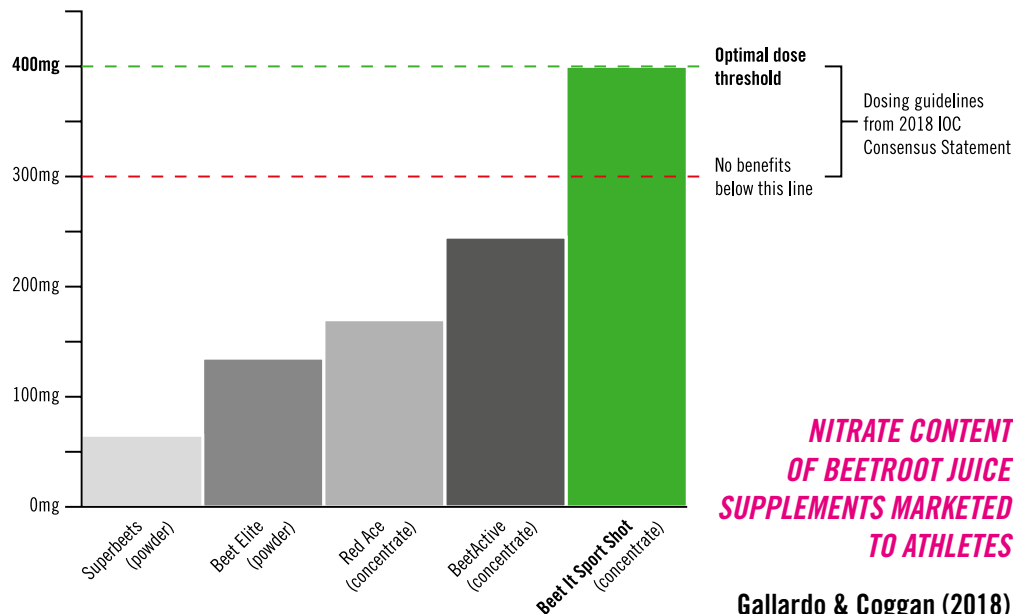


WHAT'S IN YOUR BEETROOT JUICE?

The dietary nitrate content of beetroot varies substantially, so it is difficult to know exactly how much nitrate any product contains and therefore if the amount is sufficient to enhance exercise performance.

There are many beetroot juice supplements marketed to athletes, yet most contain little-to-no dietary nitrate, thus offering minimal, if any, performance benefit.

To test this, researchers at IUPUI independently analysed the dietary nitrate content of beetroot juice products marketed to athletes. Our Beet It Sport Nitrate 400 shot was the only beetroot juice product to consistently contain an adequate dose (>300mg) of dietary nitrate per serving (400mg)³.



PLACEBO EFFECT

A placebo effect is a positive outcome brought about purely from the belief that one has received a successful intervention; so do Beet It Sport products actually work?

To tackle this phenomenon, we developed placebo shots in conjunction with the University of Exeter; these are a version of the Nitrate 400 shot identical in appearance and taste to the standard product, but with a negligible nitrate content.

Researchers worldwide now use our placebo shots to conduct double-blind, placebo-controlled trials to eliminate the possibility of a placebo effect and, ultimately, to increase the robustness of their research.

Since 2008, more than 300 universities and research institutions around the world have used Beet It for their research, which has led to over 250 independent studies published into the health and sports benefits of dietary nitrate supplementation; it should be noted that we ourselves do not fund any of this research.

Since 2014, 170 studies have been published alone using our Beet It beetroot juice, representing a 600% increase over the 2009-2013 period.

Beet It Sport is simply the number one natural nitrate supplement for researchers and athletes alike.



Beet It Sport placebo shots have been absolutely essential to our research efforts, as they allow us to be confident that the effects we see are in fact due to nitrate...

Associate Professor Andrew Coggan,
Indiana University-Purdue University Indianapolis (IUPUI)

THE SCIENCE

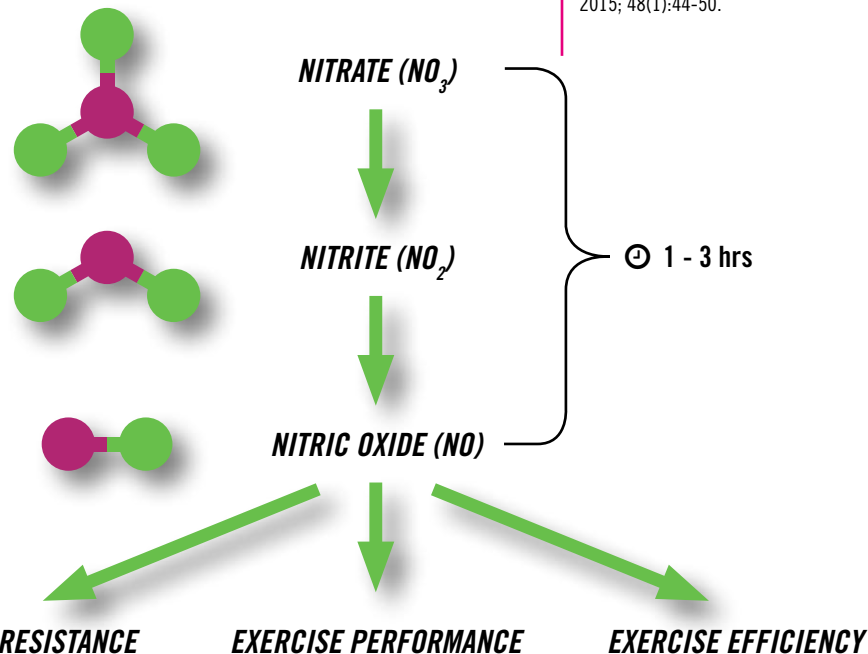
Dietary nitrate is the abundant, active compound in green leafy vegetables and beetroot, responsible for the favourable physiological, cardio-protective and metabolic effects in humans.

Conversion first occurs in the mouth, where dietary nitrate becomes reduced to nitrite⁴, before being converted into nitric oxide in the stomach⁵ and blood stream⁶. Nitric oxide is a multifunctional molecule, responsible for myriad physiological effects, including the regulation of blood flow, muscle contractility and metabolism⁷.

Absorption time of dietary nitrate has been shown to be between 1 - 3 hours and remains elevated for around six hours, before returning to baseline between 12 and 24 hours post-ingestion⁸.

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DOSING GUIDELINES

Dosing guidelines are widely acknowledged to be between 400mg and 800mg of dietary nitrate per day, consumed for three to six consecutive days, with a final dose consumed between 60 and 90 minutes prior to training and / or competition^{9, 10}.

Both acute (one day) and chronic (three to six consecutive days) supplementation has been shown to improve exercise performance¹⁰, although the latter dosing regimen is widely regarded as optimal for athletes looking to increase the likeliness of gaining a performance benefit¹.

Chronic supplementation of dietary nitrate is thought to cause physiological adaptations in the skeletal muscle which would not otherwise occur with acute supplementation¹¹.

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ENDURANCE

Dietary nitrate supplementation via beetroot juice has been associated with improvements of 4-25% in exercise time to exhaustion and of 1-3% in time trial performances lasting greater than 40 minutes in multiple sports, including running, cycling and rowing¹.

To put these improvements into perspective, the difference between 1st and 12th place in the 10,000m men's running final at the 2012 London Olympics was only 0.66%¹². Therefore, the evidenced-based improvements offered by Beet It Sport can be particularly meaningful to endurance athletes in competition.

Potential underlying mechanisms include improved oxygen delivery through vasodilatory effects of nitric oxide, reduced oxygen cost of exercise and alterations in cellular energetics¹³.

We supply our Beet It Sport products to many professional endurance sports teams from around the world, including teams in cycling's UCI World Tour (cycling), ITU World Triathlon and World Rowing.



“

“I feel my power and endurance are enhanced when I take Beet It Sport and it allows me to compete at a higher level for longer – this is great for TT where every second counts!”

*Joanna Patterson, National 100-mile TT champion & record holder
Beet It Sport Ambassador*

MULTI-SPRINT

Team sports typically involve multiple high-intensity efforts of less 30 seconds, interspersed with rest periods of greater than 90 seconds¹⁴. Athletes are required to maintain performance during successive high-intensity intervals over long periods of time, whilst simultaneously making rapid and accurate decisions.

Dietary nitrate supplementation (400-800mg) over 5-7 days, has been shown to improve high-intensity, intermittent team-sport exercise performance by 3-5%^{15,16} and attenuate the decline in cognitive function associated with fatigue (for example reaction time and decision making) by 3.5%¹⁵.

Dietary nitrate intake has been shown to increase blood flow to type II muscle fibres¹⁷, which are largely recruited during such short-duration high-intensity intermittent exercise and also increase blood flow to the brain¹⁸, which may explain the beneficial effects of beetroot juice to cognitive function during exercise.

We supply more than 150 professional multiple-sprint sports clubs, including teams in the English Premier League, Premiership Rugby Union, International Rugby Union, Super Rugby League, NFL, NHL, NBA, and the MLS.



“

“I've been drinking Beet It Sport for a number of years now – it's a top product!”

*Jermaine McGillvary, England & GB Rugby League
Beet It Sport Ambassador*

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STRENGTH & POWER

Many sports require an intermittent and / or sustained level of high power output for success, such as cycling sprint finishes and breakaways, evasion in rugby and football and explosive repetitions in Olympic weight lifting.

Studies have shown that acute and chronic dietary nitrate supplementation can influence muscle contractile properties and increase human muscle speed and power production¹⁹. For example, ingestion of two Beet It Sport shots (800mg nitrate) has been shown to significantly increase maximal knee extensor speed and power by 11% and 6% respectively¹⁹.

Moreover, the consumption of just one Beet It Sport shot has been shown to increase muscle speed (+6.5%), power (+19.5%) and total repetitions completed (+9.4%), during bench press exercises²⁰. Furthermore, relative to placebo shots, the intake of two Beet It Sport shots has been shown to increase concentric and eccentric muscle power production by 15-25% during maximal squat exercises²¹.

Potential underlying mechanisms include nitric oxide-induced increases in neuromuscular efficiency²², increased contractile efficiency, reduced metabolic cost of exercise²³ and fibre-type specific effects of nitrate supplementation¹⁷.



“

I honestly feel the benefits of Beet It Sport during my performance in the gym...”

*Tom Stoltman, World's Strongest Man 2021,
World's Strongest Man 2nd 2020 / 5th 2019,
Scotland's Strongest Man 2019,
Beet It Sport Ambassador*

ALTITUDE

Exposure to altitude can have a profound negative effect on exercise performance, as the hypoxic environment decreases blood vessel function and subsequently the amount of oxygen that reaches the lungs, blood and muscles²⁴.

A team of Norwegian and Swedish researchers decided to test whether dietary nitrate supplementation via beetroot juice could improve blood vessel function at high-altitude during a 39-day expedition to Kathmandu and also at 3700 metres in the Rolwaling Valley, Nepal²⁵.

Results found that dietary nitrate supplementation improved blood vessel function, causing them to relax and return to normal function at altitude, whereas the placebo group presented no effect.

Svein Erik Gaustad, lead author of the report, noted that, “next time you plan a trip at high altitude, maybe it is worth carrying a bottle of beet juice in your backpack. It may be the extra boost your body needs to deliver enough oxygen to your tired muscles and keep you healthy when you are climbing a high mountain.”



“

Beet juice ... may be the extra boost your body needs to deliver enough oxygen to your tired muscles and keep you healthy when you are climbing a high mountain...”

Svein Erik Gaustad, mountaineer and researcher

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HEALTH

Unlike other supplements for athletic performance, dietary nitrate supplementation via beetroot juice may provide health benefits for the general, non-athletic, public.

For example, researchers at Queen Mary University of London and the William Harvey Research Institute reported that consumption of 500ml of Beet It beetroot juice significantly reduced blood pressure by -10/8 mm Hg, three hours after ingestion²⁶.

Furthermore, a recent systematic review and meta-analysis of 43 randomised controlled trials (95% of which used Beet It), reported beetroot juice supplementation significantly lowered blood pressure in healthy participants aged between 21-69 years, relative to placebos²⁷.

Dietary nitrate supplementation via beetroot juice has also been shown to benefit older or diseased populations with positive outcomes on cardiovascular health, cerebrovascular health (eg. increased blood flow to the brain) and physical performance²⁸.

Research has also recently shown that seven days of Beet It Sport shot supplementation may protect against cold symptoms during periods of psychological stress, possibly due to the immune-protective properties of increased nitric oxide levels²⁹.

The health benefits of beetroot juice are far-reaching and the evidence base continues to grow at a substantial rate.



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FREQUENTLY ASKED QUESTIONS

Are there any side effects of consuming Beet It Sport products?

Beet It Sport products either contain 100% concentrated beetroot juice (Nitrate 3000) or 98% concentrated beetroot juice with 2% lemon juice (Nitrate 400). Our products have been scientifically tested on thousands of athletes over the last decade and beeturia (pink urine and stools) is the only side effect reported; beeturia dissipates within 12 hours.

Can I use mouthwash while using Beet It Sport?

Most anti-cavity fluoride-containing mouth rinses have no effect on the conversion of nitrate, however there is evidence to show that some antibacterial mouth rinses containing chlorhexidine might disrupt the conversion of nitrate to nitrite in the mouth. You should consider avoiding these if you are using Beet It Sport to improve performance³⁰.

Is synthetic / chemical nitrate as effective as natural nitrate?

No; dietary nitrate from beetroot juice has been shown to promote greater exercise benefits than synthetic forms of nitrate (potassium and sodium nitrate), possibly due to a number of other compounds in beetroot juice that have antioxidant properties (polyphenols and betacyanins) and which may increase the capacity for nitric oxide synthesis compared to synthetic / chemical forms of nitrate³¹.

What is the difference between Beet It Organic shots and Beet It Sport shots?

Beet It Organic shots (purple labelling) contain 300mg of nitrate, while Beet It Sport shots (silver labelling) contain 400mg of nitrate, derived solely from concentrated beetroot juice. Beet It Organic shots are intended to contribute to a healthy active lifestyle, whereas Beet It Sport shots are intended specifically for sports performance.

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NITRATE 400 SHOT

A guaranteed daily dose of dietary nitrate packed into a pocket-sized 70ml shot.

INGREDIENTS

Concentrated beetroot juice (98%),
lemon juice (2%); made from concentrates.

NUTRITIONAL INFO

	per 70ml shot	per 100ml
Energy	373kJ / 88kcal	532kJ / 126kcal
Fat	0g	0g
– of which saturates	0g	0g
Carbohydrates	18.0g	25.7g
– of which sugars	17.0g	24.3g
Protein	3.7g	5.3g
Salt	0.48g	0.69g



**EACH 70ML SHOT IS THE
EQUIVALENT OF 300 -
500ML OF BEETROOT JUICE**



NITRATE 3000 CONCENTRATE

A beetroot super concentrate with seven daily servings of 400mg dietary nitrate packed into a 250ml bottle.

INGREDIENTS

Concentrated beetroot juice (100%)

NUTRITIONAL INFO

	per 35ml dose	per 100ml
Energy	294kJ / 46kcal	553kJ / 130kcal
Fat	0g	0g
– of which saturates	0g	0g
Carbohydrates	9.4g	26.8g
– of which sugars	8.7g	24.9g
Protein	2.0g	5.7g
Salt	0.24g	0.69g



**EACH 35ML SERVING
CONTAINS MORE THAN
400MG DIETARY NITRATE**



**Did you know we have new addition to the Beet It range:
Beet It Regen Cherry+ is novel recovery shot.**

*Packed with antioxidants from a sour cherry juice concentrate (58%)
and beetroot juice concentrate (42%).
No dilution required, for quick and convenient on-the-go consumption.*



NITRATE 8000 CRYSTALS

Your super source of nitrate now available as a delicious crystal product!

INGREDIENTS

Concentrated beetroot juice (100%).

NUTRITIONAL INFO

	per serving	per 100g
Energy	142kJ / 34kcal	1384kJ / 326kcal
Fat	<0.1g	<0.5g
– of which saturates	<0.1g	<0.1g
Carbohydrates	6.8g	65g
– of which sugars	6.6g	62g
Protein	1.6g	15g
Salt	0.3g	3.1g



**EACH TWO-SCOOP SERVING
CONTAINS 400MG
NATURAL DIETARY NITRATE**



UNIVERSITIES & INSTITUTES

More than 300 universities and research institutions in over 30 countries around the world have purchased our concentrated beetroot juice for research purposes, most notably including:

EUROPE

- University of Exeter, UK
- William Harvey Research Institute, UK
- Maastricht University, Netherlands
- Karolinska Institute, Sweden
- Masaryk University, Czech Republic
- Norwegian School of Sport Sciences, Norway
- University of Basel, Switzerland
- Université Libre de Bruxelles, Belgium
- University Hospital Heidelberg, Germany
- University College Dublin, Ireland

NORTH AMERICA

- University of British Columbia, Canada
- University of Pennsylvania, USA
- Wake Forest University, USA
- Washington University in St. Louis, USA

SOUTH AMERICA

- Federal University of Sao Paulo, Brazil
- Universidade Norte do Parana, Brazil
- University of Concepcion, Chile
- Universidad de las Americas Puebla, Mexico

AUSTRALASIA

- Australian Institute of Sport, Australia
- University of Sydney, Australia
- University of Western Australia, Australia
- Canterbury Christ Church University, New Zealand

ASIA

- University School of Stomatology, China
- Tehran University of Medical Sciences, Iran
- Yamanashi Institute of Environmental Science, Japan
- Kyung Hee University, South Korea



“ We’ve been using Beet It in our research for almost a decade. Beet It are able to tell us exactly how much nitrate each shot contains, which is perfect for our scientific research...”

Professor Andy Jones, University of Exeter



FIND OUT MORE...

Email us at info@beet-it.com or call 01473 890111

Connect with us:  [BeetItSport](#) |  [beetitsport](#) |  [@BeetItSport](#)

BEET IT SPORT

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