

Beetroot boosts sporting performance in athletes

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Beetroot juice. Credit: Shutterstock

It's the bright-red root veggie more often found in a borscht than a breakfast smoothie, but the humble beetroot could become one of the next go-to foods for athletes as UniSA research shows it can provide a competitive edge when it comes to playing sport.

Evaluating the performance effects of foods that are thought to have a beneficial effect on aerobic performance, researchers found that beetroot, grapes, sour cherries, and pine bark extract, which contribute to nitric oxide availability in the body, boost endurance exercise performance.

Assessing data from 118 studies involving 1,872 participants from 25 different countries, the [meta-analysis](#) evaluated the effect of consuming nitrate-rich foods (typically [green leafy vegetables](#)), foods that contain polyphenols (such as berries, cherries

and cocoa), and L-Citrulline (found in watermelon) on exercise endurance performance.

The study, published in the *Journal of the International Society of Sports Nutrition*, found that the [nitrate levels](#) contained in beetroot, which have been shown to boost [blood flow](#) and increase the delivery of nutrients and oxygen to muscles during exercise, helped athletes perform better more quickly.

Similarly, the polyphenols in grapes, cherries and pine bark extract helped protect nitrate from degradation in the body, boosting stamina. And, despite the ability of L-citrulline to boost nitric oxide production in the body, consuming watermelon (high in L-citrulline) did not boost exercise performance.

Lead researcher and UniSA Ph.D. candidate Noah D'Unienville says these findings provide further evidence of foods as natural endurance enhancers.

"There's a lot of interest in nitrate-rich and polyphenol-rich foods because of their potential to boost exercise performance, but just because they contain these elements, doesn't mean this will translate into improved exercise performance," D'Unienville says.

"While our study shows that beetroot (among other foods) can boost performance, other nitrate-rich foods such as red spinach, Swiss chard and rhubarb, did not show similar benefits.

"Also, while grapes, pine bark extract, and sour cherries can help athletes perform better and faster, we found no effects for other polyphenol-rich foods, including blackcurrant, cocoa, ginseng, green tea or raisins."

Co-researcher, UniSA's Professor Jon Buckley says that while these foods were effective in boosting [exercise](#) performance and building

stamina, their effects did discriminate.

"The results did show that more significant effects among athletes who were less fit, and also that men were more likely to benefit from these foods than women," Prof Buckley says.

"Certainly, there were some limitations with the sample size of women, but this finding does suggest further investigation is warranted.

"All in all, we know that trying to get fit takes time and effort but add a glass of [beetroot](#) juice to your training schedule and you just might see the difference."

More information: Noah M. A. d'Unienville et al, Effect of food sources of nitrate, polyphenols, L-arginine and L-citrulline on endurance exercise performance: a systematic review and meta-analysis of randomised controlled trials, *Journal of the International Society of Sports Nutrition* (2021). [DOI: 10.1186/s12970-021-00472-y](https://doi.org/10.1186/s12970-021-00472-y)

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