

Beetroot juice supplements may help certain heart failure patients

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Credit: Indiana University

Beetroot juice supplements may help enhance exercise capacity in patients with heart failure, according to a new proof-of-concept study. Exercise capacity is a key factor linked to these patients' quality of life

and even survival.

The study examined the impact of dietary nitrate in the form of beetroot juice supplements on the [exercise capacity](#) of eight [heart failure](#) patients with reduced ejection fraction, a condition in which the heart muscle doesn't contract effectively and can't get enough oxygen-rich blood to the body.

Tens of millions of people suffer from heart [failure](#). In about half of all such people, the ejection fraction of the heart is reduced.

Because of their condition, these patients exhibit labored breathing, have diminished peak oxygen uptake and use more energy while exercising than would otherwise be the case.

Researchers found that the beetroot supplement resulted in significant increases in exercise duration, peak power and peak oxygen uptake while exercising.

Those improvements were not accompanied by any changes in the breathing responses of the patients, and there was no change in their exercise efficiency, a measure of how much external work a person gets for a certain input of energy.

The study, titled "Dietary Nitrate Increases V_{O2} peak and Performance but Does Not Alter Ventilation or Efficiency in Patients with Heart Failure with Reduced Ejection Fraction," was published in the *Journal of Cardiac Failure*.

"Abnormalities in aerobic exercise responses play a major role in the disability, loss of independence and reduced quality of life that accompany heart failure," said Andrew Coggan, an associate professor in the Department of Kinesiology in the School of Physical Education and

Tourism Management at IUPUI and one of the researchers who conducted the study. "Perhaps more importantly, elevations in ventilatory demand and decreases in peak oxygen uptake are highly predictive of mortality in patients with heart failure."

A second important aspect of the study is there were no untoward side effects from the dietary nitrate, Coggan said: "In this case, lack of any significant changes is good news."

The data suggests that dietary supplementation may be a valuable addition to treatment for exercise intolerance among [heart failure patients](#) with reduced ejection fraction, Coggan said. Multi-center trials are needed to confirm the proof-of-concept findings and to determine whether longer-term dietary nitrate treatment improves [physical activity levels](#), quality of life and perhaps even survival in patients with [heart failure](#) with reduced ejection fraction.

More information: Andrew R. Coggan et al. Dietary Nitrate Increases VO₂ peak and Performance but Does Not Alter Ventilation or Efficiency in Patients With Heart Failure With Reduced Ejection Fraction, *Journal of Cardiac Failure* (2017). [DOI: 10.1016/j.cardfail.2017.09.004](#)

Provided by Indiana University

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