

Broccoli and kale top the shopping list for lowering blood pressure

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Cruciferous vegetables, including broccoli, cabbage, kale, and cauliflower have been found to lower blood pressure, in comparison to root and squash vegetables, in middle-aged and older Australian adults with elevated blood pressure.

In a randomized, controlled, crossover trial, researchers from Edith Cowan University (ECU) found that consuming four servings a day of [cruciferous vegetables](#) resulted in a significant reduction in blood pressure, compared with four servings a day of root and squash vegetables including carrot, potato, sweet potato and pumpkin. The [research was published](#) in *BMC Medicine*.

"Compounds called glucosinolates, which are found almost exclusively in cruciferous vegetables, have been shown to lower blood pressure in animals, but evidence in humans has thus far been limited," ECU Ph.D. student Ms. Emma Connolly said.

Additionally, cruciferous vegetables also contain several other components that likely provide additional benefits in lowering blood pressure, such as nitrate and vitamin K.

"Hypertension, or high blood pressure, is the leading risk factor for [heart disease](#), with its prevalence increasing with age," Ms. Connolly said.

"Increasing vegetable intake is widely recommended to reduce heart disease risk, and previous observational studies have shown, cruciferous vegetables like broccoli, cabbage, and Brussels sprouts, have stronger relationships with lower heart disease risk than other vegetables. However, while these vegetables are consumed globally, cruciferous vegetables typically make up a small portion of total vegetable intake."

ECU NHMRC Emerging Leader and Heart Foundation Postdoctoral Fellow Dr. Lauren Blekkenhorst noted that less than one in 15 Australian adults currently meet recommendations for [vegetable intake](#), which has continued to drop over the years.

"Cruciferous vegetables are the lowest consumed group of vegetables. If people can increase their intake of this group of vegetables, they will

receive more bang for their buck in terms of in lowering blood pressure and reducing the subsequent risk of developing heart disease later in life."

"To maintain these [health benefits](#), you should have to ideally consume these vegetables on most days of the week."

The study was conducted over a six-week period, with participants completing two two-week dietary interventions, separated by a two-week 'wash-out' period where they followed their normal diet.

During one intervention period, participants consumed four servings of cruciferous vegetables per day as soups with lunch and dinner, while during the other intervention period they consumed a root and squash vegetable soup.

The blood pressure of participants was measured continuously for 24 hours before and after both two-week intervention periods and showed a 2.5 mmHg difference in blood pressure reduction for eating cruciferous vegetables compared to root and squash vegetables.

Background diet and lifestyle remained consistent throughout the study, indicating the reduction in blood pressure seen was not influenced by these factors.

This amount of lowered [blood pressure](#) can translate to roughly 5% lower risk of experiencing a [heart attack](#) or stroke.

The Heart Foundation has welcomed the research results, with Manager for Heart Health, Kym Lang saying the research finding was fascinating.

"The Heart Foundation encourages people to eat a variety of vegetables every day as part of a heart-healthy eating pattern. You can experiment

with adding cruciferous vegetables, like broccoli or kale, to your meals. We look forward to continuing to learn more about the role cruciferous vegetables play in heart health."

More information: Emma L. Connolly et al, Cruciferous vegetables lower blood pressure in adults with mildly elevated blood pressure in a randomized, controlled, crossover trial: the VEgetableS for vaScular hEaLth (VESSEL) study, *BMC Medicine* (2024). [DOI: 10.1186/s12916-024-03577-8](https://doi.org/10.1186/s12916-024-03577-8)

Provided by Edith Cowan University

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