

Regular blueberry consumption may reduce risk of dementia, study finds

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The old adage says that an apple a day keeps the doctor away, but new research from the University of Cincinnati shows the potential benefit of a different fruit for your health.

Researchers led by UC's Robert Krikorian, Ph.D., found that adding [blueberries](#) to the daily diets of certain middle-aged populations may lower the chances of developing late-life dementia. The findings were recently published in the journal *Nutrients*.

Research approach

Krikorian said his team has been conducting research on the benefits of berries for people with greater risk for Alzheimer's disease and dementia for several years.

While not entirely different from other berries and plants like red cabbage, Krikorian said blueberries have a particularly high level of micronutrients and antioxidants called anthocyanins. Anthocyanins help give blueberries their namesake color and also help defend the plants against excess radiation exposure, [infectious agents](#) and other threats, Krikorian said.

These same properties that help blueberries survive also provide benefits to humans, Krikorian said, such as reducing inflammation, improving metabolic function and enhancing energy production within cells.

Previous berry studies Krikorian led focused on older populations, but with this research, the team wanted to study middle-aged individuals in order to focus on dementia prevention and risk reduction.

Krikorian explained that about 50% of individuals in the U.S. develop insulin resistance, commonly referred to as prediabetes, around middle age. Prediabetes has been shown to be a factor in chronic diseases, he said.

"We had observed cognitive benefits with blueberries in prior studies with [older adults](#) and thought they might be effective in younger

individuals with [insulin resistance](#)," said Krikorian, professor emeritus and director of the division of psychology in the UC College of Medicine's Department of Psychiatry and Behavioral Neuroscience. "Alzheimer's disease, like all [chronic diseases](#) of aging, develops over a period of many years beginning in midlife."

Study details and results

The researchers enrolled 33 patients from around the Cincinnati area between the ages of 50-65 who were overweight, prediabetic and had noticed mild memory decline with aging. Krikorian said this population has an increased risk for late-life dementia and other common conditions.

Over a period of 12 weeks, the patients were asked to abstain from berry fruit consumption of any kind except for a daily packet of supplement powder to be mixed with water and consumed either with breakfast or dinner. Half of the participants received powders that contained the equivalent of one-half cup of whole blueberries, while the other half received a placebo.

Participants were also given tests that measured certain [cognitive abilities](#) that decline in patients with aging and late-life dementia, such as executive functions like working memory, mental flexibility and self control.

Krikorian said those in the blueberry-treated group showed improvement on cognitive tasks that depend on executive control.

"This was evident as reduced interference of extraneous information during learning and memory," Krikorian explained.

Patients in the blueberry group also had lower fasting insulin levels,

meaning the participants had improved metabolic function and were able to more easily burn fat for energy.

Krikorian said the blueberry group displayed an additional mild degree of higher mitochondrial uncoupling, a cellular process that has been associated with greater longevity and reduced oxidative stress. Oxidative stress can lead to symptoms like fatigue and memory loss.

"This last finding was exploratory but points to an interesting, potential mechanism for blueberry benefits," he said.

Moving forward, Krikorian said he is interested in better understanding the exact mechanisms of blueberries that help to improve cognitive performance and metabolic function. But the main takeaway from the current study is that regular [blueberry](#) supplementation into at-risk middle-aged diets may lower the chances of developing late-life dementia.

"The sample size is an obvious limitation of the study, so it will be important to reproduce these findings, especially by other investigators," Krikorian said. "In the meantime, it might be a good idea to consume blueberries on a regular basis."

More information: Robert Krikorian et al, Blueberry Supplementation in Midlife for Dementia Risk Reduction, *Nutrients* (2022). [DOI: 10.3390/nu14081619](#)

Provided by University of Cincinnati

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