



BLUEBERRIES & BRAIN HEALTH

A RESOURCE FOR HEALTH PROFESSIONALS
AND THEIR PATIENTS

OVERVIEW

Brain health is important at every age in the lifecycle, but especially relevant for older adults. Diseases such as Alzheimer's disease and other forms of dementia are most common in adults 65 and older, and the risk increases with age.¹ The older adult population is growing at a rapid rate, and according to the Centers for Disease Control and Prevention, the number of Americans 65 and older is expected to reach 71 million by 2030 and 98 million by 2060 — when older adults will make up nearly 25% of the population.²

DIETARY PATTERNS AND COGNITIVE HEALTH

So far, there is no evidence that eating or avoiding a specific food can prevent Alzheimer's disease or age-related cognitive decline. However, research suggests that eating a Mediterranean diet containing a variety of vegetables, fruits, nuts, beans and seafood during adulthood is associated with lower risk of age-related cognitive impairment, dementia and Alzheimer's disease.

More specifically, an observational study conducted by researchers at Rush University Medical Center and the Harvard School of Public Health evaluated data from food frequency questionnaires completed by participants from the Rush Memory and Aging Project (MAP). Results from 960 participants — mainly females with an average age of 81.4 years — who possessed at least two cognitive assessment measures showed that adherence to the MIND diet, consisting of 10 food groups that support brain health (e.g., green leafy vegetables, berries, whole grains),

substantially lowers cognitive decline associated with age. While results don't demonstrate a cause-and-effect relationship, they add to the growing body of research on the MIND diet and cognitive health.³

A prospective study conducted by a similar group of scientists from Rush University Medical Center and the Harvard School of Public Health investigated the effects of three dietary patterns — MIND diet, DASH diet and Mediterranean diet — on incidences of Alzheimer's Disease. This study examined data from semi-quantitative food frequency questionnaires from 923 participants ages 58 to 98 years from the Rush MAP. Results showed that high adherence to all three diets may reduce the risk of Alzheimer's Disease, with just moderate adherence to the MIND diet, demonstrating a similar outcome.⁴

A BOOST OF BLUEBERRIES: FOOD FOR THOUGHT

According to the Dietary Guidelines for Americans, eating vegetables and fruits, like blueberries, are associated with a reduced risk of many chronic diseases.

A growing body of scientific evidence is examining how blueberries can be part of eating patterns to support brain health, especially as part of an overall healthy lifestyle.^{5, 6, 7, 9}

One serving, or a cup of blueberries:

- 1 Is considered one serving of fruit.
- 2 Contains just 80 calories and only naturally occurring sugars.
- 3 Contributes essential nutrients including vitamin C, vitamin K, manganese and phytonutrients called polyphenols.
- 4 This group includes anthocyanins (163.3 mg/100 g), which are compounds that give blueberries their blue color.

WHAT THE SCIENCE SAYS: BLUEBERRIES AND BRAIN HEALTH

Researchers at the Channing Laboratory at Brigham and Women's Hospital and Harvard Medical School, and the German Center for Neurodegenerative Diseases, assessed results from a semi-quantitative food frequency questionnaire administered every 4 years to 9,415 women in the Nurse's Health Study, with their analytic sample consisting of 16,010 women with a mean age of 74.2 years. They administered six cognitive tests and evaluated three primary cognitive outcomes — two measures of overall cognition and a verbal memory composite score. The results indicated that a greater intake of blueberries and strawberries was associated with slower rates of cognitive decline in adults 70 and older. While more research is warranted, this is the first epidemiologic evidence demonstrating these positive results, which is consistent with ongoing experimental data exploring berries' brain health benefits.⁸

Scientists at the Jean Mayer USDA Human Nutrition Research Center on Aging at Tufts University have been studying the beneficial effects of blueberries on brain function in animal models for over a decade and are now studying the effects on humans. In a recent human study on healthy subjects, 13 men and 24 women between the ages of 60 and 75 were randomly selected to receive a diet supplemented daily with blueberries or a placebo for 90 days. The results found that the blueberry-supplemented group showed significantly fewer errors compared to the placebo group in tests used to assess verbal memory and task switching. There was no improvement in mobility in either the blueberry or the placebo group. While more evidence is needed, results of this study add to the growing body of research on blueberry-supplemented diets and positive outcomes on age-related cognitive decline.¹⁰

Dr. Robert Krikorian and his team of researchers at the University of Cincinnati investigated the effects of a blueberry-supplemented diet in 37 older adults with mild cognitive impairment. They assessed cognitive function using measures of speed of processing, working memory, lexical access, and verbal and nonverbal long-term memory. Participants were randomly selected to consume freeze-dried blueberry powder or a placebo (daily with their morning and evening meals). After 16 weeks of consuming either blueberries or the placebo, the blueberry group demonstrated an improvement in semantic access ($p=0.01$) and visual-spatial memory ($p=0.05$).¹¹

Dr. Robert Krikorian and the same team at the University of Cincinnati, also assessed changes in regional brain activation using functional magnetic resonance imaging (fMRI) in a subset of the participants ($n=16$) while the participants were undergoing a working memory test. Although there was no clear indication of working memory enhancement during the scan, the group that consumed blueberries exhibited increased BOLD (blood oxygen level-dependent) activation in certain parts of the brain.¹²

NO-BRAINER RECIPES TO GRAB A BOOST OF BLUE



Blueberry Quinoa Power Bowl



Blueberry Turmeric Smoothie



Blueberry Almond Chicken Salad Lettuce Wraps



Easy No-Bake Glazed Blueberry Oat Bars

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For information on blueberry nutrition research, health information and recipes visit [GrabABoostOfBlue.com](https://www.grababooftofblue.com)

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