

Strawberries Are Good for Your Heart and Brain

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STORY AT-A-GLANCE

- › Data from a randomized clinical trial presented at the annual meeting of the American Society of Nutrition showed strawberries have health benefits on your heart, metabolic and cognitive systems
- › Past research showed strawberries improved colon health and reduced the symptoms of inflammatory bowel disease (IBD), which includes Crohn's disease and ulcerative colitis
- › Strawberries are a source of several important nutrients, including vitamin C, potassium, magnesium, phytosterols and polyphenols. Phytosterols and polyphenols are not traditional nutrients, but are bioactive compounds; some of the most abundant in strawberries are quercetin, catechin and anthocyanin
- › If you are unable to purchase organic food 100% of the time, it pays to know which foods to prioritize. Strawberries are so heavily contaminated with pesticides they have ranked No. 1 on the EWG's Dirty Dozen list of the most heavily adulterated fruits and vegetables for several years

According to a 2022 study by researchers from Columbia University,¹ nearly 10% of U.S. adults aged 65 and older have some form of dementia and another 22% have mild cognitive impairment. The study was based on nearly 3,500 individuals who completed a comprehensive set of neuropsychological testing and in-depth interviews. Researchers estimate the impact of dementia in the U.S. alone, including family caregiving, is \$257 billion each year.

The CDC² estimates the rate of subjective cognitive decline is 11.1%, or 1 in 9 adults overall who believe they are experiencing symptoms. In individuals 65 and older, the rate was 11.7%, as compared to 10.8% in adults 45 to 64 years. Also according to the CDC,³ heart disease remains the number one leading cause of death in the U.S.

These numbers may not be surprising, but did you know that a new study finds eating strawberries may help prevent cognitive decline and boost heart health?⁴

Can Strawberries Help Prevent Cognitive Decline?

Data from the randomized clinical trial funded by the California Strawberry Commission was presented at the annual meeting of the American Society of Nutrition.⁵ Researchers from San Diego State University demonstrated that strawberries had health benefits on cardiovascular, metabolic and cognitive systems. The researchers engaged 35 participants from age 66 to 78 over a 20-week period.

The group was split, and each consumed a strawberry powder intervention or placebo for eight weeks with a four-week washout between the two. The researchers evaluated the participants' waist size, blood pressure and other heart health indicators as well as kept track of episodic memory.

After eight weeks of consuming freeze-dried strawberry powder, participants demonstrated a 5.2% improvement in cognitive processing speed and a 3.6% decrease in systolic blood pressure. The individual's waist circumference decreased while taking the freeze-dried strawberries and the placebo.

However, when consuming the placebo, there was an increase in serum triglycerides and while taking the freeze-dried strawberries there was an increase in antioxidant capacity by 10.2%. Shirin Hooshmand, professor in the School of Exercise and Nutrition Sciences at San Diego State and principal investigator on the study, was encouraged by the data, saying in a press release:⁶

"This study demonstrates that consuming strawberries may promote cognitive function and improve cardiovascular risk factors like hypertension. We're

encouraged that a simple dietary change, like adding strawberries to the daily diet, may improve these outcomes in older adults.”

The links between consuming strawberries, heart health and cognitive health have been the focus of past studies. Strawberries are a source of several nutritional requirements, including vitamin C, potassium, phytosterols and polyphenols.

Polyphenols and other phytochemicals are classified as bioactive compounds but are not traditional nutrients. The most abundant of these in strawberries are ellagic acid, anthocyanin, catechin, quercetin and kaempferol,⁷ which researchers believe play important roles in preventive health and treatments.

Strawberries May Improve Gut Health and Reduce IBD Symptoms

Research published in 2019⁸ showed the health benefits of strawberries extended to improving colon health and reducing the symptoms of inflammatory bowel disease (IBD). The umbrella term of IBD includes Crohn's disease and ulcerative colitis, which are risk factors for colorectal cancer.

The study was from the University of Massachusetts Amherst and the researchers discovered that less than a cup of strawberries each day could help reverse the symptoms of IBD. The lead study author, Hang Xiao, Ph.D., from the university's department of food science, said the increased risk of IBD lies with a sedentary lifestyle and dietary habits that include low fiber and high sugar food choices.⁹

This study used whole berries and not purified compounds or extracts, thus including dietary fiber and phenolic compounds that are bound to those fibers. The animal study used amounts of strawberries that would generally be consumed by humans.

The data revealed that just three-quarters of 1 cup of strawberries suppressed weight loss and bloody diarrhea in the mice with IBD. The treatment also improved the gut microbiome by reducing harmful bacteria and increasing healthy bacteria.

Are Strawberries a Functional Food?

According to the International Functional Foods Association,¹⁰ functional foods “provide a breadth of nutrients, vitamins, and minerals that enhance well-being.” It appears, however, that in the push for fake food, “a rational definition for functional food” has been proposed by the Canadian Center for Science that could be used to justify eating formulated foodstuffs.¹¹

“Functional foods are novel foods that have been formulated so that they contain substances or live microorganisms that have a possible health-enhancing or disease-preventing value, and at a concentration that is both safe and sufficiently high to achieve the intended benefit. The added ingredients may include nutrients, dietary fiber, phytochemicals, other substances, or probiotics.”

In addition to vitamins and nutrients, strawberries also have bioactive compounds that help lower cardiovascular disease, improve vascular endothelial function, lower the risk for blood clots and promote plaque stability.¹² Animal studies have also demonstrated that strawberries have the potential to benefit cognitive performance in an aging brain.

Data have also shown that strawberry extract can inhibit COX enzymes, which is a pathway that could mitigate the inflammatory process. When used individually in research studies, compounds in the bright red fruit have shown anticancer properties by blocking the initiation of carcinogenesis and suppressing the spread of tumors.

One of those compounds is **fisetin**, a flavonoid found in strawberries, apples, cucumbers, onions, grapes and persimmons.¹³ Data have demonstrated that fisetin has neurotrophic, anticarcinogenic and anti-inflammatory properties. Both in vitro and in vivo studies are necessary to confirm these observed effects.

In a review of the literature,¹⁴ researchers found multiple anticancer activities in cell culture and animal models, suggesting that more research focused on identifying the molecular targets could lead to fisetin as a chemotherapeutic agent.

Strawberries Top the Dirty Dozen Produce List

Some of the healthiest food choices you can make are fresh fruits and vegetables, whether they are organic or conventionally grown. However, organic produce tends to be more nutritious, tastes better and does not contain pesticide residues like conventional produce. Most people eat organic produce to avoid pesticides and other chemicals.

If your budget prevents you from buying organic food 100% of the time or there's not an adequate selection in your area, it's useful to know which foods to prioritize. In other words, what conventional foods are most contaminated and therefore most important to buy organic?

Each year the Environmental Working Group (EWG) releases its Dirty Dozen list of produce. These are the most heavily contaminated fruits and vegetables. For several years, strawberries have topped the list, including 2023.¹⁵ In 2019, the EWG reported that nonorganic strawberries tested by the Department of Agriculture contained an average of 7.8 different pesticides as compared to other produce that contains 2.2 pesticides per sample.¹⁶

Strawberry growers also use massive amounts of poisonous gas to sterilize the fields and the USDA found that strawberries were the most likely to be contaminated with pesticides even after they were “rinsed in the field and washed before eating.”

From January 2015 to October 2016, the USDA tested 1,174 batches of conventionally grown strawberries and found that 99% of those had detectable residues of at least one pesticide and 30% had residues of 10 or more pesticides.

All told, they found 81 different pesticides in different combinations across all samples. While some of these are not linked with significant health problems, others are associated with hormone disruption, neurological damage, cancer, and reproductive and developmental issues.

According to the EWG,¹⁷ aggressive marketing along with chemically aided growing methods have prompted increased consumption in the U.S. The average American today

eats four times more strawberries than in 1980.

The greatest number of strawberries in the U.S. are grown in California and only 20% of the chemicals used on those strawberries leave residue on the fruit. However, 80% are poisonous gases called fumigants that are injected into the ground to sterilize the soil and control the buildup of pests and pathogens. These fumigants poison farm workers and neighboring farms.

The organic alternative is a combination of crop rotation and application of a mixture of carbon-rich materials that are then saturated with water and covered with a plastic tarp. This organic slurry is toxic to pathogens and works as effectively as poisonous gases with almost no loss in crop yield.

However, the organic growing process drives the price of strawberries higher than the conventional variety. The EWG¹⁸ believes that as more growers stop using fumigants and pesticides, the price of organic produce should drop.

Sources and References

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