

Eating more plant foods may lower heart disease risk in young adults, older women

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Eating more nutritious, plant-based foods is heart-healthy at any age, according to two research studies published today in the *Journal of the American Heart Association*, an open access journal of the American

Heart Association.

In two separate studies analyzing different measures of healthy plant [food](#) consumption, researchers found that both [young adults](#) and [postmenopausal women](#) had fewer heart attacks and were less likely to develop cardiovascular disease when they ate more healthy plant foods.

The American Heart Association Diet and Lifestyle Recommendations suggest an overall healthy dietary pattern that emphasizes a variety of fruits and vegetables, whole grains, low-fat dairy products, skinless poultry and fish, nuts and legumes and non-tropical vegetable oils. It also advises limited consumption of saturated fat, trans fat, sodium, red meat, sweets and sugary drinks.

One study, titled "A Plant-Centered Diet and Risk of Incident Cardiovascular Disease during Young to Middle Adulthood," evaluated whether long-term consumption of a plant-centered [diet](#) and a shift toward a plant-centered diet starting in young adulthood are associated with a lower risk of cardiovascular disease in midlife.

"Earlier research was focused on single nutrients or single foods, yet there is little data about a plant-centered diet and the long-term risk of cardiovascular disease," said Yuni Choi, Ph.D., lead author of the young adult study and a postdoctoral researcher in the division of epidemiology and [community health](#) at the University of Minnesota School of Public Health in Minneapolis.

Choi and colleagues examined diet and the occurrence of heart disease in 4,946 adults enrolled in the Coronary Artery Risk Development in Young Adults (CARDIA) study. Participants were 18- to 30-years-old at the time of enrollment (1985-1986) in this study and were free of cardiovascular disease at that time. Participants included 2,509 Black adults and 2,437 white adults (54.9% women overall) who were also

analyzed by education level (equivalent to more than high school vs. [high school](#) or less). Participants had eight follow-up exams from 1987-88 to 2015-16 that included lab tests, physical measurements, medical histories and assessment of lifestyle factors. Unlike randomized controlled trials, participants were not instructed to eat certain things and were not told their scores on the diet measures, so the researchers could collect unbiased, long-term habitual diet data.

After detailed diet history interviews, the quality of the participants diets was scored based on the A Priori Diet Quality Score (APDQS) composed of 46 food groups at years 0, 7 and 20 of the study. The food groups were classified into beneficial foods (such as fruits, vegetables, beans, nuts and whole grains); adverse foods (such as fried potatoes, high-fat red meat, salty snacks, pastries and soft drinks); and neutral foods (such as potatoes, refined grains, lean meats and shellfish) based on their known association with cardiovascular disease.

Participants who received higher scores ate a variety of beneficial foods, while people who had lower scores ate more adverse foods. Overall, higher values correspond to a nutritionally rich, plant-centered diet.

"As opposed to existing diet quality scores that are usually based on small numbers of food groups, APDQS is explicit in capturing the overall quality of diet using 46 individual food groups, describing the whole diet that the general population commonly consumes. Our scoring is very comprehensive, and it has many similarities with diets like the Dietary Guidelines for Americans Healthy Eating Index (from the U.S. Department of Agriculture's Food and Nutrition Service), the DASH (Dietary Approaches to Stop Hypertension) diet and the Mediterranean diet," said David E. Jacobs Jr., Ph.D., senior author of the study and Mayo Professor of Public Health in the division of epidemiology and community health at the University of Minnesota School of Public Health in Minneapolis.

Researchers found:

- During 32 years of follow-up, 289 of the participants developed cardiovascular disease (including heart attack, stroke, heart failure, heart-related chest pain or clogged arteries anywhere in the body).
- People who scored in the top 20% on the long-term diet quality score (meaning they ate the most nutritionally rich plant foods and fewer adversely rated animal products) were 52% less likely to develop cardiovascular disease, after considering several factors (including age, sex, race, average caloric consumption, education, parental history of heart disease, smoking and average physical activity).
- In addition, between year 7 and 20 of the study when participants ages ranged from 25 to 50, those who improved their diet quality the most (eating more beneficial plant foods and fewer adversely rated animal products) were 61% less likely to develop subsequent cardiovascular disease, in comparison to the participants whose diet quality declined the most during that time.
- There were few vegetarians among the participants, so the study was not able to assess the possible benefits of a strict vegetarian diet, which excludes all animal products, including meat, dairy and eggs.

"A nutritionally rich, plant-centered diet is beneficial for cardiovascular health. A plant-centered diet is not necessarily vegetarian," Choi said. "People can choose among plant foods that are as close to natural as possible, not highly processed. We think that individuals can include animal products in moderation from time to time, such as non-fried poultry, non-fried fish, eggs and low-fat dairy."

Because this study is observational, it cannot prove a cause-and-effect

relationship between diet and heart disease.

In another study, "Relationship Between a Plant-Based Dietary Portfolio and Risk of Cardiovascular Disease: Findings from the Women's Health Initiative (WHI) Prospective Cohort Study," researchers, in collaboration with WHI investigators led by Simin Liu, M.D., Ph.D., at Brown University, evaluated whether or not diets that included a dietary portfolio of plant-based foods with U.S. Food and Drug Administration-approved health claims for lowering "bad" [cholesterol levels](#) (known as the "Portfolio Diet") were associated with fewer cardiovascular disease events in a large group of postmenopausal women.

The "Portfolio Diet" includes nuts; plant protein from soy, beans or tofu; viscous soluble fiber from oats, barley, okra, eggplant, oranges, apples and berries; plant sterols from enriched foods and monounsaturated fats found in olive and canola oil and avocados; along with limited consumption of saturated fats and dietary cholesterol. Previously, two randomized trials demonstrated that reaching high target levels of foods included in the Portfolio Diet resulted in significant lowering of "bad" cholesterol or low-density lipoprotein cholesterol (LDL-C), more so than a traditional low-saturated-fat National Cholesterol and Education Program diet in one study and on par with taking a cholesterol-lowering statin medication in another.

The study analyzed whether postmenopausal women who followed the Portfolio Diet experienced fewer heart disease events. The study included 123,330 women in the U.S. who participated in the Women's Health Initiative, a long-term national study looking at risk factors, prevention and early detection of serious health conditions in postmenopausal women. When the women in this analysis enrolled in the study between 1993 and 1998, they were between 50-79 years old (average age of 62) and did not have cardiovascular disease. The study group was followed until 2017 (average follow-up time of 15.3 years).

Researchers used self-reported food-frequency questionnaires data to score each woman on adherence to the Portfolio Diet.

The researchers found:

- Compared to women who followed the Portfolio Diet less frequently, those with the closest alignment were 11% less likely to develop any type of [cardiovascular disease](#), 14% less likely to develop coronary heart disease and 17% less likely to develop heart failure.
- There was no association between following the Portfolio Diet more closely and the occurrence of stroke or atrial fibrillation.

"These results present an important opportunity, as there is still room for people to incorporate more cholesterol-lowering plant foods into their diets. With even greater adherence to the Portfolio dietary pattern, one would expect an association with even less cardiovascular events, perhaps as much as cholesterol-lowering medications. Still, an 11% reduction is clinically meaningful and would meet anyone's minimum threshold for a benefit. The results indicate the Portfolio Diet yields heart-health benefits," said John Sievenpiper, M.D., Ph.D., senior author of the study at St. Michael's Hospital, a site of Unity Health Toronto in Ontario, Canada, and associate professor of nutritional sciences and medicine at the University of Toronto.

The researchers believe the results highlight possible opportunities to lower heart disease by encouraging people to consume more foods in the Portfolio Diet.

"We also found a dose response in our study, meaning that you can start small, adding one component of the Portfolio Diet at a time, and gain more heart-health benefits as you add more components," said Andrea J. Glenn, M.Sc., R.D., lead author of the study and a doctoral student at St.

Michael's Hospital in Toronto and in nutritional sciences at the University of Toronto.

Although the study was observational and cannot directly establish a cause-and-effect relation between diet and cardiovascular events, researchers feel it provides a most reliable estimate for the diet-heart relation to-date due to its study design (included well-validated food frequency questionnaires administered at baseline and year three in a large population of highly dedicated participants). Nevertheless, the investigators report that these findings need to be further investigated in additional populations of men or younger women.

More information: *Journal of the American Heart Association* (2021).
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