Plant-based omega-3s may boost heart health, reduce risk of heart disease

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People often think of salmon when they think of omega-3 fatty acids, but a new research review found that the major plant-based version of the nutrient, alpha-linolenic acid (ALA), can benefit heart health and

reduce the risk of heart disease for those who don't eat seafood.

In a comprehensive literature review, the researchers found that consuming ALA that is found in plant-based foods like walnuts and flaxseeds was associated with a 10% lower risk of cardiovascular disease and a 20% reduced risk of fatal coronary heart disease.

Penny Kris-Etherton, Evan Pugh University Professor of Nutritional Sciences at Penn State, said the review suggests there are multiple ways of meeting the recommendations for omega-3 fatty acids.

"People may not want to eat seafood for a variety of reasons, but it's still important for them to consume omega-3s to reduce the risk of heart disease and to promote overall health," Kris-Etherton said. "Plant-based ALA in the form of walnuts or flaxseeds can also provide these benefits, especially when incorporated into a healthy diet rich in fruits, vegetables, and whole grains."

Jennifer Fleming, assistant teaching professor of nutrition at Penn State, said they also found evidence that for people who do eat seafood, they could get extra benefits from eating plant-based omega-3s.

"When people with low levels of omega-3s in their diet ate ALA, they saw a benefit in terms of cardiovascular health," Fleming said. "But when people with high levels of omega-3s from other sources ate more ALA, they also saw a benefit. It could be that ALA works synergistically with other omega-3s."

The review was recently published in *Advances in Nutrition*.

Previous research has linked omega-3s with a lower risk of heart disease. However, this conclusion was based on a large evidence base from marine-derived omega-3s, and there was less evidence for the benefits of

ALA.

For the review, the researchers analyzed data from previous studies to evaluate the effects of ALA on heart disease and heart disease risk factors like blood pressure and inflammation. The studies analyzed included both randomized controlled trials and observational studies.

While some of the observational studies relied on the participants reporting how often they ate certain foods to determine how much ALA they were consuming, others used biomarkers—a way of measuring levels of ALA in the blood—as a more accurate measure.

"With the advent of precision nutrition and personalized medicine, we are more aware than ever of the need to identify and target individuals who might get the largest benefit from increasing their consumption of ALA-rich foods," said Aleix Sala-Vila, lead author on the paper and researcher at the Institut Hospital del Mar d'Investigacions Mèdiques–Barcelona. "Paying close attention to the amount of ALA in the blood and how it affects heart health could help in this effort."

After analyzing the studies, the researchers found that ALA had beneficial effects on reducing atherogenic lipids and lipoproteins—for example, total cholesterol, low density-lipoprotein cholesterol and triglycerides—as well as blood pressure and inflammation. This could help explain ALA's benefits to heart health, according to Emilio Ros, emeritus investigator at Institut d'Investigacions Biomèdiques August Pi Sunyer, a research institution linked to Hospital Clínic of Barcelona and Barcelona University.

"We were able to find evidence supporting current dietary guidelines that ALA should provide about 0.6%–1% of total energy in a day, which is about 1.1 grams a day for women and 1.6 grams a day for men," Ros said, "and can be incorporated into the diet with foods such as walnuts,

flaxseeds, and cooking oils such as canola and soybean oils.

These recommendations are equal to about 1/2 ounce of walnuts or just under one teaspoon of flaxseed oil.

The researchers said that future studies are needed to help better understand the effects of ALA on other major chronic diseases. In addition, there is a need to evaluate whether the recent scientific literature supports new, higher dietary recommendations for ALA.

More information: Aleix Sala-Vila et al, Impact of Alpha-linolenic Acid, the Vegetable Omega-3 Fatty Acid, on Cardiovascular Disease and Cognition, *Advances in Nutrition* (2022). DOI: 10.1093/advances/nmac016

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