

SCIENTIFIC REVIEW ON OMEGA-3 ALA – MAY 2022

NEW COMPREHENSIVE REVIEW SHOWS IMPORTANCE OF PLANT-BASED OMEGA-3 FAT ON HEART HEALTH

A new research review published in the journal *Advances in Nutrition* in March showed positive effects of plant omega-3s, alpha-linolenic acid (ALA), and heart health.

In a comprehensive review of the scientific literature, researchers from universities and institutions in the U.S. and Spain found that increasing omega-3 ALA fat in the diet, which is found in plant-based foods like chia, walnuts, and flaxseeds, was associated with a 10% lower risk of cardiovascular disease and a 20% reduced risk of fatal coronary heart disease.

The researchers considered and analyzed quality randomized controlled trials (RCTs) as well as observational studies that evaluated the consumption levels and effects of ALA on heart disease risk factors like inflammation, blood pressure, overall risk and risk of death from heart disease.

While some other outcomes looked at were not statistically significant due to variability in study design or limited studies, several showed trend toward benefit, and additionally, the investigators reported that research does show beneficial effects of plant omega-3 ALA on decreasing atherogenic lipids and lipoproteins (including total cholesterol, LDL-C, and triglycerides), on reducing blood pressure, as well as decreasing markers of inflammation. They stated that the scientific literature reviewed provides the biological basis to explain the cardiovascular disease benefits of plant omega-3 ALA and also justifies the need for further research.

It has been previously established that omega-3 intake is associated with a lower risk of heart disease, but it has been based primarily on marine-based sources of omega-3s—or total omega-3s from marine and plants—and less evidence and analysis looking specifically at plant-based omega-3 ALA. After their investigation, the researchers found benefits of diets high in ALA on several cardiovascular-related outcomes.

ALA and CVD risk markers

There is abundant evidence on the effects of ALA on different CVD risk factors. Most studies, mainly RCTs, have focused on lipids/lipoproteins and effects on blood pressure (BP), inflammatory markers, and other cardiometabolic disease indexes.

Mechanisms of action – How ALA works.

Though some of the mechanisms are still unclear and more research needs to be done, experimental research has provided insight into some of the mechanisms underlying ALA effects. Some are related to the conversion of ALA to its longer-chain cousins, EPA and DHA. ALA also displays other effects, including competing for enzymes in common to omega-6 fat, helping establish a better n-6 to n-3 balance. Also, in addition to playing a role in modulating cardiac ion channels in the body, ALA is converted to oxylipins that contribute to vascular health by reducing inflammation and improving blood pressure. There's also some evidence that ALA works independently and in tandem with the longer chain, mainly marine-based omega-3s, EPA, and DHA.

Although there remain questions to be explored on how ALA imparts health benefits, the current evidence supports current dietary guidance, which states that to achieve nutritional adequacy—in other words, avoid deficiency—ALA should provide 0.6%–1.0% of total energy or the current Adequate Intake (AI) of 1.1 g/d for women and 1.6 g/d for men. Many researchers believe, however that the growing evidence to promote heart health may warrant a higher recommendation of 2-4 times this amount.

Food sources high in ALA should be included as part of a heart-healthy dietary pattern. As the evidence supports and more research evolves in the area of heart health, inflammation, cognitive health, and other areas, we already know that ALA is an essential fat and continue to learn its many potential health-promoting and therapeutic properties particularly when it comes to cardiovascular health.

REFERENCE: *Aleix Sala-Vila, Jennifer Fleming, Penny Kris-Etherton, Emilio Ros, Impact of alpha-Linolenic Acid, the Vegetable w-3 Fatty Acid, on Cardiovascular Disease and Cognition*, *Advances in Nutrition*, 2022, nmac016, <https://doi.org/10.1093/advances/nmac016>

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