

Study shows no benefit of omega-3 supplements for cognitive decline

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NIH study raises doubt about any benefits omega-3 and dietary supplements like these may have for cognitive decline. Credit: NEI

While some research suggests that a diet high in omega-3 fatty acids can protect brain health, a large clinical trial by researchers at the National Institutes of Health found that omega-3 supplements did not slow cognitive decline in older persons. With 4,000 patients followed over a five-year period, the study is one of the largest and longest of its kind. It was published today in the *Journal of the American Medical Association*.

"Contrary to popular belief, we didn't see any benefit of omega-3 supplements for stopping cognitive decline," said Emily Chew, M.D., deputy director of the Division of Epidemiology and Clinical Applications and deputy clinical director at the National Eye Institute (NEI), part of NIH.

Dr. Chew leads the Age-Related Eye Disease Study (AREDS), which was designed to investigate a combination of nutritional supplements for slowing [age-related macular degeneration](#) (AMD), a major cause of vision loss among older Americans. That study established that daily high doses of certain antioxidants and minerals—called the AREDS formulation—can help slow the progression to advanced AMD.

A later study, called AREDS2, tested the addition of [omega-3 fatty acids](#) to the AREDS formula. But the omega-3's made no difference. Omega-3 [fatty acids](#) are made by marine algae and are concentrated in fish oils; they are believed to be responsible for the health benefits associated with regularly eating fish, such as salmon, tuna, and halibut.* Where studies have surveyed people on their dietary habits and health, they've found that regular consumption of fish is associated with lower rates of AMD, cardiovascular disease, and possibly dementia. "We've seen data that

eating foods with omega-3 may have a benefit for eye, brain, and heart health," Dr. Chew explained.

Omega-3 supplements are available over the counter and often labeled as supporting brain health. A large 2011 study found that omega-3 supplements did not improve the [brain health](#) of older patients with preexisting heart disease.

With AREDS2, Dr. Chew and her team saw another opportunity to investigate the possible cognitive benefits of omega-3 supplements, she said. All participants had early or intermediate AMD. They were 72 years old on average and 58 percent were female. They were randomly assigned to one of the following groups:

- 1) Placebo (an inert pill)
- 2) Omega-3 [specifically docosahexaenoic acid (DHA, 350 mg) and eicosapentaenoic acid (650 mg)]
- 3) Lutein and zeaxanthin (nutrients found in large amounts in green leafy vegetables)
- 4) Omega-3 and Lutein/zeaxanthin

Because all participants were at risk for worsening of their AMD, they were also offered the original or a modified version of the AREDS formulation (without omega-3 or lutein/zeaxanthin).

Participants were given cognitive function tests at the beginning of the study to establish a baseline, then at two and four years later. The tests, all validated and used in previous cognitive function studies, included eight parts designed to test immediate and delayed recall, attention and memory, and processing speed. The cognition scores of each subgroup decreased to a similar extent over time, indicating that no combination of [nutritional supplements](#) made a difference.

Alzheimer's disease, which is the most common cause of dementia and affects as many as 5.1 million Americans age 65 and older in the U.S.,

may triple in the next 40 years. Some research has examined the potential benefits of DHA for Alzheimer's. Studies in mice specially bred to have features of the disease found that DHA reduces beta-amyloid plaques, abnormal protein deposits in the brain that are a hallmark of Alzheimer's, although a clinical trial of DHA showed no impact on people with mild to moderate Alzheimer's disease.

"The AREDS2 data add to our efforts to understand the relationship between dietary components and Alzheimer's disease and [cognitive decline](#)," said Lenore Launer, Ph.D. senior investigator in the Laboratory of Epidemiology and Population Science at the National Institute on Aging. "It may be, for example, that the timing of nutrients, or consuming them in a certain dietary pattern, has an impact. More research would be needed to see if dietary patterns or taking the [supplements](#) earlier in the development of diseases like Alzheimer's would make a difference."

More information: Age-Related Eye Disease Study 2 (AREDS2) Research Group. "Effect of Omega-3 Fatty Acids, Lutein/Zeaxanthin, or other Nutrient Supplementation on Cognitive Function: The AREDS2 Randomized Clinical Trial." *JAMA*, published online August 25, 2015.

For more information about AMD and AREDS2, visit nei.nih.gov/areds2/.

* Other omega-3 fatty acids are found in plant foods such as flaxseed, walnuts, soy products, and canola and soybean oils. Specific omega-3 fatty acids from these sources were not studied.

Provided by National Eye Institute

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