Omega-3 supplements and antioxidants may help with preclinical Alzheimer's disease

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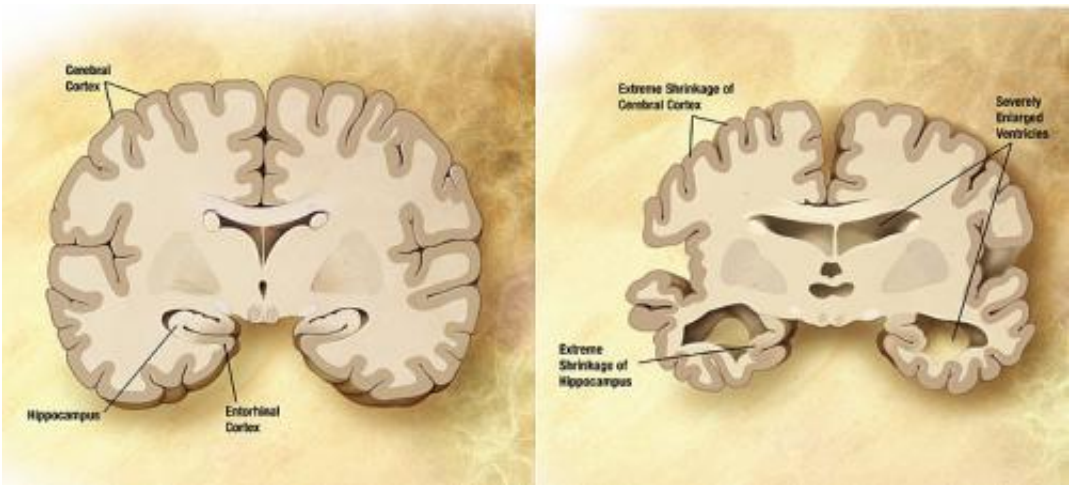

Diagram of the brain of a person with Alzheimer's Disease. Credit: Wikipedia/public domain.

Here's more evidence that fish oil supplementation and antioxidants might be beneficial for at least some people facing Alzheimer's disease: A new report published in the July 2015 issue of *The FASEB Journal* describes the findings of a very small study in which people with mild clinical impairment, such as those in the very early stages of the disease, saw clearance of the hallmark amyloid-beta protein and reduced inflammation in neurological tissues. Although the findings involved just 12 patients over the course of 4 to 17 months, the findings suggest further clinical study of this relatively inexpensive and plentiful supplement should be conducted.

"Prevention of mild cognitive impairment progression is one of the best hopes," said Milan Fiala, M.D., Research Professor at the University of California's Department of Surgery in Los Angeles. "In addition to physical and mental exercises recommended by experts, this study suggests that nutrition is equally important."

To make their discovery, Fiala and colleagues investigated the effects of 4 to 17 months of supplementation with omega-3 fatty acids and antioxidants in 12 patients with minor cognitive impairment, 2 patients with pre-mild cognitive impairment, and 7 patients with Alzheimer disease. They measured the phagocytosis of amyloid-beta 1-42 by flow cytometry and microscopy, the transcription of inflammatory genes by RT-PCR, the production of resolvin D1 by enzyme immunoassay, and the cognitive status by MMSE. In patients with mild clinical impairment and pre-mild clinical impairment, phagocytosis of amyloid-beta by monocytes increased from 530 to 1306 mean fluorescence intensity units. The increase in patients with Alzheimer's disease was not significant. The lipidic mediator resolvin D1, which stimulates amyloid-beta phagocytosis in vitro, increased in macrophages in 80 percent of patients with mild clinical impairment and pre-mild clinical impairment. The transcription of inflammatory genes' mRNAs was increased in a subgroup of patients with low transcription at baseline, whereas it was not significantly changed in patients with high transcription at baseline.

"We've known for a long time that omega-3 fatty acids and some antioxidants can be beneficial to people with a wide range of health problems, as well as protective for healthy people," said Gerald Weissmann, M.D., Editor-in-Chief of *The FASEB Journal*. "Now, we know that the effects of these supplements may extend to Alzheimer's disease as well. Although these supplements are considered to be generally safe and are very easy to obtain, full-scale clinical trials are necessary to verify the findings of this research and to identify who might benefit the most."

More information: Milan Fiala, Ramesh C. Halder, Bien Sagong, Olivia Ross, James Sayre, Verna Porter, and Dale E. Bredesen. ω-3 Supplementation increases amyloid-β phagocytosis and resolvin D1 in patients with minor cognitive impairment. *FASEB J.* July 2015 29:2681-2689; DOI: 10.1096/fj.14-264218