# Clinical Update

## Omega-3 may reduce risk of Alzheimer's: Rat study

The omega-3 compound ethyl-eicosapentaenoic acid (E-EPA) may improve memory and learning, and reduce the risk of Alzheimer´s disease, says a new study.

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Researchers from Canada and Thailand report that, while levels of the neurotransmitter acetylcholine decrease with age, E-EPA may slow this decline. *"This study, for the first time, reported […] a clear correlation between the decrease in acetylcholine release and memory deficit, [and] E-EPA improves memory by attenuating the reduction of acetylcholine release and nerve growth factor expression,"* wrote Pornnarin Taepavarapruk from Naresuan University, Thailand and Cai Song from the University of Prince Edwards Island, Canada.

**Omega-3 and brain health**

The link between omega-3 and cognitive function is not new, with various studies reporting somewhat conflicting results for the omega-3 fatty acids EPA and DHA (docosahexaenoic acid). Some of the more promising data has been reported for DHA, with memory function improvements found for healthy older adults with a decline in cognitive function that occurs naturally with age. Such decline is known to precede diseases such as Alzheimer's, the most common form of dementia and currently affects over 13 million people worldwide.

However, according to data presented at the Alzheimer's Association 2009 International Conference on Alzheimer's Disease (ICAD 2009) in Vienna last year, DHA supplements may not benefit people already suffering from Alzheimer's disease. Using Amarin Neuroscience's ethyl-EPA or palm oil (control), the researchers supplemented rat chow with 0.8% of the oil.

Data showed that, in the palm oil supplemented animals, the release of acetylcholine decreased. In addition, a decrease in the expression of nerve growth factor (NGF) in the hippocampus was correlated with this reduced acetylcholine release. Both of these were associated with memory impairment, said the researchers.

Animals supplemented with E-EPA, however, showed improved memory, linked to attenuation in the reduction of acetylcholine release and NGF release. *"In this study, our findings add further evidence that E-EPA may improve memory by the modulation of acetylcholineand neurotrophin functions,"* said the researchers. The study was supported by the Canadian Institutes for Health Research (CIHR), Amarin Neurosciences Ltd. and Atlantic Innovation Foundation.

Source: www.nutraingredients.com