

Omega-3 fatty acid may slash dementia risk

15/11/2006 - **Increased blood levels of the omega-3 fatty acid docosahexaenoic acid (DHA) could slash the risk of dementia and Alzheimer's disease, suggests a new study from the US.**

"Subjects with baseline plasma PC DHA levels in the upper quartile experienced a significant 47 per cent lower risk of dementia compared with participants with levels in the lower three quartiles," wrote lead author Ernst Schaefer, from Tufts University, Boston.

The research adds to a growing body of science linking intake of the [omega-3](#) fatty acids, mainly DHA, to improved cognitive function and slower cognitive decline.

Indeed, only last month scientists from Karolinska University Hospital Huddinge in Sweden reported in the same journal that supplements of omega-3 fatty acids may slow mental decline in people with very mild [Alzheimer's](#) disease, but no effect was observed in people with more advanced forms (*Archives of Neurology*, Vol. 63, pp. 1402-1408).

Alzheimer's disease is the most common form of dementia and currently affects over 13 million people worldwide. The direct and indirect cost of Alzheimer care is over \$100 bn (€ 81 bn) in the US alone. The direct cost of Alzheimer care in the UK was estimated at £15 bn (€ 22 bn).

The new prospective follow-up study, published in the November issue of *Archives of Neurology* (Vol. 63, pp. 1545-1550), looked at the association between DHA levels and dementia in the blood of 899 men and women (average age 76) who were part of the population-based Framingham Heart Study.

The participants, who were free of dementia at the start of the study, provided blood samples and underwent neuropsychological testing, while subgroup of 488 also filled out a semi-quantitative 126-item food frequency questionnaire (FFQ) to assess their diet, including fish consumption.

After an average of nine years of follow-up, the researchers documented 99 cases of dementia, including 71 with Alzheimer's disease.

After controlling for other known risk factors for dementia, including age and homocysteine levels, and dividing the study population into quartiles based on levels of DHA, the researchers found that men and women in the quartile with the highest DHA levels had a 47 per cent lower risk of developing dementia and 39 per cent lower risk of developing Alzheimer's disease than the other three quartiles with lower DHA levels.

Among the participants who completed the FFQ, those in the top quartile of blood DHA levels reported that they ate an average of 0.18 grams of DHA a day and an average of 2.9 fish servings a week, while participants in the other quartiles ate substantially less fish (between 1.3 and 2.3 servings per week).

"In our study, the correlation between [blood] DHA content and fish intake was significant, indicating that fish intake is an important source of dietary DHA," wrote the authors.

The researchers did not perform a mechanistic study to elucidate the beneficial effects of the DHA. It has previously been reported, however, that DHA is involved in the membrane of ion channels in the brain, making it easier for them to change shape and transit electrical signals.

The study, does have several limitations that should be noted, including only taking DHA measurements on one occasion, and having dietary data on only a subset of participants.

"In the future, it will also be important to determine whether combined dietary supplementation with DHA can decrease further mental deterioration in patients with established dementia," concluded the researchers.

In an accompanying editorial, Martha Clare Morris, from the Rush University Medical Center, Chicago, said the study was an *"important contribution to a young field of study on diet and neurodegenerative disease... [and] provides the first evidence that direct measure of DHA in human plasma is related to lower Alzheimer disease risk."*

Morris also noted that, while fish consumption was correlated with DHA levels, there was no significant link between eating fish and Alzheimer's risk, possibly because the study was underpowered to fully observe such an effect, if such a relationship existed.

The risk of pollutants from oily fish, such as methyl mercury, dioxins, and polychlorinated biphenols (PCBs) have led to some claims to reduce fresh fish intake, especially for pregnant women who may damage the development of their babies.

"The only way to resolve the risk-benefit question is to examine, directly in humans, mercury intake from fish and its effect on various health outcomes relative to the beneficial effects of the omega-3 fatty acids consumed," said Morris.

Such concerns has seen the number of omega-3 enriched or fortified products on the market increase. Most extracted fish oil are molecularly distilled and steam deodorised to remove contaminants.

According to Frost and Sullivan, the European omega-3 market was worth around €160m (£108m) in 2004, and is expected to grow at rates of 8 per cent on average to 2010.