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Omega-3 rich diet could protect against brain aging: Study

By Nathan Gray, 05-Mar-2012

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High intake of the omega-3 fatty acids docosahexaenoic acid (DHA) and eicosapentaenoic acid (EPA) could help protect the aging brain, according to research.

The new data – published in *Neurology*– suggests that a diet lacking in omega-3 fatty acids could cause the brain to age faster and lose some of its memory and thinking abilities. The researchers, led by scientists at the University of California at Los Angeles (UCLA), USA, revealed that middle-aged and elderly adults who regularly consume foods rich in omega-3 fatty acids could slow the mental decline that leads to dementia – noting that those with the highest blood levels of DHA and EPA were more likely to perform well on tests of mental functioning and to experience less age-related brain shrinkage.



The authors said that whilst previous research linking dementia risk with the omega-3 fatty acids had looked at in blood plasma, which reflects how much people had eaten in the past few days, their current work estimated the amount of omega-3 participants had consumed over the last few months by looking at how much had built up in red blood cells.

"People with lower blood levels of omega-3 fatty acids had lower brain volumes that were equivalent to about two years of structural brain aging," explained study author Dr Zaldy Tan of UCLA.

In particular, Tan and his colleagues concluded that low DHA levels in red blood cells *"are associated with smaller brain volumes and a 'vascular' pattern of cognitive impairment even in persons free of clinical dementia."*

Study details

In the new study, over 1,500 dementia free participants – with an average age of 67 – underwent MRI brain scans. The group were also tested to measure mental function, body mass, and the omega-3 fatty acid level in their red blood cells was sampled.

Tan and his colleagues found that people with DHA levels in the lowest 25% of the participants (the bottom quartile) had lower brain volume compared to people who had higher DHA levels. They said that the brain volume was enough to make people in the bottom quartile's brains appear two years older than those

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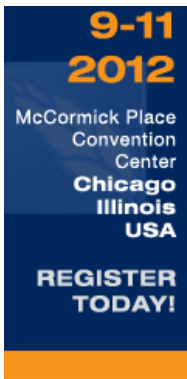
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of people in the top three-quarters.

The researchers added that participants with levels of all omega-3 fatty acids in the bottom quartile also scored lower on tests of visual memory and executive function, such as problem solving and multi-tasking and abstract thinking.

Brain scans also showed signs of less blood supply in the brains of people with the lowest omega-3 levels. Tan suggested that this may mean DHA plays a role in promoting general health of blood vessels in the brain in a similar way to how the omega-3's are suggested to be aid heart health.

Healthy brains

The new study adds further weight to previous research that suggests beneficial health effects of omega-3 fatty acids on the brain.

Last year Dr Rob Winwood of DSM Martek Biosciences explained to NutraIngredients how up to 15% of the brain by dry weight was made up of pure DHA. "One of the things we know is as you get older you lose DHA from the brain – so it would seem to make some sense that you might want to replace it," he suggested.

Source: *Neurology*

Volume 78, Number 9, Pages 658-664, doi:10.1212/WNL.0b013e318249f6a9

"Red blood cell omega-3 fatty acid levels and markers of accelerated brain aging"

Authors: Z.S. Tan, W.S. Harris, A.S. Beiser, R. Au, J.J. Himali, et al

Keywords: omega-3, DHA, EPA, brain functioning, dementia

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Provexis' viewpoint

Omega-3s are attracting a lot of interest in the health and nutrition industry, with brain health being one of the key focus areas. As mentioned in the above article a lot of research has been done into using omega-3s to prevent the onset of dementia and Alzheimer's. Another interesting area for exploration, however, is the use of DHA to prevent inflammation of the brain after an accident. This potential application of the ingredient that could play a key role in protecting those involved in contact sports, such as rugby or American football.

Posted by [Tim Lawson](#)
12 March 2012 | 15h38

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