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Vitamin E shows cognitive function benefits: Study

By Stephen Daniells, 28-Aug-2012

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Increased blood levels of all forms of vitamin E may reduce the risk of mild cognitive impairment in older adults, says a new study from Europe.

The study – said to be the first of its kind to evaluate the effects of all eight forms of vitamin E in mild cognitive impairment (MDI) and Alzheimer's disease (AD) – found that the risk of MDI was 15% and 8% lower in people with the highest levels of tocopherols and tocotrienols, respectively.

There are eight forms of vitamin E: four tocopherols (alpha, beta, gamma, delta) and four tocotrienols (alpha, beta, gamma, delta). Alpha-tocopherol is the main source found in supplements and in the European diet, while gamma-tocopherol is the most common form in the American diet.



"The increasing evidence about vitamin E family neuroprotective properties warrants further investigation of their role in age-related cognitive decline and AD, to better define the composition of vitamin E supplements [for people with MDI and AD]," wrote the researchers, led by Francesca Mangialasche from the Karolinska Institutet in Stockholm, Sweden

"Evaluating plasma levels of all vitamin E forms may help to identify elderly people who could benefit from vitamin E supplementation," they added in the *Neurobiology of Aging*.

Study details

Mangialasche and her co-workers analyzed data from AddNeuroMed-Project of 168 people with Alzheimer's, 166 people with MCI, and 187 people with normal cognitive function. All of the participants were at least 65 years of age.

Results showed that, compared with people with normal cognitive function, people with MCI and Alzheimer's had lower average levels of tocopherols and tocotrienols, and total vitamin E.

In addition, participants with MCI and Alzheimer's also displayed higher blood levels of markers of vitamin E damage (alpha-tocopherylquinone, 5-nitro-gamma-tocopherol).

According to the researchers, mild cognitive decline often precedes the onset of Alzheimer's, and there is accumulating evidence to suggest that oxidative and

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"In our study, the depletion of all plasma vitamin E forms, together with the increased indexes of vitamin E oxidative/nitrosative damage were shown in both AD and MCI, supporting the hypothesis that [oxidative and nitrosative stress] are early phenomena in AD, and suggesting a potential role of vitamin E in neurodegeneration," they said.

All forms better than only one

Clinical trials using vitamin E have been limited to the use of alpha-tocopherol, said Mangialasche and her co-workers, and there is some evidence that using this only form of vitamin E may be linked to an increased risk of stroke.

In addition, alpha-tocopherol supplements "can diminish the bioavailability of the other forms: [One study has reported that] alpha-tocopherol supplementation can decrease plasma and tissue concentration of gamma- and delta-tocopherol, and [another study found that alpha-tocopherol may] compromise tissue delivery of alpha-tocotrienol.

"A balanced presence of different vitamin E forms may be necessary for neuroprotection."

The other authors were affiliated with the University of Perugia (Italy), King's College London (UK), Kuopio University Hospital and University of Eastern Finland (Finland), Aristotle University of Thessaloniki (Greece), Medical University of Lodz (Poland), and University Paul Sabatier (France).

Source: *Neurobiology of Aging*

Volume 33, Issue 10, Pages 2282-2290,
doi:10.1016/j.neurobiolaging.2011.11.019

"Tocopherols and tocotrienols plasma levels are associated with cognitive impairment"

Authors: F. Mangialasche, W. Xu, M. Kivipelto, E. Costanzi, et al.

Keywords: vitamin E, tocopherol, tocotrienol, cognitive function

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E-Complex summary article

Here's a great summary of the various E vitamins and their interactions. Helps understand the significance of this new study.
<http://www.knowguff.com/2012/07/e-complex-tocopherols-and-tocotrienols.html>

Posted by **Doug**
28 August 2012 | 18h16

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