

Diet's impact on Alzheimer's dementia tested

18 February 2014, by Thijs Westerbeek



Credit: Ulrich Joho

A cocktail of ingredients containing omega-3 fatty acid found in fish oil is being tested in patients with mild cognitive impairment as a means to slow the progression of Alzheimer's dementia down

Scientists have long known that high levels of cholesterol around mid-life greatly increase the risk of developing dementia 30 years later. Cholesterol boosts the production of so-called beta amyloid peptides, which are the main component of the amyloid plaques found in the brains of Alzheimer patient. However, it is unclear as to whether changing the diet could prevent dementia. Or even whether the most beneficial and effective ingredients can be delivered in a pill or a small yoghurt drink. This is precisely the questions that the EU-funded LipiDiDiet study is focusing on.

The project follows on from previous efforts to identify beneficial types of fat, also called lipids, which could be of interest for treating dementia. "In an earlier project called LipiDiet— [by contrast to the current] LipiDiDiet project—hundreds of lipids were screened to find out whether they could be

beneficial," says Tobias Hartmann, a professor of experimental neurology at the Saarland University in Homburg, Germany, who is also the LipiDiDiet project coordinator. The previous project identified several so-called 'bad' lipids, which had a negative effect, and a few which had just the opposite effect. "The best one from a practical point of view, [which] had to be digestible and non-toxic in amounts high enough to be effective, was an omega-3 fatty acid, [called] DHA, more commonly known as the [active ingredient](#) of [fish oil](#)," Hartmann tells CommNet.

But there is no consensus on whether DHA has a beneficial effect on the development of Alzheimer's disease. "In my research, I haven't seen any effect," says Ondine van de Rest, a researcher at the division for human nutrition from Wageningen University and Research Centre, in the Netherlands. Her PhD thesis focused on the effect of high dose [fish oil supplementation](#) on cognitive performance in patients with [mild cognitive impairment](#). Her research is not the only one that casts a doubt over the protective properties of fish oil. A large intervention study by US scientists [came up with the same findings](#).

However, van de Rest's work was restricted to studying the effect of DHA as a single active ingredient. She believes it is still quite possible that DHA will work when combined with other lipids, namely precursors of lipids, and minerals. "It's a known fact that diet has a profound effect on cognitive development, it stands to reason that the same goes for the period in life when cognition deteriorates, old age," van de Rest tells CommNet, adding: "if there is a protection mechanism it's probably dependent on many components."

Previous research, according to Hartmann, did show a positive effect of DHA in the petri dish, in genetically modified Alzheimer mice as well as having a small positive effect on patients, who are at an early stage of dementia, treated with DHA in a

combination with several other components such as EPA (eicosapentaenoic acid) and selenium. The latter approach suggests that earlier treatment would block the development of Alzheimer's before the damage is irreparable. Therefore, the project scientists felt more research was necessary.

This time, they tested the same mixture in patients who have slight memory loss, but are not suffering from Alzheimer's dementia yet. By the time the project is due to draw to a close, in March 2015, the team hopes to know whether this combination is able to prevent dementia or reduce the progression towards dementia. "Let's wait and see," says Hartmann.

Can this research finally give a definite answer? Some experts believe so. "I do believe it can," says Manfred Windisch, CEO of consultancy NeuroScios, in Graz, Austria, which specialises in drug development in neuroscience indications. "This is the first large international study wherein the fundamental science is translated into a big clinical trial," he adds. Windisch also notes that it is the first time test subjects are selected according to new criteria, like the fact that they suffer from slight memory loss, or mild [cognitive impairment](#), but not yet Alzheimer's [dementia](#). And they take the supplement over an extended period of time.

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APA citation: Diet's impact on Alzheimer's dementia tested (2014, February 18) retrieved 18 February 2018 from <https://medicalxpress.com/news/2014-02-diet-impact-alzheimer-dementia.html>

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