

Story at-a-glance

- Omega-3 fat deficiency is a contributing factor to many neurological and psychological problems, including degenerative disorders such as “age-related” memory loss and Alzheimer’s
- Sixty percent of your brain is fat. DHA alone makes up about 15 percent to 20 percent of your brain’s cerebral cortex, as well as 30 percent to 60 percent of your retina, making it an essential nutrient for both brain- and eye health
- It’s important to get the bulk of your omega-3 fat from animal-based sources such as krill oil, because the DHA and EPA are far more important for your health than the plant-based ALA. While ALA can convert into DHA/EPA, this conversion is severely impaired when you have elevated insulin levels, which affects over 80 percent of Americans
- In two different studies, taking 800-900 mg of DHA per day for 16-24 weeks resulted in significant improvements in memory, verbal fluency scores, and rate of learning

Humans evolved with a staple source of the essential omega-3 fat docosahexaenoic acid (DHA) in their diets, namely seafood. Animal based omega-3 fats are considered essential because they cannot be synthesized in appropriate quantities by your body and must be supplied through your diet.

The introduction of high-quality, easily digested nutrients from seafood into the human diet coincided with the rapid expansion of grey matter in the cerebral cortex -- a defining characteristic of the modern human brain. The DHA molecule has unique structural properties that provide optimal conditions for a wide range of cell membrane functions, and grey matter is a particularly membrane-rich tissue. There’s no doubt you need omega-3 fat for proper brain function. In fact, mounting evidence suggests that deficiency in this essential fat may lead to brain degeneration. According to a recent article published in the journal *Nutrients*¹:

"An emerging body of research is exploring a unique role for DHA in neurodevelopment and the prevention of neuropsychiatric and neurodegenerative disorders."

Plant-Based versus Animal-Based Omega-3 Fats

Before we go any further, it's important to recognize that animal-based omega-3 fat is *not* interchangeable with plant-based sources of omega-3. And while you do need both in your diet, animal-based omega-3 fats are particularly important for your brain health. Dietary fish and marine oil supplements such as krill oil are a direct source of EPA and DHA. Plants, on the other hand, contain the parent omega-3, alpha-linolenic acid (ALA), which can be converted into eicosapentanoic acid (EPA) and docosahexanoic acid (DHA). However, as stated in the featured article, this conversion is ineffective in general, and appears to get progressively more ineffective with age:

"Unlike the photosynthetic cells in algae and higher plants, mammalian cells lack the specific enzymes required for the de novo synthesis of alpha-linolenic acid (ALA), the precursor for all omega-3 fatty acid syntheses. Endogenous synthesis of DHA from ALA in humans is much lower and more limited than previously assumed."

... [A]fter much intense research, the 1989 NATO Advanced Research Workshop on dietary n-3 and n-6 fatty acids on biological effects and nutritional essentiality, agreed by consensus that n-3 fatty acids generally: (1) have anti-inflammatory properties; (2) lower serum triglycerides and cholesterol; and (3) decrease thrombosis and platelet aggregation. Therefore administration was recommended as beneficial in cardiovascular disease, hypertension and rheumatoid arthritis.

*Since then, however, there has been a wealth of evidence to support the notion that the **omega-3 fatty acids are not bioequivalent** and that the longer chain **EPA and DHA are much more important than their precursor ALA.**" [Emphasis mine]*

The reason why EPA/DHA are more important is because although ALA (that you get from plant sources) is an essential nutrient, the conversion of ALA to EPA and DHA is typically severely impaired by inhibition of delta 6 desaturase; an enzyme necessary for the conversion. Elevated insulin levels impair this enzyme, and over 80 percent of the U.S. population has elevated insulin levels, so chances are high that you'll be part of this significant majority... Therefore, you want to make sure you get *the bulk* of your omega-3 from animal sources, not plant sources, to make sure you won't develop a deficiency.

DHA: One of the Most Important Nutrients for Brain Function

Sixty percent of your brain is fat. DHA alone makes up about 15 percent to 20 percent of your brain's cerebral cortex, as well as 30 percent to 60 percent of your retina, making it an essential nutrient for both brain and eye health.

It's found in high levels in your neurons; the cells of your central nervous system, where it provides structural support. When your omega-3 intake is inadequate, your nerve cells become stiff as the missing omega-3 fats are substituted with cholesterol and omega-6 instead. Once your nerve cells become rigid, proper neurotransmission from cell to cell and within cells become compromised.

The influence of omega-3 fat on physical and mental health has been the subject of intense research over the last four decades, and there's compelling evidence that animal-based omega-3 fats can help reduce the symptoms of a variety of psychiatric illnesses and degenerative brain disorders. For example, low DHA levels have been linked to:

- Memory loss ,Alzheimer's disease , Depression ,Schizophrenia, Bipolar (manic-depressive) disorder

Aside from optimizing your omega-3 intake, ideally by taking a krill oil supplement, the following guidelines can also greatly increase your chances of avoiding any kind of cognitive decline:

- Eat a nutritious diet with plenty of vegetables, paying special attention to avoiding all forms of sugar, especially fructose. Experts are starting to look at memory problems like Alzheimer's as a form of brain starvation, and glucose metabolism appears to play an important role in the disease. It's already known that diabetics have four times the risk of developing Alzheimer's, and those with prediabetes have triple the risk.
- Avoid and remove mercury from your body. Dental amalgam fillings are one of the major sources of mercury, however you should be healthy prior to having them removed. Once you have adjusted to following the diet described in my Nutritional Plan, you can follow the [mercury detox protocol](#) and then find a biological dentist to have your amalgams removed. ONLY see a high-quality biologically trained dentist to remove your amalgams or your health could get ruined.
- Avoid aluminum, such as in antiperspirants, cookware, etc.
- Exercise for three to five hours per week. According to one study, the odds of developing [Alzheimer's](#) were nearly quadrupled in people who were less active during their leisure time, between the ages of 20 and 60, compared with their peers.
- Avoid flu vaccinations as they contain both mercury and aluminum!
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