Omega-3 fatty acids linked with slower progression of ALS

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Consuming omega-3 fatty acids—particularly alpha-linolenic acid (ALA), a nutrient found in foods including flaxseeds, walnuts, and chia, canola and soybean oils—may help slow the progression of disease in patients with amyotrophic lateral sclerosis (ALS), according to a new study led by Harvard T.H. Chan School of Public Health. The study is published on June 21, 2023, in *Neurology*.

"Prior findings from our research group have shown that a diet high in ALA and increased blood levels of this fatty acid may decrease the risk of developing ALS. In this study, we found that among people living with ALS, higher blood levels of ALA were also associated with a slower disease progression and a lower risk of death within the study period," said lead author Kjetil Bjornevik, assistant professor of epidemiology and nutrition. "These findings, along with our previous research, suggest that this fatty acid may have neuroprotective effects that could benefit people with ALS."

The researchers conducted a study among 449 people living with ALS who participated in a clinical trial. As part of this trial, the severity of their symptoms and the progression of their disease were tested and then scored from 0 to 40, with higher scores indicating less severe symptoms of the disease. The researchers measured the levels of omega-3 fatty acids in participants' blood and placed the participants into four groups, from highest to lowest omega-3 fatty acid levels. They then followed up 18 months later to track the groups' physical functionality and survival according to the clinical trial.

They found that ALA showed the most benefits of all the omega-3 fatty acids, as it was most strongly linked to slower decline and decreased risk of death. Of the 126 participants who died within 18 months of the study's onset, 33% belonged to the group with the lowest ALA levels, while 19% belonged to the group with the highest ALA levels. Adjusting for factors like age, sex, ethnicity, BMI, symptom duration, and family

history of ALS, the researchers calculated that participants with the highest levels of ALA had a 50% lower risk of death during the study period compared to participants with the lowest levels of ALA.

Two additional fatty acids were also associated with reductions in risk of death during the study period: eicosapentaenoic acid, another omega-3 fatty acid found in fatty fish and fish oil, and linoleic acid, an omega-6 fatty acid found in vegetable oils, nuts, and seeds.

"The link our study found between diet and ALS is intriguing," said senior author Alberto Ascherio, professor of epidemiology and nutrition. "We are now reaching out to clinical investigators to promote a randomized trial to determine whether ALA is beneficial in people with ALS. Obtaining funding will be challenging, because ALA is not a patentable drug, but we hope to get it done."

More information: Plasma alpha-linolenic acid and ALS progression in the EMPOWER trial, *Neurology* (2023). DOI: 10.1212/WNL.0000000000207485

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