A diet rich in omega-3 fats may be key to preventing Alzheimer's

- **High blood levels of these fats, both from plant and marine sources, are associated with better use of glucose in the brain of people with a high genetic risk of developing the disease**
- **This is what the results of a new study by the BarcelonaBeta Brain Research Center (BBRC), research center of the Pasqual Maragall Foundation, and the Hospital del Mar Research Institute indicate**
- **The research, based on data from 320 participants of the Alfa cohort, promoted by the "la Caixa" Foundation, concludes that nutritional interventions could prevent the disease**

Barcelona, July 11, 2024 – A joint team from the **BarcelonaBeta Brain Research Center (BBRC)**, a research center of the **Pasqual Maragall Foundation**, together with the **Hospital del Mar Research Institute**, has shown that habitual food consumption rich in omega-3 fats, both of plant and marine origin, is related to a better capacity of the brain to metabolize the glucose necessary for its functioning, although the first damage related to Alzheimer's disease has already occurred. The results of the study, recently published in the journal *Alzheimer's and Dementia: Diagnosis, Assessment & Disease Monitoring*, indicate that preventive nutritional interventions, especially during middle age, could help improve brain function and prevent Alzheimer's-associated dementia.

The role of omega-3s

Before the clinical symptoms of Alzheimer's disease appear, there are already specific areas of the brain that have difficulty metabolizing glucose. *"This is important because it is the organ in the body that uses it the most,"* highlights **Aleix Sala-Vila, author of the study, member of the Cardiovascular Risk and Nutrition Research Group of the Hospital del Mar Research Institute, and scientific collaborator of the BBRC.**

Omega-3s contribute to the proper functioning of the receptors necessary for glucose uptake in the brain. These fats are incorporated into cell membranes, thus facilitating the continued use of glucose. In this sense, the researcher details, ***"incorporating these omega-3s into the diet can be beneficial to have a brain resistant to the changes that are occurring before the onset of Alzheimer's disease."***

320 volunteers to study brain glucose metabolization

The study, focused on exploring whether omega-3 intake is linked to better glucose absorption in vulnerable brain areas in Alzheimer's, has included data from **320 volunteers from the Alfa+ cohort**, belonging to the Alfa cohort, driven by the "la Caixa" Foundation. This is a cognitively healthy population, without clinical symptoms of Alzheimer's, but mostly descendants of people affected by the disease, and therefore with a high genetic risk of developing it. The volunteers were injected with glucose labeled with a tracer to check, using an MRI, how it was metabolized in different areas of the brain. The omega-3s they had in their blood were also quantified.

The results show that omega-3s of plant origin (provided, for example, by foods such as walnuts or soy) were associated with better use of brain glucose, especially in participants with a higher genetic risk (carriers of the APOE-e4 gene). On the other hand, omega-3 of marine origin (from oily fish) were more beneficial in those people who, despite not presenting symptoms of Alzheimer's, were already beginning to have the accumulation of proteins characteristic of the disease (amyloid and tau). Therefore, ***"it is suggested to maintain adequate levels of omega-3 in the blood to prevent the disease, especially in people at higher risk of developing dementia. This is achieved by incorporating foods such as nuts and oily fish into the diet,"*** **concludes the researcher.**

Bibliographic reference: Lázaro I, Grau-Rivera O, Suárez-Calvet M, et al. Omega-3 blood biomarkers relate to brain glucose uptake in individuals at risk of Alzheimer's disease dementia. *Alzheimer's Dement*. 2024; 16:e12596. https://doi.org/10.1002/dad2.12596

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About Alzheimer's disease

It is currently estimated that Alzheimer's and neurodegenerative diseases affect 900,000 people, a figure that translates into one in ten over 65 years of age and a third of those over 85. These pathologies are one of the main causes of mortality, disability and dependency. If effective care is not found and with life expectancy increasing, in the year 2050 the number of cases could triple in the world, exceeding one and a half million people in Spain alone, something that could collapse the health and care systems.

About the BarcelonaBeta Brain Research Center and the Pasqual Maragall Foundation

The BarcelonaBeta Brain Research Center (BBRC) is the research center of the Pasqual Maragall Foundation, promoted by "la Caixa" Foundation since its creation, dedicated to the prevention of Alzheimer's disease and the study of the cognitive functions affected in healthy and pathological aging.

The Pasqual Maragall Foundation is a non-profit entity that was born in April of 2008, in response to the commitment made by Pasqual Maragall, former mayor of Barcelona and former president of the Generalitat of Catalonia, when he publicly announced that he had been diagnosed with Alzheimer's disease. The Foundation's mission is to promote research to prevent Alzheimer's and offer solutions that improve the quality of life of affected people and their caregivers.

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