Reference:

Impact of Omega-3 Fatty Acid Supplementation on Memory Functions in Healthy Older Adults


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Summary:

Various studies have indicated that the hippocampus region of the brain plays a key role in maintaining cognitive functioning and that it is susceptible to age-related changes. Further, there is evidence that long-chain omega-3 fatty acids support functioning of the hippocampus. The present research team employed highly sensitive assessments of learning and memory to determine the potential benefit of omega-3 supplementation in healthy older adults.

For this purpose, a double-blind placebo-controlled study was conducted on 44 cognitively-healthy adults aged 50-75 years. They received either daily supplementation with encapsulated omega-3 (providing 1320 mg EPA plus 880 mg DHA) or the same number of capsules (4) filled with sunflower oil (control group) for a period of 26 weeks. Blood levels of omega-3 fatty acids were measured before and after the interventions as was testing for memory performance via OLM (object-location memory). No serious adverse effects were reported over the period of study – a few subjects experienced minor gastrointestinal irritations (e.g., burps/flatulence). As expected, the levels of EPA/DHA in the red blood cells rose considerably over this period in the omega-3 group but not in the controls which confirmed compliance to the supplement regimen as did monitoring of the capsule count. After 26 weeks of supplementation, the omega-3 group exhibited a significant enhancement of their cognitive performance as measured by the OLM testing (by 13.2 % overall) whereas a change of only 3.5 % was found in the control group. The authors concluded that supplementation with long-chain omega-3 fatty acids exerts ‘positive effects on memory function in healthy older adults’.
Dr. Holub’s Comments:

The present clinical trial did not address the mechanisms by which long-chain omega-3 fatty acids may benefit memory functions. However, there is past research indicating that the enrichment of nerve cell membranes with omega-3 fatty acids having unique physico-chemical properties (incl. fluidity) may improve synaptogenesis and synaptic transmission and modulate the expression and function of receptors which support learning and memory. In general, consuming 5-7 mixed fish servings/week would likely bring average intakes of DHA plus EPA to approximately 750-1000 mgs/day as compared to the supplemental intakes in this trial of 2,200 mgs/day. It is noted that a recent review concluded that intakes of DHA plus EPA surpassing 1000 mg/day improved periodic memory outcomes of adults with mild memory complaints (Yurko-Mauro, K. et al., PLoS One, 10: e0120391 (2015)).