

Omega-3 fatty acids, and in particular DHA, are associated with increased attention scores in adolescents

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Docosahexaenoic acid (DHA) is associated with a greater capacity for selective and sustained attention in adolescents, while alpha-linolenic

acid (ALA) is associated with lower impulsivity, according to a study co-led by ISGlobal, a center supported by the "la Caixa" Foundation and the Pere Virgili Institute for Health Research (ISPV). The results, published in *European Child & Adolescent Psychiatry*, confirm the importance of having a diet that provides sufficient amounts of these polyunsaturated fatty acids for a healthy brain development.

During adolescence, important structural and functional changes occur in the brain, especially in the prefrontal area, which plays a major role in controlling attention. On the other hand, omega-3 [unsaturated fatty acids](#) are known to be critical for proper brain development and function. The most abundant fatty acid in the brain, particularly in the prefrontal area, is DHA, which is mostly supplied by eating fatty fish.

"Despite the established importance of DHA in brain development, few studies have evaluated whether it plays a role in the attention performance of healthy [adolescents](#)," says Jordi Júlvez, IISPV researcher, ISGlobal research associate and coordinator of the study. "In addition, the possible role of alpha-linoleic acid (ALA), another omega-3 but of plant origin, has not been as extensively studied." This is relevant, given the low fish consumption in Western societies.

The purpose of this study was to determine whether a higher intake of DHA and ALA was associated with an increased attention performance in a group of 332 adolescents from different schools in Barcelona. The participants underwent computerized tests that measure reaction times in order to determine selective and sustained attention capacity, inhibition capacity in the face of distracting stimuli, and impulsivity. The adolescents also answered a series of questions on [dietary habits](#) and gave [blood samples](#) to measure red blood cell levels of DHA and ALA—an objective and valid indication of long-term dietary intake of these fats.

The results show that higher levels of DHA are associated with greater selective and [sustained attention](#) and inhibitory attention. In contrast, ALA was not associated with attention performance, but was associated with lower impulsivity. "The role of ALA in attention control is still unclear, but this finding may be clinically relevant, as impulsivity is a feature of several psychiatric conditions, such as ADHD," explains Ariadna Pinar-Martí, first author of the study.

"Our study indicates that dietary DHA most likely plays a role in attention-requiring tasks, but further studies are needed to confirm a cause-effect, as well as to understand the role of ALA," concludes Júlvez. In any case, the findings add to the already existing evidence on the benefit of consuming fatty fish (the main source of DHA) at a time when the brain is developing in its highest sophistication before reaching adulthood.

More information: Ariadna Pinar-Martí et al, Red blood cell omega-3 fatty acids and attention scores in healthy adolescents, *European Child & Adolescent Psychiatry* (2022). [DOI: 10.1007/s00787-022-02064-w](https://doi.org/10.1007/s00787-022-02064-w)

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