

Abstract

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Long-chain polyunsaturated fatty acids in children with attention-deficit hyperactivity disorder.

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BACKGROUND: Attention-deficit hyperactivity disorder (ADHD) is the diagnosis used to describe children who are inattentive, impulsive, and hyperactive. ADHD is a widespread condition that is of public health concern. In most children with ADHD the cause is unknown, but is thought to be biological and multifactorial.

KEY FINDINGS: Several previous studies indicated that some physical symptoms reported in ADHD are similar to symptoms observed in essential fatty acid (EFA) deficiency in animals and humans deprived of EFAs. We reported previously that a subgroup of ADHD subjects reporting many symptoms indicative of EFA deficiency (L-ADHD) had significantly lower proportions of plasma arachidonic acid and docosahexaenoic acid than did ADHD subjects with few such symptoms or control subjects. In another study using contrast analysis of the plasma polar lipid data, subjects with lower compositions of total n-3 fatty acids had significantly more behavioral problems, temper tantrums, and learning, health, and sleep problems than did those with high proportions of n-3 fatty acids.

CONCLUSIONS: The reasons for the lower proportions of long-chain polyunsaturated fatty acids (LCPUFAs) in these children are not clear; however, factors involving fatty acid intake, conversion of EFAs to LCPUFA products, and enhanced metabolism are discussed. The relation between LCPUFA status and the behavior problems that the children exhibited is also unclear. We are currently testing this relation in a double-blind, placebo-controlled intervention in a population of children with clinically diagnosed ADHD who exhibit symptoms of EFA deficiency.

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