

Essential Fatty Acids Shown To Improve Performance in Children With ADHD and Dyslexia

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In the February issue of *Progress in Neuro-Psychopharmacology & Biological Psychiatry*, researchers A. Richardson and B. Puri reported the results of their pilot study on the effects of essential fatty-acid supplementation on 41 learning-disabled boys and girls (aged 8-12) with symptoms of dyslexia and attention-deficit/hyperactivity disorder (ADHD). The three-month study tested an essential fatty-acid supplement containing eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) derived from fish oil, and gamma linolenic acid (GLA) and linoleic acid, derived from evening primrose oil.

This study showed that a variety of symptoms characteristic of ADHD improved in children who received the fatty-acid mixture, compared to those who received an oliveoil placebo, without any apparent side-effects. To assess changes in behavior and mental performance, a questionnaire widely used to assess responses to drugs such as Ritalin and Adderall was given to each child's parents. The questionnaire assessed measures of inattention, restlessness-impulsiveness, anxiousness-shyness, and cognitive problems.

After three months of daily use, notable improvements were observed in most of the scores among the children receiving the special fatty-acid mixture. The study was sponsored by the Dyslexia Research Trust (www.dyslexia.org.uk), an Oxford-based charity dedicated to uncovering the biological basis of dyslexia and related conditions, as a means to developing better methods of identification and management.

Abundant evidence suggests that specific fatty acids are important to brain function and development. According to the researchers of this study, and other sources, these fatty acids are often underconsumed or underproduced in children with behavioral and learning challenges.¹⁻⁴ This appears to be especially true for DHA, a member of the omega-3 group of fatty acids, mainly derived from cold-water fish such as salmon, mackerel, herring, sardines and other marine animals. DHA is also produced in the body from EPA, which can be produced from the elongation and desaturation of alpha-linolenic acid (the most prevalent fatty acid in flaxseed oil).

DHA is present in breast milk, but not cow's milk. Due to its importance in brain development and function, and the development of the nervous system and the retina, many physicians recommend breastfeeding or the use of infant formula that contains DHA.^{5,6} One study showed that infants receiving supplemental DHA in their formulas scored significantly higher in mental development, as gauged by memory, problem-solving, and related skills.⁷ It is also stressed that preterm infants be supplemented with DHA, since they are incubated and not breastfed.⁸

This pilot study provides further evidence that essential fatty-acid supplementation can be an important aspect of the complementary management of ADHD and dyslexia, and possibly in other

learning disabilities cases.¹

References

1. Dietary Supplement Information Bureau. Jan. 30, 2002. New hope for children with learning disabilities.
2. Mitchell EA, Aman MG, Turbott SH, Manku M. Clinical characteristics and serum essential fatty acid levels in hyperactive children. *Clin Pediatr* 1987;26:406-11.
3. Stevens LJ, Zentall SS, Deck JL, et al. Essential fatty acid metabolism in boys with attention-deficit hyperactivity disorder. *Am J Clin Nutr* 1995;62:761-8.
4. Aman MG, Mitchell EA, Turbott SH. The effects of essential fatty acid supplementation by Efamol in hyperactive children. *J Abnorm Child Psychol* 1987;15:75-90.
5. Birch EE, et al. A randomized controlled trial of early dietary supply of long-chain polyunsaturated fatty acids and mental development in term infants. *Dev Med Child Neur* 2000;(42):174-181.
6. Jorgensen MH, Hernell O, Hughes E, Michaelsen KF. Is there a relation between docosahexaenoic acid concentration in mothers' milk and visual development in term infants? *J Pediatr Gastroenterol Nutr* Mar 2001;32(3):293-6.
7. Willatts P, Forsyth JS, DiModugno MK, et al. Effect of long-chain polyunsaturated fatty acids in infant formula on problem-solving at 10 months of age. *Lancet* Aug 1998;352(9129):688-91.
8. Uauy R, Mena P. Requirements for long-chain polyunsaturated fatty acids in the preterm infant. *Curr Opin Pediatr* Apr

U.S. Congress Funds Research Project on Daily Multivitamins and Low-Income Children

The U.S. Congress has allocated \$500,000 to underwrite a research program by The Healthy Foundation (THF) of Murrieta, California, which will determine the impact of a daily multivitamin on school performance of at-risk children. The foundation currently provides daily multivitamins to over 5,000 children from low-income families at 87 sites in 33 states. Its national initiative, Vitamin Relief USA - Children First, is a public-private partnership that distributes to children at risk for malnutrition and nutrient deficiency. In the words of THF President Hyla Cass, MD: "Vitamins not only help them perform better academically, but they also promote normal growth and development to their full mental and physical capabilities."

A recent study showed that only 1 percent of 3,300 youths met the U.S. RDA for a healthy diet. According to Dr. Cass, "We believe The Healthy Foundation Vitamin Relief USA-Children First program will validate vitamin/mineral supplements as a viable intervention for improving the academic performance and well-being of American children."

Reference

1. Dietary Supplement Information Bureau. Jan. 31, 2002. Congress funds research program to determine impact of daily vitamins on school performance of at-risk children.

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