



DIET RICH IN ESSENTIAL FATTY ACIDS, BEFORE OR AFTER BIRTH, LINKED TO COGNITIVE, BEHAVIOR BENEFITS

Expectant mothers who eat a diet high in omega-3 fatty acids may enhance the IQs of their children and reduce those children's risk of antisocial behavior, according to data from a large, long-term study. A separate study, using data from the same group of mothers and children, concludes that a maternal diet high in omega-3-rich fish during pregnancy can lead to better social, language, and communication skills—all of which are strongly linked to adult success and prosocial behavior. And a third study replicates findings from recent British research showing that essential fatty acids can dramatically improve the learning and behavior of children with attention deficit hyperactivity disorder (ADHD).

Hibbeln and Golding: higher IQs, less antisocial behavior

Joseph Hibbeln analyzed data from 14,000 women and children, all involved in the Avon Longitudinal Study of Parents and Children. The study measured food consumption in mothers during pregnancy and then tested their children at regular intervals.

Hibbeln and colleague Jean Golding, the originator of the Avon study, found that children of women who consumed the lowest amounts of omega-3 fatty acids during pregnancy had verbal IQs six points lower than average. **In addition, by age seven, children whose mothers consumed very little of these nutrients were more prone to exhibit pathological social interactions—a risk factor for later antisocial behavior.** These children also exhibited poorer fine-motor control than the children whose mothers had the highest omega-3 fatty acid intakes during pregnancy.

Unlike Emily Oken and colleagues (see related article, [*Crime Times*, 2005, Vol. 11, No. 4, Page 1](#)), who found that the mercury levels in seafood partially offset the benefits of its high omega-3 content, Hibbeln and Golding say they did not detect any deleterious effects from mercury.

Daniels et al.: better language

In a separate study, Julie Daniels and colleagues used data on more than 7,400 mothers from the Avon project to determine the women's prenatal seafood intake and evaluate their children's cognitive outcomes. The researchers report finding a subtle but consistent link between higher fish intake and scores on developmental tests.

The most notable effect was on a test of the children's understanding of words at 15 months of age. Children whose mothers ate fish once a week or more scored 7% higher on this test than those whose mothers did not eat fish. The children whose mothers ate seafood also scored somewhat higher on tests of social activity and language development, and a similar pattern was seen for children who ate fish at least once a week before their first birthday.

Daniels notes, however, that her team detected a threshold effect. "The relationship with neurodevelopment was strongest for [mothers] eating fish between one and three times per week," she said, "with no additional benefit in eating fish more often." This is consistent, she noted, with the U.S. Food and Drug Administration's recommendation to limit fish consumption to 12 ounces of low-mercury fish per week during pregnancy.

Daniels and her colleagues conclude, "When fish is not contaminated, moderate fish intake during pregnancy and infancy may benefit development," but caution that "the balance between the benefits of fish and the adverse effects of mercury contamination in relation to neurodevelopment remain unclear for populations where mercury levels are higher."

Sinn: improvement in children with ADHD

Recently (see related article, [*Crime Times, 2005, Vol. 11, No. 3, Page 1*](#)), British researchers reported that children with developmental coordination disorder improved dramatically when given supplements containing fish oil and evening primrose oil and providing high levels of the omega-3 fatty acids EPA and DHA and the omega-6 fatty acid linoleic acid. The children made remarkable advances in learning and exhibited fewer symptoms of ADHD.

A separate study, by Natalie Sinn, has replicated these findings in children with ADHD-related symptoms. Sinn gave 145 Australian children with ADHD either a placebo or fatty acid supplements, without letting their parents know which children were taking the active supplements. She reports, "The parents of children who spent 15 weeks on a course of capsules containing a combination of fish oil and primrose oil reported increased attention and reduced hyperactivity, restlessness and impulsivity." The children also improved their scores on tests of attention and vocabulary.

When the children taking the placebo switched to the fatty acids, they showed similar improvements, while the supplemented group-which continued to take the fatty acids-made additional strides.

Presentation by Joseph Hibbeln to the Institute of Brain Chemistry and Human Nutrition, January 2006. See "Diet and the unborn child: the omega point," *The Economist*, January 19, 2006.

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J. L. Daniels, M. P. Longnecker, A. S. Rowland, and J. Golding, "Fish intake during pregnancy and early cognitive development of offspring," *Epidemiology*, Vol. 15, No. 4, July 2004, 394-402.

--and--

"Children with ADHD benefited from 15-week course of fish oil and primrose oil," *Medical News Today*, September 21, 2005.