

Omega-3 fatty acid on trial: Study to evaluate long-term effects on intelligence, behavior

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University of Kansas researchers John Colombo and Susan Carlson have been awarded \$2.5 million for the next five years of a 10-year, double-blind randomized controlled trial to determine whether prenatal nutritional supplementation with the omega-3 fatty acid DHA benefits children's intelligence and school readiness.

“The possibility that DHA may have long-term benefits for cognitive-intellectual development, particularly on measures that predict school achievement, would have enormous implications for public policy on prenatal nutrition,” said Susan Carlson, A. J. Rice Professor of Dietetics and Nutrition at the University of Kansas Medical Center.

DHA (docosahexaenoic acid) occurs naturally in cell membranes with the highest levels in brain cells, but DHA levels can be increased by diet or supplements, particularly from fish oil. An infant obtains DHA from his or her mother in utero and postnatally from human milk, but the amount received depends upon the mother's DHA status.

“U.S. women typically consume less DHA than women in most of the developed world,” said Carlson.

The study will follow the children of 350 mothers who were enrolled in the study during pregnancy. Pregnant women were randomly assigned to take either 600 milligrams of DHA or 600 milligrams of a placebo during the last half of pregnancy.

During the first five years of the study, all children received multiple developmental assessments through 18 months of age. In the next five years of the study all children will receive twice-yearly assessments through 6 years of age. The researchers will measure developmental milestones that occur in later childhood and are linked to lifelong health and welfare.

The trial will be the first to measure the effects of prenatal nutritional supplementation with DHA employing frequent assessment of intellectual and psychological development of children in this age group.

“Previous research has established the effects of postnatal feeding of DHA on infant cognitive and intellectual development, but DHA is accumulated most rapidly in the brain during pregnancy. That’s why we are so interested in the effects of DHA taken prenatally,” said Colombo, KU professor of psychology and director of the KU Life Span Institute. “Now we will be able to really see how this nutrient affects development over the long term.”

Another unique feature of the trial is evaluating the effect of genetic variation in genes that are linked to fatty acid metabolism and DHA status.

“Genetic differences among women and infants in the study may account for individual variations in the response to supplementation,” said Carlson.

The study is funded by the Eunice Kennedy Shriver National Institute of Child Health and Human Development.

Provided by University of Kansas

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