

Diets low in polyunsaturated fatty acids may be a problem for youngsters

September 13 2013

In the first study to closely examine the polyunsaturated fatty acid (PUFA) intake among U.S. children under the age of 5, Sarah Keim, PhD, principal investigator in the Center for Biobehavioral Health at The Research Institute at Nationwide Children's Hospital, has found what might be a troubling deficit in the diet of many youngsters. The study, published online today by *Maternal and Child Nutrition*, used data on nearly 2500 children age 12 to 60 months from the U.S. National Health and Nutrition Examination Survey.

PUFAs are essential to human health. A proper ratio of omega-6 to omega-3 PUFAs plays an important role in cell function, inflammation, [eye development](#) and neural functioning. However, the ideal dietary intake of PUFAs for [young children](#) is unclear. Knowing that infants often receive significant amounts of key PUFAs through [breast milk](#) and infant formula during the first year of life, Dr. Keim and her colleague, Amy Branum, PhD, MSPH, of the Centers for Disease Control and Prevention, decided to estimate the average intake of PUFAs in the diet for children between infancy and kindergarten.

"The ratio of omega-6 to omega-3 intake was high—about 10. Some experts use this as an indicator of [diet quality](#), with a high ratio being less healthy," says Dr. Keim. "In addition, intake of a key fatty acid known as DHA in children 12 to 60 months of age was low—lower than what infants generally consume—and it did not increase with age."

Dr. Keim's study was also the first to examine the primary dietary

sources of PUFA intake among children under the age of 5 and to examine age, race and ethnicity in relation to fish intake in this age group. Fish are an excellent source of fatty acids, such as DHA and EPA, and were shown to be the richest sources of PUFAs in children's diets.

"Only about 54 percent of children ate fish at least once in the previous month. Non-Hispanic black children were more likely than non-Hispanic white children to have eaten fish," says Dr. Keim. "Because diet can be an important contributor to many diseases, it's important to understand how such disparities might contribute to disease risk."

The swift physical and neurological development during this period of childhood may mean that variations in PUFA intake could have important implications for growth, she adds.

"This work could help inform dietary recommendations for children, and may be particularly important for the preterm population," Dr. Keim says. "We are currently carrying out a clinical trial to see if DHA supplementation when children are 1 year of age can help cognitive development in those born preterm."

At present, there is no official dietary recommendation in the U.S. for DHA and EPA intake or supplementation among children, although the Institute of Medicine has issued what they call a "reasonable intake" level of two 3-oz servings of fish per week for children. "According to our research, however, children are clearly not consuming this much fish," says Dr. Keim. In addition, the researchers found that overall intake of key fatty acids, such as DHA and EPA, among U.S. children is only a fraction of what is regularly consumed by young children in certain other countries, including Canada. Other studies suggest that similarly low intakes exist in kids age 5 and older. By incorporating key omega-3 PUFAs into a child's diet at a very early age, Dr. Keim says, it

may be more likely to become part of a lifelong diet.

Dr. Keim hopes her work will contribute to a more detailed understanding of the diets of young children in the U.S. and will motivate health professionals to start considering the specific nutritional needs of children for healthy growth and development. "We'd like to continue our work examining dietary patterns in very young children, since they are often excluded from dietary studies," she says.

Ideally, Dr. Keim says she would like to see families expose their children to a variety of fresh foods as soon as they are old enough to eat solids. "Dietary habits can form very early, so starting with a balanced diet may have long-lasting effects for children's health." According to Dr. Keim, this balanced diet should include fish and other good sources of healthy [fatty acids](#).

Provided by Nationwide Children's Hospital

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