

Folic acid intake associated with reduced risk of autism: study

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(Medical Xpress) -- A new study by researchers at the UC Davis MIND Institute suggests that women who consume the recommended daily dosage of folic acid, the synthetic form of folate or vitamin B-9, during the first month of pregnancy may have a reduced risk of having a child with autism.

The study furthers the researchers' earlier investigations, which found that women who take [prenatal vitamins](#) around the time of conception have a [reduced risk](#) of having a child with autism. The current study sought to determine whether the [folic acid](#) consumed in those supplements was the source of the protective effect. The finding suggests that, in addition to women who already have conceived, those who are attempting to become pregnant should consider consuming [folic acid supplements](#), the authors said.

The study found that women who each day consumed the recommended amount of folic acid (600 micrograms, or .6 milligrams) during the first month of pregnancy experienced a reduced risk of having a child with autism spectrum disorder, specifically when the mother and/or her child had a specific genetic variant (MTHFR 677 C>T) associated with less efficient [folate](#) metabolism. The study will be published in the July issue of the [American Journal of Clinical Nutrition](#).

"This research is congruent with the findings of earlier studies that suggest that improved neurodevelopmental outcomes are associated with folic acid intake in early pregnancy," said lead study author Rebecca J.

Schmidt, assistant professor of public health sciences in the UC Davis School of Medicine and a researcher with the UC Davis MIND Institute. "It further supports recommendations that women with any chance of becoming pregnant should consider consuming folic acid at levels of 600 micrograms or greater per day."

Autism is a [neurodevelopmental disorder](#) characterized by impairments in [social interaction](#), communication deficits and [repetitive behaviors](#) and often is accompanied by [intellectual disability](#). An estimated 1 in 88 children born today will be diagnosed with autism spectrum disorder, according to the U.S. Centers for Disease Control and Prevention.

"What's reassuring here is knowing that, by taking specific action in terms of their intake of folic acid from food or supplements, women can reduce the risk of autism spectrum disorder in their future children," said study senior author Irva Hertz-Picciotto, chief of the division of environmental and occupational health in the Department of Public Health Sciences and a MIND Institute researcher.

The study authors said that folic acid offers protection against problems in embryonic brain development by facilitating DNA methylation reactions that can lead to changes in the way that the genetic code is read. An ample supply of methyl donors such as folic acid could be especially important in the period around conception, when the DNA methylation road map is set forth.

For the study, the researchers collected data from approximately 835 Northern California mothers of 2- to 5-year-old children who had autism, developmental delay or typical development and who were participants in the Childhood Autism Risk from Genetics and the Environment (CHARGE) study between 2003 and 2009.

Each mother's average daily folic acid intake was assessed on the basis

of the amount and the frequency of consumption of folic acid-containing dietary supplements such as prenatal vitamins and multivitamins, as well as the consumption of food supplemented with folic acid such as fortified breakfast cereals or energy bars. Information was collected for the period when the women were pregnant and for the three months before they became pregnant.

The study found that mothers of typically developing children reported greater-than-average intake of folic acid, and were more likely to meet intake recommendations during the first month of pregnancy than were mothers of children with autism spectrum disorder. Among study participants, as the amount of folic acid consumed increased, the associated risk for [autism spectrum disorder](#) decreased. Mothers of children with developmental delay tended to have lower estimated folic acid intake when compared with mothers of typically developing children during the three months before pregnancy.

The mothers of infants who were developing normally said they consumed an average 779 micrograms of folic acid daily and 69 percent of them at least met the daily guidelines. The mothers of children with autism consumed an average of 655 micrograms of folic acid. Fifty-four percent of them consumed the recommended 600 [micrograms](#) or more per day

Consuming supplemental folic acid before and during [early pregnancy](#) has been recommended for decades, after studies demonstrated its potential to prevent up to 70 percent of neural tube defects, or improper formation of the embryonic brain and spinal cord. Folic acid's protective effect on neural tube defects also was stronger when mothers and/or children carried the MTHFR 677 C>T gene variant. Early maternal folic acid supplementation has more recently been shown to improve other social, attention and behavioral outcomes in the developing child.

Provided by UC Davis

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