

# Children with inflammatory bowel disease have surprisingly high folate levels, study finds

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Children with newly diagnosed cases of inflammatory bowel disease have higher concentrations of folate in their blood than individuals without IBD, according to a new study led by researchers at the University of California, San Francisco and UC Berkeley. The findings bring into question the previously held theory that patients with IBD are prone to folate - also known as folic acid - deficiency.

"This is exciting work that opens the door to additional research into the role of folic acid and its genetic basis in the development of IBD, especially in young patients," said first author Melvin Heyman, MD, a professor of pediatrics, chief of pediatric gastroenterology, hepatology and nutrition, and director of the Pediatric IBD Program at UCSF Children's Hospital.

The study appears in the February 2009 issue of the "*American Journal of Clinical Nutrition*" and is currently available online at <http://www.ajcn.org/cgi/content/full/89/2/545>.

IBD is a blanket term referring to illnesses that cause chronic inflammation in the intestines, including ulcerative colitis, which manifests itself in the colon, and Crohn's disease, which can arise anywhere in the intestinal tract, according to Heyman. IBD occurs in children of all ages and can cause abdominal pain, diarrhea, fever, bleeding and nutritional deficiencies, he added.

Previous research has shown that adults with IBD tend to have lower folate levels than those without the disease, according to Nina Holland, PhD, a senior author on the paper. A folate deficiency may have multiple causes, such as poor absorption of folate across the intestinal tract, lower dietary intake of the nutrient, and medication interactions, Holland explained.

"However, pediatric IBD appears to be somewhat different from the adult form, and before this study very little was known about folate levels in newly diagnosed children with this disease," said Holland, who is also a professor of genetics and toxicology at UC Berkeley.

Folate, a form of water-soluble vitamin B, helps produce and maintain new cells, according to the National Institutes of Health. Folate occurs naturally in certain foods, including leafy green vegetables like spinach and turnip greens, citrus fruits and a variety of beans, and is also available as a dietary supplement.

"Folate has extremely important health implications and has actually been shown to prevent changes to DNA that may lead to cancer and birth defects," said Holland.

The researchers measured blood folate levels in 78 children -- 5 to 17 years old - who were recruited from clinics participating in the Pediatric IBD Consortium that is comprised of six primary centers across the U.S. (in Atlanta, Boston, Chicago, Houston, Philadelphia and San Francisco). Of those children, 37 had newly diagnosed, untreated IBD, and 41 served as controls. Both the red blood cell folate concentrations and whole-blood concentrations were compared between the two groups.

The subjects' blood samples were all processed, analyzed and stored at the Children's Environmental Health Laboratory at UC Berkeley.

Results indicated that red blood cell folate concentrations were 19.4 percent lower in the controls than in the IBD patients, and whole-blood concentrations were 11.1 percent lower in the controls.

The researchers also compared the dietary intake of folate between the two groups by administering questionnaires that gauged the amount of folate each subject ingested through food and vitamin supplements. It was interesting, they noted, that dietary folate intake was 18.8 percent higher in the controls than in patients with IBD.

"We were surprised to see the IBD patients had significantly higher blood folate concentrations than the controls, even though the latter group appeared to have higher dietary folate intakes," Heyman said.

The findings may have important clinical implications for treating IBD in children. To date, many clinicians have recommended folate supplementation for all IBD patients. Yet because the study found normal folate concentrations in children with newly diagnosed cases, this recommendation might need to be reconsidered, Heyman explained.

Source: University of California - San Francisco

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