

Researcher investigates link between folic acid and heart health, anemia

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(PhysOrg.com) -- A Georgia State University researcher and his colleague are investigating the effects of a decade-long requirement to fortify all cereals in the United States with folic acid, and its link with a chemical believed to play a role in cardiovascular disease.

Vijay Ganji, associate professor of nutrition in Georgia State's College of Health and Human Sciences, and Mohammad R. Kafai, of San Francisco State University, investigated multiple factors involved in the levels of the [nutrient folic acid](#) and homocysteine — for which studies suggest a link to increased risk for cardiovascular disease.

The report is one of the first examining factors such as gender, race, blood pressure, and levels of certain chemicals in the blood during the post-fortification period. Ganji and Kafai examined the data from the National Center for Health Statistics' National Health and Nutrition Examination Survey from 1999 to 2004.

Since 1998, all processed cereals in the [United States](#) have been fortified with folic acid in an effort to help prevent [neural tube](#) defects — a type of [birth defect](#) that can lead to neurological diseases such as spina bifida, a defect resulting in an incomplete spinal cord.

Folic [acid fortification](#) has reduced the risk of neural tube defects by up to 20 percent in the United States, and by higher levels in Canada, which started fortification at about the same time, Ganji explained.

But an unintended effect of fortification is the reduction of homocysteine — a chemical which studies suggest increases the risk of cardiovascular disease, decreased cognitive function and bone mineral density. Fortification has helped reduce homocysteine levels in the population.

Not everyone needs high levels of folic acid. The

intended target for fortification is women who are pregnant or are of child-bearing age, and not necessarily men, children or the elderly.

In the study, Ganji and Kafai found an association between homocysteine levels and serum methylmalonic acid, or MMA — which can indicate vitamin B12 deficiency, a factor in certain types of anemia.

“MMA and vitamin B12 are both coming out to be a strong predictor of homocysteine,” Ganji said. “What might be happening is the worsening of B12 deficiency symptoms.”

The paradox is that folic acid fortification has had the unintended effect of reducing the risk for anemia. It is possible that certain B12 deficiency symptoms may be masked.

“When you give folic acid to someone with B12 deficiency, the anemia coming from the lack of B12 might be cured and patient does not feel tired due to lack of anemia, hence less likely to see the physician, but the neurological symptoms of the deficiency may be worsened,” Ganji explained.

Still, the enormous benefits of folic acid fortification cannot be discounted.

“It has been positive so far, and has resulted in significant reductions in neural tube defects, as well as homocysteine,” Ganji said. “We must have an ongoing public policy evaluation, though, to see if there are any trends or changes among the population.”

Provided by Georgia State University ([news](#) : [web](#))

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