

Fortifying flour with folic acid could immediately prevent 57,000 annual birth defects, study suggests

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According to researchers from the Rollins School of Public Health, approximately 57,000 birth defects of the brain and spine could be immediately prevented every year in 71 countries by adding folic acid to wheat flour.

Vijaya Kancherla, Ph.D., an epidemiologist for the Center for Spina Bifida Prevention and research assistant professor at Emory's Rollins School of Public Health, was lead author of the study published in Birth Defects Research. The research team assessed the [birth](#) defects cases in the 71 countries where there is an immediate potential for wheat flour fortification. Researchers identified large quantities of potentially preventable birth defects in countries such as China, which represents more than 13,000 folic [acid](#)-preventable cases of anencephaly and spina bifida annually.

"It's important to note that 57,000 is an annual number. If fortification is sustained, in 20 years that would mean over 1 million fewer children with severe birth defects in these 71 countries," says Kancherla.

"Fortification can be easily started in these countries using their current milling infrastructure, and the result would be an immediate prevention of unnecessary disability and death in children for years ahead."

[Past research](#) estimated that 233,200 live births with spina bifida or anencephaly could be averted if women had more folic acid prior to

conception and in the first 28 days of pregnancy. Folic acid is a form of vitamin B9. Fortifying wheat flour with folic acid supplies this essential vitamin through commonly consumed foods such as bread and pasta.

Kancherla used four criteria to identify countries with the immediate potential for wheat flour fortification:

1. Existing flour fortification does not include folic acid.
2. At least 30 percent of wheat flour is industrially milled, with an "industry" defined as one with a capacity to produce at least 20 metric tons of flour a day.
3. Less than 50 percent of industrially milled wheat flour is fortified, regardless of fortification legislation.
4. More than 75 grams of wheat flour per person per day is available for human consumption, according to the Food and Agriculture Organization of the United Nations.

"Fortifying wheat flour with folic acid has reduced the prevalence of [birth defects](#) in every country that has studied birth defect prevalence before and after fortification," explains Kancherla. "Chile, South Africa and the US have also reported millions of dollars in averted healthcare expenditures due to prevention of [spina bifida](#)."

To reduce the risk of a pregnancy being affected by a birth defect of the brain and spine, the World Health Organization recommends that women take 400 micrograms of folic acid daily. But less than 30 percent of women voluntarily take [folic acid supplements](#) at the right time in most countries. Countries began fortifying wheat flour with folic acid for birth defect prevention in 1996 and currently 81 countries include [folic acid](#) in their standards for mandatory wheat [flour](#) fortification.

Provided by Emory University

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