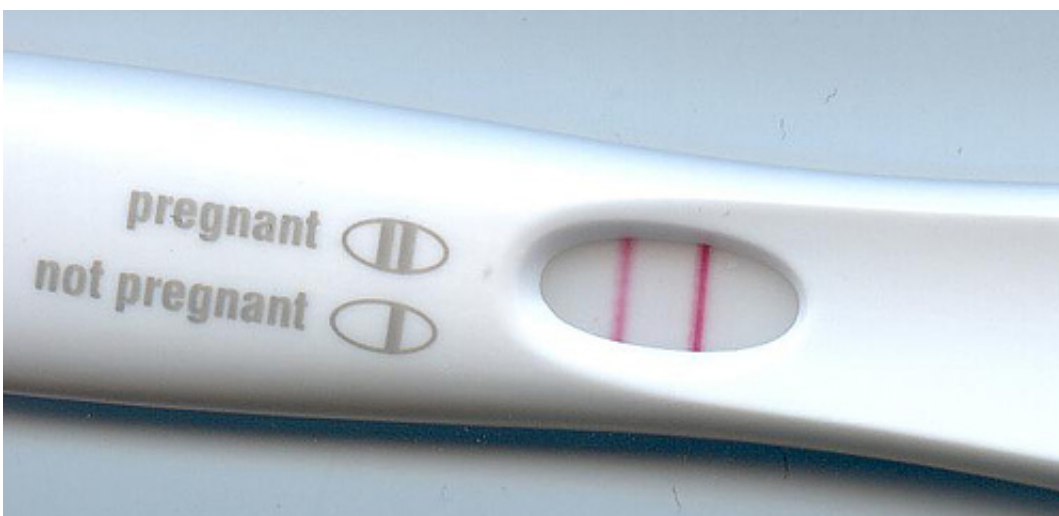


Less decline than expected in brain, spine defects after folic acid fortification program

May 18 2016



Pregnancy test. Credit: public domain

Fortifying the U.S. food supply with folic acid was not associated with a decline in certain birth defects that researchers expected to see in California, according to a new study from the Stanford University School of Medicine.

The new findings are likely to contribute to an ongoing debate about the future of the fortification program.

The study of more than 1.3 million California births and pregnancies spanning two decades will be published online May 18 in *Birth Defects*

Research Part A. The research examines [neural tube defects](#), which affect a baby's brain and spine, and which were the intended target of fortification with [folic acid](#), a B vitamin. However, [neural tube](#) defects were already becoming less common before fortification began, and their decline slowed substantially after fortification was introduced, the study found.

"We did not see what we would have expected to see, and that's a concern," said the study's senior author, Gary Shaw, PhD, professor of pediatrics at Stanford.

The effect of fortification on two other categories of birth defects was also studied, with unclear results.

Risk factor for birth defects

Lower levels of folic acid intake are known to increase the risk for neural tube defects, including anencephaly, in which a baby's brain does not develop, and spina bifida, in which the tube enclosing the spinal cord is open at birth. Anencephaly is usually fatal in the first few days of life, and spina bifida often causes lifelong paralysis. Because these birth defects occur early in gestation, often before a woman realizes she is pregnant, [folic acid fortification](#) was introduced in the late 1990s to try to raise everyone's blood level of the vitamin and thus prevent NTDs. It is now added to cereals, flour and other refined grain products. Natural folates are present in many foods, such as leafy green vegetables, whole grains, citrus fruits and beans.

The new study examined newborns and reports of pregnancies affected by birth defects in eight Central California counties from 1989 to 2010. The overall rate of neural tube defects for the entire study period was 87.8 cases per 100,000 births. From 1989 to 1996, before fortification started, NTDs declined by 8.7 cases per 100,000 births per year.

"The downward trend in neural tube defects started probably in the late 1960s or early 1970s; it was happening even before folic acid was likely added to multivitamin supplements or certain foods," Shaw said. The reason for the pre-fortification decline is unknown.

Slower decline

However, after fortification was fully implemented, between 1999 and 2010, NTDs declined more slowly, by 1.7 cases per 100,000 births per year, the study found.

The study also looked at [birth defects](#) that were not originally intended as targets of folate fortification: orofacial clefts, which include cleft lip and palate, and cleft palate alone; and gastroschisis, a birth defect in which a baby is born with some of its intestines outside the body. Effective surgical treatments exist for orofacial clefts and gastroschisis, whereas anencephaly has no treatment and [spina bifida](#) often causes lifelong disability.

Before fortification began, rates of cleft lip and palate and cleft palate alone were increasing slightly, by 0.2 and 1.2 cases per 100,000 per year, respectively. (These defects are more common than NTDs, affecting a combined total of around 180 babies per 100,000 births per year over the entire study.) After fortification, rates of orofacial clefts decreased by about 2 cases per 100,000 per year. Gastroschisis cases increased for the entire study period, but increased more slowly after fortification.

The study does not exclude the possibility that other factors could be responsible for changes in birth defect rates, Shaw noted. For instance, maternal obesity rates were increasing between 1989 and 2010, and higher-weight mothers are at lower risk of delivering babies with gastroschisis.

Ongoing debate

The findings will add to the ongoing debate about whether and how [folic acid fortification](#) should be modified in the future, Shaw said. Some experts have suggested that fortification should be increased to prevent more neural tube defects, while others are concerned about the potential side effects of such a change. "An increase in colorectal adenomas has been observed in some countries with folic acid fortification," Shaw said.

Although the findings may contribute to changes in [fortification](#) programs that affect the whole population, advice about folic acid for pregnant women and women planning pregnancies remains unchanged, Shaw added. "For women who are planning to become pregnant or are already pregnant, it is still important to take a multivitamin supplement containing folic acid," he said.

Provided by Stanford University Medical Center

Citation: Less decline than expected in brain, spine defects after folic acid fortification program (2016, May 18) retrieved 26 April 2024 from <https://medicalxpress.com/news/2016-05-decline-brain-spine-defects-folic.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--