



FOLATE AND BIRTH DEFECTS

If you plan to have children some day, here is important information for the future mother-to-be: **THINK FOLATE NOW.**

Folate is a B vitamin found in a variety of foods and added to many vitamin and mineral supplements such as folic acid, a synthetic form of folate. Folate is needed both before and in the first weeks of pregnancy. It can help reduce the risk of certain serious and common birth defects called neural tube defects that affect the brain and spinal cord.

The tricky part is that neural tube defects can occur in an embryo before a woman realizes she is pregnant. That is why it is important for all women of childbearing age (15 to 45) to include folate in their diets: If they get pregnant, it reduces the chance of the baby having a birth defect of the brain or spinal cord.

There are several ways to do this:

- Eat fruits, dark-green leafy vegetables, dried beans and peas, and other foods that are natural sources of folate.
- Eat folic acid-fortified breakfast cereals.
- Take a vitamin supplement containing folic acid.

Folate's potential to reduce the risk of neural tube defects is so important that the Food and Drug Administration is requiring that by 1998, food manufacturers fortify enriched grain products with folic acid. This will give women another way to get sufficient folate through fortified breads and other grains.

Nutrition information on food and dietary supplement labels can help women determine whether or not they are getting enough folate, which is 400 micrograms (0.4 milligrams) a day before pregnancy and 800 micrograms a day during pregnancy.

NEURAL TUBE BIRTH DEFECTS

The technical names of the two major neural tube birth defects reduced by adequate folate intake are anencephaly and spina bifida. Babies with anencephaly do not develop a brain and are stillborn or die shortly after birth. Those with spina bifida have a defect of the spinal column that can result in varying degrees of handicap, from mild and hardly noticeable cases of scoliosis (a sideways bending of the spine) to paralysis and bladder or bowel incontinence. With proper medical treatment, most babies born with spina bifida can survive to adulthood. But they may require leg braces, crutches, and other devices to help them walk and may have learning disabilities. About 30% have slight to severe mental retardation.

The national Centers for Disease Control and Prevention estimate that about 2,500 infants are born each year in the United States with spina bifida and anencephaly.

Other maternal factors also may contribute to the development of neural tube defects. These include:

- Family history of neural tube defects
- Prior neural tube defect-affected pregnancy
- Use of certain anti-seizure medications
- Severe overweight
- Hot tub use in early pregnancy
- Fever during early pregnancy
- Diabetes

Any woman concerned about these factors should consult her doctor.

FOLATE LINK

Scientists first suggested a link between neural tube birth defects and diet in the 1950s. The incidence of these conditions has always been higher in low socioeconomic groups where women may have poorer diets. Also, babies conceived in the winter and early spring are more likely to be born with spina bifida, perhaps because the mother's diet lacks fresh fruits and vegetables--which are good sources of folate--during the early weeks of pregnancy.

In 1991, British researchers found that 72% of women who had one pregnancy with a neural tube birth defect had a lower risk of having another child with this birth defect when they took prescription doses of folic acid before and during early pregnancy. Another study looked at folic acid intake in Hungarian women. The evidence indicated that mothers who had never given birth to babies with neural tube defects and who took a multivitamin and mineral supplement with folic acid had less risk in subsequent pregnancies for having babies with neural tube defects than women given a placebo.

These studies led the U.S. Public Health Service in September 1992 to recommend that all women of childbearing age capable of becoming pregnant consume 0.4 mg of folate daily to reduce their risk of having a pregnancy affected with spina bifida or other neural tube defects.

That corresponds to FDA's Daily Value for folic acid, which is 400 micrograms for non-pregnant women, as well as children 4 and older and adult men. For pregnant women, the Daily Value jumps to 800 micrograms. Daily Values are dietary reference numbers used on the Nutrition Facts panel on food labels to show the amounts of various nutrients in a serving of food. Many women between 19 and 50 get only 200 micrograms of folate a day, according to the U.S. Department of Agriculture.

FOLATE SOURCES

Folate occurs naturally in a variety of foods, including liver; dark-green leafy vegetables such as collards, turnip greens, and Romaine lettuce; broccoli and asparagus; citrus fruits and juices; whole-grain products; wheat germ; and dried beans and peas, such as pinto, navy and lima beans, and chickpeas and black-eyed peas.

Under FDA's folic acid fortification program, the agency is requiring manufacturers to add from 0.43 mg to 1.4 mg of folic acid per pound of product to enriched flour, bread, rolls and buns, farina, corn grits, cornmeal, rice, and noodle products. A serving of each product will provide about 10% of the Daily Value for folic acid. Whole-grain products do not have to be enriched because they contain natural folate. Some of the natural folate in non-whole-grain products is lost in the process of refining whole grains. The fortification regulations became effective Jan. 1, 1998.

Folate also can be obtained from dietary supplements, such as folic acid tablets and multivitamins with folic acid, and from fortified breakfast cereals.

A study reported in the March 9, 1996, issue of *The Lancet*, suggested that folic acid, the synthetic form of folate, might be better absorbed than folate found naturally in foods.

FINDING FOODS WITH FOLATE

Certain information on food and dietary supplement labels can help women spot foods containing substantial amounts of folate. Some labels may claim that the product is "high in folate or folic acid," which means a serving of the food provides 20% or more of the Daily Value for folic acid. Or, the label may say the food is a "good source" of folate, which means a serving of the food provides 10% to 19% of the Daily Value for folic acid. The exact amount will be given in the label's Nutrition Facts panel.

Some food and dietary supplement labels may carry a longer claim that says that adequate folate intake may reduce the risk of neural tube birth defects. Products carrying this claim must:

- Provide 10% or more of the Daily Value for folic acid per serving
- Not contain more than 100% of the Daily Value for vitamins A and D per serving because high intakes of these vitamins are associated with other birth defects
- Carry a caution on the label about excess folic acid intake, if a serving of food provides more than 100 percent of the Daily Value for folic acid. FDA has set 1 mg (or 1,000 micrograms) of folate daily as the maximum safe level. There are limited data on the safety of consuming more than 1 mg daily, and there may be a risk for people with low amounts of vitamin B12 in their bodies--for example, older people with malabsorption problems, and people on certain anticancer drugs or drugs for epilepsy whose effectiveness can diminish when taken with high intakes of folate.
- List on the label's Nutrition or Supplement Facts panel the amount by weight in micrograms and the %Daily Value of folate per serving of the product. This

information, which appears toward the bottom of the panel, along with the listing of other vitamins and minerals, can be used to compare folate levels in various foods and supplements.

Optional information may appear with the health claim to let consumers know about other risks associated with neural tube birth defects, when to consult a doctor, other foods that are good sources of folate, and other important messages about neural tube defects.

OTHER CONSIDERATIONS

The claim about folate cannot imply that adequate folate intake alone will ensure a healthy baby, since so many factors can affect a pregnancy. Genetics plays a role, as do other healthful prenatal practices, such as eating an all-around good diet. But unlike genetics, diet is a risk factor women can modify to their--and their baby's--advantage.

Women have options for reaching the folate intake goal: They can get the necessary nutrients and calories both before and during pregnancy by eating a well-balanced diet, keeping in mind folate-rich foods. Folic acid-fortified grain products, including breakfast cereals, will help, too. Dietary supplements are another source of folate. Any one or a combination of these options for ensuring adequate folate can help assure women of childbearing age that, if they become pregnant, their babies will be off to a healthy start.

THOMAS G. STOVALL, M.D.

Dr. Stovall is a Clinical Professor of Obstetrics and Gynecology at the University of Tennessee Health Science Center in Memphis, Tennessee and Partner of Women's Health Specialists, Inc.

Date Published: 2000-09-21

Health Information Provided by Women's Health Specialists
7800 Wolf Trail Cove, Germantown, TN 38138, (901) 682-9222, www.whsobgyn.com

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