

Sanford Medical Center

**Aunt Cathy's
Guide to Nutrition:**



Aunt Cathy

Cathy Breedon PhD, RD, CSP, FADA
Clinical and Metabolic Nutrition Specialist
Sanford Medical Center, Fargo, ND,
UND School of Medicine Dept. of Pediatrics

**Folate (Vitamin B9)
Part I: Food Sources**

Usual Adult Goal = 400 mcg daily

Pregnancy Goal = 800 mcg daily

Folate per 1/2 cup (unless noted)

100 mcg or more

Asparagus, Brussels sprouts,
Black-eyed peas, Spinach,
Soybeans, Black beans,
Broad beans,
Fortified cereals (see label)

10-30 mcg

Cantaloupe, Strawberries, Pears,
Grapefruit, Grapefruit juice,
Potatoes, Corn, Carrots, Onions,
Bananas, Squash, Cabbage
Tomato, Raspberries, Cherries

40-90 mcg

Lima beans, Peas, Collard greens,
Sweet potato, Romaine lettuce,
Broccoli, Oranges and Orange juice,
Wheat germ, Oatmeal, Tempeh,
Miso, Peanuts (1 oz) Wild rice,
Sunflower seeds (1 oz), Beets,

**Fruits and vegetables with
little or no folate*:**

Apples and Apple juice,
Plums, Prunes, Cranberries,
Grapes and Grapejuice,
Watermelon, Kiwi,
Raisins, Peaches, Apricots,

*Although these fruits have little folate they are sources of other important nutrients.

Grain Products:

Since 1998 the folic acid form of folate has been added to “enriched” grain products in America. The FDA requires that 40 mcg of folic acid be added per 100 grams (3.5 ounces) of enriched bread and other grain products.

Comparing the five years before and after initiating this supplementation demonstrated a significant reduction in the incidence of birth defects and strokes. So it has been well demonstrated that many people were clearly failing to get enough

folate, or a usable form of folate, prior to 1998. People with certain genetic traits were even more positively affected by this fortification. For example, while the overall reduction of neural tube defects was about 50%, the groups with the highest incidence of these birth defects experienced a reduction of 60-70%! This is a tremendous victory. For example, since 1998 here at Sanford Medical Center we have seen a dramatic drop in the number of new patients in our spina bifida clinic ... how great is THAT??!!

The folic acid fortification mandate does not include whole grains, as they are presumed to still contribute some folate in the intact germ.

Remember that it is useful to always think of "Enriched" grain on a food label as "UNriched" grain, since only three vitamins (B1, B2 and B3) and iron are traditionally added back when the germ was removed.

Refining removes the bran and the germ of the grain. The germ is the "Baby Plant" where the bulk of the nutrients are kept ... and the absence of the many nutrients it WOULD have provided is not made up by enriching the refined grain with those four nutrients. Magnesium, chromium and vitamin E are some examples of nutrients removed but NOT replaced, and this has serious health implications. But at the time this enrichment process was first designed, these other nutrients were not in our radar.

(Please see my "Top Five Recommendations" paper for a discussion of the magnesium inadequacy issue, and more detail in my "OTHER Nutrition Issues in Diabetes" paper.)

Adding folic acid as described above is actually called a "fortification" and not "enrichment" because the amount added is more than would be provided by the whole grain. Additionally important is the fact that the FORM now added to grain products provides a major benefit for people with conditions in which other naturally occurring forms of folate are not well utilized.

An example of this is a genetic condition called having the MTHFR* gene. For people with this gene, providing the "folic acid" form can be instrumental in protecting against stroke and birth defects like spina bifida and anencephaly ("neural tube defects"). It also is protective against many other types of birth defects like shortened limbs, cleft lip/palate, and certain prenatally established brain tumors.

Vitamin supplements:

Most multivitamin pills for children and adults have 200-400 mcg folic acid. Prenatal vitamins have 800 mcg because of the increased requirements during pregnancy. Liquid vitamin products (such as vitamin drops for infants or liquid vitamin tonics for adults) usually have no folic acid because it will not stay in solution. This is also true of the form added to foods like certain "vitamin fortified cereals" with labels that say something like: "fortified with eight essential vitamins!"

(*MTHFR refers to genetically inadequate availability or function of an enzyme called MethyleneTetraHydroFolateReductase. Now you can see why we just call it "MTHFR.")

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Aunt Cathy's Guide To:

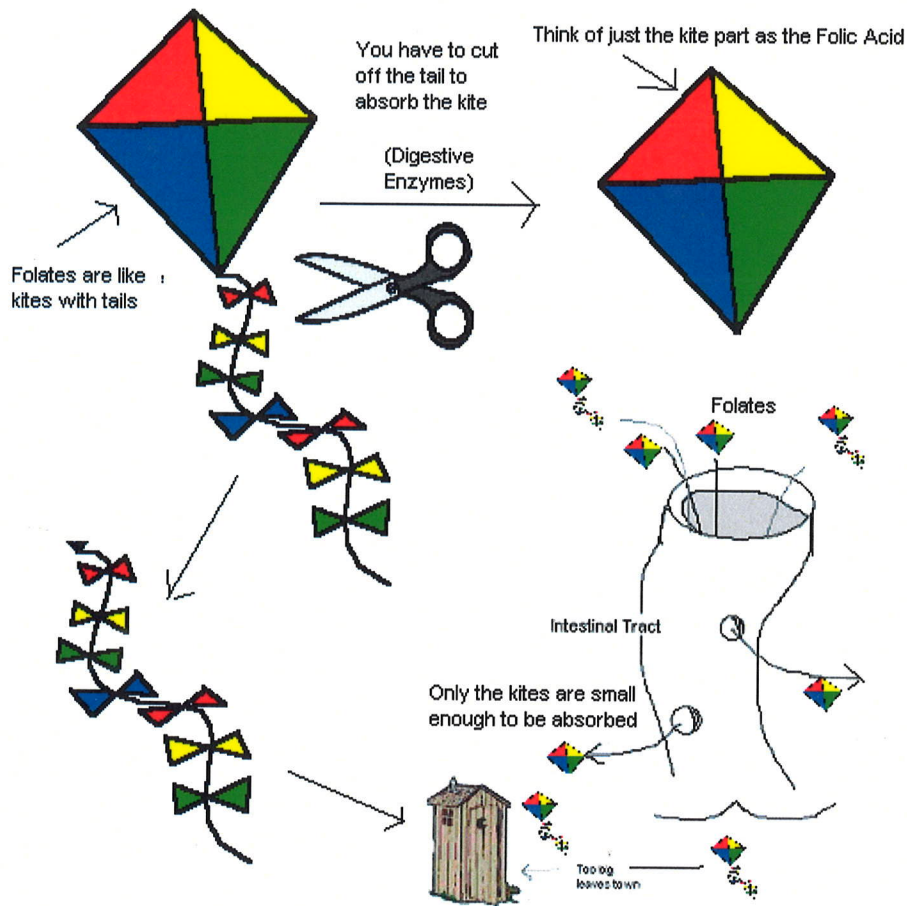
Folate (Vitamin B9)

Part II: Absorption (not scientifically correct)



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Naturally Occurring Forms in Foods



"Kite Only" Form Added to Grain Products in the US since 1998



Odds and Ends:

Genetic factors: People with the MTHFR gene benefit from the "kite only" form. Found in some people Irish heritage and others as well.

Inadequate folic acid increases the incidence of many birth defects and also stroke, depression and some cancers. It results in an elevated homocysteine level. Correcting deficiency reduces these risks

Chronic use of alcohol or certain medications affects absorption or interacts with folic acid: antibiotics, some seizure medications and antidepressants

Certain medical conditions affect absorption of or requirements: celiac disease, cystic fibrosis, inflammatory bowel disease, bacterial overgrowth, short bowel etc.