

# The Facts on Folate

*The B vitamin that fuels your cells* LISA VAN DE GEYN

**T**hink the only people who need lots of folate are women expecting babies? Think again. Any creature with cells needs this crucial vitamin. While most of us are conscious (or try to be, anyway) about getting the calcium, protein and vitamin C we need, folate seems to be completely off our radar. It's true that it plays an extremely important role in a healthy pregnancy, but this vital nutrient is essential for men, children and women past child-bearing age.

## WHAT IS IT?

Folate is a water-soluble B vitamin (B<sub>9</sub>) found in beans, lentils, dark green leafy veggies, orange juice and nuts. Folic acid, or folacin, is the synthetic form of folate used in vitamin supplements and fortified foods. "After absorption, folic acid and folate work the same way in the body, but folic acid is actually better absorbed than the natural form. So you only need about 60 micrograms of folic acid to get the same benefits you'd get from about 100 micrograms of naturally occurring folate," says Dawn Peacock, a registered dietitian with the Calgary Health Region. "How you get this vitamin is not as important as getting it."

This vitamin is crucial because it helps make DNA,

our genetic material, as well as essential proteins, and it's necessary for cell growth, including that of red and white blood cells. "If you don't get enough folate, you may develop anemia, causing you to feel tired, weak or unable to concentrate," says Peacock.

## FOLIC ACID DURING PREGNANCY

Whether or not you're trying to conceive, all women of child-bearing age (14 to 50) should take a multivitamin containing 400 micrograms (0.4 milligrams) of folic acid each day because it protects against neural-tube and other defects in the fetus. (The neural tube is the part that develops into the brain and spinal cord.) Some women, such as those who previously gave birth to a child with a neural-tube defect, may need more.

"If a woman has enough of this vitamin in her body before and after she gets pregnant, her baby is less likely to have neural-tube defects," says Peacock. While it's not hard to consume the recommended 400 micrograms in food if you eat a lot of leafy greens and legumes, it's guaranteed if you take a supplement. And since folic acid is water-soluble, any excess is excreted in the urine. "It's hard to overdose unless you take a much higher-dose supplement than the recommended daily intake."

According to Motherisk, a research and counselling program for expectant and new mothers at the Hospital for Sick Children in Toronto, two to four babies out of every 1,000 born each year in Canada have folate-related defects such as spina bifida, congenital heart disease, facial clefts and limb abnormalities. Some will develop childhood cancers. Folic acid helps to prevent these deficits, and recent studies show that mothers in their second trimester who take a multivitamin with folic acid may reduce their risk of pre-eclampsia, a dangerous syndrome that includes high blood pressure and usually develops in the last trimester. A recent U.S. study found that adequate folic acid may prevent premature birth.

## Signs of folate deficiency in...

**Pregnant women** Their babies can be born prematurely, have low birth weights and display neural-tube and other defects.

**Children** Their growth can be delayed.

**Adults** They may experience anemia, digestive disorders (weight loss, loss of appetite, diarrhea), headaches, heart palpitations, weakness, forgetfulness or irritability.



Folate derives from the Latin word **folium** (leaf) and was first extracted from spinach.

Folate may protect against cancer, heart disease and dementia.

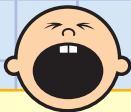


This **B** vitamin is crucial for healthy cell growth, particularly in the fetus.

Folate abounds in leafy green vegetables, nuts, legumes and orange juice.



Folate's synthetic sister, **folic acid**, is found in vitamin supplements and fortified foods such as cereals.



Adequate folic acid before and after conception **protects** against premature birth and birth defects.

### How much is enough?

Age	Micrograms per day
0–6 months	65
7–12 months	80
1–3 years	150
4–8 years	200
9–13 years	300
14 years and older	400
Pregnancy	600
Lactation	500

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## OTHER REASONS YOU NEED IT

**Cancer prevention** Some research shows that low levels of folic acid in the blood may result in damaged DNA, which could lead to cancer. Diets low in folate have been associated with an increased risk of breast, pancreatic and colon cancers.

**Heart disease prevention** Deficiencies of folate and its fellow B vitamins B<sub>6</sub> and B<sub>12</sub> have been shown to increase blood levels of the amino acid homocysteine. Elevated homocysteine levels are a risk factor for stroke and coronary disease. Studies have shown that folic acid protects against elevated homocysteine levels. "However, although adequate folic acid lowers homocysteine levels, it does not reduce cardiovascular events or the progression of atherosclerosis in people with pre-existing cardiovascular disease or diabetes," says Peacock.

### Alzheimer's and dementia prevention in seniors

A paper published this year in the *Journal of Neurology, Neurosurgery and Psychiatry* found that people who had low levels of folic acid at the start of the study were 3.5 times more likely to have developed dementia by the end of the study.


**Hearing loss prevention** Participants 50 to 70 years old in a three-year-long study in the Netherlands who took folic acid supplements experienced less hearing loss than those who did not.

## CAVEATS

Even good things can be consumed in excess. So the current recommended upper tolerable intake level (UL) for folate/folic acid is 1,000 micrograms a day.

Too high levels of folic acid can mask a vitamin B<sub>12</sub> deficiency, a deficit that can lead to neurological damage. Too much may impair zinc absorption and stress the kidneys.

Some concerns have been raised that excessive intakes of this vitamin from supplements may raise the risk of certain cancers such as colon and breast. Fast-growing malignant cells use this vitamin to divide and multiply even more voraciously than normal cells. Anti-folate drugs are, in fact, one of the earliest forms of chemotherapy. It is not advisable to exceed the UL.

"There does not seem to be a concern regarding the safety of excess folate from foods," says Lunenburg, N.S.-based registered dietitian Elizabeth Frank. "With supplements, however, it is not advisable to exceed the recommended dosage. A balanced multivitamin rather than a high-dose single or B-complex vitamin is safest." 

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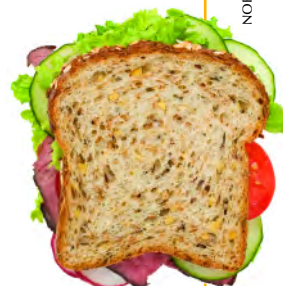
### It's All in a Day Getting folate/folic acid from food



Serving	Micrograms
1 cup milk	13
1 cup orange juice	110
1 cup fortified cereal	100
1 slice whole wheat bread	14

Serving	Micrograms
½ cup almonds	46.5

Serving	Micrograms
3 oz roast beef	12
2 slices fortified white bread	83
1 medium banana	22
1 cup romaine lettuce	76



Serving	Micrograms
½ cup cooked kidney, garbanzo or navy beans	150
½ cup fortified spaghetti	80
½ cup cooked asparagus or spinach	130



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FROM TOP TO BOTTOM: BILL GROVE/ISTOCKPHOTO; ISTOCKPHOTO;