

Nutrition News

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Folic Acid

Folic acid has some very important functions in our bodies. It is essential for DNA synthesis, it offers protection against some common cancers, it reduces the risk for heart disease and it may have a role in preventing and easing depression.

Folic acid and pregnancy

Because of its important role in DNA synthesis, an adequate amount of folic acid is essential in pregnancy. It can prevent and reduce the incidence of neural tube defect – a serious condition that can have lifelong implications. If you are pregnant, it is imperative to start taking prenatal vitamins as soon as possible. (If you aren't pregnant but know someone who is, pass the word along to her!) Prenatal vitamins have a higher level of folic acid than normal vitamin supplements. Look for prenatal supplements that have at least 400 mcg of folic acid. Folate helps prevent congenital malformations and birth defects in the brain and the spinal cord of the developing baby. These developments occur early in pregnancy. Eating foods rich in folic acid, such as green leafy vegetables, dry beans and peas and fortified breakfast cereals also is recommended.

Folic acid and cancer

Folate is involved in the synthesis, repair and function of DNA, our genetic map, and there is some evidence that a deficiency of folate can cause damage to DNA that may lead to cancer. Several studies have associated diets low in folate with increased risk of breast, pancreatic and colon cancers. A long-term study (more than 15 years) of women enrolled in the Nurses' Health Study found that those who took multivitamins containing folic acid for more than 15 years had a markedly lower risk of developing colon cancer. Similarly, men

whose diets provided the recommended intake of folate were less likely to develop colon cancer over a 20 year period. The associations between diet and disease do not indicate a direct cause, however. The best way to obtain adequate folate intake is to consume foods high in folate.

Folic acid and heart attack

In recent years, researchers have identified another risk factor for cardiovascular disease – an elevated homocysteine level. Homocysteine is an amino acid normally found in the blood, but elevated levels have been linked with coronary heart disease and stroke. Elevated homocysteine impairs blood flow through blood vessels and may cause blood clotting cells called platelets to clump together and form a clot, which may lead to a heart attack. Folate supplementation has been shown to decrease homocysteine levels in the blood and to improve blood vessel wall function. The folic acid fortification program in the United States has decreased the prevalence of low levels of folate and high levels of homocysteine in the blood in middle-aged and older adults. Daily consumption of folic acid fortified breakfast cereal and the use of folic acid supplements has been shown to be an effective strategy for reducing homocysteine concentrations.

Other benefits

Both low folate and low vitamin B12 status have been found in studies of depressed patients, and an association between depression and low levels of the two vitamins is found in studies of the general population. Folic acid supplementation also has been seen to help counter symptoms of depression.

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Recommended Dietary Allowances for folate for children and adults

Age (years)	Males and Females (µg/day)	Pregnancy (µg/day)	Lactation (µg/day)
1-3	150	N/A	N/A
4-8	200	N/A	N/A
9-13	300	N/A	N/A
14-18	400	600	500
19+	400	600	500

µg = micrograms

Foods high in folic acid

Folate is abundant in many foods such as green leafy vegetables, fruits and liver.

It is recommended that we consume foods that are fortified with folic acid (for example, fortified ready-to-eat cereals) or naturally high in folic acid instead of relying on supplements.

Selected food sources of folate and folic acid

Food	Micrograms (µg)	% DV
Breakfast cereals fortified with 100% of the DV, $\frac{3}{4}$ cup	400	100
Beef liver, cooked, braised, 3 ounces	185	45
Cowpeas (blackeyes), immature, cooked, boiled, $\frac{1}{2}$ cup	105	25
Spinach, frozen, cooked, boiled, $\frac{1}{2}$ cup	100	25
Great Northern beans, boiled, $\frac{1}{2}$ cup	90	20
Asparagus, boiled, 4 spears	85	20
Rice, white, long-grain, parboiled, enriched, cooked, $\frac{1}{2}$ cup	65	15
Vegetarian baked beans, canned, 1 cup	60	15
Spinach, raw, 1 cup	60	15
Green peas, frozen, boiled, $\frac{1}{2}$ cup	50	15
Broccoli, chopped, frozen, cooked, $\frac{1}{2}$ cup	50	15
Avocado, raw, all varieties, sliced, $\frac{1}{2}$ cup sliced	45	10
Peanuts, all types, dry roasted, 1 ounce	40	10
Lettuce, Romaine, shredded, $\frac{1}{2}$ cup	40	10
Tomato juice, canned, 6 ounces	35	10
Orange juice, chilled (includes concentrate), $\frac{3}{4}$ cup	35	10

µg = micrograms

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