

WATER - SOLUBLE VITAMINS: FOLATE (VITAMIN B₉)

Patient Resource



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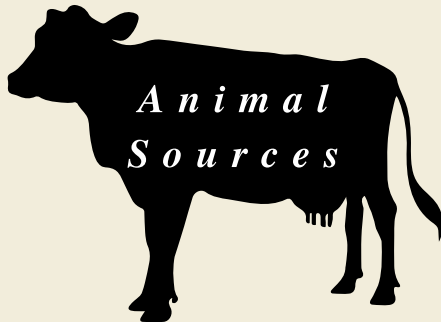
Other names for Folate

- Vitamin B₉
- 5-methyltetrahydrofolate (5-MTHF)
- Folic acid
- L-methylfolate

Functions of Folate

- **Helps build up**
 - genetic material (DNA and RNA)
- **Helps break down**
 - protein
 - homocysteine

Sources of Folate



- Eggs
- Liver meat
- Kidney
- Pork
- Poultry
- Shellfish

Plant Sources

Grains & Legumes

- Beans
- Fortified grains & cereals
- Wheat bran

Fruits & Vegetables

- Asparagus
- Avocados
- Bananas
- Brussel Sprouts
- Citrus
- Leafy Greens (i.e. spinach, lettuce)
- Melon fruits
- Mushrooms
- Peas
- Tomato juice



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How stable is Folate?

- No significant loss during a 6-month shelf life based on a study of corn masa flour fortified with folic acid
- Baked/fried products in the same study experienced a 13% loss during cooking and lost another 17% folate over the next 2 months of shelf-life

The Bottom Line

Whole foods with minimal processing are the best option for getting more folate in the diet. Processing that changes the nutrient content of a product can alter the folate available.

It's important to try and get your folate from foods first before supplementing, and it's always a good idea to check the expiration date on supplements and products that have been sitting on the shelf for a while.

Supplementation & Treatment with Folate

Too little folate can be harmful, but too much folate or taking a form of folate that is not appropriate for your set of needs can also be dangerous for your health.

Pregnancy

Folate is an especially important vitamin during the gestation process. If you are pregnant or might become pregnant, discuss options for folate supplementation or food ideas with your healthcare providers. It can be a good idea to find a dietitian to help you during this time.

Cancer

Supplementing with folate can be tricky when it comes to cancer. Folate has a key role in cell growth and creating DNA. Studies lead us to believe that folate can help suppress certain types of early cancer. However, research also shows that high doses of folic acid can exacerbate the cell growth of established cancers in the body.

SUPPLEMENTATION & TREATMENT

Uses

Supplemental folate can be prescribed, **under appropriate medical direction and supervision**, following medical diagnosis and prescription, for the following:

- individuals with alcoholism
- adult women
- genetic variations such as MTHFR mutations
- intestinal/digestive disorders

If you have these conditions, be sure to ask the advice of your doctors and healthcare team before supplementing.

MTHFR Mutations

folic acid can take longer to metabolize than the naturally occurring folate we find in foods. Folic acid competes for metabolism with the fortified foods or folate-high foods. The result of this is that unmetabolized folic acid ends up in the bloodstream. High levels have been implicated in a range of health problems, and can be particularly dangerous for those with the **methylenetetrahydrofolate reductase (MTHFR) gene mutation**.



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Dietary Reference Intakes

The amount of folate recommended for daily intake depends on your age. Intake is based on the **Adequate Intake (AI) level** for those under one year old. This is the level assumed adequate to meet nutritional needs. An AI is established when there is not enough evidence for a Recommended Dietary Allowance, or RDA.

For children and adults, those one year and older, the recommended intake is based on the **Recommended Dietary Allowance (RDA)**. This is the amount covering the needs of 97-98% of people in that specific age group or life stage (i.e. pregnancy).

Deficiency

Populations Particularly Prone to Deficiency



- Genetic mutations like **MTHFR**
- Intestinal/digestive disorders
- Antibiotics or other medications
- Those at high risk for breast or colon cancer

Want to know more about MTHFR?

Visit www.anniweeks.com/ask-anni-what-do-i-need-to-know-about-mthfr

Helpful Terms to Know

- **Recommended Dietary Allowance (RDA)**: covers the needs of 97-98% of individuals in a group; the average amount of a nutrient a healthy person should consume daily. Vary by gender, age, and whether a woman is pregnant or breastfeeding. Developed by the Food and Nutrition Board at the Institutes of Medicine (IOM) of the National Academies.
- **mcg** = micrograms
- **Adequate Intake (UL)**: recommended daily intake of a nutrient; established by Institute of Medicine (IOM) to meet or to exceed the needed amount to maintain adequate nutrition for most people in a particular stage of life or gender group; established when not enough evidence is available to determine the RDA
- **Dietary Folate Equivalent (DFE)**: 1 mcg of food folate or 0.6 mcg of folic acid or 0.5 mcg supplement taken on an empty stomach

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Dietary Reference Intakes, continued from previous page.

Dietary Reference Intakes (DRIs) for Folate (Vitamin B ₉) in mcg/day	
Infants	
0-6 months	65
7-12 months	80
Children	
1-3 years	150
4-8 years	200
Adolescents & Adults	
9-13 years	300
14-70+ years	400
Pregnancy	
14- 50 years	600
Lactation	
14-50 years	500

Image created by ANNI WEEKS. Based on Dietary Reference Intakes (DRIs): Recommended Dietary Allowances and Adequate Intakes, Vitamins. Food and Nutrition Board, Institute of Medicine, National Academies.



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Toxicity

Upper Limit (UL) for Folate (Vitamin B9) in mcg/day	
Infants	
0-12 months	Not determined
Children	
1-3 years	300
4-8 years	400
Adolescents & Adults	
9-13 years	600
14-18 years	800
19-70+ years	1,000
Pregnancy & Lactation	
14- 18 years	800
19-50 years	1,000

Image created by ANNI WEEKS. Based on Dietary Reference Intakes (DRIs): Recommended Dietary Allowances and Adequate Intakes, Vitamins. Food and Nutrition Board, Institute of Medicine, National Academies.

Helpful Terms to Know

- **Upper Limit (UL):** also known as the Tolerable upper intake level; largest daily intake of a nutrient that is considered safe for most people; exceeding this limit is not recommended and may cause harm to the body; Set by the Food and Nutrition Board at the National Academies of Sciences, Engineering, and Medicine.

Another reason to get your folate from food first-- folate toxicity is extremely unlikely to occur from food sources alone.

The Upper Limit is set for folate based on evidence that **supplementing with folate at a high level can mask a vitamin B12 deficiency.**



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Deficiency

Signs & Symptoms

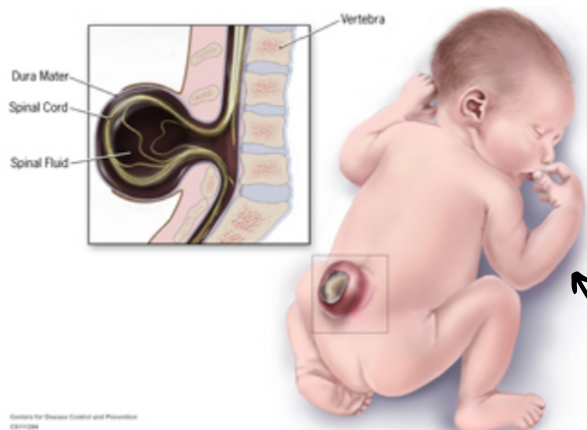
Common signs of folate deficiency include:

- too few blood cells that are larger than normal (megaloblastic anemia)
- weakness
- fatigue
- irregular heartbeat
- shortness of breath
- difficulty concentrating
- loss of hair
- pale skin
- mouth sores

NOTE:

It can be helpful to bring in your supplements to a doctor's visit or your next appointment with your healthcare providers. Providing the actual containers of products you take can help your healthcare team to avoid under- or over-dosing you or your family members on supplements. It is also a helpful practice since there are many B vitamins and their variants can go by different names.

Folate During Pregnancy



Folate is crucial to the development of a baby. Pregnant women need to get enough folate during the first few weeks of conception in order for the baby to develop a healthy spinal cord.

A woman might not know she is pregnant and needs folate until it is too late. **Spina bifida**, a neural tube birth defect, can result if folate is too low during pregnancy.