

# Minnesota's Folic Acid Guidelines for the Prevention of Neural Tube Defects (NTDs)



**FOLIC ACID  
CAN PREVENT  
50 TO 70 PERCENT  
OF NTDs**

**—50% OF ALL PREGNANCIES ARE UNPLANNED—**  
All women of childbearing age should maintain a proper level of folic acid.

## GENERAL RECOMMENDATIONS

ALL WOMEN OF CHILDBEARING AGE SHOULD TAKE **400 mcg** OF FOLIC ACID PER DAY **AND** RECEIVE A MEDICAL HISTORY TO DETERMINE NTD RISK

### No Prior NTD History

#### Recommend:

- Continue taking **400 mcg** of folic acid per day.

### High Risk

- Family History of an NTD
- Prior NTD Birth

#### Recommend:

- Increase dosage to **4000 mcg** of folic acid daily—starting at least one month **BEFORE** pregnancy.

**<<SPECIAL CONSIDERATIONS ARE COVERED ON BACK>>**



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FOR MORE INFORMATION ABOUT BIRTH DEFECTS AND  
MINNESOTA'S BIRTH DEFECTS PROGRAM SEE:

[www.health.state.mn.us/divs/eh/birthdefects](http://www.health.state.mn.us/divs/eh/birthdefects)

## COMMON QUESTIONS ABOUT FOLIC ACID SUPPLEMENTATION

### Can a woman take too much folic acid?

- Folic acid is a water-soluble vitamin, so any excess intake is usually excreted in the urine.
- There is no clear evidence of folic acid-induced neurotoxicity in humans or increased frequency of seizures in epileptics at a folic acid dose of 5000 mcg or less.
- Physicians should weigh risks and benefits of supplementing anyone who has cancer, or is at risk of harboring precancerous growths because of family history, genetics, or advanced age.

### Should a high-risk woman take additional multi-vitamins to reach the proper dosage?

- Higher levels of supplementation should be achieved by taking a prescription for folic acid and not by taking excess multi-vitamins due to the potential risk to the fetus and mother from excess vitamin A and D levels.
- For a daily dose of 4000 mcg, it is recommended that the patient take 1000 mcg four times per day to maximize the absorption of folic acid.

### What are the special considerations for PERNICIOUS ANEMIA?

- The Institute of Medicine (IOM) has set an upper limit of 1000 mcg of folic acid for all people, to avoid potential masking of pernicious anemia. However, because the prevalence of pernicious anemia for females in the childbearing years is very low, consumption above the IOM limit is unlikely to produce adverse effects due to pernicious anemia. Physicians may want to obtain a baseline B<sub>12</sub>, while monitoring folic acid response to supplementation.

### What are the special considerations for women taking seizure medications?

- A number of drugs can interfere with the pharmacokinetics of folic acid, such as: Anti-Seizure Medications (even if this class of medications is used to treat problems other than seizures), Barbiturates, Methotrexate, Trimethoprim, Metformin, Triamterene and Sulfasalazine.
- Antiepileptic drugs (AEDs) have been associated with an increased risk in congenital malformations.
- Women taking some AEDs may have low levels of serum folic acid. Conversely, some women may have lower serum AED levels while taking folic acid supplementation. Monitoring anti-seizure medication levels and dose adjustment may avert these problems.

### What are the special considerations for women after undergoing bariatric surgery?

- Previous bariatric surgery has not been associated with adverse perinatal outcome.
- Folic acid, B<sub>12</sub> and iron deficiency anemia are common following bariatric surgery, but folic acid deficiency is almost always corrected with multi-vitamins alone.

### What other groups of women may have increased risks?

- Obese women (BMI 30 or above) and those with diabetes may need red blood cell folate levels monitored.
- Non-white, young, less educated, and lower-income women are the least likely to report taking folic acid daily.
- Hispanic/Latina women have a risk 1.5 to 3 times higher than non-Hispanic white women for having a child affected by an NTD.

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For detailed information and references for the questions above,  
please refer to the companion document:

*MINNESOTA'S FOLIC ACID GUIDELINES FOR THE PREVENTION OF NEURAL TUBE DEFECTS (NTDs)  
LITERATURE REFERENCE MANUAL*

This document can be found at: [www.health.state.mn.us/divs/eh/birthdefects/reports](http://www.health.state.mn.us/divs/eh/birthdefects/reports)

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**For more information about birth defects, contact the**

Birth Defects program at (651) 201-4899

If you require this document in another format,  
such as large print, Braille, or cassette tape, call:

651-201-5000 ♦ 1-800-657-3908 ♦ MDH TTY 651-201-5797

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