

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

BIRTH DEFECTS PREVENTION

Folic acid can prevent 50 to 70 percent of NTDs. Since 50% of all pregnancies are unplanned, all women of childbearing age should maintain a proper level of folic acid. Health care providers should follow these recommendations to prevent NTDs as part of routine clinical practice.

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.

Recommendations Based on NTD Risk

- For women with no prior NTD history, recommend continuing to take 400 mcg of folic acid per day.
- For women with high risk, such as family history of an NTD or a prior pregnancy/birth affected by an NTD, recommend increasing dosage to 4000 mcg of folic acid daily starting at least one month BEFORE pregnancy.

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 B₁₂, 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, B₁₂ 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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