



Folic Acid for Promoting Baby Brain Development

Folic acid is a type of B vitamin. It is required for DNA and amino acid synthesis and maintenance.^[1] Studies show that brain development problems in pre-birth baby caused by neural tube defects (NTDs), a birth defect of the spinal cord and the brain, can be prevented if expectant women absorb adequate amount of folic acid.^[2]

NTDs affect about 3,000 pregnancies a year in the United States. This defect actually occurs even before the women aware that they are pregnant. This is the reason why NTDs can be a critical issue towards embryo brain development and more importantly, women should begin taking folic acid before they start trying to conceive. The risk of NTDs can be reduced by increased folic acid intake during the periconceptual period.^[3,4]

As from research, folic acid supplement may also be used to lower the risk of Down's syndrome, severe but common birth defects, children born with this condition usually have some degree of brain development problem. With enough intake of folic acid, mother may help to reduce risk of their children getting this defect.^[5]

Maintaining Well-functioned Circulation System for Baby

Folic acid is also required for energy production and the formation and maturation of red blood cells. It works closely with vitamin B12 and is crucial in making blood. It strengthens the immune system by aiding proper formation and functioning of white blood cells.

Deficiency in folic acid may cause problems in blood circulation system. The red blood cells and hemoglobin amount may be lower than the normal standard. As red blood cell is the carrier of oxygen, people who have this problem may feel dizzy and fatigue easily. Therefore, enough intake of folic acid can help babies counteract this problem before they born. Apart from infants, folic acid can be the supplementation for mother to compensate for extra blood demand during pregnancy.^[6]

Some research suggests that folic acid may promote health of heart, lip and palate.^[3] Furthermore, adequate intake of folic acid may even help prevent childhood hyperactivity.^[7]

Provide a Strong Heart for Pregnant Women

Folic acid can also promote heart health of mother. As nutrient supply of infant is through placenta and is sorely dependent on mother, the health of mother blood circulation system is particularly important. There is an additional demand of blood from the heart, and this may cause an overloading of heart which may pose a threat to mother and baby. Intake of folic acid can help relieve this potential health risk by improving blood flow and help blood vessels to relax.^[8,9]

Enhance sperm quality and fertility^[10]

Not only women, men may also take folic acid as supplementation before planning to have children. According to studies, folic acid has a beneficial effect on sperm count and quality when combining intake of zinc. More and stronger sperm can enhance the fertility possibility. Moreover, sperm with high quality may help in delivering stronger and more adorable babies.

However, many pregnant women and their partners are in working class nowadays and they are so busy that may not be able to have balanced diet. We cannot be sure that eating foods that contain folate would have the same benefits as consuming folic acid. Also, not all required nutrients from food can be obtained even if a healthy, well-balanced diet is maintained. Dietary supplements can help to replenish the need, a convenient and easy way to achieve the nutritional needs every day.

When Should I Start Taking Folic Acid?

As recommended by Centre for Disease Control and Prevention, women should consume 400 micrograms of folic acid daily and start at least one month before pregnancy to provide protection for your beloved baby.^[11]

How Much Do I Need?^[12]

Status	Daily Requirement
While you are trying to conceive	400 - 1000mcg
First 3 months of pregnancy	400 - 1000mcg
4-9 months of pregnancy	600 - 1000mcg
While breastfeeding	500 - 1000mcg

Benefits of taking Folic Acid

- Maintain proper pre-birth brain growth^[1-4,12]
- May help in reducing the risk of Down's syndrome^[5]
- Promote healthy circulation system for pre-birth baby^[6]
- Benefit heart health of pregnant women^[8,9]
- Reduce risk of pregnancy complications^[13]
- Prevent baby premature birth^[14]
- Help in preventing low birth weight^[15]
- Enhance sperm count and quality^[10]

Recommended daily dose:

Adults take 1 tablet daily (preferably with a meal) or as recommended by physicians.

References:

1. Folate, Dietary Supplement Fact Sheet. Office of Dietary Supplement, National Institutes of Health, Available from: <https://ods.od.nih.gov/factsheets/Folate-HealthProfessional/>
2. Committee on Genetics. Folic Acid for the Prevention of Neural Tube Defects. Pediatrics 1999;104:325-7.
3. Folic acid. Dietary Supplements. Available from: <http://www.medicinescomplete.com>
4. Fonseca EB, Raskin S, Zugaib M. Folic acid for the prevention of neural tube defects. Rev Bras Ginecol Obstet. 2013;35(7):287-9.
5. Cuckle HS. Primary Prevention of Down's syndrome. Int. J. Med. Sci. 2005; 2(3):93-9.
6. U.S. National Library of Medicine: Folate-deficiency anemia. Available from: <https://www.nlm.nih.gov/medlineplus/ency/article/000551.htm>
7. Baral M. Early Pregnancy Folate Status and Childhood Hyperactivity. Natural Medicine Journal, 2010 July;2(7). Available from: <http://www.naturalmedicinejournal.com/journal/2010-07/early-pregnancy-folate-status-and-childhood-hyperactivity>
8. Diaz H, Werler MM, Louik C, Mitchell AA. Risk of Gestational Hypertension in Relation to Folic Acid Supplementation during Pregnancy. Am J Epidemiol. 2002; 156(9):806-12.
9. Corliss J. Folic acid, a B vitamin, lowers stroke risk in people with high blood pressure. Harvard Heart Letter. Available at: <http://www.health.harvard.edu/blog/folic-acid-a-b-vitamin-lowers-stroke-risk-in-people-with-high-blood-pressure-2015031878>
10. Wong WY, Merkus HM, Thomas CM, Menkveld R, Zielhuis GA et al. Effects of folic acid and zinc sulfate on male factor subfertility: a double-blind, randomized, placebo-controlled trial. Fertil Steril. 2002; 77(3):491-8.
11. Folic Acid; Recommendation. Centers for Disease Control and Prevention. Available from: <https://www.cdc.gov/ncbddd/folicacid/recommendations.html>
12. Wolf T. Folic Acid Fact Sheet. Office on Women's Health. U.S. Department of Health and Human Services. Available at: <http://womenshealth.gov/publications/our-publications/fact-sheet/folic-acid.html>
13. Greenberg JA, Bell SJ, Guan Y and Yu YH. Folic Acid Supplementation and Pregnancy: More than Just Neural Tube Defect Prevention. Rev Obstet Gynecol. 2011 Summer;4(2):52-9.
14. Callaway L, Colditz PB, Fisk NM. Folic Acid Supplementation and Spontaneous Preterm Birth: Adding Grist to the Mill? PLoS Med. 2009 May; 6(5)
15. Stevens D, Burman D, Strelling MK, Morris A. Folic acid supplementation in low birth weight infants Pediatrics. 1979; 64(3):333-5.