

Folic Acid Supplementation



**Southern Ontario
Fertility Technologies**

Introduction

Folic acid is one of the “**B**” vitamins required for general health. Recent scientific information has confirmed that folic acid is very important for a healthy pregnancy. It helps to **prevent serious defects of the central nervous system** called neural tube defects (NTD’s). These defects include anencephaly (failure of development of the top half of the brain), and spina bifida (failure of closure of part of the spinal canal). Spina bifida is Canada’s number one disabling birth defect occurring in one in 750 babies. Recent clinical trials have demonstrated that folic acid **may also reduce the incidence of some other congenital abnormalities.**

Dose and Timing

The use of folic acid supplementation, in a **dose of 0.4 mg per day**, has been proven to reduce the risk of these problems by up to 70 %. Persons with a previous child with a NTD should take 4 mg per day. The higher dose (4 mg per day) is also suggested for women with a history of NTD’s in the family or women on antiepileptic drugs. The lower, usual dose is available in many multivitamins, especially prenatal multivitamins. The higher dose is only available in folic acid pills. Spina bifida and other neural tube defects occur between the 3rd and 4th week of pregnancy, before some pregnancies are confirmed. This is the reason the beneficial effect of folic acid requires **taking it 4 to 6 weeks prior to pregnancy and for the first 10 to 12 weeks** of the pregnancy. It does no harm to continue it for the entire pregnancy. Health Canada recommends that ALL women of childbearing age take folic acid every day in order to help prevent neural tube defects. This is important for any women not practicing birth control but especially important for women who are actively trying to conceive (attending a fertility clinic).

Benefits

Initially, folic acid supplementation was recommended to reduce the incidence of **neural tube defects** (NTDs). Three large trials have confirmed up to a 70% decrease in these abnormalities in women taking folic acid. Another clinical trial has demonstrated a similar (72%) decrease in the recurrence rate of NTDs in women with a previous affected child who take the higher dose of folic acid. Other clinical trials have demonstrated decreases in **congenital heart disease** (40% reduction), **congenital urinary tract abnormalities** (80% reduction), **limb defects** (30-50% reduction), and **orofacial clefts** (25-50% reduction).

Sources

Although folic acid is found in many vegetables, fruits, grain products, meats and meat alternatives, it is **difficult to get the entire amount from food** because much of it is lost during storage, preparation and cooking. It is estimated that the daily intake of folic acid from a well balanced diet is 0.2 mg per day. Eating more green and raw vegetables, fruits, lentils, beans and nuts can optimize the amount of folic acid obtained from food. If vegetables are cooked, they should be steamed, micro waved or boiled with as little water and as little as possible. Raw vegetables and fruit are best, especially if they are grown

locally. Fruit should be ripened in a loosely closed paper bag at room temperature and ripe fruits and vegetables should be stored in the refrigerator.

Some example foods containing folic acid are listed below.

Food	Serving	Mg of folic acid
asparagus	250 ml	0.176 mg
beans	250 ml	0.15 mg
broccoli	1 spear	0.123 mg
orange juice	250 ml	0.109 mg
lentils (cooked)	250 ml	0.358 mg
peanuts	125 ml	0.081 mg
sunflower seeds	125 ml	0.15 mg
all bran cereal	125 ml	0.043 mg
whole wheat bread	3 slices	0.075 mg
chicken liver (cooked)	85 gm	0.655 mg
spinach (cooked)	250 ml	0.262 mg
peas (frozen)	250 ml	0.094 mg

With our modern food delivery and distribution, it is probably safer, to ensure the required daily intake is obtained, that a supplement that contains 0.4 mg be taken every day. Taking more than 1.0 mg is not recommended except if there has been a previous child with a NTD, a family history of NTD's or you are on some medications (anti-seizure medications).

Since 1998, **enriched cereal-grain products**, such as breads, pasta, rice and corn grits, produced in Canada and the United States, have been supplemented to contain 0.14 to .2 mg of folic acid per 100 grams. This fortification is felt to increase the daily intake of folic acid in the diet by 0.1 mg.

<u>Folic Acid Availability per Day</u>	
Good Diet	= 0.2 mg
Good Diet + Enriched Cereal	= 0.3 mg
Recommended	= 0.4 mg

Folic acid is available in most multivitamin preparations, especially prenatal vitamins. It is very reasonable for all women trying to get pregnant to be on a prenatal vitamin. When taking a multivitamin, the usual dose should be taken. Don't take multiple doses in order to get enough folic acid as too much vitamin A (greater than 10,000 IU / day) can be harmful.

Folic Acid Supplementation in Ontario

With fortification of enriched cereal-grain products and periconceptional (before and during the first part of pregnancy) folic acid use, the incidence of NTDs in Ontario has decreased from 16.2 per 10,000 births in 1995 to 8.6 per 10,000 births in 1999. However, a recent study in Toronto indicated that only 28% of women who became pregnant were on folic acid prior to becoming pregnant! We should do better!

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