

☀ **Nutrient Synchronicity**

Consumption of both folic acid supplements and folate-rich foods (two forms of an identical nutrient) has been shown to decrease neural tube defects.

☀ **Neural Tube Defects**



NTD's result from abnormal growth of an embryo's neural tube, the foundation of a child's spine, brain and central nervous system. Development begins on approximately the 18th day, and the neural tube 'closes' on the 30th day after conception. Incident rates vary worldwide. Measured per 1000 births, the global rate is 2.6; the UK rate is ~1.08, the US rate is < 1 and declining, and the Canadian rate continues to decline from a high of 1.6 to almost half that rate, 0.9, following fortification of strategically-chosen foods with folate.

☀ **Folate & Incidence**

Healthcare professionals have long suspected that some, but not all, NTD's are related to the pregnant woman's diet. The missing component appeared to be fresh fruits and vegetables, due to higher rates in babies conceived during the winter and early spring, when availability of these foods would be low. Since, the 1950's, when folate was identified as the necessary nutrient, women of childbearing age have been encouraged to consume folate-rich foods.

☀ **Expect the Unexpected**

Education efforts have been thwarted by human nature - almost 40% of births are unplanned. Messages are meaningful only to women planning to conceive. In unplanned pregnancies, the chance to enrich neural tube development with folate may be possibly bypassed. Reliance on supplements, even with on-label claims such as those available in the UK since

the mid-90's, (see right) would not provide for the unexpected.

☀ **Social Intervention**

In 1998, Canada (and the U.S.) legislated fortification of flour, pasta, rice and cornmeal with folate. The level is relatively low (some argued too low) so as to be safe for all of the population, yet, adequate to anticipate a 20% decrease in NTD's in Canada.



☀ **Double Plus a Bit More!**

NTD's in Canada fell more than twice the estimated amount, by 46%, between 1997 and 2002; continual decline will reach 50% reduction. In June of this year, the successful results of Canada's folate intervention program were published in the *New England Journal of Medicine*.

☀ **Health Claims**

Buoyed by confidence from these results, Canada will soon approve a folate-NTD health claim that promotes consumption of folate-rich foods, and, a folic acid supplement dose as well.

☀ **Other Potential Benefits**

Decreases in congenital heart disease, newborn urinary tract problems, oral facial clefts, limb defects, and some pediatric cancers, as well as folate deficiency anemia in adults, are indicated.

☀ **Some Web Sites**

<http://www.phac-aspc.gc.ca/publicat/faaf/index.htm>
<http://www.aboutkidshealth.ca/News/Folic-acid-supplementation-reduces-neural-tube-defects-in-Canada.aspx?articleID=10428&categoryID=news-type>

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