



Healthier Pregnancies, Better Lives

Key Points about Folic Acid Fortification and Prevention of Neural Tube Defects (NTDs)

Core Facts:

1. The neural tube eventually becomes each person's brain, spinal cord and central nervous system. It is completely formed (or malformed) by the end of the first month of pregnancy; before most women even know they are pregnant.
2. Neural tube defects (NTDs) cause such lifelong disabilities as Spina Bifida. However, other adverse consequences are far more common. These include miscarriages, stillbirths, neonatal deaths and therapeutic terminations (after pregnancy screening reveals an NTD).
3. It was scientifically proven by the MRC Vitamin Study in 1991 that Vitamin B9 (folic acid) - if regularly consumed in sufficient amounts *before* pregnancy - prevents the vast majority of NTDs. This international research study was led by Professor Sir Nicholas Wald and is considered the gold standard in NTD research. Decades of evidence have confirmed the connection between adequate folic acid (Vitamin B9) and the prevention of NTDs.
4. While certain foods contain folates (the natural version of folic acid), it has been confirmed that even the healthiest pre-pregnancy diet cannot prevent NTDs. A sufficient level of folic acid is required for the preventative effect to be realised. Low levels of folic acid (as in multivitamins) have a sub-optimal preventative effect.
5. Because of how early in pregnancy the neural tube is formed (or malformed), a sufficient level of blood folates (from folic acid/Vitamin B9) must be achieved pre-conception (pre-pregnancy) and continued into the first trimester. Starting to take folic acid supplements after the first antenatal appointment (8-12 weeks) has no benefit in *preventing* NTDs.
6. Low blood folate levels pre-pregnancy strongly increases the risk of NTDs. Recent research also suggests that low blood folate levels in older adults may increase the risk of dementia and mortality. Thus, folic acid fortification could benefit three generations.

Core UK Realities:

1. The UK has been fortifying staple foods for more than half a century. These additives include Vitamin B1 (Thiamin) and Vitamin B3 (Niacin), plus Calcium and Iron. Vitamin B9 was not included originally because its ability to prevent NTDs was not yet known.
2. While fortification of staple foods with folic acid has been legislated and implemented in more than 80 countries (including Canada, Australia and the USA), it has not yet been adopted in the UK. Every country employing fortification has reduced the incidence of NTDs. Over the decades since implementation, no country has ever abandoned or discontinued folic acid fortification.
3. In 2021, the UK Government— two years after its public consultation - announced it would take forward fortification of one type of flour with a very modest level of folic acid. It has not done so yet. There have been no further announcements or legislation introduced to make this happen.
4. Voluntary supplementation has been the UK's policy choice. While it certainly benefitted those who properly and conscientiously took these supplements, that has remained a minority of women of childbearing age. Women in the upper half of the socioeconomic spectrum were most likely to access and take Vitamin B9 prior to pregnancy. The unintended consequence is that supplementation has widened UK health inequalities.

Core Recommendations:

1. The UK Government should act without further delay to enact and implement meaningful folic acid fortification UK-wide. That requires:
 - a. fortification of multiple staple foods; and,
 - b. a much higher level of folic acid than is being contemplated

The first will enable the preventative benefits to be equitably distributed among all women, irrespective of their dietary realities, restrictions and preferences. The second would mean the difference between 10-20 % being protected from NTDs versus an 80% preventative benefit, if the average consumed is 4mg of folic acid daily prior to pregnancy. International research and experience suggest starting with 1mg folic acid per 100g flour and 10ppm for grains. Another consultation on this public health measure means NTD-caused adversity and inequality will continue unabated for more years.

2. The scientific evidence is clear, extensive and unequivocal that *meaningful* fortification with folic acid (as defined above) is safe, effective, equitable, inexpensive and simple to implement. By contrast, trivial/token fortification (i.e., only one type of bread and a low level of folic acid) is by far the most expensive option. Only protecting 10-20% of women and babies will inevitably result in ongoing, large numbers of preventable NTDs. In turn, the high human, and financial costs of NTDs – miscarriages, stillbirths, neonatal deaths, therapeutic terminations and birth defects – will persist. Manufacturers support fortification, providing there is a 'level playing field', where the same fortification requirements apply to all.

Fully effective folic acid fortification is the wisest, fairest, safest and least costly UK policy choice.

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The evidence supporting these points is voluminous. Key references can be provided on these topics, upon request.



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