

# Let's prevent neural tube defects by fortifying flour

*Baroness Walmsley, with thanks to Professor Nicholas Wald FRS, Director, Wolfson Institute of Preventive Medicine*

On 23 November, the Scientific Advisory Committee on Nutrition (SACN) released a report on folate and disease prevention for public consultation. The Committee recommends the mandatory fortification of flour with folic acid, a B-vitamin. The Food Standards Agency will be considering their advice in the coming months.

In Britain neural tube defects remain an important cause of birth defects. Neural tube defects are mainly of two types – anencephaly and spina bifida. Anencephaly is a severe malformation in which a large portion of the top of the brain and skull is missing, and it is always fatal at birth or shortly afterwards. Spina bifida is a defect of the lower portion of the spine that can lead to paralysis of the lower limbs, incontinence, and development of hydrocephalus (water on the brain). Spina bifida and anencephaly account for about 1400 affected pregnancies in the United Kingdom each year. Although the numbers of affected births have been reduced by antenatal screening and elective abortion, it remains an important public health problem.

Although many individuals with neural tube defects are much loved and have fulfilling lives, it would clearly be far better to prevent such disabilities if possible. And it is possible. Research published in 1991 showed that about three quarters of pregnancies with neural tube defects could be prevented if women consumed sufficient amounts of folic acid immediately before pregnancy.

Currently in the UK however, only about one third of women becoming pregnant have taken folic acid before their pregnancy commenced. All authorities are agreed that the only practical preventive measure is fortification of a staple food, such as flour, with

folic acid. Accordingly, about 40 countries throughout the world have taken this sensible public health step through which all women benefit without needing to take a folic acid tablet before becoming pregnant. In the UK the response has been slower. In 2000 the UK government nutrition committee (COMA) concluded that universal folic acid fortification of flour at 240 micrograms per 100 g would have a significant effect on preventing neural tube defect pregnancies. It would probably reduce the risk by about one quarter. Preventing one affected pregnancy a day in the United Kingdom by a simple and inexpensive public health intervention is undoubtedly a step that should be taken with urgency.

Indeed, there is evidence that increasing folic acid intake would have wider public health benefits, including a modest reduction in the risk of cardiovascular disease and possibly also other benefits, including a reduction in the risk of colorectal cancer. Leading experts from Harvard School of Public Health have stated publicly that failure to fortify flour with folic acid represents a major missed public health opportunity.

What is the reason for Britain having delayed the introduction of fortification? There is probably no simple answer. The problem of neural tube defects is largely hidden by the number of elective abortions, and unfortunately accepted when it could be avoided. Over 90% of cases are identified in pregnancy, and lead to an abortion, so regrettably this has emerged as the main method of prevention instead of preventing the disorder from arising in the first place. Abortion should never be relied upon as a means of putting things right if there is a better way. There is a simplistic view that fortifying flour

with a vitamin is “unnatural” and appears to impose a public health measure on everyone without choice. However, almost all sensible public health actions involve collective decisions from which we all benefit. Flour is already fortified with two vitamins, and two minerals, without any public objection. The UK Government may feel reluctant about introducing further food fortification for fear of “nanny state” accusations. The response should be that we are a caring society and that where something simple can be done at virtually no expense that will prevent families having pregnancies and children with a severe abnormality this is something that we should support and implement.

Of course we must consider whether there are any medical reasons for not fortifying flour with folic acid. The simple answer is no. The COMA committee, and now SACN, have examined the possible adverse effects of fortification in detail and concluded that there are certainly none at the level of fortification being recommended. Concern about possible risk associated with folic acid fortification arose because of a misplaced worry that it might mask vitamin B12 deficiency, by partially correcting the associated anaemia while allowing the associated neurological problems due to the B12 deficiency to progress untreated. The issue arose at a time before it was possible to measure B12 concentrations in the blood, so B12 deficiency could only easily be detected by the presence of anaemia. Today any suggestion of the early neurological signs of B12 deficiency will prompt a simple blood test that will detect the problem and enable the deficiency to be treated by taking B12 supplements. In any case, concern over the possibility of B12 deficiency in the population is no

good reason for withholding additional folic acid in the diet to prevent neural tube defects.

To quote from a recent article published in the New England Journal of Medicine, "There is no evidence that folic acid fortification at the levels proposed pose a risk to health, and there is compelling

evidence that failure to fortify a staple food at an adequate level causes considerable harm."<sup>1</sup>

SACN has endorsed the recommendations of the government committee that preceded it (COMA, 2000).<sup>2</sup> The FSA and health ministers should now move quickly to implement the

recommendation.

I hope that, when SACN makes its final report, the FSA and health ministers will move quickly to fortify flour.

<sup>1</sup>. Wald NJ. Folic acid and the prevention of neural-tube defects. *N Engl J Med* 2004;350:101-3

<sup>2</sup>. Committee on Medical Aspects of Food and Nutrition Policy. Folic acid and the prevention of disease. Department of Health, HMSO London, 2000

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