

It is relatively well understood amongst midwives these days that, because taking folic acid around the peri-conceptual period has been shown to significantly reduce the risk of neural tube defects in babies (e.g. Mitchell et al 2004), this is a good supplement for women to take before and during the first few weeks of pregnancy. Once facts like this have become established, the question which then becomes of most concern to those who feel they have responsibility for public health is how this recommendation gets implemented into the lives of the public whose health they have made their concern.

As Eichholzer et al (2006) note, there are three main types of public health strategy that can be used with this kind of issue. Firstly, women can be encouraged to add folic acid supplements to the other healthy foods they are urged to eat as they plan and experience pregnancy. Or, as another option, food-manufacturing companies can be encouraged to voluntarily fortify commonly consumed foods with folic acid. Finally, as has already happened in countries such as the Canada, Chile and the US (Reynolds 2006), governments can make it mandatory that certain foods are fortified with nutrients such as folic acid.

On a theoretical level, the key questions that lead policymakers to choose between the second and third strategies relate to whether a nutrient will be beneficial to the population as a whole, and whether the benefits of fortification outweigh any risks. It has been demonstrated that mass folic acid fortification can mask vitamin B12 deficiency, which is a particular problem amongst elderly people who are the most likely to suffer from this, and this is one of the reasons that the UK government has so far resisted mandatory fortification (HMSO 2000). A number of unanswered questions also remain about the part that folic acid plays in carcinogenesis (Eichholzer et al 2006).

In practice, however, many cereal companies who supply food within the UK and other countries where fortification is not mandatory are voluntarily fortifying foods and, as a result, there may be little difference in the amounts of folic acid consumed by people in countries with voluntary and mandatory fortification programmes. Although someone who wishes to make their own decision about how much folic acid to ingest has somewhat more ability to control this than, say, someone who wishes to make their own decision about how much fluoride to ingest in countries where this is added to the water supply, the majority of the population have no idea that they are being medicated through the food and water they consume.

If we return to the question of pregnant (and planning-to-be-pregnant) women, however, folic acid remains a

good thing, doesn't it? Well... There is no doubt that it significantly reduces the risk of neural tube defects, as above, but some other issues are also emerging. A few studies have correlated folic acid supplementation with an increase in multiple births (Werler et al 1997, Martin and Park 1999) and scientists have shown that folic acid and vitamin B12 methylate genes in mice (Ainsworth 2006). In plain language, giving these supplements to laboratory mice led to changes in things like coat colour in subsequent generations. Perhaps more worryingly, when pregnant mice were fed folic acid, their pups were obese. And when their pups then had babies of their own, the next generation were even more obese, suggesting that they were inheriting a gene mutation which affected body weight.

Although more research is needed into these areas before anything conclusive can be shown, the results of these studies act as a reminder that the addition of supplements to the diet of pregnant women - through pills, food, choice or default - is not without potential risk as well as potential benefit. The current overriding concern of those who are writing about folic acid supplementation seems to be the question of how to increase intake in those groups of women who are less likely to hear the public health messages and trot along to buy their multivitamins six months before they get pregnant. By contrast, the message from the people who have always doubted the advisability of supplements is that we should focus more on what is on our plates. I know that women have plenty enough on their plates as it is, but I am beginning to wonder if it is not more important to attempt to widen the message, and invite more women to think about this issue and how it relates to their own beliefs and preferences?

#### References

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