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Letters to the Editor

Synthetic folic acid vs. food folates

Sir,

In his reply[1] to my recent letter[2], Geoffrey Cannon queried whether the synthetic nature of folic acid might independently be a problematic factor in the planning of a mandatory fortification policy. If so, what implications are there for all other synthesised nutrients used as supplements and fortificants? Also, is there any evidence that unusually high consumption of folate from foods could do any harm?

Several studies have reported pharmacokinetic differences in absorption and metabolism between synthetic folic acid and food folates. For example, Kelly *et al*. report that the substance's form has different effects on folate-binding proteins and transporters[3]. They found that folic acid can be passively absorbed and interacts differently from 5-methyltetrahydrofolic acid, which is the substrate made available from dietary folates. This is a complex area. Discrepancies in the evidence base for the relative bioavailability of natural folates compared with folic acid have been identified[4].

Clearly, there are many unknowns about the absorption and metabolism of synthetic folic acid (other synthesised nutrients need to be considered on a case by case basis). Mandatory folic acid fortification would result in the target group and the population as a whole being exposed to historically unprecedented raised levels of folic acid over extended periods of time. Hence, there is a need to conduct a particularly comprehensive risk–benefit analysis for such an intervention.

I am not aware of any evidence that unusually high consumption of folate from foods could do harm. This lack of evidence probably has more to do with self-regulation than with the form of the substance. Many authorities have set the upper level of safety for folic acid at 1000 $\mu g\,day^{-1}$, and exclude food folates from this estimate (the estimate is based on studies in which supplemental folic acid was taken in addition to diet). Hypothetically, and drawing on the dietary folate equivalent calculation, 1000 μg of folic acid as a fortificant would equate approximately to an additional 1700 μg of food folates per day – that is a lot of fruits and vegetables to eat!

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References and standards for infant and child growth

Sir,

Geoffrey Cannon[1] says kind things about my contributions in this field, but on one point he goes far astray. He writes 'the idea that reference values are not normative is an obvious contradiction in terms'. Not so. The original paper[2] recommending the NCHS growth charts as an international reference said very clearly: 'A *reference* is a device for grouping and analyzing data and for enabling comparisons between different populations. It implies nothing about values or targets... A *standard* embodies the concept of a norm or target – that is, a value judgement'. Inevitably the two concepts have been confused in practice and the reference used as a norm.

In 1976 there was an urgent need for a means of assessing and comparing different groups of children. The NHCS was chosen as a reference, in spite of its well-known disadvantages, because it included measurements of height and length, and was well worked out statistically. There followed an enormous amount of work and discussion about whether it was realistic to use it as a normative standard, particularly for height, for different populations. Now, 30 years later, the NCHS has been superseded by a new internationally based reference which can reasonably be used as a standard or norm as well as a reference[3].