

Folate (folic acid, vitamin B9) is a water soluble B vitamin, traditionally associated with the consumption of green, leafy vegetables. However, since the late 1990's, several jurisdictions, including the US and Canada, have mandated the inclusion of synthetic folic acid into enriched white flour, as well as other cereal-based foods. The main reason for this population health initiative was to effect a reduction in the number of babies born with a neural tube defect (NTD). Evidence is accumulating that the initiative, combined with strong campaigns to encourage folic acid supplement usage by women of child bearing age, has been effective in reducing the occurrence and recurrence of NTDs. However, the folic acid fortification strategy is not without its concerns. The recent surge in the demand for gluten-free foods, coupled with a demand for foods lower in refined carbohydrates, challenges the usefulness of enriched wheat flour as the fortification vehicle.

Eggs, on the other hand, are good sources of protein, naturally gluten-free, and contain little in the way of carbohydrate. Furthermore, one large egg can supply 10% of the Daily Value for folate. This value can be increased approximately 250%, up to 60 µg per egg, by increasing the synthetic folic acid content of the laying hen diet. The hen converts the relatively inexpensive and synthetic form of folic acid in her diet to the more metabolically active form, called 5-methyltetrahydrofolate – this is the major circulating form of folate in the human bloodstream. Previous research has documented that the folate found in egg is highly available (>100% relative to folic acid), in comparison to plant-based folates (generally <50%). Therefore, folate-enriched eggs offer an additional food-based vehicle for the addition of this important water-soluble vitamin to the human food supply. Beyond folate, other opportunities exist for egg fortification, including recent work examining the potential to enrich eggs with vitamins D and B12.