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Unmetabolised folic acid presence in the majority of a fasted elderly cohort pre the implementation of mandatory folic acid fortification in Ireland

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Ireland is an example of a country that has extensive voluntary fortification with folic acid. Mandatory folic acid fortification was recommended by the Food Safety Authority of Ireland in 2006. However, a subsequent report from the Food Safety Authority of Ireland has stated that mandatory fortification will not go ahead until more scientific evidence surrounding safety issues are addressed. One such safety issue is the amount of unmetabolised folic acid in the circulation as this has the potential to mask pernicious anaemia, a particularly problem for the elderly population. In addition, the role of folic acid in cancer acceleration has generated international discussion among experts in the area.

The aims of this study are to measure the levels of unmetabolised folic acid in plasma of an elderly population group exposed to liberal voluntary fortification in Ireland, prior to the implementation of mandatory folic acid fortification.

We invited participants aged 60–86 years of age from the ‘Lifeways Study’ (a cross-generational longitudinal study commissioned by the Health Research Board in 1999) to participate in this study. After informed consent, participants were invited to attend for fasting blood sampling at St. Vincent’s Hospital. One hundred and thirty-eight participants attended for blood sampling and completed a questionnaire on recent and habitual intake of folic acid. Samples were assayed for plasma folate, red cell folate and unmetabolised folic acid.

Mean red cell folate concentration was 1408 nmol/l. Mean plasma folate was 34 nmol/l. Mean unmetabolised folic acid was 0.4 nmol/l, with a range of 0–1.59 nmol/l and was present in 99% of the sample. Plasma folate levels were correlated with unmetabolised folic acid levels ($P = 0.004$) as were red cell folate levels ($P < 0.00$). Mean habitual reported intakes of folic acid from diets were 279 µg/d, mean recent intakes 222 µg/d.

These results demonstrate the presence of unmetabolised folic acid in plasma in the majority of this elderly Irish cohort even after an overnight fast. Would mandatory fortification confer any additional benefits to this population or would it merely increase the risks of potential harmful effects such as pernicious anaemia masking and acceleration of existing tumours/cancers? These results should be considered carefully by those legislating in this area.