

Study finds significant proportion of older adults are deficient in vitamin B12 and folate

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A new study by researchers from The Irish Longitudinal Study on Ageing (TILDA) at Trinity College Dublin, Ireland, has shown for the first time that a substantial number of adults over 50 are at risk of deficiency in vitamin B12 and folate (the natural vitamin linked to the dietary supplement, folic acid).

The researchers found that one in eight adults in Ireland are deficient in [vitamin](#) B12; one in seven are deficient in [folate](#); and there are variations in deficiency across different provinces in Ireland, in addition to variations dependent on health, lifestyle and the time of year measured. The findings form part of the largest representative study of its kind conducted among older persons in Ireland and have just been published in the prestigious journal, *British Journal of Nutrition*.

Both vitamin B12 and folate are essential for nerve function, brain health and the production of red blood cells and DNA. Numerous studies have shown that low nutritional status of folate and B12 are linked to poor long-term health, especially among older people.

In Ireland, fortification of food products is voluntary and some foods (such as ready-to-eat cereals) are enriched with micronutrients such as [folic acid](#), though this is inconsistent between products fortified and over time, resulting in haphazard exposure. There have been repeated calls for an official policy of mandatory fortification of staple foods such as bread, with folic acid, to reduce the occurrence of neural tube defects in babies. Such a policy would also reduce the prevalence of folate

deficiency in older adults who are most at risk. Before this can occur, however, comprehensive information is needed on the prevalence and determinates of deficiency.

Our study suggests that the current custom of voluntary food fortification is ineffective in preventing deficiency or low status of these vitamins among older people. The results are of relevance not just for Ireland but for all countries that do not have mandatory fortification.

Key findings:

- One in eight adults over 50 were low to deficient in vitamin B12 while one in seven were low to deficient in folate
- The prevalence of low or deficient folate increased with age, from 14% among those aged 50-60 years to 23% among people over 80 years old. Low folate status was also more common in smokers, the obese, and those who lived alone
- Low or deficient vitamin B12 was more common in smokers (14%), people who lived alone (14.3%) and those from lower socio-economic backgrounds (13%)
- Use of both vitamin B12 and folic acid supplementation was low, with higher rates among women than men but less than 4% overall taking supplements of either vitamin

Commenting on the significance of the research, lead author of the study and Research Fellow at TILDA, Dr. Eamon Laird, said:

"This is the largest representative and most comprehensive study of vitamin B12 and folate status in older adults ever conducted in Ireland. There are striking differences in the prevalence of deficiency across different lifestyle factors such as obesity and smoking—both of which are modifiable risk factors. Our findings will provide useful data to help inform public health policy -particularly regarding the proposition of

mandatory folic acid and/or vitamin B12 fortification. To place our findings in context, in a country such as the United States where mandatory folic acid fortification occurs, rates of low folate status are around 1.2% in [older adults](#) compared with 15% in Ireland."

Professor Anne Molloy, senior author of the study noted:

"This study shows a surprising level of inadequate folate among older persons, despite many years of voluntary folic acid fortification of certain foods on the Irish market. Concerns relating to excessive folic acid intake, particularly in [older people](#), have been at the heart of current debates regarding the risks of population-wide [folic acid fortification](#). However, in countries such as the US, mandatory folic [acid](#) food fortification for the past 20 years has prevented millions of cases of folate deficiency without any proven adverse effects. Irish public health authorities need to act on the facts from studies such as ours."

Professor Rose Anne Kenny, Principal Investigator of TILDA, said:

"The high rates of B-vitamin deficiency seen in the older adult population are of concern and, given that this can be easily treated with [fortification](#), this has significant policy and practice implications for Government and health services. TILDA has consistently assisted policy makers by providing strong evidence based data on which to make recommendations but also by assisting with information of most vulnerable people and therefore those who should be targeted."

More information: Eamon J. Laird et al, Voluntary fortification is ineffective to maintain the vitamin B12 and folate status of older Irish adults: evidence from the Irish Longitudinal Study on Ageing (TILDA), *British Journal of Nutrition* (2018). [DOI: 10.1017/S0007114518001356](https://doi.org/10.1017/S0007114518001356)

Provided by Trinity College Dublin

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