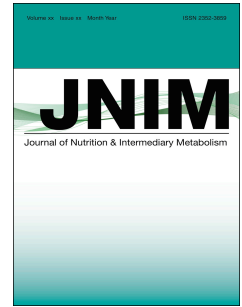


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Reduced plasma homocysteine levels in elderly Australians following mandatory folic acid fortification – A comparison of two cross-sectional cohorts

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**Reduced plasma homocysteine levels in elderly Australians following mandatory folic acid fortification – a comparison of two cross-sectional cohorts.**

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**ABSTRACT**

**Objective:** In 2009, Australia implemented mandatory folic acid fortification in wheat flour for bread-making. The primary aim was to improve folate status in reproductive-aged women to reduce neural tube defect incidence. However, folic acid consumption has consequently increased in all demographics. Blood folate is inversely associated with homocysteine levels, a risk factor for multiple diseases. Therefore, we assessed the impact of mandatory folic acid fortification on homocysteine levels in elderly Australians. **Methods:** Homocysteine and blood folate levels were compared between two elderly cross-sectional cohorts (pre- versus post-mandatory folic acid fortification). Importantly, dietary habits were assessed to evaluate the confounding influence of altered dietary patterns not related to fortification. **Results:** Post-fortification, plasma homocysteine levels (10.6 vs. 14.5  $\mu\text{mol/L}$ ) and hyperhomocysteinemia incidence (27.2% vs 56.3%) were significantly reduced, relative to the pre-fortification subjects. This was associated with increased blood folate (red cell: 1243 vs 1066  $\text{nmol/L}$ , serum 28.0 vs 23.9  $\text{nmol/L}$ ), and increased intake of synthetic folic acid (366.8 vs 231.0 DFE/day) but not natural folate (332.7 vs 323.6 DFE/day). Limited other differences were detected in dietary intake patterns between groups. The positive relationship between homocysteine levels and age was abrogated post-fortification ( $p=0.3$  vs  $p=0.0003$ ). **Conclusions:** A potential off-target benefit of mandatory folic acid fortification in Australia was demonstrated. With many countries still considering the merits and consequences of mandatory fortification policies, it is important to unravel the off-target effects including dietary context.

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