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## Folate and vitamin B12 in older Australians

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## Folate and vitamin B12 in older Australians

### Abstract

The recent viewpoint by Kamien<sup>1</sup> and letter by Gunasekera<sup>2</sup> rightly highlight the benefits of folate fortification and the unlikely occurrence of masking pernicious anaemia. Food Standards Australia New Zealand recently submitted a proposal supporting the mandatory fortification of bread-making flour to increase folate intakes in women of child-bearing age, with the aim of reducing the risk of children being born with neural tube defects.<sup>3</sup> This proposal has had extensive public comment and will be considered by the Australia and New Zealand Food Regulation Ministerial Council. Several public groups and individuals continue to raise concerns that higher dietary folate levels could increase B12 deficiency. Our data, collected from a population-based sample of 2596 older people in the Blue Mountains region, from 1997 to 2000, do not suggest that this is a likely outcome.

### Keywords

b12, vitamin, folate, australians, older

### Disciplines

Arts and Humanities | Life Sciences | Medicine and Health Sciences | Social and Behavioral Sciences

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## Priorities for reducing the burden of injuries in sport: the example of Australian Football

Belinda J Gabbe, Caroline F Finch and Peter A Cameron

**TO THE EDITOR:** Safe sports participation has become a key national issue, especially in view of the potential for concerns about safety to inhibit sports participation,<sup>1</sup> in a nation where obesity rates are rising<sup>2</sup> and more exercise is recommended.

Australians participate in many sports, but the safety of the football codes is especially criticised by the media and the community because of the intense focus on injuries to players at the elite level. This is particularly the case for Australian Football (AF) and its elite game, the Australian Football League (AFL).

National reports released in 2006 have identified AF as the sport most associated with injury admissions to hospital<sup>3</sup> and with private health insurance claims.<sup>4</sup> These have sparked media commentary about the safety of AF. Response to these injury reports prompted an unprecedented media release<sup>5</sup> from the country's peak sports medicine body, Sports Medicine Australia, detailing issues with the report figures, urging caution in their interpretation and supporting the efforts of the football codes in improving participant safety.

The modified version of the game (Aus-kick), which is played by children, has been shown to be safer,<sup>6</sup> but there is a progression to adult rules by the under-15 age group, and the umbrella of safety provided by modified rules is eventually gone, raising the question of how safe the non-modified version is. Recently released AFL figures suggest that injury rates at the elite level are at a historical low,<sup>7</sup> but the report provided insufficient information to assess whether this represents a significant decline since 1997, and the data are already one season behind. Equivalent information for the more than 450 000 adult, non-elite participants is not available.

Published literature related to injury prevention highlights a dearth of knowledge relating to the causes of injuries in non-elite participants and a very small evidence base for ways to prevent injuries in AF. With AF played almost exclusively in Australia, the onus to provide evidence for improving the safety of participation clearly falls on the stakeholders of the sport here. Gains in reducing both the public health impact of football injuries and the fear of injury asso-

ciated with participation will only come from substantial investment in large-scale trials at the non-elite level, and a multidisciplinary approach to safety and injury issues across all levels of play. This will require active and committed collaboration of key stakeholders such as clinicians, allied health practitioners, researchers, clubs, sports administrators, coaches and the participants themselves.

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## Folate and vitamin B<sub>12</sub> in older Australians

Victoria Flood and Paul Mitchell

**TO THE EDITOR:** The recent viewpoint by Kamien<sup>1</sup> and letter by Gunasekera<sup>2</sup> rightly highlight the benefits of folate fortification and the unlikely occurrence of masking pernicious anaemia. Food Standards Australia New Zealand recently submitted a proposal supporting the mandatory fortification of bread-making flour to increase folate intakes in women of child-bearing age, with the aim of reducing the risk of children being born with neural tube defects.<sup>3</sup> This proposal has had extensive public comment and will be considered by the Australia and New Zealand Food Regulation Ministerial Council. Several public groups and individuals continue to raise concerns that higher dietary folate levels could increase B<sub>12</sub> deficiency. Our data, collected from a population-based sample of 2596 older people in the Blue Mountains region, from 1997 to 2000, do not suggest that this is a likely outcome.

We recently reported the prevalence of low serum vitamin B<sub>12</sub> levels in the Blue Mountains Eye Study cohort of people aged 50

### Mean serum vitamin B<sub>12</sub> levels in a population of older Australians, for various folate intakes (from diet and supplements) (n = 2596)

Folate intake	Mean serum B <sub>12</sub> (95% CI) adjusted for age and sex	Mean serum B <sub>12</sub> (95% CI) adjusted for age, sex and B <sub>12</sub> intake (diet and supplements)
<b>Folate (µg DFE)</b>		
Quintile 1-4 (< 571.8) (n = 2077)	273 (263-289)	278 (267-289)
Quintile 5 (> 571.8) (n = 519)	316 (295-337)	297 (275-319)
P	< 0.001	0.132
<b>Folate cut-points</b>		
< 500 µg DFE (n = 1828)	273 (261-284)	278 (267-290)
500-1000 µg DFE (n = 645)	294 (276-314)	289 (270-308)
> 1000 µg DFE (n = 123)	346 (303-389)	300 (253-348)
P for trend	< 0.001	0.239

DFE = dietary folate equivalents. ♦

years and older. We found that 22.9% had low serum B<sub>12</sub> levels (<185 pmol/L).<sup>4</sup> New data from this study show that higher intakes of folate (from diet and supplements) did not increase the likelihood of low serum B<sub>12</sub> levels; in fact, people whose diets included folate in the highest quintile of intake had significantly higher serum B<sub>12</sub> levels than those consuming lower dietary folate (Box), after accounting for age and sex ( $P < 0.001$ ). After also adjusting for vitamin B<sub>12</sub> from diet and supplements, there was no significant difference in mean serum B<sub>12</sub> levels for the various quintiles of folate intake.

We also investigated older people who reported consuming high amounts of folate (>500 µg dietary folate equivalents [DFE] [ $n = 645$ ] and >1000 µg DFE [ $n = 123$ ]) and found higher mean serum B<sub>12</sub> levels in these groups than in people who consumed <500 µg DFE, after adjusting for age and sex ( $P$  for trend <0.001). After further adjustment for vitamin B<sub>12</sub> intake, there were no significant differences in mean serum B<sub>12</sub> levels for these high dietary folate intakes (Box).

We also examined the frequency of macrocytic anaemia in our cohort ( $n = 6$ ; 0.2%); two of these had low serum B<sub>12</sub> levels (0.3% of subjects with low serum B<sub>12</sub> levels).

In the United States, where mandatory folate fortification began a decade ago, a study of the presence of anaemia in people with B<sub>12</sub> deficiency found no significant change in the proportion with anaemia before and after the introduction of mandatory fortification.<sup>5</sup>

Although many older Australians have low serum levels of vitamin B<sub>12</sub>, our data show that higher intakes of folate do not increase the likelihood of low serum B<sub>12</sub> levels. Given the relatively high prevalence of low serum B<sub>12</sub> levels among older people, it would seem reasonable for this to be monitored more frequently in this age group. We suggest that this is not a valid concern that should prevent moves to proceed with mandatory folate fortification of key foods in Australia.

**Competing interests:** Victoria Flood and Paul Mitchell received a Kellogg's Research Grant 1998–2000.

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## Exposure to environmental tobacco smoke in cars increases the risk of persistent wheeze in adolescents

Peter D Sly, Marie Deverell, Merci M Kusel and Patrick G Holt

**TO THE EDITOR:** The adverse health effects of environmental tobacco smoke (ETS) are well documented. Workplaces are increasingly smoke-free, and restrictions on smoking in restaurants, pubs and clubs are increasing. Paediatricians counsel parents to make their children's home smoke-free and to smoke outside if they can not quit. In Australia, attention is turning to ETS exposure in cars, in the belief that the confined space may result in increased exposure, even if the windows are wound down. However, few, if any, objective data on the health effects of ETS exposure in cars have been published.

We report here the risks of current wheeze at the age of 14 years in children exposed to ETS in their parents' car. Questionnaire data were available from parents of 1427 children taking part in the 14-year assessment of a longitudinal birth cohort in Perth. Characteristics of the cohort have been described elsewhere.<sup>1</sup> Information about current wheeze (defined as the occurrence of wheeze in the previous 12 months) and asthma risk factors, including ETS exposure in the house and car, was obtained. Standard spirometry, metha-

choline challenge and skin prick tests to local aeroallergens were performed in 1400, 1334 and 1308 children, respectively. Current wheeze was reported in 191 children (14.0%) at the age of 14 years, compared with 537 (38.2%) when they were seen at 6 years of age. Persistent wheeze, at both 6 and 14 years of age, was reported in 145 children (10.2%).

ETS exposure in the parents' car was common. The 14.6% of children who were exposed at 14 years had increased risk of both current wheeze (odds ratio [OR], 1.55; 95% CI, 1.02–2.35;  $P = 0.038$ ) and persistent wheeze (OR, 2.14; 95% CI, 1.34–3.42;  $P = 0.001$ ). These risks were higher than those for ETS in the home: for the 8.9% of children exposed in the home, the OR for current wheeze was 1.33 (95% CI, 0.80–2.22;  $P = 0.27$ ) and the OR for persistent wheeze was 1.98 (95% CI, 1.12–3.50;  $P = 0.016$ ). Those with current wheeze and ETS exposure in the car had increased methacholine responsiveness: PC<sub>20</sub> (provocative concentration required to produce a 20% fall in forced expiratory volume in 1 second) was 5.9 mg/mL in children with ETS exposure compared with 15.2 mg/mL in those not exposed ( $P = 0.004$ ). These effects were independent of sex and atopic status.

These data provide evidence that the community needs to be educated about the adverse health consequences of ETS exposure in cars and suggest that health care professionals should include such education in counselling sessions for families of children with asthma. Teenagers can escape ETS exposure in the home, either by removing themselves or by their parents smoking outside. However, children of this age and younger have no choice but to travel with their parents in the car, especially given the phenomenon of "mum's taxi" transporting children to school and extracurricular activities. Smoke-free cars are important for all children.

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