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## Nutritional implications of Australians switching from traditional animal-source foods to plant-based ‘alternatives’: an exploratory study

H. Huang<sup>1</sup>, B.J. Johnson<sup>2</sup>, T.P. Wycherley<sup>3</sup> and A.S. Lawrence<sup>1</sup>

<sup>1</sup>*School of Agriculture and Food, University of Melbourne, Parkville, Vic. 3052, Australia,*

<sup>2</sup>*Caring Futures Institute, College of Nursing and Health Sciences, Flinders University, Adelaide, SA 5042, Australia and*

<sup>3</sup>*Alliance for Research in Exercise, Nutrition and Activity, University of South Australia, Adelaide, SA 5001, Australia*

Although there are many ways to make a diet more environmentally sustainable, much attention is focused on transitioning to diets containing less animal-source food and more plant-source foods. Plant-based meat and milk alternatives, even though often ultra-processed, are perceived by consumers to be more environmentally beneficial than the minimally processed animal-source foods they mimic. Sales of such alternatives have increased rapidly in recent years in many western countries.<sup>(1)</sup> In Australia, there was a five-fold increase in the number of plant-based ‘meat’ products available in Australian supermarkets between 2015 and 2019<sup>(2)</sup> and a doubling in demand for plant-based ‘milk’ between 2011–2012 and 2021–2022.<sup>(3)</sup> As plant-based meat and milk alternatives are partial rather than complete nutritional replacements for their animal source originals,<sup>(4,5)</sup> and sales are predicted to continue to increase, it is timely to consider the nutritional impact of these dietary changes at a population level. The aim of this study was to estimate the nutritional implications for the Australian population of substitution of animal-source meat and milk with plant-based ‘alternative’ products. Computer simulation modelling was undertaken using dietary intake data collected in 2011–2012 from a nationally representative survey sample of 12,153 persons (2 y and over).<sup>(6)</sup> Scenarios based on sales reports and economic projections were modelled in which various amounts of cows’ milk and/or meat (chicken, beef and sausages) were replaced with plant-based ‘milk’ (mostly soy and almond-based) and plant-based ‘meat’ (soy/wheat/pea meat alternatives and vegetarian sausages) respectively, for the entire population and for various sub-populations: young children (2–3 y), men and women (19–30 y) and older adults (71 y and over). Compared with the base case, replacing meat and cows’ milk with plant-based alternatives resulted in theoretical increases in intake of dietary fibre, polyunsaturated fatty acids, vitamin E and iron and decreases in intake of protein, long chain omega 3 fatty acids, naturally occurring *trans* fatty acids, vitamin B<sub>12</sub> and zinc. Replacing cows’ milk with plant-based ‘milk’ could reduce saturated fat, calcium and iodine intake. Of the sub-population groups considered, young children would likely experience the most pronounced nutrient intake changes. For this group, substantial hypothetical reductions in intake of protein, saturated, *trans* and long chain omega 3 fatty acids, vitamin B<sub>12</sub>, iodine and zinc and increases in intake of iron, vitamin E and polyunsaturated fat intake were observed. Although sometimes described as a ‘win–win’ for health and the environment, widespread replacement of milk and meat with plant-based alternatives may increase risk of nutritional inadequacies in the Australian population. These results highlight the need for ongoing nutritional surveillance of the Australian population as consumers select diets they perceive to be more environmentally sustainable.

### References

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