

Letters

Declining iodine content of milk and re-emergence of iodine deficiency in Australia

MJA 2006; 184 (6): 307

Mu Li,* Kay V Waite,† Gary Ma,‡ Creswell J Eastman§

* Senior Lecturer, School of Public Health, University of Sydney, Sydney, NSW 2006; † Technical Officer, ‡ Principal Scientist, § Director, Australian Centre for Control of Iodine Deficiency Disorders, ICPMR, Westmead Hospital, Sydney. muli@health.usyd.edu.au

TO THE EDITOR: Iodine is essential for production of thyroid hormone. The recommended daily intake is 100 µg for children, 150 µg for adults and 250 µg for pregnant and lactating women.¹ Sporadic surveys of population iodine intake in Sydney, New South Wales, between 1985 and 1992 showed median levels of urinary iodine excretion (UIE) > 200 µg/L, indicating iodine sufficiency.² However, a recent national study demonstrated mild iodine deficiency (median UIE < 100 µg/L) in New South Wales and Victoria, borderline levels in South Australia and adequate intake in Queensland and Western Australia.³

The major sources of dietary iodine are dairy milk and dairy products, seafood and iodised salt. In Australia, few people purchase iodised salt, and, except in Tasmania, the food industry does not use iodised salt in the production and preparation of food.⁴ For decades, milk contaminated with iodine residues from sanitising solutions (iodophors) used in the dairy industry has probably been the largest source of iodine in the Australian diet.

We undertook a survey of the iodine content of milk samples from supermarkets around metropolitan Sydney in 2001 and 2004. In each year, iodine levels were measured in 13 samples, comprising a range of milk types (including whole, full cream, lite and skim) and brands (including Dairy Farmers, Devondale, Farmdale, Farmland, Perfection, Pura and Woolworths).

Iodine concentrations were highly variable. Median concentrations were 140 µg/L in 2001 (range, 60–220 µg/L) and 195 µg/L in 2004 (range, 66–412 µg/L). Iodine

concentrations varied between samples of the same brand and type by up to 100 µg/L. Many samples contained less than 200 µg/L (10/13 in 2001 and 7/13 in 2004).

A 1975 survey of iodine concentration in milk conducted by the Australian Consumers' Association found mean concentrations of 593.5 µg/L and 583 µg/L in NSW and Victoria, respectively.⁵ Because of concerns about iodine toxicity, Food Standards Australia and New Zealand specified an iodine limit of 500 µg/L in the Food Standards Code 1982. The replacement of iodophors by other sanitisers in the dairy industry appears to be the reason for the decrease in iodine content of Sydney milk. The perception that milk is a rich source of iodine is no longer true. A cup (250 mL) of milk a day would provide at most 50–60 µg iodine, approximating a third of the daily requirement for an adult.

We suggest that the reduced amount of iodine in milk is likely to be one of the explanations for the re-emergence of iodine deficiency in Sydney and perhaps elsewhere in Australia. Despite these changes, dairy milk remains an important source of dietary iodine. The iodine content in milk should be monitored.

Acknowledgement: We thank Dante Crisante (Institute of Clinical Pathology and Medical Research, Westmead Hospital, Sydney, NSW) for performing the milk iodine measurements.

1. Eastman CJ. Iodine supplementation: the benefits for pregnant and lactating women in Australia and New Zealand. *Obstet Gynecol* 2005; 7: 65-66.
2. Eastman CJ. The status of iodine nutrition in Australia. In: Delange F, Glinoe D, eds. Iodine deficiency in Europe: a continuing concern. New York: Plenum Publishing, 1993: 133-139.
3. Li M, Eastman CJ, Waite KV, et al. Are Australian children iodine deficient? Results of the Australian National Iodine Nutrition Study. *Med J Aust* 2006; 184: 165-169. [<PubMed>](#)
4. Eastman CJ. Where has all our iodine gone [editorial]? *Med J Aust* 1999; 171: 455-456. [<eMJA full text>](#) [<PubMed>](#)
5. Australian Consumers' Association. Adulterated food: is milk a hazard? *Choice* 1975; Sep: 299-302.