



Increasing consumption of milk, yoghurt, and cheese in older adults in aged care reduces falls and fractures without adverse effects on serum lipids: a cluster randomised controlled trial

S. Iuliano¹, D.L. Hare², S. Vogrin³, S. Poon^{1,5}, J. Robbins¹, C. French^{3,4} and E. Seeman¹

¹Departments of Endocrinology and Medicine, Austin Health, University of Melbourne, West Heidelberg, Australia, 3081

²Departments of Cardiology and Medicine, Austin Health, University of Melbourne, Heidelberg, Australia, 3084

³Australian Institute of Musculoskeletal Science, Western Health, St Albans, Australia, 3021

⁴School of Health Sciences, University of Manchester, UK, M14 4PX

⁵Department of Food and Nutrition, University of Melbourne, Parkville, Australia, 3056

Correction of dietary calcium and protein undernutrition using milk, yoghurt, and cheese in older adults in aged care homes is associated with reduced fractures and falls⁽¹⁾. As these foods contain potentially atherogenic fats, we aimed to determine whether these dietary changes adversely affect serum lipid profiles. Sixty aged care homes in Australia were randomised to intervention (n = 30 milk, yoghurt, and cheese enriched menu) or control (n = 30 regular menu) for 2 years. A sample of 159 intervention and 86 control residents (median age 87.8 years) had dietary intakes recorded using plate waste analysis and fasting serum lipids measured at baseline and 12 months. Diagnosis of cardiovascular disease and use of relevant medications were determined from medical records. Data were analysed using mixed effects linear regression model adjusting for clustering (aged care home) and other confounders. Intervention increased daily dairy servings from 1.9 ± 1.0 to 3.5 ± 1.4 ($p < 0.001$) while controls continued daily intakes of ≈ 2 servings daily (1.7 ± 1.0 to 2.0 ± 1.0 ($p < 0.05$)). No group differences were observed for serum total cholesterol/high-density lipoprotein-C (TC/HDL-C) ratio, Apoprotein B/Apoprotein A (ApoB/ApoA) ratio, low-density lipoprotein-C (LDL-C), non-HDL-C, or triglycerides (TGs) at baseline and 12 months. Among older adults in aged care homes, correcting insufficiency in the daily intake of calcium and protein using milk, yoghurt and cheese does not alter serum lipid levels, suggesting that this is a suitable intervention for reducing the risk of falls and fractures.

Keywords: cardiovascular disease; cheese; clinical trials; milk

Ethics Declaration

Yes

Financial Support

This study was supported by grants from Dairy Australia (grant number TP 701722), California Dairy Research Foundation, National Dairy Council, Aarhus University Hospital and Danish Dairy Research Foundation, Fonterra Co-operative Group Ltd, Dutch Dairy Association, Dairy Council of California, Dairy Farmers of Canada, the Centre national interprofessionnel de l'économie laitière, University of Melbourne, Austin Hospital Medical Research Foundation and Sir Edward Dunlop Medical Research Foundation.

Reference

1. Iuliano S, Poon S & Robbins J *et al.* (2021) *BMJ* 20 375, n2364