This is the published version (version of record) of:


Available from Deakin Research Online:

http://hdl.handle.net/10536/DRO/DU:30015024

Reproduced with kind permission of the copyright owner.

Copyright : ©2006, HEC Press
P02

The effect of multivitamin supplementation on nutritional status and quantitative heel ultrasound in aged care residents

JA Grieger, CA Nowson
School of Exercise and Nutrition Sciences, Deakin University, Burwood, VIC., Australia

Background – Food fortification and/or multivitamin supplementation may improve nutritional status in aged care residents who are at risk of malnutrition and related diseases.

Objective – To assess the effectiveness of a multivitamin tablet, and calcium-vitamin D₃ fortified milk supplementation for six months, on serum indices of nutritional status and bone quality (quantitative heel ultrasound, QUS) in a group of Australian aged care residents.

Design – With a 2x2 factorial design, subjects were randomized to receive either a placebo (P) or multivitamin (MV) tablet containing various vitamins including 5 μg cholecalciferol, 250 mg calcium carbonate, 20 μg cyanocobalamin and 200 μg folic acid (1 tablet/day), and, matched on mobility levels, to receive fortified milk (7 g protein, 200 mg calcium and 5 μg cholecalciferol), or usual milk for six months. Measurements of body weight, QUS, and serum concentrations of nutrients were performed at baseline and at six months.

Outcomes – Low compliance in consuming the fortified milk caused by the difficulties in delivering the milk to the participants led to the cessation of milk after 16 weeks of the study. Therefore only the effect of multivitamin supplementation was examined. Of 115 participants entering the study, 92 (49 MV and 43 P) completed the study. Following supplementation after six months, compared to the P group, the MV group had a greater rise in serum 25(OH)D (33.4 ± 2.6 nmol/l), folate (13.4 ± 2.8 nmol/l), and vitamin B12 (163.5 ± 40.3 pmol/l). The number of participants with adequate 25(OH)D concentrations (>50 nmol/l) increased from 23% to 77% for the MV group, and was reduced from 17% to 10% for the P group. After adjustment for baseline levels, the MV group had an improvement in QUS by 2.7 dB/MHz, compared to -2.5 dB/MHz for the P group (P=0.041).

Conclusions – Daily multivitamin supplementation improved nutritional status with respect to serum 25(OH)D, and raised vitamin B12 and folate concentrations. Additionally, there was an indication of a positive effect on bone density; this could in the long term contribute to a reduction in falls and fractures.