

NSNZ Concurrent Oral Session 3: Micronutrient Nutrition

Food sources of calcium in three diets (OZDASH study)

MK Jorna, CA Nowson, T Worsley, C Margerison, AG Frame
School of Exercise and Nutrition Sciences, Deakin University, Burwood, VIC 3125

Objective - To assess sources of calcium (Ca) in four diets with different dairy components (OZDASH study).

Design - The OZDASH diet (OD) was a moderate Na, high potassium (K), high calcium (Ca), low-fat diet, specifying a minimum of 3 serves of reduced-fat dairy/d. The high calcium diet (HC) was high in reduced-fat dairy products (at least 4 serves/d), and the low sodium, high potassium diet (LNAHK) had no dairy requirement. Ninety-four participants completed a 4-week OD, and 48 of these also completed a 4-week HC, and 43 a 4-week LNAHK. An average of two 24 hr recalls was used to assess Ca intake at baseline and during each diet.

	% Total daily Ca from food source					Total daily Ca (mg)	Total daily milk (g/d)
	Milk	Yoghurt	Cheese	Other dairy	All dairy		
Baseline (n=94)	25	6	16	5	52	920	177
LNAHK (n=43)	30	7	3	3	44	916	207
OZDASH (n=94)	34	15	8	4	60	1275	330
HC (n=48)	38	22	12	5	76	1778	503

Outcomes - Initially participants consumed an average of 1.7 serves of dairy/d. After dietary education, this intake increased to 2.7 serves/d on OD and 4.5 serves/d on HC ($P < 0.05$). Whilst on LNAHK, participants had an average of 1.4 serves of dairy/d. During OD, participants made up the 3 serves of dairy/d by increasing reduced-fat milk and yoghurt. On HC, participants additionally increased reduced fat cheese (>25% reduction). Milk intake on the LNAHK was maintained, and as instructed participants reduced intake of hard cheese with a high salt content.

Conclusion - A recommendation of 3 serves of dairy/d as part of the OD (total dietary approach) resulted in an average total daily Ca of more than 1200mg/d through an increase in reduced-fat milk and yoghurt. There was no change in total dietary Ca on LNAHK, but a decrease in Ca from dairy products other than milk.

Serum 25-hydroxyvitamin D status of New Zealand adolescents and adults

CM Skeaff, TJ Green

Department of Human Nutrition, University of Otago, Dunedin, New Zealand

Background - Suboptimal vitamin D status has been associated with lower bone mineral density and may increase the risk of osteoporosis later in life. New Zealand adolescents and adults may be at risk of suboptimal vitamin D status because of low vitamin D intakes, decreased sun exposure, and the country's location (35-46°S).

Objective - To determine 25-hydroxyvitamin D concentrations in New Zealand adolescents and adults 15 y or older who participated in the 1997 National Nutrition Survey.

Design - The nationally representative sample was recruited using an area based sampling frame with a three stage stratified design consisting of a selection of primary sampling units (PSU), households within a selected PSU, and a single randomly selected respondent within a household. Serum 25-hydroxyvitamin D concentrations were measured using a radioimmunoassay kit (DiaSorin, MN).

Outcomes - Serum 25-hydroxyvitamin D concentration [geometric mean (95%CI)] of the population (n=3008) was 50 (48, 51) nmol/L. Serum 25-hydroxyvitamin D concentration in Māori (n=379) was 42 (39 to 45) nmol/L; in Pacific People (n=138) it was 37 (33 to 41); and in NZEO (n=2491) it was 51 (49 to 52) nmol/L. Overall, the prevalence of vitamin D deficiency (<17.5 nmol/L) and insufficiency (<37.5 nmol/L) was 3% (2 to 4) and 28% (25 to 30), respectively. The prevalence of vitamin D deficiency was 3% (1 to 5) amongst Māori, 5% (3 to 7) amongst Pacific People, and 3% (2 to 4) amongst NZEO. The prevalence of insufficiency was 41% (34 to 48) amongst Māori, 50% (40 to 60) amongst Pacific People, and 25% (23 to 28) amongst NZEO. Multiple regression analysis revealed that mean Vitamin D concentrations were lower in females [46 (45,48)] than males [51 (49,53) nmol/L], lower in the winter [45 (44, 47) nmol/L] than summer [45 (50, 55) nmol/L] and lower in Māori [41 (38, 44) nmol/L] and Pacific People [36 (33, 41) nmol/L] than NZEO [51 (49, 52) nmol/L].

Conclusions - Serum 25-hydroxyvitamin D concentrations are low in the New Zealand adolescent and adult population. The potential consequences of this lower vitamin D status, particularly amongst Māori and Pacific People, are not clear but should be investigated.

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