

## SUSPECTED CALCIUM DEFICIENCY IN YOUNG ADULT WOMEN

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There is evidence that a dietary calcium intake of less than 600mg per day may result in prolonged negative calcium balance in about 50% of the population (Nordin et al. 1979). We used the food frequency method to assess intake in 100 females aged between 20 and 40 years and measured urine calcium excretion in a 24 hour collection from each. 32 of the subjects also completed a diet diary for a week day and a seek-end day. There was a close correlation between the two estimates of calcium intake in 21 of the 32 cases ( $r = 0.71$ ) though food frequency calcium tended to be higher relative to calcium intake as estimated by diet diary. In the remaining 11 cases, the food frequency calcium was grossly higher than the value obtained by the diary method. A close correlation was found between calcium and energy intake using the food frequency data ( $r = 0.85$ ) but energy intake appeared to be high in approximately one third of cases, implying that this method was over estimating intake. Of the population assessed by food frequency, 11% had dietary calcium levels below 600 mg per day, compared to 44% using the diet diary. With both methods, the frequency distribution of calcium intake showed a bimodal distribution which appeared to result from a sub-population who avoided milk products.

The 24 hour urinary calcium correlated significantly with dietary intake estimated by food frequency ( $P < 0.05$ ) and by diet diary ( $P = 0.001$ ). Urinary calcium also correlated positively with urinary phosphorus ( $P < 0.01$ ), urea ( $P < 0.01$ ) and sodium ( $P < 0.01$ ). The correlation between urinary calcium and urinary phosphorus or urea could be due to an association between calcium and phosphorus or protein in the diet but no such dietary association would be expected in the case of calcium and sodium. It is more likely that a high dietary sodium load leads to increased urinary calcium through the known interaction between these two cations in the renal tubules. The relationship between urinary and dietary calcium tended to be higher in subjects with high urinary sodium levels ( $> 150$  mmol/day) than in those with low urinary sodium levels ( $< 100$  mmol/day) though the differences were not statistically significant.

These data provide further evidence that a significant proportion of the apparently healthy female population takes a low calcium intake (Nordin et al. 1979; NH & MRC 1979; NRC 1980) and the contribution of this to periods of negative calcium balance may be compounded by the dietary sodium load.

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