Letter to the Editor

Dietary calcium intake and bone density

In the January issue of the *British Journal of Nutrition* Ramsdale et al. reported their study on bone density and calcium intake in fifty-six healthy pre-menopausal women. They showed that there was a correlation between calcium intake and bone density at all three femoral sites and at the spine.

In a study of young Chinese women, in whom calcium intake is known to be lower than in western societies, we observed that bone mineral density was higher in those with a calcium intake of 600 mg/day when compared with those with a calcium intake below 300 mg/day (Ho et al. 1994).

It is well known that calcium excretion is dependent on many other dietary factors such as sodium, protein and phosphorus. There is a direct relationship between sodium intake and calcium excretion (Chan et al. 1992). In an experimental model we have shown that a high-salt diet can cause a negative calcium balance and decreased bone mineral content (Chan et al. 1993; Chan & Swaminathan 1993). It has also been shown that a high protein intake causes an increase in calcium excretion (Breslau et al. 1988; Chan & Swaminathan 1994). Furthermore, it was shown that high animal-protein intake was significantly related to hip fracture incidence (Abelow et al. 1992). Therefore, we feel that any study of relationship between calcium intake and bone density should take into account the intakes of sodium, phosphorus and protein. In a recent study of thirty-eight young Caucasian women, Metz et al. (1993) showed that bone density was positively associated with calcium intake (using multiple regression analysis) and negatively associated with protein and phosphorus intakes. In our study we also found a relationship between calcium:protein ratio and bone mineral density (Ho et al. 1994).

It also should be stressed that any recommendation on calcium intake in pre- and post-menopausal women should also consider the intakes of other nutrients such as protein, phosphorus and sodium.

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