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**Dietary acid-base balance and intake of bone-related nutrients in Cambridge teenagers.**

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**OBJECTIVES:**

To evaluate the diet of 16-18-y-old boys and girls with particular reference to intakes of nutrients believed to affect bone health and dietary acid-base balance.

**DESIGN:**

A 7-day food diary was completed between the months of October and December.

**SETTING:**

Cambridge, UK.

**SUBJECTS:**

A total of 111 boys and 101 girls aged 16-18 y who were recruited into the Cambridge Bone Studies.

**MAIN OUTCOME MEASURES:**

Mean daily intakes of foods and selected nutrients (protein, calcium, phosphorus, magnesium, potassium, vitamins C and K) were calculated. Two estimates of acid-base balance were calculated from the diet using the formulae of Remer (net acid excretion, estimated indirectly; NAE(ind)) and Frassetto (protein/potassium ratio).

**RESULTS:**

Mean calcium and phosphorus intakes were above the UK Reference Nutrient intake (RNI). In all, 39% of the boys and 36% of the girls had vitamin K intakes lower than 1 microg/kg body weight/day. Calcium intake was positively correlated with all other nutrients except vitamins C and K. Boys had a significantly higher estimated net acid excretion (NAE(ind)) than girls ( $P < 0.001$ ). Although a strong correlation ( $r = 0.76$ ,  $P < 0.001$ ) was found between the two methods, at higher acid levels a divergence was observed. A significant positive correlation was found between NAE(ind) and the weight consumed per day of milk, cheese, meat and cereal foods and a negative correlation was found with the weight of potatoes and fruit. Diet composition is such that a lower NAE(ind) is accompanied by a lower calcium intake.

**CONCLUSIONS:**

The interpretation of the effects of calcium and other nutrients on bone cannot be considered in isolation from the other components of the diet. These results challenge some of the accepted perceptions about what constitutes an optimal diet for the promotion of bone health in adolescents.