

**Influence of moderate energy restriction and seafood consumption on bone turnover in overweight young adults.** Alice J Lucey *et al.* Am J Clin Nutr 2008;87(4):1045-1052.

**Background:** Overweight and obesity are increasing in young adults. However, moderate energy restriction aimed at lowering body weight may promote bone turnover and bone loss. Inclusion of fish or fish oils in a weight-loss diet may attenuate these adverse skeletal effects. **Objective:** We examined the effects of incorporating fish or fish oil into an energy-restricted diet on bone turnover markers in young overweight adults. **Design:** While following a strict hypoenergetic (–30% relative to estimated requirements) diet for 8 wk, 276 overweight men and women [body mass index (in kg/m<sup>2</sup>): 27.5–32.5; age: 20–40 y] were randomly assigned to 1 of 4 dietary groups: sunflower-oil capsules (3 g/d; control), cod (3 x 150 g/wk), salmon (3 x 150 g/wk), and fish-oil capsules (3 g/d). Body weight, bone biomarkers, and 25-hydroxyvitamin D were measured at baseline and endpoint. Data were analyzed with repeated-measures analysis of variance and general linear models. **Results:** The mean (±SD) weight loss was 5.14 ± 3.0 kg (5.8% ± 3.2% body weight) during the 8 wk in the 4 dietary groups combined. Urinary N-telopeptides of type I collagen and serum C-terminal telopeptide of type I collagen increased ( $P < 0.05$ ), whereas serum osteocalcin (but not bone-specific alkaline phosphatase) decreased ( $P < 0.05$ ) from baseline to endpoint. Increased fish or fish-oil consumption had no effect ( $P > 0.1$ ) on the changes in bone markers induced by weight loss. In contrast, increased salmon consumption increased serum 25-hydroxyvitamin D ( $P < 0.01$ ). **Conclusions:** A nutritionally adequate but energy-restricted diet, with different contents of n–3 fatty acids, which resulted in modest weight loss, unfavorably altered bone turnover markers in young overweight adults. Such changes were not prevented by increased fish or fish-oil consumption. This trial was registered at the US National Library of Medicine as #NCT00315770.

**Vitamin status in morbidly obese patients: a cross-sectional study.** Erlend T Aasheim *et al.* Am J Clin Nutr 2008;87(2):362-369.

**Background:** Morbid obesity is associated with low circulating concentrations of 25-hydroxyvitamin D. Few data on the concentrations of other vitamins in morbidly obese patients are available. **Objective:** The objective was to compare serum and blood vitamin concentrations in morbidly obese patients with those in healthy subjects. **Design:** In 2 public hospital departments (southeast Norway), we prospectively examined 110 consecutive patients (76 women) and 58 healthy controls (30 women) not taking multivitamin supplements. Patients and controls did not differ significantly in age or ethnicity. The mean (±SD) body mass index (in kg/m<sup>2</sup>) was 45 ± 7 in the patients and was 24 ± 3 in the controls. Patients with vitamin concentrations lower than 2 SD below the sex-specific mean in controls were considered to have inadequate vitamin status. **Results:** The morbidly obese women and men had significantly lower concentrations of vitamin B-6, vitamin C, 25-hydroxyvitamin D, and lipid-standardized vitamin E than did the healthy controls ( $P < 0.01$  for each). The status of these vitamins was inadequate in a substantial proportion of the patients (11–38%). The status of vitamins A, B-1, B-2, and B-12 and of folic acid was adequate in most of the patients (95–100%). A moderately elevated C-reactive protein concentration was associated with lower vitamin A, B-6, and C concentrations. In a multiple regression analysis, concentrations of alkaline phosphatase (inverse relation) and vitamin C were the strongest determinants of serum vitamin B-6 concentrations. **Conclusions:** Low concentrations of vitamin B-6, vitamin C, 25-hydroxyvitamin D, and vitamin E adjusted for lipids are prevalent in morbidly obese Norwegian patients seeking weight-loss treatment. **Key Words:** Morbid obesity • body mass index • vitamin deficiency • vitamin B-1 • riboflavin • pyridoxal phosphate • ascorbic acid • retinol •  $\alpha$ -tocopherol • 25-hydroxyvitamin D.