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Lowering dietary protein to U.S. Recommended dietary allowance levels reduces urinary calcium excretion and bone resorption in young women.

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High-protein diets increase calciuria. No previous studies have examined the ad libitum U.S. diet's effect on calciuria or bone resorption.Thirty-nine healthy, premenopausal women consuming ad libitum diets [mean, 1.1 g/kg protein, 819 mg (20.5 mmol) Ca, 1152 mg (37 mmol) P, 129 mmol Na] were switched to isocaloric diets containing the U.S. recommended dietary allowance (RDA) of protein (0.8 g/kg) and similar amounts of calcium, phosphorus, and sodium. Bone resorption and related endpoints were assessed before and 1 wk after the switch. As dietary protein changed from ad libitum to RDA levels, mean urine nitrogen decreased 26% (2.4 g/d; $P < 0.001$) and mean blood urea nitrogen decreased 15% (1.9 mg/dl; $P < 0.001$). Mean urine pH increased from 6.3 to 6.8 ($P < 0.001$), and net renal acid excretion (NRAE = urine ammonium plus titratable acids minus bicarbonate) decreased 68% (21.4 mEq/d; $P < 0.001$). Mean urinary calcium decreased 32% [42 mg (1 mmol)/d; $P < 0.001$], and bone resorption urine N-telopeptides) decreased 17% (74 micromol bovine collagen equivalents/d; $P < 0.001$). Mean serum calcium, PTH, and 1,25 dihydroxy vitamin D remained unchanged. In this 2-wk study, decreasing dietary protein from ad libitum to RDA levels decreased NRAE, calciuria and estimates of bone resorption, suggesting that decreased U.S. protein consumption might reduce bone loss. Inasmuch as other dietary modifications, such as increasing vegetable and fruit intake, can result in sustained reductions in NRAE without reducing protein intake, the advisability of reducing protein intake for skeletal protection from acid attack requires further investigation.