

One-Year Soy Isoflavone Supplementation Prevents Early Postmenopausal Bone Loss but Without a Dose-Dependent Effect

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Abstract

It is believed that soy isoflavone has much potential effectiveness on the postmenopausal status; however, the optimal dose for preventing postmenopausal bone loss still remains unclear. This open-labeled, self-controlled pilot study was undertaken to determine the effect of 1-year supplementation of different high dosages of soy isoflavone in postmenopausal Taiwanese women. Forty-three women aged 45-67 years were enrolled and randomly assigned into a control (C), 100 mg/day isoflavone (IF100) and 200 mg/day isoflavone (IF200) groups for 1 year. Dual-energy X-ray absorptiometry and other related biochemical markers of bone metabolism were measured. Results indicated that the decrease in bone mineral density (BMD) was significant for lumbar vertebrae L1-3, L1-4 and the femur neck in the C group; surprisingly, the BMD of L1-3 was significantly elevated in the IF100 group; however, there were no consistent responses in the IF200 group. No significant change except loss of the bone mineral content of Ward's triangle ($P=.003$) was found in the IF200 group after treatment. The percentage change at L1-3 was less ($P=.04$) in the IF200 group when compared to the IF100 group. A relatively uniform direction of bone formation in expanding the weight and area with different rates of change resulted in different BMD changes. Both indicated a change of bone formation patterns with the higher-dose supplement. A protective effect of IF100 on estrogen-related bone loss was observed. A lack of a benefit such as high safety in the IF200 group for 1-year administration was ensured and lacked undesirable side effects.