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The Effect of Isoflavones on Bone Mass and Bone Remodelling Markers in Postmenopausal Women

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Abstract: Aim: Recently, isoflavones have attracted attention for their potential roles in the prevention and treatment of estrogen-related osteoporosis. However, the optimal dosage and the components responsible for the favorable effects of isoflavones on bone in humans are still unclear. This study aims to investigate the effect of low-dose isoflavones on bone mineral density (BMD) and on biochemical markers of bone turnover in early postmenopausal women. Materials and Methods: Ninety participants between 42-59 years of age were randomly assigned to receive twice a day either isoflavone tablet (n:45) that provided 29.8 mg genistein, 7.8 mg daidzein, and 2.4 mg glycitein per tablet or placebo tablets (n:45) containing 250 mg starch. BMD was measured both in lumbar spine and hip, and bone biomarkers of serum osteocalcin, serum alkaline phosphatase (ALP) and serum C-terminal telopeptide (CTX) were measured at baseline and after six months of therapy at the end of the study. Results: Isoflavone treatment after six months significantly increased BMD of L2-4 T score (+19%, p=0.000) and Ward triangle T score (+20%, p=0.000); femur neck T score (+4%, p=0.06) was also increased but this change did not reach a level of statistical significance. Serum CTX level (-25%, p=0.047) decreased in the isoflavone group, while osteocalcin (-8.3%, p=0.23) and ALP levels (+ 4.5%, p=0.43) showed no change. Conclusions: Isoflavone increases BMD of L2-4 and Ward triangle T scores at a dosage of 59.6 mg genistein with 15.6 mg daidzein and reduces bone resorption in early postmenopausal women.

Key Words: Isoflavone, genistein, bone mineral density, osteocalcin, serum C-terminal telopeptides

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