

Effect of soy protein on bone markers in osteopenic menopause women

Haghighian Roudsari A. (M.Sc.)¹, Tahbaz F. (Ph.D.)², Arjmandi B. (Ph.D.)², Larijani B. (M.D.)³, Kimiagar M. (Ph.D.)⁴.

1- M.Sc. in Nutrition, Food industry and Nutrition Faculty, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

2- Assistant Professor, Food industry and Nutrition Faculty, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

3- Professor, Endocrinology and Metabolism Research Center (EMRC), Tehran University of Medical Sciences, Tehran, Iran.

4- Professor, Food industry and Nutrition Faculty, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

Abstract

Introduction: Bone mass loss is one of the most common menopausal symptoms resulting from cessation of estrogen production. Compounds with estrogen- like biological activity similar to “Isoflavones” present in plants especially Soy, may reduce bone loss in postmenopausal women as they are similar in structure to estrogens. This study ,therefore, was undertaken to assess the effect of soy protein on bone metabolism biomarkers in postmenopausal women with osteopenia.

Materials and Methods: In this “before and after” clinical trial, on 15 postmenopausal women with osteopenia, between 45 to 64 years of age , the subjects were asked to consume 35 gram/day of Soy protein for 12 weeks. Blood and urine samples, were taken at 0,6 and 12 weeks of the study. Anthropometric measurements and a 2-day dietary recall were done at the baseline of the study, and at the 6 and 12 weeks. The food consumption data were analyzed by “Food Processor” software. Repeated measurement analysis was done to determine the changes in biochemical indices, anthropometric and dietary data. P-values less than 0.05 were considered as significant.

Results: Comparison of weights, BMIs, physical activity and dietary intake of subjects during the study did not show any significant differences. Soy protein consumption, showed significant reductions in urinary deoxypyridinoline (biochemical marker of bone resorption) and significant increase in serum total alkaline phosphatase (biochemical marker of bone formation). There were no significant differences in serum osteocalcin, C- telopeptide, insulin- like growth factor binding protein 3 (IGFBP3) and type-I- collagen telopeptide.

Conclusion: Considering the beneficial effects of Soy protein consumption on bone metabolism biomarkers, inclusion of this inexpensive and available food item in postmenopausal women diet, may reduce bone loss and could be recommended for the prevention of osteoporosis.

Key Words: Soy protein, Isoflavones, Postmenopausal women, Bone metabolism markers, and Osteopenia.

Corresponding Address: Dr. Larijani B., Endocrinology and Metabolism Research Center (EMRC), Fifth floor, Shariati Hospital, North Garegar Street, Tehran, Iran.

E mail: emrc@sina.tums.ac.ir