Summary

Daily consumption of 50 g of dried plum (equivalent to 5–6 dried plums) for 6 months may be as effective as 100 g of dried plum in preventing bone loss in older, osteopenic postmenopausal women. To some extent, these results may be attributed to the inhibition of bone resorption with the concurrent maintenance of bone formation.

Introduction

The objective of our current study was to examine the possible dose-dependent effects of dried plum in preventing bone loss in older osteopenic postmenopausal women.

Methods

Forty-eight osteopenic women (65–79 years old) were randomly assigned into one of three treatment groups for 6 months: (1) 50 g of dried plum; (2) 100 g of dried plum; and (3) control. Total body, hip, and lumbar bone mineral density (BMD) were evaluated at baseline and 6 months using dual-energy X-ray absorptiometry. Blood biomarkers including bone-specific alkaline phosphatase (BAP), tartrate-resistant acid phosphatase (TRAP-5b), high-sensitivity C-reactive protein (hs-CRP), insulin-like growth factor-1 (IGF-1), and sclerostin were measured at baseline, 3 months, and 6 months. Osteoprotegerin (OPG), receptor activator of nuclear factor kappa-B ligand (RANKL), calcium, phosphorous, and vitamin D were measured at baseline and 6 months.

Results

Both doses of dried plum were able to prevent the loss of total body BMD compared with that of the control group (*P* < 0.05). TRAP-5b, a marker of bone resorption, decreased at 3 months and this was sustained at 6 months in both 50 and 100 g dried plum groups (*P* < 0.01 and *P* < 0.04, respectively). Although there were no significant changes in BAP for either of the dried plum groups, the BAP/TRAP-5b ratio was significantly (*P* < 0.05) greater at 6 months in both dried plum groups whereas there were no changes in the control group.

Conclusions

These results confirm the ability of dried plum to prevent the loss of total body BMD in older osteopenic postmenopausal women and suggest that a lower dose of dried plum (i.e., 50 g) may be as effective as 100 g of dried plum in preventing bone loss in older, osteopenic postmenopausal women. This may be due, in part, to the ability of dried plums to inhibit bone resorption. This clinical trial was registered at ClinicalTrials.gov: [NCT02325895](http://www.clinicaltrials.gov/NCT02325895).