

### The Short-Term Effects of Prunes in Preventing Inflammation and Improving Indices of Bone Health in Osteopenic Men

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**Objectives:** Osteoporosis is a public health concern for both women and men. Chronic inflammation contributes to bone loss; therefore, foods rich in antioxidants, such as prunes, are of great interest. Previously, dietary intervention with prunes has been shown to prevent orchidectomy-induced decreases in BMD, microstructure, and biomechanics in male rats; however, there is a need for this to be studied in a clinical setting in adult males.

**Methods:** Thirty-five men between the ages of 55 and 80 with moderate bone loss were included. The men were randomized into one of three groups: 100 g prunes daily, 50 g prunes daily, or control group. All three groups also consumed a multivitamin containing 450 mg calcium and 800 IU vitamin D. Serum samples from the baseline and three-month time points were analyzed for biomarkers of bone turnover, inflammation, and oxidative stress.

**Results:** After three months, daily consumption of 100 g prunes was associated with a significant decrease in serum concentrations of osteocalcin ( $P < 0.001$ ). Consumption of 50 g of prunes was associated with significant decreases in systolic blood pressure, and serum osteocalcin concentrations ( $P = 0.040$ ), and an increase in the OPG: RANKL ratio ( $P = 0.041$ ). There were also significant decreases in systolic blood pressure, OPG ( $P = 0.004$ ), RANKL ( $P = 0.010$ ), and osteocalcin ( $P = 0.049$ ) in control group. There was a significant group\*time effect for changes in OPG ( $P = 0.019$ ) and the OPG: RANKL ratio ( $P = 0.029$ ).

**Conclusions:** Decreases in osteocalcin indicate a decrease in bone turnover, and a higher OPG: RANKL ratio indicates that more RANKL is bound to OPG, and not to osteoclasts, thus downregulating osteoclast activity. Therefore, regular consumption of either 100 g or 50 g dried plum for three months may make some contributions to bone formation and bone turnover activity, and minimal contribution to decreasing inflammation and improving bone density and quality.

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