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**Puerariae radix prevents bone loss in ovariectomized mice.**

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Puerariae radix (PR), the root of *Pueraria lobata* (Willd.) Ohwi, a wild creeper leguminous plant, is one of the earliest and most important crude herbs used in Chinese medicine for various medicinal purposes. PR contains a high amount of isoflavonoids such as daidzein and genistein, which are known to prevent bone loss induced by estrogen deficiency. We have demonstrated that soybean isoflavones prevent bone loss in an osteoporotic animal model. To examine the possible role of PR in bone metabolism, female mice were ovariectomized (OVX), and some OVX mice were fed a diet containing low, middle, and high doses (5%, 10%, and 20% of diet, respectively) of PR for 4 weeks. In OVX mice, the uterine weight declined, and intake of PR at any dose did not affect uterine weight. The total femoral bone mineral density (BMD) was significantly reduced by OVX, and the decrease in BMD caused by OVX was significantly inhibited by intake of the diet with the low dose of PR and completely prevented by the middle dose of PR. Histological analysis of the femoral metaphysis showed that intake of the diet with the middle dose of PR completely prevented decrease in trabecular bone volume (BV/TV) and trabecular thickness (Tb.Th) and restored the increase in trabecular separation (Tb.Sp) in OVX mice. In contrast, intake of the diet with the high dose of PR further increased BV/TV and Tb.Th and decreased Tb.Sp in OVX mice compared with that in the sham-operated mice. These results suggest that PR may represent a potential alternative medicine for hormone replacement therapy (HRT) in the prevention of osteoporosis in postmenopausal women.