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Role of oil extract of garlic (*Allium sativum* Linn.) on intestinal transference of calcium and its possible correlation with preservation of skeletal health in an ovariectomized rat model of osteoporosis.

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The present study was undertaken to examine the effects of an oil extract of garlic on the in vivo intestinal transference of calcium, and also to verify its role in maintaining the bone mineral content and bone tensile strength in an ovariectomized rat model of osteoporosis. The results suggest that, in this experimental model, oil extract of garlic promotes intestinal transference of calcium by modulating the activities of both intestinal alkaline phosphatase and Ca(2+) activated ATPase. Also the observed low bone mineral content and low bone tensile strength in these rats were significantly restored by garlic oil supplementation. Further, garlic oil supplementation was able to revive partially the bilateral ovariectomy-induced decrease in the serum estrogen titer. The serum parathyroid hormone level, however, was found unaltered in these rats. The garlic oil supplemented partial recovery in serum estrogen titer in bilaterally ovariectomized rat was found to be persistently associated with enhanced calcium transference and better preservation of bone mineral content. The results of this study propose that the phytoestrogenic efficacy of an oil extract of garlic prevents ovarian hormone deficiency induced bone mineral loss possibly by promoting intestinal transference of calcium through the partial revival of the serum estrogen titer. Copyright 2006 John Wiley & Sons, Ltd.

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Prevention of bone loss by oil extract of garlic (*Allium sativum* Linn.) in an ovariectomized rat model of osteoporosis.

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The effects of oil extract of garlic (*Allium sativum* Linn.) on different primary and secondary osteoporotic marker changes were tested in an ovariectomized rat model of osteoporosis. Experiments were performed on three different rat models: sham-operated control, ovariectomized and ovariectomized supplemented with garlic oil. In ovariectomized group, there has been a significant increase in different relative organ weights compared to sham-operated control, while the uterine weight was found to be decreased. Supplementation with oil extract of garlic could effectively reverse these changes. Also low bone densities that developed in the ovariectomized group were significantly recovered in the garlic oil supplemented group. In our study, the development of high rate of bone turnover and osteoporosis in the ovariectomized animals were confirmed by significant alteration of serum alkaline phosphatase activity, serum tartrate resistant acid phosphatase activity, urinary excretion of calcium, phosphate, hydroxyproline and urinary calcium to creatinine ratio, when compared with the sham-operated control group. Garlic oil extract supplementation, apart from its unique influence in lowering blood cholesterol, could also prevent ovariectomy-induced rise in all the above-mentioned marker changes. The results of this study emphasize that oil extract of garlic possibly has a positive role in suppressing ovariectomy-induced bone resorption. Copyright 2004 John Wiley & Sons, Ltd.

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