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Effects of ENA-Actimineral Resources on the Restoration of Bone Mass and Bone Quality in Ovariectomized Rats

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To evaluate the effect of ENA-actimineral resources (ENA) on the restoring the bone mass and bone quality in ovariectomized rats. Three-months-old Wistar rats were divided randomly into 4 groups: ovariectomized (OVX) (Vehicle control), OVX plus 0.5% ENA (0.5% ENA), OVX plus 5% ENA (5% ENA) and OVX plus 10% ENA (10% ENA). Treatment initiated from the day after operation and continued for 7 weeks or 12 weeks. Bone morphology and serum biomarkers were analyzed. The data showed that the trabecular bone massin ENA treated group appeared more thick and increased than control group. The connectivity between trabecula was increased and the structure ordered. The adipocyte of bone marrow decreased in ENA treated groups compared with control group. After treatment with ENA, these effects were remarkably by dose-dependent degree, moreover bone mass was reached to the normal face. The data of pyridinoline which is type collagen I cross-linking molecule demonstrated that ENA treatment significantly ($p<0.01$) decreased bone resorption activity. The activity of serum estradiol increased significantly ($p<0.05$) in serum biochemistry. In addition, the increases of serum osteocalcin and serum pyridinoline levels caused by ovariectomy were all significantly suppressed by ENA. These results suggest that treatment of ovariectomized rats with ENA can not only inhibit bone resorption but alsoimprove the bone structure.

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