

## Anti-Osteoporotic Effect of Deer Antler in Ovariectomized Rats

**Authors :** Hye Kyung Kim, Myung-Gyou Kim, Kang-Hyun Leem

**Abstract :** The deer velvet antler is well known for its traditional medicinal value and is widely used in the clinic. It has been considered to possess bone-strengthening activity. The goal of this study was to investigate the anti-osteoporotic effect of deer antler velvet on ovariectomized rats (OVX), and their possible mechanism of the action. In the first step, the in vitro effects of DAE on bone loss were determined. The proliferation, collagen content and alkaline phosphatase (ALP) activity of human osteoblastic MG-63 cells and osteoclastogenesis from bone marrow-derived precursor cells were measured. The in vivo experiment confirmed the positive effect of DAE on bone tissue. 3-month old female Sparague-Dawley rats were either sham operated or OVX, and administered DAE (20 and 100 mg/kg) for 4 weeks. DAE increased MG-63 cell proliferation and ALP activity in a dose-dependent manner. Collagen content was also increased by DAE treatment. However, the effect of DAE on bone resorption was not observed. OVX rats supplemented with DAE showed osteoprotective effects as the bone ALP level was increased and c-terminal telopeptide level was decreased by 100 mg/kg DAE treatment compared with OVX controls. Moreover, the tartrate-resistant acid phosphatase-5b level was also decreased by DAE treatment. The present study suggests that DAE is effective in preventing bone loss in OVX rats, and may be potential therapeutic agents for the treatment of postmenopausal osteoporosis.

**Keywords :** bone ALP, c-terminal telopeptide, deer antler, osteoporosis, ovariectomy, tartrate-resistant acid phosphatase-5b

**Conference Title :** ICNG 2016 : International Conference on Nutrition and Growth

**Conference Location :** Venice, Italy

**Conference Dates :** July 18-19, 2016