

## Research Articles - Osteoporosis

### Osteoporosis: Velvet Antler May Help Maintain Bone Density

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A condition related to arthritis and characterized by the progressive loss of bone density and the thinning of bone tissue, osteoporosis is considered a major public threat for more than 28 million Americans, 80 percent of whom are women. Ten million Americans already suffer from the disease, while an additional 18 million have been diagnosed with low bone mass. It is estimated that one in two women and one in eight men over the age of 50 will have at least one osteoporosis-related fracture in their lifetime.

In order to understand osteoporosis, it is first necessary to recognize how the body regulates calcium levels and maintains mineral levels in the blood through a cycle of breaking down and building up bones. Bones are broken down by osteoclasts during a process called "resorption," releasing minerals and proteins into the bloodstream. Osteoblasts then rebuild new bone by secreting a protein matrix featuring collagen, the body's most common protein and a major participant in the formation of connective tissue and bones. This mechanism functions constantly, but when it goes awry and the body fails to form enough new bone, or too much old bone is reabsorbed, osteoporosis can result.

Some researchers believe that velvet antler may have the ability to rebuild bone in people with this degenerative disease. A study on the use of velvet antler in patients with osteoporosis is currently underway at the University of Alberta (Canada). — Antlers are regenerative — they are grown each spring and cast in late winter, only to be replaced the following spring by the same natural process. Velvet antler, rich in calcium and phosphates, is an extremely fast-growing tissue comprised of fibroblasts, chondroblasts, and chondrocytes, required for healthy growing bones and tissue.

Because collagen (a natural ingredient in velvet antler dietary supplements) plays such an integral role in forming connective tissue and bone, researchers note that supplementation of pharmaceutical-grade collagen hydrolysate (PCH) may have a beneficial effect on cartilage metabolism (*Semin Arthr and Rheum*; 30(2):87-99, 2000)

At the 2000 International Symposium on Antler Science and Product Technology, Dr. Gregory Mundy of the University of Texas Health Science Center, San Antonio, Texas, reported on his research with velvet antler and osteoporosis. Mundy stated that antler growth represents the most rapid bone formation in the animal kingdom. He noted that velvet antler could be a promising agent for increasing bone mass.

In the July 2001 issue of *Vitamin Retailer Magazine*, Liz Brown writes about velvet antler in an article entitled "Bricks & Mortar of Osteoporosis Prevention." Brown states, "Since bone is constantly remodeled throughout life with the help of osteoblasts (which form bone), and osteoclasts (responsible for breaking down bone), optimal nutrition ensures that these processes maintain a healthy balance." The article reviews research results supporting the value of supplements in bone health. Among these are calcium; vitamins D, C, & K; isoflavones; ipriflavone; and velvet antler. Liz writes that although velvet antler is a relatively new ingredient being studied for bone health, researchers have concluded that fracture healing is accelerated by velvet antler. In a 1999 study published in *Chung Kuo Yao Li Hsuch, Pao*, rats injected with velvet antler had a higher rate of healing than that of the control group.

Ahn et al (1994) studied the effects of administration of a water extract of velvet antler to rats in which ovaries had been removed. This work showed that ovariectomized rats treated with velvet antler retained more mineralized bone than control ovariectomized rats which were not treated with velvet. In a follow-up study, also using a water extract of velvet antler, bone density was measured in ovary intact control rats, and rats which had been ovariectomized and treated orally with either velvet antler or saline (Shim and Ahn 1999). The velvet antler effectively maintained bone density after ovariectomy at a level close to that of the ovary intact control rats. In contrast, bone density fell in the ovariectomized rats which were not treated with velvet.

Velvet antler does not contain appreciable amounts of estrogen. Therefore, post menopausal women in whom hormone replacement therapy is contraindicated can take advantage of this opportunity to protect their skeletons against osteoporosis.

