

## **Osteoporosis/Bone Restoration and The Related Nutritional Deficiencies and Nutritional Support**

Low bone density and resulting bone fractures result in more deaths among women than ovarian and breast cancer combined, and result in more deaths among men than prostate cancer. If you have or are at risk for developing porous and brittle bones, don't despair. Bone is actually a highly complex and dynamic living tissue and remodels and regenerates 24 hours a day.

Mineralization of our bone matrix is essential to living a healthy life. **99% of the body's calcium is contained in the bones and teeth.** Calcium creates two thirds of the bones weight, with the remainder of weight coming from water. Bone cells called osteoblasts produce 85% of the collagen contained in the bone from which hydroxyapatite is created as a crystal-like matrix. In fact, it is this protein matrix that is much more essential to the health of the bone than the calcium that most everyone is aware of.

The remaining 1% of calcium is involved in multiple body system functions, one of which is acid buffering mechanisms that assist in keeping the pH in neutral range. This is important because if our lifestyles are too acidizing, the body will attempt to neutralize the acid by dumping calcium from bone stores into the blood. Ultimately acid excess over long periods of time contributes to demineralization and thus osteoporosis. There are graduated states of bone demineralization, the first of which is called osteopenia, defined as a reduced bone matrix up to 2.5 standard deviations below normal. Osteoporosis is defined as demineralization in excess of 2.5 standard deviations.

Studies show that complete bone remodeling occurs in less than ten years, and that while bone growth halts after puberty, there continues to be a balance between bone build up and bone breakdown. In test rats a variation of just .2 pH reduction caused a 500-900% loss of calcium from the rat bone. Human studies show that venous blood pH reduction from 7.37 to 7.33 resulted in significant calcium release from bone. Contrary to popular belief, loss of bone density is not so much a calcium problem as it is an acidic problem. In fact, if lack of calcium alone were the problem, Americans would have the strongest bones on the planet because we consume more dairy products than 95 percent of the world! We also take more calcium supplements than any other culture, but we head the list for fractures and brittle bones.

Similarly, some studies have found an increased – not decreased – risk of fractures in people with high milk intake: In a twelve year study by the Harvard Medical School which involved over 120,000 women throughout the United States, it

was found that women who drank two or more glasses of milk per day actually had a 45 percent higher risk of hip fractures and a 5 percent higher risk of forearm fractures than women who drank less milk.

Very few people realize that excess body acidity is a primary cause of porous and brittle bones. There are many things that can make the body too acidic – acid-producing foods, including meats and dairy products, alcohol, and not getting enough sleep.

**The message clearly is that as we keep our acidity balanced by limiting acidic foods, the worst of which is sugar and sugar-forming foods like starches, we in turn spare the bone to keep its stores of calcium.** As well, we realize that proper protein metabolism is required for bone health. So, eating a good and regular supply of protein can contribute to bone health.

Currently osteoporosis and its related problems have become the third leading health issue and expense. If you've been diagnosed with osteoporosis or osteopenia, it is likely that your physician has recommended or prescribed Fosamax, Actonel, or another one of the family of drugs called biphosphonates. This is the typical, front-line response that conventional medicine uses to address bone health.

Unfortunately, there are some significant downsides to using these drugs, but even more importantly, they don't really work, not in the long run. Bone is made up of osteoblasts, which is new bone tissue, and osteoclasts, which are cells, meant to replace aging, stressed or damaged bone tissue. The biphosphonate drugs block the action of the osteoclasts, which means that the old, damaged bone cells are no longer removed. So even though studies show that bone density increases when using these drugs, the bones are not made up of healthy new bone cells but of the sick and damaged old bone cells, which ultimately results in bones that are more susceptible to fractures, not less, as the years go by.

It is relatively easy to balance the underlying causes of osteoporosis with proper nutrition and dietary support. Also bone grows in response to mechanical stress. This is called Wolf's Law, and dictates that we should do weight-bearing exercise as another way to promote healthy bone growth. If we consider the principle of bone growth and health and modify our lifestyle with these principles, osteoporosis no longer needs to be devastating for so many people.

**The time to get started on changing your bone density is...today!**