



## **Osteoporosis, More Serious Than you Think!**

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### **The Impact**

According to the U.S. Surgeon General, half of all women older than 50 will break a bone due to osteoporosis. But women are not alone as one in four men will have a similar fate. Of the ten million Americans with osteoporosis, two million are men. In total osteoporosis results in 1.5 million fractures annually and is the most common bone disease in humans. Osteoporosis is a weakening of bone due to decreased bone mineral density which leads to easily breakable bones. Fractures from osteoporosis usually occur in the hip, spine or wrist.

An osteoporotic fracture may have devastating consequences. Up to 20% of patients who sustain a hip fracture will die within one year due to complications of the fracture itself or from complications arising after the surgery. Permanent loss of mobility including an inability to walk alone or maneuver well occurs in over 50% of patients who suffer a hip fracture.

Normally bone functions to give support, protection and mobility to the body. Bone is made of the protein, collagen and mineral crystals of calcium-phosphate, and nourished by blood vessels. Think of bone as living, dynamic tissue that adapts to physical stresses. Osteoporosis develops when disease, nutritional deficiency or metabolic disorder results in an increased rate of bone loss compared to bone growth. You should know that osteoporosis is not only treatable but is preventable.

### **Early Prevention**

The most important time to start thinking about your bone health is when you are growing up. This is because our peak bone mass is acquired in our twenties. The more bone density you achieve then, the more protection you have from osteoporosis later. Weight-bearing and resistance exercise in the presence of a well-balanced whole foods diet and adequate calcium and vitamin D3 are by far the most important measures for achieving peak bone mass. Soda pop consumption has been associated with negative effects on bone mineral density. It is believed the high phosphorus content of soda results in the excretion of calcium from bone. Soda drinking amongst teenage girls is especially troubling in that this soda may impair her chances of attaining peak bone mass. Excess red meat is believed to have the same effect.

### **How do I know if I have osteoporosis?**

It is easy to have osteoporosis and not know it. In some instances it is diagnosed only after a fracture occurs. Therefore, know if you are at risk. If you are female, of small frame, or are

of Asian or Caucasian descent or if a family member has osteoporosis or suffered fractures of the hip or spine due to osteoporotic bones you're at increased risk. Further, if you have lost height with age you may already suffer from osteoporosis. The single best test to determine bone mineral density is the dual energy x-ray absorptiometry, better known as the DEXA scan. The North American Menopause Society recommends screening for all women aged 65 years or older. Women with risk factors for osteoporosis or evidence of bone loss should be screened at younger ages. Ask your doctor if you should have a DEXA scan.

### **What to do if you have Osteoporosis**

If you've been diagnosed with osteoporosis the first step is to make sure it is not caused by conditions such as an overactive thyroid or parathyroid gland, cancer, or a genetic disorder. Steroid use for asthma or autoimmune disease may result in osteoporosis also. If taking steroids insure you are not doing so unnecessarily and investigate safer options. If steroids are necessary insure that you are taking the lowest dose required. Avoid cigarette smoking and excess alcohol which both contribute to poor bone mineral density. Improving your nutrition goes a long way in improving bone health. In fact nutritional deficiencies in calcium, phosphorus, and vitamin D3 reflect poorly in bone health. Eat a well balanced whole foods diet to ensure optimal amounts of these nutrients.

### **Exercise builds bone**

Regular exercise not only positively influences peak bone mass during pubertal years but also results in delayed bone loss in later years. High impact activity such as jogging, stair climbing, and weight resistance training appears to be the most valuable form of activity for building bone. As little as one hour three times weekly results in increased bone mass in post-menopausal women.

### **Nutritional Factors**

#### **Calcium**

Approximately 65% of bone is made of bone mineral. Calcium and phosphorus make up the majority of this bone mineral. Supplementation with calcium in women over 65 is associated not only with a decreased rate of bone loss but also decreased occurrence of osteoporotic fractures. Take the recommended daily amount of calcium for your age.

#### **Vitamin D3**

Vitamin D3 functions as much like a hormone as a vitamin. It most notably increases the intestinal absorption of calcium and plays a major role in calcium balance. Individuals with impaired intestinal absorption of dietary fats coupled with decreased sun exposure, both common in older populations, results in vitamin D3 deficiency. Vitamin D3 deficiency is associated with decreased bone mineral density of both the hip and spine. Supplementation with vitamin D3 has been shown to not only decrease fracture risk by 60% but also to increase bone mineral density. Lastly, vitamin D3 has been proven in five clinical trials to decrease the risk of falls in persons over the age of 60. Less falls means fewer broken bones.

#### **Vitamin K**

Osteocalcin is an important bone protein which anchors calcium molecules into the bone matrix. Vitamin K acts to synthesize and activate osteocalcin. It also helps decrease excess calcium losses. Studies of patients with hip fractures reveal a corresponding low level of vitamin K. Primary sources of vitamin K include green vegetables such as spinach,

cabbage, broccoli, and spinach. Discuss vitamin K with your doctor if you take a blood thinner.

### **Decrease Fall Risk**

As important is exercise, nutrition and in some cases medication to improving bone mass, fall risk assessment and prevention should be performed by anyone with osteoporosis. Improving your level of fitness decreases your overall risk of falls. Also, things in the home environment can create obstacles to safe maneuvering and can create falls. Remove things that can easily be tripped over such as throw rugs, carpet liners, and floor clutter. Make sure frequently used items are easy to access and not stored high. Have hand rails in good repair and have grab bars installed in bathrooms or other precarious places if you have difficulty maneuvering. Install night lights in rooms and hallways well traveled for good visualization and sure footing.

The benefits of exercise in bone health are shown to translate to decrease falls. Tai chi has specifically been proven to markedly decrease fall risk by improving balance.

Certain medications and taking several medications at the same time increase the risk of falls, particularly in older adults. Medication classes most problematic are sedatives, muscle relaxants, blood pressure medications, narcotic pain medications, and some prostate medications. Careful monitoring of these medications are required if they can not be discontinued.

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