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## Boning Up On Osteoporosis

by Raymond Francis

Osteoporosis is a man-made disease that should never happen. In short, it's entirely preventable and treatable, but look at what's happening. The United States has one of the highest osteoporosis rates in the world. Osteoporosis kills more women every year than cancer of the breast, cervix, and uterus combined. Twenty-five million Americans have been diagnosed with osteoporosis, and it has been estimated that nine out of ten Americans have bone densities that are less than optimal. Even young, professional athletes have their careers cut short by osteoporosis. It doesn't have to be this way!

Osteoporosis literally means "porous bones." Bones lose mass, weaken, and become susceptible to fracture. This disease is a widespread, silent, symptomless condition, affecting both men and women, with potentially devastating consequences.

Americans suffer more than 1.5 million fractures every year from osteoporosis. Over 280,000 of those are hip fractures. Twenty five percent of these people will never walk again unassisted, 25% will end up in nursing homes, and 25% will die within three months of conditions related to the fracture, as did the late Eva Gabor. Like all other chronic degenerative diseases, osteoporosis is extremely rare among native populations that eat traditional plant-based diets.

If for some weird reason you want to get osteoporosis, anyone can do it if they are willing to invest a lot of time and money. Osteoporosis doesn't come cheaply or quickly. You have to purchase expensive ingredients, like meat, dairy, and soft drinks, and have the patience to stick with the program. It's not easy to make a human being sick.

Bone is a living tissue. It grows, it mends, and it renews itself throughout life. As old bone is reabsorbed and new bone formed, we replace about 20% of our bone mass every year. Normally we lose some bone mass as we grow older, but if we build strong bones in our youth, the losses won't matter. Osteoporosis happens when this loss is accelerated, and too much bone is lost or too little new bone is formed. To accelerate bone loss, here's how to do it:

Eat a diet that is high in meat, dairy, sugar, salt, phosphorous, and caffeine, and low in fresh vegetables and whole grains. Then don't get a lot of exercise. In other words, do what most people do. Let's look at some of the things that cause bone loss. **Meat** causes bone loss. Americans eat far too much protein, and about 70% of our protein is from animal sources. We consume about 100 grams/day, which is much more than what we need. Healthy populations eat 20-42 grams/day, and less than 10% of that is animal protein. The rest is plant protein, which is fundamentally different. Animal protein metabolizes in our bodies to strong acids, namely sulfuric and phosphoric acids. To neutralize these acids, our bodies use up calcium from our bones. In fact, if you eat a diet high in animal protein it doesn't matter how much calcium you consume, you will still lose bone mass. Alaskan Eskimos have the highest osteoporosis rate in the world because they eat twice as much protein as we do, and it's all animal protein. They also consume more than twice as much calcium as we do, but it doesn't help. The excessive protein is the key.

**Dairy** is another contributor to bone loss. Americans are only 4% of the world's population, but we consume more dairy than the other 96% put together. If milk were good for our bones, we would have the strongest bones in the world. Instead we have some of the weakest bones in the world. Cow milk has four times the calcium of human milk, yet we absorb more calcium from human milk. The calcium in cow

milk is not bioavailable to us. In addition cow milk is high in protein which strips the calcium out of our bones. Cow milk is also low in magnesium, which is necessary for using calcium. As a result of these and other factors, and contrary to popular belief, dairy promotes bone loss. Feeding milk to children can result in weaker bones later in life.

Refined **sugar** also promotes bone loss. The average American consumes about 150 pounds of refined sugar per year, which is sufficient to do a lot of bone damage. Sugar is absorbed quickly and sharply increases our cellular glucose levels. Cellular glucose increases, but the oxygen in the cell doesn't increase and this causes incomplete oxidation of the sugar. Partial oxidation forms acids and the acids strip calcium from our bones. Sugar also causes losses of magnesium, which is necessary for bone formation.

**Salt** contributes to bone loss. Americans eat an excessive amount of salt. Many people consume 8,000 to 10,000 mg of sodium per day. Our ancestors consumed about 700 mg per day. Every 2,000 mg of sodium consumed causes a loss of 23 mg of calcium in the urine. Unless these losses are replaced, an intake of 5,000 mg of sodium per day can cause a loss of 2.5% of your skeleton every year, which calculates to 25% lost in 10 years.

Excessive **phosphorous** causes bone loss by reacting with the calcium to form an insoluble compound thus inhibiting absorption of calcium from the digestive system. Phosphorous also causes calcium losses from bone by metabolizing to phosphoric acid, which has to be neutralized with calcium. Excessive phosphorous is contained in animal protein and in soft drinks, especially colas, which have phosphoric acid added as an ingredient.

**Caffeine, smoking, excessive alcohol, steroids, and lack of exercise also contribute to bone loss.** The sedentary lifestyle that most Americans lead increases the rate of both urinary and fecal calcium losses. Exercise, especially weight bearing exercise, will actually increase bone mass and reverse bone loss. A three-year study of older women at the University of Wisconsin showed that a control group of sedentary women lost 3% of bone density while the exercise group gained 2%.

Bone loss is one mechanism for osteoporosis. Another is insufficient formation of new bone. Shortages of critical vitamins and minerals will inhibit this process.

Calcium is the central ingredient. Americans get an average of 1,143 mg/day. The recommended amount is 1,000-1,500 mg/day. However, our healthy ancestors consumed only 300-600 mg/day. The problem is Americans lose an average of 320 mg/day in the urine. Because of our bad diets, we actually lose more calcium than some of our healthy ancestors were eating. Calcium absorption is only 20-40% efficient and requires an acidic environment which many of our older people lack. If you lose 320 mg/day and absorb at the 20% rate, you will need 1,600 mg/day just to keep up with your losses. Our average intake of 1,143 mg/day is insufficient. Obviously, the thing to do is cut the losses and increase the consumption of bioavailable calcium. The best sources of calcium are green vegetables like broccoli, chard, and kale, and whole grains and beans.

It is impossible to build bone without magnesium. Magnesium is necessary for numerous bone-related reactions including the conversion of vitamin D to its bioactive form, which is necessary for calcium absorption. Several studies have shown that about 80% of the American population get only two-thirds of the RDA of magnesium. On top of that, the RDA is known to be too low.

Vitamin D is the main regulator of intestinal calcium absorption. A lot of older people don't get enough vitamin D because they tend to stay out of the sun. Vitamin D must be converted to its bioactive form and this requires both magnesium and boron.

Manganese is required for bone mineralization and for synthesis of the organic matrix on which calcification takes place. A study reported in Science News found that osteoporotic women had serum manganese levels of only 25% that of the controls.

Folic acid is part of the osteoporosis puzzle, yet the typical diet contains only half the RDA for folic acid. Vitamin K is also essential. A study in Clinical Endocrinology found that vitamin K supplementation reduced urinary calcium losses in osteoporosis patients by 18 to 50%. Zinc is also an essential player, but a survey in the Journal of the American Dietary Association found that 68% of adults consume less than two-thirds of the RDA for zinc.

Vitamin B6, vitamin C, strontium, silicon, and other nutrients also play important roles. As you can see, calcium metabolism is very complex and requires adequate amounts of many nutrients. To prevent and successfully treat osteoporosis you first have to reduce calcium losses. This means cutting down on meat and dairy. Keep your protein intake to 1.5 to 2 ounces a day, and less than 10% of that should be animal protein. Drastically reduce your intake of sugar, salt, phosphorous, and caffeine. Secondly, you have to consume the right amounts of nutrients that support formation of new bone such as calcium, magnesium, manganese, boron, vitamin D, and so forth.

The best way to accomplish all this is to eat a plant-based diet consisting of a variety of fresh, unprocessed, organic vegetables, whole grains, and beans. Take high quality nutritional supplements, like Beyond Health Multi Vit/Min Formula and Beyond Health Bone Support Formula, which contain the essential bone forming nutrients. Get regular exercise, including essential weight bearing exercise. Osteoporosis is a disease that modern diets and lifestyles have created. No one has to have this problem.

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