Healthy for Life Newsletter
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Osteoporosis

Osteoporosis is an epidemic nutritional deficiency in the United States. There are more than 25 million Americans who have osteoporosis, and the cost to the economy of the United States is about 14 billion dollars each year. At least 1.2 million fractures occur each year in the United States as a direct result of osteoporosis. I have had patients fracture a hip as they simply walked into my office without any kind of fall or injury. Spontaneous compression fractures of the vertebrae of the back cause tremendous pain and tremendous suffering in my patients with osteoporosis. Osteoporosis is not a disease you really want to get and it is a concern in both men and women.

Osteoporosis has been presented to the public as a disease merely dependent on estrogen and calcium. Many studies show osteoporosis will be slowed down but not eliminated by using calcium supplements and hormone replacement in menopausal women.[1] There is growing concern over the possible increase risk of breast cancer in women who are on estrogen replacement. In fact, the Women's Health Initiative was stopped prematurely because women on hormone replacement therapy had an increase risk of breast and ovarian cancer along with an increased risk of heart attacks. The investigators strongly recommended that physicians not use hormone replacement therapy in their postmenopausal women.[2] The Ob/Gyn physicians are not all in agreement with these recommendations. This is now causing a significant concern among my postmenopausal women who are either on or considering going on estrogen replacement for protection against osteoporosis. Now that there are several new drugs on the market, such as Fosomax, Boniva, and Actonel that have been shown to increase bone density, women do have a choice. However, these drugs also have significant side effects and many of my patients desire to protect against bone loss naturally and not go on any drugs. This is certainly a possibility and we need to take a closer look at this approach.

It is sometimes forgotten that bone is active, living tissue continually remodeling itself through osteoblastic (bone forming) and osteoclastic (absorption of bone) activity. It is constantly engaged in biochemical reactions, which are dependent on many different micronutrients and enzyme systems. Therefore, like any living tissue, bone has diverse nutritional needs. It is not just a collection of calcium crystals. The American diet, with its high intake of white breads, white flour, refined sugars, and fat, has been shown to be deficient in many of these essential nutrients needed for healthy bone. Inadequate intake of any of these nutrients that are required for bone health could help lead to osteoporosis. All of these nutrients must be present, not just calcium, if we are

going to have any effect on decreasing the amount of osteoporosis in this country.

In order to reduce the risk of fractures of the spine, hip, and wrist, we must pay attention to several factors: 1) preserving adequate bone mass, 2) preventing the loss of the protein matrix, and 3) making sure that the bone has all the proper nutrients to repair and replace damaged areas of bone.

Calcium

There is no doubt calcium deficiency can lead to osteoporosis. However, studies showed skeletal calcium depletion present in only 25 percent of postmenopausal women. Calcium supplements in these women were found to increase bone mass; however, the supplements had no effect on the other 75 percent who were not calcium deficient.[3] Recent studies of calcium and vitamin D supplementation have shown a slowing down of osteoporosis but did not prevent it. These studies have also shown a reduction in fractures of the hip, spine, and wrist.

Calcium is an essential nutrient in the fight against osteoporosis. Calcium should be consumed through both your diet and supplementation at a level of 1,500 mg daily. The average diet contains around 800 mg of calcium daily. Therefore, it is only necessary to supplement your diet with around 1,000 mg of calcium. Children also need this level of supplementation. In fact, studies show that children given this level of calcium prior to puberty will increase their bone density by nearly 8 percent. This increase in bone density level will be carried with them throughout their lifetime.

Magnesium

Magnesium is another important nutrient involved in several biochemical reactions that take place within the bone. Alkaline phosphatase, which is an enzyme that is required in the process of forming new bone crystals, is activated by magnesium. Vitamin D needs magnesium to convert it to its most active form. If there is depletion in magnesium, this can lead to a syndrome of vitamin D resistance.[4]

Dietary surveys have shown 80 to 85 percent of American women consume a magnesium-deficient diet.

Vitamin K

Vitamin K is required to synthesize osteocalcin, a protein found in large amounts within the bone. It is therefore critical in bone formation, remodeling, and repair. In a series of 16 patients with osteoporosis, it was found the vitamin K concentration was only 35 percent of that of the control subjects. In a clinical trial, supplementing the patient with osteoporosis vitamin K reduced urinary calcium loss by 18 to 50 percent.[5] The evidence shows with osteoporosis the need for vitamin K is much greater.

Vitamin D

Vitamin D has now become the major player in anyone who is concerned with or has bone loss. Vitamin D is absolutely necessary for the absorption of calcium. If you do not have adequate vitamin D, you can't absorb the necessary calcium no matter how much calcium you are taking. Vitamin D is produced in the skin when it is exposed to sunlight. However, as patients age they spend less time out in the sun and vitamin D deficiencies become very common. It is now estimated that over 90% of the population is deficient in vitamin D. I now recommend that all my patients have their vitamin D level checked by getting a 25-hydroxy vitamin D blood level, especially if they have osteopenia (thinning of the bone) or osteoporosis. You can actually order this

bloodwork through my online medical practice at www.raystrand.com. Ideally, this level should be greater than 60 ng/ml or higher. If you have low levels of vitamin D, your doctor may actually have to supplement with very high levels of vitamin D for some time to bring your vitamin D up to the desired level. Even if you have normal vitamin D blood levels, it is recommended that you supplement with 1,000 to 1,200 IU daily.

Vitamin D taken orally must be converted to its biologically active form, vitamin D3. Impaired conversion of vitamin D to its active form may be more of a problem than deficient intake. This gives the rationale and why I recommend supplementing vitamin D by using the active form, vitamin D3. There are several health benefits from having adequate vitamin D levels; however, studies show one of the benefits to patients with osteoporosis is that supplementation with vitamin D3 increased calcium absorption and reduced bone loss.[6]

Manganese

Manganese is necessary for the synthesis of connective tissue in cartilage and bone. Like magnesium, manganese is lost in the processing of whole grains into refined flour. A study of osteoporotic women showed the manganese level was only 25 percent that of the controls.[7]

Folic Acid, Vitamin B6, and Vitamin B12

Does this combination sound familiar? It should. Homocysteine is not only bad for your blood vessels, but it is also bad for your bones. Individuals with severe elevations of homocysteine have been found to have significant osteoporosis. An interesting point about homocysteine is the fact that premenopausal women have great efficiency in breaking down methionine and not having a buildup of homocysteine. This situation changes dramatically after menopause. Postmenopausal women have much higher levels of homocysteine. Could this in part explain both the increase risk of heart disease and osteoporosis in postmenopausal women? The fact remains these women need higher amounts of folic acid, vitamin B6, vitamin B12, and maybe in some cases Betaine (TMG). You can also order a blood homocysteine level through my online medical practice at www.raystrand.com.

Boron

Boron has become an interesting nutrient when it comes to bone metabolism. When boron is given in supplementation, the urinary excretion of calcium decreases by some 40 percent.[8] Also, there is a significant increase in 17 beta-estradiol, which is the most biologically active form of human estrogen. This is not believed to increase the risk of cancer. The cancer-causing effect of estrogen is dose related. The amount of estrogen effect produced by boron equals only 5 percent of the oral dose. Supplementation with 3 to 6 mg of boron is more than adequate.

Zinc

This mineral is essential for the normal functioning of vitamin D. Low serum zinc levels were found in the serum and bones of patients with osteoporosis.[9] This is why taking all of these nutrients at their optimal level is critical in preserving bone density.

My Clinical Approach

I recommend that all of my patients (including men) get a DEXA scan sometime in their early 50's to see if they have any evidence of bone loss. Almost all of the major bone loss in women occurs within the first 5 years following menopause.

Obviously, if you went through menopause earlier in your life, having a DEXA scan in your mid- to late-40's is wise.

If you have normal bone density, it is still wise to supplement your diet with calcium, magnesium, vitamin D3 and all of the nutrients noted above and remain physically active. Most physicians who discover you have osteopenia (thinning of the bone) on the DEXA scan want to start you on medication immediately. Many of my patients consult me at this time with the desire to at least try to improve their bone density naturally. I feel that if they only have osteopenia and not true osteoporosis that they certainly can try to be very aggressive with a natural approach for one year and then repeat the DEXA scan. I would recommend the following:

1. Cellular Nutrition, which contains the optimal levels of all nutrients, along with additional calcium (up to 1500 mg per day in those who have osteopenia or osteoporosis), magnesium (600 mg per day), vitamin K, and vitamin D (the amount necessary to get your vitamin D level above 60 ng/ml). You also need to have your vitamin D blood level checked occasionally to be sure it remains at this level. I would be concerned with anyone who suffers from osteopenia or osteoporosis who doesn't know their vitamin D level.
2. It is critical that you begin weight bearing exercises above your head at least 3 to 4 times per week. Weight bearing exercises have been shown to actually stimulate bone growth.
3. Again, repeat the DEXA scan within 1 year. If your bone density has improved or stayed the same, then I would continue these recommendations and still have annual DEXA scans. If you have a further decrease in bone density into the osteoporosis range, I would strongly recommend adding one of the bone building drugs to your regime (not hormone replacement therapy). Remember, I recommend using medication as a last resort and not a first choice. You certainly don't want to develop significant osteoporosis and all the problems it can cause.

If you already have significant osteoporosis, I would recommend considering adding a medication that will help build bone like Fosomax, Boniva, or Actonel to the recommendations above. I even like a drug called Evista, which can be used in this situation. However, I would avoid synthetic Hormone Replacement Therapy as a treatment for osteoporosis or as for the prevention of osteoporosis. Many of my patients are taking natural or bio-identical hormone replacement for the control of menopausal symptoms; however, I do not recommend using these natural products just for the prevention of osteoporosis.

In conclusion, it is clear osteoporosis is not simply a calcium and estrogen problem. When you supply all of the nutrients needed for bone metabolism at optimal levels along with weight bearing exercises above your head, you give yourself a greater chance of actually building bone and avoiding osteoporosis. This is also a great strategy for those who have normal bone density and desire to maintain it.

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