



*“To succeed in life you need three things: a wishbone, a backbone, and a funny bone!”*

*—Reba McEntire*

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# New Year, Strong Foundation

## Healthy Bones, Healthy Bodies: Bone Health and Osteoporosis

### ***Osteoporosis and the Hormone connection***

*By Dr. Brooke Azie-Rentz*

We all know that the risk of osteoporosis, or brittle bones, goes up as we get older... but why?

The loss of our sex hormones (estrogen and testosterone) enhances the ability of certain cells in our body to absorb bone at a higher rate than those cells which produce bone, resulting in a decrease in overall bone mass and density, hence osteopenia or worse, osteoporosis. This period of time around peri-menopause/andropause lasts between 5-8 years. It has been well researched that hormone replacement therapy during this time can help protect bone mass and decreases the risk of osteoporosis. Studies also show that calcium supplementation during this time does **not** have a significant effect on bone density. However, if after age 60, the proper amount and type of calcium is consumed, along with other important vitamins, minerals, supplementation and exercise, the loss of bone can be slowed or sometimes even reversed.

So, what about those sex hormones?

Most studies on osteoporosis

have been done on women and the benefits of estrogen replacement therapy because the rate of osteoporosis in women to men is 4:1. This is because men have larger skeletons, bone loss starts later (60 vs. 50) and progresses more slowly, and they don't go through the rapid period of hormonal changes associated with menopause, andropause is a much more gradual event. But, seeing that we know that testosterone converts regularly back and forth into estrogen in both men and women, we can see how testosterone therapy in men can help strengthen their bones as well. This occurs in two ways. One way is through the conversion of testosterone to estrogen. The other by the sheer brilliance that is testosterone! It makes you stronger, less fatigued and more motivated therefore you do more weight bearing exercise, which in turn builds stronger bones!

So we have talked about the chemical activity of our sex hormones on the cells that breakdown and build our bone. But I would like to mention the benefits of hormones that have an indirect effect on bone health. We discussed earlier the benefits of calcium supplementation and other treatments for bone health. Those other treatments can include Vitamin D and K,

weight bearing exercise, decreasing chronic disease and those medications associated with them. I have seen hormone replacement therapy (HRT) fix people's depression, improve their energy, help them sleep, and take away their joint pain. When this happens, people tend to go outside and exercise more, which in turn means better Vitamin D exposure; they eat better (more veggies less carbs and sugar) which leads to more nutrients like calcium and Vitamin K. Eating better, exercising and getting more nutrients will lead to less chronic disease and medications which could potentially have bone depleting side effects. Do you see the positive cycle?!

So in conclusion, not only do our hormones help maintain bone integrity by their direct interaction on the cells responsible for remodeling our bones, but they can contribute to a lifestyle conducive to healthy bones. So, if you are approaching menopause or andropause, it may be a good idea to have a bone density scan (DEXA) performed to evaluate your risk for osteopenia or osteoporosis and discuss treatment options with your friendly neighborhood AIM practitioner.

## Your bones are what you eat!

By Nichole Santoro, LAc LMP

Here are a few of the bad-to-the-bone foods you might want to steer clear of.

**Salt:** A high salt intake means more calcium is shed in urine and sweat. In fact, the salt content of the typical American diet is one of the reasons why calcium requirements are so high. High salt content is present in nearly all processed foods.

**Soda:** In excess, phosphorus, in the form of flavoring agent phosphoric acid in many sodas interferes with calcium absorption because the acid is neutralized in the body by calcium and subsequently gets lost in the urine.

**Refined sugar:** Refined sugar is absorbed quickly and rapidly increases the glucose levels in the cells. These levels increase faster than the cell's oxygen level, which causes incomplete oxidation of the glucose, forming acids. These acids act to acidify the body, requiring buffering with calcium which leads to bone loss.

**High Protein Diet:** Animal protein is metabolized by the body to form forming two strong acids, sulfuric and phosphoric. To keep the blood pH slightly alkaline, the body needs to neutralize (buffer) these acids; calcium is the best substance the body has to do this.

### CALCIUM and VIT. D requirements:

Getting the recommended amounts of calcium and vitamin D every day helps offset bone loss.

#### Calcium

-Adults up to age 50 require 1,000 milligrams of calcium daily

-Older adults need 1,200 milligrams of daily calcium

-Foods high in Calcium include: *raw dairy products, sardines, dark leafy greens, broccoli, asparagus, young grasses (barley, wheat, oat), oranges, sesame seeds*

#### Vitamin D

-People need 200 International Units (IU) of vitamin D a day until age 50.

-Adults need 400 IU of vitamin D from the ages of 51 to 70 years.

-Seniors need 600 IU of vitamin D a day after age 70

-Good natural sources of vitamin D include: *natural sunlight and from fortified milks, egg yolks, liver and saltwater fish.*

## Exercise and Osteoporosis:

### What YOU can do to increase bone density!

By Dr. Mohammad Shegeft

Exercise is important for treating and preventing osteoporosis at any age. Not only does exercise improve your bone health, it also increases muscle strength, coordination, and balance, leading to better overall health.

Like muscle, bone is a living tissue and responds to exercise by becoming stronger. There are two types of exercises that are important for building and maintaining bone density: **Weight-bearing and muscle-strengthening exercises.**

Though both are important to overall health, the best exercise for your bones is the weight-bearing kind.

#### **Weight-Bearing Exercises:**

These exercises include activities that make you move against gravity while staying upright. These exercises can help build bones and keep them strong.

These exercises include aerobics, hiking, jogging and running, stair climbing, treadmill and elliptical, and for the night owls—dancing. In 2009, research from the Bone & Joint Injury Prevention and Rehabilitation Center at the University of Michigan concluded that increases in bone density can be had in as little as 12 to 20 minutes of weight-bearing exercise, three days a week.

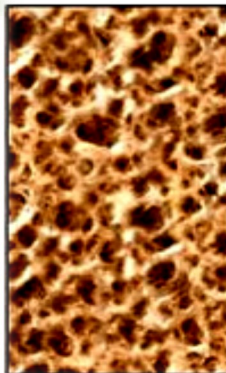
#### **Muscle-Strengthening Exercises:**

These exercises include activities where you move your body, a weight or some other resistance against gravity such as lifting weights and using weight machines, using elastic exercise bands, Yoga, and Pilates. Nonimpact activities such as balance, functional and posture exercises also may benefit people with osteoporosis. Although these exercises don't build or maintain bone density, they strengthen the core and increase balance, which will decrease the risk of falls and fractures.

A combination of good nutrition and weight-bearing exercise is the ideal way to build bone mass. Once we reach the age of 30 (for men, the start of decline in testosterone and in women the start of decline in estrogen), we

don't build bone as readily so building adequate bone density early in life is the best way to prevent osteoporosis later in life. As an adult, the best way to maintain the bone mass is the same way you build it. Getting adequate calcium in your diet or as a supplement can also help the process.

**Normal bone**



**Bone with Osteoporosis**

