

You Can Do It! LLC

Welcome to November!

The leaves are falling, it's getting colder, and winter's on its way. Time to bundle up and get our metabolic fires burning with regular exercise.

In this newsletter, we bring you the continuing saga of osteoporosis—what it is, how it operates, and the risk factors that contribute to it. After all, the more we know about osteoporosis, the better we become at preventing, managing, or reversing its symptoms!

Next month we'll complete our series on osteoporosis with diet and exercise tips.

Carol Lee

New Email Address for the New Year

Starting January 2008, I will only use ONE email address for correspondence:

CarolLee@YouCanDoItNow.net

Please make the change in your email address book and start using the new address to avoid any emails disappearing into "outer space."

Thanks!

Carol Lee ... Producer!

For those of you who may not have read last month's newsletter, I'm proud to announce that this summer I had the opportunity to become the producer, director, and actor in the first of my series of DVDs focusing on osteoporosis. The first DVD is titled, *Building Bones Step by Step for Osteoporosis Prevention*. It stars me and two other students from my Building Bones Step by Step classes.

In addition, I was able to get Dr. Jenny Slawta, Health and Physical Education Professor at SOU, to say a few words about osteoporosis at the beginning of the DVD. Her words are particularly powerful because of her hands-on research with osteoporosis and exercises.

When you purchase a DVD, you'll be able to get all the benefits of my regular Building Bones Step by Step class ... in the privacy of your home. Begin with 1 set of the 15-minute exercise routine in the DVD and work up to 2 sets for a full 30 minute workout, three times a week, and you'll have stronger bones, greater strength, and better balance!

To purchase a DVD, contact Carol Lee at: clar@youcandoitnow.net or 541-482-1887

Coming Soon: *Building Bones Step by Step for Osteopenia* will be the next video coming from You Can Do It! LLC.

Updates and Happenings

November

- Building Bones Step by Step, Series 2 continues through Nov 19.
- Building Bones Step by Step, Series 3 begins Nov 26 and continues through Dec 21.
- Nordic Walking in Ashland continues through Nov. 14. Then for the rest of 2007, I'll provide Nordic Walking classes on an on-demand basis. That means you have to call me if you want a class, and once there are five people interested in the class, I can schedule it.
- Yoga and Osteo Stretch and Strengthening are ongoing at Baxter Fitness Solutions and Mountain Meadows.
- Now that I've produced my first DVD, I need to spend time marketing it, so I'll no longer be teaching Yoga at the YMCA in Ashland. I'll miss teaching my students, but I'm excited about bringing my DVD to the public and promoting it!

See our new Website for November schedule details:

http://www.youcandoitnow.net/class_schedule.shtml

Osteoporosis ... the Silent Killer: Part 2

This summer I had a wonderful opportunity to collaborate with Dr. Jill Steinsiek, a family physician specializing in osteoporosis, and Cindy Powell, a Physical Therapist. Dr. Jill practices in Medford at the Medical Building on Black Oak Street, and Cindy practices in Ashland. The three of us worked together to help educate patients about low bone density.

Dr. Jill would meet twice with her patients to educate them about osteoporosis and how to take care of their bones. Then Cindy Power would explain exercises to them to increase their strength and bone mass. Finally, I would do exercises with the patients. Together we made quite a team!

During the time I spent with Dr. Jill, I learned quite a lot about osteoporosis and would like to pass on what I learned to you. You can also find additional information on the National Osteoporosis Foundation website: <http://www.nof.org>

What is Osteoporosis?

Let's start with a brief description of osteoporosis. According to Dr. Jill, osteoporosis is a bone disorder that causes a progressive decrease in bone density and mass. Bones become thin, weakened, and easily fractured. Not all causes of this disorder are known. However, according to Dr. Jill, we do know that osteoporosis is mainly menopausal and/or age related, caused by the declining production of the female hormone estrogen, which typically maintains bone mass. For males, age-related lowering of testosterone levels can also result in bone loss.

According to the National Osteoporosis Foundation, it is normal to lose some bone mass as we age. However, it is not normal to develop osteoporosis. But today, in the United States, there are about 34 million Americans who have osteopenia, or low bone mass, the condition that typically precedes osteoporosis. And one in four women and one in eight men over the age of 50 have osteoporosis!

What are the Symptoms of Osteoporosis?

As osteoporosis develops, there are typically few symptoms until the time when the bones become so porous that painful fractures occur. According to Dr. Jill, “vertebral fractures (fractures in the spine), may lead to a sudden onset of back pain, usually when performing routine activities, such as bending or lifting. This acute pain usually resolves over several weeks and is replaced by a chronic dull ache or pain. However, the pain may sometimes persist for many months.” These fractures can happen even with no pain and are often discovered during a chest, lung or abdominal x-ray done for other reasons.

Loss of height may also become a visible symptom of osteoporosis after successive compression fractures. The fractures cause the affected bones to collapse, which may lead to increased curvature of the spine (thoracic kyphosis). Over time, this becomes an abnormal rounding of the back (“dowager’s hump”) and the individual begins to lose height.

As Dr. Jill goes on to explain, “Due to vertebral fractures and associated height loss, the abdomen may become compressed, causing it to bulge forward. The abdomen appears larger than before, clothes no longer fit, and the waist seems to have ‘disappeared’ even though there has been no weight gain.”

As serious as these symptoms are, they tend to occur only in the advanced stages of osteoporosis. However, long before these symptoms appear, osteoporosis can be diagnosed by a simple bone mineral density scan. The result of the scan is a number that indicates your bone density—the more negative the number, the lower the density and more porous the bones.

Results	Bone Density
0 to -1.0	Normal Bone Mineral Density
-1.0 to -2.5	Osteopenia
-2.5 and above	Osteoporosis

Once you know your bone density, you can take the necessary steps to prevent osteoporosis or at least reduce or reverse its symptoms.

What Happens at a Microscopic Level with Osteoporosis?

We've looked at the visible symptoms of osteoporosis. Now let's look at what's going on under the surface. We're going to look at the microscopic life of bones.

First, we'll start with a very brief review of what bone is. It's important to remember that bone is living tissue, composed of collagen, minerals, and water. Collagen is a protein that gives bones flexibility. Minerals, such as calcium and phosphorous give bone its strength (there are also small traces of minerals such as sodium, magnesium, and fluoride in bone). And water makes up one-third of bone.

Next, let's look at the types of cells involved in the formation of bone: osteoblasts, osteocytes, and osteoclasts. **Osteoblasts** form new bone by hardening collagen with minerals. **Osteocytes** maintain bone by exchanging nutrients and wastes between the blood and bone tissue. **Osteoclasts** dissolve bone and release minerals back into the blood, minerals that our bodies need to survive. The cycle of bone building and bone dissolving is an ongoing cycle. Osteoporosis occurs when this cycle is out of balance.

Finally, we're going to walk through the actual cycle of bone building and dissolving. To make the story easy to follow, we'll actually start with the dissolving, and end with the rebuilding. The **osteoclasts** dissolve (reabsorb) a small area of bone, just enough to form a small cavity. As they finish their work, they die.

Now the **osteoblasts** come into the picture. They assemble at the cavity to line it with collagen – a soft, sticky protein that forms the framework for bone. The collagen fibers develop quickly to form an organic mesh, or net. Calcium, phosphorus, and other minerals attach to the net and form crystals on the collagen.

As the osteoblasts finish their bone formation work, they transform into mature bone cells and actually become part of the new bone. They're still alive, but they're no longer active. At the end of the entire cycle, the cavity has been refilled with new bone. This cycle of bone renewal takes three to six months—far longer than renewal of other body tissues!

It's important to remember that when osteoclasts become more active than osteoblasts, more bone is dissolved than is rebuilt. The result is loss of bone. Prevention and treatment of osteoporosis is geared toward finding a balance between bone formation and reabsorption.

What are Some Risk Factors?

Now that you have a sense of what goes on behind the scenes when it comes to osteoporosis, let's explore the risk factors that contribute to the development of osteoporosis. The National Osteoporosis Foundation reminds us that it's important to remember that NONE of these risk factors predicts the likelihood of an osteoporotic fracture as accurately as a direct measurement of bone density using a bone mineral density test.

Risk factors you cannot change:

- Gender. Women run a higher risk of osteoporosis than men.
- Age. People over 50 run a higher risk of osteoporosis.
- Family or personal history of fractures
- Body size. Small-boned individuals run a higher risk of osteoporosis.
- Ethnicity. Caucasians (whites) and Asians of Japanese and Chinese descent are at significant higher risk of developing osteoporosis than individuals of African heritage.

Risk factors you can change:

- Prolonged pre-menopausal amenorrhea. Irregular or absent menstrual cycles may indicate low estrogen levels, which can lead to bone loss.
- Low testosterone levels. Anorexia nervosa, excessive alcohol consumption, and some treatments for prostate cancer can alter testosterone levels. Low levels of testosterone can lead to bone loss.
- Poor nutrition
- Low weight and body mass index
- Estrogen deficiency
- Early menopause (before 45 years of age) brought on by smoking
- Inadequate physical activity
- Long-term low calcium intake
- Vitamin D deficiency. Vitamin D plays a role in both the absorption and incorporation of calcium into bone.
- High protein intake increases calcium needs because it causes increased calcium loss through the kidneys.
- Salt. Some studies have shown that a high sodium diet may decrease the body's ability to use calcium.
- Cigarette smoking. Cigarette smoking lowers estrogen levels and may cause women to go through early menopause. Also, post-menopausal women who smoke may require higher doses of hormone replacement therapy, with more side effects.
- Alcohol. Excessive alcohol intake damages the skeleton, even in young women and men. Those who drink heavily are more prone to bone loss and fractures, both because of poor nutrition and an increased risk of falling due to lack of balance.

Other factors that influence bone health:

- Certain medications impact bone density. For example, "long-term use of glucocorticoids can lead to a loss of bone density and fractures. Other medications that can cause bone loss include: long-term treatment with certain anti-seizure drugs, such as phenytoin, barbiturates, and valproate; Gonadotropin Releasing Hormone analogs for treating endometriosis in women and prostate cancer in men; excessive thyroid hormone, long-term use of the blood-thinning medication heparin; use of certain psychotropic

medications such as lithium; and long-term use of depo-provera for birth control.”¹

- Hyperthyroidism
- Hyperparathyroidism
- Multiple myeloma. Malignant condition of the bone marrow
- Transplantation
- Chronic diseases. These diseases include chronic kidney, lung and gastrointestinal disorders, including eating disorders, malabsorption problems, and chronic depression.

What Next?

At this point, you probably have a good, general understanding of osteoporosis, how it works, and the factors that may contribute to it. However, I bet you’re asking yourself, “But what can I do about it?” ... especially if you’ve identified a number of risk factors that apply to you. Well, neither osteopenia nor osteoporosis is a death sentence, and there are plenty of actions you can take to prevent them from occurring, as well as mitigate their symptoms if they do occur.

First, you can eliminate the risk factors you CAN change. Second, you can begin a program of exercise and nutrition designed to stimulate bone growth. And third, you can recognize that you are in control of your aging. Ultimately, you are the person with the ability to make the rest of your life full of health, joy, strength, mental awareness, and vibrancy. Only you can do this ... no one else can!

So, stay tuned for our December newsletter where we will be sharing exercise and nutrition tips to build your bone strength and mass so you can enjoy life to its fullest!

¹ “Boning Up on Osteoporosis: A Guide to Prevention and Treatment.” *National Osteoporosis Foundation*. 2005. Washington, DC.