

Understanding Osteoporosis: *A Personal Guide*

Building Beautiful Bones

What happens to people's bones as they get older?

As women grow older, they experience some bone loss. But there's a difference between bone loss related to natural aging and bone loss related to the depletion of hormones such as estrogen and progesterone, which tends to come with menopause.

Estrogens are important because they help to balance the destruction of old bone and the formation of new bone.

When your estrogen levels drop, bone loss speeds up and your bones become more fragile. After age 30 or so, women lose bone at the rate of .5 to 1% per year. But around the time of menopause, women lose bone at the rate of as much as 3 to 5% per year. This means that women can lose more than 20% of their skeleton in just four to five years, even if they're taking the right amounts of calcium. The result is that women have less bone strength and are at a higher risk for serious fractures.

How does bone loss relate to osteoporosis?

Osteoporosis is the long-term loss of bone tissue. It affects 20 to 25 million Americans, with predictions that it will affect 50 million people by 2050.

Osteoporosis is often called the "silent disease" because there are no symptoms until a woman has a fracture. It's good to know that some medications can slow or alter the course of osteoporosis. In some cases, these medications can actually build bone.

But osteoporosis isn't the same as arthritis. Arthritis damages the joints, while osteoporosis affects bone tissue and the inside structure of the bone. However, there are women who have both osteoporosis and arthritis.

How are women affected by osteoporosis?

More than 1.5 million women in the United States suffer fractures because of postmenopausal osteoporosis. The most common fractures happen in the spine, wrist, and hip. If a woman has serious osteoporosis, she might experience a crushed fracture of the spine from doing little more than lifting, bending, getting up from a chair, or coughing.

These painful fractures can cause deformity of the spine as well as a loss in height. While hip fractures aren't as common in women, they seriously change women's lives and affect life expectancy. Close to 25% of women with hip fractures don't live more than a year. Another third of these women never leave a nursing home or rehabilitation facility.

Can men get osteoporosis?

Osteoporosis is less frequent in men because men reach a higher peak bone mass and because hormones have a less important role in bone health for men than for women. But a man still has a 30% risk of having an osteoporosis-related fracture in his lifetime. One-third of men who suffer a broken hip die within a year, and less than half of those who survive manage to regain the independence they had before the fracture.

Major risk factors for men include old age, since the speed of bone loss increases with age. Also important are nutrition; physical activity; and factors such as alcohol, caffeine, smoking, low levels



of sexual hormones such as testosterone, and genetics.

Many men have secondary osteoporosis, which results from another medical condition such as COPD or ongoing use of some medications such as steroids. Men should work with their physicians to evaluate personal risk for osteoporosis.

What are the risk factors for osteoporosis?

Risk factors can be broken down in two categories: factors you can't control and those you can.

Factors you can't control include a family history of osteoporosis, which might show up in hip, wrist, and spinal fractures or curvature of the spine. Other uncontrollable factors include being female, small boned, White or Asian, removal of the ovaries or menopause before age 45, irregular menstrual cycles brought about by eating disorders or intense exercise, and prolonged use of medications such as heparin, anticonvulsants, corticosteroids, antacids containing aluminum, and thyroid hormones.

However, there are many factors you can control. These include smoking, exercise, diet, caffeine and alcohol consumption.

Ask yourself: Do I walk at least 30 minutes three times a week? Do I have no more

than two alcoholic drinks per day? Do I eat three food servings to reach my 1,500 mg daily requirement for calcium? Do I have no more than three caffeinated beverages per day?

What are some of the other conditions that can influence bone health?

These conditions include hyperthyroidism, hyperparathyroidism, Cushing Syndrome, hypogonadism, chronic kidney disease, organ transplant, multiple myeloma, Crohn's disease, gastric surgery, and celiac disease.

Taking some medications over a long period of time can also lead to osteoporosis. These medications include corticosteroids, anticonvulsants, heparin, thyroid hormones, gonadotrophin-releasing hormone, antineoplastics, and antacids containing aluminium. But no one should stop taking a medication or reduce a dose in the hope of preventing bone loss. If you think you're at risk for secondary osteoporosis, discuss a plan of action with your physician.

How is osteoporosis diagnosed?

Loss in height, curvature of the spine, and pain happen only after spinal fractures. Physicians can use an ordinary X-ray to detect osteoporosis, but usually by the time you can detect bone loss on the X-ray you may already have lost 30% of your bone.

Many physicians have turned to bone densitometry or bone mineral density (BMD) testing. Here the physician uses a specific type of X-ray to measure the amount of bone tissue in the lower part of the spine or in the hip. The standard diagnostic tool is the Dual-Energy X-ray absorptiometry (DXA) scan.

How is osteoporosis treated?

Many physicians still use hormone therapy (HT) to replace the hormones a woman stops producing at menopause. While some physicians worry about the risk of breast cancer associated with taking hor-

mones, others believe that they help to curb the loss of bone tissue and may be appropriate in certain women.



Selective estrogen receptor modulators (SERMs) reduce the loss of bone tissue and the risk fractures. Raloxifene/Evista is just one of the SERMs physicians use to prevent or treat osteoporosis. Raloxifene has been shown to reduce the risk of invasive breast cancer; however, it needs to be used cautiously with women with coagulation disorders and hot flashes.

Bisphosphonates are non-hormonal medications that act on bone remodeling. They work to limit the activity of osteoclasts, the cells responsible for bone destruction. They also reduce loss of bone mass and decrease the risk of spine and hip fractures. These are the current gold standard in the prevention and treatment of osteoporosis. Among these bisphosphonates are alendronate/Fosamax, and risedronate/Actonel.

Calcitonin also affects bone remodeling. It reduces the action of osteoclasts—the cells responsible for bone destruction, cuts down on loss of bone mass, decreases the risk of fractures, and helps manage the pain of recent fractures. This drug is usually used in the acute fracture patient in which pain relief is desired. Since the bisphosphonates came on the market, they are usually reserved as a second line drug after others have been tried and failed. Synthetic salmon calcitonin is available in the form of a nasal spray.

Other medications used to prevent or

treat osteoporosis include testosterone, which is used in men, and specific forms of vitamin D, which doctors suggest along with calcium and prescription medications.

Parathyroid Hormone (PTH) is produced by the human body, which helps to regulate use of calcium and bone remodeling. This hormone is different from other drugs. Instead of just slowing down the destruction of bone, it actually stimulates bone formation. This drug comes in a daily injectable form and is usually reserved for patients who have failed all other treatment options.

If I already have osteoporosis, what can I do?

Take your medication, as well as calcium and vitamin D. Also do weight-bearing exercises such as walking and weight lifting, which increase stress across your bones. But check with your physician before you begin an exercise program or make changes in your diet.

To get 1,500 mg of calcium daily, try foods such as skim milk, yogurt, cheese, low-fat ice cream, canned salmon or sardines, tofu, or broccoli. But remember that each of these foods has varying amounts of calcium. For example, while an eight-ounce cup of yogurt has as much as 450 mg of calcium, an ounce of cheese has a maximum of 250 mg of calcium, and a half-cup of ice cream has just 100 mg.

How early can you start to work on preventing osteoporosis?

It's never too early. Women build bone mass during childhood, adolescence, and early adulthood. The teenage years are important because constant dieting and eating disorders can lead to a loss of nutrients and hormonal imbalances. As women become adults they need to maintain bone mass by limiting the habits that cause bone loss. Menopause is the time when women need to work with physicians to evaluate risk factors and bone loss.

ww