

Osteoporosis and Lupus: Boning Up

*If you take steroids, your bones are at risk —
no matter what your age*

By: Laura Williamson

Two years ago, Katy Wheeler discovered that the medication she was taking to ease the symptoms of lupus was also robbing her body of much-needed calcium, causing her bones to weaken. “Osteoporosis?” she asked her doctor. How could that be? She was just 22 years old.

Most people think of osteoporosis as an older-women’s disease. But the truth is, if you have lupus, you are at increased risk for this condition no matter what your age. There are several reasons, but the biggest one is this: Taking glucocorticoids—commonly known as steroids (such as prednisone)—to regulate your immune system can lead to a loss of bone density. In fact, studies show that roughly one-third of people who take steroids for more than a year experience bone fractures later on.

Since lupus often strikes during the teen and childbearing years, many women are developing osteoporosis far younger than expected—and well before the loss of estrogen during menopause further depletes the body’s bone mass. Women who take steroids during and after menopause are at even greater risk for fractures.

Osteoporosis 101

Osteoporosis is a condition that causes bones to become weak, thin and more likely to fracture—especially the hips, wrists and spinal bones. While it occurs most often in postmenopausal women, “secondary” osteoporosis can occur in both men and women of any age who take medications that interfere with bone formation or make it harder for the body to absorb calcium, according to Lawrence Raisz, M.D., director of the University of Connecticut Center for Osteoporosis.

Glucocorticoids both hamper the body’s ability to absorb calcium through the intestines and speed up calcium loss through the kidneys. They also damage bone cells because clots of fat released by steroids can settle in the blood supply of bones and deprive the cells of oxygen. This leads to a condition called avascular necrosis—literally, “dead bone.” Consequently, anyone who takes these drugs for more than three to six months is at increased risk for osteoporosis, Raisz says. Among people who have lupus—90 percent of whom are women—the risk is even higher, since women are more likely than men to develop osteoporosis. In addition, lupus itself can lead to bone loss in several ways: inflammation of blood vessels can obstruct blood flow to the bone cells, and the muscle weakness and extreme fatigue common in lupus can lead to a lack of physical activity, which helps preserve bone strength.

Wheeler had no idea that the prednisone she was taking would harm her bones. She says the doctor who prescribed the drug for her vasculitis and joint pain had failed to inform her about possible side effects. During a bone-density test, she found out that her density levels were low. Eventually she consulted with a rheumatologist, who lowered her steroid dose and prescribed

1,500 milligrams of calcium a day plus a drug called Actonel once a week, to combat the osteoporosis.

Katy Wheeler and her husband had already decided not to have any more children after their daughter, now 3, was born, because Wheeler had such a difficult pregnancy and delivery.

It's too early to tell whether this combination of therapies has worked. Further complicating Wheeler's situation is that, because of her lupus, she can't do certain things that can help prevent bone loss. For instance, exposure to sunlight is an important source of vitamin D, which helps the body absorb calcium. But Wheeler—who lives in sunny Santa Fe, Texas—is photosensitive, as are many people with lupus. She becomes ill when exposed to too much sun, so this is not an option for her.

Physical activity also helps keep bones strong, but people with lupus often experience joint pain, making it harder for them to stay active. Although Wheeler can't jog the way she used to and frequently experiences severe hip and lower-back pain, she recently started walking to get more exercise.

Because women with lupus are more susceptible to bone loss, they are also more prone to the fractures that are a byproduct of osteoporosis. A 1999 study by Rosalind Ramsey-Goldman, M.D., of Northwestern University Medical School in Chicago, Ill., found that women with lupus were five times more likely to develop bone fractures than the general population. Half of those fractures occurred in women under the age of 50. These numbers are of particular concern for young girls, whose bones are still growing. Bone mass reaches its peak during the teenage years; if bone loss starts to occur before peak mass is reached, the lifelong risk for osteoporosis is even higher.

Bone Boosters

There are now drugs on the market that can be taken by women—but only those past childbearing age—to counter the calcium-depleting effects of steroids. Both Fosamax and Actonel are approved by the U.S. Food and Drug Administration (FDA) to prevent and treat steroid-caused bone disease.

Michelle Petri, M.D., director of the Lupus Center at Johns Hopkins University School of Medicine in Baltimore, Md., notes that if women continue to lose bone mass while taking one of these drugs, they may be candidates for the parathyroid hormone Forteo, which is given by injection. Calcitonin can also prevent bone loss, but it is not as strong as Fosamax or Actonel. In addition, a Phase III clinical trial for strontium ranelate shows that this drug increases bone-mineral density and reduces the risk of fractures in postmenopausal women.

But none of these drugs is recommended for women of childbearing age, cautions Raisz, because they remain in the bone for many years, even after a woman stops taking them. And it's not at all clear how the lingering drugs would affect a developing fetus. "During pregnancy you take calcium out of your bones for your fetus," Raisz says. "If you can't do that because of the Actonel or Fosamax, you could hurt the child."

Unlike Actonel and Fosamax, Prestara, a new drug that is now in clinical trials, is not known to bind to bone and therefore appears safe for women who may later want to get pregnant. “A final phase of the Prestara study is under way and will be completed later this year,” says Kenneth E. Schwartz, M.D., vice president of medical affairs for Genelabs Technologies Inc., the developer of the drug. After that, the results will be submitted to the FDA for review. If approved, Prestara, a mild androgenic hormone, would be given in conjunction with prednisone, not in place of it.

For other women with lupus who might still be planning a pregnancy, doctors recommend sticking to calcium and vitamin D supplements, as well as increasing weight-bearing exercise (such as walking) and keeping the steroid dose as low as possible.

Not smoking and not drinking to excess also are important. Tobacco robs the body of bone-building nutrients, decreases blood levels of estrogen (which has a protective effect on bones), and can interfere with the body’s ability to absorb calcium. Alcohol also interferes with bone formation by blocking absorption of calcium and other important nutrients.

What’s Your Density?

The big conundrum for women with lupus is figuring out whether they are losing bone density. Unfortunately, bone mass can deteriorate with no outward symptoms until a fracture occurs, explains Kenneth Saag, M.D., director of the Center for Education and Research on Therapeutics at the University of Alabama in Birmingham. That’s why he recommends that people who take prednisone or prednisone-like medications have bone-density tests every one to two years (or more frequently, depending on their drug dosage).

There are several types of scans available. The DXA, or dual-energy X-ray absorptiometry, scan is one of the most effective. The DXA machine measures bone density of the spine, hip or total body. Shirley Roberts of the Osteoporosis Assessment Center in Wheaton, Md., says that most insurance plans cover DXA scans, but for those paying out of pocket, a scan could cost \$200–\$300. She adds that one reason younger women may not be getting the DXA test is that doctors often don’t think of osteoporosis as a young person’s disease. Roberts stresses that having regular DXA bone scans is of particular importance for anyone taking corticosteroids.

“Bone loss occurs rapidly during the first two years on steroids,” says Saag, emphasizing that women should have a baseline bone-density test early in treatment so they can track changes. But testing too frequently is not effective, he adds, because small changes are often not picked up.

Kathy Heim, an executive secretary from Kansas City, Mo., had no idea that prednisone would weaken her bones when she started taking it 25 years ago to relieve the pain in her joints from lupus. Fifteen years later—at the age of 46—she learned that she had osteoporosis. And she learned it the hard way.

Her ribs started breaking, along with her foot and the bones in her neck, wrist and knee. “If I turn over in bed, or get in the car wrong, or if I’m just sitting in my living room chair and reach

over the arm of the chair wrong, that can break a rib,” Heim says. “I’ve had all of my ribs broken.”

Heim can’t work any longer because of her health, but she’s determined to stay as active as possible. She aims to counter the ongoing bone loss she still experiences from continuing treatment with prednisone. She takes Fosamax; eats a lot of yogurt, cheese and milk to boost her calcium levels; and gets exercise in her local pool three times a week. She works out no matter how she’s feeling that day.

“Sometimes I think to myself ‘Oh my God, I can’t move,’ “ she says. “But whatever it takes, I just get in the water.”

Sidebar:

You Are What You Eat!

The most important thing you can do about osteoporosis is to be aware of the risk and try to prevent the disease. Along with weight-bearing exercise—such as walking, jogging, dancing and racket sports—calcium and vitamin D play a big part.

The diet of the average American contains just 600 mg of calcium per day. But after age 11, depending on age and gender (women need more than men), we should get between 1,000 and 1,500 mg per day. People on corticosteroids, however—no matter how old they are, or whether they’re male or female—need 1,500 mg of calcium daily, according to the American College of Rheumatology. The best way to get it is to eat foods that are naturally high in calcium.

Another way is to add a calcium supplement to your diet. Your body can’t absorb more than 600 mg of calcium at a time, so it’s best to take these supplements over the course of the day.

Calcium supplements include calcium carbonate (Calci-Chew®, Calci-Mix®, OsCal®, Caltrate®), calcium citrate (Citracal®), calcium gluconate, calcium lactate, calcium phosphate (Posture®), chewable antacids (Tums®, Mallamint®, Chooz gum®—be sure your choice doesn’t contain aluminum) and chewable calcium (Nature Made Calburst®, Viactiv® Soft Calcium Chews).

It’s also important to get enough vitamin D to help your gastrointestinal tract absorb the calcium. Healthy bones need between 400 and 800 units of vitamin D per day, but, again, the rules for people on corticosteroids are special: You need all 800 units of vitamin D every day. You can either find a calcium supplement that includes enough vitamin D or take one or two daily multivitamin pills that give you the necessary amount. It is, however, possible to have too much—as well as too little—of a good thing. By testing your blood and urine, your doctor can make sure you are getting the right amounts of both calcium and vitamin D.

A note on supplements and multivitamins: vitamin K is a crucial factor in blood clotting, and if you have lupus and have had antiphospholipid antibodies (which lead to a blood-clotting disorder), you need to make sure your calcium supplement and multivitamin aren’t also giving

you too much vitamin K. The recommended daily amount is 65 micrograms for adult women and 80 micrograms for adult men.

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