



## **Bone Health: Ways Children and Adults Can Reduce Their Fracture Risk**

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**By Emily Wojcik**

Sarah Daniels, 44, was first diagnosed with lupus in 2001. “I was put on Plaquenil® and steroids for joint pain in my right hip,” says the Beaufort, SC, brand ambassador for the VIP Desk at Eddie Bauer. “I got a lot of cortisone injections in my hip, and when I had my first bone density test, I had really low bone density there.” Daniels’s rheumatologist thinks it was a result of the shots.

Low bone mineral density (BMD), or osteopenia, can lead to osteoporosis, a condition in which bones become thin, brittle, and susceptible to fractures. “Osteoporosis is not painful, so until you have a fracture, you might not know you have it,” says Diane Kamen, M.D., M.S., assistant professor in the Medical University of South Carolina’s Division of Rheumatology and Immunology. “That’s why we worry—not because osteoporosis is disabling, but because the end result is fractures, which can be painful and hard to treat.”

Low BMD is a serious warning sign for people with lupus. “People with lupus have higher levels of inflammation, which can cause more rapid bone density loss,” Kamen says. “And, if there is kidney involvement it can change the balance of minerals in the body and cause bone loss through shifts in the balance of calcium.”

Lupus medications are also to blame. “The corticosteroids taken during periods of flare will cause bone thinning and mineral loss,” says Kamen. “Even with low doses over short periods of time, loss in bone density can happen quickly.” Cyclophosphamide (Cytoxan®) can cause premature menopause or temporary estrogen loss. Because estrogen protects bones, Kamen explains, “anything that speeds menopause or deprives your body of estrogen increases the risk of bone density loss.”

### **Banking Bone**

Menopausal women aren’t the only ones at risk. Younger women and even teenagers with lupus should be aware of the risks. “Adolescent bone growth is really important to future bone health,” says Emily von Scheven, M.D., professor of clinical pediatrics and pediatric rheumatology at the University of California, San Francisco. “Your risk for developing osteoporosis is a function of how much bone density you accrue during childhood. Basically, you bank bone until the age of 21—after that, you don’t really have an opportunity to build more.”

That is why bone health is of such concern for children, especially those taking medications known to impair bone growth. “Kids with lupus generally take a lot of steroids, because they’re at higher risk of developing organ disease,” says von Scheven. Take Betty Ann Exler’s son, Scott, for example. Now 18 and a student at Arcadia University in Glenside, PA, he has been on steroids since his lupus diagnosis 10 years ago.

“They’ve been great for Scott short-term, but not long-term,” Exler says. “They’re hard on him physically. Scott’s small for his age; I worry about his bones thinning and all the things that can happen because of that.”

Delayed physical growth can have a particular impact on boys with lupus because, like estrogen, testosterone protects bones and promotes BMD. When puberty is delayed, or growth is stunted even temporarily through treatment, the risk of developing osteopenia increases.

### **Intervening Before Bones Break**

Low BMD is often treatable. Vitamin D is crucial to bone development and calcium absorption. “One thousand I.U.s

[international units] of vitamin D per day is the minimum that everyone with lupus should be getting,” says Kamen. “Usually people get enough from the sun, but sometimes that’s not feasible if you have lupus and need to avoid UV light because it can trigger flares.”

Dietary supplements can help. You may want to talk to your doctor about having your vitamin D levels checked. Newly released guidelines from the Institute of Medicine on recommended calcium and vitamin D levels are available at [lupus.org/vitaminD](http://lupus.org/vitaminD). Quitting smoking, lowering alcohol consumption, and increasing weight-bearing exercise, like walking or running, can also decrease osteoporosis risk. For instance, physical therapy helps Daniels lower the number of cortisone injections she needs in her hip, reducing her risk of bone thinning.

An annual bone density scan known as DXA (dual-energy X-ray absorptiometry, also known as bone densitometry) can be an important part of maintaining bone health. Kamen also recommends asking your doctor about FRAX—the tool that assesses your risk of a fracture over the next 10 years.

If your BMD is already low, there are medications to prevent further loss. “If you’re going to be on corticosteroids for a while, your doctor may want to prescribe a bisphosphonate (Fosamax® or Boniva®),” Kamen says.

But, she adds, “While these medications do a great job of halting bone loss, they don’t build bone.” For people with a history of fractures or who lose bone density even on a bisphosphonate, the only medication option for building bone is injections of Forteo®.

### **Treatment for Kids**

Such aggressive intervention may not be necessary, or advisable, for children, however. Cindy Hoeft’s daughter, Jennie, now 22, was diagnosed with lupus when she was six years old. While initially taking Cytoxan for kidney involvement, prednisone, oral lisinopril (Prinivil®), and aspirin for blood clots, “she had to ingest plenty of calcium” to keep her bones strong, says Hoeft, a health unit coordinator at Aurora St. Luke’s Medical Center in Milwaukee. “She loved dairy, and her doctors said she didn’t need an oral supplement.”

When Jennie flared again in eighth grade, however, she went back on prednisone. Her body’s needs changed as she entered adolescence, and she could no longer get enough calcium or vitamin D from food. She began taking supplements regularly. “The supplements alone seem to work,” says Hoeft. “Jennie hasn’t had any fractures, thank goodness.”

“Some treatments are simple and low-risk, like vitamin D and calcium supplements. To skimp on them doesn’t make sense,” says von Scheven. “But some are much more potent, such as Fosamax. Their long-term safety for kids is less well-known.” She says kids’ bodies can sometimes self-correct. “The lupus flare ends, and so we taper off prednisone, and bone mineral accrual resumes.”

### **Planning Ahead**

Staying on top of treatment can be a struggle, though. Sheila Murphy, a 44-year-old administrative assistant in Florence, SC, was diagnosed with lupus 14 years ago. She gets regular DXA scans and has tried Fosamax, Forteo, and Boniva, but “sometimes it all feels like a vicious cycle,” she says. It’s hard for Murphy to eat a lot of dairy and other foods high in calcium because of digestive issues and a need to keep her sodium level down due to her kidney involvement. Now she gets an infusion of Boniva and is happy to report that she hasn’t had a fracture.

Ultimately, staying aware and planning ahead are the best defenses. “We spend a lot of time on the immediate needs of people with lupus, but not always on potential long-term complications, such as osteoporosis,” says von Scheven. “You should be screened early for vitamin D deficiency and osteoporosis. Begin that conversation with your doctor.”

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