

lupus  **FACT SHEET**

Lupus Canada

Osteoporosis and Lupus

Osteoporosis is called the “silent thief” because bone loss occurs without symptoms. Many people don’t even realize they have the disease until their bones are so weak that a minor incident causes a fracture, or their vertebrae begin to collapse and cause a loss in height. At its worst, osteoporosis can lead to painful disability, even death (in fact, more women in Canada die each year as a result of osteoporotic fractures than from breast and ovarian cancers combined).

If you have systemic lupus erythematosus (SLE or lupus), you are at increased risk for osteoporosis. The good news is that you can learn about your risks, take steps to reduce them, and prevent loss of bone density and fractures.

What is osteoporosis?

Osteoporosis is a condition in which the bones become less dense and more likely to break. The hip, spine and wrist are particularly at risk of fracturing. Fractures of the vertebrae (bones in the spine) can lead to height loss and severe back pain.

Women are four times more likely to develop osteoporosis than men. Although it can affect people of any age, it becomes more common after 50.

What is the link between lupus and osteoporosis?

People with lupus have multiple risk factors for developing osteoporosis (see sidebar: Assessing Your Risks). These include:

Being a woman. The vast majority of people with lupus are women, a group already at increased risk for osteoporosis.

Lack of physical activity. Weight-bearing exercise helps prevent osteoporosis. The pain and fatigue caused by lupus can get in the way of fitness activities, further increasing your risk of osteoporosis.

Vitamin D deficiency. Sunlight is the most common source of vitamin D, which is needed for healthy bones, but people with lupus are advised to avoid the sun to prevent lupus flares.

Medications. Some drugs prescribed to manage lupus can increase your risk of osteoporosis. In particular, glucocorticoid (corticosteroid) medications such as prednisone are associated with significant bone loss because they decrease the intestine’s ability to absorb calcium, thus preventing bone formation. The risk of bone loss increases with higher doses (7.5 mg/day or higher) and longer use (three months or more). On average, 30 to 50 percent of people on long-term corticosteroids will experience a fracture if they are not treated for osteoporosis.

Cyclophosphamide (Cytoxan®), another drug used to treat lupus, can result in premature ovarian failure. The resulting reduction in estrogen production can increase the risk of osteoporosis, as estrogen is an important hormone for maintaining bone density. Other drugs, including anticonvulsants, warfarin (Coumadin®), heparin and furosemide (Lasix®), may also have negative effects on bone health.

Lupus activity. Bone loss may also occur as a direct result of your lupus. For example, kidney failure of any degree can lead to low blood calcium levels, impaired vitamin D production and increased bone loss.

Women are four times more likely to develop osteoporosis than men



ASSESSING YOUR RISKS*

While there is no single cause of osteoporosis, there are factors that can increase your risk of developing the disease. These include:

Major risk factors:

- Age 65 or older
- Vertebral compression fracture
- Fracture with minimal trauma after age 40
- Family history of osteoporotic fracture (especially if your mother had a hip fracture)
- Long-term (more than three months) use of glucocorticoid therapy such as prednisone
- Medical conditions (such as celiac disease, Crohn's disease) that inhibit absorption of nutrients
- Primary hyperparathyroidism (enlarged, overactive parathyroid glands)
- Hypogonadism (low testosterone in men; loss of menstrual periods in younger women)

Other risk factors:

- Rheumatoid arthritis
- Hyperthyroidism (excess thyroid hormone production)
- Prolonged use of anticonvulsants or heparin
- Body weight less than 57 kg (125 lbs) or more than 10 per cent below your weight at age 25
- Low calcium intake
- Excess caffeine (consistently more than four cups of coffee, tea, cola per day)
- Excess alcohol (consistently more than two drinks a day)
- Smoking

In addition, the loss of bone in people with lupus appears to be associated with processes that aren't fully understood, including the involvement of inflammatory substances called cytokines.

Warning signs

Most people do not realize they have osteoporosis until they have had it for a long time. The first warning sign might be a sudden sharp pain in your back (especially mid-back) that seems to have come on for no reason. A sharp pain in your back, ribs, hip or wrist that doesn't go away after a fall (even a minor one) could indicate that you have an osteoporotic fracture. Loss of height or curvature of the spine can be signs of compressed vertebrae due to osteoporosis.

It is important to note, however, that many people do not experience any signs or symptoms of osteoporosis until they have a fracture, by which time the condition is fairly advanced.

Early detection is key

Early diagnosis of osteoporosis is key to preventing further bone loss and fractures. Specialized tests known as bone mineral density (BMD) tests measure bone density at various sites of the body. These safe and painless tests can accurately detect osteoporosis before a fracture occurs and predict your chances of developing osteoporosis in the future.

If you have lupus, talk to your doctor about your risk factors for osteoporosis and the need for a BMD. If you and your doctor agree that your bones need to be monitored,

make sure you are re-tested on the same BMD machine whenever possible.

Prevention

Never has the saying "An ounce of prevention is worth a pound of cure" been so true. It is not too late to strengthen your bones, stop further bone loss and reduce your risk of a debilitating fracture. Here's how:

Calcium rules! Calcium intake is the single most important predictor of bone strength. In fact, just about every cell in your body needs calcium to stay healthy. If your body can't absorb enough calcium from the food you eat, it will take the calcium from your bones, leaving them thinner and weaker. To keep bones strong, you should take in at least 1,000 mg of calcium each day (1,500 mg if you are over the age of 50 or if you are taking prednisone). Good sources of calcium include low-fat dairy products (milk, cheese and yogurt) and calcium-fortified foods and beverages. Almonds and dark green leafy vegetables are also sources of calcium. Calcium supplements can help ensure that you get enough calcium each day (see box: Supplement Your Bones).

Don't block your calcium. It's not enough to just get calcium into your stomach – it has to be absorbed and used for bone-building. Cigarette smoke and excessive caffeine, alcohol (and possibly salt consumption) all undermine your body's ability to absorb calcium. Try to cut these bone-thinning habits from your lifestyle.

Add some D. Vitamin D deficiency is another common barrier to calcium

*Source: Osteoporosis Canada

absorption. In essence, vitamin D is the gatekeeper that allows calcium to leave your intestines and enter your blood; without vitamin D, the gateway remains closed. While the body can manufacture its own vitamin D from sunlight, excessive sun exposure can trigger flares in some people with lupus. As a result, you may require vitamin D supplements in order to ensure the required daily intake of 400 to 800 IUs. Vitamin D can also be found in foods such as liver, vitamin-D fortified milk and fish oils.

Work those bones. Exercise has long been recognized as an important factor in preventing osteoporosis. For the most benefit to your bones, exercise daily or every other day. Include weight-bearing exercises, such as brisk walking, aerobics, dancing and stair climbing. Exercises that improve posture, balance and co-ordination are especially important as these can help prevent bone-breaking falls. Tai chi is a great choice.

Sometimes exercising can be challenging for people with lupus, especially during a flare. However, even low-intensity activities such as slow walking offer benefits to your overall health. If activity causes pain, consult your doctor or physiotherapist.

Prevent falls. Even a slight fall can cause a life-altering break if you have osteoporosis. Reduce your risk of falling with these tips:

- Wear corrective glasses if you need them.
- Keep your house well-lit and free of small items that could trip you.
- Wear sturdy, low-heeled, soft-soled shoes.
- Eliminate or securely tape down throw rugs, loose wires and electrical cords.
- Install safety handrails and guards, especially in the bathroom.
- If a medicine causes dizziness or lightheadedness, talk to your doctor about alternative medications.
- In the winter, keep your driveway and front walk clear of ice and snow.

Medication

Osteoporosis has no cure. However, medications that prevent and treat osteoporosis are available*:

Bisphosphonates are a family of drugs used to prevent and treat osteoporosis especially in post-menopausal women and people using steroid medications. Bisphosphonates bind permanently to the surfaces of the bones and slow down bone-eroding cells while allowing bone-building cells to work more effectively. Three oral bisphosphonates have been approved for use in Canada for osteoporosis: alendronate (Fosamax[®]), etidronate (Didrocal[®]) and risedronate (Actonel[®]). All three have been shown to increase bone density and prevent fractures of the spine. Alendronate and risedronate have also been shown to prevent hip fractures. Studies suggest alendronate and risedronate may be more effective in treating osteoporosis than etidronate.

The most common side effects of bisphosphonates are nausea, abdominal pain and loose bowel movements, although these are usually mild. Etidronate has been associated with esophageal ulcerations,

Calcitonin is a hormone found naturally in our bodies. The synthetic form of calcitonin (Miacalcin[®] nasal spray) works by slowing bone-eroding cells while allowing bone-building cells to work more effectively. Studies show that nasal calcitonin maintains or minimally increases bone density and prevents fractures of the spine, but bisphosphonates may be better for people at risk of steroid-induced osteoporosis. Calcitonin is sometimes useful to decrease pain related to a recent fracture.

Hormone replacement therapy (HRT) is another potential option to slow down bone loss, especially for women who also want relief from symptoms of menopause.

After menopause, women make less estrogen and progesterin, which are important hormones for maintaining bone density. HRT has been shown to slow down bone loss and



SUPPLEMENT YOUR BONES

It is important to have an adequate calcium intake. Calcium supplements such as calcium carbonate, calcium citrate, calcium lactate and calcium gluconate, at 500 to 2,000 mg daily, are the simplest and least expensive way to prevent bone loss.

There are many types and brands of calcium supplements. They vary in amount of calcium, type of calcium, whether they include vitamin D, size of tablet, type of tablet (e.g. chewable, effervescent) and price. Antacids (e.g. Tums®, Rolaids®) contain calcium carbonate and can be used as a supplement. Some calcium supplements may cause stomach upset, nausea or constipation. Talk to your doctor or pharmacist about which ones may be right for you.

To improve your body's absorption of calcium, take your supplement with plenty of water. Take calcium carbonate with food or immediately after eating; other types of calcium are well absorbed at any time. Don't take more than 500 mg of elemental calcium at one time, as your body won't be able to absorb it.

increase bone density, and it may also reduce the chances of spine and hip fractures. However, HRT may increase the chances of developing breast cancer, heart disease, stroke and blood clots, especially if taken for longer than five years. Thus, HRT is used much less often than in times past. If you are on these agents, or are considering beginning them, you should probably be followed closely by a gynecologist.

Parathyroid hormone (PTH) and teriparatide are a new class of osteoporosis treatments called bone formation agents. Teriparatide injection (Forteo®) is the first medication approved by Health Canada in this new class. It works by activating bone-building cells so that new bone is generated faster than old bone is broken down. Possible side effects include dizziness, nausea and leg cramps.

No matter which drug therapy you and your doctor choose, remember that a diet rich in calcium and vitamin D is required to maintain healthy bones.

**Source: 2002 Clinical Practice Guidelines for the Diagnosis and Management of Osteoporosis in Canada.*



FOR MORE INFORMATION

- Lupus Canada: www.lupuscanada.org. This site includes electronic versions of the *Living Well with Lupus* fact sheets.
- *Lupus: The Disease with a Thousand Faces*, edited by Dr. Sasha Bernatsky and Dr. Jean-Luc Senécal, Key Porter Books (2004) ISBN 1-55263-603-8. Contact Lupus Canada to order this book.
- The Arthritis Foundation: www.arthritis.ca
- Osteoporosis Canada: www.osteoporosis.ca
- National Institute of Arthritis and Musculoskeletal and Skin Disease: www.niams.nih.gov/bone/hi/osteoporosis_lupus.htm

Disclaimer

Systemic lupus erythematosus is an autoimmune disease that affects thousands of Canadians, mostly women in their childbearing years. Symptoms vary greatly from person to person and treatment is highly individualized. Patients are urged to contact their physician or healthcare professional with any questions or concerns they might have.

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