



BONE HEALTH & SCLERODERMA

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WHO IS AT RISK OF DEVELOPING OSTEOPOROSIS?

THE RISK FACTORS FOR DEVELOPING OSTEOPOROSIS ARE THE FOLLOWING:

- ▶ **Your age:** the risk increases with age, especially after menopause in women and after the age of 65 in men;
- ▶ **Your gender:** women are more at risk of developing osteoporosis because of the decrease in estrogen levels after menopause. However, men are also affected by osteoporosis. In fact, at least one in three women and one in five men will experience a fracture caused by osteoporosis in their lifetime;
- ▶ A history of fracture of the hip, spine, or other sites occurring spontaneously or following minor trauma;
- ▶ A history of hip fracture in one of your parents;
- ▶ **Your calcium intake:** if your body does not get enough calcium from food to perform its vital functions, it will draw calcium from your bones. Calcium is a mineral that is essential for the architecture of the bone, and a deficiency will lead to weaker bones.



Osteoporosis is a disease in which the bones become more fragile. People with osteoporosis are at risk of breaking their bones more easily. In fact, a fracture could occur following a fall to the ground or a minor trauma, or even spontaneously. Fractures, particularly of the hip, can have a significant impact on mobility and autonomy. This is why it is important to treat osteoporosis to prevent fractures before they occur.

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- ▶ **Your vitamin D intake:** vitamin D helps the body to absorb calcium. A vitamin D deficiency can therefore contribute to a calcium deficiency;
- ▶ Physical inactivity;
- ▶ Smoking;
- ▶ Alcohol consumption (three or more drinks per day);
- ▶ Low body weight (less than 60 kg or 132 lbs) or significant weight loss;
- ▶ Use of glucocorticoid medications for three months or more;
- ▶ Other health problems or medications that contribute to bone loss, such as premature menopause (before age 45), chronic inflammatory diseases such as rheumatoid arthritis, bowel diseases causing malabsorption (Crohn's, ulcerative colitis, celiac disease, weight loss surgery), malnutrition, type 1 diabetes, untreated hyperthyroidism, primary hyperparathyroidism, hypogonadism, Cushing's disease, chronic obstructive pulmonary disease, chronic liver and kidney disease, and certain drugs used in the treatment of breast and prostate cancer, among others.

The risk of fracture is increased in people with osteoporosis because fracture can occur after a minor trauma such as a simple fall to the ground. If you have had a fall in the past, this is the best predictor of another fall in the future. In fact, a history of fall triples your risk of falling again. Certain medical conditions (joint, muscle or neurological problems) or medications can also increase your risk of falling and therefore of breaking a bone.

HOW COMMON IS OSTEOPOROSIS IN SCLERODERMA?

The prevalence of osteoporosis is increased in people with scleroderma, affecting approximately 30% of individuals. This increased risk may be related to the presence of risk factors for osteoporosis, such as advanced age, early menopause, use of glucocorticoid drugs, malabsorption related to bowel involvement, vitamin D deficiency and chronic inflammation. It is therefore important to screen for osteoporosis in people with scleroderma, especially if risk factors are present.

HOW DO I KNOW IF I HAVE OSTEOPOROSIS?

Osteoporosis is also known as the "silent thief" because the disease can build up gradually over the years without any apparent symptoms, until a fracture occurs. The most common fracture sites associated with osteoporosis are the hips (pelvis), vertebrae (in the spine) and wrists. A decrease in height can be a warning sign that a vertebral fracture has occurred.

Since osteoporosis is most often asymptomatic before a fracture occurs, a test is necessary to detect this condition: the evaluation of bone mineral density (BMD). This density is measured by osteodensitometry, a test done in radiology that measures the density of bones at the vertebrae, hip and wrist. The "T-score" is then generated and reflects the deviation of your bone density from that of a young adult. A T-score below -2.5 is classified as "osteoporosis" and a T-score between -1 and -2.5 means low bone density ("osteopenia").

Screening by BMD assessment is recommended for everyone over the age of 65. In addition, screening is also recommended for post-menopausal women and men over the age of 50 with risk factors for fracture, or adults younger than 50 with a medical condition associated with bone loss.

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WHAT CAN I DO TO KEEP MY BONES HEALTHY?

- ▶ Optimize your calcium intake by eating calcium-rich foods such as dairy products (milk, yogurt, cheese), calcium-fortified beverages (soy milk, orange juice), leafy green vegetables (kale, broccoli), tofu and vegetables. The daily target intake is 1,200 mg. If your dietary intake is insufficient, you can supplement with calcium tablets.
- ▶ Optimize your vitamin D intake to ensure proper calcium absorption by eating vitamin D-rich foods, such as vitamin D-fortified dairy products and orange juice, fatty fish, fish liver oils and egg yolks. A vitamin D supplement is often necessary and can be taken on a daily or weekly basis. Vitamin D levels are measured in the blood and can be used to determine the amount of supplementation needed.
- ▶ Regular weight-bearing exercise (to improve bone health) and balance and strength training (to prevent falls).
- ▶ Avoid or quit smoking.
- ▶ Limit alcohol consumption (no more than two drinks per day).
- ▶ Secure your environment to prevent falls. For example, make sure no electrical wires are lying around. Anchor rugs to the floor with non-slip rug pads to prevent slipping. Keep hallways well lit. Watch out for slippery floors. Wear comfortable shoes with rubber soles. Have your eyes checked. Minimize the use of medications that can increase your risk of falling (discuss this with your physician).



ARE THERE TREATMENTS FOR OSTEOPOROSIS?

Yes. Depending on the results of your BMD test and whether you have risk factors for osteoporosis, your doctor can assess your risk of having a fracture. If your risk is high, several medications can be used to reduce that risk.

There are two main categories of treatments for osteoporosis: anti-resorptive therapies, which slow down bone loss; and anabolic agents, which stimulate bone formation.

- ▶ **Bisphosphonates**, such as alendronate (**Fosamax**®) and risedronate (**Actonel**®), are first-line anti-resorptive therapies. These medications are usually taken by mouth once a week. They must be taken on an empty stomach (no food or drink except water), otherwise they will not be absorbed. They can irritate the esophagus (the part of the digestive tract between the mouth and the stomach), so they must be taken with a large glass of water and you must remain upright (not lying down) for at least half an hour afterwards. Some bisphosphonates can also be given intravenously, such as zoledronate (**Aclasta**®). It is important to tell your dentist that you are taking these medications, as they may increase the risk of complications with certain dental procedures.

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- ▶ **Denosumab (Prolia®)** is an anti-resorptive drug administered by subcutaneous injection every six months. This drug is generally reserved for patients who have an intolerance or contraindication to bisphosphonates. Since people with scleroderma often have esophageal motility problems that may put them at risk for digestive intolerance to bisphosphonates, denosumab represents an alternative option in this population.
- ▶ **Hormone replacement therapy** (or estrogen/progesterone) is an alternative for women with menopausal symptoms such as hot flashes and night sweats.
- ▶ **Raloxifene (Evista®)** is another anti-resorptive drug that reduces the risk of vertebral fractures.
- ▶ **Anabolic agents**, such as teriparatide, abaloparatide and romosozumab, are used in severe or refractory cases.

The duration of treatment varies depending on the type of medication, the patient's risk of fracture and the response to treatment. BMD testing is repeated every one to two years to ensure that bone density has stabilized. Blood markers may also be done to monitor the effect of treatment on bone metabolism. The success of the treatment is measured by a stabilization or an increase in BMD, as well as by the absence of new fractures.

IN SUMMARY

Osteoporosis is a disease that makes bones more fragile and increases the risk of fracture. Osteoporosis is common in people with scleroderma, affecting about one-third of individuals. Risk factors include advanced age, menopause, nutritional deficits, digestive malabsorption and use of glucocorticoid medication. Bone density testing is useful for detecting osteoporosis and initiating treatment early on in order to prevent fractures.



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