



What People With Celiac Disease Need to Know About Osteoporosis

**National Institutes of Health
Osteoporosis and Related
Bone Diseases ~
National Resource Center**

2 AMS Circle
Bethesda, MD 20892-3676

Tel: 800-624-BONE or
202-223-0344
Fax: 202-293-2356
TTY: 202-466-4315

Internet: www.niams.nih.gov/bone
E-mail: [NIAMSBoneInfo@
mail.nih.gov](mailto:NIAMSBoneInfo@mail.nih.gov)

The NIH Osteoporosis and Related Bone Diseases ~ National Resource Center is supported by the National Institute of Arthritis and Musculoskeletal and Skin Diseases with contributions from the National Institute on Aging, the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development, the National Institute of Dental and Craniofacial Research, the National Institute of Diabetes and Digestive and Kidney Diseases, the NIH Office of Research on Women's Health, and the HHS Office on Women's Health.

The National Institutes of Health (NIH) is a component of the U.S. Department of Health and Human Services (HHS).



What Is Celiac Disease?

Celiac disease, sometimes called sprue or celiac sprue, is an inherited intestinal disorder in which the body cannot tolerate gluten. Gluten is a protein found in wheat, rye, barley, farina, and bulgur. When people with celiac disease eat foods containing gluten, their immune systems respond by attacking and damaging the lining of the small intestine. The small intestine is responsible for absorbing nutrients from food into the bloodstream for the body to use. When the lining is damaged, so is its ability to absorb these nutrients.

Until recently, celiac disease was considered uncommon in the United States. However, recent studies suggest that the disease may be underdiagnosed and that as many as 1 percent of all Americans could have the disease.

Celiac disease affects people differently. Some people develop symptoms as children and others as adults. Symptoms vary and may or may not occur in the digestive system. They may include diarrhea, abdominal pain, weight loss, irritability, and depression, among others. Irritability is one of the most common symptoms among children. In some cases, a diagnosis of celiac disease is missed because the symptoms are so varied and may only flare up occasionally.

Children and adults with untreated celiac disease may become malnourished, meaning they do not get enough nutrients, resulting in anemia, weight loss, and, in children, delayed growth and small stature. Among the possible complications of untreated celiac disease is the inability to

develop optimal bone mass in children and the loss of bone in adults, both of which increase the risk of osteoporosis. The only treatment for celiac disease is to follow a gluten-free diet.

What Is Osteoporosis?

Osteoporosis is a condition in which the bones become less dense and more likely to fracture. Fractures from osteoporosis can result in pain and disability.

Osteoporosis is a major health threat for an estimated 44 million Americans, 68 percent of whom are women. Although postmenopausal Caucasian women have the highest risk for the disease, men and certain ethnic populations are also at risk.

Risk factors for developing osteoporosis include:

- thinness or small frame
- family history of the disease
- being postmenopausal and particularly having an early menopause
- abnormal absence of menstrual periods (amenorrhea)
- prolonged use of certain medications, such as those used to treat lupus, asthma, thyroid deficiencies, and seizures
- low calcium intake
- lack of physical activity
- smoking
- excessive alcohol intake.

Osteoporosis often can be prevented. However, it is known as a silent disease because, if undetected, osteoporosis can progress for many years without symptoms until a fracture occurs. It has been called a childhood disease with old age consequences because building healthy bones in youth helps prevent osteoporosis and fractures later in life. However, it is never too late to adopt new habits for healthy bones.

The Link Between Celiac Disease and Osteoporosis

Osteoporosis is a complication of untreated celiac disease. The small intestine is responsible for absorbing important nutrients, such as calcium. Calcium is essential for building and maintaining healthy bones. Even people with celiac disease who consume enough calcium are deficient in this nutrient. And because calcium is needed to keep bones healthy, low bone density is common in both children and adults with untreated and newly diagnosed celiac disease.

Osteoporosis Management Strategies

When people with celiac disease eliminate foods containing gluten from their diet, normal absorption of nutrients from the intestines is usually restored within a few months, although it may take up to 2 years in older adults. Eventually, most children and adults have significant improvements in bone density.

People with celiac disease who have successfully adopted a gluten-free diet also need to follow the same basic strategies for bone health that apply to others who don't have the disease. These strategies include getting adequate calcium and vitamin D, performing weight-bearing exercise, not smoking, and avoiding excessive use of alcohol. In some cases, an osteoporosis treatment medication may be recommended.

A small percentage of people with celiac disease do not improve on a gluten-free diet. These people often have severely damaged intestines that cannot heal and may need to receive intravenous nutrition supplements.

Nutrition: A well-balanced diet rich in calcium and vitamin D is important for healthy bones. Good sources of calcium include low-fat dairy products; dark green, leafy vegetables; and calcium-fortified foods and beverages. Supplements can help ensure that the calcium requirement is met each day, especially in people with a proven milk allergy. The Institute of Medicine recommends a daily calcium intake of 1,000 mg (milligrams) for men and women, increasing to 1,200 mg for those age 50 and older.

Vitamin D plays an important role in calcium absorption and bone health. It is synthesized in the skin through exposure to sunlight. Food sources of vitamin D include egg yolks, saltwater fish, and liver. Many people obtain enough vitamin D naturally, by getting about 15 minutes of sunlight exposure each day. Older individuals – especially those who are housebound, live in northern climates, or use sunscreen – are often deficient in this vitamin and may need vitamin D supplements to achieve the recommended intake of 400 to 600 IU (International Units) each day.

Exercise: Like muscle, bone is living tissue that responds to exercise by becoming stronger. The best kind of activity for your bones is weight-bearing exercise that forces you to work against gravity. Some examples include walking, climbing stairs, weight training, and dancing. These and other types of exercise also strengthen muscles that support bone, enhance balance and flexibility, and preserve joint mobility, all of which help reduce the likelihood of falling and breaking a bone, especially among older people.

Healthy lifestyle: Smoking is bad for bones as well as the heart and lungs. Women who smoke tend to go through menopause earlier, resulting in earlier reduction in levels of the bone-preserving hormone estrogen and triggering earlier bone loss. In addition, smokers may absorb less calcium from their diets. Alcohol also can have a negative effect on bone health. Those who drink heavily are more prone to bone loss and fracture, because of both poor nutrition and increased risk of falling.

Bone density test: A bone mineral density (BMD) test measures bone density in various sites of the body. This safe and painless test usually can detect osteoporosis before a fracture occurs and predict one's chances of fracturing in the future. Adults with celiac disease should talk to their doctors about whether they might be candidates for a BMD test. The test can help determine whether medication should be considered. A BMD test also can be used to monitor the effects of an osteoporosis treatment program.

Medication: Medications are available to prevent and treat osteoporosis. The Food and Drug Administration has approved several medications – alendronate, risedronate, ibandronate, zoledronic acid, raloxifene, calcitonin, teriparatide, and estrogen/hormone therapy – for preventing and/or treating osteoporosis in postmenopausal women. Alendronate and risedronate are also approved for use in men. For people on glucocorticoid therapy, alendronate (for treatment) and risedronate (for prevention and treatment) are approved for glucocorticoid-induced osteoporosis.

Resources

For more information on osteoporosis, contact the National Institutes of Health Osteoporosis and Related Bone Diseases ~ National Resource Center at 800-624-2663 or NIAMSboneinfo@mail.nih.gov.

For more information on celiac disease, contact the Celiac Disease Awareness Campaign, a service of the National Digestive Diseases Information Clearinghouse at 800-891-5389 or celiac@info.niddk.nih.gov.

For Your Information

This publication contains information about medications used to treat the health condition discussed here. When this fact sheet was printed, we included the most up-to-date (accurate) information available. Occasionally, new information on medication is released.

For updates and for any questions about any medications you are taking, please contact the Food and Drug Administration at 888-INFO-FDA (888-463-6332, a toll-free call) or visit its Web site at www.fda.gov.

For updates and questions about statistics, please contact the Centers for Disease Control and Prevention's National Center for Health Statistics toll free at 800-232-4636 or visit its Web site at www.cdc.gov/nchs.

Recognizing the National Bone and Joint Decade: 2002–2011