



**National Institutes of Health
Osteoporosis and Related
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What People With Celiac Disease Need to Know About Osteoporosis

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 bulgar. 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 one in every 133 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 are 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. While 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:

- being thin or having a small frame
- having a family history of the disease
- for women, being postmenopausal, having an early menopause, or not having menstrual periods (amenorrhea)
- using certain medications, such as glucocorticoids
- not getting enough calcium
- not getting enough physical activity
- smoking and
- drinking too much alcohol.

Osteoporosis is a disease that often can be prevented. However, if undetected, it can progress for many years without symptoms until a fracture occurs.

The Celiac Disease – Osteoporosis Link

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 since 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 – though it may take up to two 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 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. Also, supplements can help ensure that the calcium requirement is met each day.

Vitamin D helps the body to absorb calcium. It is synthesized in the skin through exposure to sunlight. While many people are able to obtain enough vitamin D by getting about 15 minutes of sunlight exposure each day, others – especially those who are older or housebound, live in northern climates, and use sunscreen – may be deficient in this vitamin. They may need vitamin D supplements to ensure an adequate daily intake.

Exercise: Like muscle, bone is living tissue that responds to exercise by becoming stronger. The best exercise for bones is weight-bearing exercise that forces one to work against gravity. Some examples include walking, stair-climbing, dancing, and weight training. 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 can also negatively affect 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: Specialized tests known as bone mineral density (BMD) tests measure bone density in various sites of the body. These tests can usually 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 bone density test. The test can help determine whether medication should be considered. A bone density test can also be used to monitor the effects of an osteoporosis treatment program.

Medication: There are medications available for the prevention and treatment of osteoporosis. Several medications (alendronate, risedronate, ibandronate, raloxifene, calcitonin, teriparatide and estrogen/hormone therapy) are approved by

the Food and Drug Administration (FDA) 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 NIH Osteoporosis and Related Bone Diseases ~ National Resource Center at 1-800-624-2663 or NIAMSBONEINFO@mail.nih.gov.

For more information on celiac disease, contact the National Digestive Diseases Information Clearinghouse at 1-800-891-5389 or nddic@info.niddk.nih.gov.

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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 U.S. Food and Drug Administration at 1-888-INFO-FDA (1-888-463-6332, a toll-free call) or visit their Web site at www.fda.gov.

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