



What People With Anorexia Nervosa 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 of Child Health and Human Development, National Institute of Dental and Craniofacial Research, National Institute of Diabetes and Digestive and Kidney Diseases, NIH Office of Research on Women's Health, DHHS Office on Women's Health, and the National Institute on Aging.

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



What Is Anorexia Nervosa?

Anorexia nervosa is an eating disorder characterized by an irrational fear of weight gain. People with anorexia nervosa believe that they are overweight even when they are extremely thin. According to the National Institute of Mental Health, an estimated 0.5 to 3.7 percent of females have anorexia nervosa. While the majority of people with anorexia are female, an estimated 5 to 15 percent of people with anorexia are male.

Individuals with anorexia become obsessed with food and severely restrict their dietary intake. The disease is associated with several health problems and, in rare cases, even death. The disorder may begin as early as the onset of puberty. If a girl has anorexia when she reaches puberty, her first menstrual period is typically delayed. For girls who have already reached puberty, menstrual periods are often infrequent or absent.

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 significant pain and disability. It is a major health threat for an estimated 44 million Americans, 68 percent of whom are women.

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
- drinking too much alcohol.

Osteoporosis is a silent disease that can often be prevented. However, if undetected, it can progress for many years without symptoms until a fracture occurs. It has been called “a pediatric disease with geriatric consequences,” because building healthy bones in one’s youth will help prevent osteoporosis and fractures later in life.

The Anorexia Nervosa – Osteoporosis Link

Anorexia nervosa has significant physical consequences. Affected individuals can experience nutritional and hormonal problems that negatively impact bone density. Low body weight in females causes the body to stop producing estrogen, resulting in a condition known as amenorrhea, or absent menstrual periods. Low estrogen levels contribute to significant losses in bone density.

In addition, individuals with anorexia often produce excessive amounts of the adrenal hormone cortisol, which is known to trigger bone loss. Other problems – such as a decrease in the production of growth hormone and other growth factors, low body weight (apart from the estrogen loss it causes), calcium deficiency, and malnutrition – contribute to bone loss in girls and women with anorexia. Weight loss, restricted dietary intake, and testosterone deficiency may be responsible for the low bone density found in males with the disorder.

Studies suggest that low bone mass (osteopenia) is common in people with anorexia and that it occurs early in the course of the disease. Girls with anorexia are less likely to reach their peak bone density and therefore may be at increased risk for osteoporosis and fracture throughout life.

Osteoporosis Management Strategies

Up to one-third of peak bone density is achieved during puberty. Anorexia is typically identified during mid to late adolescence, a critical period for bone development. The longer the duration of the disorder, the greater the bone loss and the less likely it is that bone mineral density will ever return to normal.

The primary goal of medical therapy for individuals with anorexia is weight gain and, in females, the return of normal menstrual periods. However, attention to other aspects of bone health is also important.

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. Also, supplements can help ensure that the calcium requirement is met each day.

Vitamin D plays an important role in calcium absorption and bone health. It is synthesized in the skin through exposure to sunlight. Individuals may require vitamin D supplements in order 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 you to work against gravity. Some examples include walking, climbing stairs, weight lifting, and dancing.

While walking and other types of regular exercise can help prevent bone loss and provide many other potential health benefits, these potential benefits need to be weighed against the risk of fractures, delayed weight gain, and exercise-induced amenorrhea in people with anorexia and those recovering from the disorder.

Healthy lifestyle: Smoking is bad for bones as well as the heart and lungs. 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 as well as increased risk of falling.

Bone mineral density test: Specialized tests known as bone mineral density (BMD) tests measure bone density in various sites of the body. These tests can detect osteoporosis before a fracture occurs and predict one's chances of fracturing in the future.

Medication: There is no cure for osteoporosis. However, there are medications available to prevent and treat the disease in postmenopausal women; men; and both women and men taking glucocorticoid medication. Some studies suggest that there may be a role for estrogen preparations among girls and young women with anorexia. However, experts agree that estrogen should not be a substitute for nutritional support.

Resources

For additional information on osteoporosis, visit the National Resource Center Web site at www.niams.nih.gov/bone or call 1-800-624-2663.

For additional information on anorexia, visit the National Institute of Mental Health Web site at www.nimh.nih.gov or call 1-800-421-4211.

Revised June 2005

For Your Information

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.