



What People With Diabetes Need To Know About Osteoporosis

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

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What is diabetes?

Diabetes is a disorder of metabolism, a term that describes the way our bodies chemically change the foods we eat into growth and energy. After we digest food, glucose (sugar) enters the bloodstream, where it is used by the cells for energy. For glucose to get into the cells, insulin must be present.

Insulin is a hormone produced by the pancreas, an organ located behind the stomach. It is responsible for moving glucose from the bloodstream into the cells to provide energy needed for daily life. In people with diabetes, the body produces too little or no insulin or it does not respond properly to the insulin that is produced.

- In **type 1 diabetes**, the body produces little or no insulin. This form of the disease typically appears in children and young adults, but it can develop at any age.
- In **type 2 diabetes**, the body produces insulin but not enough, and the body does not respond properly to the insulin that is produced. This form of the disease is more common in people who are older, overweight, and inactive.

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. In the United States, more than 53 million people either already have osteoporosis or are at high risk due to low bone mass.

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

The diabetes–osteoporosis link

People with diabetes, particularly type 1 diabetes, often have poorer bone quality and an increased risk of fractures. Those with long-standing disease and poor blood sugar control, and who take insulin have the highest fracture risk.

The onset of type 1 diabetes typically occurs at a young age when bone mass is still increasing. It is possible that people with type 1 diabetes achieve lower peak bone mass, the maximum strength and density that bones reach. People usually reach their peak bone mass in their 20s. Low peak bone mass can increase one's risk of developing osteoporosis later in life.

Some of the complications of diabetes, such as nerve damage, muscle weakness, episodes of low blood sugar, and vision problems can increase the risk of falls and fractures.

Managing osteoporosis

Strategies to prevent and treat osteoporosis in people with diabetes are the same as for those without diabetes.

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. Many low-fat and low-sugar sources of calcium are available. Also, supplements can help you meet the daily requirements of calcium and other important nutrients.

Vitamin D plays an important role in calcium absorption and bone health. It is synthesized in the skin through exposure to sunlight. Although many people are able to obtain enough vitamin D naturally, older individuals are often deficient in this vitamin due, in part, to limited time spent outdoors. They may require 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 exercises for your bones are weight-bearing and resistance exercises. Weight-bearing exercises force you to work against gravity. These include walking, stair climbing, and dancing. Resistance exercises – such as lifting weights – can also strengthen bones. Regular exercise can help prevent bone loss and, by enhancing balance and flexibility, reduce the likelihood of falling and breaking a bone. Exercise is especially important for people with diabetes since exercise helps insulin lower blood glucose levels.

Healthy lifestyle. Smoking is bad for bones as well as for the heart and lungs. Women who smoke tend to go through menopause earlier, triggering earlier bone loss. In addition, people who smoke may absorb less calcium from their diets. Alcohol can also negatively affect bone health. People who drink heavily are more prone to bone loss and fracture. Avoiding smoking and alcohol can also help with managing diabetes.

Bone density test. Specialized tests known as bone mineral density (BMD) tests measure bone density in various parts of the body. These tests can detect osteoporosis before a bone fracture occurs and predict a person's chances of fracturing in the future. It can measure bone density at your hip and spine. People with diabetes should talk to their doctors about whether they might be candidates for a bone density test.

Medication. Like diabetes, there is no cure for osteoporosis. However, several medications are approved by the U.S. Food and Drug Administration for the prevention and treatment of osteoporosis in postmenopausal women and men. Medications are also approved for use in both women and men with glucocorticoid-induced osteoporosis.

Resources

For more information on osteoporosis, contact the:
**NIH Osteoporosis and Related Bone Diseases
National Resource Center**

Website: <https://www.bones.nih.gov>

For more information on diabetes, contact the:
**National Institute of Diabetes and Digestive and
Kidney Diseases**

Website: <https://www.diabetes.niddk.nih.gov>

If you need more information about available resources in your language or another language, please visit our website or contact the NIH Osteoporosis and Related Bone Diseases ~ National Resource Center.

For your information

This publication contains information about medications used to treat the health condition discussed here. When this publication was developed, 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 toll free at 888-INFO-FDA (463-6332) or visit its website at <https://www.fda.gov>. For additional information on specific medications, visit Drugs@FDA at <https://www.accessdata.fda.gov/scripts/cder/daf>. Drugs@FDA is a searchable catalog of FDA-approved drug products.

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