



What People With Asthma Need To Know About Osteoporosis

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

2 AMS Circle
Bethesda, MD 20892-3676

Phone: 202-223-0344
Toll free: 800-624-BONE
TTY: 202-466-4315
Fax: 202-293-2356

Website: <https://www.bones.nih.gov>
Email: [NIHBoneInfo@
mail.nih.gov](mailto:NIHBoneInfo@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 National Institute of Diabetes and Digestive and Kidney Diseases, and the NIH Office of Research on Women's Health.

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

November 2018

What is asthma?

Asthma is a chronic lung disease that inflames and narrows the airways. The disease affects people of all ages, but it most often starts during childhood. For people with asthma, everyday things can trigger an attack. These triggers include air pollution, allergens, exercise, infections, emotional upset, or certain foods.

Asthma itself does not pose a threat to bone health. However, certain medications used to treat asthma and some behaviors triggered by concern over the disease can have a negative impact on the skeleton.

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:

- Thinness or small frame.
- Family history of the disease.
- Being postmenopausal and particularly having had 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. It is known as a silent disease because, if undetected, it can progress for many years without symptoms until a fracture occurs. Osteoporosis has been called a childhood disease with consequences in old age because building healthy bones in youth can help prevent the disease and fractures later in life. However, it is never too late to adopt new habits for healthy bones.

The link between asthma and osteoporosis

People with asthma tend to be at increased risk for osteoporosis, especially in the spine, for several reasons. First, anti-inflammatory medications, known as glucocorticoids, are commonly prescribed for asthma. When taken by mouth, these medications can decrease calcium absorbed from food, increase calcium lost from the kidneys, and decrease bone formation and increase bone loss. Corticosteroids also interfere with the production of sex hormones in both women and men, which can contribute to bone loss, and they can cause muscle weakness, which can increase the risk of falling and related fractures. Even inhaled forms of corticosteroids can negatively affect bone health.

People with asthma may think that milk and other dairy products trigger asthma attacks, although the evidence shows that this is only likely to be true if they also have a dairy allergy. This unnecessary avoidance of calcium-rich dairy products can be especially damaging for children with asthma who need calcium to build strong bones.

Because exercise often can trigger an asthma attack, many people with asthma avoid weight bearing physical activities that are known to strengthen bone. Those people who remain physically active often choose swimming as their first exercise of choice because it is less likely than other activities to trigger an asthma attack. Unfortunately, swimming does not have the same beneficial impact on bone health as weight-bearing exercises, which work the body against gravity. Weight-bearing exercises include walking, jogging, racquet sports, basketball, volleyball, aerobics, dancing, and weight training.

Osteoporosis management strategies

Strategies to prevent and treat osteoporosis in people with asthma are not significantly different from those used to treat people who do not have asthma.

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 those with a proven milk allergy. The Institute of Medicine recommends a daily calcium intake of 1,000 mg each day for men and women up to age 50. Women over age 50 and men over age 70 should increase their intake to 1,200 mg daily.

Vitamin D plays an important role in calcium absorption and bone health. Food sources of vitamin D include egg yolks, saltwater fish, and liver. Many people obtain enough vitamin D from eating fortified foods. Other individuals, especially those who are older, live in northern climates, or use sunscreen, may require vitamin D supplements to achieve the recommended intake of 600 to 800 International Units (IU) each day.

Exercise. Like muscle, bone is living tissue that responds to exercise by becoming stronger. The best kind of activities for your bones are weight-bearing and resistance exercises. Weight-bearing exercises force you to work against gravity. They include walking, climbing stairs, and dancing. Resistance exercises – such as lifting weights – can also strengthen bones.

People who experience exercise-induced asthma should exercise in an environmentally controlled facility and participate in activities that fall within their limitations. They may also use medication when necessary to enable them to exercise.

Healthy lifestyle. Smoking is bad for bones as well as 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 also can affect bone health negatively. Those who drink heavily are more prone to bone loss and fracture.

Reducing exposure to asthma triggers, such as irritants and allergens, can help lessen a person's reliance on glucocorticoid medication. Avoiding people with colds and other respiratory infections and minimizing emotional stress can also be important.

Bone density test. A bone mineral density (BMD) test measures bone density at various sites of the body. This safe and painless test can detect osteoporosis before a fracture occurs and can predict a person's chances of future fracture. People with

asthma, particularly those receiving glucocorticoid therapy, should talk to their doctors about whether they might be candidates for a BMD test.

Medication. Like asthma, osteoporosis is a disease with no cure. However, there are medications available to prevent and treat osteoporosis, including: bisphosphonates; calcitonin; estrogen (hormone therapy); estrogen agonists/antagonists (also called selective estrogen receptor modulators or SERMs); parathyroid hormone (PTH) analog; parathyroid hormone-related protein (PTHrp) analog; RANK ligand (RANKL) inhibitor; and tissue-selective estrogen complex (TSEC).

Because of their effectiveness in controlling asthma with fewer side effects, inhaled glucocorticoids are preferred to oral forms of the medication. Bone loss tends to increase with increased glucocorticoid doses and prolonged use; therefore, the lowest possible dose for the shortest period of time that controls asthma symptoms is recommended.

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 asthma, contact the:
National Heart, Lung, and Blood Institute
Website: <https://www.nhlbi.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 (FDA) 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.

NIH Publication No. 18-7896