



Smoking and Bone Health

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

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Many of the health problems caused by tobacco use are well known. Cigarette smoking causes heart disease, lung and esophageal cancer, and chronic lung disease. Additionally, several research studies have identified smoking as a risk factor for osteoporosis and bone fracture.

Facts about osteoporosis

Osteoporosis is a condition in which bones weaken and are 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.

In addition to smoking, 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.
- Excessive alcohol intake.

Osteoporosis can often be prevented. It is known as a “silent” disease because, if undetected, bone loss 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 can help prevent osteoporosis and fractures later in life. However, it is never too late to adopt new habits for healthy bones.

Smoking and osteoporosis

Cigarette smoking was first identified as a risk factor for osteoporosis decades ago. Studies have shown a direct relationship between tobacco use and decreased bone density. Analyzing the impact of cigarette smoking on bone health is complicated. It is hard to determine whether a decrease in bone density is due to smoking itself or to other risk factors common among people who smoke. For example, in many cases, people who smoke are thinner than

nonsmokers, tend to drink more alcohol, may be less physically active, and have poor diets. Women who smoke also tend to have an earlier menopause than nonsmokers. These factors place many people who smoke at an increased risk for osteoporosis apart from their tobacco use.

In addition, most studies on the effects of smoking suggest that smoking increases the risk of having a fracture. Not all studies support these findings, but the evidence is mounting. For example:

- The longer you smoke and the more cigarettes you consume, the greater your risk of fracture in old age.
- Smokers who fracture may take longer to heal than nonsmokers and may experience more complications during the healing process.
- Significant bone loss has been found in older women and men who smoke.
- Compared with nonsmokers, women who smoke often produce less estrogen (a sex hormone) and tend to experience menopause earlier, which may lead to increased bone loss.
- Quitting smoking appears to reduce the risk of low bone mass and fractures. However, it may take several years to lower a former smoker's risk.

Osteoporosis Management Strategies

Start by quitting. The best thing smokers can do to protect their bones is to quit smoking. Smoking cessation, even later in life, may help limit smoking-related bone loss. Many resources are available to help you stop smoking, some of which are listed at the end of this fact sheet.

Eat a well-balanced diet rich in calcium and vitamin D. Good sources of calcium include low-fat dairy products; dark green, leafy vegetables; and calcium-fortified foods and beverages. Supplements can help ensure that you get adequate amounts of calcium 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 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, especially those who are older, may need vitamin D supplements to achieve the recommended intake of 600 to 800 IU (International Units) each day.

Exercise for your bone health. Like muscle, bone is living tissue that responds to exercise by becoming stronger. Weight-bearing and resistance exercises are the best exercises for bone. Examples of weight-bearing exercises include walking, climbing stairs and dancing. Regular exercise, such as walking, may help prevent bone loss and will provide many other health benefits. Resistance exercises – such as lifting weights – can also make bones stronger.

Avoid excessive use of alcohol. Chronic alcohol use has been linked to an increase in fractures of the hip, spine, and wrist. Drinking too much alcohol interferes with the balance of calcium in the body. It also affects the production of hormones, which have a protective effect on bone, and of vitamins, which we need to absorb calcium. Excessive alcohol consumption also can lead to more falls and related fractures.

Talk to your doctor about a bone density test. A bone mineral density (BMD) test measures bone density at various sites of the body. This painless test can detect osteoporosis before a fracture occurs and can predict one's chances of fracturing in the future. If you currently or used to smoke, you may want to ask your health care provider whether you are a candidate for a BMD test, which can help determine whether medication should be considered.

See if medication is an option for you. There is no cure for osteoporosis. However, several medications are available to prevent and treat the disease in postmenopausal women and in men. Your doctor can help you decide whether medication might be right for you.

Resources

BeTobaccoFree.gov

Website: <https://betobaccofree.hhs.gov>

Want to quit smoking? FDA-approved products can help

Website: <https://www.fda.gov/forconsumers/consumerupdates/ucm198176.htm>

For your information

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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