



Colorado Center for  
**BONE RESEARCH**

## ASTHMA AND YOUR BONE HEALTH

### Overview on Asthma

More than 23.2 million adults in the U.S. have asthma, and about 9 million children under the age of 18 suffer the same. It is one of the most common health problems in children. It's not surprising that most people have a family member or know someone who has asthma.

Asthma makes it difficult for people to breathe by blocking the flow of air out of the lungs. Asthma symptoms range from mild to severe and include wheezing, chest tightness, breathlessness and coughing.

Today people with asthma can live active and full lives. Many patients need to take a daily medication to make breathing easier and to control their symptoms. Some patients need to use another medication to get quick relief when they have an asthma attack.

### Why Bone Loss Can Occur

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. 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. Doses of more than 7.5 mg (milligrams) each day can cause significant bone loss, particularly during the first year of use. 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.

Many people with asthma 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.

## ***There are steps that both children and adults with asthma can take to protect their bone health:***

### **Your Healthcare Provider**

Talk to your healthcare provider (doctor, nurse practitioner or physician's assistant) about the treatment choices for your asthma. Steroid medications taken as pills are more likely to cause bone loss. The long-term use of inhaled steroids in a high dose can also cause some bone loss. Inhaled steroids taken daily at recommended doses are much safer than even intermittent use of steroid pills.

Even adults with healthy bones at the start of steroid treatment can have bone loss that leads to osteoporosis. Taking steroid medications in a high dose over a long period of time can also hinder bone growth in children.

If you need to take a steroid medication, work with your healthcare provider to determine the lowest possible dose to control your symptoms.

Adults should ask their healthcare provider when would be the right time to have a bone mineral density (BMD) test. This test lets you know if your bones are staying strong.

### **Protecting Your Bones**

It is never too late at any age to protect your bones. Here's a quick checklist for bone health:

- **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 beverage.
- **Get enough calcium and vitamin D each day.** These are important for healthy bones, especially for children and adults taking steroid medications.
- **Remember to exercise.** Exercise helps children build stronger bones and adults keep their bones strong. Do both weight-bearing exercises (such as walking, running and jumping rope) and resistance and strengthening exercises (such as weight lifting and using exercise bands and resistance machines). 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.
- **Be careful with salt and caffeine.** Too much is not good for your bones.
- **Don't smoke.** Smoking is bad for your bones for many reasons.
- **Watch how much alcohol you drink.** Heavy drinking weakens bones. Drinking more than two alcoholic drinks a day can harm your bones.

- **Talk to your healthcare provider.** Make your healthcare provider your partner in taking care of your asthma and keeping your bones strong.

**Here are some other reasons (called risk factors) that increase your likelihood of developing osteoporosis:**

- Being female
- Older age
- Family history of osteoporosis or broken bones (your genes)
- Being small and thin
- Missing periods and menopause

### **Osteoporosis Medications**

The Food and Drug Administration (FDA) has approved several medications (alendronate, risedronate, ibandronate, zoledronic acid, raloxifene, calcitonin, teriparatide) for the prevention and/or treatment of osteoporosis. Two of these medications are specifically approved for the treatment of osteoporosis when it is caused by taking steroid medications. They are alendronate (Fosamax) and risedronate (Actonel). Risedronate is also approved to prevent osteoporosis in people taking steroid medications and having risk factors for the disease. The FDA has not approved any of the osteoporosis medications for children.

### **Resources:**

National Institutes of Health Osteoporosis and Related Bone Diseases, National Osteoporosis Foundation