



## Colorado Center for **BONE RESEARCH**

### **PROTECTING THE SPINE FROM KYPHOSIS**

Individuals with bone loss in the spine are often concerned about developing kyphosis. Kyphosis is an abnormal forward curvature of the spine or “backbone.” Kyphosis (also called a dowager’s hump) causes a posture that appears stooped or hunched. As additional vertebral fractures occur, the kyphosis becomes more and more noticeable.

Fractures due to osteoporosis -- thinning of the bones -- are common in the vertebrae. Compression fractures can occur, and the bone can become weakened to the point of collapse within its own structure. Sometimes these compression fractures in the spine cause pain, stiffness and tenderness. However, they often are not detected until an X-ray is done for another reason.

In older adults, kyphosis associated with osteoporosis is typically found in the vertebrae of the thoracic spine, the portion that supports the shoulders, arms and trunk. Multiple compression fractures in the vertebrae can reduce a person's height and also curve the spine. The result is what looks like a hump on the back. Stooped posture due to compression fractures adds to pressure along the spine, which creates the potential for more compression fractures.

Conversely, straight posture reduces excess pressure that can contribute to kyphosis curvature. Another way to prevent kyphosis is to do exercises that help strengthen the back muscles and improve posture. A care provider can recommend appropriate exercises. As a general rule, people with osteoporosis should avoid exercises that round the back and, instead, do exercises that gently straighten the trunk and back.

#### **Vertebral Fractures**

A fracture of one or more vertebrae can cause sharp and persistent back pain, or there can be no pain at all. Vertebral fractures cause height loss and kyphosis. When there is no pain, these fractures often go unnoticed until a person becomes aware that a significant loss of height (an inch or more) has occurred in one year’s time. Both the changes in the spine and the loss of height may cause clothing to fit poorly.

Kyphosis often causes constant pain as the muscles, tendons and ligaments of the back are stressed, and some nerves may be compressed. Severe kyphosis can reduce the space for the internal organs. It may also cause the stomach or abdomen to be pushed forward and appear to “stick out.” As a result, it is harder for some people to breathe or eat, and they may not get enough nutrients in their diet.

## Protecting the Spine

People with osteoporosis who have back pain should see a healthcare provider trained to treat osteoporosis. This healthcare provider can determine whether there has been a fracture. A lateral x-ray of the spine is the best way to find a vertebral fracture. The dual x-ray machine (commonly called DXA) that is used to measure bone density can also be used to look at the spine to find vertebral fractures. This test is called a lateral vertebral assessment.

People with osteoporosis should have their height measured once a year and have it written in their patient chart. It is best to do this at the same healthcare provider's office each year. If height loss is equal to or greater than a half inch in one year, it should be a cause for concern.

It is important to protect the spine from fractures by moving properly during exercise and daily activities. Activities that place stress on the spine can increase the likelihood of a fracture. For example, people with bone loss in the spine:

- Should not bend over with the spine curved (for example, do not bend over from the waist with straight legs)
- Should avoid excessive twisting and bending motions of the torso (trunk)
- Should not carry packages that are too heavy
- Should avoid forward bending with coughing and sneezing
- Should not reach for objects on a high shelf
- For some people with significant bone loss in the spine, a simple action such as hugging a friend or picking up a grandchild can cause a vertebral fracture.

## Seeing a Physical Therapist

People with osteoporosis may want to speak with their healthcare providers about a referral to a physical therapist with expertise in osteoporosis. Physical therapists can teach people how to protect their spines and avoid vertebral fractures. For example, they can teach proper posture and exercises to strengthen the back muscles which can help limit the amount of kyphosis. They can also help people learn how to safely sit, stand and move.

Patients who have vertebral fractures are at very high risk for more fractures of the spine. All patients with these fractures should speak with their healthcare provider to consider a medication to treat osteoporosis.

Getting adequate calcium and vitamin D is also important for bone health. **Adults under age 50 need 1,000 mg of calcium and 400-800 IU of vitamin D<sub>3</sub> daily.**

**Dr. Paul Miller recommends that adults age 50 and over take 1,500 – 2,000 mg of calcium and 1,000 – 2,000 IU of vitamin D<sub>3</sub> daily.**

**Resources:** Dr. Paul D Miller, National Osteoporosis Foundation, Mayo Clinic Health Letter