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# Osteopenia and Osteoporosis: Is There a Difference?

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What is **osteopenia** and how is it related to **osteoporosis**? To begin to answer that question, we must define osteopenia. Osteopenia is the thinning of bone mass. While this decrease in bone mass is not usually considered "severe," it is considered a very serious risk factor for the development of osteoporosis.

**Osteopenia is commonly seen in people over age 50 that have lower than average bone density but do not have osteoporosis.** The diagnostic difference between osteopenia and osteoporosis is the measure of bone mineral density.

Osteoporosis, the "fragile bone disease," is characterized by a loss of bone mass caused by a deficiency in calcium, vitamin D, magnesium and other vitamins and minerals. Many of the foods you eat contain these bone-building minerals. If it progresses, osteoporosis can lead to loss of height, stooped posture, humpback, and severe pain. According to the National Osteoporosis Foundation, osteoporosis affects 10 million Americans, mostly women. Thirty-four million more Americans are estimated to have osteopenia (low bone mass), putting them at risk for osteoporosis.

**Bone Mineral Density: Osteoporosis vs. Osteopenia Determination**
Bone mineral density (BMD) is the measurement of calcium levels in bones, which can estimate the risk of bone fractures. It is also used to determine if a patient has osteopenia or osteoporosis. Bone mineral density tests are non-invasive and painless procedures usually done on the hip, spine, wrist, finger, shin bone, or heel.

While osteopenia can be diagnosed using plain radiographs, the most common method for measuring BMD (and a way to definitively diagnose osteoporosis) is through Dual Energy X-ray Absorptiometry or DEXA. This scan uses low-energy x-rays that expose patients to much less radiation than standard x-rays and can assess calcium levels in bone. The results are measured as a "score" and are compared to those of healthy individuals.

**What the BMD Numbers Mean**
A patient's BMD is given a T-score, which is derived by comparing it to an average score for a healthy 30-year-old of the same sex and race. The difference between the "normal young" score and the patient's score is referred to as a standard deviation (SD). T-scores can fall as low as -1 SD and still be considered healthy (see table below). Patients with T-scores between -1 SD and -2.5 SD are diagnosed with osteopenia and are considered at high risk for osteoporosis. Patients with T-scores lower than -2.5 SD are diagnosed with osteoporosis. For these patients, treatment is usually necessary and includes the use of medications to help increase bone mass, as well as lifestyle changes such as diet and exercise.

| T-score | What the score means |
|---|---|
| *2.5 to -1 SD* | Normal bone density |
| *Between -1 and -2.5* | Osteopenia (low bone density) |
| *Below -2.5* | Osteoporosis |

**Who Is at Risk for Osteopenia/Osteoporosis?**
Not everyone will get osteopenia or osteoporosis. However there are certain risk factors that can increase the likelihood that a person will have moderate to severe loss of bone mass, including the following:

- **Gender:** Women are a higher risk because they have less bone mass than men. Women also often experience a loss of bone mass after menopause.
- **Race:** Asian and Caucasian women, especially those who are small-boned, are at highest risk.
- **Family history:** Patients with a family history of low bone mass have a 50%-85% increased risk of developing osteoporosis.
- **Age:** Most people (men and women) lose about .5% of bone mass every year after the age of 50.
- **Lifestyle choices:** A poor diet with a lack of calcium and vitamin D, smoking, excessive use of alcohol or caffeine,

and lack of exercise contribute to a loss of bone mass.
- **Other medical conditions:** Hyperthyroidism, hyperparathyroidism, and Cushing's syndrome, can contribute to bone loss. Certain medications (such as prednisone or phenytoin) are known to cause bone loss as well.

**Prevention: Keeping Your Bones Healthy**
While most people experience some loss of bone mass as they age, osteopenia and osteoporosis are not inevitable parts of the aging process. There are things that can be done to keep bones healthy, including the following:

- Maintain a healthy diet with adequate amounts of calcium, magnesium, vitamins D, K, and C as well as other minerals.
- Regular physical activity that includes weight bearing exercises, such as low-impact aerobics, jogging, and walking to help minimize bone loss.
- Avoidance of smoking and excessive use of alcohol.
- Regular check-ups with a physician to monitor bone loss, especially in people over age 50.
- Use of medications to help improve bone health if deficiencies in bone mass are detected.

Along with eating right and getting regular exercise, talk to your doctor about having your bone mineral density measured, especially if you are over the age of 50 or fall into one of the higher risk groups mentioned above.

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[1] http://www.spineuniverse.com/author/1561/hirsch