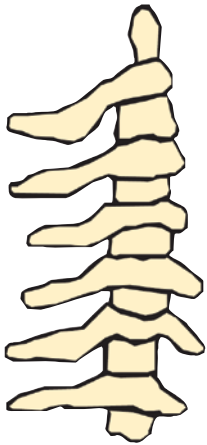


Creating Health & Nutrition Fact Sheets



What Is a Bone Density Test?

A bone mineral density (BMD) test is the best way to determine your bone health. The test can identify osteoporosis, determine your risk for fractures (broken bones), and measure your response to osteoporosis treatment. The most widely recognized BMD test is called a dual-energy X-ray absorptiometry (or DXA) test. It is painless—a bit like having an X-ray. It can measure bone density at your hip and spine.

What Does the Test Do?

A DXA test measures your bone mineral density and compares it to that of an established norm or standard in order to give

Bone Mass Measurements: What the Numbers Mean

you a score. Although no bone density test is 100 percent accurate, it is the single most important predictor of whether a person will have a fracture in the future.

T-score

Most commonly, your DXA test results are compared to the ideal or peak bone mineral density of a healthy

30-year-old adult, and you are given a T-score. A score of 0 means your BMD is equal to the norm for a healthy young adult. Differences between your BMD and that of the healthy young adult norm are measured in units called standard deviations (SDs). The more standard deviations below 0—indicated as negative numbers—the lower your

BMD and the higher your risk of fracture.

As shown in the table below, a T-score between +1 and -1 is considered normal or healthy. A T-score between -1 and -2.5 indicates that you have low bone mass, not osteoporosis. A T-score of -2.5 or lower indicates that you have osteoporosis. The greater the negative number, the more severe the osteoporosis.

Z-score

Sometimes your bone mineral density is compared to that of a

World Health Organization Definitions Based on Bone Density Levels

Normal	Bone density is within 1 SD (+1 or -1) of the young adult mean.
Low bone density	Bone density is between 1 and 2.5 SD below the young adult mean (-1 to -2.5 SD).
Osteoporosis	Bone density is 2.5 SD or more below the young adult mean (-2.5 SD or lower).
Severe (established) osteoporosis	Bone density is more than 2.5 SD below the young adult mean and there have been one or more osteoporotic fractures.

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typical individual whose age is matched to yours. This comparison gives you a Z-score. Because low BMD is common among older adults, comparisons with the BMD of a typical individual whose age is matched to yours can be misleading. Therefore, the diagnosis of osteoporosis or low bone mass is based on your T-score. However, a Z-score can be useful for determining whether an underlying disease or condition is causing bone loss.

Low Bone Density versus Osteoporosis

The information provided by a BMD test can help your doctor decide which treatment or prevention options are right for you.

Low Bone Density

If you have low bone density that is not low enough to be diagnosed as osteoporosis, this is sometimes referred to as osteopenia. Low bone mass can be caused by many factors, such as:

- heredity
- the development of less-than-optimal peak bone mass in your youth
- a medical condition or medication to treat such a condition that negatively affects bone
- abnormally accelerated bone loss

Not everyone who has low bone mass will develop osteoporosis. Everyone with low bone mass is at higher risk for the disease and the resulting fractures. As a person with low bone mass, you can take steps to help slow down your bone loss and prevent osteoporosis in your future. Your doctor will want you to develop—or keep—healthy habits. These habits include eating foods rich in calcium and vitamin D and doing weight-bearing exercise such as walking, jogging, or dancing. In some cases, medication to prevent osteoporosis may be recommended.

Osteoporosis

If you are diagnosed with osteoporosis, these healthy habits will help, but your doctor will probably also recommend that you take medication. Several effective medications are available to slow—or even reverse—bone loss. If you do take medication to treat osteoporosis, your doctor can advise you concerning the need for future BMD tests to check your progress.

Who Should Get a Bone Density Test?

An individualized approach is recommended. Discuss this test with your health care provider.

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Source: www.niams.nih.gov/Health_Info/Bone/Bone_Health/bone_mass_measure.asp, accessed January 21, 2014

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