

# Bone Mineral Density Testing

## What is a Bone Mineral Density (BMD) Test?

Osteoporosis is a silent disease. You cannot see or feel your bones getting thinner. A bone mineral density test is an easy, reliable test that measures the density, or thickness, of your bones. Dual X-ray Absorptionmetry (DXA) of the hip and spine is the preferred method to diagnosis osteoporosis. A BMD test is the only way to accurately determine if you have osteoporosis before a bone breaks.

## Who should have a Bone Mineral Density (BMD) test?

The decision to have a BMD test should be made in collaboration with your health care provider. The first and most important step is to determine if you are at risk for osteoporosis (see risk factors for osteoporosis). Guidelines have been established to determine who should have a BMD test. In general, bone mineral density testing is recommended for the following individuals:

- All women 65 or older
- All men 70 or older
- Women younger than 65 who have reached menopause and have risk factors for osteoporosis (family history of osteoporosis, being small and thin, smoking)
- Adults who break a bone after age 50 or have lost more than 1 ½ inches of height
- Adults over 50 with a disease or medical condition associated with low bone mass or bone loss
- Adults over 50 taking medications associated with low bone mass or bone loss
- Premenopausal women and men younger than 50, only in rare cases

## What do my BMD test results mean?

At first, you may find it difficult to understand your bone density test results. The following information should help you understand what your test results mean but you should always discuss your results with your health care provider. Your first bone density test tells you the current density of your bones. However, it cannot tell you if you have lost bone or are currently losing bone. The only way to diagnose bone loss is to have a repeat bone density test, usually two years later. Your health care provider can determine whether you are losing bone by comparing the initial and repeat bone density test results. There are two scores used by experts to interpret your bone density test results, the T-score and the Z-score.

## What is a Z-score and what does it mean?

A Z-score compares your bone density to the average values for a person of your same age and gender. A low Z-score (below -2.0) is a warning sign that you have less bone mass (and/or may be losing bone more rapidly) than expected for someone your age. If your Z-score is low, your health care provider may recommend additional tests to better understand why your bone mass is so low or she/he may refer you to an osteoporosis specialist.

## What is a T-score and what does it mean?

T-scores are used to help diagnose normal bone mass, low bone mass (or osteopenia), and osteoporosis. The T-score compares your bone density to the average bone density of young healthy adults of your same gender and it is expressed in standard deviations above and below the average. The chart below will help you determine what your T score means.

<b>Normal Bone Mass T-Score</b>	<b>+1 to -1</b>
<b>Low Bone Mass T-Score</b>	<b>-1 to -2.5</b>
<b>Osteoporosis T-Score</b>	<b>-2.5 or lower</b>

## What is low bone mass and how is it diagnosed?

Low bone mass, often called osteopenia, is not a disease but a condition in which your bone density is lower than the average bone density of young healthy adults of your same gender. Low bone mass is diagnosed when your T-score is between -1 and -2.5. Your health care provider will monitor your bone health and discuss the steps you need to take to protect your bones.

## What is osteoporosis and how is it diagnosed?

Osteoporosis is a disease that causes bones to become thin and weak, increasing your risk for fractures (broken bones). A bone density test can diagnose osteoporosis when your T-score is -2.5 or below. The lower your bone mass measurement, the greater your risk for fracture. Osteoporosis can also be diagnosed if you have a history of fractures (broken bones) without trauma.

## Will a BMD test alone tell me my risk for breaking a bone?

The BMD test measures the amount of bone mineral you have. It will tell you if you have a low bone mass or osteoporosis. Your BMD is one of the best predictors of your risk for breaking a bone. In addition to your BMD results, your health care provider will also consider several other factors that can be put in a computer program (FRAX) to see how likely you are to break a bone in the next 10 years. The risk factors in FRAX include:

- A personal history of fracture (you are more likely to break a bone if you have already broken one)
- Family history of hip fracture (if your parent broke their hip, you are at greater risk for a hip fracture)
- Low body weight in relation to height
- Current cigarette smoker
- If you have been diagnosed with certain disease or use certain medications.