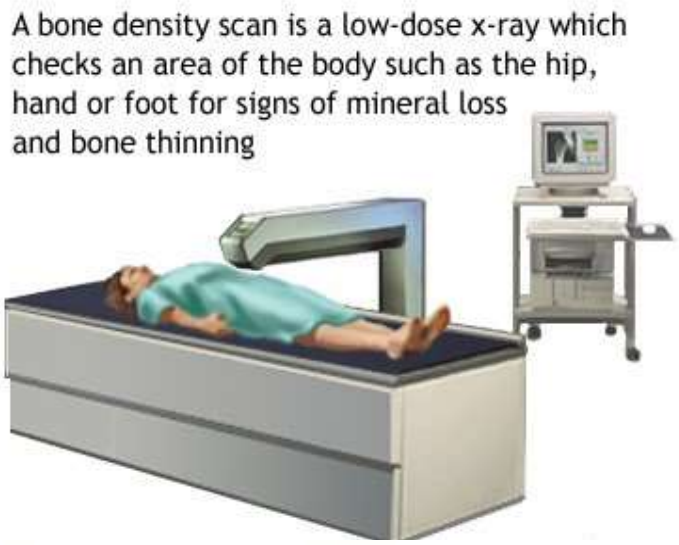
Bone mineral density test

Definition

A bone mineral density (BMD) test measures how much calcium and other types of minerals are in an area of your bone.

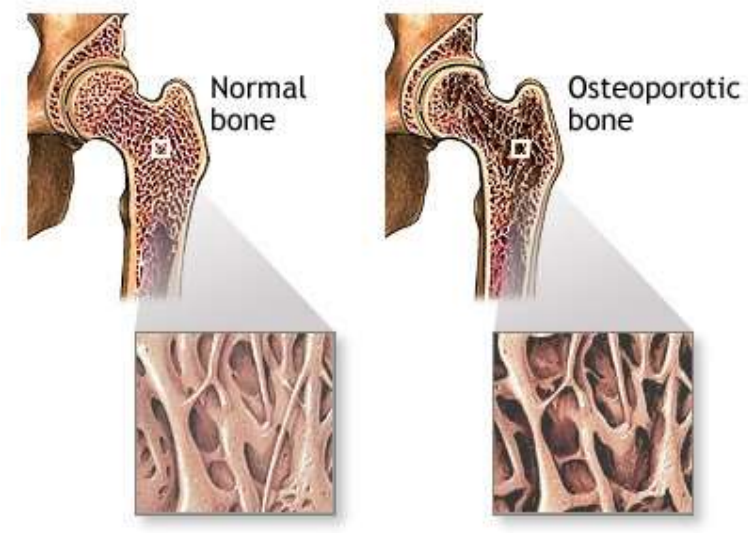
This test helps your health care provider detect osteoporosis and predict your risk of bone fractures.



How the Test is Performed

Bone density testing can be done several ways.

The most common and accurate way uses a dual energy x-ray absorptiometry (DEXA) scan. DEXA uses low dose x-rays. (You receive more radiation with a chest x-ray.)



There are two types of DEXA scans:

- Central DEXA. You lie on a soft table. The scanner passes over your lower spine and hip. In most cases, you do not need to undress. This scan is the best test to predict your risk of fractures.
- Peripheral DEXA (p-DEXA). These smaller machines measure the bone density in your wrist, fingers, leg, or heel. These machines are in health care offices, pharmacies, shopping centers, and at health fairs.

How to Prepare for the Test

If you are or could be pregnant, tell your provider before this test is done.

How the Test Will Feel

The scan is painless. You need to remain still during the test.

Why the Test is Performed

Bone mineral density (BMD) tests are used to:

- Diagnose bone loss and osteoporosis
- See how well osteoporosis medicine is working
- Predict your risk of future bone fractures

You should have bone mineral testing or screening if you have an increased risk of osteoporosis. You are more likely to get osteoporosis if you are:

- A woman, age 65 or older
- A man, age 70 or older

Women under age 65 and men ages 50 to 70 are at increased risk of osteoporosis if they:

- Have a broken bone caused by normal activities, such as a fall from standing height or lower (fragility fracture)
- Have chronic rheumatoid arthritis, chronic kidney disease, or eating disorders
- Have early menopause (either from natural causes or surgery)
- History of hormone treatment for prostate cancer or breast cancer
- Have had a significant loss of height due to compression fractures of the back
- Smoke
- Have a strong family history of osteoporosis
- Take corticosteroid medicines (prednisone or methylprednisolone) every day for more than 3 months
- Take thyroid hormone replacement
- Have three or more drinks of alcohol a day on most days

Current practice recommends BMD retesting every 2 years. However, some women may be able to wait a much longer time between their screening tests. Talk to your provider about how often you should be tested.

Normal Results

The results of your test are usually reported as a T-score and Z-score:

T-score compares your bone density with that of a healthy young woman.

Z-score compares your bone density with that of other people of your age, gender, and race.

With either score, a negative number means you have thinner bones than average. The more negative the number, the higher your risk of a bone fracture.

A T-score is within the normal range if it is -1.0 or above.

What Abnormal Results Mean

Bone mineral density testing does not diagnose fractures. Along with other risk factors you may have, it helps predict your risk of having a bone fracture in the future. Your provider will help you understand the results.

If your T-score is:

- Between -1 and -2.5, you may have early bone loss (osteopenia).
- Below -2.5, you likely have osteoporosis.

Treatment recommendation depends on your total fracture risk. This risk can be calculated using the FRAX score. Your provider can tell you more about this. You can also find information about FRAX online.

Risks

Bone mineral density uses a slight amount of radiation. Most experts feel that the risk is very low compared with the benefits of finding osteoporosis before you break a bone.

Alternative Names

BMD test; Bone density test; Bone densitometry; DEXA scan; DXA; Dual-energy x-ray absorptiometry; p-DEXA; Osteoporosis-BMD