

Bone densitometer fact sheet



What is osteoporosis?

Osteoporosis is a gradual thinning and weakening of the bones. It is often called the “silent disease,” as there are rarely signs until a lot of bone has been lost. Visible symptoms may include loss of height along with curvature of the upper back. Osteoporosis also can result in a crippling and painful fracture, occurring most often in the hip, back, or wrist.

What are the risk factors?

- female
- caucasian
- advanced age
- a history of bone fracture
- a small thin frame
- a family history of osteoporosis
- removal of the ovaries
- early menopause
- a low calcium diet
- lack of exercise
- eating disorders
- certain medicines (such as steroids or anticonvulsants)
- alcohol and tobacco use

How does a bone densitometer work?

A bone densitometer measures bone mineral density (BMD). The amount of bone mineral relates directly to bone density. The bone densitometer uses small amounts of x-ray to measure BMD. The technical term for the method is “dual-energy x-ray absorptiometry”, or DXA. The spine and hip are measured because that is where most osteoporotic fractures occur.

What does a bone densitometer measure?

A bone densitometry test is an aid to doctors in the diagnosis of osteoporosis. The test compares a patient’s bone quality to that of a “young adult” at peak bone strength (T-score). It also compares the results to people of the patient’s same age, called “age-matched” (Z-score). This information, along with other factors, helps doctors gauge the risk of osteoporotic fracture. A T-score of -1 equals a one “standard deviation” decrease from young adult (which is about 10%). The World Health Organization (WHO) has developed categories that define the amount of bone loss:

Category	T-score
Normal	above -1
Osteopenic (low bone mass)	-1 to -2.5
Osteoporotic	below -2.5

What will a bone density test be like for my patients?

The bone densitometer is like a large examination table. The patient will be asked to lie on their back. In most cases patients are allowed to stay in their normal clothing, and the test typically takes about ten minutes. Even though x-rays are used to perform a bone density test, the amount absorbed by the patient is only about 1/10th of that received from a chest x-ray. The x-ray dose from the bone densitometry test is comparable to the naturally occurring radiation we are exposed to in one week.*

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*DPX or Prodigy series only, ref. U.S. EPA Students Radiation Protection Program, May, 2006.

**Lunar Product Division Americas
GE Healthcare**

726 Heartland Trail
Madison, WI 53717
T: +1-608-826-7050
F: +1-608-826-7106

**Lunar Product Division
Europe, Middle-East & Africa**

GE Medical Systems Benelux NV/SA
Kouterveldstraat 20
B-1831 DIEGEM, Belgium
T: +3227197203
F: +3227197205
info.lunar@med.ge.com

**Lunar Densitometry
Asia & Pacific Headquarters**

GE Healthcare Ultrasound & PCD Asia
Pudong Zhongjiang
No. 1 Hua Tuo Road
Shanghai, 201203 China
T: +86-21-38764128
F: +862152080064

