



*It's a question I hear all the time now, from my patients, my friends, and my relatives: "Should I get a bone density test?" You may have heard about bone density testing, or DEXA scanning, or your doctor may have prescribed the test for you as you enter your menopausal years. This article will help you to understand what the test is, who should have it, and how it is interpreted.*

— Beverly Vaughn, Coordinator of the  
"Menopause and You" Program



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## Why does bone density matter?

In childhood and adolescence, a normal female's bones increase in both length and density, growing both bigger and stronger. Once full height is reached, usually in the mid-teens for girls, bones continue to become denser until around the age of thirty, when we reach peak bone density. Successful growth of bone density requires sufficient calcium and vitamin D intake, sufficient weight-bearing exercise, and the interaction of several hormones, including thyroid hormone, parathyroid hormone, and, notably, estrogen. If all has gone well, peak bone density means bones are strong and hard and can stand up to a great deal. It takes quite a fall or other injury to fracture such a bone.

After peak density is reached, bones decline in their density about one half of one percent per year until menopause is reached. The sharp decline in estrogen at menopause generally causes a rapid decrease of up to 5 percent per year for the next five years, and then a leveling out to a slower, steady rate of loss. The actual amount of bone lost during the first few years of menopause is, again, affected by calcium and vitamin D intake, the levels of the hormones I mentioned before, and sometimes by medications taken—for instance, taking hormone replacement decreases the rate of bone loss, while long term use of

steroid medications, certain diuretics, certain progesterones increases the rate of bone loss. Other factors, such as exercise, smoking, and alcohol intake also play a role, as do genetics: A woman whose mother or sisters have bone loss is more likely to also have bone loss. Finally, a woman whose peak bone density was low to begin with because of illness, malnutrition, or medication will end up in menopause with a lower bone density than her cohorts.

## Does loss of bone density mean osteoporosis and fractures?

Clearly, not every woman in menopause develops osteoporosis. Some women retain a normal, healthy bone density well into older adulthood, and some women have mild declines in bone density that we refer to as osteopenia. It is important to find out if you have osteoporosis or osteopenia that is headed toward osteoporosis, because the condition puts women at risk for painful spontaneous collapse of the vertebrae, spine deformity, and fracture of the hip and other bones with minimal impact, which may in turn lead to disability and other complications. The only way to determine your bone density is to have a DEXA scan.

## What exactly is a DEXA scan?

DEXA stands for dual absorption x-ray absorptiometry, a fancy way to say that the test measures the amount of x-ray beams absorbed by the subject's bones, telling the reader how dense the bone material is. The test takes only moments, is completely noninvasive, and exposes the patient to much less radiation than a chest x-ray.

A computerized report is generated, which compared the density of the subject's bones to that of the average for her own age (a result known as the Z-score) as well as to that of a normal woman at peak bone density (the T-score).

This is intended as an information resource providing guidelines for women. As always, check with your own healthcare practitioner with your specific concerns and questions.

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The T-score is the important score, because it is the decrease from peak bone density that determines if one has osteoporosis or osteopenia. A T-score greater than  $-1$  (one standard deviation below peak) is considered normal. A T-score from  $-1$  to  $-2.5$  is considered to indicate osteopenia, and a T-score below  $-2.5$  (more than 2.5 standard deviations below peak bone density) is osteoporosis.

### So should I have a DEXA scan?

If you are at or close to menopause (you've stopped having periods altogether or you are having them very infrequently and your doctor believes it is due to menopause) and you have never had a DEXA scan, you should have one. Premenopausal women with certain medical problems, such as prolonged steroid use, unexplained loss of height, unexplained fractures, Anorexia Nervosa, or certain endocrine abnormalities may also need a DEXA scan. If you have had a previous scan, your doctor may ask you to have repeat scans at intervals of 18 months or so to compare to the previous scan, as a way to follow ongoing bone loss or monitor treatment for bone loss.

### What happens if my DEXA scan indicates a problem?

If your DEXA scan comes back abnormal, your doctor may want to do some blood tests to be sure there is not a correctable underlying cause for bone loss, other than lack of estrogen in menopause.

If the result shows osteopenia, your doctor will encourage optimal exercise and calcium and vitamin D intake. He or she may also consider other treatment, depending on your age, the actual T-score, and other risk factors, but in many cases, lifestyle measures and a follow-up DEXA are all that is necessary.

If you have osteoporosis, your doctor will again stress exercise and calcium and vitamin D, but will probably also offer one of several other options. The options, depending on your other health issues, may include the popular drug Fosamax, or its close relative, Actonel, which have been shown to increase bone density in postmenopausal women. Your doctor may also have you consider hormone replacement therapy, Miacalcin nasal spray, Boniva, or one of several injectable medications, if Fosamax or Actonel is not right for you. A low dose estrogen patch known as Menostar, which is specifically for osteopenia/osteoporosis is also available. He or she will follow your progress with repeat DEXA scans.

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