

# DEXA (DXA) scan: Measuring Bone Density

**A DEXA scan helps a doctor assess bone density. It may also have uses in determining body composition, such as the percentage of lean muscle and fat.**

The dual-energy X-ray absorptiometry (DEXA) scan uses two [low-energy X-ray beams](#). This allows the image to show both soft tissue and bone.

When doctors need to tell whether a person has low bone density, or whether the condition is worsening, a DEXA scan tends to be more accurate than a typical X-ray because it can detect even small changes in bone loss.

The results can also help doctors determine a person's risk of [fractures](#).

Doctors may also consider DEXA scans more reliable than other methods of calculating body fat percentage, including underwater weighing.

The results can also help determine the amount of visceral fat, which the body stores around certain internal organs.

## What is a DEXA scan, and what are its uses?

A DEXA scan can show whether a person's bones have lost density and have a high risk of fracturing. This can help doctors diagnose and assess [osteoporosis](#), which causes the bones to thin and become more fragile.

Diagnosing and treating osteoporosis early can keep it from worsening and reduce the risk of fractures.

After the first DEXA scan, a doctor may schedule another in a few years to look for any changes. These scans can help indicate how effective osteoporosis treatments are because they can show whether the condition is staying the same, worsening, or improving.

The [Bone Health and Osteoporosis Foundation](#) recommends that females aged over 65 and males aged over 70 have at least one DEXA scan. The ideal frequency may vary, depending on the results. People receiving treatment for osteoporosis may require a scan every [1 or 2 years](#).

The foundation also recommends a scan for anyone who has gone through menopause before age 65 and has any risk factor for low bone density, such as steroid medication use or low [body weight](#). Overall, females [tend to](#) develop loss of bone density sooner than males.

## Before the scan

An X-ray technician performs the scan on an outpatient basis. A person may need to change into a hospital gown and remove any metal objects that they are wearing, such as jewelry and eyeglasses.

At the start of the scan, the person lies on their back on the exam table. The technician places the imaging device above them and the X-ray generator below them.

## During the scan

During the procedure, the imaging arm moves slowly over the person's body while a beam of low-dose energy passes through them. It is crucial to remain still throughout the scan.

When the purpose is to measure bone density, the technician tends to scan the hips and spine. These are common locations of fractures in people with osteoporosis.

In some cases, the technician scans the wrist, finger, and lower arm. At some locations, there may also be a [vertebral fracture assessment](#) during a DEXA scan. This checks the risk of a fracture in the spine.

When the purpose is to measure body composition, the machine scans the entire body to check skinfold thickness at specific sites. Using an equation, it is possible to use these measurements to calculate body fat percentage.

## After the scan

Afterward, the person changes back into their clothes. The technician may ask them to complete a questionnaire about their medical history, as this can help a doctor determine their fracture risk. Then, the person can leave the facility.

How long does a DEXA scan take?

The scan is painless and relatively quick, usually taking [10–30 minutes](#), depending on the equipment and the areas being scanned. Some experts report that it can take just [6 minutes](#) or [10–20 minutes](#).

## Results

The results of a DEXA scan for bone density involve a [T-score](#). Calculating this involves comparing a person's scan with the bone density of a healthy young adult of the same sex.

According to the [World Health Organization \(WHO\)](#):

A T-score of -1.0 or higher is normal bone density.

A T-score of -1.1 to -2.4 indicates osteopenia, or low bone density.

A T-score of -2.5 or lower indicates osteoporosis.

A DEXA scan may also report results using a [Z-score](#), which shows the amount of bone that a person has, compared with others of the same size, age, and sex. It can help determine whether something uncommon is leading to bone loss.

According to the [International Society for Clinical Densitometry](#), a Z-score of over -2.0 is considered normal. Doctors consider a score below -2.0 as being below the normal range for the person's age.

When the test also measures body composition, the results include total fat mass and total body fat percentage measurements.