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# Nuclear Medicine Bone Imaging

An Introductory Guide For  
Patients And Their Families



You may be wondering why your doctor ordered a **nuclear medicine bone scan**. You might have questions such as: How does this test work? What can I expect? Do I need to do anything to prepare? Is it safe? When will I know the results?

This brochure will help answer these and other questions. As always, talk with your doctor if you have additional questions or concerns.

## Why has my doctor ordered this scan?

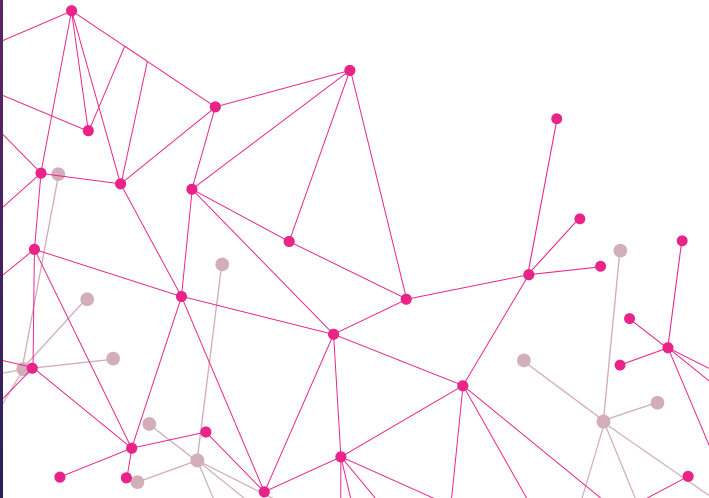
This test can show bone cell activity and function. Unlike x-rays, CT or MRI scans, a bone scan can provide information about the growth and renewal (metabolism) of your bone. It also helps doctors see certain abnormalities early on.

Your doctor may have ordered this test to check for:

- bone infection (osteomyelitis)
- arthritis
- osteoporosis

- sports injuries or hairline or stress fractures that are difficult to see using other methods like x-ray
- cancer of the bone or other cancers – like breast, lung or prostate cancer – that may have spread (metastasized) to the bones
- possible causes of unexplained bone pain

Depending on the reason for your scan, it may be of your entire body or a specific part. The results of this test will help your doctor recommend an appropriate treatment plan.



## How does a nuclear medicine bone scan work?

You will be given a small amount of radioactive material (called a tracer). This tracer is usually injected into a vein in your arm or hand. It travels through your body and sends signals (gamma waves) to special cameras that:

- **detect** the tracer
- **take pictures** of your bones
- **record and store** information on a computer

Bone cells absorb the tracer in the same way they take up calcium. Because more of the tracer collects in the most active cells, areas with highly active cells will appear as bright “hot” spots. Overly active cells are often a sign of cancer, fracture, infection, arthritis or other disorders. On the other hand, areas with less active cells show up as darker “cold” spots. This may indicate a lack of blood supply or certain types of cancer.

Normal bone will appear similar throughout.



Millions of Americans  
have nuclear medicine imaging  
exams each year<sup>1</sup>

### What is nuclear medicine?

Nuclear medicine is a type of medical imaging that uses small amounts of radioactive material (called tracers) to help find and/or treat a variety of diseases, including heart disease, kidney disease, many types of cancers and many other problems.

Unlike other imaging tests, nuclear medicine scans give doctors important information about how various parts of the body are working. Millions of Americans have nuclear medicine imaging exams each year.

1 Goethals P, Zimmermann R. Nuclear Medicine Market, Nuclear Medicine Procedures. In: Nuclear Medicine World Market Report and Directory. MEDrays Intell. June 2016: 45.

## Are there any safety concerns with this test?

Don't let the words "nuclear" or "radioactivity" scare you. These tests are designed to expose you to the least amount of radiation possible. The drug or drugs that will be used during the exam are prepared with exceptional care and have been approved by the U.S. Food and Drug Administration. However, there is always a chance that you may have a reaction to the drugs.

Your doctor will explain the risks before the test. It is important to tell your doctor or the person performing the test if you notice any side effects.

**If you are pregnant, trying to get pregnant or breast feeding, tell your doctor before having the test.**

The exam is minimally invasive and generally painless except for the injection.

## What will the procedure be like?

The test is done in a hospital or outpatient clinic that offers this type of imaging. Usually, a technologist with special training in nuclear medicine will conduct the test.

### **Do I need to prepare for the test?**

Generally, no special preparation is needed. You can continue your normal activities and eat or drink normally before the test.

Be sure to tell your doctor if you have recently had an imaging test using barium contrast (such as a barium enema) or have taken a medicine with bismuth (Pepto-Bismol®), which can affect the test results. Ask if there are any other medications that you need to stop taking before the exam.



## What can I expect?

Here is a basic description of what you can expect. Keep in mind, this process may vary based on:

- the type of bone scan performed (total body, regional or 3-phase; though each is performed similarly)
- the patient
- where the test is performed



**Step 1.** You may be asked to undress and wear a hospital gown. Leave your jewelry at home and be sure to remove any metal objects (for example, belts, most dentures or change in your pockets).

**Step 2.** The technologist will insert a tube called an intravenous (IV) line in your arm or hand to administer the tracer. You may feel a slight prick.

**Wait.** You'll be asked to wait for one to three hours before any pictures are taken to allow enough time for the tracer to travel through the bloodstream and be absorbed by your bones. You will likely be asked to drink water to help get rid of any tracer that is not picked up by your bones.

**Step 3.** When it's time for the scan, you will be asked to lie down on an imaging table positioned between a set of cameras. Once the test begins, cameras will move slowly above and around you from your head to your feet. Although the camera or cameras will pass close to your body, you should not feel anything during the test.

**Step 4.** You may be asked to move into different positions on the table so the technologist can take pictures from various angles. Try to remain as still as possible to prevent the images from blurring. If you are having this test because of bone or joint pain, let the technologist know so that he or she can make you more comfortable.

**Step 5.** At the end of the exam, the technologist will carefully remove your IV line.

## How long does the test take?

It depends on the extent of the test. Full body bone scans can take 5 or 6 hours including wait times. Localized bone scans typically take up to an hour.

If arthritis or bone infection is suspected, a three-phase bone scan may be done. A series of images are taken at different times, usually: 1) as the medication is injected, 2) shortly after the injection, and 3) two to four hours later.

## Is there anything I need to do after the test?

You may be asked to wait for a short time while the doctor (a radiologist who is trained to read the images) reviews the scans to see whether additional pictures are needed.

Make sure that you:

- Drink plenty of fluids to help clear the remaining tracer from your body. It is usually flushed from the body within six to 24 hours.
- Keep an eye on the injection site. Tell your doctor if you notice any redness or swelling.
- Ask your doctor for any special follow up instructions. You should be able to resume most activities right away.



## How do I get the results?

When the test is over, a radiologist trained in nuclear medicine will review the images and send a written report to your doctor. Your doctor will then discuss the results with you. Be sure to ask your doctor what the test results mean and what you should do next.

## Talking to your health team

Be sure to talk with your health team if you have any concerns. Here are some questions that you might want to ask:

- Why is this test being ordered?
- How long does the test take?
- What can I expect during the exam?
- Is it safe?
- Should I stop taking any of my medications before the exam?
- Is the test covered by my health insurance?
- When will I get the results?
- When will I be able to resume normal activities?

Your examination has been  
scheduled for:

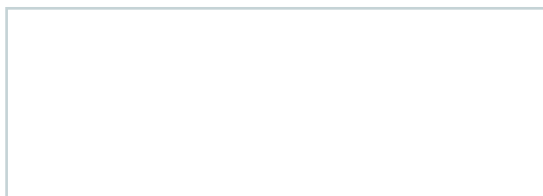
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