



A Patient's Guide to Bone Imaging

Common Questions and Answers About Nuclear Medicine

You are reading this page because your doctor has recommended that you undergo a nuclear medicine procedure. He or she has made this decision because the information gained from such a test will be important in the diagnosis and the treatment of the medical problem you may have. You should know that the exam is safe, painless and commonly performed. In fact, approximately 10 to 12 million nuclear medicine procedures are performed each year in the United States alone.

We would like to explain to you what nuclear medicine is, how nuclear medicine procedures are performed and how they may help you. The first section of this page will give you a general overview of nuclear medicine. The next section will answer some of the most frequently asked questions about this field of medicine. If you have any questions that are not answered in this page, please ask your doctor, and he or she will be only too glad to answer them.

Nuclear Medicine Bone Scans

Bone Scans are commonly performed nuclear medicine procedures. These scans are used to diagnose and/or evaluate conditions such as bone trauma or fractures, osteomyelitis, arthritic disease, child abuse, cancer, and metastatic disease.

You should drink plenty of fluids before and after your nuclear medicine procedure. This will improve the scan quality and minimize your radiation exposure.

The Nuclear Medicine Procedure

Administering the Drug

Nuclear medicine procedures, commonly called "scans," provide information about both the anatomy of the body and the function of its organs. When you undergo a bone scan, a chemical compound which contains a small amount of radioactive substance is administered by injection in the vein to place it in the body. There are a number of different compounds used that localize in bones.

Waiting Time

After the administration of the compound, you will be asked to wait a period of time before the actual scanning begins. This waiting period is necessary because the compounds used in nuclear medicine bone scans take time to accumulate in the bones being studied.

Taking the Scan, or Picture

When it is time for your scan, you will be positioned next to a special detector, called a camera, which will be placed close to the part of your body being studied. A number of different pictures, or images, will be taken. These images may be seen immediately on a TV-like screen and will be preserved on film for later study. You may breathe normally during the exam.

The camera does not produce radiation. It simply picks up signals from the radioactive compound you received earlier. Therefore, even though multiple pictures will be taken, you will not be exposed to any further radiation. These pictures make it possible to gather more diagnostic information with no increased risk to you.

Interpreting the Scan

The nuclear medicine physician will analyze the various pictures taken. The results may then be compared with the results of other tests, such as routine x-rays, to reach a more complete understanding of your medical problem.

The Nuclear Medicine Team

When your doctor believes that a nuclear medicine procedure is in your best interest, he or she entrusts you to the care of specially trained professionals. The nuclear medicine team includes the following:

- A Nuclear Medicine Physician, who is specially trained in physics and chemistry and is licensed to use radioactive materials
- A Nuclear Medicine Technologist, who is educated in the theory of nuclear medicine procedures and experienced in their practice
- A Physicist, who is well versed in the technology of nuclear medicine and the care of the equipment
- A Pharmacist, or specially trained technologist, who is qualified to prepare the radioactive materials necessary
- These professionals work closely together to give you the best care and to give the most accurate information possible to your doctor.

Questions and Answers

What are some benefits of nuclear medicine procedures?

These procedures provide valuable information that can enable your physician to achieve an early diagnosis of your medical problem. These tests are relatively painless (involving nothing more painful than an injection) and are considered to be among the safest diagnostic tests available.

How safe are nuclear medicine procedures?

Most medical procedures require benefit-versus-risk judgments. In nuclear medicine every possible precaution is taken to minimize the radiation exposure to as small an amount as possible in order to obtain the needed diagnostic information. The benefit of early and accurate diagnosis far outweighs the risk of receiving the extremely small quantities of radioactive material administered in a nuclear medicine procedure.

When contrasted to other medical tests that use radiation, nuclear medicine scans compare favorably, and, in fact, most scans involve the same amount or less radiation than that required for x-ray procedures.

Most of the compounds are quickly eliminated from the body - usually within hours or, at the most, in a day or two. Strict safety standards are adhered to by well-trained professionals.

Adverse reactions (side effects) to nuclear medicine procedures are very rare. If you have any concern about the safety of these procedures, talk to your personal physician or one of the members of the nuclear medicine team.

What preparation is required before a nuclear medicine procedure is performed?

Most of the tests require no special preparation on the part of the patient. However, if anything is necessary, your doctor will tell you ahead of time or you will be informed at the time your appointment is made.

What about after the test?

Your daily activities will generally not be affected because you have undergone a nuclear medicine procedure. However, if you had been taking any medication before the examination and your physician changed your drug schedule because of the procedure, be sure to ask if and when you should resume taking your medication.

Is there anything I should tell my doctor or the nuclear medicine team before I undergo one of these tests?

Yes. You should tell your physician if you think that you may be pregnant or if you are in such an early stage of pregnancy that your doctor may not readily recognize it.

You should also inform your physician if you are breast-feeding your baby.

Are nuclear medicine procedures performed on children?

Yes. It is not at all unusual to perform nuclear medicine procedures on children. The dosage of compound administered is adjusted according to the child's size, as is done with all pediatric medication. As is the case for adults, the benefits far exceed the concern about any possible side effects.

Why do some patients need a number of different tests in addition to nuclear medicine tests?

A diagnosis is often made by one nuclear medicine procedure. However, it may be necessary to compare or confirm the results of the nuclear study with other diagnostic tests in order to reach a more accurate understanding of your medical problem.