

Healthy Living

Patient Information from the American Chiropractic Association

Are X-rays Really Necessary?

Doctors often use x-rays to diagnose conditions, such as arthritis, cancer, osteoporosis, and bone fractures or dislocations. Occasionally, patients must ingest or be injected with a substance to get a very detailed image of the internal organs. In some cases of cancer, radiation therapy—very high doses of x-rays—is used to kill the cancer cells.

X-rays are very helpful diagnostic tools, but excess exposure to radiation is dangerous. Different body tissues absorb various amounts of x-rays. Skin, fat and muscle, for example, allow more x-rays to pass through, but bones are denser, and they absorb more x-rays than soft tissues do. Excess absorption of x-rays can change human DNA and make cells abnormal—and possibly malignant.

What Are X-rays?

X-rays are a form of electromagnetic radiation used to create images of bones, joints and soft tissue structures inside the body. The x-ray image looks like a set of shadows on a piece of plastic film that shows bones as white, air as black, and soft tissues as varying shades of gray. Most radiographs take less than a second to perform, although more complicated procedures, such as a barium enema, can take more than an hour.

In some patients, a magnetic resonance imaging (MRI) scan or some other advanced imaging technique may be ordered in addition to regular radiographs. These studies help investigate x-ray findings or create images for conditions that are not easily seen on radiographs, such as spinal disc disorders. MRIs can be more expensive than x-rays, but they do not use radiation, so they cause no risk of excess radiation exposure.



Your doctor will order only those x-rays that are absolutely necessary for your condition.

Why Are X-rays Necessary?

X-rays can help determine the necessary course of treatment and reveal if some underlying conditions might interfere with it. For example, patients often come to doctors of chiropractic after having suffered an injury. In many such cases, x-rays are necessary to exclude the possibility of more serious health problems. X-rays are also recommended in older patients—for example, to help detect the probability of osteoporosis—as well as in patients with a history of certain types of arthritis, tumors and many other conditions.

What Are the Risks of X-rays?

X-rays are colorless, odorless and tasteless, so you will not see, smell, or taste them. In addition, you will feel nothing as they are taken.

Since x-rays penetrate all matter to some degree, scientists have developed modern techniques and equipment that have minimized x-ray exposure. Your doctor's x-ray equipment is inspected for safety after it is

installed, and it must pass periodic state inspection. Your doctor will order only those x-rays that are absolutely necessary for your condition. He or she will do everything possible to protect your body from unnecessary radiation, using lead shields and aluminum filters when appropriate.

Your doctor will inform you of the results of your x-rays, history and physical examination as soon as possible. Don't hesitate to ask questions during your examination and treatment. Your safety, comfort, and concerns are of paramount importance to your doctor.

Keep track of when and where you had x-rays taken in the past so you can avoid having the tests repeated—and lessen your radiation exposure. After 7 to 10 years, or when a child reaches the age of 18 to 21 years, whichever is longer, health care facilities may destroy radiographs, so you may want to obtain a copy to keep in your records. At some point in the future, comparing the old x-rays with the new ones may help your doctor understand your history more clearly.

What Does the X-ray Procedure Include?

Each type of x-ray procedure has its own specific preparation. Here are a few basic things to remember when having an x-ray taken—your doctor or x-ray technician will also remind you of these:

- If you are a woman, tell your doctor if you might be pregnant. The doctor will also likely ask about your last menstrual period to assure that it is safe to take the radiographs.
- Remove any clothing over the part of the body to be x-rayed. If necessary, you will be given a gown and sometimes a protective lead drape to shield the rest of your body.
- Remove all jewelry from the body part to be x-rayed. The metal in the jewelry may obscure the image.

Depending on the examined body area, you can be lying, sitting on a table in the radiography suite, or standing near a film-holding device. The doctor or technician will measure the body part and place it into a position that will provide the best radiograph. He or she then will aim the x-ray tube at the proper body region and tell you what position to hold and how to breathe. When the x-ray machine is activated, you may hear some pops, clicks and beeps, which are a normal part of the procedure. Unless instructed otherwise by your doctor, you should remain perfectly still. If your movements distort the image on the x-ray film, the x-ray may need to be retaken.

Usually, at least two views of a body part are taken. In some cases, more views may be necessary. Your doctor will perform only the minimum number of views that he or she considers necessary

As with other medical procedures, x-rays are safe when used with care. Your doctor and x-ray technician have been trained to use the minimum amount of radiation necessary to obtain the needed results. The amount of radiation used in most examinations is very small and the benefits greatly outweigh the risk of harm. ■



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*Lawrence H. Wyatt, DC, DACBR, FICC, Professor,
Division Of Clinical Sciences, Texas Chiropractic College,
Writer*