X-RAY OF THE LUMBAR SPINE

Introduction

A lumbar X-ray uses electromagnetic energy beams to obtain images of the bones (vertebrae) and other structures in the lower back and in the sacrum, where the spine connects to the pelvis.

In addition to other medical conditions, X-rays are useful in detecting fractures, infections, and tumors in the bones. They can also help in diagnosing and monitoring arthritis. Specialized X-ray tests can also measure bone density and identify possible osteoporosis. This is normally referred to as a bone mineral density test (BMD), bone-density scan, DXA test, DEXA test, or densitometry.[1,2,3,4,5]

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Risk associated with X-rays

Individuals considering an X-ray should discuss any concerns about the following risk factors with a doctor before proceeding[1,2,3]:

- Radiation exposure: although this varies depending on the individual, age, and area of the body, the risk to adults is normally low. X-rays for children should be carefully considered before proceeding. Since radiation exposure may be cumulative, individuals considering an X-ray should make a note of previous X-rays and discuss this with their doctor in order to understand their own particular radiation risk.

- Allergies to contrast medium, if used. See below for more information.
- Risk of harm or birth defects from X-rays performed on pregnant women. Other diagnostic testing, such as ultrasound or Magnetic Resonance Imaging (MRI), may also be appropriate where clinically indicated.

Procedure for X-rays

With the exception of possible discomfort caused by the hard surface of the examination table and the assuming of different positions according to the area to be X-rayed, an X-ray is a painless procedure.

Testing facilities and individual circumstances may vary. In general the procedure is as follows[1,2,3]:

- You will be positioned (lying down or standing) in order to get the best possible view of the area of concern. The radiographer performing the test will make every effort to ensure you are comfortable, using cushioning or blocking if needed to maintain the desired position. Children may be kept from moving using restraint materials but may be accompanied by an adult throughoutPrevious incidents of infection, apart from common cold and flu viruses.
- A lead apron will be provided for any areas that need shielding from radiation exposure, and for adults accompanying children being X-rayed.
- The X-ray machine is moved over your lower back area.
- You will need to remain as still as possible to ensure that the images do not get blurred, and you may be told to hold your breath for short intervals.
- **Duration:** an X-ray takes anywhere from a few minutes to over an hour, depending on the circumstances and if a contrast dye will be used.

Contrast dyes[1,6,7,8,9]

For certain X-rays, a contrast dye is administered in order to highlight certain areas of the body. This can be done either through an intravenous (IV) line in the hand or forearm, or by spinal cord injection.

Individuals for whom a contrast dye has been recommended should inform their doctor and the radiographer about any previous or possible allergies

to injections or iodine, as well as blood clotting problems, diabetes, or kidney conditions.

If a contrast dye is administered, additional precautions for eating, drinking, and medications before and after the test may apply.

Contrast dyes do not generally produce unpleasant side effects apart from IV administration, which may produce symptoms including a slight burning sensation, metallic taste in the mouth, and warm flushing of the body. All of these symptoms are normal and disappear within a few seconds.

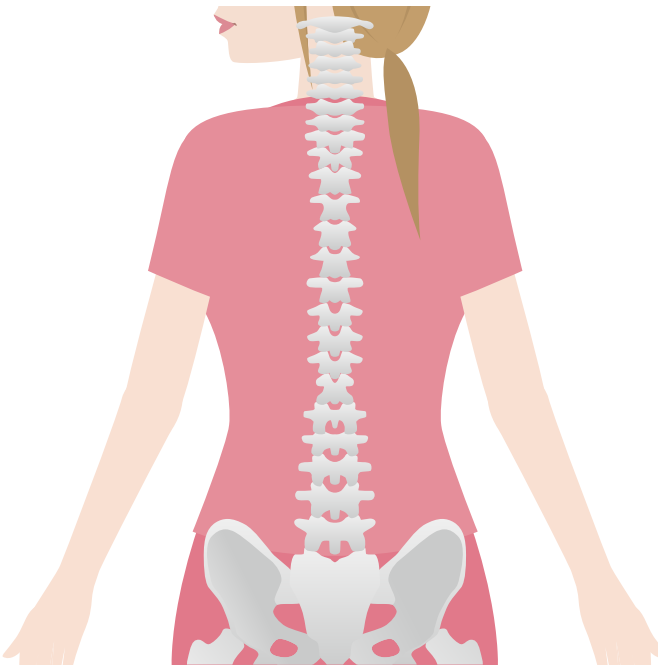
Inform the radiographer immediately if you have any itching or hives, lightheadedness, nausea sneezing or nasal congestion, scratchy throat, swelling in your face, or trouble breathing during the test.

The use of a contrast dye may cause the test to take slightly longer.

Important precautions for X-rays

Before proceeding with an X-ray, you must inform your doctor and the facility performing the test about the any of the following[3,6,10,11]:

- Pregnancy
- Any medical conditions or health problems
- Allergies
- Recent surgical interventions
- A recent X-ray involving a barium contrast
- Medical devices, pacemakers, orthopedic or dental implants, or any metal in your body



Preparing for an X-ray

Most facilities will provide information and consent forms regarding the safety of an X-ray before the test begins. Individuals will also be given a health questionnaire or be asked questions about their health and medical history to ensure that they are eligible for the procedure.[6,9,11]

Review the following checklist when preparing for your X-ray[6,7,8,9]:

- Can I take my regular medications as usual?
- Are there any limitations on what I can eat or drink in the hours before the exam?
- Do I have something to read or listen to in case I have to wait?
- Am I prepared to remove the following: all jewelry, watches, piercings, hair accessories, wigs, hearing aids, and dentures?
- Am I wearing comfortable, loose-fitting clothing with no buckles, snaps, or metal objects? Women should wear a bra with no underwire. Many facilities will require you to change into a gown for the test.
- Have I left any valuable items at home? There might not be a secure storage area for personal belongings.

After an X-ray

You can resume your normal activities immediately after the test. Individuals who have received a contrast medium ensure that they drink plenty of water after the exam in order to ensure that the dye is flushed out of the system and will be given indications on any further precautions.

X-ray results

Depending on the country and facility performing the test, you or an authorized third party will collect the results of your X-ray directly from the facility or they may be sent to your doctor. In either case, X-rays images should only be read and interpreted by a medical professional, who can then help you take the appropriate decisions for treatment or further testing, if necessary.

Understanding X-ray images

The degree of X-ray absorption depends on the density of the structure that the X-ray beams pass through. This accounts for the varying shades appearing on X-ray images, with more solid structures showing up whiter[1,3]:

- White: dense materials, such as bone, metal, or tumors
- Grey: less dense tissues, such as fat, muscle, blood, skin
- Black: open spaces, such as fractures

It is also important to bear in mind that imaging studies cannot necessarily provide a definitive diagnosis for lower back pain. In fact, for 85% of back pain cases an exact cause is not discovered.[11] For this reason, individuals are encouraged to undertake a preventive treatment program which includes exercise, nutrition, and stress reduction, among other health and wellbeing practices.

For more information on preventing and reducing back pain, please consult our back pain prevention guides.

Questions about your diagnosis?

Unsure which treatment is right for you?

Did you know you have access to a free, independent and confidential decision support service?

Discuss your concerns and have your case reviewed by a specialist in your condition.

The decision is yours. And we're with you all the way.

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