

MEASURING RADIATION DOSE

The scientific unit of measurement for radiation dose, commonly referred to as "effective dose", is the millisievert (mSv). Because different tissues and organs have varying sensitivity to radiation exposure, the actual dose to different parts of the body from an x-ray procedure varies. The term "effective dose" is used when referring to the dose averaged over the entire body.

For This Procedure:	Your Effective Radiation Dose Is:	Comparable To Natural Background Radiation For:
Chest		
Routine Chest X-ray	0.1 mSv	12.5 days
Abdominal Region		
Bone Mineral Density - Spine	0.013 mSv	1.58 days
Upper G.I.	1.6 mSv	6 months
Barium Enema	2 mSv	8 months
CT Scan Abdomen	4 mSv	16 months
Central Nervous System		
CT Scan Head	2 mSv	8 months
Breast		
Mammography	0.7 mSv	3 months
Pelvis (Hip)		
Bone Mineral Density - Hip	0.013 mSv	1.58 days

Diagnostic Imaging Centre

St. Joseph's Hospital
Room Co-200
268 Grosvenor St.
London, ON, N6A 4V2

Radiation Safety officer: 519 646-6100
ext. 64155

Helpful radiation safety links:

- The College of Medical Radiation Technologists of Ontario:
www.cmrto.org
- Ontario Ministry of Health and Long Term Care:
www.health.gov.on.ca/en/
- Radiological Society of North America Patient Safety:
www.rsna.org/Patients.aspx

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Renowned for compassionate care, St. Joseph's is one of the best academic health care organizations in Canada dedicated to helping people live to their fullest by minimizing the effects of injury, disease and disability through excellence in care, teaching and research.

Bone Mineral Density Patient X-ray Radiation Dose



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WHAT ARE X-RAYS AND WHAT DO THEY DO?

X-rays are a form of radiant energy, like light or radio waves. Unlike light, x-rays can penetrate the body, which allows a radiologist or technologist to produce images of internal structures. The radiologist, out-patient clinic medical staff or medical radiation technologist can view these images on a computer.

WHAT IS A BONE MINERAL DENSITY SCAN?

Patients are exposed to x-rays originating below the body part (i.e. spine, hip) being assessed. A detector above measures the amount of x-rays coming through that body part. The density (grams per square centimeter) of bones in that body part is inversely proportional the amount of x-rays measured by the detector.

WHAT IS A MEDICAL RADIATION TECHNOLOGIST?

A medical radiation technologist is a licensed medical professional that produces diagnostic images using various forms of radiation.

The radiation exposure from one bone mineral density scan is equivalent to the amount of radiation exposure one experiences from our natural surroundings in 1.58 days

ENSURING YOUR SAFETY

As with other medical procedures, x-rays are safe when used with care. Radiologists and medical radiation technologists have been trained to use the minimum amount of radiation necessary to obtain a diagnosis. The amount of radiation used in most examinations is very small and the benefits greatly outweigh the risk of harm. X-rays are produced only when the exposure switch is momentarily turned on. As with visible light, no radiation remains after the switch is turned off.

MINIMIZING YOUR RISKS

- If you have concerns about the amount of radiation you will receive from x-rays, discuss them with your doctor prior to your scheduled examination.
- For females between ages 10-55, if you are pregnant, think you may be, or have had blood drawn recently for a pregnancy test, tell your doctor. Please also inform the radiologist, out-patient clinic medical staff or the medical radiation technologist.
- If you must have a bone density, tell your doctor or the technologist about any similar x-rays you have had recently.

We are exposed to radiation from natural sources all the time. The average person receives an effective dose of about 3 mSv per year from naturally occurring radioactive material and cosmic radiation from outer space.

INQUIRING ABOUT YOUR X-RAY DOSE

Our radiation safety personnel (e.g. medical physicists, radiation protection/safety officer) will accept all patient inquiries concerning the amount of x-ray dose they received during a procedure.

Patient radiation dose calculation is based on many factors related to each specific x-ray procedure performed. Our reply to a request for the calculation of radiation dose received will take 1-2 days. The reply will also be forwarded to the patient's referring physician (i.e. family doctor ordering the x-ray procedure) who will then provide the x-ray dose information to the patient making the request.

Our calculation of radiation dose is only an approximation. At best it has an accuracy of +/- 10-20%