TESTS AND PROCEDURES FOR BONES AND JOINTS

MASSACHUSETTS GENERAL HOSPITAL IMAGING
Step-by-Step: How Imaging Works
What to expect on your journey through the diagnostic imaging process.

GETTING STARTED

- You and your doctor need information to plan your care.
- Your doctor schedules an exam at one of our convenient locations.
- For safety, you may need a blood test if your exam will use **contrast**—a drink or injection that makes the image more vivid.
- A member of our expert staff reviews your case and carefully selects a **protocol**—a combination of equipment settings and exam steps—to ensure we capture the best possible images.

EXAM DAY

- You may need to refrain from eating or drinking before your appointment.
- Upon your arrival, we double-check safety information and review the exam with you.
- You receive contrast (if needed).
- Your **technologist**, the trained professional performing your exam, remains nearby and in communication throughout.
- We capture and store diagnostic-quality images in an electronic library.

YOUR RESULTS

- A **radiologist** examines the images.
- At Mass General Imaging, this radiologist is always a specialist—an expert in a particular area of the body or type of scan.
- The radiologist dictates a report including a diagnosis and recommendations.
- Your doctor receives the report and may also view your images.
- **The information discovered through imaging helps your doctor plan the next steps in your care.**

www.massgeneralimaging.org/howimagingworks
Welcome to Massachusetts General Hospital Imaging

Dedicated to delivering the clearest picture of your health.

- Eight community locations around Greater Boston
- Over 100 board-certified radiologists, each dedicated to an imaging subspecialty
- More than 600,000 imaging scans reviewed annually
- A full range of diagnostic imaging services and interventional procedures

When you come to Mass General Imaging you’ll get expert diagnosis—and clarity on the right course of care.

THE SPECIALIST ADVANTAGE

Mass General Imaging’s radiologists all specialize in a certain part of the body or condition. A specialist is capable of seeing and understanding subtle things due to advanced training and singular focus. In addition to the training that all radiologists receive, a specialist has additional education, as well as extensive real-world experience in interpreting images for a particular body area or system.
Exams and Procedures

Here’s a brief introduction to each kind of test or treatment you might need: How it works, why we use it and what to expect.

MRI (MAGNETIC RESONANCE IMAGING)

Fundamentals:

• An MRI machine produces a strong magnetic field and radio waves. The atoms in your body respond to this energy in a certain way. The MRI detects this response and uses it to construct detailed images.

• MRI does not use X-ray radiation.

• MRI is great for looking at soft tissue, such as the tendons and other parts of your joints, as well as the spinal discs and spinal cord.

Specialty expertise:

• All of our MRI machines are state-of-the-art, and we offer the latest technologies, such as high-resolution 3T (Tesla) scanners.

• We use protocols—equipment settings plus exam steps—that are specially designed to capture images of the bones, joints and spine.

• Every scan is interpreted by a radiologist who specializes in the musculoskeletal system.
What to expect:

• Exams typically take 45 minutes.
• Many exams involve contrast—an injection that makes the images more vivid and informative.
• If you are over 60 or have kidney disease, diabetes, lupus or multiple myeloma, a blood test before your exam is necessary to make sure the contrast is safe for you.
• Because of the strong magnet, we need to make absolutely sure you don’t have any metal objects with you. We also need to know about any implants in your body.
• The technologist performing your exam will be nearby and able to talk to you throughout the scan.
• MRI exams require that you lie still in a confined space. Most people have no problem, but talk to your doctor if you are concerned. Your doctor may prescribe a sedative (we cannot provide such medication).

More information:
www.massgeneralimaging.org/mri
Mass General Imaging has 10 dedicated musculoskeletal radiologists—experts in the spine, bones, joints and muscles. The group includes internationally recognized authorities on sports-related injuries, bone and muscle tumors, and minimally invasive, image-guided treatments for joint and spine disorders. Members of the team have advanced state-of-the-art tests and treatments for conditions such as joint pain and osteoporosis.

Fundamentals:

• A CT scanner rotates to take X-ray images from different angles all around your body.

• A computer puts these images together to form detailed, two-dimensional pictures.

• CT provides clearer, more detailed pictures than traditional X-rays.

• CT is used, for example, to diagnose fractures, prepare for surgery and check the healing of fractures.

Specialty expertise:

• We pay special attention to minimizing X-ray exposure—without giving up image quality.

• We use the latest technology, including 64-slice and 128-slice CT scanners.

• A radiologist with special training in CT and the musculoskeletal system will interpret your exam.
What to expect:

• Exams typically take 15 minutes in total; the actual scanning takes just minutes.

• Many exams involve contrast agents—a drink or injection that makes the images more vivid and informative.

• If you are over 60 or have kidney disease, diabetes, lupus or multiple myeloma, you’ll need a blood test beforehand to make sure the contrast will be safe for you.

• The technologist performing your exam will be nearby and able to talk to you throughout the scan.

• CT exams require that you lie still in a confined space. But because the scanning time is so short, most people tolerate the experience well.

More information:
www.massgeneralimaging.org/ct
Fundamentals:

- A special kind of X-ray machine measures the amount of energy your bones absorb, which indicates the bones’ density and strength.
- The exam helps to diagnose and track the treatment of osteoporosis and other conditions that cause bone loss.

Specialty expertise:

- Our state-of-the-art equipment minimizes X-ray exposure.
- Your exam will be interpreted by a radiologist or endocrinologist specially trained in bone density.
- We use special software to compare your current and past bone-density results to get an accurate picture of your progress.
What to expect:

• The exam takes about 30 minutes.
• You will lie on a table, and the technologist performing your exam will take images of your hip and spine.
• You will need to lie still and may be asked to hold your breath for a few seconds while the pictures are being taken.
• The technologist will remain with you except for the brief times when the X-ray machine is active.

More information:
www.massgeneralimaging.org/bone_d
Beyond Diagnosis

In addition to diagnostic imaging, Mass General Imaging offers several procedures that use imaging technology to treat specific conditions. Specialty-trained doctors called interventional radiologists perform these minimally invasive, image-guided procedures.

Spine/joint injection:
- Treats back or joint pain
- Places medicine right at the source of pain
- Can provide immediate relief and help pinpoint cause of pain

Vertebroplasty:
- Treats vertebral (spinal) fractures
- Injection of cement stabilizes the bone
- Reduces or eliminates pain, prevents further damage

Kyphoplasty:
- Similar to vertebroplasty, but uses a balloon to restore height and shape of compressed vertebra before cement is injected

Percutaneous discectomy:
- Treats pain from herniated discs
- Removes small amount of disc tissue to relieve pressure on nerves
- Reduces pain and restores mobility

More information:
www.massgeneralimaging.org/backpain
Register as a Patient

All patients need to register as Mass General patients. This is a quick process that can be done over the phone. Please call 866-211-6588.

Schedule an Exam

A doctor’s order is required to schedule an exam. Your doctor can choose to order your test online or call the location directly. Talk to your doctor about which location might be most convenient for you.