



Musculoskeletal Ultrasound

What Is It? How Can It Help Your Doctor Diagnose an Orthopedic Problem?

by Michael Hilts, MD

Musculoskeletal ultrasound is an advanced imaging technique that uses sound waves to help your doctor visualize an area of the body and diagnose the cause of pain.

This imaging method also can be used to guide injections for pain, especially in locations that are difficult to access. See separate story on its use in injections [here](#).

How is this imaging technique used to diagnose orthopedic problems?

Musculoskeletal ultrasound is performed using a portable machine in the examination room. As a small probe is passed over the area being examined, the doctor can see that area on a monitor attached to the ultrasound machine. This device employs the same type of technology that is used to visualize the fetus in women who are pregnant.

When might it be used to help with diagnosis of an orthopedic problem?

Musculoskeletal ultrasound is useful in diagnosing a wide variety of problems in muscles, ligaments, nerves and tendons. For example, it will show ruptures of tendons and fluid accumulation around a tendon sheath. It's also helpful in diagnosing rotator cuff tears, carpal tunnel syndrome and gout. With gout, it will show specific changes that occur during a gout attack and cannot be seen on an x-ray. We also use it occasionally to diagnose a fracture in a child when the parent is reluctant to have the child exposed to radiation.

What are the advantages of ultrasound over MRI scans?

There are a number of advantages in using ultrasound to detect tears and other problems in muscles, ligaments, nerves, tendons and other soft tissue:

- **No radiation**
Ultrasound does not expose the patient to radiation, as an MRI scan does.
- **Cost savings**

The cost of an ultrasound exam is significantly less than an MRI scan.

- **Instant feedback.**

The patient learns right away in the office if there is a tear or another injury, so appropriate treatments can begin immediately.

- **Real-time imaging**

We can ask the patient to move the area in question and observe how it looks in motion during the ultrasound exam. This can help in diagnosing the cause of certain problems. For example, when a child comes in with a snapping sensation in the hip – a frequent occurrence – we can confirm, by observing movement on the ultrasound, that it is not a problem requiring treatment but rather is simply the tendon moving across the bone.

- **Side-to-side comparisons**

We can compare swelling and the appearance of the injured shoulder, wrist or other body part with its counterpart on the other side by passing the ultrasound probe over that area as well. That's not possible with an MRI scan, because a completely different study has to be ordered to do a comparison.

What's an example of an injury where ultrasound is beneficial?

Rotator cuff tears are a good example. Let's say you have injured your shoulder in a fall, and we suspect a rotator cuff tear when we evaluate the injury in the office. We can use the musculoskeletal ultrasound during your office visit to look for a tear immediately, rather than having to schedule an MRI. That enables us to begin appropriate treatment sooner. In addition, musculoskeletal ultrasound is often the preferred method for evaluating rotator cuff tears because it will detect a tiny tear that might not be visible on an MRI scan.

How long will my ultrasound exam take? And do I need to make any special preparations?

Your musculoskeletal ultrasound exam will take just 10 to 15 minutes. No special preparation is required.

Are there limits to what the musculoskeletal ultrasound will show?

Yes. The musculoskeletal ultrasound can visualize the surface of a bone, where a fracture may be seen, but cannot see through or past the bone. That means it is not helpful in diagnosing some injuries and is not generally used to image the spine area.

What special training have you received in this technique?

In December 2012, I became the first physician in North Carolina to receive credentialing in musculoskeletal ultrasound from the American Registry of Diagnostic Medical Sonography (ARDMS). To receive this credential, I had to log more than 150 ultrasound cases (I have performed four to five times that number), take 30 continuing education credits in this technique and pass a credentialing examination.

How can I schedule an exam?

If you would like to schedule a consultation, please call our office at 336-275-0927.