

# **Orthopaedic Connection**

## **Imaging Techniques 301**

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### ***Transforming patient information into patient understanding.***

As we come to the conclusion of our mini course in Imaging Techniques I use in Orthopaedic Surgery, there are four more areas to cover. Arthrography, bone scan, PET scan and ultrasound. I hope you have picked up a lot of useful information from our three week course.

#### **What is Arthrography?**

Quite simply it is an x-ray study in which a contrast fluid (or dye as patients often refer to it) is injected into a joint. This makes the joint show up more clearly on the x-ray.

I do arthrograms frequently in the office. The contrast fluid I use is Optiray. All of the contrast agents have iodine in some form to aid visualization of the joint.

One of the most common arthrograms is of the shoulder. It can demonstrate tearing of the rotator cuff.

Arthrograms can also be done by using CT or MRI. Plain x-ray MRIs are more common and simpler to do than CT or MRI studies. Plain x-ray arthrograms are also done at a fraction of the cost of the other studies.

#### **Bone Scan**

It is a very helpful nuclear medicine imaging study, which I use quite often. It is also sometimes called bone scintigraphy. A small amount of a radioisotope (usually technetium 99) is injected into the blood stream. It is absorbed by the bone. Between 3 to 6 hours after the injection the patient is placed in a special x-ray scanner (not MRI or CT) that detects the amount of isotope that has been absorbed into the bones. In effect it shows blood flow and metabolic activity within the bone. The radioactive material is picked up by the area of the bone that is trying to repair itself.

I use it to detect hidden fractures, tumors in bone and stress fractures.

#### **Ultrasound**

An ultrasound study is a painless, noninvasive, radiation free procedure used to visualize body structures and study blood flow. In Orthopaedic Surgery I use it to study tendons, muscles, joints and vessels. Ultrasound refers to acoustic energy with a wave frequency above the audible range of human hearing.

Obstetrics ultrasound studies are much more well known to the public than Orthopaedic uses.

### **PET Scan**

A PET scan is a type of nuclear medicine imaging study. It is a unique test because it helps us see how organs and tissues inside the body are actually functioning. It is not just a picture of the anatomy like other tests are. The patient is injected intravenously with a radioactive tracer and then placed in a PET scanner similar to a CT unit. There are also combined PET/CT scanners that look similar to both PET and CT scanners.

In Orthopaedics a PET scan would be ordered to detect cancer or determine whether cancer has spread in the body.

By the way PET stands for Position Emission Tomography.

Whew. We are finished with Imaging Studies. Good thing. It was getting a bit heavy there at the end. I'll try to lighten up next week. I promise.

For more information about all things Orthopaedic check out our office website [www.orthopodsurgeon.com](http://www.orthopodsurgeon.com) and Your Orthopaedic Connection.

Our goal is simple - To help people return to more pain free, functional lives.

Good health. Good life. All the best to you.

Be well.

Dr. Haverbush