

# Diagnosis and treatment of Acetabular Labrum Tears

Erik Walder URI Department of Electrical, Computer, and Biomedical Engineering BME 181

---

## What is the Acetabular Labrum and why is it important?

This ring of fibrocartilage is attached to the acetabulum along the outside edge of the hip socket. There are three different parts of the labrum, but the focus is of the internal articular surface. This is the surface of the labrum that is against the femoral head, also known as the ball of the hip. The labrum is essentially an extension of the hip socket. There are a number of important functions that the labrum performs. It aids in distributing the load the hip joint bears, deepens the hip joint, and helps decrease friction in the hip joint.

## Causes and Symptoms of labrum tears

Unlike the knee and shoulder it is much more difficult to diagnose an acetabular labrum tear. The location of the hip joint deep inside the body and the complexity of the surrounding tissues contribute to this. When a patient has a labrum tear it usually manifests itself in another area of the hip. In many cases it can be thought to be a strained groin muscle, quadriceps, or a lower back injury. Other signs of a tear include a catching or clicking sensation and the hip suddenly giving way. The pain that is felt is from torn pieces being caught in the hip joint. The labrum is usually torn when the hip is bearing a load and is twisted suddenly. Hip dysplasia, trauma, and hip degeneration make a tear more likely.

## Diagnosis

Up until the early 1900's there was no way to identify these tears. Since then a number of methods have been developed. Since a labrum tear usually has little to no impact on the range of motion of the hip it is very difficult to detect by a physical examination. In addition, Computer Tomography (CT), Magnetic

Resonance Imaging (MRI), and x-rays will not detect a tear. An MRA or Magnetic Resonance Arthrography can. This involves injecting a dye directly into the labrum to build up pressure and then performing an MRI. The pressure will cause the dye to leak out of any tears, making them visible.

## Repair

Surgery does not actually repair the labrum. There are no blood vessels in the internal articular area of the labrum so it cannot heal itself. When undergoing surgery the patient is strapped into a traction table. The hip is then pulled apart enough to fit the surgical tools into the joint area but not out completely out of joint.

Arthroscopic surgery is employed for this procedure. Three incisions about one centimeter in diameter are made and shields are inserted into each of the incisions to make taking tools in and out easier. A fiber optic camera is inserted into one incision, and suction tool into another, and a cutting tool into the last. The surgeons will then trim away any loose cartilage, remove it from the joint, and smooth back the remaining cartilage so the femoral head will glide smoothly along it. Live X-Ray technology assists Surgeons throughout the procedure. Because it is minimally invasive arthroscopic surgery allows the patient to heal relatively quickly.

## References

<<http://www.sportsinjurybulletin.com/archive/acetabular-labrum-tears>>

<[http://www.shoulderkneecenter.com/hip\\_arthroscopy.htm](http://www.shoulderkneecenter.com/hip_arthroscopy.htm)>

<[http://www.hughston.com/hha/a\\_13\\_2\\_3.htm](http://www.hughston.com/hha/a_13_2_3.htm)>

<<http://www.arthrocaresportsmedicine.com/products/procedure/13>>