SpineFAQs Thoracic Disc Herniation

What is a thoracic disc herniation?

The thoracic spine is the mid back…in the chest area. The discs in the thoracic spine act like shock absorbers and also help with mobility in the spine. When a disc herniates, the nucleus (central material) leaves its normal position and exits the annulus. Although people often refer to a thoracic disc herniation as a slipped disc, the disc doesn't actually slip out of place. Rather, the term *herniation* means that the material in the center of the disc has squeezed out of the normal space. In the thoracic spine, this condition mostly affects people between 40 and 60 years old.

A rise in the use of *magnetic resonance imaging* (MRI) has led to the discovery that many people, perhaps as many as 15 percent of Americans, have a *thoracic disc herniation*. Seeing a herniated thoracic disc on MRI is often *incidental*, meaning it shows up when the person has MRI testing for another problem.

Few people with a thoracic disc herniation feel any symptoms or have any problems as a result of this condition. In rare cases when symptoms do arise, the main concern is whether the herniated disc is affecting the spinal cord.

What causes a disc herniation?

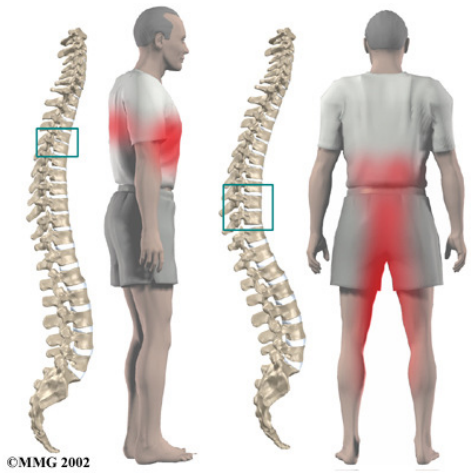
Thoracic disc herniations are mainly caused by wear and tear in the disc. This wear and tear is known as *degeneration*. As a disc's annulus ages, it tends to crack and tear. These injuries are repaired with scar tissue. Over time the annulus weakens, and the nucleus may squeeze (herniate) through the damaged annulus. Spine degeneration is common in T11 and T12. T12 is where the thoracic and lumbar spine meet. This link is subject to forces from daily activity, such as bending and twisting, which lead to degeneration. Not surprisingly, most thoracic disc herniations occur in this area.

Less commonly, a thoracic disc may herniate suddenly (an *acute* injury). A thoracic disc may herniate during a car accident or a fall. A thoracic disc may also herniate as a result of a sudden and forceful twist of the mid-back.

Diseases of the thoracic spine may lead to thoracic disc herniation. Patients with Scheuermann's disease, for example, are more likely to suffer thoracic disc herniations. It appears these patients often have more than one herniated disc, though the evidence is not conclusive. The spinal cord may be injured when a thoracic disc herniates. The spinal canal of the thoracic spine is narrow, so the spinal cord is immediately in danger from anything that takes up space inside the canal. Most disc herniations in the thoracic spine squeeze straight back, rather than deflecting off to either side. As a result, the disc material is often pushed directly toward the spinal cord. A herniated disc can cut off the blood supply to the spinal cord. Discs that herniate into the critical zone of the thoracic spine (T4 to T9) can shut off blood from the one and only blood vessel going to the front of the spinal cord in this section of the spine. This can cause the nerve tissues in the spinal cord to die, leading to severe problems of weakness or paralysis in the legs.

What are the syptoms?

Symptoms of thoracic disc herniation vary widely. Symptoms depend on where and how big the disc herniation is, where it is pressing, and whether the spinal cord has been damaged.



Pain is usually the first symptom. The pain may be centered over the injured disc but may spread to one or both sides of the mid-back. Also, patients commonly feel a band of pain that goes around the front of the chest. Patients may eventually report sensations of pins, needles, and numbness. Others say their leg or arm muscles feel weak. Disc material that presses against the spinal cord can also cause changes in bowel and bladder function.

Thoracic disc herniations can affect areas away from the spine. Herniations in the upper part of the thoracic spine can radiate pain and other sensations into one or both arms. If the herniation occurs in the middle of the thoracic spine, pain can radiate to the abdominal or chest area, mimicking heart problems. A lower thoracic disc herniation can cause pain in the groin or lower limbs and can mimic kidney pain.

How do you diagnose a thoracic disc herniation?

Diagnosis begins with a complete history and physical examination. I will ask questions about your symptoms and how your problem is affecting your daily activities. These include questions about where you feel pain, if you have numbness or weakness in your arms or legs, and if you are having any problems with bowel or bladder function. I will also want to know what positions or activities make your symptoms worse or better. Then I will examine you to see which back movements cause pain or other symptoms. Your skin sensation, muscle strength, and reflexes are also tested.

X-rays show the bones. They normally don't show the discs, unless one or more of the discs have *calcified*. This is significant in the diagnosis of thoracic disc herniation. A calcified disc that appears on X-ray to poke into the spinal canal is a fairly reliable sign that the disc has herniated. It isn't clear why a problem thoracic disc sometimes hardens from calcification, though past injury of the disc is one possibility.

The best way to diagnose a herniated thoracic disc is with *magnetic resonance imaging* (MRI). The MRI machine uses magnetic waves rather than X-rays to show the soft tissues of the body. It gives a clear picture of the discs and whether one has herniated. This machine creates pictures that look like slices of the area your doctor is interested in. The test does not require dye or a needle. This test has shown doctors that many people without symptoms have thoracic disc herniations. This has led some doctors to suggest that thoracic disc herniations not causing symptoms are normal.

Before MRI, doctors relied mainly on *myelography* to diagnose thoracic disc herniations. By itself, myelography only helps diagnose this condition in about half the cases. Myelography is a kind of X-ray test. A special dye is injected into the space around the spinal canal. The dye shows up on an X-ray. It helps a doctor see if the disc is pushing into the spinal canal.

Computed tomography (CT scan) may be ordered. This is a detailed X-ray that lets doctors see the body's tissue in images that also look like slices. The images provide more information about calcified discs. Doctors may combine the CT scan with myelography. When the CT scan is performed, the myelography dye highlights the spinal cord and nerves. The dye can improve the accuracy of a standard CT scan for diagnosing a herniated thoracic disc.

I rely mostly on MRI for diagnosing thoracic disc herniations. However, I may use myelography and CT scans when preparing to do surgery to fix a herniated thoracic disc.

What kind of treatments are there?

We closely monitor patients with symptoms from a thoracic disc herniation, even when the size of the herniation is small. If the disc starts to put pressure on the spinal cord or on the blood vessels going to the spinal cord, severe neurological symptoms can develop rapidly. In these cases, surgery is needed right away. However, unless your condition is affecting the spinal cord or is rapidly getting worse, most doctors will begin with nonsurgical treatment.

At first, I may recommend immobilizing your back. Keeping the back still for a short time can calm inflammation and pain. This might include one to two days of bed rest, since lying on your back can take pressure off sore discs and nerves. However, most doctors advise against strict bed rest and prefer their patients do ordinary activities, using pain to gauge how much activity is too much. Another option for immobilizing the back is a back support brace worn for up to one week. We prescribe certain types of medication for patients with thoracic disc herniation. Patients may be prescribed anti-inflammatory medications such as aspirin or ibuprofen. Muscle relaxants may be prescribed if the back muscles are in spasm. Pain that spreads into the arms or legs is sometimes relieved with oral steroids taken in tapering dosages.

If there is pain radiating around your body, I may recommend a selective nerve block. This type of injection can, in some cases relieve the nerve inflammation and improve your pain. Most people with a herniated thoracic disc get better without surgery. We usually have their patients try nonoperative treatment for at least six weeks before considering surgery.

What about surgery?

Surgeons may recommend surgery if patients aren't getting better with nonsurgical treatment, or if the problem is becoming more severe. When there are signs that the herniated disc is affecting the spinal cord, surgery may be required, sometimes right away. The signs surgeons watch for when reaching this decision include weakening in the arm or leg muscles, pain that

won't ease up, and problems with the bowels or bladder. Surgical treatments for this condition include:

Costotransversectomy - Surgeons use costotransversectomy to open a window through the bones that cover the injured disc. Operating from the back of the spine, the surgeon takes out a small section on the end of two or more ribs where they connect to the spine. Then the bony knob on the side of the vertebra is removed. This opens a space for me to work. The injured portion of the disc that is pressing against the spinal cord is removed (*discectomy*) with small instruments. Surgeons take extreme care not to harm the spinal cord. Most of the time, I will take some of the rib bone and place it in the space left by removal of the disc to allow this area to fuse and stiffen.

Transthoracic Decompression - In *transthoracic decompression*, the surgeon operates through the chest cavity to reach the injured disc. This approach gives the surgeon a clear view of the disc. Ii ask a surgeon who specializes in surgery of the chest to make the exposure. This provides us with a much safer approach. With the patient on his or her side, the surgeon cuts a small opening through the ribs on the side of the *thorax* (the chest). Instruments are placed through the opening, and the herniated part of the disc is taken out. This takes pressure off the spinal cord (*decompression*). Crumbled up rib bone is placed into the disc space to allow the bones to fuse together.

Video Assisted Thoracoscopy Surgery (VATS) - Recent developments in thoracic surgery include *video assisted thoracoscopy surgery* (VATS). This procedure is done with a *thoracoscope*, a tiny television camera that can be inserted into the side of the thorax through a small incision. The camera allows the surgeon to see the area where he or she is working on a TV screen. Small incisions give passage for other instruments used during the surgery. The surgeon watches the TV screen while cutting and removing damaged portions of the disc. Categorized as *minimally invasive surgery*, VATS is thought to be less taxing on patients. Advocates also believe that this type of surgery is easier to perform, prevents scarring around the nerves and joints, and helps patients recover more quickly. Unfortunately, there are relatively few surgeons who are capable of doing VATS.