



# **PATIENT GUIDE TO DEGENERATIVE SPINE DISEASE AND DISC DISEASE OF THE SPINE**

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## **What is degenerative spine disease?**

One of the more unfortunate aspects of getting more mature is that your joints begin to wear out, oftentimes for no good reason. This wear and tear of the joints is not only common in the knees and the hips, but also in the spine. The exact reason why the joints of the spine begin to wear out is not known, and it may be a combination of factors, such as doing a lot of lifting, having a family history of spine problems or having an injury to the spine. The wear and tear is a form of arthritis, which is where the cartilage in the spine joints begins to wear out. Regardless of the cause, it is well known that arthritis of the spine often increases with increasing “maturity,” for no reason that can be identified.

## **What are the signs of arthritis of the spine?**

Most of the time there is a little arthritis of the spine and the affected person never knows that it has developed. Sometimes the arthritis can be fairly severe and still have no symptoms. When the arthritis of the neck becomes a problem, the signs can be pain in the neck and occasionally to the shoulder blades, into the shoulders and down the arm to the hand. When the pain is localized to the neck and the muscles next to the neck (the trapezius muscles), usually it is the arthritis causing the problem. Sometimes the neck gets irritated enough that the nerves become involved, and when that happens there may be pain that radiates down the arm to the wrist or fingers. Another sign of nerve involvement is tingling and numbness (called parasthesias) in the arm or fingers. Often the tingling and numbness will come and go and generally they will not last. However, as the nerves become more involved and damaged, the tingling and numbness will last. The nerves also make the muscles work, so if you notice weakness then the nerve damage is enough that you should seek medical attention right away. If the numbness and weakness are progressively getting worse you should see your physician right away. Rarely arthritis in the neck can be bad enough to start to affect the nerves in the legs, so if you develop weakness in the legs, difficulty walking or trouble with your bowels or bladder, you should notify your physician and be evaluated right away. Most of the time arthritis in the spine is mild and emergency evaluation and treatment is not needed.

Arthritis in the low back has similar symptoms and can cause pain in the back and sometimes into the buttocks. Sometimes the pain can radiate into the thighs, but if it does then it could indicate involvement of the nerves. The guidelines for symptoms of tingling, numbness and weakness are the same in the low back and lower extremities as they are for the neck (in the previous paragraph).

### Why does arthritis cause these symptoms?

The spine in your body is divided roughly into three regions (Figure 1). The region in your neck area is the cervical spine, the region in your

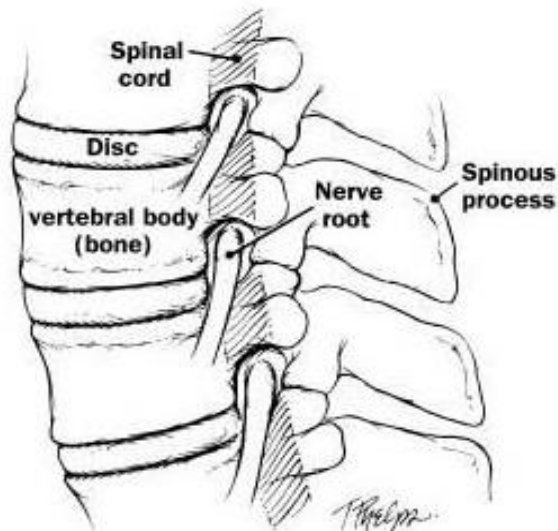


Figure 2

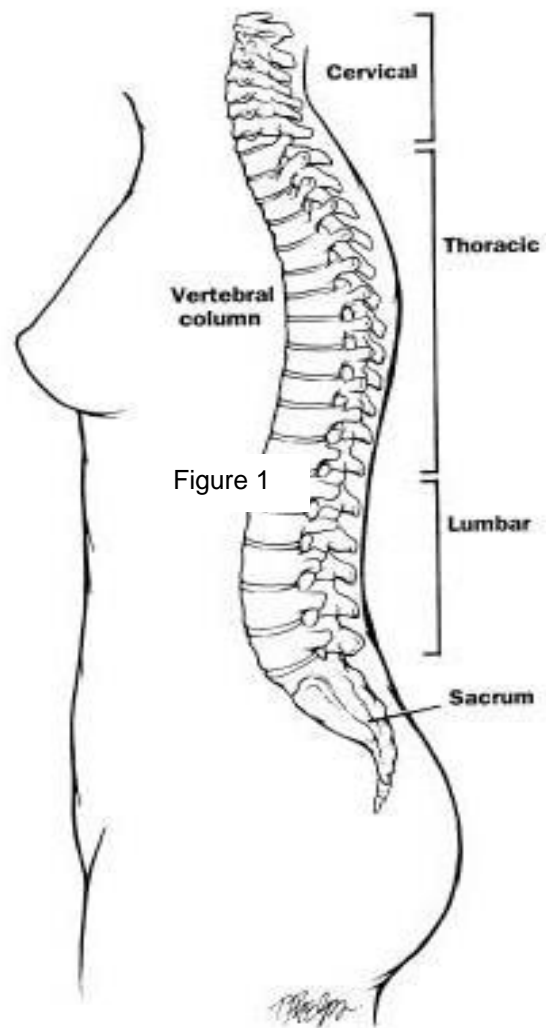


Figure 1

chest is the thoracic spine, and the region in your low back the lumbar spine. The spine is made up of bones, called the vertebrae, and soft spacers between the bones called discs (Figure 2). The vertebrae are made of bone, which is hard and gives the spine rigidity; this is what allows humans to stand upright. The discs are specialized structures that act as shock absorbers between the bones. Since they do not have calcium in them, they cannot be seen directly on X-ray, but they can be seen with MRI. The best way to think of discs is as cream filled donuts, or perhaps as jelly filled radial tires. The disc outside is tough and firm, like a radial tire, but the inside is filled with a softer, jelly-like substance. This makes the disc compressible, so that the bones do not see so much stress.

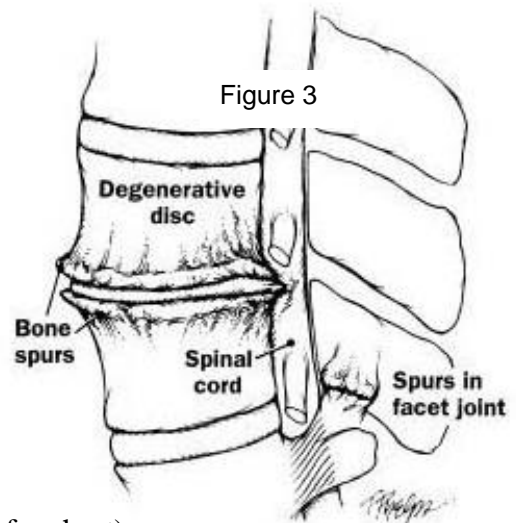
As you get more mature, the jelly part of the disc begins to dry up. This may not happen at all, or may happen to one or more discs for reasons not entirely understood. As the disc dries up, the radial tire part starts to collapse. This allows the bones on either side of the disc to get closer together (Figure 3). As the bones get closer together, they see more stress than they like. The joints around the bones also see too much stress. The bones and the joints react by making

spurs, and over time these spurs can begin to pinch the nerves that lead to your arm (Figure 3). This pinching of the nerves can cause pain and sometimes the symptoms mentioned above.

### **What can be done about it?**

Generally this arthritis of the spine does not hurt or cause symptoms and nothing has to be done. If it does cause symptoms then what is done depends upon the severity of the symptoms. If the symptoms are only stiffness and soreness, then they are treated with heat or ice and a gentle stretching program of the neck. If the pain is not relieved, then medication can help relieve the symptoms until the pain subsides.

There are two types of medicine to start with. The first is acetaminophen (Tylenol), which will help with the discomfort. Arthritis medicines such as aspirin or aspirin-like medicines (called anti-inflammatories or Non-Steroidal Anti-Inflammatory Drugs, called NSAIDs for short) can also be taken. If taking the medicine once or twice a day works, then that is all that is needed. If the pain is more severe, then these medicines should be taken according to the instructions on the bottle. If that does not work, then you should contact your doctor for an evaluation and a prescription for stronger medicine.



### **What will my doctor do about the symptoms?**

What is done depends upon the severity of the symptoms and whether or not there are any signs that the nerves are involved. The doctor will take your history and do an examination of the muscles and nerves in your arms. In some cases an X-ray will be necessary to see if the discs are collapsing or if there are any bone spurs. If it appears that the arthritis of the spine is not too severe and the nerves are not involved, then the physician will give you arthritis medicines and perhaps pain pills to get the irritation under control. If arthritis medicine is prescribed, it usually has to be taken for several (4 to 6) weeks to be effective. If the pain is severe and not controlled by the anti-inflammatory medicine, the pain pills may be prescribed. In some instances where the neck pain is severe and not helped by the other medicine, cortisone pills for one week may be helpful. The dose of cortisone used is small and typically has none of the side-effects of taking prednisone for months (small doses will not thin your bones or make you swell up). If all of that does not work, or if there are signs of nerve damage, then more tests might be needed.

### **What other tests might be done?**

The main reason to do other tests is if the symptoms are getting worse despite treatment, if the pain is severe, or if you have signs of nerve damage, particularly nerve damage that is getting worse. The signs of worsening nerve damage would be increasing tingling or numbness, weakness and sometimes increasing pain. If the physician is concerned that you might have a pinched nerve, then the best tests would be an MRI of the neck or occasionally a CT scan. Another test that can be done to see if the nerves are involved is called an EMG (which stands for

ElectroMyoGraphy) or a NCS (which stands for Nerve Conduction Study). In these two tests a physician uses instruments to evaluate the muscles and nerves to see if they are carrying the signals from the spine to the arms properly. This test can evaluate several different nerves in your arms to see if the nerve is pinched at the neck or at some other place, such as at the wrist (where the nerve being squeezed is called carpal tunnel syndrome”).

### What would they look for in the MRI or CAT scan?

These scans are looking for problems that can occur in the discs that rest between the bones. As you get more mature, not only does the jelly part of the disc begin to dry up some, the radial tire part that holds the jelly part inside also can begin to weaken. As it weakens, the pressure of the spine on the disc can begin to squeeze the jelly part against the weakened radial tire part. If the disc sees a lot of stress, the pressure of the jelly can cause a bulge in the disc, much like a small bulge if you pushed from the inside of a balloon going out (Figure 4). This bulging of the disc is very common as you get more mature, and almost everyone has some disc bulging in their spines. This bulging rarely causes symptoms and is considered a normal

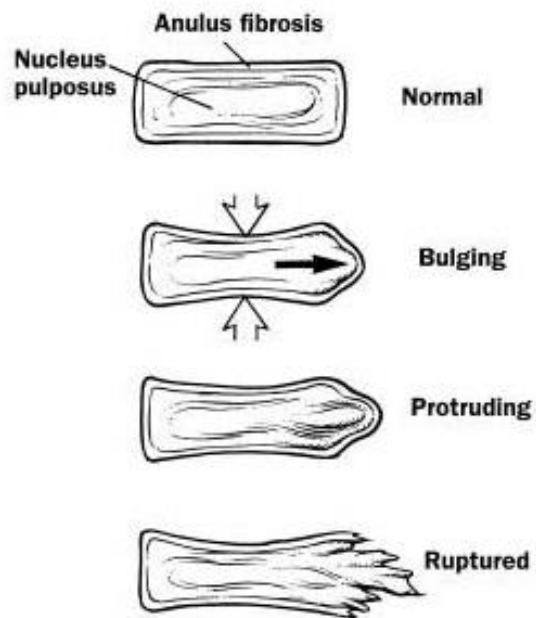


Figure 4

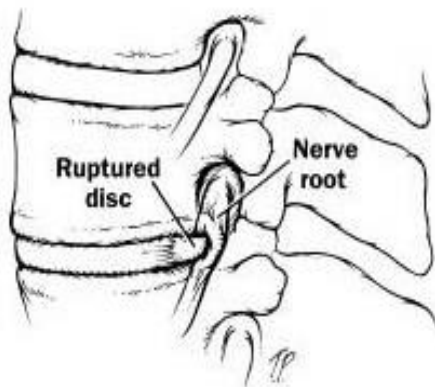


Figure 5

part  
of

getting more mature. If the pressure is great enough and the radial tire part weak enough, this bulge can get larger. This larger bulge is called a protruding disc, and if it gets big enough it may actually push against the nerves as they leave the spinal cord and run to your extremities (Figure 5). This can cause pain or the symptoms of an unhappy nerve: tingling, numbness and weakness.

In some instances the radial tire portion develops a split, oftentimes very suddenly, and the central jelly part squeezes out into the spinal canal where the spinal cord and the nerves are located. This sudden release of the jelly portion of the disc is called a ruptured disc because the fragments can cause fairly rapid onset of pain, tingling, numbness or weakness. The pain typically radiates down the extremity and is made worse by coughing, sneezing or having a bowel movement. If it is in the low back it typically is worse with sitting and standing, and it is better with lying on your back with your leg on a pillow or your knee bent. If the fragment is very large it can cause symptoms in both extremities, and if it is in your neck it can cause symptoms in both arms and both legs. It is more common to have these ruptured discs in the low back where they also can cause trouble with the bowels

(constipation or loss of control) or the bladder (inability to urinate or to control the urination). Most of the time the symptoms are pain, feeling of a cramp, muscle twitches, tingling, numbness or weakness. These symptoms can usually be controlled with rest, medication and time. However, if one has an acute rupture with loss of bowel or bladder control, this is considered an emergency and should be evaluated by your physician or in the emergency room immediately.

### **What is the treatment for a herniated disc?**

The initial treatment is to have a complete evaluation by your physician to evaluate the extent of the damage to the nerves. If you have numbness and weakness this should be done sooner rather than later, and if you find that you are getting progressively worse it also should be done as soon as possible by your physician or in the emergency room. Once the extent of the damage is assessed, in most cases the treatment is the same as for arthritis of the spine. The initial treatment is rest, heat or ice, pain medication, NSAIDs and sometimes oral steroids. The symptoms usually take several weeks to several months to decrease. In most cases the symptoms will decrease on their own with no other treatment. Physical therapy can be of some help in the early stages to help decrease the pain and help with range of motion. Sometimes traction is helpful but it should be gentle and at the instruction of your physician. Once the pain is better there are exercises that can be done to increase the muscle strength and keep the risk of recurrent pain down. This treatment can be directed by your physician. Also, taking precautions not to stress your spine is helpful. For example, heavy lifting is not recommended, and if the disc is in the neck, then heavy lifting with the arms away from the body is not healthy.

### **When is surgery indicated for a disc problem?**

Acute discs typically get better with rest. The only absolute indication for surgery (where surgery must be done or the damage is possibly irreversible) is if the disc is so large that it causes bowel or bladder problems suddenly. In that case the surgery should be done right away to prevent permanent damage to those nerves. If the disc is in the neck and the legs are suddenly affected, some physicians would consider an operation necessary right away. Some physicians feel that if the symptoms of weakness in the extremities are progressing at a rapid rate then surgery might be considered.

In a vast majority of cases immediate surgery is not indicated. Since up to 98% of disc problems get better without surgery, if the symptoms can be controlled then no surgery is needed. Tingling and numbness get better in most cases, and weakness in the muscles may take longer to recover. Some patients have recurrent bouts of back pain with or without nerve involvement. Sometimes these happen frequently and keep the person out of work, out of their sport or generally restricted from their activities. In those cases injection of steroids into the area around the disc can sometimes get rid of the pain and inflammation. If that does not help, then surgery is an option.

### **When is surgery indicated for arthritis of the spine?**

The indications for surgery for arthritis of the spine are similar to those for a disc problem in the spine. If someone has pain that is easily controlled with rest and medication only every now and then, surgery is not indicated. If the pain and nerve symptoms occur frequently, are

severe and limiting your activity, or are not controlled easily with rest and medication and generally ruining your life, then surgery is a consideration. Rarely the spine with arthritis gets so bad that the bones and spurs begin to constrict the nerves and the spinal cord. This gradual squeezing of the spinal cord is called stenosis and can be very gradual. In some case surgery is necessary to stop or slow down the process, and it typically is performed only when the symptoms get severe.

The surgery for arthritis of the spine depends upon exactly what is being pinched and where the arthritis is located. Sometimes the surgery is just to remove the spurs that are compressing the nerves, and sometimes the vertebrae are fused together to prevent the irritation that occurs when the two bones rub against each other when the spine moves. The results of surgery and prognosis after surgery should be discussed with your physician.

### **How do I decide about surgery?**

The decision to have surgery on your spine should be done after careful consideration of all of the factors involved. Most spine problems get better without surgery, but when the symptoms begin to take over your life then consultation with a spine specialist is recommended. There is little doubt that a structured exercise program helps people with spine disease. Surgery for spine problems should only be done after a careful consideration of the potential benefits, the risks and the long-term consequences of surgery. We recommend that the patient seek out information from reliable sources and from careful consultation with physicians and family.

There are other spine conditions that can cause pain and nerve irritation that were not discussed here. This guide regards the most common form of spine disease and can serve for general information about spine problems. However, the information here may not apply to other conditions and you should consult your physician if there are any problems