

## DISC DEGENERATION / DISC PROLAPSE



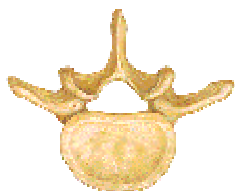
**Top 7  
Cervical**

**Next 12  
behind  
the ribs  
Thoracic**

**Next 5  
Lumbar in  
low back**

**Tail end  
Sacrum**

**Fig 1 View of spine from the side**



**Fig 2 A vertebra viewed from top**

### THE PARTS OF YOUR SPINE AND HOW THEY WORK

The spine is made up of 25 small bones (vertebrae) that are stacked on top of each other to create the spinal column. Between two vertebra is a soft, gel-like cushion called a disc that helps absorb pressure. In addition to the discs the spine also has small joints at the back called facet joints. The spine itself has four main segments: the cervical (neck), thoracic (behind the rib cage), lumbar spine (low back) and sacrum (behind the pelvis). The normal spine has an "S"-like curve when looking at it from the side. This allows for an even distribution of weight. Each vertebra has a hole in the center, so when they stack on top of each other they form a hollow tube (spinal canal) that holds and protects the spinal cord and its nerve roots.

### SPINAL CORD AND NERVE ROOTS

The spinal cord is a column of millions of nerve fibers that run through the spinal canal. The spinal cord extends from the brain to just below the chest. After this it continues as a collection of nerves called the cauda equina. The spinal cord branches off into thirty-one pairs of nerve roots. These roots exit the spine on both sides through spaces (neural foramina) between each vertebra. The nerves in each area of the spinal cord connect to specific parts of your body. **The spinal cord is thus like a motorway that goes through a bony tunnel and branches off into 31 A roads on either side.**

### WHAT ARE DISCS?

The discs are the cushions that act as shock absorbers between each of the vertebra in your spine. They are made of cartilage. Each disc has a strong outer ring of fibres called the Annulus Fibrosus, and a soft jelly-like centre called the nucleus pulposus. They are like a jam doughnut. The bread of the doughnut being the annulus fibrosus and the jam in the centre being the nucleus pulposus. The disc contains a lot of water and acts as a soft cushion.

When the disc contains a lot of water we call it hydrated.

### WHAT IS AN MRI SCAN

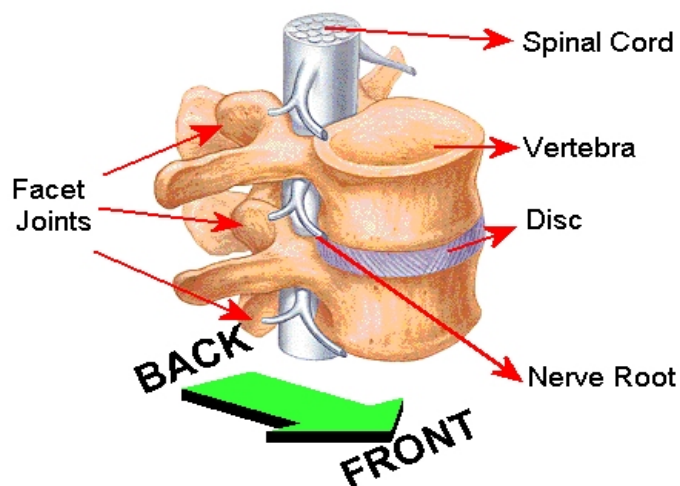
A MRI scan is one of the ways we can scan and see your spine and nerve roots. This involves going into a tube like machine. You may have to lie still in the machine for about 30 minutes. The machine contains a magnet and sensors which revolve around your body and picks up details. The computer then analyses the details and provides different images. These images are usually cut slices. The lengthwise cuts are called sagittal images. Cross sectional cuts are called axial images. There are also different types of images the MRI scan provides. Some of types are called T1 and T2 images. There are like negative and positive images that we can produce from a black and white camera. Each type of image provides a different detail. A well hydrated (normal) disc is white in colour on the T2 weighted MRI scan pictures.

### DISC DEGENERATION

Sometimes over a period of time the disc loses its water content and becomes dehydrated. This condition is called disc degeneration. This is a natural ageing process but can occur even in younger age in some individuals. A degenerated disc is black on the T2 weighted MRI scan picture. Disc degeneration causes back pain and only some leg pain. Disc degeneration is not serious and all of us get it with age. Unfortunately some get it a bit earlier. Please also note that disc degeneration symptomatically gets better in 99.9% of the cases and nothing needs to be done.

Sometimes the degenerate disc may show a white spot at the back. This is called a High Intensity Zone (HIZ) and may indicate a small tear in the annulus. This is like a small puncture.

Sometimes the height of the disc is reduced and becomes like a flat tyre. In some cases the bones on either side of the disc may show some changes on the scan. These are called Modic end plate changes.

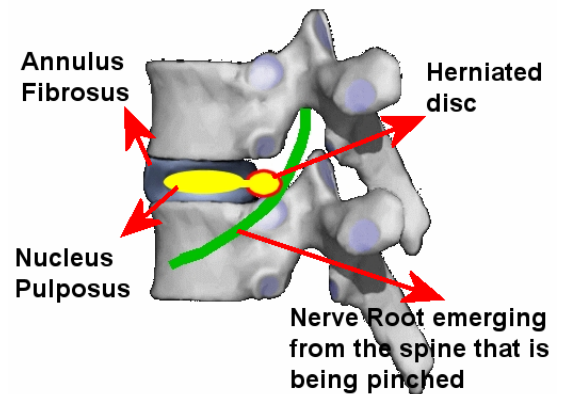


## DISC DEGENERATION / DISC PROLAPSE

As stated before disc degeneration symptomatically improves in 99.9% of the cases and nothing needs to be done. In other words the pain decreases with time. It is important to remain active and try to carry on with your job. In very rare occasions some surgical intervention may be required for disc degeneration. This document does not discuss the details of that surgical intervention.

### HERNIATED DISCS / DISC PROLAPSE

A further progression of the degenerated disc is a herniated disc. A herniated disc and a disc prolapse means the same thing. This occurs when the outer fibres (annulus) are damaged and the soft inner material comes out of its normal space. It is like how jam escapes from a doughnut when the doughnut is squeezed. The material that has ruptured into the spinal canal can cause pressure on the nerves in the spinal canal. There is also some evidence that the material causes a chemical irritation of the nerve roots. Again 95% of disc prolapses get better with time and nothing further needs to be done. Unlike disc degeneration that causes back pain, Disc prolapse predominantly causes leg pain. Disc prolapse may cause numbness and weakness of your legs. The weakness and numbness will also improve with time in majority of the cases. We are however very keen to know if you have problems when you have to urinate or have a bowel movement. If you do, this may be an emergency, and require immediate surgery.



### Treatment

In the majority of cases, a herniated disc will probably not require surgery. If the symptoms are getting steadily worse surgery may be required. If the symptoms are getting better it is best to wait and watch. Symptoms usually completely resolve over several weeks or months. 3 months is taken as the rough guide.

1. **Rest:** If the pain is severe, you may need to take a few days off from work. After a few days, you should begin to mobilize yourself. Begin a gentle walking program and increase the distance you walk each day.
2. **Pain medications:** In normal circumstances over the counter Paracetamol, Codeine and or Neurofen can be taken if you have taken them before without problems. If your pain is not controlled talk to your own doctor. More potent medicines like Gabapentin or Morphine can be prescribed by your doctor. These medicines have side effects and you should only take them on medical advice.
3. **Epidural Steroid Injection (ESI) / Selective Nerve Root Block (SNRB):** This is usually reserved for more severe pain. This involves injecting a steroid and local anaesthetic around the spinal nerves to take away the inflammation.
4. **Surgical Treatment – Laminotomy / Discectomy / Decompression.** The term laminotomy means "make an opening in the lamina", discectomy means "remove the disc" and decompression means "removing the compression on the nerve". All the three terms generally mean the same thing. This procedure is performed through an incision down the centre of the back over the area of the herniated disc. X-rays during surgery may be required to make sure that the correct vertebra is chosen. A small opening is then made between the two vertebrae where the disc is ruptured. Once this is done the nerve roots are moved out of the way to see the prolapsed intervertebral disc and it is removed. Only the disc material that has come out is removed. The rest of the disc remains and functions as a mobile segment. The jam from the doughnut is only removed. The remaining bread portion of the doughnut still remains and provides some cushioning effect. Please read through the leaflet "Complication of Spinal Surgery" before you consider any spinal surgery.

### Rehabilitation

Exercise is vital to recovery and to maintaining a healthy spine. Consider it part of long-term health management and risk reduction.

**Please note that disc prolapse does not shorten your life and hence surgery by no means is life saving or essential. Surgery may help in resolving symptoms. If you do not have pain you do not need surgery.**

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