

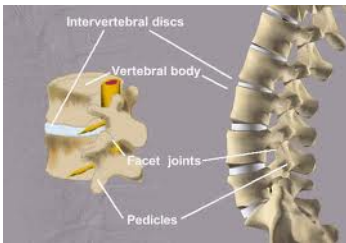
# Low Back Pain

For more information on all types of injuries visit:  
<http://www.cssphysio.com.au/forpatients.html>



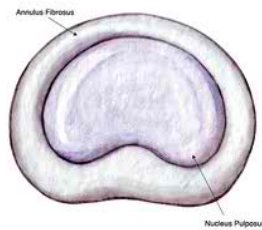
## Lumbar Disc Injury

The disc, or more correctly intervertebral disc, is the washer-like component that fills the space between the vertebrae of the spinal column. Each disc is a flexible structure, allowing movement between the various bones, so that the whole spine can bend & twist. It provides two important properties to the spine: shock absorption between the bones, and as a pivot point for movement, acting as a joint that allows each vertebra to move on the other.



The disc has a unique make-up. It has a firm outer rim, the *annulus fibrosus*, which acts like a circular ligament. It is tough & strong, with an almost 'rubbery' behaviour.

However in the middle, the disc is quite soft. It contains a gel like substance called the *nucleus pulposus*. This is contained under pressure within the annulus, and helps to give the disc its 'bounce' when forces are applied. The nucleus is always under pressure, even when we lie down. However this pressure increases as we stand & load the disc. It increases substantially more when we sit, when we bend, & particularly when we bend under load.

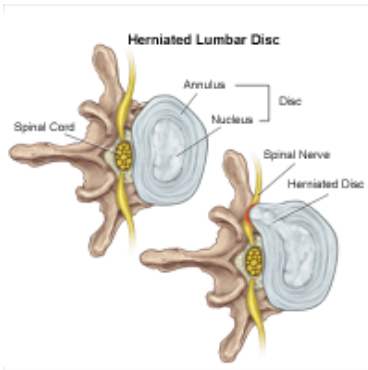


most of these injuries are minor & heal very well. Because the annulus is like a circular ligament, it can be sprained just like any other ligament. This can happen when we bend or twist – particularly if we go too far or do it too often. And just like any other acute ligament sprain, it can lead to sudden pain which is often quite severe. The body commonly responds with protective muscle spasm, which serves to increase the pain further. For this reason a fairly mild injury can feel like it is catastrophic. Fortunately, if you look after your back & allow it to heal without continued aggravation, most of these injuries will feel significantly better within a few days, and you may return to feeling normal in as little as two weeks. However the overall healing process of the body will take at least 6 weeks.



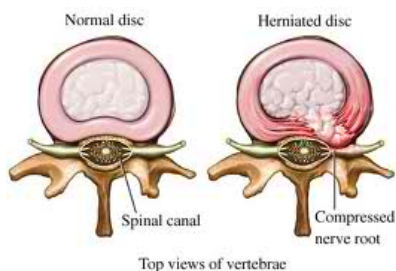
There are several less common instances where the disc injury is more complicated than what is described above. The most likely of these is the 'recurrent' disc injury, where the injury heals fully or partially, but keeps re-occurring. There will often be a reason for this, and it may be that you simply need to change the way you do certain things. It may be related to posture & body type, and certain people are more vulnerable than others. Some of us have chronically 'bulging discs'. That is, they have a swelling which pushes out towards the back of the

**Inflamed & bulging discs:** Injuries to the disc are very common. However contrary to popular belief,



Disc. This is present most or all of the time. Fortunately, these are not usually painful, but may become so when a minor injury sets them off. This may be another reason why some people are more vulnerable than others.

**Disc herniation or prolapse:** Another complication is when the disc injury is severe. There are degrees of injury from minor inflammation due to slight tissue injury, through progressively more extensive injury which weakens the annulus & allows the ‘under pressure’ nucleus to bulge out through the weakened disc wall. This is sometimes called a herniated or protruding disc. If the annular tear is



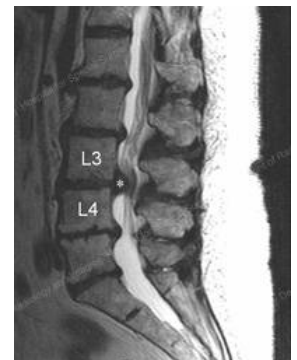
large, the disc material can ‘prolapse’, pushing all the way out. This becomes a large disc bulge. In rare cases the

prolapsed material separates completely from the disc and enters the spinal canal, close to the nerves & spinal cord. Larger disc bulges will cause greater disability & take longer to heal. If the bulge results in pressure on a nerve, the pain will spread, often into some part of the leg, and this will delay recovery further. This is commonly known as ‘sciatica’. In this instance, you will have to be a lot more careful with the way you look after your injury. In all likelihood you will be referred for a lumbar CT scan or MRI to help determine the extent of the problem. The picture on the right shows an MRI with a disc prolapse at L4/5. Occasionally, the nerve will be



compressed to the extent that something needs to be done to relieve the pressure. This sometimes requires surgery. Fortunately however, even when the nerve is involved, most cases will heal without an operation.

**Disc Degeneration:** Another type of disc injury may be quite different from what is described above. Sometimes, damage occurs to the spine in the region where the disc joins the vertebrae. This is called the *vertebral end-plate*. The cause of the injury is thought to be a sudden vertical compressive load, such as landing on your bottom, a sudden jarring while upright, or lifting too heavy a load. End plate injury allows blood vessels from the bony vertebrae to enter the disc – a structure which normally has no blood vessels. Once this occurs, the disc begins to degenerate, as the invading blood vessels see the disc as a material foreign to the body, and attempt to destroy it. This process will occur over years, and is often quite painless. There is some thought however that in certain circumstances, internal disc degeneration can be one of the causes of chronic back pain. There may be a combination of degeneration and bulging, as shown in the MRI image on the right. The disc itself may cause pain, or because it narrows as it degenerates, it puts pressure on other spinal structures such as the bony ‘facet joints’ See:



<http://www.cssphysio.com.au/pdfs/1-Facet-Joint-Syndrome.pdf>

Disc degeneration will not always be due to an end-plate injury. It can be due to repeated annular tearing which leads to ‘fissuring’ of the annulus. However it is not really known how commonly this occurs.

**Treatment:**

The most important aspect of an effective treatment is to provide you with the correct guidance on how to manage your injury. Usually the healing process



increasing stress on the spine, & strengthening exercises – particularly for the ‘core’ muscle groups.

will be quick & uncomplicated if you do the right things from the start. Other treatments that may be helpful along the way are: postural exercises & re-education, stretching or ‘releasing’ of tight muscles, mobilisation or manipulation of tight joints that are

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