

## Disc prolapses

### *“Bending based back pain?”*

Lower back pain is the leading cause of lost work productivity each year in Western society. Over a lifetime the incidence of lower back pain is estimated at well over 50%, with a yearly incidence estimated at around 5%. Of new presenting patients to medical professionals, around 15% are reported to be for lower back pain. The intervertebral disc is reported to be a more frequent cause of lower back pain than muscular or ligamentous strain/sprain.



In your lumbar spine there are five intervertebral discs. These function as a load bearer during functional activities and interestingly provide around a third of your spine's height. The central nucleus consists of 70-90% water in a healthy adult, allowing optimal function. This is surrounded by an outer sheath of annulus fibrosis, which maintains the nucleus centrally. The annulus only has a nerve supply and therefore injuries to the nucleus only do not usually cause symptoms in the population. Only when the lesion spreads to the annulus do symptoms become clear.

Increased forces are exerted through your disc during flexion based motions of your lumbar spine. This places a primarily anterior directed force to the disc as the anterior aspects of the adjacent vertebrae move closer together. Over a prolonged period, such forces can reduce the load bearing capacity of the disc and reduce the water content of the nucleus. This can result in the nucleus buckling under the load which it can no longer tolerate and push into or completely through the annulus fibrosis into the spinal space.

The vast majority of disc prolapses will be in a posterior direction, due to the mechanism stated above. In this case, the bulge can place to one side or both if large enough, and irritate nerve endings where they exit the spinal cord at the foramina of corresponding vertebrae bilaterally. This irritation causes common symptoms related to lower back pain; lower limb paraesthesia. In a large disc prolapse, the bulge can irritate both nerve endings at a single level causing these symptoms down both lower limbs. Alongside bowel & bladder, saddle anaesthesia and sexual dysfunction, these are red flag symptoms which require immediate examination by a doctor and likely MRI/CT scan.

Primary symptoms therefore for this condition include flexion based symptoms, lower limb paraesthesia and pain with prolonged sitting. Standing will usually be more comfortable than sitting. A medical practitioner will examine you for these symptoms via a neural examination and range of motion tests. Initial treatment for an acute disc prolapse will consist of rest, avoidance of aggravating factors and exercises that promote placing the disc back into its original position. In severe cases where conservative therapy is not enough to



improve a person's symptoms, surgery can be indicated to remove a herniated part of a disc or to replace a severely damaged disc.

Prognosis for small to moderate disc bulges is generally good, taking 6-8 weeks for a full recovery. Beyond this point, rehabilitation exercises to strengthen your core are crucial to prevent reoccurrence of the same injury. Severe disc bulges can in rare cases cause chronic debilitation and in rarer cases still are a medical emergency if the spinal cord is compressed. If you think these symptoms are similar to what you are experiencing, it is important to be examined by a medical practitioner immediately.