



# 100%

OF US WILL DEVELOP  
DEGENERATIVE DISC DISEASE

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## WHAT IT MEANS AND WHEN TO WORRY.

I thought I would discuss the most common problem that we see as neurosurgeons that can lead to spine surgery. It is called spondylosis, or degenerative disc disease, and it occurs in all human beings at all levels of the spine—cervical, thoracic and lumbar. Spondylosis is a result of time and gravity, two things we can't avoid, and that's why 100% of the population will develop it to some degree.

7~10% OF PEOPLE END UP HAVING SURGERY ON THE LUMBAR SPINE. ABOUT 1% OF US HAVE SURGERY ON THE CERVICAL SPINE.

## A LITTLE ANATOMY

The basic anatomy of the spine is two vertebral bodies separated by intervening discs. There are 7 cervical vertebrae, 12 thoracic vertebrae and 5 lumbar vertebrae and then the sacrum with disc in between. We call this a motion segment. There are three points of contact between the vertebral body above and vertebral body below. In the front of the spine, there is the disc which connects the inferior aspect of the vertebral body above to the superior aspect of the vertebral body below and on the posterior or back portion of the spine two joints, one on the left, one on the right, that we call the facet joints.

## WHY OUR SPINE GOES BAD

As discs age, biochemical changes occur, they lose their water content, collapse and start to bulge. Again, this occurs in all human beings over time. As a disc slowly degenerates, the surrounding bone sees more stress and bone reacts to stress by forming more bone, hence the development of bone spurs. This is a normal aging process of the spine. Whereas 100% of us develop bulging discs and bone spurs, roughly 7-10% of people end up having surgery on the lumbar spine. About 1% of us have surgery on the cervical spine. The most common reason for this is because the nervous system, which runs

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down the middle of the spine for protection, becomes impinged by either disc material or bone spurs. At the cervical and thoracic levels, the spinal cord could be pinched or the nerve roots that come off the spinal cord in the lumbar region could be pinched.

### SYMPTOMS OF SPONDYLOSIS

The most serious condition is a pinched spinal cord that for most people is painless. The spinal cord being pinched typically results in a patient having deterioration of their gait imbalance, numbness in their hands, sometimes numbness throughout their body, loss of dexterity in their hands and in some people what we call spasticity—involuntary movements in their extremities. A pinched nerve that comes off the spinal cord at the bottom of the lumbar spine typically will cause pain. A pinched nerve in the neck will cause pain radiating down the arm. In the low back it will cause

pain down the leg which is commonly called sciatica. This could be both the result of a mechanical pressure and/or an inflammatory response around the nerve. However, not all patients with pressure on the spinal cord or nerve roots will have symptoms. Many patients can have pressure, even a ruptured disc, and be entirely asymptomatic.

### WHEN IS SURGERY WARRANTED?

In general, a patient who has a pinched spinal cord and has symptoms that are progressive from a condition we call myelopathy would require surgical intervention to unpinch the spinal cord to prevent further neurologic deterioration and optimize the potential for neurologic recovery. A pinched nerve is a less serious condition.



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...SUCCESS RATES OF 90-95% FOR THE CERVICAL SPINE AND 85-90% IN THE LUMBAR SPINE

The patient whose only symptom is pain can be treated with nonoperative treatments. Many patients will get better over time.

Other options people can benefit from are: physical therapy or chiropractic treatment, traction, acupuncture, massage therapy and epidural steroids. Epidural steroids, performed by an anesthesiologist, are injections of cortisone around the affected nerve root. This treatment can be beneficial in some people, but unfortunately not the majority of people. The patient with a nerve that is pinched severe enough to result in loss of motor function or numbness, what we call the neurologic deficit, those individuals are candidates for surgery, again to prevent further neurologic worsening and optimize the potential for neurologic recovery.

**85-95% SUCCESS RATE**

In general, the patient with a neurologic deficit due to a pinched nerve, surgical intervention is more likely to result in reversal of that deficit than nonoperative treatments. Although some patients whose deficits are mild and not particularly bothersome to them will elect not to have surgery and can improve in time. Surgery to unpinch the nerve in the neck or lumbar spine, rarely required in the thoracic spine, is a very common operation and has success rates of 90-95% for the cervical spine and 85-90% in the lumbar spine and these are the commonest procedures we perform as neurosurgeons.



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