

Anterior Cervical Discectomy and Fusion - General

Introduction

Neck and arm pain caused by disk herniation are common conditions that limit your ability to move and work.

Doctors may recommend surgery for people suffering from disk herniation in the neck. If your doctor recommends surgical treatment for your condition, the decision whether or not to have surgery is yours.

This reference summary will help you understand the benefits and risks of this surgery.



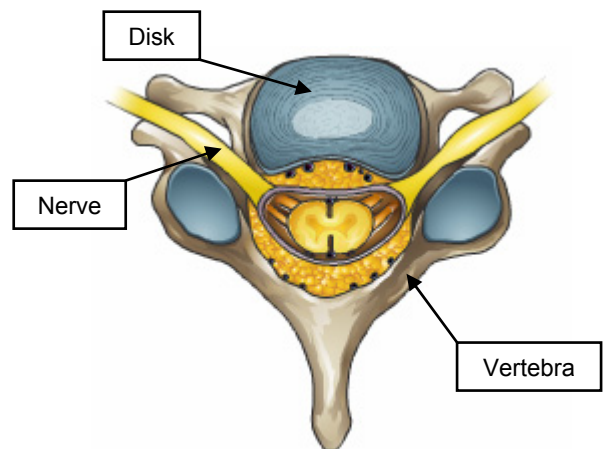
Anatomy

The spine protects the spinal cord and the nerves that go to different parts of the body. The spine is formed of solid bones called vertebrae. The vertebrae are separated by softer cushions called disks.

Symptoms and Their Causes

Disks will sometimes push on the nerves or spinal cord. This causes pain, weakness and numbness in the neck, arms and even the legs.

This is how a normal spine looks if you cut it in the middle. It is known as a cross-section view.

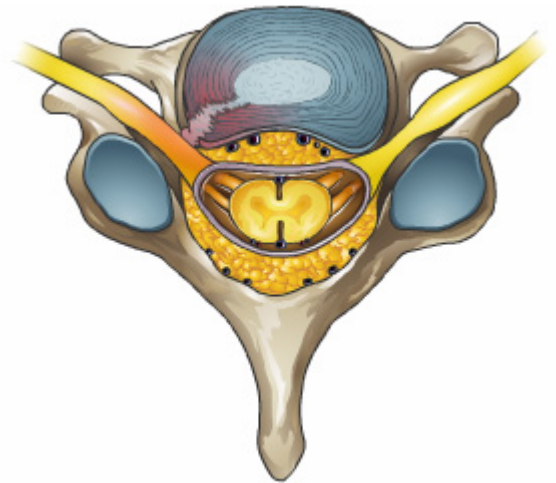


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This is how a cross-section of a herniated disk looks. Herniated disks may compress the nerves, producing pain and weakness in the neck and arms.

If the spinal cord or the nerves are compressed, the weakness and numbness could involve both legs. The control of the bladder and bowels can also be affected. Other terms used are herniation, protrusion, extrusion, free fragment or displacement.

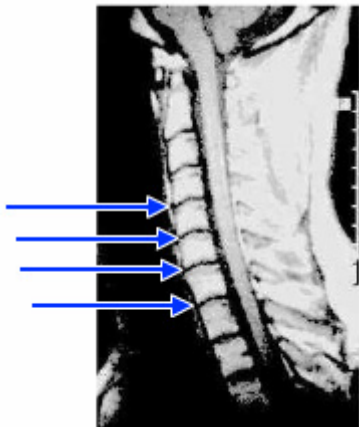
Arthritis can cause the disks or the vertebrae to press on the nerves. Other terms used are spurs and spondylosis.



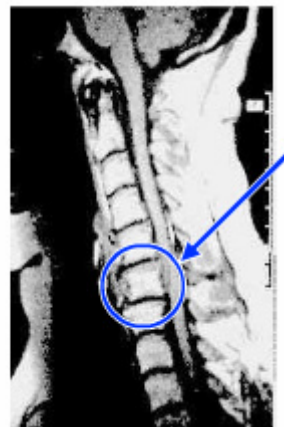
Herniated Disk

The doctor uses an MRI of the neck to see the vertebrae, the disks, and the nerves.

This MRI shows normal disks



This MRI shows a herniated disk



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Alternative Treatments

Use of a cervical collar may help with the symptoms. Sometimes anti-inflammatory medications help symptoms. These types of medications include steroids used on a short-term basis. Non-steroidal anti-inflammatory medications, such as ibuprofen or naproxen, can be used on a longer-term basis.

Physical therapy may also relieve the symptoms. Traction could also be used. When all else fails, an operation may help. Disc replacement is now available. Your doctor and you will decide which operation is best for you.

This reference summary discusses only the disc removal and fusion operation, not the disc replacement.



Surgical Treatment

The aim of the operation is to take pressure off the nerve and spinal cord. The disk is approached from the front. A small incision is made in the skin and taken down the spine, between the normal air and food passages and the carotid artery. Depending on your doctor's preference, the incision may be vertical or horizontal.

The operation consists of removing the disk to take the pressure off the nerve and spinal cord. Spurs are usually removed at the same time. The rest of the operation depends on your specific condition and your doctor's preference.

After removing the disk, some surgeons proceed to close the skin without performing a fusion. Other surgeons will proceed with a fusion, placing a piece of bone between the two vertebrae where the disk was removed. That piece of bone could come from your own pelvic bone (iliac crest) or from a bone bank.



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If your own bone is chosen, then another incision is made over the front of the iliac crest, or pelvis. This incision tends to hurt more than the incision in the neck. A piece of bone is removed from the pelvis and wedged into the disk space. On the other hand, banked bone may be chosen. The banked bone is taken from cadavers. It is tested for known diseases prior to being placed in your neck. The success of the fusion is comparable between the two methods.

Medical grade plastic can also be wedged between the vertebrae. Material that promotes bone growth is also sometimes used. Bone morphogenetic protein or BMP is such a material. Depending on the condition of your spine, your doctor may recommend that a plate with screws be put over the fusion at the time of the operation to make it solid.

At the end of the operation, the skin is closed.

Your doctor will tell you how long you are likely to stay in the hospital. This depends on several factors, such as your age and medical condition. Depending on how well you do, you may go home the same day or after spending a night or two at the hospital.

Risks and Complications

This operation is very safe. There are, however, several possible risks and complications. These are unlikely, but possible. You need to know about them just in case they happen. By being informed, you may be able to help your doctor detect complications early.

The risks and complications include those related to anesthesia, and those related to any type of surgery. Risks of general anesthesia include nausea, vomiting, urinary retention, cut lips, chipped teeth, sore throat, and headache. More serious risks of general anesthesia include heart attack, stroke, and pneumonia. Your anesthesiologist will discuss these risks with you and ask you if you are allergic to certain medications.



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Blood clots in the legs can occur due to inactivity during and after the surgery. These usually show up a few days after surgery. They cause the leg to swell and hurt. Blood clots can become dislodged from the leg and go to the lungs, where they will cause shortness of breath, chest pain, and possibly death. It is extremely important to let your doctors know if any of these symptoms occur. Sometimes the shortness of breath can happen without warning. Getting out of bed shortly after surgery may help decrease the risk of blood clots in the legs.

Some of the risks are seen in any type of surgery. These include:

- Infection, deep in the disk space or at the skin level.
- Bleeding.
- Skin scar that may be painful or ugly.

Other risks and complications are related specifically to this surgery. These are also very rare; however, it is important to know about them.

The feeding tube, or the esophagus, could be injured, causing swallowing problems. The breathing tube, or the trachea, can also be injured, causing breathing problems. The vocal cords could be injured, causing hoarseness of the voice. The carotid or vertebral arteries could also be injured.

The spinal cord and nerves can be injured, resulting in stroke, paralysis, weakness, and decreased sensation involving the arms, legs, or the whole body. It is very rare, but sexual dysfunction may occur. This can be temporary or permanent. Fluid may leak from around the nerves or spinal cord.

There is also the possibility that the operation may not help the symptoms, and may even make them worse. There may also be decreased mobility of the neck, possibly causing more stress on the other disks.



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Risks and complications involved with taking a bone from the pelvis include local pain, injury to a nerve that goes into the thigh resulting in numbness, and fracture of the pelvis bone. There is a very small risk of injury to the bowels or the formation of a hernia. These complications are rare and unlikely to happen.

When a bank bone is used, the risk of having infections such as AIDS or hepatitis transmitted through the bone graft is very unlikely.

The bone plug could become displaced after being placed in the disk space. It could push on the spinal cord and cause weakness, or press against the feeding tube and cause swallowing problems. The risks of putting in a plate with screws are slight. These risks include breakage of the screws and the displacement of the plate, and the possible injury to the feeding tube.

If the fusion fails, another operation may be needed. This risk is greater for people who smoke.

After the Surgery

No repetitive bending, twisting, or heavy lifting is allowed in the few days following the operation. You may be required to wear a cervical collar for a period determined by your physician.

After this period of relative rest, physical therapy may be necessary to allow you to resume your previous activities. Whether or not you will be able to resume ALL previous activities depends on how well you are doing at the time of your follow-up.

Your doctor will tell you how long it will take before your neck is completely healed and when you can go back to work. This depends on your age, type of work, your surgery, as well as other factors.



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Summary

Neck surgery can help relieve your pain when other non-surgical treatments fail. As you have seen, many different techniques can be used to perform this surgery. The decision on which one will be used depends on your specific situation and your doctor's preference.

This operation is very safe, with excellent results. However, as you have learned, complications may happen. Knowing about them will help you detect them early if they happen.



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