

**REVIEWED***By Chris at 12:58 pm, Feb 03, 2020*

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Spinal fusion

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Overview

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Spinal fusion is surgery to permanently connect two or more vertebrae in your spine, eliminating motion between them.

Spinal fusion involves techniques designed to mimic the normal healing process of broken bones. During spinal fusion, your surgeon places bone or a bonelike material within the space between two spinal vertebrae. Metal plates, screws and rods may be used to hold the vertebrae together, so they can heal into one solid unit.

Why it's done

Spinal fusion permanently connects two or more vertebrae in your spine to improve stability, correct a deformity or reduce pain. Your doctor may recommend spinal fusion to treat:

- **Deformities of the spine.** Spinal fusion can help correct spinal deformities, such as a sideways curvature of the spine (scoliosis).
- **Spinal weakness or instability.** Your spine may become

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unstable if there's abnormal or excessive motion between two vertebrae. This is a common side effect of severe arthritis in the spine. Spinal fusion can be used to restore spinal stability in such cases.

- **Herniated disk.** Spinal fusion may be used to stabilize the spine after removal of a damaged (herniated) disk.

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Risks

Spinal fusion is generally a safe procedure. But as with any surgery, spinal fusion carries the potential risk of complications.

Potential complications include:

- Infection
- Poor wound healing
- Bleeding
- Blood clots
- Injury to blood vessels or nerves in and around the spine
- Pain at the site from which the bone graft is taken

How you prepare

Preparation before surgery may involve trimming hair over the surgical site and cleaning the area with a special soap or antiseptic. Additionally, the surgical team may order monitoring of any unhealthy bacteria in your nose by taking a swab sample. Tell your doctor about any medications you are taking. You may be asked to stop taking some medications before the surgery.

What you can expect

During spinal fusion

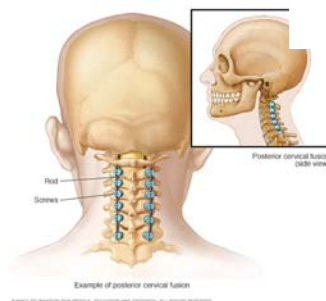
Surgeons perform spinal fusion while you're under general anesthesia so you're unconscious during the procedure.

Surgeons have developed a variety of techniques for performing spinal fusion surgery. The technique your surgeon uses depends on the location of the vertebrae to be fused, the reason for the spinal fusion, and in some instances, your general health and body shape.

Generally, the procedure involves the following:

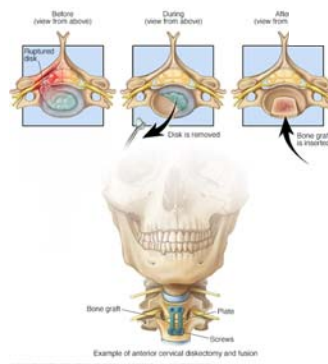
- **Incision.** To gain access to the vertebrae being fused, the surgeon makes an incision in one of three locations: in your neck or back directly over your spine, on either side of your spine, or in your abdomen or throat so that your surgeon can access the spine from the front.
- **Bone graft preparation.** The bone grafts that actually fuse two vertebrae together may come from a bone bank or from your own body, usually from your pelvis. If your own bone is used, the surgeon makes an incision above your pelvic bone, removes a small portion of it and then closes the incision.
- **Fusion.** To fuse the vertebrae together permanently, the surgeon places the bone graft material between the vertebrae. Metal plates, screws or rods may be used to help hold the vertebrae together while the bone graft heals.

In selected cases, some surgeons use a synthetic substance instead of bone grafts. These synthetic substances help promote bone growth and speed the fusion of the



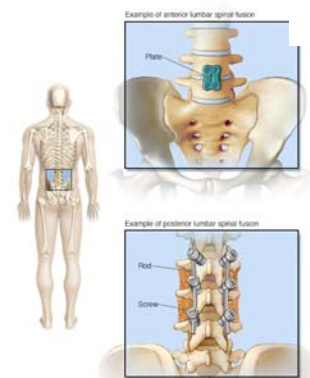
Fusion from back of neck

When spinal fusion is performed from the back of the neck (posterior cervical fusion), rods and screws are used to hold the vertebrae together.



Fusion from front of neck

In some cases, surgery on your neck (cervical) vertebrae occurs from the front (anterior) side of your neck. In the example shown, a damaged disk is removed, a bone graft is inserted, and the vertebrae are fastened together with a plate and screws.



vertebrae.

After spinal fusion

A hospital stay of two to three days is usually required following spinal fusion. Depending on the location and extent of your surgery, you may experience some pain and discomfort but the pain can usually be controlled well with medications.

After you go home, contact your doctor if you exhibit signs of infection, such as:

- Redness, tenderness or swelling
- Wound drainage
- Shaking chills
- Fever higher than 100.4 F (38 C)

It may take several months for the affected bones in your spine to heal and fuse together. Your doctor may recommend that you wear a brace for a time to keep your spine aligned correctly. Physical therapy can teach you how to move, sit, stand and walk in a manner that keeps your spine properly aligned.

Results

Spinal fusion is typically an effective treatment for fractures, deformities or instability in the spine. But study results are more mixed when the cause of the back or neck pain is unclear. In many cases, spinal fusion is no more effective than nonsurgical treatments for nonspecific back pain.

It can be difficult to be certain about what exactly is causing your back pain, even if a herniated disk or bone spurs show up on your X-rays. Many people have X-ray evidence of back issues that have never caused them any pain. So your pain might not be associated with whatever problem has been revealed on your imaging scans.

Even when spinal fusion provides symptom relief, it does not prevent



Fusion options for lower back

Depending on whether your surgeon approaches your spine from the front (anterior spinal fusion) or from the back (posterior spinal fusion), the vertebrae will be fastened together either with a metal plate or with rods and screws.

you from developing more back pain in the future. Most of the degenerative conditions in the spine are caused by arthritis, and surgery will not cure your body of that disease.

Immobilizing a section of your spine places additional stress and strain on the areas around the fused portion. This may increase the rate at which those areas of your spine degenerate — so you may need additional spinal surgery in the future.

Clinical trials

[Explore Mayo Clinic studies](#) testing new treatments, interventions and tests as a means to prevent, detect, treat or manage this disease.

By Mayo Clinic Staff

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