

# Your Complete **GUIDE** to **LUMBAR SPINE** **SURGERY**

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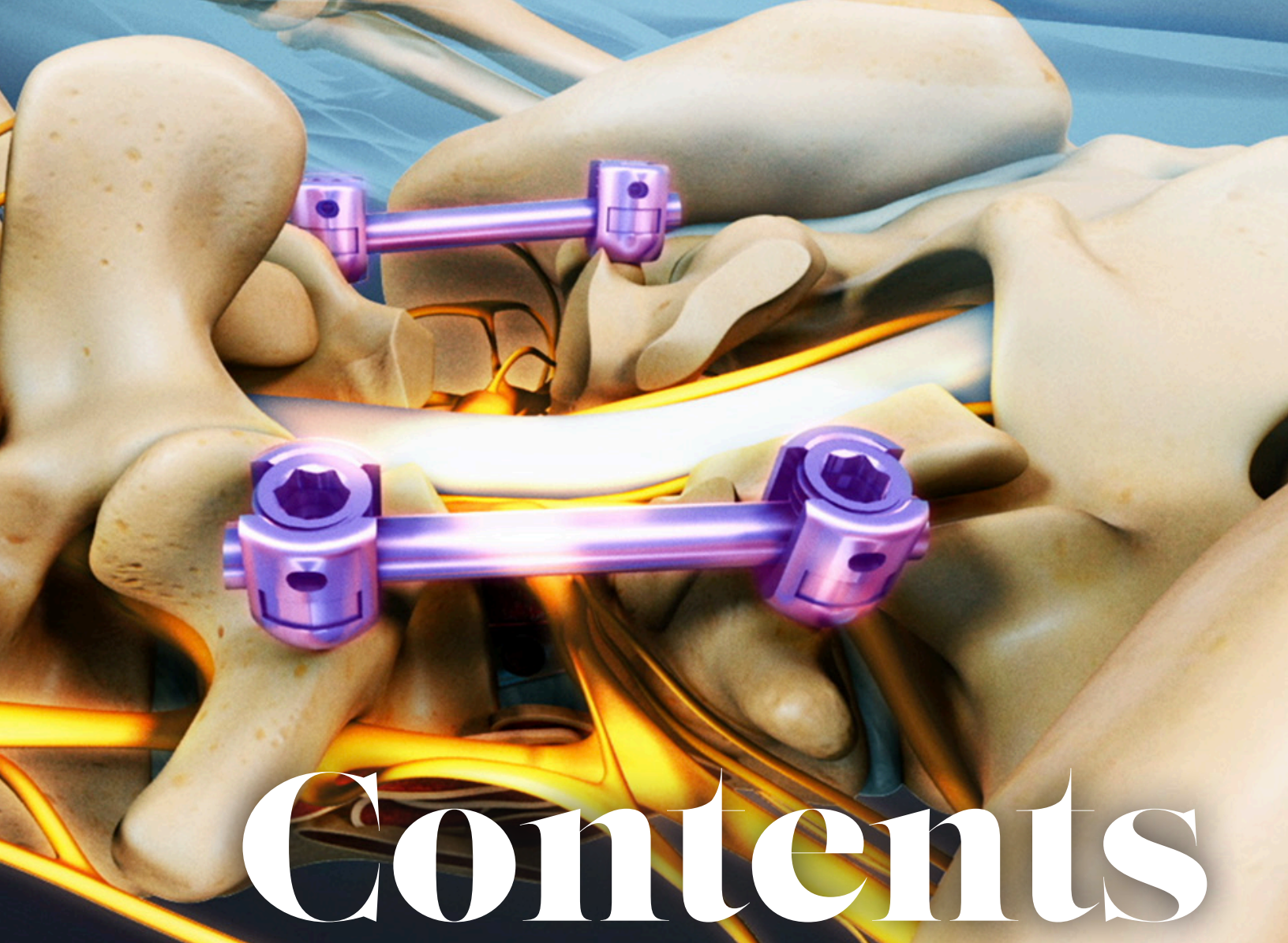
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# The Landscape of Lumbar Spine Surgery

Lumbar spine surgery involves the physical removal, repair, or adjustment of spinal structures to treat injuries, diseases, and/or deformities affecting the spine between the L1-S1 spinal motion segments.

Around 10% of patients with back pain go on to develop chronic back pain, and a fraction of these patients select surgery to reduce their pain.<sup>1</sup>

- **Purpose of lumbar spine surgery:** Lumbar surgery aims to relieve pain and symptoms in the lower back and/or leg that cause significant functional limitations and reduce one's quality of life.
- **When lumbar spine surgery is indicated:** Unless a medical emergency, surgery is indicated after a series of non-surgical treatments have been tried for several months

without successful results.

The most common lumbar spine surgeries are [microdiscectomy](#) and [posterolateral spinal fusion](#).<sup>2</sup>

## When to See a Surgeon for Low Back Pain and Leg Pain

A herniated disc in the lower back pinching the sciatic nerve root, sending pain signals down the sciatic nerve.

Many people with [low back pain](#) wonder if they will need back surgery and when they should consult a spine surgeon. Important factors to consider prior to seeing a spine surgeon for low back pain and leg pain include:

- **Red-flag symptoms and signs.** Symptoms such as unrelenting back pain, severe pain



and numbness in the legs, groin, or buttock area, night-time pain, and/or the inability to control bowel/bladder movements indicate a [serious medical condition](#) and warrant immediate medical/surgical treatment.

- **Severe/progressive symptoms that are unresponsive to non-surgical treatment.** It is reasonable to consult a spine surgeon if the pain is not alleviated by [non-surgical treatments](#) and has continued for several months; new symptoms such as progressive weakness or abnormal sensations develop in the leg(s); or any other concerning symptoms arise.
- **Inability to function due to back pain and/ or leg pain.** Despite a course of non-surgical treatments, if one is not able to go to work, drive to the store, and complete other activities of daily living, it is reasonable to consider spine surgery sooner rather than later.

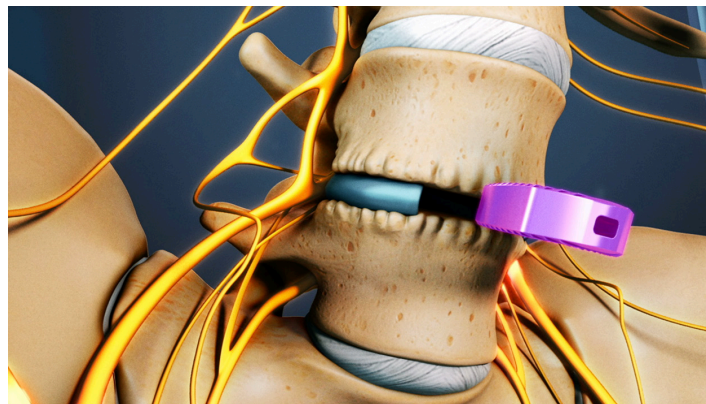
Surgery is considered only when an anatomic lesion that is attributable to the patient's symptoms and amenable to surgical correction is identified.

## Types of Back Pain that May Be Treated with Surgery

Back pain and/or [sciatica](#) that can be attributed to a specific anatomic area and confirmed through radiographic and other tests is amendable to surgical correction.

The following low back conditions are treated with lumbar spine surgery<sup>3</sup>:

- **Disc problems:** [Lumbar degenerative disc disease](#) and [lumbar herniated disc](#)
- **Bone, joint, and alignment disorders:** [Facet joint disorders](#), foramina stenosis, [lumbar spinal stenosis](#), lumbar [spondylolisthesis](#), and [scoliosis](#)



- **Tumors and masses:** Benign or [metastatic spinal tumors](#), cysts, or other masses in the spine and pelvis

Two types of spinal surgeries can be combined. For example, decompression of spinal nerves can be performed on multiple levels, followed by an interbody fusion<sup>4,5</sup>

## Spine Surgery Is Not Always a Major Surgery

Back surgery is generally recognized as a major surgery that involves a hospital stay and a long recovery period. However, with newer technology and surgical advancements, most spine surgeries can be performed through minimally invasive techniques and less time at the hospital. Some surgeries are performed on an outpatient basis.

## 2 Main Surgical Techniques for the Back: Open Surgery and Minimally Invasive Surgery

Traditional surgeries have larger incisions compared to minimally-invasive procedures.

**Traditional open surgery** on the lumbar spine may be preferred by some surgeons due to the complexity of the condition and the anatomy of the area being treated.

Open surgery provides the surgeon with a larger surgical field and greater visibility of surrounding structures.<sup>6</sup>

The open surgery method is not always suitable because the risks, such as excessive blood loss and longer recovery time, may outweigh the benefits for certain patients.

**Minimally invasive surgery** on the lumbar spine typically involves shorter operation times, shorter hospital stays, and less blood loss than open surgery; also, ongoing [opioid use](#) after surgery is lower in minimally invasive procedures.<sup>7</sup>

These options, along with the potential surgical risks, benefits, and alternatives, should be discussed with the spine surgeon prior to agreeing on surgery.

### **Patients typically prefer minimally invasive procedures**

In a survey of 152 patients who received a [microdiscectomy](#) or [transforaminal lumbar interbody fusion surgery](#), 87% of participants reported a preference for minimally invasive surgery over open spine surgery for future surgical procedures.<sup>8</sup>

### **A Series of Non-Surgical Treatments are Essential Before Surgery**

For most instances of low back pain, standard treatment guidelines recommend that non-surgical treatments must be tried before considering spine surgery.<sup>9</sup> The recommended guidelines are:

- **For acute or sub-acute back pain** (when the duration of pain is less than 3 months), self-care measures such as rest and [heat therapy](#)



may help find symptom relief. Oral [medications](#) for acute back pain include nonsteroidal anti-inflammatory drugs (NSAIDs) and muscle relaxants. [Massage](#), acupuncture, manual manipulation, or [physical therapy](#) may also be tried during this time.<sup>9</sup>

- For the vast majority of people, acute back pain improves over time regardless of treatment.<sup>9</sup>
- If acute back pain develops as a result of a direct injury or an accident, surgery is considered in select patients.
- For chronic back pain (when the duration of pain is more than 3 months), a combination of 2 or 3 non-surgical treatments is usually recommended, including NSAIDs, muscle relaxants, physical therapy and exercise, acupuncture, tai chi, yoga, and cognitive behavioral therapy. If these treatments fail to provide symptom relief, [opioid medication](#) may be considered in select patients if the potential benefits outweigh the risks. Any use of opioid medication warrants a discussion of the risks and benefits of the medication with the physician.<sup>9</sup>
- If back pain continues and/or worsens after a series of non-surgical treatments are tried, that is when surgery is considered.

Additionally, a combination of postural correction, ergonomics, and regular stretching and exercise all play an important role to lessen the severity of future episodes of back pain.

If the pain starts to get better, the patient may resume normal activities in a gradual fashion, and it is not necessary to consult a spine surgeon.

## Deciding to Choose Surgery to Manage Back Pain

Back surgery is mostly elective—meaning that it is the patient’s decision whether or not to have surgery. The spine surgeon should be able to give the patient enough information about the pros and cons of the procedure to assist the patient with his or her decision-making process. A spine surgeon is either an orthopedic surgeon or a neurosurgeon with advanced training in spine surgery.

In rare instances — such as [cauda equina syndrome](#)

or an [abdominal aortic aneurysm](#) — immediate medical attention/surgical intervention is required.

## The Multidisciplinary Approach of Spine Surgery

Deciding on back surgery is best when done with a multidisciplinary team involving the surgeon and other healthcare practitioners (HCPs), such as a physiatrist, physical therapist, pain management specialist, chiropractor, and/or primary care physician. Numerous factors go into this decision-making process, and the goals and expectations are unique for each person.

Before any decision is made on surgery, it is important to have a good understanding of the cause(s) of the symptoms and whether it can be surgically corrected. It is also important to discuss the expected surgical outcome with the surgeon.

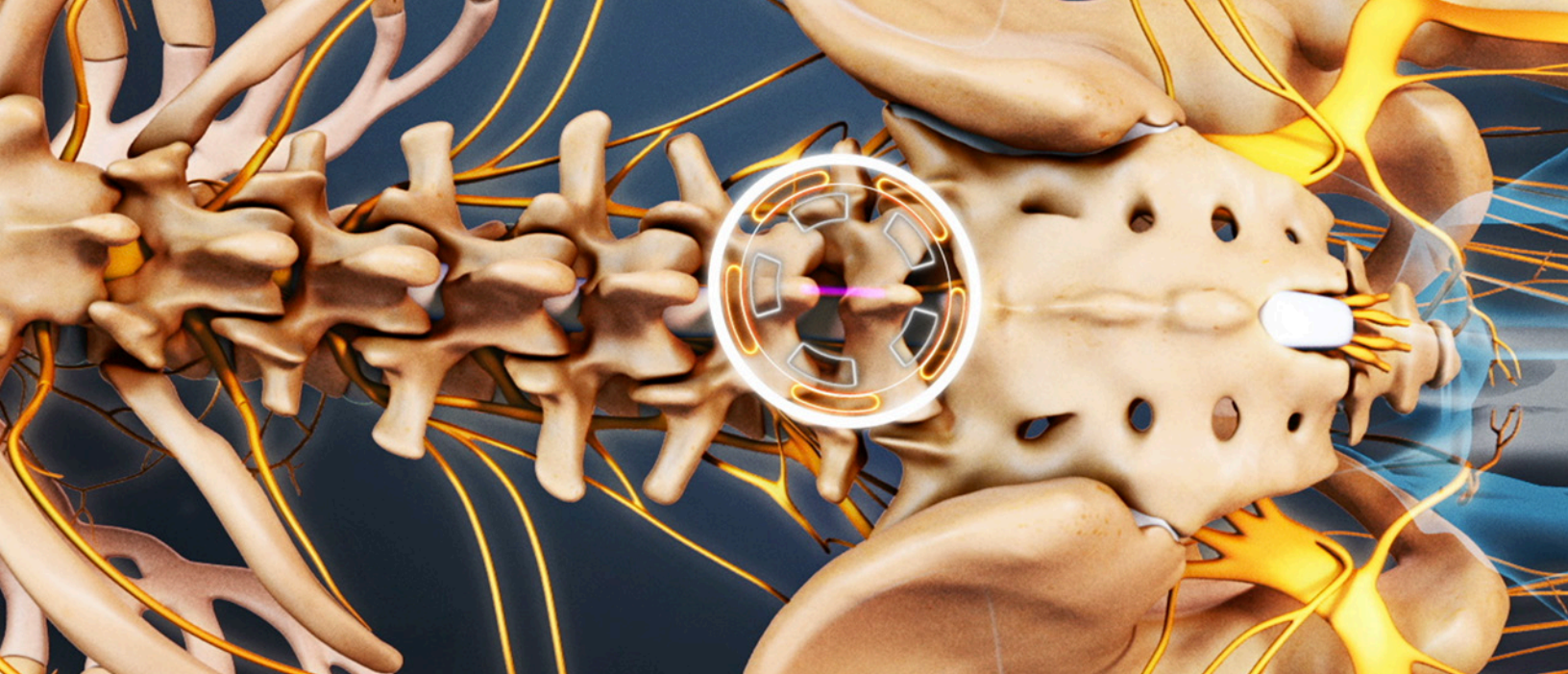
**By: John Hamilton, MD, Neurosurgeon**

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# Types of Lumbar Spine Surgeries: What You Need to Know

There are several types of back surgeries to stabilize the spine and reduce pain.

Surgical treatment does not guarantee 100% symptom relief, but learning about the available options and the pros and cons of each procedure helps patients make informed decisions about their health and treatment.

## **Lumbar Decompression: Surgery to Relieve Nerve Compression**

Decompression is designed to alleviate pain caused by pinched [lumbar spinal nerves](#). When pinched, these nerves cause pain, numbness, and

abnormal sensations in the lower back, buttock, thigh, leg, and/or foot.

In a lumbar decompression surgery, a small portion of the bone over the nerve root or disc material from under the nerve root is removed to give the nerve root more space and provide a better healing environment.

There are 2 types of decompression surgeries:

### **Lumbar microdiscectomy**

A [microdiscectomy](#) removes the [herniated or bulged portion of a disc](#) in the lower back (lumbar disc) that pinches or compresses a nearby spinal



nerve. When the herniated portion of the disc is removed, the nerve:

- Is allowed more space to heal
- Does not cause inflammation and pain

Microdiscectomy is most commonly done to treat [sciatica symptoms](#) in the thigh, leg, and foot.<sup>1</sup>

Microdiscectomy can be performed using a traditional approach or endoscopically.

### **Lumbar laminectomy**

[Lumbar laminectomy](#), also called open decompression, is a surgical procedure performed to treat the symptoms of [central canal stenosis](#) (narrowing of the spinal canal). The surgery involves the removal of all or part of the lamina (bony structure in the back of the vertebra) to provide more space for the compressed spinal cord and/or nerve roots.

Lumbar laminectomy treats sciatica symptoms as well as more serious medical conditions, such as cauda equina syndrome<sup>2,3</sup>

Microdiscectomy and laminectomy may include smaller procedures such as:

- **Facetectomy**, where the facet joints are trimmed, undercut, or removed to relieve nerve root pressure
- **Foraminotomy**, where the opening for the spinal nerve (intervertebral foramen) is enlarged by removing bony overgrowth

Less common decompression surgeries are **corpectomy**—removal of the body of a vertebra and the discs, and **costotransversectomy**—removal of a part of a rib along with the transverse process of a vertebra. These surgeries



help relieve pressure on the spinal cord from conditions such as spinal tumors and cancers.

### **Lumbar Spinal Fusion: Surgery to Stabilize the Low Back**

Fusion of a motion segment involves creating a bony bridge between two contiguous vertebrae behind the disc, through the disc space, or both. This solid bridge stabilizes the spine and stops any motion at the fused motion segment.

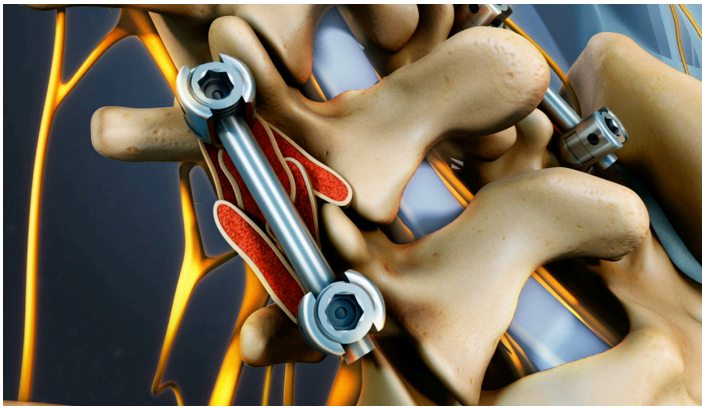
[Lumbar spinal fusion surgery](#) is designed to eliminate motion in the painful motion segment and reduce pain.

A fusion surgery is recommended for the treatment of:

- Conditions that cause spinal malalignment or spinal degeneration, such as [lumbar degenerative disc disease](#), [degenerative spondylolisthesis](#), and [isthmic spondylolisthesis](#)<sup>4</sup>
- Structural changes in the spine, such as [scoliosis](#)

A combination of anterior and posterior lumbar fusion surgery may be performed if the front and back of the spine need to be fused.

This type of surgery is typically indicated when a



high degree of spinal instability is present (such as in complex spinal fractures or spondylolisthesis), or in a revision surgery if the initial fusion did not set up.

### **Multilevel Spinal Fusion: Fusing 2 or More Spinal Motion Segments**

Some fusion surgeries may involve fusing 2 or more motion segments of the spine to become one single unit. This type of surgery is called a [multilevel spinal fusion](#).

Multilevel spinal fusion is almost always performed on contiguous spinal levels.

### **Interspinous Spacer: Preserving Posterior Spinal Motion**

Posterior motion preservation spine surgery involves the implantation of small, specialized devices to open up bony spaces in the spine and decompress pinched spinal nerves. The commonly used device is an interspinous spacer, which is designed to open up the foramen—the bony opening through which the nerve endings pass out of the spinal cord and into the legs. Interspinous spacers are used to relieve nerve compression from spinal degeneration and [lumbar degenerative disc disease](#).<sup>5</sup>

The interspinous device implantation surgery can be performed under mild sedation and local anesthesia as an outpatient/day surgery procedure and the patient can go home the same day. In select patients, the implantation of this device may serve as an alternative to a more complex spinal fusion surgery.

### **Facet Arthroplasty: Arthritic Facet Joint Replacement in the Spine**

Total facet arthroplasty (TFA) is an implant intended to replace painful and stiff arthritic facet joints. This surgery may be combined with a spinal decompression surgery and aims to restore function and improve spinal stability.

The joint implant is inserted through an open surgical approach. The implant is fixed into the vertebral pedicles using bone cement. TFA surgery is new, and the long-term results of this surgery are not established in the literature.

### **Spinal Cord Stimulation (SCS): Reducing Pain Through Electric Stimulation**

[Spinal cord stimulation](#), also called neurostimulation, is a treatment where mild electrical pulses are directed to the nerves in the spinal cord. These impulses interfere with pain signals, stopping them from reaching the brain.

[Spinal cord stimulation surgery](#) includes the implantation of a small device (similar to a cardiac pacemaker) near the spine, which generates these pulses.

One benefit of this procedure is that it is tried for a short time before a person commits to having the surgical implant.



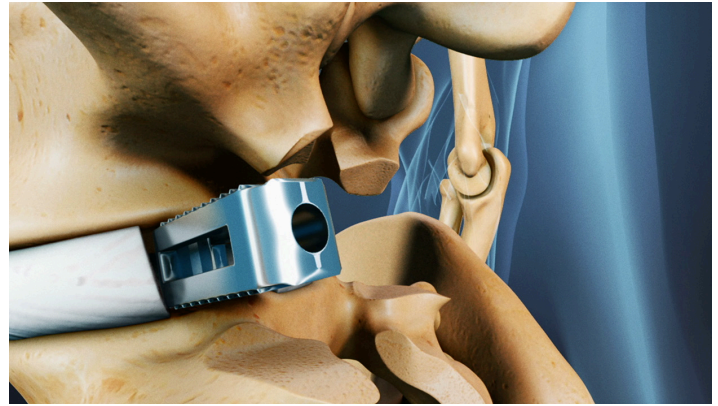
## Separation Surgery: Separating Spinal Tumors from the Spinal Cord

[Metastatic spinal tumors](#) (tumors that spread to the spine from cancer elsewhere in the body) pressing on the spinal cord may be treated with a special surgical technique called separation surgery. The goal of this surgery is to remove enough of the tumor to separate it from the spinal cord to achieve spinal cord decompression. After the tumor is separated and removed, radiation therapy can be performed on the remaining part of the tumor with less risk to the spinal cord.<sup>6</sup>

When indicated, a combination of separation surgery and radiation therapy enables more of the vertebra to remain intact compared to more traditional spinal decompression surgeries.

### Robot-Assisted Lumbar Surgery: A Modern Advancement to Spine Surgery

With less invasive and higher precision abilities, [robot-assisted spine surgeries](#) have emerged as a modern advancement in the surgical field. The



several advantages of robot-assisted surgeries over manual surgical methods are<sup>7</sup>:

- They provide real-time intraoperative navigation
- Potentially lower radiation exposure
- Potentially lower complication rates
- Potentially lower surgical time
- Faster recovery in some cases

Spinal fusion surgeries and surgeries requiring the placement of [spine fusion instrumentation](#) may be performed through robotic assistance.<sup>7</sup>

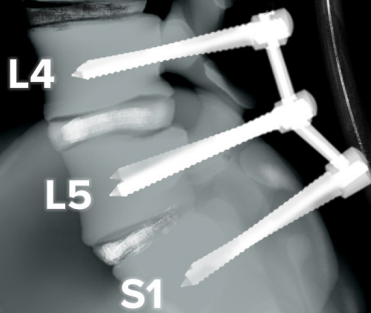
**By: John Hamilton, MD, Neurosurgeon**

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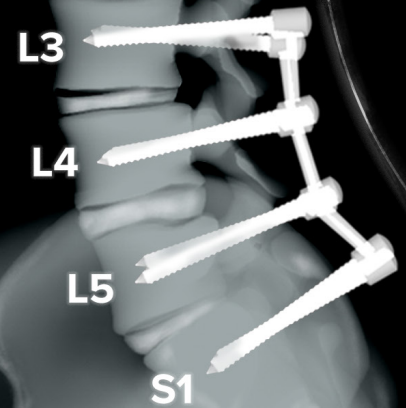
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## Two-level



## Three-level



# Multilevel Spinal Fusion for Back Pain

A multilevel spinal fusion surgery involves fusing 2 or more motion segments of the spine to become one single unit. This surgery is designed to improve spinal stability and reduce pain in conditions that cause spinal malalignment or spinal degeneration.

Typically, spine surgeons recommend multilevel spinal fusion when<sup>1</sup>:

- The patient's quality of life is significantly affected due to lower back pain and functional limitations
- Nonsurgical pain management, such as [medication](#), [physical therapy](#), and [injection treatments](#), have been tried for several months or longer without satisfactory improvement
- A [spinal x-ray](#) or [magnetic resonance imaging](#)

[\(MRI\)](#) scan confirms degenerative changes or malalignment at more than one level

In the lower back, a multilevel spinal fusion surgery involves the fusion of two or more motion segments between the first lumbar vertebra, L1, and the first sacral vertebra, S1.

### Overview of Spinal Fusion Surgery

The lumbar spine (low back) has 5 mobile spinal levels from L1 to S1, also known as motion segments. At each spinal level, motion is controlled by a disc and a pair of facet joints. The disc and motion segment are named by the vertebral body above and below; for example, the disc and motion segment between the L4 and L5 vertebrae are called the L4-L5 disc and the [L4-L5 motion segment](#).



Fusion of a motion segment typically involves creating a living bone bridge between the two surrounding vertebrae, either behind the disc between the posterior bony elements, through the disc space, or both. This bridge stiffens the spine and stops any motion at the fused motion segment. A [bone graft](#) is commonly used to bridge the vertebral bones, which is then replaced by the patient with new native bone. Bone graft materials can be the patient's own bone ([autograft](#)), donor bone from a bone bank ([allograft](#)), or synthetic materials commonly populated with a patient's bone marrow. The bone graft facilitates bone growth through and around the disc, fusing the spinal bones (vertebrae) together, and immobilizing the motion segment. Surgery may also include fusing the spinal facet joints for added stability. [Spinal instrumentation](#) (typically screw and rod fixation) is commonly used to secure the fused segments.

## Multilevel Spinal Fusion

Multilevel spinal fusion is almost always performed on contiguous spinal levels. The commonly fused spinal levels in the lower back typically include the motion segments in the lower half of the lumbar spine. These lowermost motion segments bear higher stresses than other parts of the spine, making them more prone to degenerative conditions.

- **Two-level fusion is typically performed at<sup>1</sup>:**
  - L3-L5—which includes fusing [L3-L4](#) and [L4-L5](#)
  - L4-S1—which includes fusing [L4-L5](#) and L5-S1
- **Three-level fusion is typically performed at** L3-S1—which includes fusing L3-L4, L4-L5, and L5-S1<sup>1,2</sup>

Degenerative changes typically occur at L4-L5, making this the most common spinal motion segment recommended for fusion surgery.<sup>1</sup>

Fusing two or three levels of the spine is typically preferred over fusing more than 3 levels. Fusion of more than three levels may compromise the stability of the spine, increasing the risk of post-surgical complications. <sup>3</sup> Four-level fusion (L2-S1) and full lumbar fusion (typically T10-S1) are uncommon but may be performed in the treatment of advanced degeneration with multilevel instability and spinal deformity.

## Common Indications for Multilevel Fusion

The 4 main indications for multilevel spinal surgeries are<sup>3</sup>:

1. **Degenerative changes in the spine:** changes resulting from aging and wear and tears of the spine, such as [degenerative spondylolisthesis](#) and [degenerative disc disease](#). These degenerative changes are often accompanied by spinal stenosis with neurologic compression, and the fusion is done along with decompression surgery (such as [laminectomy](#)).
2. **Spinal deformity or malalignment:** a deviation in the normal spinal alignment, such as [scoliosis](#) or [kyphosis](#).
3. **Spinal defects:** conditions such as [spondylolysis](#), where a defect in the pars interarticularis (a small segment of bone joining the facet joints in the back of the spine) causes the vertebral bone to slip forward and alter the normal alignment of the spine. This type of forward slippage of the vertebra is called [isthmic spondylolisthesis](#).
4. **Revision lumbar surgery:** patients with prior lumbar decompression and/or fusion surgery

with either failure of fusion healing and/or development of degeneration or instability in the adjacent motion segment.

Multilevel spinal fusions may also be a part of the treatment of less common conditions that can affect more than one level of the spine, such as spinal fractures, tumors, and infections.

## Potential Benefits of Multilevel Fusion

The primary goals of fusing more than one level of the spine are to improve stability and reduce pain. This surgery is intended to control the further progression of spinal degeneration or malalignment. Surgeons fuse more than one spinal level only if the benefit of fusing the segments outweighs the potential risks associated with this extensive procedure.

## Long-Term Outcomes of Fusion Surgeries

Most patients who undergo lumbar multilevel spinal fusion experience some degree of improvement in their back pain. Factors that influence the outcome typically depend on the presence of underlying conditions, the health of the other segments of the spine that are not being fused, the number of levels being fused, and the age of the patient.

A study evaluating long-term outcomes in 101 patients with multilevel spinal fusion found<sup>4</sup>:

- 77% of the patients had reported some improvement in back pain
- 51% of patients were satisfied with their surgical outcome
- 24% of the patients needed revision surgery within 2 to 5 years due to a complication
- 19% of the patients had a major neurological complication
- 48% of patients were admitted to the intensive care unit due to an adverse event

Multilevel fusion surgeries are mostly elective (unless indicated due to a [medical emergency](#)), meaning it's up to the patient to decide whether or not to have surgery. The most common indication for considering this surgery is unremitting and disabling lower back pain unresponsive to all attempts at non-surgical treatment including pain management. [Leg pain, numbness, tingling, and weakness](#) may also be part of the patient's symptoms.

It is advisable for patients to discuss the potential surgical benefits, risks, surgical alternatives, and recovery with their surgeon prior to scheduling the procedure.

**By: Jeffrey Spivak, MD, Orthopedic Surgeon**

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# CONSIDERING BACK SURGERY?

## 10 Questions to Ask Your Surgeon

### Questions regarding your surgical treatment

1. What is the source of my back pain, and what type of surgery are you recommending for my condition?
2. What are the potential risks, complications, and side effects of the surgery?



### Questions regarding the surgeon's experience and skills

3. How many times have you done this procedure?
4. What is the general success rate for this type of surgery and what is your personal success rate in performing this procedure?

### Questions about what to expect after the surgery

5. What degree of pain should I expect after the surgery, and for how long?
6. How long is the hospital stay?
7. What is the pain management protocol in the hospital and at home?
8. What serious symptoms should I watch out for?
9. How long will I be out of work (or school)?
10. When can I drive and resume regular household chores?



# How an Electrical Bone Growth Stimulator Helps with Spine Fusion

Electrical bone growth stimulators are a supplemental form of therapy to help enhance the body's bone healing process... a process that is absolutely essential for the success of any type of [spinal fusion surgery](#).

Human bone is a living tissue and, like skin, has the inherent ability to heal itself when broken or injured. When bone is broken, it creates its own electrical field to help promote the body's bone healing process.

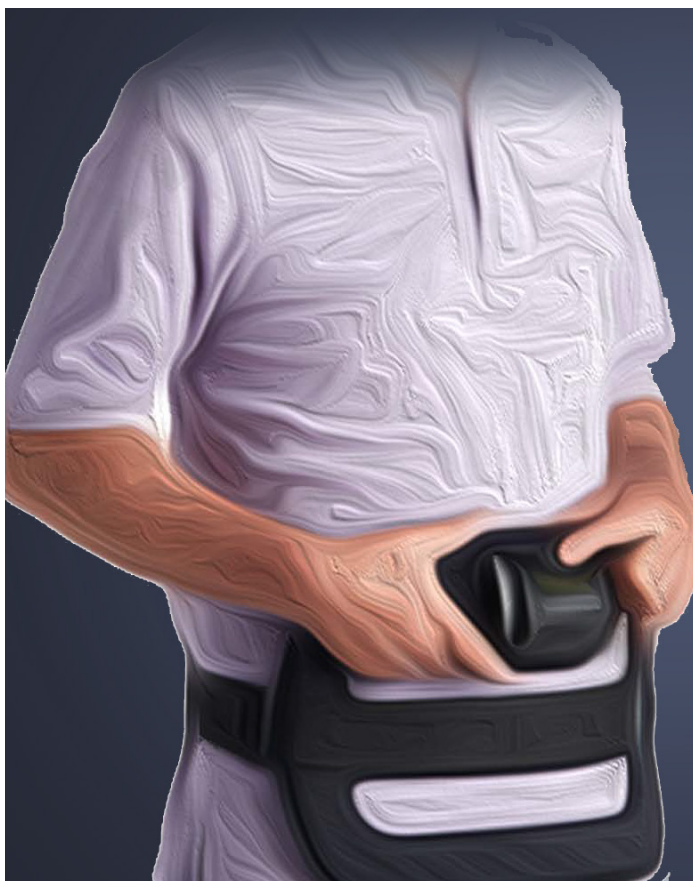
In the same way, application of an electrical stimulator can enhance the body's natural bone healing process.

Based on the surgeon's preference, or if the patient has [risk factors for fusion](#), an electrical bone growth stimulator may be used as an adjunct to spinal fusion surgery to help enhance the chances of achieving a successful bone fusion.

## The Bone Healing Process of Spine Fusion

In the case of a spinal fusion, it is necessary for multiple bone fragments to heal together, or "fuse" together, to create one solid bone.

A fusion does not occur immediately at the time of surgery, but rather the surgery sets up the environment for the bone to fuse together over the months following the surgery.





- During surgery, the surgeon lays down bone fragments (usually taken from iliac crest in the patient’s hip) in the segment of the spine to be fused.
- After the surgery, a process called “osteogenesis” starts, which is the body’s way of growing bony tissue.
- The goal of this bone growth process is to unite the [bone graft pieces](#) into a solid union of bone.

- This process takes a few months to one year to complete, and may take as long as 18 months

The fusion of these bone fragments into one solid bone that connects two vertebrae stops the motion in the affected segment of the spine, and thereby eliminates or reduces the pain that was created by the motion.

### Risk of Failed Spine Fusion

However, there is always a risk that the bone will not grow together and fuse in a normal period of time.

- The medical term for failure to fuse is [pseudoarthrosis](#).
- In common parlance, it is referred to as non-fusion, failed fusion, or [failed back surgery syndrome](#).

The failure for a solid fusion to form following a spine fusion procedure may result in an increase in pain, functional limitations. A failed fusion may also necessitate repeat surgery or other medical interventions, along with the concomitant risks and adverse effects.

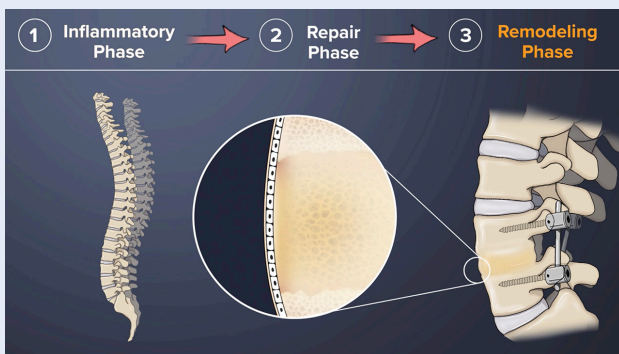
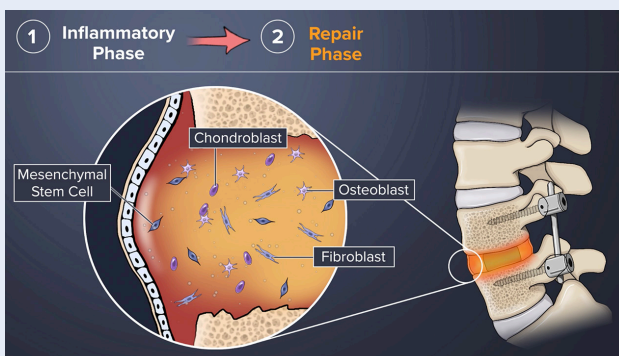
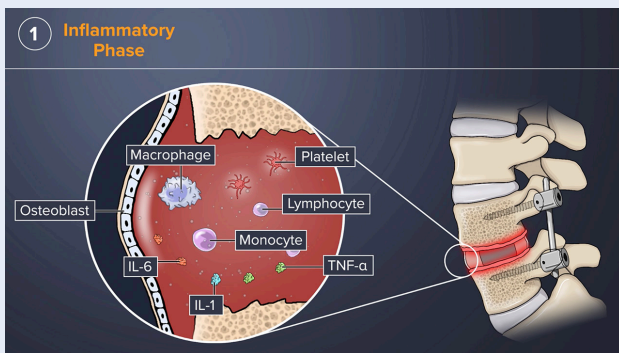
To mitigate this risk, an electrical bone growth stimulator is sometimes used to help enhance the body’s bone healing process.

The use of an electrical bone growth stimulator is more likely to be recommended when a patient has risk factors that impeded bone healing and the likelihood of achieving a successful bone fusion.

### Indications for Electrical Bone Growth Stimulation

It is reasonable to consider bone growth stimulator treatment when there is potential for bone healing problems, such as patients with:

## Stages of Bone Healing



- A previous [failed spine fusion](#)
- Surgery that involves more than one level of the spine. A [multi-level spine fusion](#) includes 3 vertebrae, such as L3-L4-L5, or L4-L5–S1 levels of the spine.
- Patients who smoke, vape, chew tobacco, or any type of nicotine intake.
- Patients with a diagnosis of Grade II (or worse) spondylolisthesis
- Patients with osteoporosis or osteopenia
- Anyone with long term steroid use

There are many additional factors that may lessen the chance of obtaining a solid fusion, such as vascular disease, obesity, diabetes, renal disease, alcoholism, and any medications that deplete calcium.

This is not a complete list of indications, and some surgeons may be more inclined to recommend electrical stimulation for a broader range of patients.

## Types of Electrical Stimulation after Spinal Fusion

There are two general types of bone stimulators:

- [Internal bone growth stimulators](#) – a small device, like a pacemaker, that is implanted under the skin at the time of the fusion surgery
- [External bone growth stimulators](#) – a device that is worn externally, like a back brace (for [lumbar fusion](#)) or a neck brace (for cervical fusion or [ACDF](#))

The choice of which type to use is based on the surgeon’s preference, the patient’s preference, and the patient’s individual condition.

If in the weeks or months following the fusion is not setting up as expected, external bone growth stimulation therapy may be introduced at that time to better stimulate the fusion process.

## Success Rates for Bone Growth Stimulators

An analysis of research to determine the success rates for bone growth stimulators found that use of bone growth stimulators had the following outcomes:

- Significant pain reduction
- Significant improvement in achieving a solid spinal fusion
- Inconclusive results on improvement in patient ability to function<sup>1</sup>

Another review of 13 clinical studies conducted by The Johns Hopkins School of Medicine showed a two-fold increase in fusion rates when electrical bone growth stimulation therapy was used.<sup>2</sup>

There are more research studies demonstrating the effectiveness of bone growth stimulators in helping long bone fractures heal than for spine fusion. More research is needed to understand the effectiveness and role of bone growth stimulation in modern spinal fusion techniques.

**By: Larry Parker, MD, Orthopedic Surgeon**

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### References

1. Aleem, I. S. et al. Efficacy of Electrical Stimulators for Bone Healing: A Meta-Analysis of Randomized Sham-Controlled Trials. *Sci. Rep.* 6, 31724; doi:10.1038/srep31724 (2016).
2. *Journal of Neurosurgery: Spine.* 2020;32(1):106-126. Doi:https://doi.org/10.3171/2019.5.SPINE19465

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# Essential Items for Back Surgery Recovery

To help ease the stress that accompanies spine surgery, here's a detailed checklist of items that will help you considerably during recovery, both in the hospital and at home.

These tips are tailored for anyone undergoing back or neck surgery that involves a hospital stay, but many of them will apply to the recovery from just about any type of surgery and hospital stay.

## Important items to take to the hospital

Essential items that will help keep you comfortable and refreshed in the hospital include:

- **Slip-on shoes.** Wearing slip-on shoes for several weeks (and maybe more) after your surgery will prevent the need to bend over to tie your shoelaces. Crocs™ are usually a favorite because they are easy to get on, have a good grip on the sole, and can be worn both indoors and outdoors. They are useful in the hospital, as you will be encouraged to get up and walk around as much as possible soon after the surgery, and comfortable to wear on your ride back home.
- **Sports water bottle.** You will be encouraged to drink a lot of liquids (to stay well hydrated) after your surgery. Bringing a sports bottle with a squirt top will allow you to drink while laying down or reclining, preventing the need to sit up every time or spilling over yourself.
- **Stool softeners.** Postsurgical constipation is a common occurrence and it can be a major source of pain and discomfort. Prune juice, apple cider, and/or over-the-counter laxatives and stool softeners typically help prevent post-surgical constipation. Your hospital will likely provide these during your stay, but if you choose to use your own natural/personal preference, having them handy can help. Make sure that you inform your nurse of any home medications you plan on taking as they may interfere with other medications prescribed during your hospital stay.
- **Lip balm and hand cream.** The air in the hospitals is almost always uncomfortably dry, so it's important to bring your preferred type of lip balm and moisturizing cream. You may also want to bring along a saline nasal spray to prevent dryness in your nasal passages.
- **Toiletries.** Your toothbrush, toothpaste, mouthwash, and body soap are items that you will use every day. During the first few days after surgery, a shower may not be possible. You may want to bring baby wipes or moist wipes so that you can freshen up until you're ready to take a proper shower.
- **Hand sanitizer.** Having a small bottle of hand sanitizer nearby can be useful in cleaning your hands without having to get up to wash them.

Before you leave for the hospital, be sure to collect and pack these items into a small bag. The

smaller toiletries can be kept in a pouch on your tray table. When they are easily reachable, you can use/reapply as needed, without asking for help.

## Additional things you may want to take to the hospital

Optional items that may provide some extra comfort during your hospital stay include:

- **Extra pairs of socks.** If your feet tend to get cold, you may want to bring a pair of warm socks. Many hospitals have the AC turned up pretty high, which may cause your feet to feel colder than usual. Slipper socks are a good option since they have grips below and will reduce the risk of slipping.
- **Foot cream.** If your doctor recommends compression stockings after your surgery to prevent the formation of blood clots in your legs, a prior application of foot cream may help prevent dryness in your feet.
- **Comfortable robe.** You will be encouraged to be up and walking around as soon as possible after your surgery, and the hospital gowns typically don't afford much coverage in the back. Bringing your own robe or PJ's will keep you comfortable when you start your walking sessions. If you bring PJ's, make sure they button up the front, so you won't have to reach over your head to pull the top on.
- **Earplugs.** If you're a light sleeper, use earplugs—or noise cancellation headphones—to help you get some rest, or at least some peace and quiet. Hospitals are busy, noisy places. An iPod or other music players will help drown out the noise. Some people also bring eyeshades to help them sleep more soundly.
- **Back scratcher.** Relief from an itchy back or leg can be obtained without having to bend your spine if you have a long-handled, ergonomic grip back-scratching tool, which can easily be purchased online.
- **Your own pillow and/or blanket.** Some people sleep a lot better with their own pillow(s). If this is the case for you, bring your own pillow from home. Some people also prefer to use their own blanket. If you're having neck surgery, such as an [ACDF](#) or [cervical artificial disc](#), check with your doctor and/or nurse ahead of time and ask if there is any type of pillow that they recommend for you.

Depending on your dietary allowances after surgery, it may be a nice idea to have your favorite snacks, bars, and/or juices within your reach.

## Recuperating at home

Once you are home, the demand for self-care will be more. You may need extra items that were either previously available readily at the hospital or are new necessities during your longer-term recovery at home.

In addition to the items listed above, it may be useful to have:

- **Ice packs.** Ice is a valuable pain reliever. Frozen gel packs are often preferable to ice packs or ice cubes as patients need to keep their incisions clean and dry for the first few weeks. Ice packs will often leak onto the incisions. Applying a frozen gel pack to numb the painful area will go a long way to easing pain and discomfort. If your doctor or nurse doesn't bring it up, ask about how to use ice or cold packs for postoperative pain control.

## HEAT THERAPY



## COLD THERAPY



- **Heating pads.** Starting about two days after surgery, the doctor may allow you to use heating pads to alleviate local pain and discomfort. You may also want them to apply to the areas of your body that weren't operated on; for example, if you just had lower back surgery, you may want a heating pad for your neck; it can be soothing and help keep your neck from getting stiff.
- **Mini fridge.** During the first few days of your recovery at home, you probably won't want to be running up and down the stairs. A mini fridge in your room allows you to stock up on water, juice, and other essentials for the day. A cheaper alternative is a cooler that can be filled with ice to keep your juice and snacks cool.
- **Nutritional supplements.** To assist in healing, supplements, such as vitamin C, zinc, and essential branched-chain amino acids are typically recommended by many surgeons. Many hospitals also institute an Enhanced Recovery After Surgery (ERAS) protocol<sup>1</sup> which addresses malnutrition and improving protein intake. Check with your surgeon regarding these supplements.
- **Online support.** Having a laptop or tablet in bed with you can help you keep in touch with others while recovering. [You can find others going through similar experiences via supportive and informative discussion forums.](#)
- **Grabber tool/reaching aid.** After a lumbar spine fusion or any lower back surgery, it is likely that you will be told not to bend over or reach up for anything for a while. A simple grabber tool can help you pick up items off the floor and reach for things from an upper shelf. They can usually be found at the pharmacy stores or purchased online.



- **A squeeze bottle.** After a fusion surgery, it's tough to twist or reach, even just to clean up after a bowel movement. You can use a squeeze bottle filled with warm water. Moist wipes also work well.
- **Extra pillows.** A few well-placed pillows add support. Try placing one under your knees while lying on your back or in a reclining position, which will take the stress off your lower back. If you're a side sleeper, tuck a pillow between your knees for the same effect. Use firm pillows to prop yourself up to a reclining position while in bed.
- **45-degree wedge pillow, recliner, and donut cushions.** In the weeks following surgery, sitting can be painful or uncomfortable. It is best to avoid sitting for long periods. A 45-degree wedge pillow can be placed on your bed to assist with comfort and positioning at night. Recliners can help ease pressure on your lower back, and sitting on something cushioned, such as an inflatable donut pillow or hemorrhoid pillow, can make sitting more tolerable. If you're having extensive surgery, you may want to consider renting an adjustable bed for the postoperative recovery period.
- **Shower mat.** An anti-slip mat in your shower area can help prevent slips and/or falls.
- **Shower brush with a long handle.** Using a long-handled body brush with liquid soap will

help you get clean without bending, twisting or reaching.

- **Shower seat and rails.** If you feel that sitting down while taking a shower and having extra support to move around in the bathtub may be helpful for your recovery, installing these tools may be helpful.
- **Toilet riser.** This will help immensely while making frequent trips to the restroom, especially for women. Risers with handrails to lean on are most helpful.
- **Cane or walker.** You may feel more comfortable walking with some added stability, and if so, discuss getting a cane or walker with your doctor.

Devices such as shower chairs, toilet seat risers, walkers, and canes are usually covered by insurance. Check with your doctor about these tools and if possible, have it sent home with you. These equipment are also available to rent or buy from most medical supply stores and are also available second hand (and inexpensively).

Preparing yourself for recovery after surgery is as important as preparing for the surgery itself. If you have an upcoming surgery, use these helpful ideas and items to aid in your comfortable, speedy, and uneventful recovery.

**By: Rob Dickerman, DO, PhD, FACOS, Neurosurgeon**

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1. Ljungqvist O, Scott M, Fearon KC. Enhanced Recovery After Surgery. *JAMA Surgery*. 2017;152(3):292. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/28097305>



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