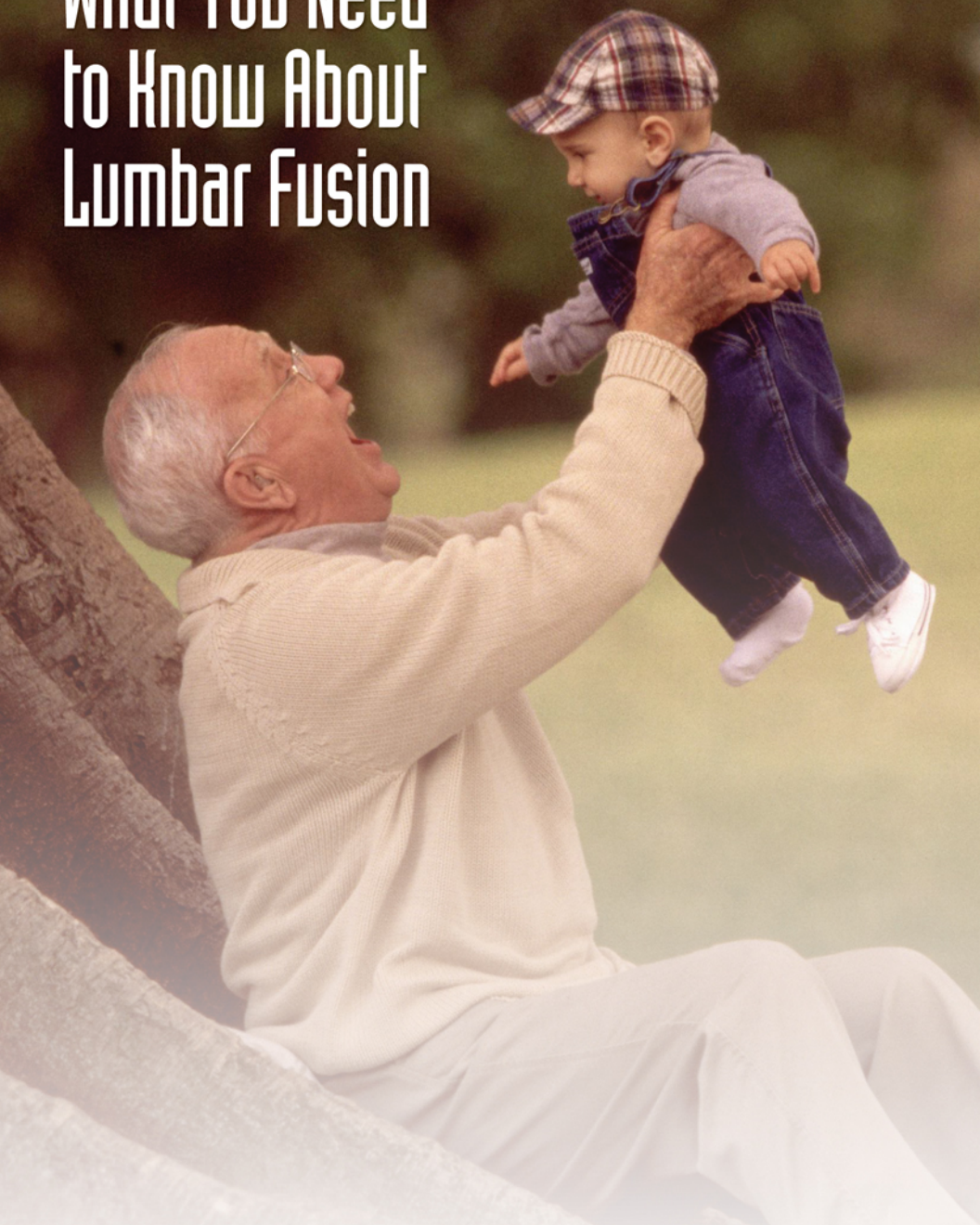


What You Need to Know About Lumbar Fusion



VANDERBILT  UNIVERSITY
MEDICAL CENTER

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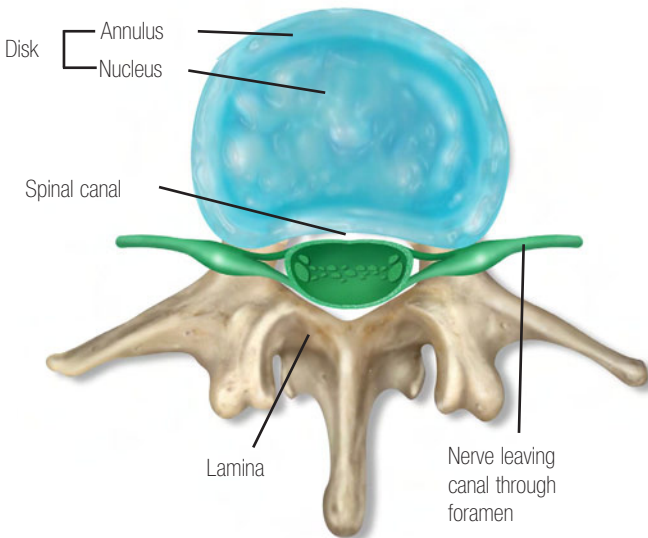
Resources:

www.understandingspinesurgery.com

A HEALTHY LUMBAR SPINE

The lumbar spine consists of the 5 lower vertebrae in your back. The vertebrae are the bones that make up the spine. Each vertebrae is separated by soft pads of tissue called discs. These discs act as shock absorbers between each vertebrae. Each disc contains two parts, a soft gel-like substance called the nucleus, and a tough outer band called the annulus. The spinal canal, which contains the spinal cord, is a tunnel that runs through each vertebrae. The nerves are able to exit the canal through the foramen. The foramen is the opening between the vertebrae on each side of the spinal canal.

Top view of a vertebra

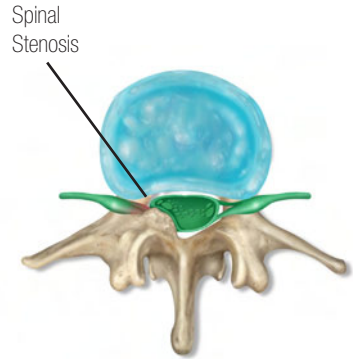


A PROBLEM LUMBAR SPINE

A damaged disc is one of the most common causes of spine problems. A disc may herniate from sudden movement or gradually worsen over time (degenerative disc disease).

Spinal Stenosis:

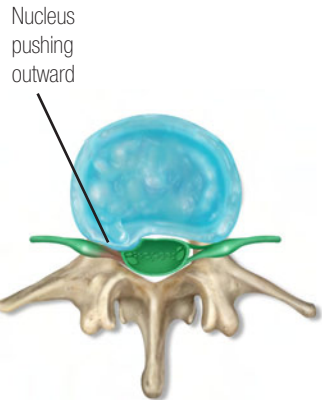
Spinal stenosis is the narrowing of the spinal canal or intervertebral foramina. Stenosis can result from bone spurs, a disc bulge, and/or ligaments narrowing the foramen or spinal canal. This puts pressure on the spinal cord or nerves and may cause symptoms in your back and leg. You may feel pain, burning, tingling, or numbness. Spinal stenosis can be accompanied by spinal instability, a condition called spondylolisthesis.



An example of spinal stenosis

Degenerative Disc Disease:

In degenerative disc disease, the discs flatten over a period of time. This causes the vertebrae to get closer together and begin to touch. The nerves between the vertebrae, which are running through a foramen, may be pinched. Pain, numbness, and weakness in the legs could occur when the spinal cord or nerve roots are compromised. This happens because the messages sent from the brain to the rest of the body are interrupted. Degenerative disc disease can also cause spondylolisthesis.



A contained herniated disk

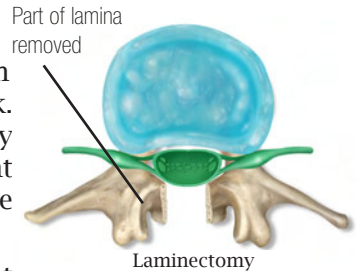
Spondylolisthesis:

Spondylolisthesis occurs when the vertebrae become unstable and slip forward or backward. This process can irritate the joints between the vertebrae and create or worsen spinal stenosis. This puts pressure on the nerves causing them to be pinched and irritated. Spondylolisthesis can also occur when a degenerative disc flattens, which allows the vertebrae to slip forward and compromise the nerve root.

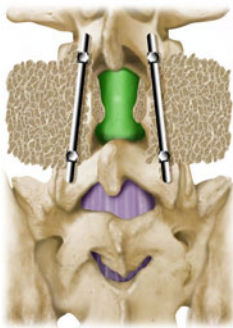
UNDERSTANDING YOUR SURGERY

Posterior Lumbar Fusion

The surgeon will make a vertical incision at the level of the instability on your back. The surgeon may perform a laminectomy to remove disc material, bone, or ligament that may be causing compression on the nerves or spinal cord.



Because of the instability, the adjacent



vertebrae will need to be joined or fused together by using a bone graft. Bone grafts are small pieces of bone or other material that grow into one unit, stabilizing the vertebrae at the place of instability. The surgeon will use either autograft, which is bone taken from your hip (iliac crest), or allograft. The allograft can come from a bone bank, or from artificial sources. If an autograft is used, there will be an incision made on the backside of your hip where the bone will be harvested. To aid in the fusion, metal supports may be placed in

the spine along with the bone graft. The metal supports consist of screws and rods.

Another type of posterior lumbar fusion is a posterior lumbar interbody fusion (PLIF). This procedure is done if the entire disc needs to be removed. The same incision will be made and a Laminectomy will be done. An allograft or autograft will be placed between the vertebrae where the disc was removed. This will cause the two vertebrae to fuse together. Metal supports and bone graft, as mentioned above, will also be placed during this procedure.

Anterior Lumbar Fusion

A lumbar fusion can also be performed from the front of the spine. This procedure is called an anterior lumbar interbody fusion (ALIF). The incision will be made either in the middle of your lower abdomen or on your side.

During this procedure, the surgeon will remove the entire problem disc from between the vertebrae and replace it with an allograft/autograft. The bone graft will allow the two vertebrae to fuse together. Metal supports may also be placed in the spine from this incision to aid in the fusion. In some cases, depending on the degree of instability, a posterior lumbar fusion may accompany this procedure.

PREPARING FOR SURGERY

Eating: It is very important that you do not eat or drink anything after midnight the evening before the day of your surgery. This includes drinking water or even chewing gum.

Smoking: Scientific studies have shown that bone heals much better in persons who do not smoke. The spine surgeons strongly recommend that you stop smoking before your spine surgery. You may want to ask your family doctor to assist you in a smoking cessation program suitable for you, or call the Vanderbilt Dayani Center at (615) 322-4751 for their smoking cessation program.

Blood: Some lumbar fusion procedures require blood transfusions during the operation. You may donate your own blood before your surgery at weekly intervals starting 35 days prior to your surgery. This is called autologous blood donation. Begin taking one iron pill (ferrous sulfate) twice a day 1 to 2 days before your first blood donation. Stop taking them 3 days before your surgery. You can purchase iron pills over the counter at any drug or grocery store.

Your family or close friends who have your blood type can also donate for you, if you are unable to donate your own blood. This is called direct blood donation. This blood will be tested by the Blood Bank to determine if it is compatible with yours and screened for the presence of disease before it is accepted for transfusion.

A third option is screened blood from the Blood Bank. The risk of transmission of hepatitis or AIDS is low from this source.

Preoperative Appointment: A comprehensive history and physical exam is required for all patients prior to surgery. These and any other special tests will be completed as a part of the preoperative preparation. You will also be interviewed at the Anesthesiology Clinic.

DAY OF SURGERY

Day of Surgery: On the day of your surgery, plan to arrive at the main admitting office of Vanderbilt University Hospital two hours before the scheduled time of your operation. You will wait in this area until you are escorted to the holding area. Your blood pressure, heart rate, and breathing rates will be measured once you are in the holding area. You will be asked to empty your bladder and change into a hospital gown. You will be administered an IV. The anesthesiologist will meet you in the holding room and give you some medication to help you relax. You will be transferred to the operating room on a gurney. After you are asleep, you will be moved onto the operating table. A tube (Foley catheter) will be inserted into your bladder to drain urine into a collection bag during the operation.

Your Family: Your family may wait in the surgical waiting area located in the main hospital on the first floor near the main elevators. The operating room nurse will call the waiting room desk periodically to report on the progress of your surgery. Your spine surgeon will meet with your family there after your surgery.

AFTER SURGERY

After Surgery: Directly from the operating room, you will go to the recovery room. You will probably be there for two to three hours. You will then be transferred to the orthopaedic unit in the Round Wing of Medical Center North. The Round Wing is separate from the main Vanderbilt Hospital, so you will be transported through a tunnel connecting the two facilities.

Recovery: You will be closely monitored for the first twelve to twenty-four hours after surgery. Your pulse, breathing rate, and blood pressure will be carefully watched. In attempt to keep your lungs clear, you will be encouraged to cough and deep breathe. A dressing covering your incision will be checked frequently for drainage. The drain (a small tube) that collects fluid and blood from your incision area will be removed twenty-four to forty-eight hours after surgery. Your dressing will also be changed at that time. You will receive IV fluid, antibiotics to prevent infection, and pain medication to ease post-surgical discomfort. The IV fluids will be stopped as soon as your stomach is able to digest food again. Your diet should be back to normal in a few days.

At first, you may be giving yourself pain medication by using a computerized pump (PCA) that has been programmed according to your physician's instructions. This pump allows you to give yourself medication for pain anytime you feel like you need it; all you need to do is push the button. The PCA is usually removed on the first day after surgery, when you will be given oral pain medication instead.

To prevent the formation of blood clots in your legs after surgery, you will wear elastic stockings. You may also wear plastic "sleeves" which will intermittently squeeze your legs, pushing blood back towards your heart.

The nursing staff will assist you in getting out of bed the first day after surgery, and you will be assisted with walking and self care activities. Your physician may want you to wear a brace or corset to help support your spine until it heals. The brace will relieve pain by supporting the back for better balance and alignment. You will be taught how to put your brace or corset on and take it off.

AFTER SURGERY

The corset should be worn anytime you are out of bed. Put it on before you get up and do not take it off until you are back in bed.

If you have a Foley catheter in place, it will be removed, and you will be given stool softeners to encourage the return of normal bowel activity.

Going Home: Generally, you will be discharged after two nights in the hospital. Your trip home will be most comfortable if it is accomplished in a car with reclining seats. To make getting in and out of the car as easy as possible, place the seat in a reclined position, back into the seat, and turn your body 90 degrees so that you are facing forward. Adjust the back of the seat to a comfortable position. You may also need a blanket for your trip. If the trip is longer than 30 minutes, get out and stretch for a few minutes every hour. This will reduce stiffness and soreness.

First Month After Surgery: Do not drive for the first two weeks after surgery. During the first two or three weeks at home, you will find that you will tire easily. This is normal after surgery. You will be sent home with a prescription for pain medication to be taken by mouth. By the end of the first month after surgery, you should no longer require medication stronger than Tylenol. The easiest way to accomplish this is to reduce the amount of pain medication you take each of those first four weeks, until you are no longer requiring pain medication at all.

Exercise: The single most important thing you can do for yourself to encourage recovery of strength and pain reduction is to walk. Try to increase your walking distance every day (refer to the Activity Chart on the next page). You will be enrolled in a spine conditioning program at your first post-op clinic visit. The program consists of aerobic training (bike, pool, treadmill) and general body strengthening.

ACTIVITY CHART - FOLLOWING SURGERY

Activities are guidelines only and may be modified for individual variations.

	7-10 days	3 wks	6 wks	3 mos	6 mos	1 yr
Shower	Yes					
Lifting 10-15 lbs	Yes					
Walking Outdoors	Yes					
Light Upper Extremity Exercises	No	No	Yes			
Climbing Stairs	Yes					
Short Car Rides 15-20 min	Yes					
Cooking, dusting, light chores	No	Varies	Yes			
Short outings (church, visits)	No	Yes				
School	No	No	No	Varies	Yes	
Air Travel (short distances)	No	No	Varies	Varies	Yes	
Stationary Bike	No	No	Varies	Varies	Yes	
Dancing, slow	No	No	Varies	Yes		
Lifting 15-50 lbs (tennis, bowling)	No	No	No	Varies	Yes	
Driving Car	No	Varies	Yes			
Vacuuming, laundry, floors	No	No	No	Yes		
Swimming, No Diving	No	No	Varies	Yes		
Light Jogging	No	No	Varies	Yes		
Aerobic Exercise (low impact)	No	No	Varies	Yes		
Non-contact Sports (tennis, bowling)	No	No	Varies	Yes		
Downhill skiing	No	No	No	No	Varies	Yes
Road bicycling	No	No	No	Varies	Yes	
Gardening, house repairs	No	No	No	Varies	Yes	
Air Travel (long dist.)	No	Varies	Yes			
Horseback riding, water skiing	No	No	No	No	Varies	Yes

Vanderbilt Comprehensive Spine Center

One Hundred Oaks
719 Thompson Lane
Nashville, TN 37204
615.875.5100
www.vanderbiltspine.com

This information is intended for education of the reader about medical conditions and current treatments. It is not a substitute for examination, diagnosis, and care provided by your physician or a licensed healthcare provider. If you believe that you, your child, or someone you know has the condition described herein, please see your healthcare provider. Do not attempt to treat yourself or anyone else without proper medical attention. All rights reserved 2010, Vanderbilt University, Vanderbilt University Medical Center, Vanderbilt Children's Hospital.

Other Vanderbilt Spine Care Locations

Bone & Joint

206 Bedford Way
Franklin, TN 37064
615.790.3290

Neurosurgery

Village at Vanderbilt
1500 21st Avenue South, Suite 150
Nashville, TN 37232
615.936.0060

Orthopaedics at Cool Springs

324 Cool Springs Blvd.
Franklin, TN 37067
615.790.4280

Orthopaedic Institute

Medical Center East, South Tower
1215 21st Avenue South
Nashville, TN 37232
615.343.0870