

Dear Patient,

**THANK YOU** for entrusting us to perform your spine surgery. We are grateful that you chose the Spine Center at Beth Israel Deaconess Medical Center – Boston (BIDMC). We are confident that you made the right decision. We are committed to providing the highest quality care.

We've put together an information packet to help you prepare for your surgery. This packet explains what to expect at each stage of the surgical process. It reviews how to prepare for your spine surgery and what to expect during your recovery in and out of the hospital. After your surgery, you'll receive other personalized information from your dedicated surgical care team. Our website [bidmc.org/spine surgery](http://bidmc.org/spine-surgery) is a resource for you. It includes the video series we developed for our surgical patients. Additional information is in the back pocket of this packet.

Please contact your surgeon's office with any questions, or by calling the Spine Center at **(617) 754-9000**, or by email at [SpineCallCenter@bidmc.harvard.edu](mailto:SpineCallCenter@bidmc.harvard.edu). We hope you find this packet helpful and the information valuable.

On behalf of our team, thank you again for choosing the Spine Center at BIDMC for your spine care.



A handwritten signature in black ink that reads "Jason Pittman".

Jason Pittman, MD, PhD, FAAOS  
Co-Director, Spine Center



A handwritten signature in black ink that reads "Efstathios Papavassiliou".

Efstathios (Steve) Papavassiliou, MD, FAANS  
Co-Director, Spine Center



**Having information about your surgical outcome is very important to us.** One way we obtain information about your current condition, health related quality of life, symptoms, and health behaviors is by asking you to complete a series of questionnaires. We use Patient Reported outcome tools to better understand your physical, mental and social well-being.

As you prepare for your surgery, you will receive, either an email or text message inviting you to complete a series of questionnaires that will provide your surgical team with valuable information about your current condition. The information you provide is important and valuable. Following your surgery, we will also ask you to take a few minutes to complete the same questionnaires so that we may follow your improvement as you recover and objectively monitor the results of your surgery.

We have partnered with Patient IQ to support our electronic collection and use of patient reported outcome data. The system is easy to learn and use and typically faster than completing paper forms. Patient reported outcome data can help us make improvements in the way we deliver care. Having objective information obtained in a safe and compliant way is an important part of providing patient-centered care. How patients respond and improve following surgery helps us explain surgical outcomes in an objective way and better understand how we are doing compared to other providers. Patient reported outcomes supports our commitment of providing patient centered care and supporting effective patient-surgical team communication.

If at any time you have any questions about our patient reported outcomes program, please talk with a member of your surgical team.

On behalf of our team, thank you again for choosing the Spine Center at BIDMC for your spine care.

# What's Inside

In addition to the following pages, please remember to read the important materials about your surgery and watch the videos at [bidmc.org/spinesurgery](http://bidmc.org/spinesurgery).

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# Before Your Spine Surgery

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Now that you made the decision to have the spine surgery your surgeon recommended, there are some key details to take care of and keep in mind before the procedure. We've included additional important information in the back pocket of this packet. Be sure to watch the videos about having spine surgery at BIDMC on our website [bidmc.org/spinesurgery](http://bidmc.org/spinesurgery).

## Your Surgery Date

Within five business days after you've told us your decision to have spine surgery, a surgical scheduler will contact you to discuss the date of your surgery. If you have not been contacted within five business days, please call the Spine Center at 617-754-9000 or email us at [SpineCallCenter@bidmc.harvard.edu](mailto:SpineCallCenter@bidmc.harvard.edu).

## Pre-Admission Interview

The surgical scheduler will also arrange an on-site interview for you at BIDMC, usually at least one to two weeks before your surgery date. We'll need you to come to BIDMC so you can meet with our nursing and anesthesia staff, and we can perform any necessary blood work, examinations, screenings, or tests. We'll also ask you about your health history, and you'll receive additional information about your surgery. This appointment may take as long as four hours, depending on what you need.

You might want to write down any questions you have and bring them with you that day. Please bring with you a list of all the medications you take, how often you take them and the proper dosage.



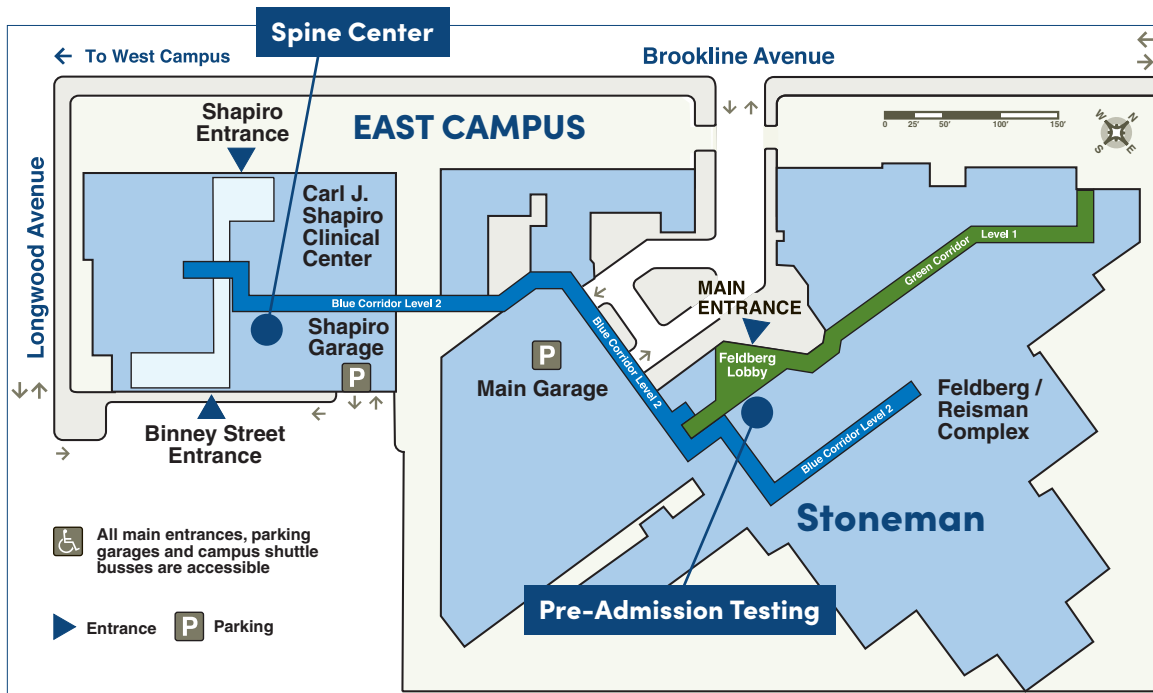
*Dr. Martina Stippler reviewing a patient's medication with a medical assistant.*

Unless you are told otherwise, your interview will take place in the Pre-Admission Testing (PAT) suite, in the Stoneman Building, Suite 122, on the medical center's East Campus, map page (5). The Rosenberg Building, where your upcoming surgery will take place, is on the opposite side of Brookline Avenue. We've provided maps on the following page (7) that highlight the locations at BIDMC you'll need to find on each campus and the most convenient parking lots.

## Map of East Campus

Below is a map of the East Campus, where your pre-admission interview will take place. For a map of the West Campus, where your surgery will take place, go to page 7.

- Your pre-admission interview will take place at: **Pre-Admission Testing (PAT)** suite, Stoneman Building, Suite 122 (first floor) at East Campus, 330 Brookline Avenue, Boston, Massachusetts.



## Directions

For driving directions to BIDMC, please call 617-667-3000. Another option is to visit Patient and Visitor Information at [bidmc.org](http://bidmc.org).

## Parking Information for East Campus

Self-parking is available in the Main Garage, and the entrance is on Brookline Avenue. Another parking option is the Shapiro Clinical Center Garage, entrance on Binney Street, off Longwood Avenue. However, the Main Garage is the closest location to the Stoneman Building, where your pre-admission interview will take place. Parking is discounted after a certain time period. To receive the discount, show your parking ticket to the reception staff in any of the main lobbies before you leave. Call 617-667-3035 for the most up-to-date information on parking garage locations, hours and rates.

## Insurance Authorization

Contact your insurance carrier as soon as possible to let them know you will be having surgery and find out if you need a referral from your primary care provider. We will ensure that we have proper authorization from your insurance carrier prior to surgery.

## Worker's Compensation

If you would like your surgery to be covered by worker's compensation, please be sure to discuss this with the surgical scheduler. The process of obtaining authorization for worker's compensation can sometimes take several weeks and must be completed before your surgery can be scheduled. The surgical scheduler will explain what steps need to be taken to get authorization and coordinate your surgery date upon receiving the approval.

## Work Note or Disability Paperwork

Please let the surgical scheduler know as soon as possible if you need a "work note" or disability paperwork as a result of your upcoming surgery. Because of the number of patients we care for each week, it takes our office up to 10 business days to complete these types of forms. If we receive them well in advance of your surgery, we will do our best to ensure that they are returned to you in a timely fashion.

## Physical Therapy Before Surgery

Many patients are involved in physical therapy prior to surgery. Please discuss with your surgeon whether you should continue to perform these exercises in the period leading up to surgery.

## Medications Before Surgery

We will work closely with you to make sure the medicines you take before and after your surgery are right for you. You may be asked to stop or change some of your routine medications before your surgery. Do NOT stop or change any of your medicine unless you are told to do so. Make a list of everything you take or may take – prescription and non-prescription medicines, vitamins, herbs and supplements – including the dosage of each item and how often you take it. Please remember to bring that list to your pre-admission interview and with you the day of your surgery.

## Emotional Support

We understand this may be a challenging time for you as you think about and plan for your upcoming surgery. Some may even feel a variety of mixed emotions as they anticipate surgery. If you are feeling this way, we encourage you to talk about it with someone close to you and trustworthy, or you may want to consider speaking with a therapist. A good way to get a recommendation for a therapist is to contact your insurance carrier or your primary care provider.

## What to Bring to the Hospital

In general, we request that you pack very little for your stay here. Please bring any equipment you typically use at home such as a sleep apnea machine, brace, or surgical girdle. There is no need to bring in walking aides, such as a walker or a cane, because we have them available for use in the hospital. Make sure you wear comfortable clothing the day of surgery and pack another set of clean, loose comfortable clothing for the day you leave. Please leave any valuables at home. BIDMC cannot be responsible for personal valuables.

## The Night Before Surgery

It's very important that you do not eat or drink anything after midnight. This includes water, coffee, gum, hard candy and mints. It's okay to brush your teeth as long as you don't swallow any water. If you don't follow this, your surgery will be canceled.

Plan to arrive an hour and a half before your scheduled surgery time. Please allow plenty of time for the traffic you may encounter on the way to BIDMC.

## Preoperative Showering Instructions

You'll need to shower the night before and the morning of surgery with a special antiseptic soap called chlorhexidine gluconate (CHG), which you should receive at your pre-admission interview. Please follow the detailed directions on how to use this soap. They are outlined in *Preoperative Showering Instructions*, which will be provided to you at your Pre Admission Testing (PAT) appointment or by surgical office.

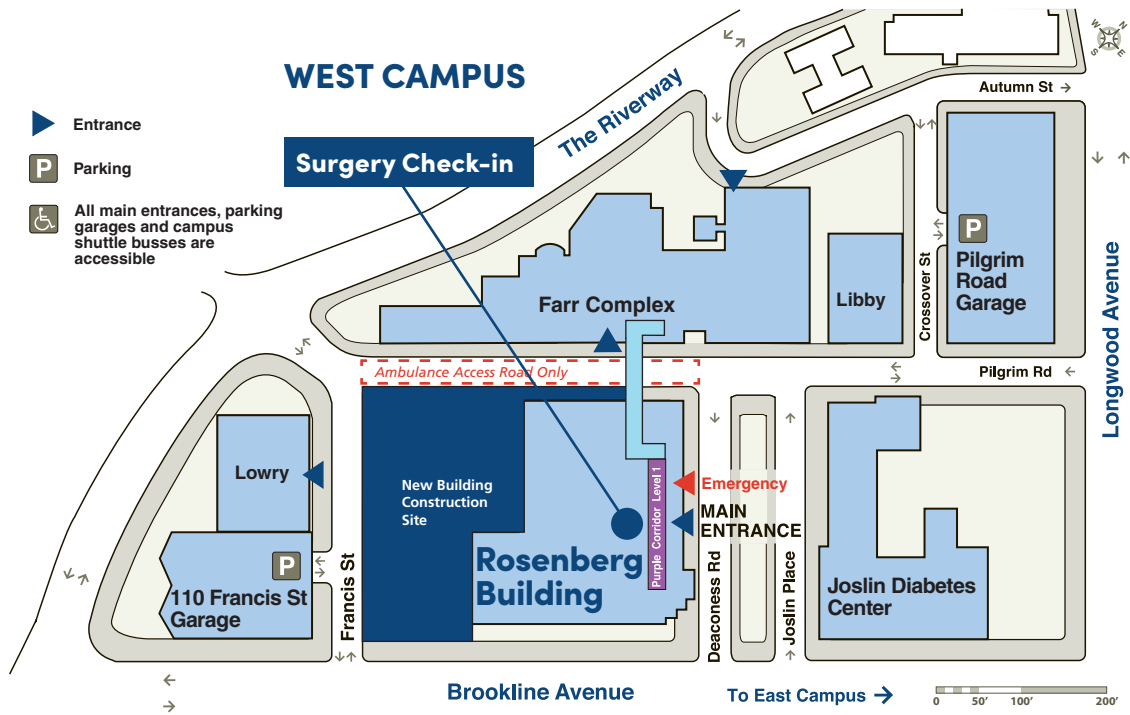
# The Day of Your Spine Surgery

On the day of your surgery, please remember the following:

- ➔ Do not eat or drink anything, and, if you are a smoker, do not smoke.
- ➔ Follow the directions provided in *Preoperative Showering Instructions*, and shower with the special antiseptic soap.
- ➔ Do not wear any makeup, body lotion, deodorants, powders, contact lenses, or jewelry.
- ➔ Wear loose comfortable clothing and bring clean clothes for when you leave.
- ➔ Plan to arrive an hour and a half before your scheduled surgery time.
- ➔ Please leave any valuables at home.

## Map of West Campus

- **Check-in** for spine surgery is in the lobby of the Rosenberg Building, 1 Deaconess Road, Boston, Massachusetts.



## Directions

For driving directions to BIDMC, please call 617-667-3000. Another option is to visit Patient and Visitor Information at [bidmc.org](http://bidmc.org).

## Parking Information for West Campus

You have a few options for parking. For the most up-to-date information about parking options, hours, and rates, please call 617-667-3035. Parking is discounted after a certain time period. To receive the discount, show your parking ticket to the reception staff in any of the main lobbies before you leave.

- **Valet Parking** is available at the entrance of the Rosenberg Building from 7:30 am to 7:00 pm, Monday through Friday.
- **Self-parking** is available in the Pilgrim Road Garage. The entrance to the garage is on Crossover Street, and can be reached by either Pilgrim Road or Autumn Street.
- In addition, if you don't want to walk outside after you park, and you can navigate stairs, another option for **self-parking** is in the Lowry Medical Office Building Garage on Francis Street. This garage is connected via a basement tunnel to the West Campus Clinical Center.

## Checking In

Please go to the information desk in the lobby of the Rosenberg Building at 1 Deaconess Road. A service ambassador at the desk will check you in for surgery and assign you a pager. When it is time to proceed to our operating suites, a service ambassador will escort you.

## Information for Family and Friends

A family member or friend may come with you. Waiting space is limited so we ask that only one or two people accompany you. Once you have gone into surgery, your family or friend may wait in the designated waiting area.

There are also several convenient places to eat, including the East and West Campus Cafeterias. Longwood Galleria located at the corner of Brookline and Longwood Avenue has a food court with many choices and is just across the street.

If your family or friend plans on leaving the hospital, the nurse in the preoperative area will place their cell phone number on your chart. Your surgeon will call when the operation is over. A beeper will be provided for those who do not have a cell phone.

While you are in surgery, your family can receive general information from the Surgical Liaison Service, Monday through Friday, 9:00 am – 8:00 pm. To reach someone from this service, please call 617-754-3111.



*Dr. Andrew White, Orthopedic Spine Surgeon, reviewing a radiology interpretation with a clinical trainee.*



# Recovering From Your Spine Surgery

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Everyone heals at their own pace. Try not to compare yourself to others who have had similar surgeries. The following information will be helpful to understand the healing process.

After your surgery, you will receive additional detailed information from your spine team that is specifically tailored to you. If you have questions or don't understand something about your operation, please call the Spine Center at 617-754-9000. Someone will get back to you as soon as possible. For chest pain, shortness of breath, or any other emergency, call 911.

## How You May Feel

You will experience some acute or sharp pain after surgery that is related to the procedure you have undergone. This is different from the pain you may have been experiencing before surgery.

For most patients, the pain from surgery is worse during the first 48 to 72 hours. Surgeons and nurses often call this period the "hump;" they know this is part of a patient's path to recovery. Keep this in mind as you are recovering, and don't get discouraged if your pain seems to be increasing during the first few days after surgery.

After 72 hours, your pain should start to decrease. You may have some additional pain right around your incision.

In addition, you may experience the following:

- You may feel weak or "washed out" for up to six weeks. You might want to nap often.
- You may have a sore throat or difficulty swallowing. Try eating soft foods until the trouble with swallowing improves.
- You might have trouble concentrating or difficulty sleeping. You might feel somewhat depressed. Please consider speaking with a trusted friend, family member or a professional if you are feeling depressed.
- You could have a poor appetite for a while. Food may seem unappealing.

*These are normal reactions to any surgery, and they should go away in a short time. If they do not, contact your surgeon at 617-754-9000.*

## Your Surgical Incision

The dressing over your incision may be removed 48 hours after your surgery, unless your surgeon has told you otherwise. Do not use any ointments on it, unless you were advised to do so. Over the next 6 to 12 months, your incision will fade and become less prominent.

In the meantime, here is what to expect.

- Your incision may be slightly red. This is normal.
- The area around your incision will be swollen.
- You may have thin paper strips ("steri-strips") across your incision that will fall off on their own.

## Pain Management and Medications

Your most important job after surgery is to learn how to balance pain management with activity and rest. You will get out of bed and begin walking your first day after surgery with the assistance of the care team. Your aim is to steadily increase your activity, which will help you avoid complications such as blood clots, pneumonia, pressure sores, or infections.

Either too much or too little pain medicine can interfere with this goal. If you take too much, you will not be able to be as active as you should be because of the side effect of sedation. If you take too little, your pain is likely to prevent you from moving.

In many ways, the pain response is your body's way of reminding you to take things at a slower pace while you recover. On the other hand, we know that it is very important for you to steadily increase your activity, even if you are in some pain.



*Dr. Jason Pittman, Orthopedic Spine Surgeon with Wen Yue, Nurse Practitioner.*

### ■ Pain Management in the Hospital

Right after surgery, pain is controlled with methods such as intravenous (IV) medication, epidural medication (medication into the spine), or through injections (shots). Your care team will help you work toward the important goals of increasing your activity level while switching to oral medications to manage your pain. The goal is to have you only on oral pain medications prior to discharge.

### ■ Pain Management at Home

Please use the following information/guidelines to help manage your pain.

- You will be given a prescription for narcotic pain medicine. In some cases, you may be given an antibiotic prescription, as well. Be sure to take all medicines exactly as prescribed. Do not take any additional over-the-counter pain medication unless your surgeon says it is okay.
- Take pain medicine on a regular basis, such as every four hours or every six hours. Be sure you are taking pain medicine before going to sleep at night so that you can get the rest you need. Don't wait until the pain is really severe to take medicine. It will not work as well and it will impact your ability to move.
- Time your medicine and activity sessions – such as walking – so that you can steadily increase your activity. For example, take your pain medicine so that it is working well during the time that you plan to be out walking.
- Over time, you will need to start to decrease your use of prescription pain medicine. As you feel your pain decreasing, try taking doses farther apart (for example, move from every four hours to every six). If you were taking two pain pills, try one and see how it goes. Don't decrease too quickly, but try to start the process as soon as you feel ready.
- Plan ahead for refills. If you are starting to run low, please call your doctor at least two business days before you will run out of medicine.
- Although everyone is different, most patients are off of narcotic pain medicine a few weeks after surgery, depending on the surgery. As a general rule, your surgeon's office will provide refills for prescription pain medicine for only 30 days following surgery. In the unusual event that you need prescription pain medicine for a longer period, you will be referred to your primary care physician.

## ■ Medications

As noted, you will be given a prescription for pain medicine and possibly an antibiotic prescription, too. Be sure to take all medicines exactly as directed. Here are additional critical guidelines to follow that will help your recovery.

- **Blood thinners** – It is very important that you know when to go back to taking any blood thinners you may have been on before surgery, such as aspirin, Plavix, or Coumadin. **This is especially important if you are taking medicines to thin your blood to prevent blood clots or stroke.** If you are not sure whether to take your blood thinners, please ask your surgeon or the doctor who told you to take them.
- **Pain medicine** – Please check with your surgeon before adding or switching to non-prescription pain medicines. For some surgeries, certain non-prescription pain medicines should not be taken. Also, adding a medicine like acetaminophen (Tylenol) if you are still taking prescription pain medicine could be dangerous as your prescription medicine may have acetaminophen in it. (Acetaminophen is also included in other over-the-counter pain medicines and in many cold/flu remedies).
- **Medicine for constipation** – You may also be given a stool softener. Constipation is a common side effect of pain medicine. Taking a stool softener (such as Colace, or docusate, 1 capsule) once or twice a day can help prevent constipation; if needed, you may also use a gentle laxative (such as Milk of Magnesia, 1 tablespoon twice a day). You can get both of these medicines without a prescription. Increasing your fluid intake may also help.
- **Other medicine** – You should go back to taking any other medicine you were taking before your surgery, unless you have been told differently. If you have any questions about what medicine to take or not to take, call your surgeon at the Spine Center, 617-754-9000.
- **You have been prescribed a narcotic pain medication.** Please take only as directed and do not drive or operate any machinery while taking this medication. Narcotics are typically prescribed for a short period of time based on your surgery type and are at the discretion of your provider. Narcotic refills are prescribed for no more than 30 days after your surgery. If you need narcotic pain medication for a longer period of time you will need to speak with your primary care physician for all further refills.



*Dr. Sapan Gandhi, Orthopedic Spine Surgeon, explaining a procedure to Tereza Pinkhasova, Nurse Practitioner.*

## Rehabilitation After Surgery

While recovering from your surgery, you may require physical or occupational therapy. This process often starts in the hospital. A physical or occupational therapist may evaluate you and provide recommendations to help increase your mobility, as well as to assist with discharge planning. In some cases, you may need more intensive physical therapy, or there might be a concern that you could have difficulty caring for yourself safely at home. A physical and/or an occupational therapist, along with your surgeon, nurse, and a case manager will determine if you need to be transferred to a rehabilitation facility before going home. If this is the next step for you, your case manager will work with your insurance company and make sure you are placed in an appropriate rehabilitation facility.

The Spine Center at BIDMC has a preferred network of rehabilitation facilities. The preferred facilities meet our high standards. Most of the facilities are staffed with a BIDMC affiliated physician, which allows for an easy transition to the facility and direct communication with the facility's health care team. We have built a strong relationship with our preferred facilities. Our partnerships allow us to work closely together to ensure the highest quality care and a seamless transition from the facility to home.

## Going Home

The amount of time you will be in the hospital depends on a number of factors, including the specific operation you are having and your general state of health. Please ask your surgeon how long you can expect to be in the hospital. Although discharge times vary for a variety of reasons, we aim to discharge patients between 10:00 am and 3:00 pm.

## Activity Guidelines

The following are guidelines. For further information, watch our video series about spine surgery at [bidmc.org/spinesurgery](http://bidmc.org/spinesurgery). When you leave the hospital, you will be given additional, detailed instructions on care after surgery, specifically tailored to you. As always, if you have any questions, please call the Spine Center at 617-754-9000.

**Brace** — If you have been given a brace or collar, wear it as instructed by your surgeon.

**Showering and Swimming** — Please check with your surgeon about when it will be okay to shower after your surgery, and also about when it will be okay to swim or take a tub bath.

**Lifting** — For a number of weeks after surgery you should not lift, pull, push, or carry anything greater than 10 pounds. Ask your surgeon when you will be able to resume these activities. Avoid activities that cause you to twist or bend your spine.

**Sitting** — Avoid long car rides as a passenger. If you must be in a car for an extended period, allow plenty of time to stop for stretch breaks.

If you've had lower back surgery, you should try not to sit for prolonged periods for the first several weeks. When you are sitting, you will be most comfortable in a supportive chair that has armrests and a firm back. You may put your feet up on a footstool or another low flat object.

**Walking** — Daily walking is the best exercise. Try to increase your distance a little each day. Walk around the house at first, then move to short walks outside (weather permitting).



*Dr. Ziev Moses, Neurosurgical Spine Surgeon, discusses surgical options with a patient.*

**Driving** — Please note that you will not be able to drive for a while after your surgery.

Do not drive if any of the following are true:

- You are taking narcotic pain medicine.
- You are wearing a cervical collar or back brace, or if you cannot move your neck and head normally.
- You are not comfortable in a sitting position for 30 minutes at a time.
- Your pain is impacting your ability to respond normally in an emergency.

**Sexual Activity** — You may resume sexual activity as soon as you feel comfortable doing so. For many patients, this is about three weeks after surgery.

**Work and Travel** — Please ask your surgeon when you may go back to work or when you may travel.

## Follow-up Care

You should have an appointment with your surgeon between two and six weeks following your surgery (depending on your surgeon and your operation). Your inpatient team will work with you and tell you when your follow up appointment is scheduled. If this appointment has not yet been scheduled, please call the Spine Center at 617-754-9000. Also, let your primary care physician know that you have had surgery.

Please remember, everyone heals at his or her own pace. Contact us anytime at 617-754-9000, if you have any questions or concerns. Thank you again for entrusting the Spine Center at Beth Israel Deaconess Medical Center with your spine care.

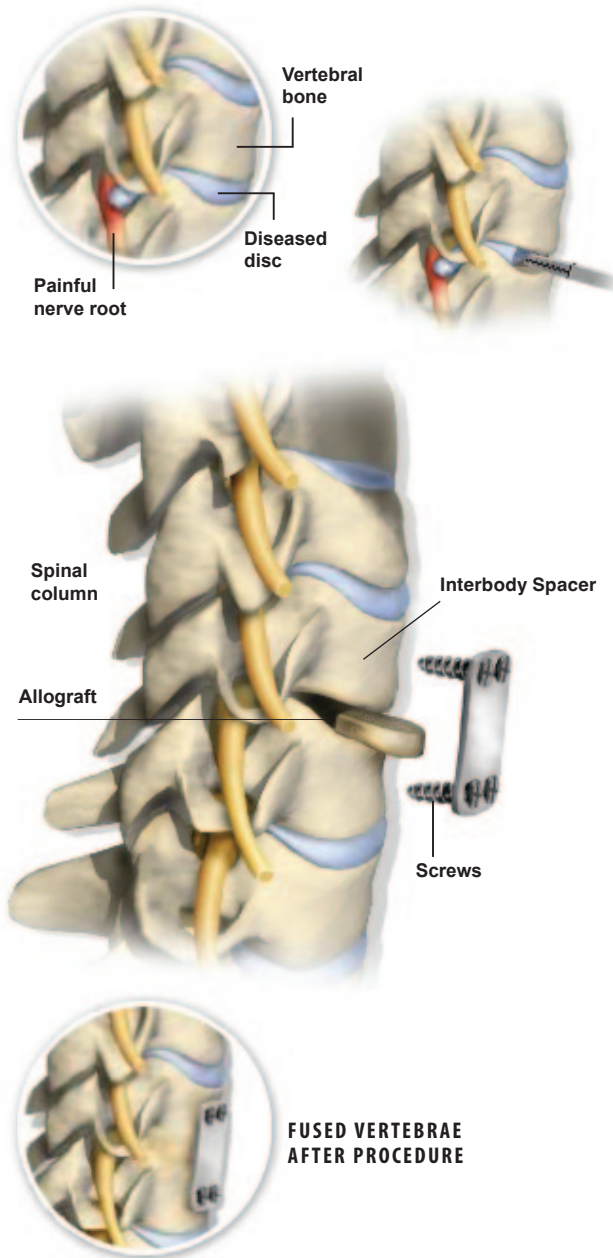
## Warning Signs

We expect you to have a successful recovery. However, there are warning signs that are very important for you to recognize.

- For chest pain and/or discomfort, shortness of breath, pain/swelling in the lower legs, or any other emergency, **call 911**.
- Please call your surgeon at the **Spine Center, 617-754-9000**, or email us at **SpineCallCenter@bidmc.harvard.edu** if you develop any of the following:
  - Temperature of 101 degrees or higher
  - Sudden, severe increase in pain that is not relieved with pain medicine
  - Redness around the incision that is spreading
  - Increased swelling around the incision
  - The edges of the incision start to separate
  - Any drainage coming from your incision
  - Any change in sensation in your arms or legs
  - You fall

# Most Common Types of Spine Surgery We Perform

## Anterior Cervical Discectomy and Fusion



### Overview

This surgery removes a herniated or diseased disc and relieves neck and radiating arm pain caused by parts of the disc pressing on nerve roots.

### Incision Created

The surgeon performs this procedure through an incision on the front of the neck.

### Disc Removed

The diseased or damaged disc is removed. As pressure is removed from the pinched nerve roots, pain is relieved.

### Spacer Inserted

The space above and below the removed disc is cleared and prepared for an interbody spacer. The graft is placed between the vertebrae.

### Metal Plate Attached

The surgeon may screw a small metal plate over the area to hold the bones in place while the vertebrae heal.

### End of Procedure

During the healing process, the bone graft knits together with the vertebrae above and below to form a new bone mass called a fusion.

View the video animations at [bidmc.org/spinecenter](http://bidmc.org/spinecenter). This content adapted from [swarminteractive.com](http://swarminteractive.com). Used with permission. Unauthorized duplication of this material is strictly forbidden.

# Most Common Types of Spine Surgery We Perform

## Anterior Lumbar Interbody Fusion (ALIF)



DISC BEFORE PROCEDURE



### Overview

ALIF is generally used to treat back or leg pain caused by degenerative disc disease. The surgeon will stabilize the spine by fusing vertebrae together with bone graft material.

### Incision Made

The procedure is performed through a three- to five-inch incision on the stomach. Two common approaches are over the center of the stomach or slightly to the side.

### Disc Removed

The damaged disc is partially removed. Some of the disc wall is left behind to help contain the bone graft material.

### Implantation

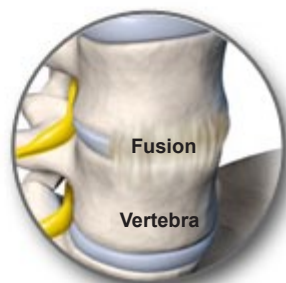
A metal cage implant filled with bone graft is placed in the empty disc space. This realigns the vertebral bones, lifting pressure from pinched nerve roots.

### Vertebrae Secured

In some patients, this will be enough to secure the vertebrae. For others, the surgeon may need to implant a series of screws and rods along the back of the spine for additional support.

### End of Procedure

Over time, the bone graft will grow through and around the implants, forming a bone bridge that connects the vertebra above and below. This solid bone bridge is called a fusion.

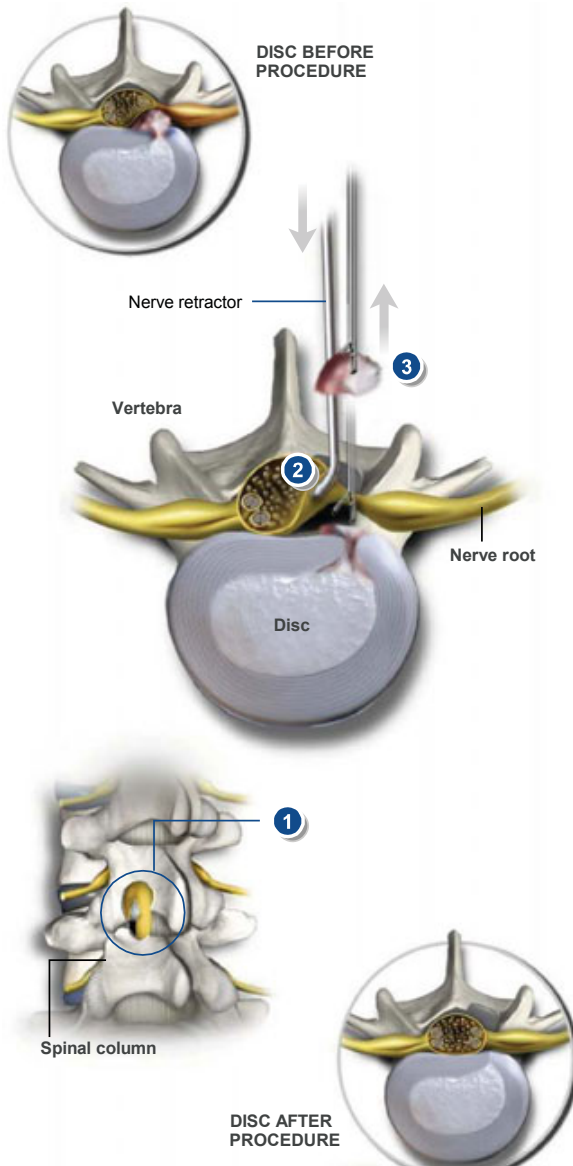


DISC AFTER PROCEDURE

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# Most Common Types of Spine Surgery We Perform

## Lumbar Disc Microsurgery



### Overview

This minimally invasive technique is used to remove the herniated portion of a vertebral disc. It is 95% to 98% effective in eliminating leg pain (sciatica) caused by nerve root compression. The procedure is performed through a small incision on the back.

### Lamina Opened

After creating a small incision directly over the herniated disc, the surgeon creates a small window in the lamina (the bone covering the spinal canal). The pinched nerve root and the herniated disc can be seen through this opening.

### Spinal Nerve Moved

The surgeon uses a nerve retractor to gently move the spinal nerve away from the herniated disc.

### Herniation Removed

The herniated portion of the disc is removed, eliminating pressure on the nerve root. Only the damaged portion of the disc is removed, leaving any healthy disc material to perform its function as a cushion between the vertebrae.

### End of Procedure

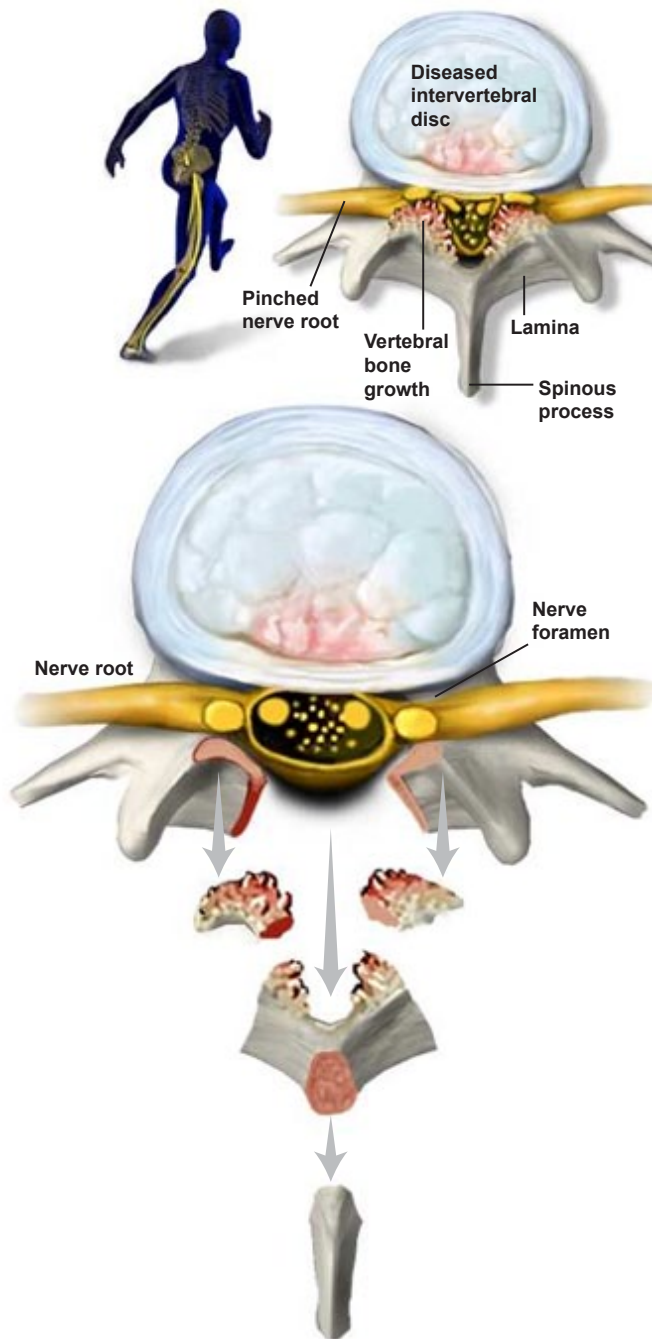
The tools are removed, and the spinal nerve returns to its normal position. The incision is closed.

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# Most Common Types of Spine Surgery We Perform

## Lumbar Laminectomy



### Overview

This procedure is performed through an incision on the lower back. The surgeon removes a section of bone, called the lamina, from one or more vertebrae. This relieves pressure on the nerve roots caused by stenosis (a narrowing of the spinal canal).

### Removing the Spinous Process

First, the surgeon removes the spinous process (the portion of the vertebra that protrudes furthest from the back of the spine). These are the bones that you feel when you touch the middle portion of your lower back.

### Removing the Lamina

The surgeon removes the lamina (the portion of the vertebra that covers the nerve roots). Removing the damaged lamina opens up the spinal canal, taking pressure off the nerves.

### Clearing Bone Fragments

There still may be some pinching from pressure within the area where the nerve root exits the spine, called the nerve foramen. The surgeon clears away any bone fragments that are pressing on the nerve roots.

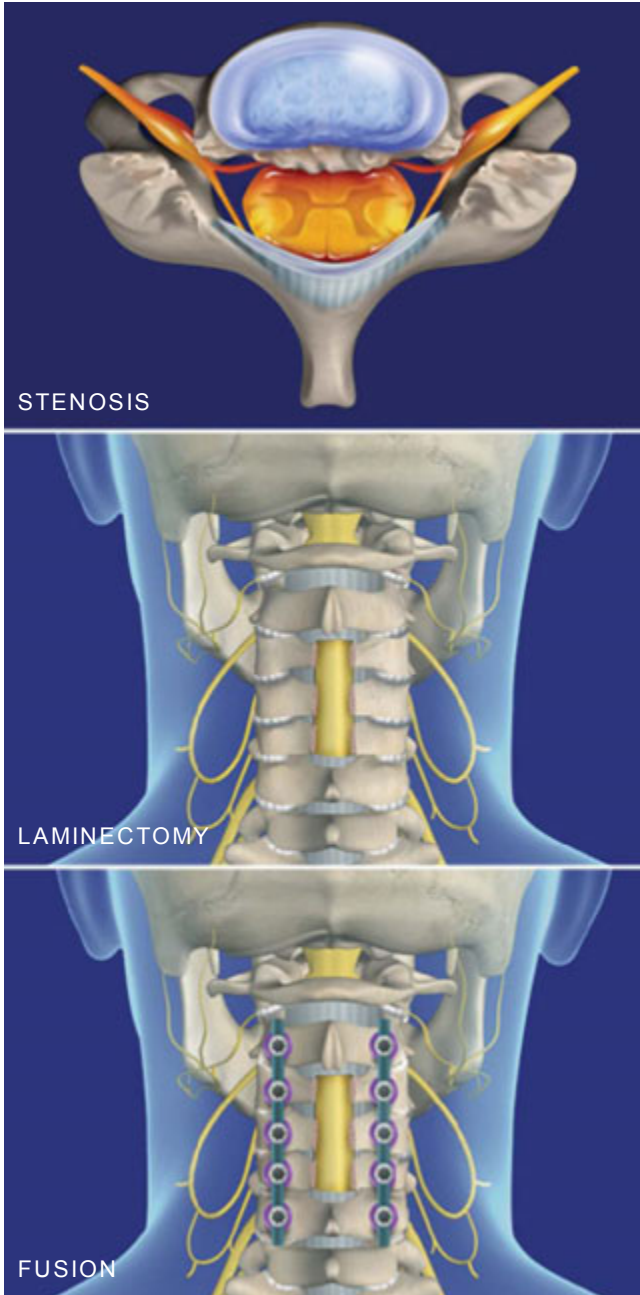
### End of Procedure

The spinal canal is now clear of any bone fragments, which relieves pressure from the nerve roots. The surgeon checks the nerve roots to make sure they are no longer being pinched.

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# Most Common Types of Spine Surgery We Perform

## Posterior Laminectomy (Cervical) with Fusion



### Overview

This procedure removes a section of bone from the rear of one or more vertebrae to relieve the painful and disabling pressure of stenosis. The spine is then stabilized with rods and screws.

### Preparation

Anesthesia is administered, and the patient is positioned to give the surgeon access to the back of the neck. The surgeon creates a small incision to expose the vertebrae.

### Cutting the Bone

The surgeon uses a high-speed burr to cut a rectangular trough of bone from the vertebrae.

### Removing the Lamina

The surgeon carefully removes the bone from the rear of the vertebrae, opening up the spinal canal and relieving pressure from the spinal cord and nerve roots.

### Clearing Bone Spurs

The surgeon inspects the spinal canal and foramen - the openings through which the nerve roots exit the spinal canal. Any bone spurs behind the spinal canal and nerve roots are cleared away.

### Fusing the Vertebrae

Once all problem areas have been corrected, the surgeon creates a fusion to stabilize the cervical spine. The surgeon places screws in the vertebrae, and a burr is used to decorticate the joints. Rods are placed through the screws in the vertebrae, locking the spine in a natural position. In some cases, bone graft may be placed in the facet joints to promote the growth of bone that will complete the fusion.

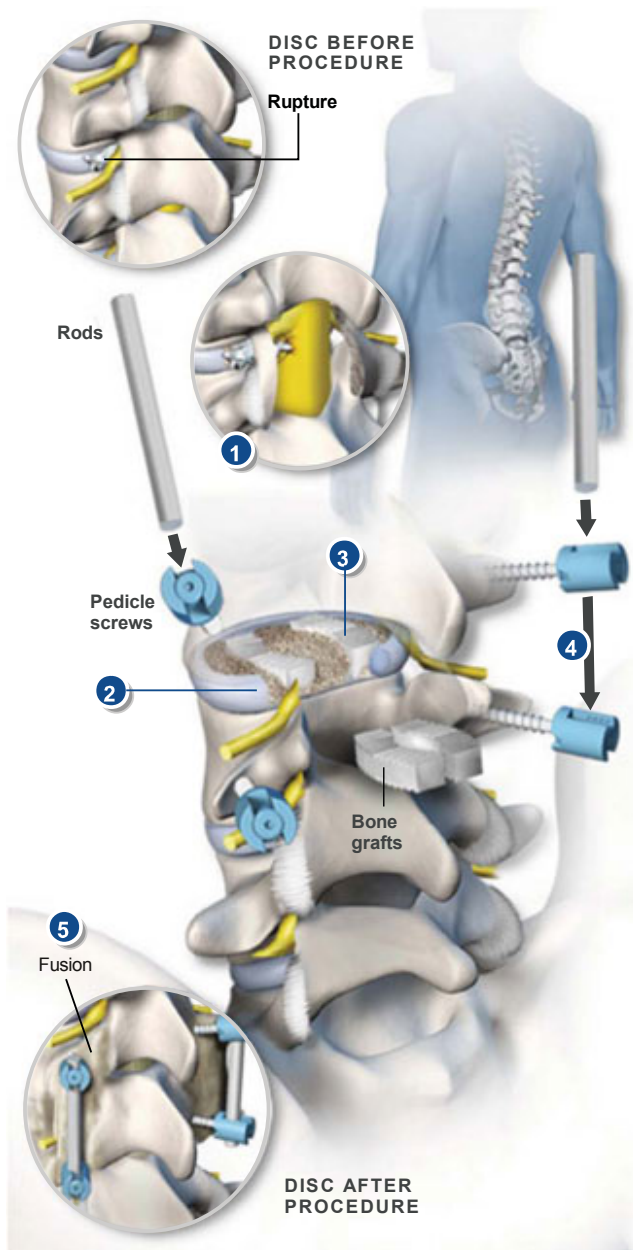
### End of Procedure

After the spine is stabilized, the incision is closed. Drains may be inserted in the wound to prevent fluid buildup. The patient may require a cervical collar for a brief period after the procedure.

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# Most Common Types of Spine Surgery We Perform

## Posterior Lumbar Interbody Fusion (PLIF)



### Overview

PLIF is generally used to treat back or leg pain caused by degenerative disc disease. The surgeon will stabilize the spine by fusing vertebrae together with bone graft material.

### Incision Made

The procedure is performed through a three to six inch incision in the back.

### Disc Accessed

Parts of the vertebral bone need to be removed to get access to the disc.

### Disc Partially Removed

The damaged disc is partially removed. Some of the disc wall is left behind to help contain the bone graft material.

### Bone Grafts Placed

Bone grafts are placed in the empty disc space, realigning the vertebral bones. This also lifts pressure from pinched nerve roots. The area may also be filled with morselized bone.

### Additional Supports Added

The surgeon may implant a series of screws and rods to the back of the spine for additional support. Bone graft is also placed along the sides of the spine.

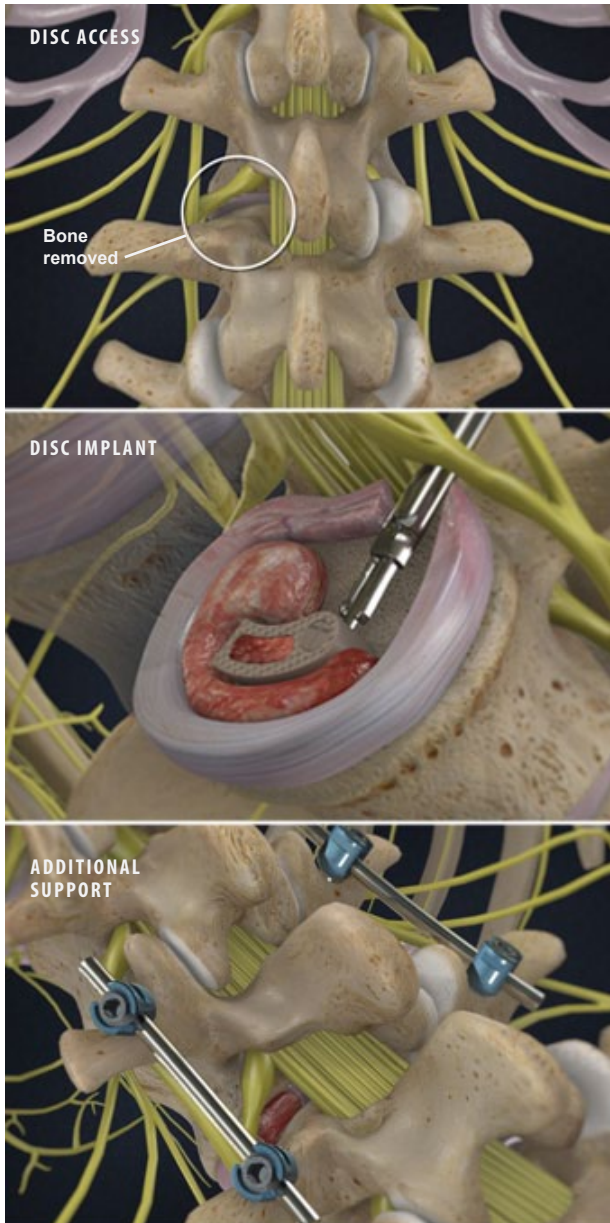
### End of Procedure

The morselized bone graft will grow through and around the implants, forming a bone bridge that connects the vertebral bodies above and below. This solid bone bridge is called a fusion.

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# Most Common Types of Spine Surgery We Perform

## Transforaminal Lumbar Interbody Fusion (TLIF)



### Overview

TLIF is generally used to treat back or leg pain caused by degenerative disc disease. The surgeon will stabilize the spine by fusing vertebrae together with bone graft material.

### Incision Made

The procedure is performed through one or more small incisions in the back.

### Disc Accessed

Parts of the vertebral bone need to be removed to get access to the disc. Since most TLIF procedures access the disc through only one side of the spine, recovery time after the procedure will be shorter than with traditional fusion surgery.

### Disc Partially Removed

The damaged disc is partially removed. Some of the disc wall is left behind to help contain the bone graft material.

### Implant Inserted

The implant is placed in the empty disc space, realigning the vertebral bones. This also lifts pressure from pinched nerve roots. The area may also be filled with morselized bone.

### Additional Support

The surgeon may implant a series of screws and rods for additional support. Bone graft is also placed along the sides of the spine.

### End of Procedure

The morselized bone graft will grow through and around the implants, forming a bone bridge that connects the vertebral bodies above and below. This solid bone bridge is called a fusion.

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