

Posterior Cervical Decompression Surgery

A guide for patients and their caregivers



VANDERBILT  UNIVERSITY
MEDICAL CENTER

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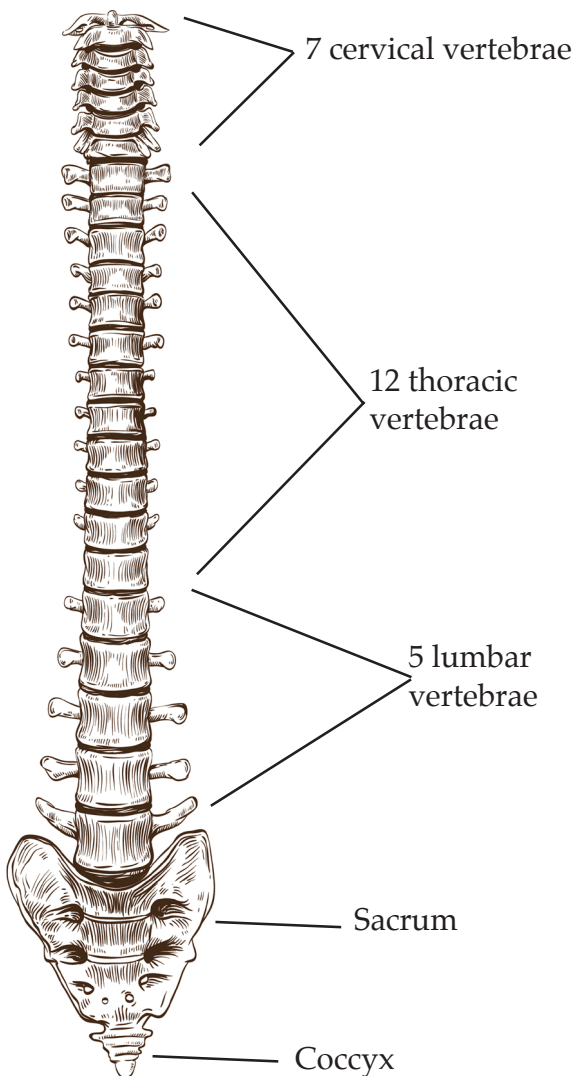
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About the Spine

The spine is a stack of bones that runs down the middle of your back. It starts at the bottom of your skull and goes all the way down to the end of your tailbone. The spine:

- supports your body
- allows you to move freely.
- houses and protects the spinal cord—the nerve center of your body.

View of the spine from the front



The spine has 26 bones

- There are 24 bones (vertebrae) that start at the top of your spine. These are the separate bones that connect like puzzle pieces. There are:
 - 7 vertebrae in the neck area (cervical)
 - 12 vertebrae in the chest area (thoracic)
 - 5 vertebrae in the lower back (lumbar)
- The next to the last bone of your spine is the sacrum. The sacrum is actually 1 large bone made of 5 fused bones.
- The bone at the very end of the spine is the tailbone (the coccyx).

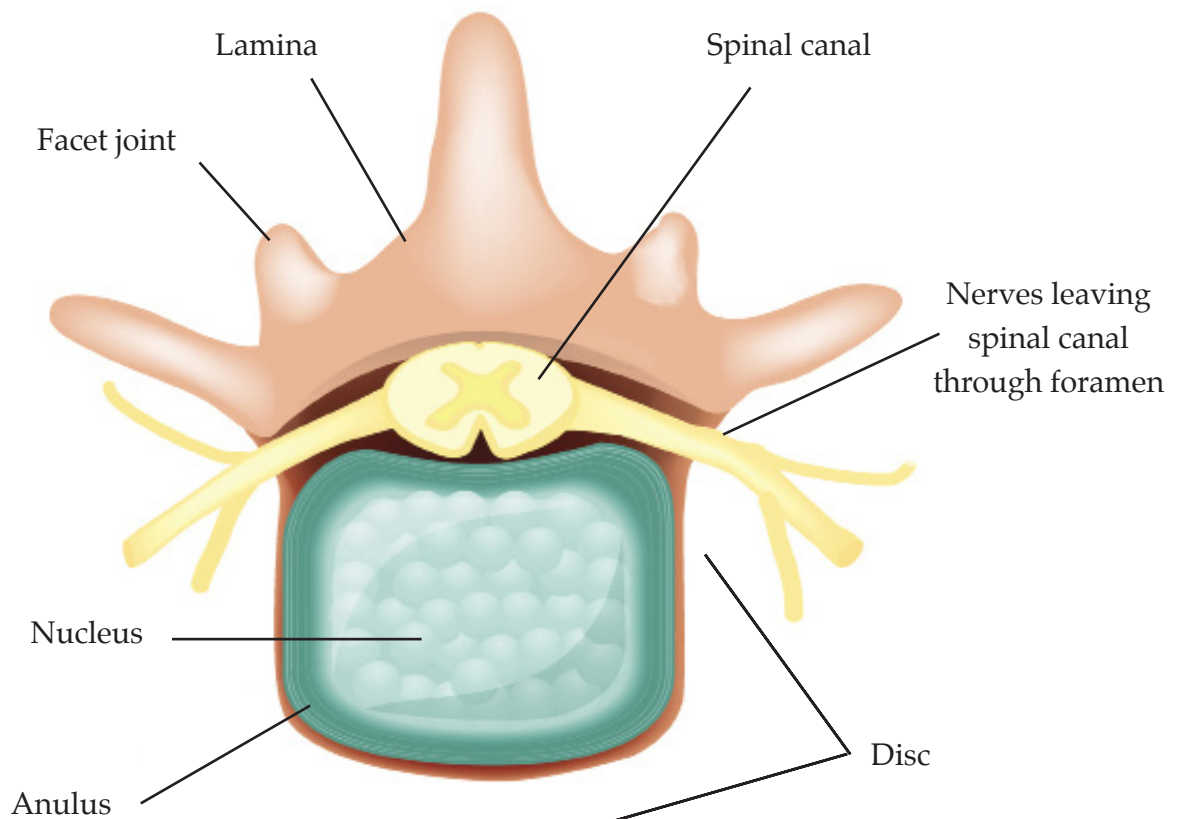
There are discs between most of the bones in the spine

There are soft pads of tissue between most of the vertebrae in your spine. These are called discs. The only vertebrae that do not have a disc between them are the top 2.

Details about the discs

- Each disc has a spongy center (nucleus) and a tougher outer ring (annulus). Movement in the nucleus is what makes it possible for the vertebrae to rock back and forth on the disks. This give you the flexibility you need to bend and move.
- The discs absorb shock caused by movement.
- The discs also keep the bones from rubbing up against each other when you move.

Cross-section of a vertebra and disc



The spine has 3 natural curves

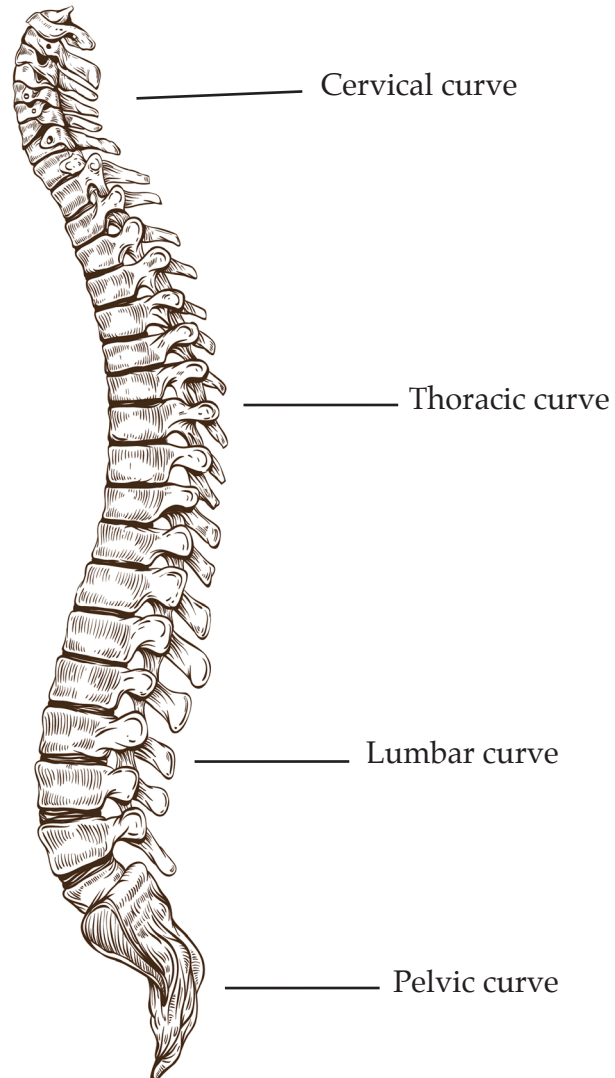
A healthy spine with proper alignment has 3 natural curves: cervical, thoracic, and lumbar.

- These curves keep your body balanced.
- These curves support your body when you move.
- These curves distribute weight through the spine, making back injuries less likely.

Muscles support the curves of the spine

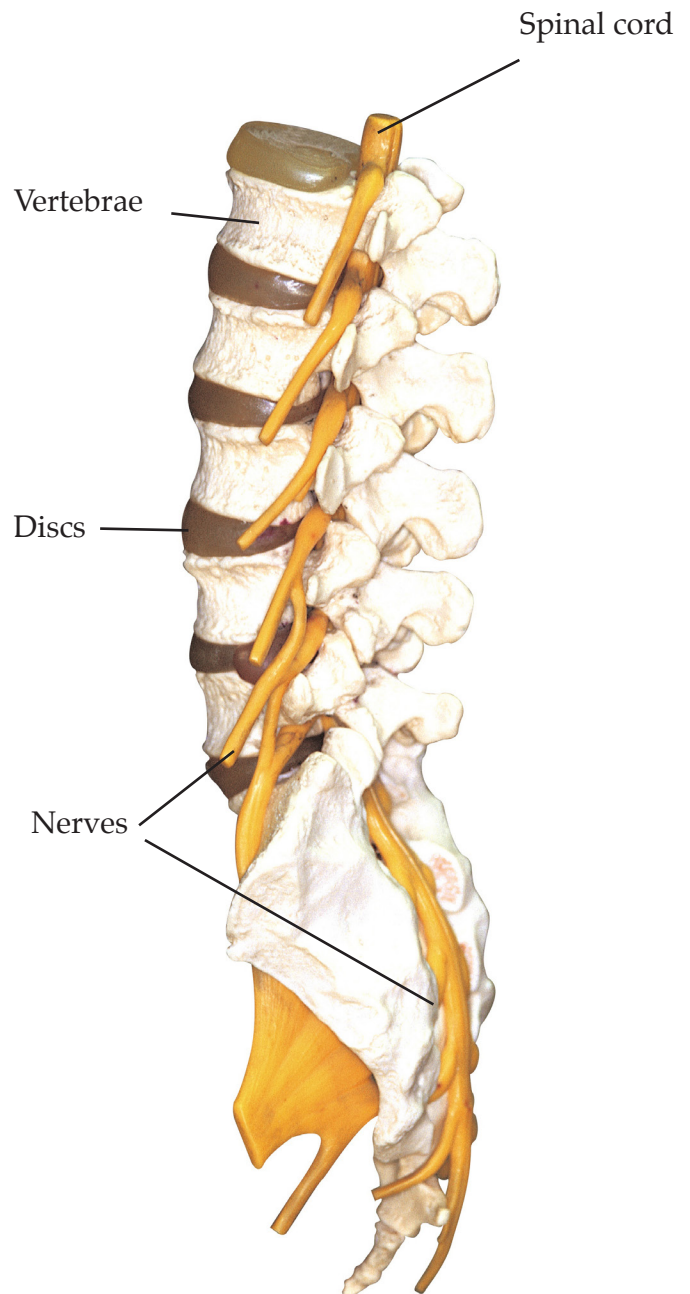
Strong, flexible back muscles help support the curves of your spine. They do this by holding the vertebrae and discs in correct alignment. Strong and flexible belly, hip, and leg muscles also help support your back.

View of the spine from the side



The spinal cord runs through the middle of your spine

- The spinal cord is the nerve center of your body.
 - It runs through the center of your spine.
 - It connects your brain to the rest of your body.
 - It starts at the base of your brain and usually ends at the first or second lumbar vertebrae.
- All along the spine and at the end of the spine are nerve roots.
 - Nerve roots exit and enter the spinal canal on both the left and right sides and the end of the spine.
 - The job of the nerve roots is to carry electrical signals to and from the spinal cord and the muscles, organs, and other parts of your body.



About This Surgery

What is posterior cervical decompression surgery?

This surgery is done to remove pressure off affected nerves in the neck area of your spine. Posterior just means your surgeon will operate on the back of your spine. You will have 1 of these 3 procedures:

- a posterior cervical foraminotomy
- posterior cervical laminectomy
- a posterior cervical laminotomy.

Posterior cervical foraminotomy

Your surgeon opens the foramen to relieve the pressure on the nerves.

Posterior cervical laminectomy.

Your surgeon removes the lamina in one or more places from your spine to remove pressure on the nerves

Posterior cervical laminotomy

Your surgeon opens the lamina and removes a small portion of it to remove pressure on the nerves. The lamina is usually removed just on one side.

Why do I need this surgery?

The nerves or nerve roots in the neck area of your spinal cord are being squeezed or compressed. . Your surgeon thinks surgery may help you. The problems you may be having because these areas are squeezed include:

- headaches in the back of your head
- pain in your neck, shoulders, upper back, arms, or fingers, as well as occasional or frequent numbness, tingling, and weakness
- more serious problems, such as the loss of balance and problems with coordination and dexterity.

What causes the nerves in the spine to be compressed or squeezed?

- Degenerative disc disease: This is when a disc in the spine ages and loses its ability to cushion the vertebrae. The disc loses its elasticity, which can cause the disc to crack, flatten, or even turn into bone. As the disc flattens, the vertebrae on either side of the disc rub together. This can cause bone spurs. These bone spurs can cause pressure on the nerves.
- Herniated disc: This is when the outer part of a disc (the annulus) tears. The tear allows the soft watery material inside of the disc to come out. The disc herniation can then cause pressure on the spinal nerves or the spinal cord, which can lead to pain and other problems.
- Bulging disc: This is when the soft, inner part of the disc stays inside the annulus, but it is no longer in the right place. A bulging disc can cause pressure on the spinal nerves or the spinal cord, which can cause pain and other symptoms.
- Spinal stenosis: This is when bone spurs grow into and narrow the space through which the nerve roots exit the spinal canal. This can cause pain and other symptoms.
- Spondylosis: This is degenerative arthritis of the spine. The arthritis can cause pressure on spinal nerve roots, which can cause pain and other symptoms.

- Radiculopathy: This is when there is pressure on the root of the spinal nerves, which can cause pain and other symptoms.
- Myelopathy: This is when there is pressure or compression on the spinal cord, which can cause numbness, weakness, tingling, and other symptoms.
- Pseudoarthrosis: This is when bone fails to fuse together.

What are the possible benefits of this surgery?

Possible benefits of a successful surgery include:

- fewer headaches
- less pain
- less weakness and numbness
- the ability to be more active and gain a better quality of life
- improved physical fitness
- better mood
- increased productivity, including being able to return to work or other activities.

What are the risks of this surgery?

Like any surgery, cervical decompression has its risks. However, your surgeon would not recommend it unless the expected benefits were much greater than the risks.

Major and minor risks

- Scarring: You will have a scar from the incision that is made during your surgery. The incision will be vertical along your cervical spine; its length will depend on how many levels of the cervical spine need to be corrected. These incisions do not always heal well, and may leave a wide scar. Though we make every effort to create a perfect closure when suturing the incision closed, the soft tissues under the skin may occasionally retract and leave a sunken in area along the incision.
- Pain: You will have pain after surgery. The good news is that these pains will subside. The worst pain typically lasts for 2 to 4 weeks. After that, your pain will slowly lessen. It is possible that you will have some pain for as long as 3 to 6 months.
- Infection.
- Damage to nearby structures, including the esophagus, trachea, thyroid gland, vocal cords, and arteries.
- Spinal cord or nerve damage.
- Bleeding or possible need for transfusion.
- Injury to the vertebral artery that, in turn, causes you to have a stroke.
- If you also had a spinal fusion, there is a risk of bone graft shifting or displacement; the bone graft no healing like it should, which could lead to more surgery; or failure of the metal plates and screws to stay attached to the bone.
- A blood clot forming in your arms or legs.
- Chronic pelvic pain if your own bone is taken from your pelvis for a bone graft.
- Blindness if you have a drop in your blood pressure during the procedure, especially if you have glaucoma or diabetes.
- Heart problems and even death.

Risks of anesthesia

You will have general anesthesia during your surgery. The goal of general anesthesia is to make you sleep through your surgery and not feel any pain. General anesthesia is different from regional anesthesia, where only part of your body is numbed and you may be awake.

Risks of general anesthesia include:

- throat discomfort
- injury to teeth or dental work
- harm to the eyes, including blindness
- damage to your vocal cords, which may affect your ability to speak
- headache
- backache
- nerve damage
- being aware during surgery
- allergic reactions
- stroke
- heart attack
- death.

Your anesthesiologist will talk with you in detail about the risks of anesthesia during your pre-surgery appointment.

Getting Ready for Surgery

There are things you will need to know and do to get ready for your surgery. Let us know if you have any questions or need any help.

Fill out and return all the medical forms we give you

There are forms the surgery scheduler will give you. These forms will ask for information about you, your personal and medical history, and your current living situation. Fill out and return all of these forms to us right away.

Get your teeth cleaned

Get your teeth cleaned before your surgery. You will not be able to have dental work or teeth cleaning for 6 months after surgery.

Get your vaccines

Plan ahead. If you need to get a live-virus vaccine and your surgery is still more than 6 weeks away, you should have your vaccines now. Though you can get a flu shot with an inactivated virus at any time, you cannot get any live-virus vaccines within 6 weeks of your surgery or for 3 months after your surgery.

Go to your pre-anesthesia appointment

You will have an appointment to meet with a member of your anesthesia team before your surgery. They will talk to you about anesthesia and what to expect. They may give you medicine that you will need to take by mouth on the morning of your surgery.

Go to your VPEC appointment

Before your surgery, you will come to Vanderbilt for what is called a VPEC appointment. This is a very important appointment: don't miss it. At this visit:

- you will bring a list of all the medicines you take, including herbal medicines and those you buy without a prescription
- you will give some blood for testing
- you may give some of your urine for testing
- you will find out what medicines you should not take on the morning of your surgery
- you will talk with an anesthesia nurse practitioner. Be sure to tell this person if you drink alcohol regularly.

Go to any appointments or have tests done if we require them

Before your surgery you may need to have tests, including a urinalysis, blood work, an EKG, and a chest X-ray. If necessary, all of these tests will be scheduled for you and will be done during pre-testing when you meet with the anesthesia staff. If it has been some time since you saw your primary provider and you have a lot of medical problems, it would be best that you see your doctor before your pre-test date.

If you smoke, quit now!

Smoking raises the risk that you will have medical problems from surgery. Some of these problems include the risk of infection in the instrumentation used in your spine and the risk that your incisions won't heal.

Call us if you get any kind of infection

If you get any kind of infection before your surgery, call the surgery scheduler right away. An infection could move into your spine after surgery and cause serious problems. If you still have infection the day of your surgery, your surgery will need to be cancelled in order to keep you safe and healthy.

Call us if you develop:

- an infection of your teeth
- an infection of your fingernails or toenails
- a bladder infection
- a pimple, cut, scratch, boil, abscess, or insect bite anywhere on your body—especially on the skin over or around the area of your back that will be operated on
- a rash or flaky skin
- a temperature higher than 100.5°F (38.1°C).

Exercise to stay strong

The stronger and more fit you are before your surgery, the better you will do. We suggest walking, swimming and deep breathing exercises. Cardiac and aerobic exercises are also helpful if they are approved by your medical doctor and you are able to do them. You may want to work with a physical therapist or personal trainer to get as strong as you can.

Eat healthy foods to stay strong

Include fruits, vegetables, and whole grains in your diet. A healthy diet will help you have a better recovery.

Start planning for your recovery at home

Patients get better faster when they go home to recover since it is helpful to heal in familiar surroundings. Unless your doctor decides there is a medical reason for you to go to another facility, you can expect to go to your home after surgery. Start getting your home ready now, and make your recovery as easy as it can be.

Make your home safe and easy to move around in

Set up your home now so it will be as easy as possible for you to live in as you recover. Remember, as you recover you will not be able to bend, lift, twist, or stoop down. You will be very limited in your movement after surgery and need to prepare your home for this.

- Make sure you have a cordless phone or cell phone that you can reach easily.
- Cook and freeze meals in advance. Or buy frozen dinners and canned fruits and vegetables. This way, you won't have to worry about doing a lot of cooking.
- Buy heavy or awkward things now before your surgery. This might include dish soaps, detergents, toilet paper, peanut butter, pet food, and heavy jars or cans.
- Store the kitchen items you use the most at counter-top level so they are above your waist and below your shoulders.

Arrange your home to prevent falls

For the first few weeks after surgery, you will likely need to use a walker or cane (or both). Move your furniture so you have a clear path and will be able to use your walker or cane wherever you need to go.

- Pick up all clutter off the floor so you don't trip or hurt yourself.
- Remove any area rugs in your home so you won't trip over them.
- Tape down all electrical cords so you don't trip over them.
- Put shower grab bars in the shower, and put rubber mats in the bathtub and shower. More falls happen in the bathroom than any other room in the house.
- Consider installing handrails on stairs in or outside of your house before your surgery.
- If your bedroom is on an upper-level floor, think about setting up a bed on the first floor of your home to use as you recover.
- Keep the items you use often within easy reach.
- Get a rolling cart to help you move items without having to carry them.
- If you have pets, make arrangements to get help feeding and taking care of them since your movement will be so limited.

Arrange for a caregiver

It is important that you have one or more caregivers to help you as you recover. Now is the time to ask family, friends, or others you know if they can help you once you leave the hospital. You will need help with housework, errands, and driving. Remember that you will not be able to drive for 6 weeks after surgery. You also will not be able to drive for as long as you are taking your prescription pain medicines.

After surgery, you will need help with:

- getting to and from the hospital, physical therapy, and doctor appointments
- going to the bathroom and showering
- grocery shopping and meals
- keeping the house clean and safe for you to walk in
- caring for small children and pets.

For the first 2 weeks after surgery, it is best if someone can stay with you at night.

Fourteen days before surgery, do these things

Stop drinking any beer, wine, liquor, and all other alcohol drinks.

Seven days before surgery, do these things

Seven days before your surgery, stop taking the medicines listed below. Taking the wrong medicine too close to surgery, can keep you from having your surgery. It could also cause complications.

Important: If one of your doctors thinks it is not safe for you to stop any of these medicines, you must talk to the surgeon!

Seven days before surgery, stop taking these prescription medicines:

- blood thinners, such as Coumadin and Persantine
- all anti-inflammatory prescriptions, such as Clinoril, Indocin, Daypro, Celebrex, and Vioxx
- bone strengthening medicines, including Fosamax and Reclast (you will be able to start taking these medicines again 3 months after your surgery)

If you take insulin or prednisone you may have to adjust your medicines before surgery. Make sure to tell your surgeon about all the medicines you are currently taking.

Seven days before surgery, stop taking these over-the-counter medicines:

- aspirin
- ibuprofen
- Advil
- Motrin
- Aleve
- Naprosyn (naproxen)
- any other medicines that contain aspirin, ibuprofen, or other non-steroidal anti-inflammatory drugs (called NSAIDs) that you can buy with or without a prescription.

*Seven days before surgery, stop taking these
herbals and supplements:*

- chondroitin
- danshen
- feverfew
- fish oil
- garlic tablets
- ginger tablets
- ginko
- ginseng
- quilinggao
- vitamin E
- Co Q10.

Three days before surgery, do these things

- Get everything ready to go to the hospital. Plan to bring only a few clothes and the personal care items you need, including:
 - a short, lightweight robe
 - loose fitting clothes with elastic waistbands that you can easily put on when you get ready to leave the hospital
 - t-shirts
 - shoes or slippers with a closed back and non-skid soles
 - eyeglasses, if you need them
 - a hairbrush, if you need it.
- Do not pack any valuables. They should be left at home.
- Bring a list of all the medicines you currently take. You don't need to pack any of your medicines. Just bring the list.

The day before surgery, do these things

- Eat light meals the day before your surgery.
- The day before surgery, one of the surgery schedulers will call you to make sure you know what time to come to the hospital. Please give the surgery scheduler a choice of phone numbers to call in case the hospital needs to speak with you.

The night before surgery, do these things:

- Cut and shave your hair on the back of your head from the tip of one ear across to the tip of your other ear. Since you are having surgery on the back of your neck, it is important for you to do this. Arrange to have your hair dresser, barber, or even a family member or friend help you with this. You need to do it the night before surgery and not before.
- Remove any nail polish from your fingers and toes.
- If you shower or bathe the night before your surgery, do not use lotions, moisturizers, powders, or makeup on your body or face after your shower or before you go to bed.
- Do not eat or drink anything after midnight on the night before surgery. That means no gum, hard candy, or water. This is to prevent stomach upset and vomiting that can be caused by anesthesia.

The day of surgery, do these things

- If you shower or bathe the morning of your surgery, do not use any lotions, moisturizers, powders, or makeup to your body or face after you wash.
- You may brush your teeth. But only use a small amount of water. Spit the water out.
- You may take your morning pills. But take your pills with no more than 1 tablespoon of water. Pills you may take include medicines for your heart, blood pressure, or breathing, as well as any medicines you may have been given at your pre-anesthesia appointment.

At the Hospital

Go to the admission desk when you arrive

Check in at the hospital 2 hours before your scheduled surgery time. Go straight to the patient admission desk in the main lobby on the first floor of the hospital.

Remember: The time your surgery begins may change. Sometimes your surgery can start as much as a few hours later than the scheduled time. Much depends on when the last surgery finished. Thank you for understanding.

When you come to the hospital, leave these things at home

- Do not bring your cane, crutches, or walker when you first come to the hospital. (Have your cane, crutches, or walker brought to you when you go home.)
- Do not bring large amounts of money or valuable items, such as jewelry.

After you have checked in, we will take you to the Holding Room

After you have checked in at the admission desk, someone will take you to the Holding Room. One friend or family member can come with you.

- You will change into a hospital gown. You will give your clothes and anything else, like dentures, glasses or contact lenses, hairpins, or jewelry, to your support person to take care of while you are in surgery.
- We will put an IV into your arm. An IV is a tube that goes through your skin and puts medicine directly into your body.
- You will meet with your anesthesia team. They will talk with you about your medical history. They may start managing your pain by giving you some pills to take by mouth with a tiny sip of water.
- We will take you to the operating room on a stretcher.
- If you feel anxious or tense at any time, tell your nurse.

Surgery

- From the Holding Room, we will take you to the operating room. The staff members who are working with your surgeon and the anesthesiologists will prepare you for your surgery. You probably will not see your surgeon at this time. You will be given general anesthesia. Once you are asleep and about 30 to 60 minutes after you go to the operating room, your surgery will begin.
- When your surgery is finished, it usually takes 30 to 60 minutes to wake you up and put you on the hospital bed before you are taken out of the operating room.
- When your surgery is finished, the surgeon will speak with your family.

What happens during surgery

Anesthesia

Anesthesia is medicine that we will use before and during surgery to keep you from having pain during surgery. It will also relax you, limit your awareness of what is happening around you, and make you sleep. Anesthesia is part of your surgery. We will create a pain control plan just for you that is based on your personal needs and medical history.

The procedure

Your surgeon will make a vertical incision along the back of your neck. The length of the incision depends on how many levels of the cervical spine need to be corrected. Once the procedure is complete, your surgeon will close your incision.

Intraoperative traction

During surgery, you will be in intraoperative traction. This is a traction device that holds your head still so that there is no motion when you lie flat on your stomach during surgery. You will not be in traction when you wake up after surgery, but you will notice small sores on either side of your head where the traction was placed. These sores will heal quickly.

Spinal cord monitoring

Spinal cord monitoring is a procedure that may be done by a nurse during your surgery. Electrodes are placed on your scalp and other parts of your body to make sure that the spinal nerves have good blood flow. If you have spinal cord monitoring, you may or may not notice some irritation to your scalp after the surgery. This irritation should resolve within a few days after the surgery.

In case of excess blood loss

All surgeries will cause some bleeding. However, it is highly unlikely that you will need any blood during your surgery. Rarely, a patient may need blood transfusions either during or after cervical fusion surgery. We will talk with you about this before surgery. If you have objections to getting blood products, please let us know.

We will manage your pain before, during, and after surgery

Pain is a common and expected part of spine surgery; you should expect it. But know that we will help you manage your pain. Our goal is to do everything we can to help lower your pain, while managing the side effects of your pain medicine. We want you to be able to get up, move around, and function well enough that you are able to recover as quickly as possible.

A multimodal pain approach

The approach we will use to treat your pain is what we call a “multimodal” approach. This means we will treat your pain in multiple ways:

- We will give you different types of pain medicines.
- We will give you pain medicines at different times, including before, during, and after your surgery.

Pain management before surgery

In the Holding Room, we may give you a few pills with a small sip of water to help stop some of your pain before it even starts. The types of pills and the amount of pills that we give you will depend on your personal history. Your history includes any other medical conditions you have, any medicines you regularly take, and your age. The exact medicines you get will be decided by your surgical and anesthesia teams before your surgery.

Pain management during surgery

While you sleep during surgery, the anesthesia team will give you more medicines through your IV. This medicine will help lower the overall pain you have after surgery, as well as the pain and nausea you have immediately after the procedure.

Pain management after surgery

After surgery, we will continue to give you more medicine for your pain. Like before, the specific medicines we give you will depend on your medical history and the medicines you already take. In general, the medicines you get will usually include a narcotic pain medicine, a medicine to lower inflammation and swelling, and a medicine to lower nerve pain.

In most cases, we will give you prescriptions for these medicines when you leave the hospital, and you will take these medicines for several weeks.

After surgery, you will go to the Recovery Room

In the Recovery Room, we closely watch over you as you wake up after surgery. After you are awake, we will take you to your regular hospital room.

- When you wake up:
 - a nurse will help you breathe deeply and have you cough to clear your lungs
 - you will do ankle pumps to lower the risk of blood clots
 - you will have an IV in your arm so we can give you medicine as needed
 - you may get oxygen to help you breathe.
- Most people stay in the Recovery Room for several hours after surgery. How long you are there depends on how your body reacts to the anesthesia.
- If the nurse feels you are up to it, you may be allowed to have visitors once you are awake and your pain is under control.

We will give you pain medicine after surgery

We will do everything we can to lessen your pain after surgery. But some pain is simply a part of recovery. Our goal is to make you as comfortable as possible while keeping the side effects of any pain medicine you get as low as possible.

To control your pain after surgery, we will give you:

- pain medicine through your IV
- pills, including pain pills and anti-inflammatory drugs.

We may use a patient-controlled analgesia pump (PCA) to help your pain

Instead of an IV and oral medicines, we may use a pain pump to help your pain. Like an IV, a pain pump puts medicine through your skin and into your veins. Unlike a regular IV, a pain pump is something you control. Essentially, when you push a button on the pump, medicine goes into your body. The button on the pump is for your use only. The button should not be pushed by the nurse or your family. The pump is set up so you don't give yourself too much medicine.

Other medicines you will need after surgery

In addition to pain medicine, you will get:

- antibiotics to help prevent infection
- blood thinners to prevent blood clots
- medicines to stop nausea, if you need them
- muscle relaxers, such as Valium or Flexeril, if you need them to help muscle spasms.

During your hospital stay you will also have a list of "as needed medicines" that will always be available to you. These medicines will be for symptoms such as muscle spasms, nausea, indigestion, pain, and itching. If you have any symptoms that are not being controlled, please talk with your nurse.

After surgery, you will likely have a drain coming from the incision in your neck

The drain removes the extra fluid from the layers of tissue under your skin. This helps to reduce the swelling in your neck and also allows the doctors and the nurses to monitor the amount of blood you have lost.

- If you stay in the hospital overnight, your drain will most likely be taken out on the morning after surgery.
- There is a chance that we will leave your drain in place when you go home.
- If you do go home with your drain, your surgeon will talk with you about following up to have it removed.

After the Recovery Room, we will take you to a regular hospital room

Once you are ready, we will take you to your regular hospital room. You will still have your IV in so we can continue to give you medicines.



At first, we will give you water and ice chips instead of regular food or drink.

After surgery, you are likely to get sick if you eat regular food right away. Your body has to gradually work up to digesting a regular diet again. At first, we will give you ice chips and sips of water. Next, we will give you a clear, liquid diet.

The morning after surgery—whether you are at the hospital or at home—you will continue taking small steps to going back to the foods you normally eat. At first, you will start with soft foods before you slowly go back to more regular food.

We will help you get out of bed

If your surgeon decides you are ready to go home the evening of your surgery, we will help you when you get out of bed for the first time. And if you do stay overnight, we will encourage you to get out of bed if you can. Starting on the morning after your surgery, whether you are in the hospital or at home, you may get up and down as much as you want and can tolerate.

It is common to have trouble sleeping the night after surgery

Whether at the hospital or at home, it can be difficult to sleep on the evening and night of your surgery. The surgery can disturb your regular sleep cycles. Some people also find it hard to rest in the hospital in general.

Visitors

You are allowed to have visitors while you are in the hospital. You may even have 1 person age 18 or older stay with you at night. Each room has a pull-out bed.

The evening of your surgery, your surgeon will come by to see how you are doing

The surgeon will usually make their evening rounds sometime between 5:00 p.m. and 9:00 p.m. The exact time depends on when they finished their last surgery. Your surgeon will come to see you in your hospital room or the Recovery Room, depending on where you are at the time.

Your surgeon will decide if you are ready to go home or if you need to stay overnight

Most patients who have cervical spine surgery, are able to leave the hospital that same evening or the next day. Once your medical condition is stable and your pain is under control with pills, it is actually better for you to be at home than the hospital. You are likely to rest better at home in familiar surroundings. It is also good for you to be up and moving instead of lying in bed, since too much bed rest raises the risk of blood clots.

Getting you ready to leave

Your surgeon may have an occupational or physical therapist come to see you

The therapist will talk with you to help your surgeon decide if you are going to need any extra help when you leave the hospital and go back home.

X-rays

Before you leave the hospital, we may take you to get X-ray images of your cervical spine.

You must be on pain pills instead of IV by the time you go home

By the time you go home, we must be able to control your pain with pills instead of IV. Your IV medicine will be stopped, and you will be switched to pain pills. Your doctor will write you a prescription for pain medicines before you leave the hospital.

Make sure you have a ride home

You must have someone pick you up at the time you are released from the hospital. You will not be allowed to drive yourself home or leave the hospital alone.

Am I allowed to take a taxi or a bus home?

No. You must have someone pick you up.

After the Hospital: Your Recovery

Caring for your incision

Bandages

Most patients leave with glue or steri-strips (small tape strips) on their incision(s).

- Check your incisions daily for any problems.
- Do not put any ointments or solutions over your incisions or steri-strips at any time.
- Let the steri-strips to fall off on their own. (The only exception is if they are still there 2 weeks after your surgery, then you may have someone may remove them at that time.)

Showering and bathing after surgery

- Do not get your incision wet for the first 4 days after your surgery. Cover your incision when you shower.
 - We will give you 4 aquaguards when you leave the hospital; you will use these to cover your incision when you shower.
 - Put one on before you get in the shower. Then take it off and throw it away after you get out of the shower.
- On the 5th day after your surgery, it is safe to get your incision wet when you are in the shower. You no longer have to cover it.
- On the 5th day after your surgery, clean your incision using soap and water when you are in the shower. Then gently pat your incision dry with a towel.
- No tub baths for 4 weeks after surgery.

Bathing and swimming after surgery

- For 4 weeks after your surgery, do not bathe in the tub or swim.
- Four weeks after your surgery it is OK for you to bathe as long as your incision is closed and healing well.

Raising your arms overhead when you shower or brush your hair

It is OK for you to raise your arms over your head to wash and brush your hair.

Fighting infection

- Always wash your hands before and after you touch your incision.
- Call us at (615) 875-5100 if your incision:
 - gets redder
 - swells
 - feels warm or begins to hurt
 - begins to drain or smell bad
 - separates at the edges.
- Call us at (615) 875-5100 if you have a temperature higher than 101.5°F (38.6°C).

Neck brace

You may be given a soft cervical brace to help relieve your pain during the first weeks after surgery. Many patients like to wear a brace for first couple of weeks. It is only for your comfort and not required. As soon as you choose, you may stop wearing the brace. Some tips:

- You may wash your neck brace in cold water in the washing machine; but you will need to let it air dry. Do not put it in the dryer.
- If you have any skin irritation from the brace rubbing your skin, you may apply talcum powder between the brace and your skin. But be careful that you do not put any powder on your incision.

Swelling

After this surgery, it is very common to have swelling in your neck. Every patient is different, but the swelling can last for weeks, even a few months. Every week, the swelling should improve a little bit. If you notice that the swelling is not getting better, then call us.

Pain

It is normal to have pain after surgery. It is simply part of the healing process. With time, you should have less pain than you had before surgery.

Pain and spasms between your shoulders

When a spinal disc degenerates, it collapses. This causes the vertebrae on either side of the disc to fall closer together. When the bone graft is put in place, it stretches the disc height back to its normal place and the vertebrae are also pushed apart. This changes the structure of the spine and the muscles around it. Your body needs to adjust. Once the bone heals and your body has adjusted to the new position, the pain should go away.

Understand your prescription pain medicine

- When you left the hospital, we probably gave you a prescription for pain medicine. While you may need prescription pain medicine at first, it is best to start lowering how much you take as soon as you can.
- If you were taking narcotics before your surgery, do not take those with any new prescriptions you get from the surgeon.
- Take your pain medicine exactly the way your doctor tells you.
- Pain medicine can make you constipated. Drink plenty of water and eat more fiber (found in foods like fruits, vegetables, and whole grains) to help you stay regular.
- If you are going to need a refill of your pain medicine, call our office at least 7 days before your current prescription runs out. Sometimes you may have to wait 24 hours for a refill. We can't give refills at night or on weekends.
- Things to remember:
 - You cannot call in to the pharmacy for a refill prescription. You must call our office
 - You can either pick your prescription in person or ask us to mail it to you at your home address.

Expect to take less pain medicine over time!

Prescription pain medicine is addictive; it is important that you do not become dependent on it. We will expect you to use less prescription pain medicine over time.

- When you first leave the hospital, we will give you a prescription for pain medicine with specific instructions.
- We recommended that you wean your narcotic use slowly and not abruptly. If you are taking 2 narcotic tablets every 4 hours as needed, then wean to 1 tablet every 4 hours, then 1 tablet every 5 hours, and so on until you are able to stop taking these narcotics all together. You may be given specific weaning instructions when you are discharged.
- Six weeks after surgery, you should no longer be taking any prescription pain medicine.

Important: Six weeks after your surgery, we will stop refilling prescriptions for pain medicine. If you think you still need prescription pain medicine after 6 weeks, we will refer you to your regular doctor. There are no exceptions to this rule.

Do not take too much acetaminophen

Severe liver damage may occur if you take more than 4,000 mg of acetaminophen (Tylenol) in a 24-hour period. If you take acetaminophen (Tylenol), take it alone. Do not take it with any prescription pain medicine.

- Today more than 600 over-the-counter and prescription medicines have acetaminophen in them. Some patients exceed the recommended dose either by accidentally taking multiple acetaminophen-containing products without realizing it, or by not following dosing instructions.
- Narcotics such as Percocet, Vicodin and Norco have acetaminophen in them—from 325 mg to 500 mg per tablet. It is very important that you know the dosage and that you do not combine it with other products containing acetaminophen.

For 12 weeks after surgery, do not take these over-the-counter medicines:

- aspirin
- ibuprofen
- Advil
- Motrin
- Aleve
- Naprosyn (naproxen)
- any other medicines that contain aspirin, ibuprofen, or other non-steroidal anti-inflammatory drugs (called NSAIDs) that you can buy with or without a prescription.

During the first 12 weeks after surgery and when you no longer need your prescription pain medicine, we recommend you take acetaminophen (Tylenol) when you have pain.

Sleeping

For the first week (7 days) after your surgery, you will need to sleep with your head raised about 30 degrees. Ask us to show this to you. You can use pillows to keep your head up. Or you can sleep in a reclining chair with the head of the chair in the semi upright position. You may sleep on either side or your body or on your back. It is important that you sleep in a raised position to help reduce the swelling in your neck. After 7 days, you may start sleeping in a flat position if you feel comfortable. It is probably best to slowly lower the height of your head until you adjust to a flat position.

Staying active

Walking

Walking is excellent exercise. Walk as much as you can over the next 6 weeks while you are recovering. The aerobic activity of walking will:

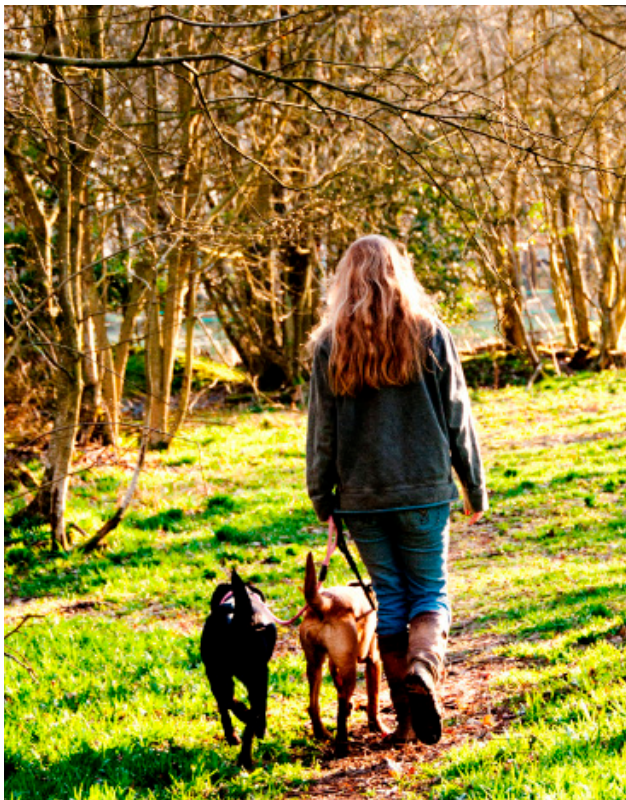
- help your bones fuse by increasing the flow of blood to the area of your neck that was fused
- benefit your lungs, heart, circulation, and digestion
- help keep blood clots from forming
- increase your muscle strength and endurance.

Riding in a car and driving

- Do not drive for 6 weeks after your surgery.
- No driving for while you are taking prescription pain medicine.
- Avoid driving during the busy traffic times and remember to carefully position your mirrors before starting to drive.

Riding as a passenger

You may ride in a car as a passenger whenever you feel you can tolerate this.



Protect your neck as you recover

- No athletic activities until you have discussed your limitations with your surgeon at your 6-week check up.
- No lifting more than a total of 15 pounds unless otherwise instructed by your surgeon.
- No overhead activities (washing your hair and brushing your hair are OK).
- No pulling or pushing with your arms.

Sexual activity

It is safe for you to have sex as soon as you feel it is comfortable. As you recover, the safest position is for you to lie flat on your back.

Preventing setbacks

If you have increased pain for more than 2 hours after an activity, it usually means you've done too much too soon. Don't just reach for the pain pills. Take pain as a warning sign to slow down and pay attention to your posture and movements.

Staying safe if you have pets

If you have pets, you will probably need help taking care of them after surgery. You will not be able to lift heavy bags of pet food or bend down to the floor to fill their dishes. You will not be able to walk your dog using a leash if it is a large dog that pulls. Also, it is very easy to trip over pets, and you will need to be careful since pets may jump. Please make arrangements for assistance with pet care after your surgery.

Six Weeks after Surgery: What to Expect

Keep your 6-week follow-up appointment

Six weeks after your surgery, you will need to come to our office for a follow-up appointment. If no appointment has been scheduled for you within a few days after your surgery, please call us at (615) 875-5100 to set up an appointment.

Remember that you are still healing

Even though you are 6 weeks out from surgery you are still not fully healed. The bone takes 4 to 8 months to fully fuse and heal. Until that time, you may still have some aches and pains in your neck and between your shoulder blades. All of this is normal during the healing process.

Around 4 to 8 months after the fusion, you may notice a sudden decrease in your pain. That is the day that the bones all fused together and became solid. Patients have often described it as a light switch going off. You can hasten this healing period by doing several things:

- Do 30 to 40 minutes of aerobic exercise 3 to 4 times per week, which feeds the growing bone with oxygenated blood.
- Avoid extremes motions in your neck, since the less you stress it, the faster it heals.
- Don't take ibuprofen, Aleve, aspirin or any other anti-inflammatories, as they all slow down bone healing. You may take acetaminophen products for pain.
- Don't smoke or use any tobacco products.

If you had arm weakness before surgery

If you had weakness in your arms before the surgery, you can start doing weight lifting 6 weeks after your surgery.

If you had numbness before your surgery

If you had numbness for more than 3 weeks before your surgery, it is possible that you still have not noticed an improvement.

- It often takes weeks to months for numbness to get better, especially if you had constant numbness for a long time before surgery.
- Until the 1-year mark, we won't be able to tell if the numbness is permanent.

Common Questions

How long will the swelling in my neck last?

Every patient is different. The swelling can last for weeks, even a few months. The swelling should get better a little bit each week. Call us right away if it is not slowly getting better.

How long should I avoid driving?

You cannot drive for 6 weeks after surgery, unless we have told you something different.

- Never drive while taking narcotics.
- Never drive while you are wearing a hard collar (neck brace). If you were discharged from the hospital with one, do not drive for as long as you are wearing it.

When you first start driving again

When you first start driving again, avoid driving during the busy traffic times and remember to carefully position your mirrors before starting to drive.

Why do I have pain and muscle spasms in between my shoulders?

When the disc degenerates, it collapses. When the bone graft is placed, it stretches the disc height back to its normal place, which is a change. Once the bone heals and your body adjusts to the new position of these bones, your pain should go away.

When can I have sex again?

You can have sex as soon as you feel comfortable doing so. Find positions that are most comfortable for you. Avoid extreme bending and twisting of your neck while you are recovering. The safest position is for you to lie flat on your back in bed.

When can I lift weights?

Please avoid all overhead lifting. You can lift light weights (less than 15 pounds). Keep all weights close to your body when you lift them. Keep your neck in a neutral position when you lift.