

VANDERBILT  UNIVERSITY
MEDICAL CENTER

Posterior Cervical Fusion Surgery Guide

TABLE OF CONTENTS:

Page 3:	Frequently Asked Questions
Page 4:	The Cervical Spine
Page 6:	Cervical Surgery
Page 8:	Before Surgery
Page 9:	Medications
Page 10:	Day of Surgery
Page 11:	Evening of Surgery
Page 12:	Morning after Surgery
Page 13:	Post-operative Instructions
Page 15:	Six-weeks after Surgery

FREQUENTLY ASKED QUESTIONS:

1. How long will the swelling last in my neck last?

Every patient is different. The swelling can last for weeks, even a few months. The swelling should only slightly improve each week.

2. How long should I avoid driving?

You should not drive while taking narcotics. You should avoid driving during the busy traffic times and remember to carefully position your mirrors before starting to drive. Some states do not allow collars when driving. You should wear your collar when driving, so if your states does not allow you to drive with a collar, then do not drive for the first 6 weeks post-op.

3. Why do I have pain in between my shoulders/muscle spasms?

To get access to your spine on the back of your neck, some of the muscles that normally attach there have to be removed. It is common to get muscle spasms and pain that radiates between your shoulder blades and to your shoulders.

4. When can I resume sexual relations?

Sexual relations can be resumed whenever the patient feels he/she is comfortable to do so. The safest position for the patient is laying flat in bed.

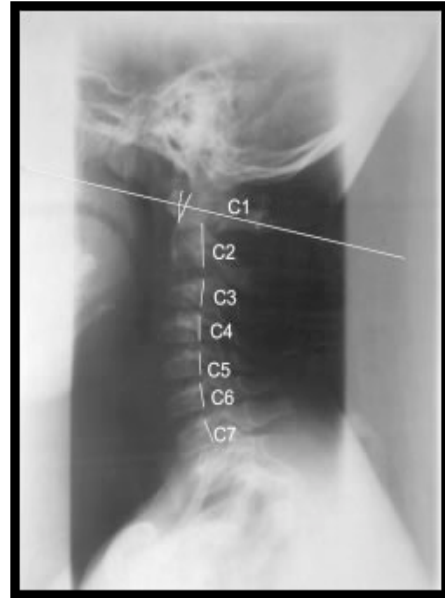
5. When can I lift weights?

Please avoid all overhead lifting. You can lift light weights (under 20 pounds) close to your body. Please keep the neck in a neutral position.

THE CERVICAL SPINE

You are being scheduled for surgery on your cervical spine. The surgeon has determined the type of procedure that is necessary for you after reviewing your symptoms, your physical assessment, your x-rays and the other studies that you have had completed.

The bones in the cervical spine are called vertebrae. There are 7 vertebrae in the cervical spine. Each vertebrae in the cervical spine are cushioned by an elastic type shock absorber known as the disc, except the first two vertebrae which do not have discs. Each disc fits above and below the vertebrae from the cervical vertebrae #3 on down. The discs have a soft center, known as the nucleus, which is surrounded by a tough outer ring, known as the annulus. The discs allow the motion between the vertebrae. The discs, bony structures, ligaments and strong muscles all work together to stabilize the spine. The spinal cord, which is the nerve center of the body, connects the brain to the rest of the body. The spinal cord and nerves travel from the cervical spine through to the sacrum, the lowest point of your spine.



Compression or squeezing on the nerves in the spinal cord or nerve roots may be causing many of the different types of symptoms that you may be experiencing. These symptoms may include headaches in the back of the head, pain in the neck, shoulder, upper back, arm, and/or fingers. Numbness, tingling and weakness are other symptoms that you may be experiencing occasionally or regularly. Other more serious symptoms include loss of balance and problems with coordination and dexterity.

The compression of the nerves can be caused by some of the following conditions:

1. **Degenerative Disc Disease:** Degenerative disc disease is a process referring to the disc aging and losing its ability to work as a cushion. During the aging process, or degeneration, the disc loses its elasticity, which can cause the disc to crack, flatten or eventually turn into bone. As the disc flattens, the bone (vertebrae) rub together which can then cause **bone spurs**. These bone spurs can cause pressure on the nerves.
2. **Herniated disc:** The disc is the cushion between the vertebrae. The inside of the disc, known as the nucleus, is made up of mostly water. A disc herniation refers to the outer part of the disc, known as the annulus, tearing, thus allowing the soft watery material on the inside of the disc to come out of the disc. The disc herniation can then cause pressure on the spinal nerves and/or the spinal cord.
3. **Bulging disc:** A disc bulging refers to the soft inner part of the disc remaining in the annulus, but that it is no longer in its proper place. The bulging disc can cause pressure on the nerves and/or the spinal cord.
4. **Spinal Stenosis:** Spinal Stenosis is where bone spurs narrow in the space through which the nerve roots exist in the spinal canal.
5. **Spondylosis:** Spondylosis is the degenerative arthritis of the spine. The arthritis can cause pressure on the nerve roots.
6. **Radiculopathy:** A disease process referring to the pressure on the nerve root.
7. **Myelopathy:** A disease process referring to pressure or compression on the spinal cord.
8. **Pseudoarthrosis:** A disease process referring to the failure of the bone to fuse.

CERVICAL SURGERY

The cervical surgery that has been scheduled for you is to correct the problems that you have been experiencing in your cervical spine. The surgeon has discussed with you the possible surgeries that may assist in helping correct your problems. He has elected to perform the one of the following surgeries for you:

Posterior Cervical Fusion: This involves removing the disc and replacing the disc with bone to allow the vertebrae to fuse together as one. You may have a titanium plate and screws placed to hold the bone in place as it fuses.

Posterior Cervical Laminectomy: This involves removal of the lamina in one or more places to remove the pressure on the nerves.

Incision: The incision will be made in a vertical fashion in the back of your neck. The length of the incision depends 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.

Blood Loss: It is an unusual occurrence for you to need blood during any of the procedures that have been discussed. There is a consent that you will need to sign that allows you to receive blood in a life-threatening emergency.

Intraoperative Traction: Intra-operative traction is a device that holds the head still so that there is no motion when you lay flat on your stomach during surgery. You should not wake up in traction, but you will notice small sores on either side of your head where the traction was placed.

Instrumentation: The instrumentation is made of titanium. The titanium should not interfere with the airport sensors.

Spinal Cord Monitoring: Spinal cord monitoring is a procedure that may be performed by a nurse during the surgery. Electrodes are placed on the scalp and other parts of the body to make sure that the spinal nerves have good blood flow. 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.

Expected Pain: This can be a painful operation. Every movement that you make will be transmitted into the muscles in your neck. Patients have used words such as “I feel as though I’ve been beaten up in the back of my neck with a bat”. Fortunately, this pain will eventually subside. The worst pain typically lasts for 2-4 weeks. Thereafter, the pain gradually begins to decrease, but may still persist for at least 3-6 months. If a fusion is performed, the pain may last until the bone solidly heals.



Risks and Complications: The list below includes some of the common possible side effects for this surgery. Fortunately, complications are rare in our practice. Please note that the list below includes some, not all of the possible side effects:

- Side effects from anesthesia
- Infection
- Damage to nearby structures (Arteries)
- Spinal cord or nerve damage
- Bleeding or possible need for transfusion
- Injury to the vertebral artery resulting in a stroke
- Bone graft shifting or displacement
- Failure of the metal plates and screws
- The bone graft not healing properly, necessitating another operation
- A blood clot can form in your arms or legs
- Chronic pelvic pain if your own bone is taken from your pelvis
- Blindness may occur if you would have a drop in blood pressure, especially if you have glaucoma or diabetes.
- Heart problems and even death

BEFORE SURGERY:

Before your surgery it may be necessary to have a urinalysis and blood work done, an EKG, and a chest x-ray. If needed, 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 have seen your primary physician and you have a lot of medical problems, it would be best that you see your medical doctor before your pre-test date.

Preparing for Surgery: To prepare your home for your recovery after surgery, please place necessary items within your reach so that you can avoid moving your neck a whole lot. During the six weeks of your recovery you should not be lifting more than **15 pounds**, unless instructed by your surgeon. Please make arrangements before surgery to have any heavy items purchased before surgery such as dog food, etc.

Haircut: Since you are having a posterior procedure (surgery on the back of your neck), it is important to shave your hair on the back of your head from the tip of the ear across to the other tip of your ear. You can arrange to have your hair dresser or barber assist you with this or you can have your family assist you with this. Please have your hair shaved the night before your surgery.

Length of Stay in the Hospital: Once your drains are out, your medical condition is stable, and your pain is under control with pills - the safest place for you to be is outside of the hospital environment. The hospital is the safest place to be if you are sick, but the less sick you are, the more dangerous it is to be in a hospital. This is because there are “super bugs” in the hospital that do not exist in the community. An infection with one of these “super bugs” can be life threatening.

In additions, bedrest is not good for you. The sooner you get up, mobilize, walk and resume normal activities the lower the chance of developing a blood clot in your legs. The symptoms of a blood clot are swelling, redness and pain in your calves. If you develop these symptoms, please let us know right away.

We will recommend your discharge as soon as we feel that your safety is better served at home than in the hospital.

MEDICATIONS TO AVOID BEFORE AND AFTER SURGERY

Some medicines can make you bleed longer so need to be stopped preoperatively.

- ASPIRIN products and BLOOD THINNERS (Coumadin, Persantine) need to be stopped 1 WEEK prior to surgery. Talk to the ordering physician for instructions on stopping.
- Stop all NON-STEROIDAL ANTI-INFLAMMATORY medications/arthritis medicines (such as Advil, Aleve, Ibuprofen, Motrin, Clinoril, Indocin, Daypro, Naprosyn, Celebrex, Vioxx, etc.) 1 WEEK before surgery. Tylenol products are suggested.
- Stop the following herbs at least 1 WEEK before surgery:
 - Chondroitin
 - Danshen
 - Feverfew
 - Fish Oil
 - Garlic tablets
 - Ginger tablets
 - Ginko
 - Ginsen
 - Quilleggao
 - Vitamin E
 - Co Q10

Other medications to stop include:

- Bone strengthening medications need to be stopped 1 week before surgery. Forteo may be resumed 1 week postop. Fosamax and Reclast may be resumed at 3 months postop.
- Some medications such as Insulin and Prednisone have specific instructions that may need to be adjusted prior to your surgery. Please let your surgeon know all medications you are on.

Medications for blood pressure, heart and breathing may need to be taken with a small sip of water the morning of surgery. During your pre-operative anesthesia appointment, the anesthesia staff will let you know what medications, if any, you should take.

After surgery, you should avoid all anti-inflammatory medications, including aspirin, Ibuprofen (Advil, Motrin), and Naproxen (Aleve), as well as any other prescription anti-inflammatories. It has been shown that anti-inflammatories decrease bone healing. Do not resume these medications until the surgeon says that it is okay to do so, which is usually 6 months after your surgery. You may take Tylenol at any time (no more than 3000 mg of Tylenol in 24 hours).

ON THE DAY OF SURGERY:

On the day of the operation you will be asked to arrive approximately 2 hours prior to your operation. You will check in and then be taken to a Waiting Area. Approximately one hour before the operation you will be called to the Holding Area where you will meet the anesthesiologist. The anesthesia staff will then place catheters in your arms for the intravenous fluids and then will begin to medicate you. The scheduled time of your surgery is really just an approximation. Much depends on when the last case finished. Sometimes we can be off by more than a few hours.

When you finally get to the Operating Room, you generally will not see your surgeon, as he is often in a different room finishing up the surgery before your case. The staff working with the surgeon will assist the anesthesiologists and you will be put under general anesthesia. It is usually 30-60 minutes from the time that you enter the room until the surgeon makes the incision.

At the conclusion of the procedure, it usually takes 30-60 minutes to wake you up and put you on the hospital bed before you are taken to the Recovery Room. At the conclusion of the case, the surgeon will speak with your family.

THE EVENING OF SURGERY:

The surgeon's team usually makes evening rounds sometime between 5:00pm and 9:00pm in the evening, depending on when he finishes his last surgery case. If you are not yet up in your room at the time they are making rounds, they will come and see you in the Recovery Room.

1. **Activity:** If you are strong enough you will be able to get out of bed with the assistance of the hospital staff.
2. **Diet:** You will start on a clear liquid diet that will increase to a regular diet as you tolerate it.
3. **Pain Control:** When you are discharged from the Recovery Room and then discharged to your home, you will be given prescriptions for pain pills that you may have filled on your way home from the hospital. If you stay over night in the hospital, you will have an I.V.-intravenous fluids running into a catheter in your arm. You may have a button to push that is connected to a machine that gives you the pain medicine when you feel that you need it. You may be switched to pain pills the evening of your surgery or the next morning, depending on how your pain is controlled. Multiple medications will be utilized to assist with your pain. Some of the pain medicines will be given a set times without you having to ask and some pain medication requires that you ask for it if you are in pain. If you have a lot of muscle spasms, you can take a muscle relaxant such as Valium or Flexeril, which will be available.
4. **Medications:** After the operation you will have all kinds of medications that are available for you, including pain medications, anti-nausea medications, anti-itch medications, sleeping pills, and muscle relaxants. However, it is up to you to ask for these medications. In addition, if there is something that you require that we have not written for, please ask one of the floor nurses. There is always a doctor on duty 24 hours a day that can assist your nurse with the medications. If there is anything we can do to make your hospital stay more comfortable, please do not hesitate to ask.
5. **Drain:** You will 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 allows the doctors and the nurses to monitor the amount of blood you have lost.
6. **Sleep:** Don't expect to sleep too much the evening and night of your operation. The surgery allows you to have a several hour nap during the day, which may disturb you wake/sleep cycle. If you are able to get 2-3 hours of sleep the night of the operation, consider yourself lucky.
7. **X-Ray:** You may be sent down for cervical spine x-rays, before you leave the hospital on either the night of the operation, or the following morning if you stay in the hospital overnight.

THE MORNING AFTER SURGERY:

1. **Activity:** you may be up as you desire and tolerate.
2. **Diet:** You may slowly return back to a soft-regular diet.
3. **Pain:** The I.V. pain medication will be discontinued and you will be switched to oral pain pills. The surgeon and the other doctors assisting him will write for your pain medications before you go home. Please let them know of any drug allergies.
4. Your **drain** is generally taken out the morning after surgery. In some cases, it may be left in when you go home. If you go home with your drain, please follow the surgeon's instructions to remove it within 2-3 days according to the amount of drainage.
5. The **instrumentation** that has been placed in your neck to hold the bone graft in place is made of titanium. It should not trigger alarms at the airport.
6. **Occupational and Physical Therapy:** The surgeon may have an occupational therapist and/or physical therapist see you while you are in the hospital to help to determine if you will need any extra assistance at home.

POST-OPERATIVE INSTRUCTIONS:

Wound Care:

- Please remove your dressing from your incision(s) after you are discharged from the hospital **once the drain has been removed.**
- If your incision is not draining any fluid, keep your incision open to air. If there is some drainage, apply dry gauze and secure in place with tape. Change the dressing at least 1 time per day.
- After 1 week, if the incision is not draining any fluid, you may shower – wash with soap and water-pat area dry. Keep the incision clean and dry.
- Let the steri-strips fall off by themselves. If after 2 weeks, they have not fallen off-you may remove the steri-strips.
- Please DO NOT put any ointments or antimicrobial solutions over the incision or steri-strips.
- **If you notice drainage, significant redness, swelling or increased pain at the incision site –please call the office.**

Showering:

- You may take a shower on the 5th day after your surgery if the incision is not draining any fluid.
- There is no need to cover the incision.
- You may use soap and water to clean the incision, then gently dry off the incision, then leave it open to air.
- Please make sure incision is completely dry after showering.
- DO NOT take a bath or get into a pool for 4 weeks after surgery or until the incision is closed and well healed

Brace Instructions:

- You may remove your collar 3 or 4 times a day for up to one hour at a time. DO NOT flex (bring your head to your chest) or extend (lift your chin up high and away from your chest).
- You must sleep with your collar on. You can remove your brace to shower or shave.
- You must ALWAYS wear your collar when driving or riding in a motor vehicle. The collar should be worn for 6 weeks.
- If you experience skin irritation from the brace rubbing your skin, you may apply talc powder between the brace and your skin. Please do not put the powder on the incision.
- You may apply a scarf, handkerchief, or tube sock cut on the closed end around the collar to prevent irritation. This will allow you to wash the item around the collar when you feel it is necessary, so you do not have to wash the collar.
- You may wash the soft cervical collar in cold water in the machine- **DO NOT** dry the soft collar in the dryer. This applies to ONLY the soft collar-the other collar (hard plastic) can be washed in a sink with soap and water.

Pain Medications: Depending on the surgery and the amount of pain you are having, the surgeon will prescribe pain medications for you. The two most common medications are Percocet and Tylenol #3. Percocet is for severe pain and the Tylenol #3 is for the lesser pain.

Sleeping: Please sleep with the head of the bed up at 30 degrees by using pillows or by sleeping in a reclining chair, with the head of the chair in the semi upright position. You may sleep on either side or your back. Sleeping in this elevated position helps to reduce the swelling in your neck in the first 7-10 days after your surgery. After 7-10 days, you may sleep in a flat position if you are comfortable, but it may be best to slowly decrease your pillow height every few days until you adjust to the flat position.

Driving: Operating a motor vehicle may be limited due to your inability to adequately turn your head from side to side. No one should operate a motor vehicle while taking narcotics.

Activities:

- You should walk all that you can over the next 6 weeks while you are recovering. The surgeon strongly recommends aerobic walking post-operatively. Walking helps the bones to fuse by increasing the blood flow to the area of the fusion.
- You may raise your arms to brush or wash your hair.
- You may ride in a car as long as you are comfortable.
- Please limit driving a car until after you are off narcotics. Please realize that you will have limited motion of your neck while driving, so your peripheral vision is very limited.
- You may sleep lying flat after the first 7-10 days or until the swelling has subsided post operatively

Restrictions:

- No athletic activities until you have discussed your limitations with the 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.
- No pulling or pushing with your arms.
- 20% of patient's have an increase of pain in the first post-operative period due to micro-motion of the bone which can irritate the nerves. This pain will resolve when the bone has fused.

Follow-up appointment: If no appointment has been scheduled for your 6 week appointment, within a few days of your discharge, please call 615-875-5100 to set up an appointment.

WHAT TO EXPECT AT SIX WEEKS AFTER SURGERY:

Even though you are 6 weeks out from surgery you are still not fully healed. For fusions, the bone takes 4 to 8 months to fully incorporate 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:

- 30-40 minutes of aerobic exercise, 3-4 times per week, which feeds the growing bone with oxygenated blood
- avoiding extremes of motion in your neck, since the less you stress it, the faster it heals
- don't take Ibuprofen, Aleve, Aspirin or other anti-inflammatories, as they all slow down bone healing. You may take Tylenol products
- don't use any tobacco products

If you had weakness in your arms before the surgery, you can do weight lifting exercises now. If you had numbness for more than 3 weeks prior to 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.