

## Posterior Cervical Fusion Surgery Guide

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### The Cervical Spine

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

The bones in the cervical spine are called vertebrae. There are seven 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 the different types of symptoms 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 bulging disc refers to soft inner part of the disc remaining in the annulus, 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. Dr. O'Neill 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:

1. **Posterior Cervical Fusion:** This involves removing the disc and replacing the disc with bone to allow the vertebrae to fuse together as one. A titanium plate and screws may be used to hold the bone in place as it fuses.
2. **Posterior Cervical Laminectomy:** This involves removal of the lamina in one or more places to remove the pressure on the nerves.
3. **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.
4. **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 form you will sign that allows you to receive blood in a life-threatening emergency.
5. **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.
6. **Instrumentation:** The instrumentation is made of titanium. The titanium should not interfere with the airport sensors.
7. **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.



8. **Expected Pain:** This can be a painful operation. Every movement that you make will be transmitted to the muscles in your neck. Fortunately, this pain will eventually subside. The worst pain typically lasts for two to four weeks. Thereafter, the pain gradually begins to decrease, but may still persist for at least three to six months. If a fusion is performed, the pain may last until the bone solidly heals.
9. **Risks and Complications:** The list below includes some of the common possible side effects for this surgery. Fortunately, complications are very rare in Dr. O'Neill's 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
  - Significant scarring and retraction of soft tissues which can create sunken-in scar
  - 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, legs or lungs
  - 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, respiratory failure 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.

1. **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 lot. During the six weeks of your recovery you should not lift more than **20 pounds**, unless instructed by Dr. O'Neill. Please make arrangements before surgery to have any heavy items purchased before surgery such as dog food, etc.
2. **Dental Work:** Make arrangements to have your teeth cleaned prior to surgery as you will not be able to have dental work or cleanings for six months postoperatively.
3. **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.
4. **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 addition, 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. We will recommend your discharge as soon as we feel that your safety is better served at home than in the hospital.

5. **Day Before Surgery:** Light meals are recommended the day prior to surgery. **Nothing to eat or drink after midnight the night before your surgery.** You can brush your teeth, just do not swallow any water.

## Medications to Stop Prior to Surgery

- **Aspirin and blood thinners** (Coumadin, Persantine, etc.) need to be stopped one week prior to surgery. Talk to the ordering physician for instructions on stopping.
- **Non-steroidal anti-inflammatory (NSAID)** medications/arthritis medicines (such as Advil, Aleve, ibuprofen, Motrin, Clinoril, Indocin, Daypro, naprosyn, Celebrex, Vioxx, etc.) should be stopped two weeks before surgery.
- **Tylenol** products are okay to continue.
- Stop the following **herbs** at least two weeks before surgery: Chondroitin, Danshen, Feverfew, fish oil, garlic tablets, ginger tablets, Ginko, Ginsen, Quilinggao, Vitamin E and Co Q10.
- **Insulin and Prednisone** have specific instructions that may need to be adjusted prior to your surgery. Please let the anesthesiology team 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 which of these medications, if any, you should take.

## On the Day of Surgery

On the day of the operation you will be asked to arrive approximately two 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 the 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 Dr. O'Neill, as he is often in a different room finishing up the surgery before your case. The staff working with Dr. O'Neill will assist the anesthesiologists and you will be put under general anesthesia. For an posterior (back of the neck operation) it is usually 60 to 90 minutes from the time that you enter the room until Dr. O'Neill makes the incision.

At the conclusion of the procedure, it usually takes 30 to 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, Dr. O'Neill will instruct one of the nurses in the operating room to call down to the family waiting area. Your family will be notified that your surgery is finished.

## The Evening of Surgery

Dr. O'Neill and/or his team will check on you either in the recovery room or in your room on the evening of your surgery.

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 transferred to your hospital room you will have an IV (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. If you have a lot of spasm between your shoulder blades the night of the operation, rather than taking a massive amount of narcotics, you can take a muscle relaxant such as Valium or Flexeril.

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 Dr. O'Neill 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 your wake/sleep cycle. Often you are able to get only two to three hours of sleep the night of the operation.
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 IV pain medication will be discontinued and you will be switched to oral pain pills. Dr. O'Neill and the other doctors assisting him will write for your pain medications before you go home.
4. **Drain:** Your drain is generally taken out the morning after surgery. Please note that the drain will come out as you pull off the dressing. This is not painful.
5. **Occupational and Physical Therapy:** Dr. O'Neill 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

1. **Wound Care:**
  - If you stay in the hospital overnight, the dressing will be removed the following morning by Dr. O'Neill or his team. If you went home after surgery, you may remove your dressing the morning following surgery. If there is some drainage, place a clean and dry dressing over the incision (gauze and tape). If there is no drainage, you may leave the incision uncovered and open to air without a dressing on.
  - If you have skin glue over your incision site, this will dissolve by itself with time.
  - Please **do not** put any ointments or antimicrobial solutions over the incision or skin glue.
  - **If you notice continued or worsening drainage, significant redness, swelling or increased pain at the incision site, please call the office.**
2. **Showering:**
  - If the incision is no longer draining fluid, you may take a shower after five days from your operation.
  - There is no need to cover the incision.
  - You may use soap and water to clean the incision, then gently dry off the incision and 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 six weeks after surgery or until the incision is closed and well healed
3. **Brace Instructions:**
    - You may remove your collar three or four 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 riding in a motor vehicle. The collar should be worn for six 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.
  4. **Medications:**
    - **Narcotics:** Depending on the surgery and the amount of pain you are having, Dr. O'Neill will prescribe pain medications for you. The most common medications are Percocet/Oxycodone, Norco/Hydrocodone, and Tylenol #3. If you need refills on these pain medications, please call five business days in advance to allow time to fill these medications. These cannot be "called in" and need to be given to you on a written script.
    - **Muscle relaxers**, such as Valium or Flexeril, may be given to you as well.
    - 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 Dr. O'Neill says that it is okay to do so, which is usually three months after your surgery.
    - You may take **Tylenol** at any time (no more than 4000 mg of Tylenol in 24 hours).
    - If you were taking **aspirin or blood thinners** for a medical condition, such as heart disease, Dr. O'Neill will instruct you on how to proceed. It is generally ok to resume these medications immediately following surgery.
    - **Bone Strengthening Medications:** Forteo may be resumed one week post-op. Fosamax and Reclast may be resumed at three months post-op.
    - You may resume all of your other home medications, including vitamins and supplements.
  5. **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 to 10 days after your surgery. After 7 to 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.
  6. **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. You should avoid driving during the busy traffic times and remember to carefully position your mirrors before starting to drive.
  7. **Recovery of Symptoms:** What to expect regarding your symptoms that were present prior to surgery depends on the cause of the problem:
    - **Radiculopathy Resulting from Nerve Root Compression:** Radiating pain, numbness or tingling or even weakness, may improve immediately after surgery. Occasionally symptoms may temporarily worsen after surgery as a result of nerve manipulation and resulting inflammation, but should resolve over the following few weeks of recovery. In general, the longer symptoms

were present before surgery, the longer it takes to recover. Recovery may continue to occur for several months after surgery. We won't know until one year after surgery which symptoms are permanent.

- **Myelopathy Resulting from Spinal Cord Compression:** Balance trouble, bowel or bladder dysfunction, lack of coordination, diffuse numbness of hands or feet, may also improve immediately after surgery. However, these symptoms may or may not improve at all. If recovery does occur, it may take several months of recovery. We won't know until one year after surgery which symptoms are permanent.
- **Neck Pain:** This can be a painful operation. Every movement that you make will be transmitted to the muscles in your neck. Fortunately, this pain will eventually decrease. The worst pain typically lasts for two to four weeks. Thereafter, the pain gradually begins to decrease, but may still persist for at least three to six months. All of this is normal during the healing process.

8. **Activities/Restrictions:**

- You should walk as much as you can while you are recovering. Dr. O'Neill strongly recommends aerobic walking post-operatively. Walking helps the bones to fuse by increasing the blood flow to the area of the fusion. Similarly, non-impact aerobic exercise is also recommended, such as stationary bikes or elliptical machines.
- You may resume sexual relations when you are comfortable. The safest position for the patient is laying flat in bed.
- No athletic activities until you have discussed your limitations with Dr. O'Neill at your post-operative checkup.
- No lifting more than a total of 20 pounds unless otherwise instructed by Dr. O'Neill.
- No overhead activities.
- No pulling or pushing with your arms.
- Avoid extremes of motion in your neck, since the less you stress it, the faster it heals.
- **Do not** use any nicotine or tobacco products.

9. **When to Call:** Please call any of the OrthoIndy offices if you have any questions or concerns. If it is not urgent, please call during normal business hours. Specific things that should prompt you to notify us include:

- Fever higher than 101 degrees Fahrenheit
- Severe headaches that are worse when sitting upright, relieved when laying down
- Wound drainage that is not decreasing
- Significant redness or swelling around the incision
- Worsening numbness, tingling or weakness in your arms or legs

10. **Follow-up Appointment:** If a follow-up appointment has not been scheduled for you, please call **317.802.2049** to set up an appointment within a few days of your discharge.