ATLANTA
SPINE
INSTITUTE

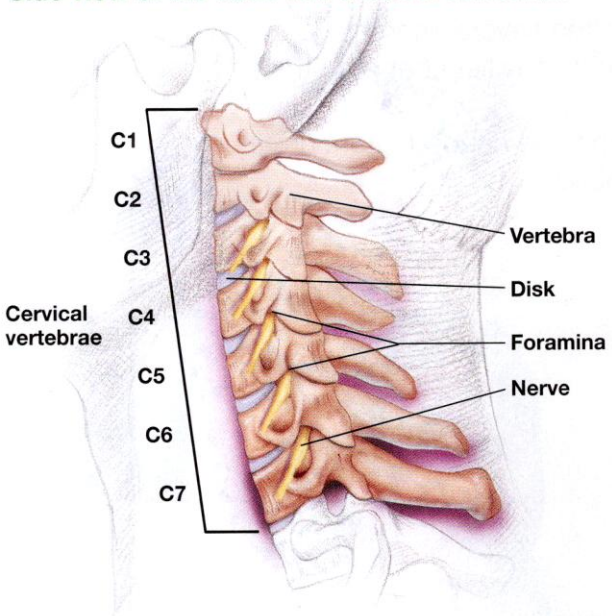
# ACDF

*info*

# Understanding the **Cervical Spine**

**Your neck needs to be strong to hold up your head, which may weigh 10 pounds or more. But injury, poor posture, wear and tear, and diseases such as arthritis can damage the structures of your cervical spine. Or you may have a family tendency to develop disk problems. Pain and weakness in your neck and arms may result.**

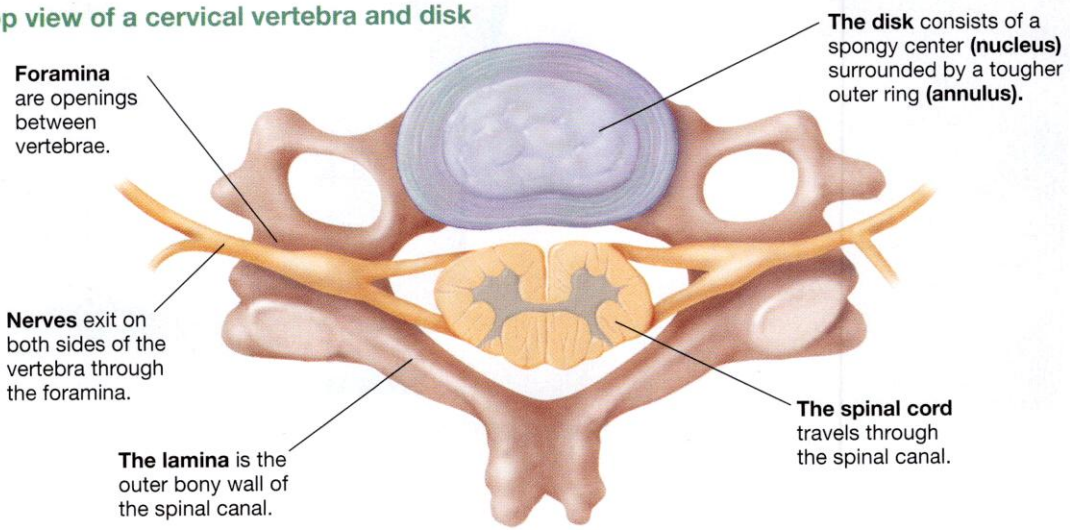
Side view of the neck and cervical vertebrae




## A Healthy Cervical Spine

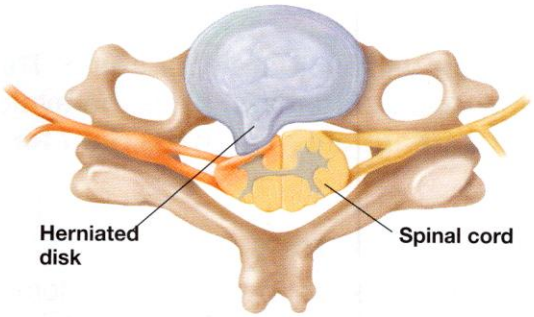
The upper spine is a flexible column made up of the **cervical vertebrae.** These seven bones are separated by spongy, shock-absorbing **disks.** The spinal cord runs through a large central opening **(spinal canal)** formed by the vertebrae. Nerves branching from the spinal cord travel to your arms and other parts of your body through small openings **(foramina)** between the vertebrae. As you grow older, it's normal for your disks to wear out and harden. As a result, your neck may not be as flexible as it once was.

Top view of a cervical vertebra and disk

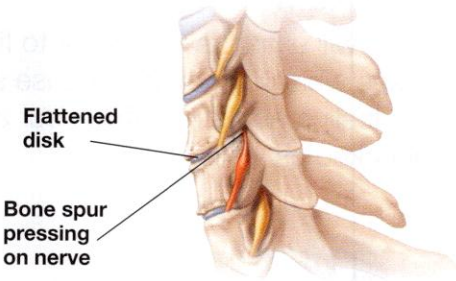


## Your Problem Spine

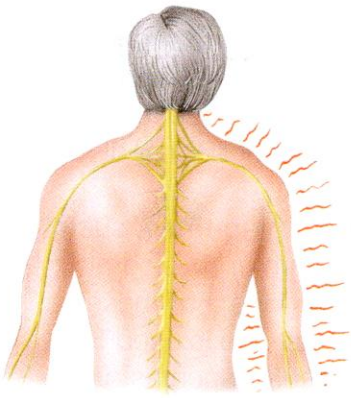
One of the most common cervical spine problems is a damaged disk. A disk may be injured and bulge outward **(herniation)**. The bulge may press on a nerve. Or it may wear out gradually **(degeneration).** A worn-out disk may become so flat that the vertebrae above and below it slip back and forth or almost touch. As disks wear out, abnormal bone growths **(bone spurs)** can form on the vertebrae and in the foramina, causing narrowing **(stenosis).**



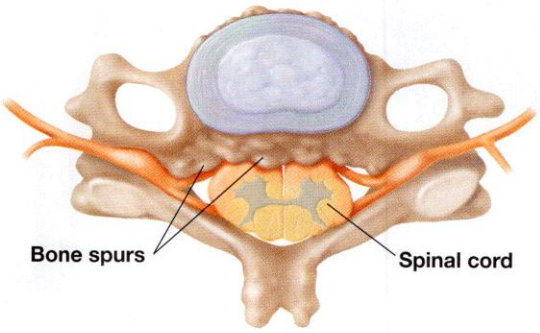

**With a herniated disk,** the annulus tears or the nucleus pushes through the annulus. The herniated portion of the disk may press on a nearby nerve. This may cause neck or arm pain, or weakness in the arm.




**In degenerative disk disease,** the disks flatten over time. The surrounding vertebrae begin to touch, and the nerves may be pinched. Bone spurs may also form, further irritating the nerves.



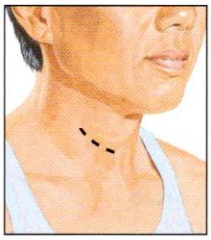
**Arm pain and weakness** may be caused by pressure on the nerves traveling from the cervical spine down the arm.



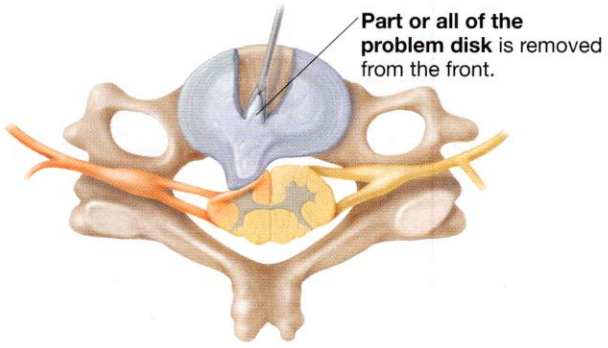

**In stenosis,** bone spurs grow into the foramina and spinal canal, narrowing the openings. The nerves and spinal cord may be compressed, resulting in pain, weakness, numbness, and loss of coordination.

## Through the Front: Anterior Approach

Your surgeon will make a horizontal or vertical incision (about 1 to 3 inches long) on either side of your neck. To reach the disk, soft tissue is moved aside. All or part of the disk that is irritating the nerve is then removed. Your surgeon may remove bone spurs. The vertebrae may then be prepared for a fusion.

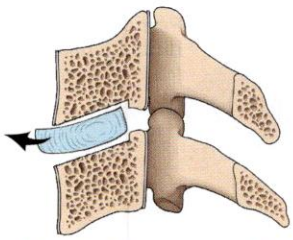


**Possible incision site**

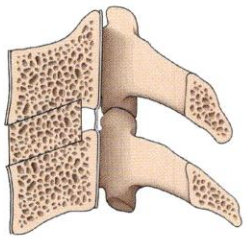


## Adding Stability: Fusion

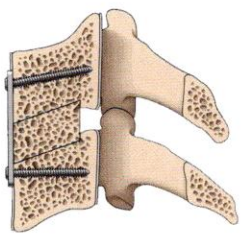
After removing a disk from the front, your surgeon may fuse the vertebrae above and below it. This limits movement, helping to relieve pressure and pain. First, the surgeon enlarges the space between the vertebrae. The surgeon then "plugs" the space with a cylinder- or wedge-shaped bone graft. Metal plates may be added over the front of the vertebrae and secured with screws. Or, a cage (a plastic or metal "basket" packed with bone graft) may be inserted where the disk was removed. These supports remain in the body.



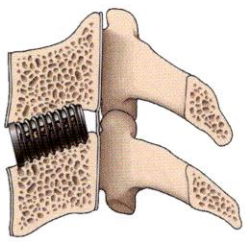
The disk is removed from between the vertebrae.



A bone graft is inserted to plug the opening.



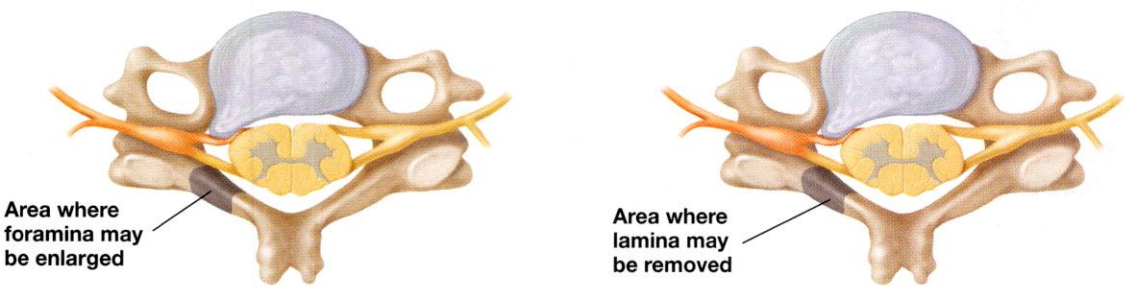
A metal plate may be used to keep the vertebrae stable.



A cage may be used to support the vertebrae.

## Removing Bone

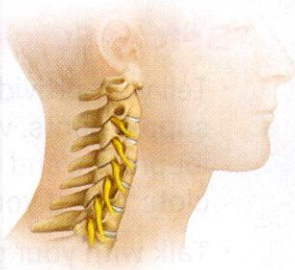
To reach the disk from the back, your surgeon may enlarge the foramina or remove a portion of the lamina. To help relieve pressure on the nerves or spinal cord, bone spurs may also be removed.




The location and amount of bone removed depend on the type of problem you have.

# Cervical Fusion

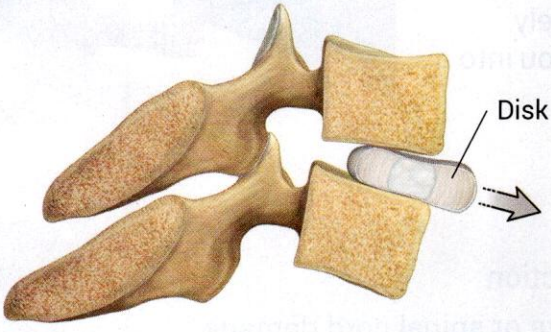
*To help ease neck and arm pain,* **2 or more vertebrae in the neck are fused. This may be done through an incision in the front (anterior) of the neck or the back (posterior) of the neck.**



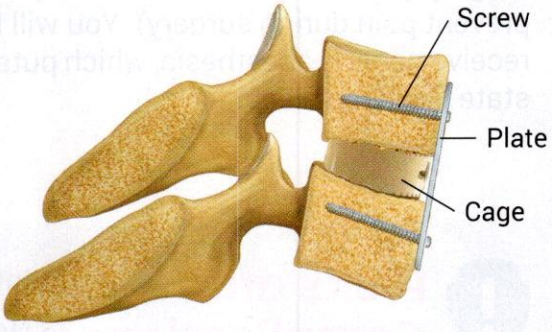
Cervical vertebrae

## The Fusion Procedure

- **For an anterior fusion.** An incision is made on the front of the neck to reach the spine. Most of the disk is removed from between the vertebrae. Then, bone graft is placed. It is often put inside a device called a cage. The cage is placed between the vertebrae.
- **For a posterior fusion.** An incision is made on the back of the neck. Bone graft is then placed on the back of the spine between the transverse processes.
- In either case, a metal plate or rod and screws may be added. These hold the spine steady as the bone graft fuses with the vertebrae. The supports typically stay in place and are not removed.
- The incision is closed with sutures, staples, or surgical glue.




The disk is removed from between the vertebrae.




Bone graft inside a cage is placed in the empty space. A metal plate and screws may be used to give extra support.

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DIPLOMATE OF THE AMERICAN BOARD OF ORTHOPAEDIC SURGEONS

# ANTERIOR CERVICAL DISCECTOMY AND/OR FUSION

Your doctors have determined that you have an abnormality in your neck that may be best treated by an operation on the spine in your neck, usually the lower part of your neck, where the doctors remove one or more discs and insert a piece of shaped bone to replace the disc and cause the adjacent vertebrae to grow together. The most common problems for making this surgery necessary are "ruptured" disc, a "degenerative" or worn disc, or when there is too much motion between two vertebrae irritating the nerves and/or spinal cord at that level.

Usually, the entire disc is removed. A horseshoe-shaped piece of bone is usually placed between the two vertebrae to serve as a spacer to allow for more room for the nerve roots as they pass out the "windows" in the spine towards the arms. This graft can be taken from your own iliac crest (hip bone) or can be obtained from a "bone bank." Sometimes a dowel-shaped bone graft is used. The decision on what shape of bone graft to place is made by your physician. Some patients may require metal hardware/internal fixation plates of their fused vertebrae. This is a decision that your doctor must make given your unique situation. It is important that you follow the postoperative instructions carefully to allow for good strong healing of the fusion. You will probably be asked to wear some type of cervical collar, also called an orthosis, to support your neck while the fusion is healing.

## COMPLICATIONS AND RESULTS

Complications from this type of surgery are infrequent, but they do occur. It is possible that you will be no better after having this surgery. It is even possible that you may be worse after the operation than you are right now. Because of this facts, your doctors can make no guarantees as to the results that might be obtained from this operation. Generally speaking, however, our results have been good or excellent in over 85% of the patients undergoing this type of surgery.

As in any operation, this type of surgery can be complicated by excessive bleeding and infection (1%). These complications can result in the need for blood transfusion (very rare), the need for further surgery, prolonged illness, increased medical costs, increased pain, suffering and disability, and even death (very rare). Injuries of the spinal cord and



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nerves of the neck are uncommon with this kind of surgery, but can occur. This type of complication can result in temporary or permanent weakness of one or more of the muscles in one or both arms and legs. Also, pain and numbness in the arms or legs or body can result, as well as loss of bladder and bowel control and sexual dysfunction (very rare). If metal hardware is used there is a possibility of metal failure or loosening (rare). On rare occasions, hardware may have to be removed.

Some patients have continued neck problems after this type of surgery. Occasionally, the same problem which made the surgery necessary in the first place can come back at an adjacent level. Until the fusion has become solid, the bone graft can slip out or resorb. Sometimes the fusion fails to heal properly, thus causing a situation called "pseudoarthrosis." Often times, patients with pseudoarthrosis are asymptomatic, however, plates and screws can break. These metallic implants are subject to fatigue, just as any other structures that are exposed to stress, such as the forces exerted by the muscles of the back and weight of the body.

Other complications are possible including spinal fluid leakage, which may take a long time to subside or even necessitate further treatment or surgery. It is possible that one's deformity may recur if there is failure of the spinal implant or if there is extension of the deformity to an area above or below the operative levels. Sometimes discs adjacent to a long fusion can degenerate resulting in a new deformity or back and/or leg pain. This may require the need for additional surgery in the future.

Other possible problems are impaired function due to limp, foot drop, continued pain or new pain or discomfort, increased or different pain, bone infection, numbness or clumsiness in the legs, impaired muscle function, and again, recurrence or continuation of the condition for which the operation was performed.

It is important to note that certain complications can result in increased costs and time to recover (if ever) with prolonged time off work and resultant economic hardships and possible emotional, marital, or psychological problems.

## ALTERNATIVES AND OTHER CONSIDERATIONS

There may be alternatives to this operation available to you such as the use of braces or electrical stimulation. These alternative therapies also carry their own risks and associated complications and have a varying degree of success. Therefore, in those patients with whom posterior spinal instrumentation and fusion is indicated and recommended, we feel this operation provides the patient with the best chance of successful treatment and low risk of complications.

SUMMARY AND ACKNOWLEDGMENT

The scope of this informational handout may not be complete. Patients have the right to have their questions answered to their satisfaction and in a manner they understand. We want you to understand the risks and alternatives available. It is our purpose to provide you with the best medical care possible. We need for you to be well informed regarding your treatment, tests, and any surgery that you might undergo. If you have any questions or concerns that are not answered, please ask for further information so that you can be more comfortable with what is being done for you. After reading this material carefully, please do not hesitate to call us back for any additional questions you may have (404-352-4500).

I have read this document under quiet conditions at my leisure away from Dr. Plas T. James' office and have discussed it with those family members I feel should be aware of its contents. I understand its contents and accept the inherent risks in such major surgery.

| | |
|---|---|
| Witness | Signed |
| Date | Name |
| | Date |

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# CERVICAL POST-OPERATIVE PROTOCOL

1. Do not smoke or chew tobacco products, which could greatly decrease your chance of a successful surgery and/or fusion.
2. **Anterior Fusion**-Keep cervical (neck) collar off as much as possible during the day. If patient's neck becomes fatigued or head becomes heavy, collar should be placed back on. Patient should work on right and left (side-to-side) rotation immediately after surgery. (It is okay to nod head, however, NO up and down FORCED motion until six weeks postoperative).

   **Posterior Fusion**- Keep cervical (neck) collar on until your first post op visit. NO side to side, or up and down motion until post op visit.
3. At bedtime, wear neck collar or use ***Contoured Tempurpedic*** brand pillow.
4. No lifting heavier than a gallon of milk or 10 pounds (keep object close to body).
5. Aquacel dressing should remain on until first postop visit. The Aquacel dressing can be worn without issue in the shower. If the bandage becomes saturated or comes off, please contact the office for further instruction.
6. **DO NOT BECOME CONSTIPATED**!! Use stool softeners, prune juice, etc.
7. No driving or flying until after first post-op visit at approximately 10-14 days. DO NOT DRIVE with neck collar on. Must be able to fully rotate neck from left to right before driving.
8. Women who use a hairdresser must lean forward over sink to have their hair washed.

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9. Patient may experience difficulty swallowing and posterior neck/shoulder blade soreness for a few days in the postoperative period. You may apply ice/cold pack on surgical site or shoulder blades 20 minutes at a time. NO HEAT.
10. Wear compression stockings until first post-op visit.
11. Avoid overhead or over-the-shoulder height work.
12. **MEDICATIONS**: Continue all antibiotics until all have been taken per the Pharmacy. For the first three (3) months, do not take anti-inflammatory medication such as Ibuprofen, Advil, Aleve, Lodine, Voltaren, Celebrex, Aspirin, and Zipsor (diclofenac) as it decreases bone growth (SEE LIST).

    *Post-op medication, i.e., narcotics, cannot be phoned into the pharmacy. The prescription MUST be picked up in person or mailed.
13. Make sure that if you use a computer that the screen is at eye level. Must have elbows supported by chair armrest. Also, must have palm pad to rest hand on while typing.
14. Call Doctor if temperature rises greater than 101.5 or chills.
15. Notify Doctor if wound(s) develops purulence (pus), excessive redness, clear drainage, foul odor, or severe postsurgical headaches.
16. CALL FOR FOLLOW-UP APPOINTMENT IMMEDIATELY AFTER DISCHARGE FROM HOSPITAL TO BE SCHEDULED APPROXIMATELY 14 DAYS POSTOP.


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# ***MEDICATIONS TO AVOID 7 DAYS PRIOR TO SURGERY***

**DO NOT TAKE: CBD PRODUCTS, VITAMIN E, ASPIRIN, OR WEIGHT LOSS PRODUCTS, AS THESE MAY PROLONG BLEEDING TIME.**

**If you are on COUMADIN, please notify us IMMEDIATELY. You must contact the physician who prescribed this medication. He/She will need to make the decision if you are able to discontinue this medication for surgery. They will then provide our office with written medical clearance.**

## HERBS TO AVOID:

| | | |
|---|---|---|
| ECHINACBA | ST. JOHN'S WORT | GINKGO BILOBA |
| MELATONIN | GRAPE SEED OIL | GARLIC TABLETS |
| FISH OIL | TUMERIC | GINGER |
| CAYENNE PEPPER | CASSIA CINNAMON | DONG QUAI |
| GRAPE LEAF EXTRACT | FEVER FEW | BROMELAIN |

## ASPIRIN PRODUCTS TO AVOID:

| | | | |
|---|---|---|---|
| ALKA SELTZER | ANACIN | ASCRIPTIN | BC TABLETS |
| BUFFERIN | CHERACOL | COPE | CORICIDIN |
| DARVON COMPOUND | BAYER | FIORINAL | DRISTAN |
| SOMA COMPOUND | ECOTRIN | EMPIRIN | EXCEDRIN |
| GOODY'S POWDER | SINE-AID | SINE-OFF | PERCODAN |
| STENDIN | VANQUISH | TRIAMINICIN | MIDOL |

## IBUPROFEN PRODUCTS TO AVOID:

| | | | | | |
|---|---|---|---|---|---|
| ADVIL | MEDIPREN | NUPRIN | ALEVE | RUFFEN | MOTRIN |

## ANTI-ARTHRITIC PRODUCTS TO AVOID:

| | | | |
|---|---|---|---|
| VOLTAREN (Diclofenac) | CLINORIL | FELDENE | INDOCIN |
| NAPROSYN | TOLECTIN | ANAPROX | ORUDIS |
| DOLOBID | RELAFEN | ANSAID | DAYPRO |
| BUAZOLIDIN | ORUVAIL | DISCALID | SALFLEX |
| MONO-GESIC | LODINE (Etodolac) | CATAFLAM | TORODOL |
| NAPRELAN | CELEBREX | DICLOFENAC | ZIPSOR |
| MOBIC (Meloxicam) | ARTHROTEC | CHONDROITIN | GLUCOSAMINE |

**If you have any questions or concerns about these or any other medications you are presently taking, please call 404-252-2422.**

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