# Your Guide to **Lumbar Spine Surgery**

ORTHOPEDIC INSTITUTE

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# INTRODUCTION

At Orthopedic Institute we understand that you have multiple options for the care of your spine. We want you to know that we value your trust and will advocate with you on your surgical journey. With this, we feel it is important for you to understand your condition, upcoming procedure and the recovery process. We also believe it is important that you know and feel comfortable with your surgeon and our staff.

**The goal of this booklet is to:**

- Provide information on the structure and function of your spine
- Help you to prepare for your surgical procedure
- Explain what to expect during surgery and your hospital stay
- Help guide you through your recovery process

# MEET YOUR SPINE CARE TEAM

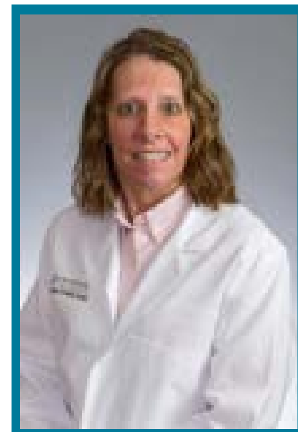
## Gregory F. Alvine, MD

Dr. Alvine is a native of Sioux Falls and graduated with a Bachelor's of Science degree from the University of Iowa in 1987. He received his Medical Degree from the University of Iowa in 1991 and went on to complete his Residency in Orthopedic Surgery at the University of Kansas in 1996. Dr. Alvine completed Spine Surgery Fellowship at Orthopedic Physician Associates in Seattle, WA in 1997 and then returned to Sioux Falls to begin his practice in July 1997. He practices general orthopedics with a special interest in foot and ankle surgery and spine surgery.

Dr. Alvine specializes in minimally invasive and complex spine surgery. He also developed a passion for foot and ankle surgery after he practiced with his father for over ten years. Before his retirement, his father specialized in the treatment of complex foot and ankle disorders, with a special interest in total ankle replacements.

Today, Dr. Alvine has a very unique and rewarding practice treating both complex spine conditions as well as foot and ankle problems.

## Angie Majeres, MS, PA-C (Physician Assistant)



Angie joined Orthopedic Institute in 2019 after working with CORE Orthopedics since 2005. She graduated with a degree in occupational therapy from the University of North Dakota and received her Master of Science Degree in Physician Assistant Studies from the University of South Dakota.

After working as an occupational therapist on a rehab floor in the hospital, Angie decided to pursue a career as a PA. She now works closely with physicians at Orthopedic Institute and enjoys the combination of surgery and clinic. She finds it very rewarding to see patients live more fulfilled lives after surgery.

Angie enjoys spending time with her family, watching her young son as he learns new things, and, when she has time, going for a run.

## Sally Bacon, Patient Navigator

Sally works alongside Dr. Alvine to assure the surgical process goes smoothly. She takes care of scheduling procedures, referrals and prior authorizations with your insurance company. If you have any questions regarding scheduling or insurance you can contact her directly at 605.275.1442

## Nicole Miller, RN (Registered Nurse)

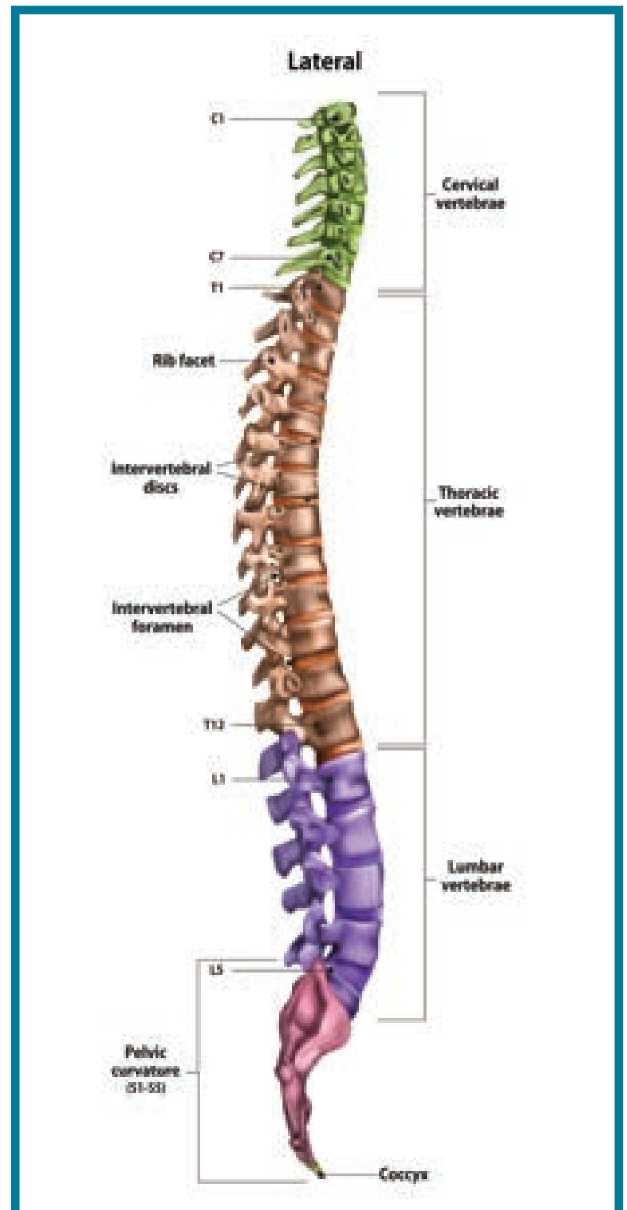
Nicole is the lead RN with the Alvine team and had been part of Orthopedic Institute since 2018. Nicole was raised on a farm in rural South Dakota. After starting a family, Nicole perused a degree in Massage Therapy from Globe University. Her love for caring for her clients eventually led to her continued education. She then went on to graduate with her Bachelors of Science in Nursing from University of South Dakota in 2017.

Nicole believes in providing high-quality patient and family-centered care, as well as building meaningful relationships. Nicole is a strong proponent of patient advocacy and patient education.
Outside of work, she enjoys spending time with her husband and four children, being outdoors, hiking, boating, traveling and watching her children's soccer and figure skating events.

Nicole ensures that patients' surgical needs, questions, and concerns are addressed. If you have any questions regarding your care, you can reach out to Nicole at 605.331.5890

# ANATOMY OF THE SPINE

The spine is made up of 33 bones known as vertebrae. You have 7 cervical vertebrea, 12 thoracic vertebrea, 5 lumbar vertebrea, as well as your sacrum and coccyx (tailbone). These bones surround and protect the spinal cord.




The bones are held together by tough bands of tissue called ligaments. There are small discs of cartilage with a soft jelly-like center that helps absorb shock and minimize friction between the vertebrae. Your nerve roots pass through openings between the vertebrae known as neural foramen. The lamina is part of the vertebra that forms an arch over the spinal cord. Dozens of muscles attach to and help support your spine; from your skull to your pelvis.

Openings in each vertebra line up to form a long hollow canal. The spinal cord and nerves run through this canal from the base of the brain to the lower back. Nerves from the spinal cord branch out and exit through the spaces between the vertebrae. The spinal nerves carry impulses to specific parts of the body, such as the arms and legs, to allow them to function and move.

# CAUSES OF BACK PAIN

Back pain can be caused by several factors:

- Inherited/genetic factors
- Injuries
- Effects of aging
  - Arthritis - The most common form of arthritis is disc degeneration
  - Disc degeneration can be accelerated by smoking, occupational factors, bad posture of lack of exercise.

### Herniated Disc (also called a ruptured disc)

A herniated disc occurs when a disc ruptures out and pushes against nerves. The pressure on the nerves may cause pain, numbness, tingling, and weakness in the lower extremities.

### Arthritis (Osteoarthritis) (Spondylosis)

With age and normal wear and tear, the bones can rub together and cause inflammation and pain. When the bones rub, painful bone spurs can form. Your physician may refer to this as joint deterioration, degeneration, joint narrowing, or bone on bone.

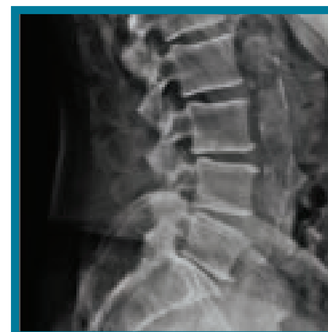
### Spinal Instability (Spondylolisthesis)

The vertebrae can slide back and forth, which can cause pain, numbness, and weakness. This is caused by arthritis or wear and tear.

### Spinal Stenosis

Spinal stenosis is the narrowing of the opening in the spinal canal, often caused by bulging of the disc and/or enlargement of the bone and ligaments. Stenosis is common with age and may cause pressure on the nerves, swelling, pain, numbness, weakness or loss of normal function.

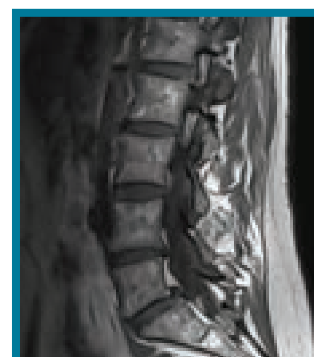
# ADVANCED TESTING



## X-Ray

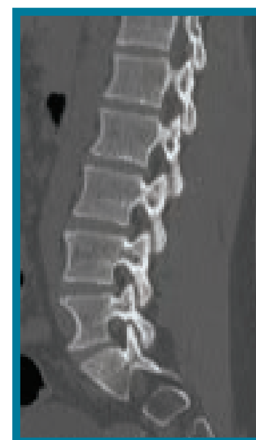
An x-ray will be completed at your physician's office for him to review at the time of your office visit.  This helps your team determine what may be causing your pain.  Xrays can show arthritis or wear and tear of the discs and joints as well as problem with alignment.

## MRI



After the physician examines you and reviews your x-rays, it may be deemed necessary to order an MRI for a more in-depth look at your spine. If this is indicated, the physician's Executive Assistant will help you in getting the MRI scheduled. This test is better at showing soft tissue like discs and nerves.

## CT or CT Myelogram



There are times when a patient can't have an MRI due to previous surgeries, implanted devices, or certain metals in their body. If the patient cannot have an MRI for safety or health reasons, a CT scan may be ordered instead. The physician's Executive Assistant will help you in getting the CT scan scheduled.

## EMG/Nerve Conduction Study

Your physician may ask for a specific nerve test called an EMG (Electromyogram), or Nerve Conduction Study. This is ordered if further data needs to be gathered regarding nerve health in your lower extremities. If your physician orders an EMG, their Executive Assistant will help you in getting this test scheduled.

# NON-SURGICAL TREATMENTS

At this point in your journey, you may have tried multiple conservative treatments. We typically try to manage symptoms in a variety of ways prior to considering surgical intervention. Some of these treatments are listed below.

• **Physical Therapy**- Working with a physical therapist can help to strengthen your spinal muscles, improve your posture, range of motion and help alleviate pain.

• **Anti-inflammatory medications**- Anti-inflammatories such as Ibuprofen, Aleve, Meloxicam and steroids can help relieve pain in the back and nerve pain.

• **Nerve modulating medications**- Medications such as gabapentin or Lyrica are often used to help alleviate nerve pain.

• **Injections/Epidurals**- We will often use steroid injections around the pinched nerve in the back to help alleviate symptoms. These injections are done with a specialized physician under fluoroscopy.

• **Chiropractic/Massage/Acupuncture**- These can all assist with pain and symptom management.

# LUMBAR SPINE SURGERY

**Decompression—** These types of procedures help to ease the pressure on your nerves by removing disc, bone or both. Additionally sometimes a fusion may be necessary to keep the spine stable.

- **Discectomy -** Discs are rubbery like structure in between the vertebrae that work as the shock absorbers in the spine. This procedures is done to remove herniated disc material that is pressing on a nerve.
- **Facetectomy -** The facet is a part of the back joint that can become arthritic and cause pressure on a nerve. This is a procedure to remove the bone pressing on the nerve.
- **Foraminotomy -** The foramen are the tunnels where the nerves exit the spine. This surgery is done to open the tunnels and remove any bone that is pressing on the nerves as they exit the spine.
- **Laminectomy -** The lamina bone that covers the back of the spine. This procedure is to remove the back of the spine to relieve pressure on the nerves.

**Fusion —** A fusion is a procedure done to stabilize the spine by fusing two or more vertebrae together. This is done with bone grafting, implants and a screw/rod construct. This can sometimes be done from the front (anterior) or back (posterior), the side (lateral) or a combination thereof. It is often done in conjunction with a decompression.

# PREPARING FOR SURGERY

## Surgery Expectation

As of now you have likely had detailed conversation with your surgeon regarding your specific condition and surgical recommendations. You also should have been given information regarding the risks, benefits and alternatives for surgery.  If you have any further questions regarding the specifics of your procedure please contact your surgeon.

## Stop Smoking and using Tobacco or Nicotine Products

If you currently smoke we strongly advise you quit smoking and using tobacco or nicotine products at least 6 weeks prior to and after surgery. Nicotine, in any form, is a hindrance to bone healing and fusion. Because Nicotine inhibits bone healing, smoking cessation products containing nicotine (Nicotine patches, lozenges, gum, E-cigarettes) should also not be used. There are new medication available to help with this.

## Pre-Operative Medical Clearance

You will be expected to see your primary care provider within 30 days prior to surgery for an updated History and Physical Exam. Your surgical team will help arrange this appointment.  During this exam you primary care provider will:

- Assess your current health status.
- Perform lab work and other testing needed before surgery.
- Make sure you are medically optimized for surgery.
- Direct you on what medications to continue or stop prior to surgery.

If you have medical conditions that require specialist care (Cardiology, Nephrology, Endocrine) you may be required to see them prior to surgery as well. Please discuss this further with your surgeon and primary care provider.

# PREPARING FOR SURGERY

## Updated Imaging

It is very important that your advanced imaging is up to date. Your surgeon will require you to update advanced imaging such as an MRI or CT Mylogram within 6 mos of surgery.  Your surgical team will review this and arrange testing if needed.

## Bone Density Test (DEXA scan)

You may be required to have a bone density screening called a DEXA scan to check for osteoporosis prior to surgery.  If you have osteoporosis we recommend you be on osteopororis medication before and after your procedure.

## Pre-Operative Phone Call

A nurse from the hospital will contact you by phone 2-3 days prior to surgery to:

- Confirm procedure/arrival time
- Go over your health history
- Instruct you on which medications to take and not take before surgery
- Instruct you on not eating/drinking before surgery
- Guide you on Pre Procedure Covid testing
- Discuss things to bring with you to the hospital

# PREPARING FOR SURGERY

## Items to bring to the hospital the morning of surgery

- Your current medications
- Driver's license or photo ID
- Your insurance information
- Personal care items
- Comfortable, loose fitting clothes
- Comfortable shoes with non-slip soles or athletic shoes
- Glasses or contacts
- Hearing aids
- CPAP machine

## Review the directions and the map provided prior to surgery

If you have any questions as to where to go the morning of surgery you can contact the hospital directly. Please see the contact information below for the Sioux Falls hospitals.

*Sioux Falls Specialty Hospital*
*910 E 20th St*
*Sioux Falls, SD 57105*
*Phone (605) 334-6730*

*Avera Mckennan Main Campus*
*1325 S Cliff Ave*
*Sioux Falls, SD 57105*
*Phone: (605) 322-8000*

*Sanford Health Center*
*1305 W 18th St*
*Sioux Falls, SD 57117*
*Phone: (605) 333-1000*

# DAY OF SURGERY

## The Morning of Surgery

- No food or drink as directed
- Shower as directed
- Take medications as directed
- Please arrive on time
- Please utilize the hospital's valet services to help park your car
- Please check in at the front reception desk

## Pre Op

- After checking in you will be assisted to a pre-op room. Your family/friend will be able to join you in this area.
- A nurse will review your procedure, history and medications
- You will then change into a surgical gown, hat and stockings.
- An anesthesiologist and certified registered nurse anesthetist will meet with you prior to surgery to discuss your anesthesia.
- General Anesthesia is used for spine surgery. This type of anesthetic is given by injection or by inhalation. You will also have a breathing tube in place while under anesthesia. Common side effects from this type of anesthesia include sore throat, headache, hoarseness, nausea, and drowsiness.
- The anesthesia team will also start an IV line in your hand or arm through which you will get fluids and certain medications.
- Your surgeon will visit with you in the pre-op area, confirm your procedure, initial the surgical site and answer any other questions you may have.
- You will also visit with a neuromonitoring specialist whom will be monitoring your nervous system in the operating room during the procedure.

# DAY OF SURGERY

## Operating Room

- From the pre-op area you will then be escorted by anesthesia to the operating room.
- Your family will be escorted back to the surgery waiting area and will be updated regularly on the progress of your procedure.
- You will be assisted onto the surgical bed and be given warm blankets as the operated room temperature is kept quite cool.
- Your nurse will again verify your name, birth date, allergies and procedure with you.
- Your anesthesia team will then give you oxygen and anesthetic medications.
- The length of procedure varies depending on the type of procedure you have. Please ask your surgeon about the estimated time of procedure for your specific condition.
- Your surgeon will visit with your family when the procedure is over.

## Post-Op

- After surgery you will be brought to the PACU (post anesthetic care unit).
- You will likely be here for 1-2 hours while you are waking up from surgery.
- Your vital signs will be monitored regularly by a nurse. You may also have an oxygen mask covering your nose and mouth when you wake up.
- You will be given IV pain medication as you will likely have pain in your surgical site, neck, traps and shoulders. You will also likely have a sore throat when you wake up.
- You may have a catheter in your bladder.
- Your IV will remain in place until you are discharged from the hospital.
- When you are fully awake and medically stable, you will move to your overnight hospital room, where you will be reunited with your family/friends.

# YOUR RECOVERY

## Hospital Stay

- You will likely spend 1-2 nights in the hospital.
- We encourage getting up and walking as soon as possible after surgery with the help of the hospital staff.
- You may have a drain in place after surgery to help prevent a hematoma (blood from accumulating in your incisional area). If you do this will be removed prior to your discharge from the hospital.
- A Physical Therapist and Occupational Therapist will work with you during your hospital stay to teach you how to get in and out of bed as well as maneuver safely within your home. They can also assist you with getting any equipment you may need after surgery such as a shower chair or reacher.
- During your stay a case manager will be available to assist you with any discharge planning needs.
- Once you are medically stable, your pain is controlled and you are safe with physical therapy you will be discharged from the hospital.

## Follow Up Visits

- We will see you back in clinic multiple times over the next 3-6 months to make sure your recovery is going as expected. Depending on the type of surgery we may take follow up x-rays.
- At your first post operative visit you will work with one of our spine therapists to establish a home exercise program and get started on our postoperative physical therapy protocol.

# RECOVERY GUIDELINES

## Restrictions

- You will have a full 3 months of bending, lifting and twisting restrictions. No lifting greater than 10lbs the first 6 weeks, followed by an increase to 20lbs the next 6 weeks. Also no bending or twisting at the waist for 3 months

## Incision Care

- Sutures and dressings can vary, however you will likely have dissolvable sutures in place with glue over your incision. The glue will gradually come off over time. Do not scrub or pick at the glue.
- Do not apply lotions or creams to your incision until okayed by your surgeon.
- Do not submerge your incision underwater. Avoid hot tubs, pools, lakes etc until your incision is completely healed.
- We recommend keeping your incision covered with a large band-aid until your first follow up visit.

## Driving

You will likely not be able to drive for 2-6 weeks. You can drive when you feel safe, have good strength in your legs, and are not taking narcotic pain.

## Sexual Activity

You can resume sexual activity when you feel up to it. You may find certain positions will be more comfortable than others. Caution and common sense are recommended as a safe rule of thumb. Simply if it hurts, do not do it.

## Return to Work

Depending on your field of work and how you feel, your time off from work will vary. We recommend planning for at least 6 weeks off from work. We recommend discussing specific return to work instructions with your surgeon. If you need assistance with FMLA or short term disability paperwork please obtain the required paperwork from your employer and bring to your return appoint or contact our office at 605-331-5890.

# PAIN MANAGEMENT

- You will likely have some pain following surgery
- You will be prescribed a narcotic pain medication as well as a muscle relaxer. Please take as directed.
  - Narcotic pain medication can cause the following side effects:
  - Decreased appetite
  - Nausea
  - Impaired cognitive function
  - Constipation
  - Urinary retention
  - Light headedness
- Many pain medications have acetaminophen (Tylenol). It is advised that you take no more than 3,000 milligrams of acetaminophen in 24 hours. Exceeding this amount could damage your liver.
- Do not drink alcohol or drive any motor vehicles while taking narcotic pain medication.
- Eat a variety of healthy food with high fiber and drink 6-8 glasses of water each day to prevent constipation.
- Take your pain medication with food to help avoid nausea or an upset stomach.
- If you experience lightheadness, change positions slowly, let your doctor know if this persists.
- Your pain should lessen every week. Wean off the medication as soon as you are able. You can go for longer times between doses or only take one pill at a time instead of two.
- Ice packs on the back can also be very helpful.
- Avoid heat right after surgery as this can increase swelling and worsen pain.
- Refrain from using NSAIDs (ibuprofen, Aleve, meloxicam, diclofenac, celebrex) for 3 months following surgery unless otherwise directed as these types of medications have been shown to decrease spinal fusion post operatively.

# REASONS TO CALL YOUR SURGEON

With signs of infection:

- A temperature of 101.50 F or higher
- Increased pain, swelling, redness, warmth, odor, or increased drainage of your incision.
- Change in ability to move such as new weakness, or not being able to move your leg
- Any change in sensation such as new numbness or tingling
- Unusual bruising or bleeding
- Severe pain not relieved by rest, medicine, or ice
- Persistent nausea or vomiting
- Problems with urination such as urgency, burning or frequency
- Any other questions or concerns

Pain Medication Disclaimer

While pain medications function to decrease pain to a tolerable level, you may experience pain post-operatively despite using them. Based upon federal regulations, some pain medications will require a handwritten or electronic signed prescription. These regulations do not allow us to call your pharmacy for additional refills. Your insurance company or pharmacy may only cover or allow a certain day supply of the prescribed pain medication. Please contact our office before running out of medication if you feel you may need more as prescriptions may not be filled the same day.

If you have any further questions
or concerns regarding your surgery,
please contact our office
at 1-888-331-5890.

# PREPARING FOR SURGERY

## Medications

Certain medications will need to be stopped prior to surgery and should be discussed with your doctor such as:

- NSAIDs (ibuprofen, Aleve, naproxen, Motrin, meloxicam, dicofenac, Celebrex)
- Aspirin (including 81mg and 325mg)
- Blood thinners
- As well as some vitamins, supplements, blood pressure medications (ACE inhibitors), and diabetic medications.

## Preform the following tasks before surgery

- Remove tripping hazards, such as loose rugs and cords, Consider using double-sided tape to secure carpet edges.
- Consider moving Items frequently used in the kitchen should be moved to table-top height surfaces or lower shelves.
- Consider putting in grab bars by your toilet and in your shower or using a shower chair in your tub.
- Arrange for assistance with pet care, household cleaning, laundry, yard work, snow removal and getting the mail.
- Plan for someone to stay with you or check on you following surgery.
- Arrange for rides to appointments, as you will not be able to drive for 2-6 weeks following surgery
- Prepare meals