

# What to Consider Before Spine Surgery

Neck and back pain affect eight out of 10 Americans at some point in their life. The good news is that 80% of people who seek medical care will find effective pain relief through non-surgical treatments.

If conservative treatment has not helped, you may be considering or may have been referred for spine surgery. Before making the decision on whether to pursue surgery, use this guide to help you better understand your options and what to expect.



Neurosurgery One

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# Your Spine

## Your vertebrae, spinal discs, and facet joints.

Each **vertebra** has a pointed bone called a spinous process. These bones form the hard ridge of your backbone that you feel when you run your hand down your back. Various muscles and their ligaments attach to the spinous process and stabilize the spine.

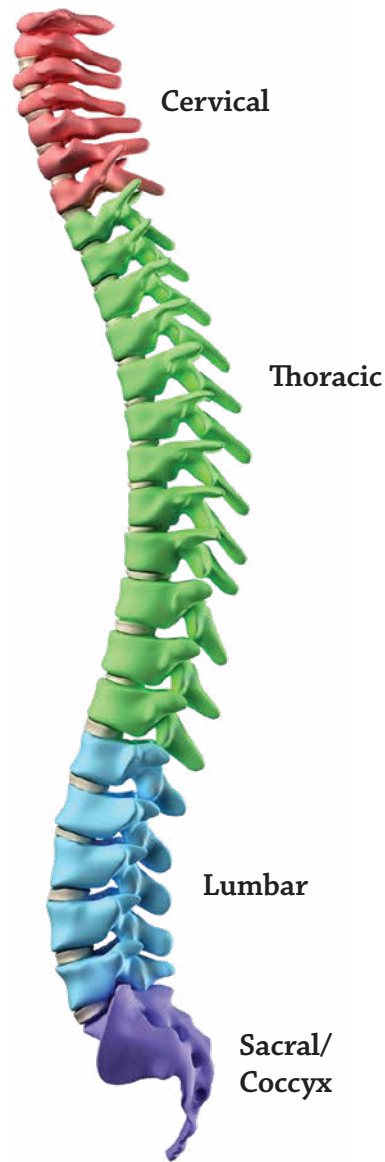
Your vertebrae are divided into three regions, plus the sacrum and tailbone:

**Cervical:** 7 bones in your neck make up the cervical spine.

**Thoracic:** 12 thoracic bones make up your upper back.

**Lumbar:** 5 lumbar bones make up your lower back.

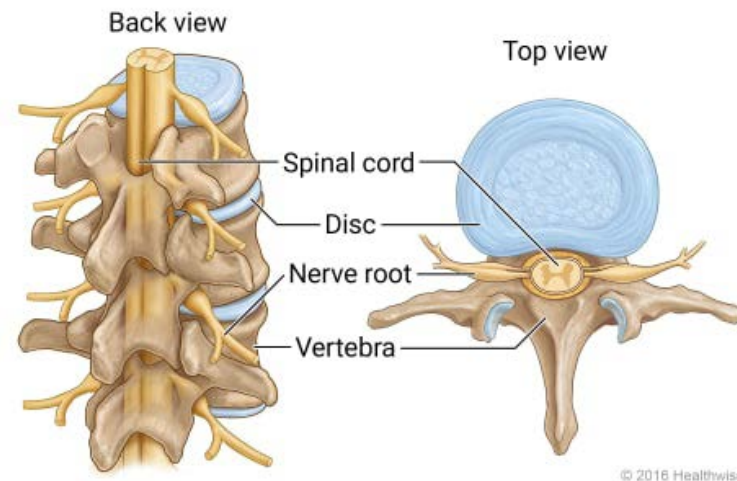
**Sacral and Coccyx (Tailbone):** 9 bones make up your sacrum and tailbone.



## Your spinal canal and spinal cord.

Each vertebra has a large opening in its center called the spinal canal. The spinal cord passes through this large opening and runs from the brain to the lumbar spine.

The spinal cord carries motor information from your brain to your body. It also carries sensory information from your body back to your brain.



## Your spinal nerve root, spinal nerves, and the foramen.

The spinal nerve root is where the spinal nerves branch off from the spinal cord. The spinal nerves then pass through small openings of the vertebrae called foramen. The nerves affect the movement and feeling of the muscles and skin that they connect to. These can be called your “dermatomes.” These nerves are also involved in the function of your digestive and urinary systems.

# Common Causes of Neck and Back Pain

Back and spine problems can occur for a variety of reasons, some of which can be accurately diagnosed and some in which the root cause remains unknown. Common reasons for back and spine conditions include poor posture, poor body mechanics, obesity, poor living or working conditions, and skeletal or structural problems.

## TYPES OF NECK AND BACK CONDITIONS:

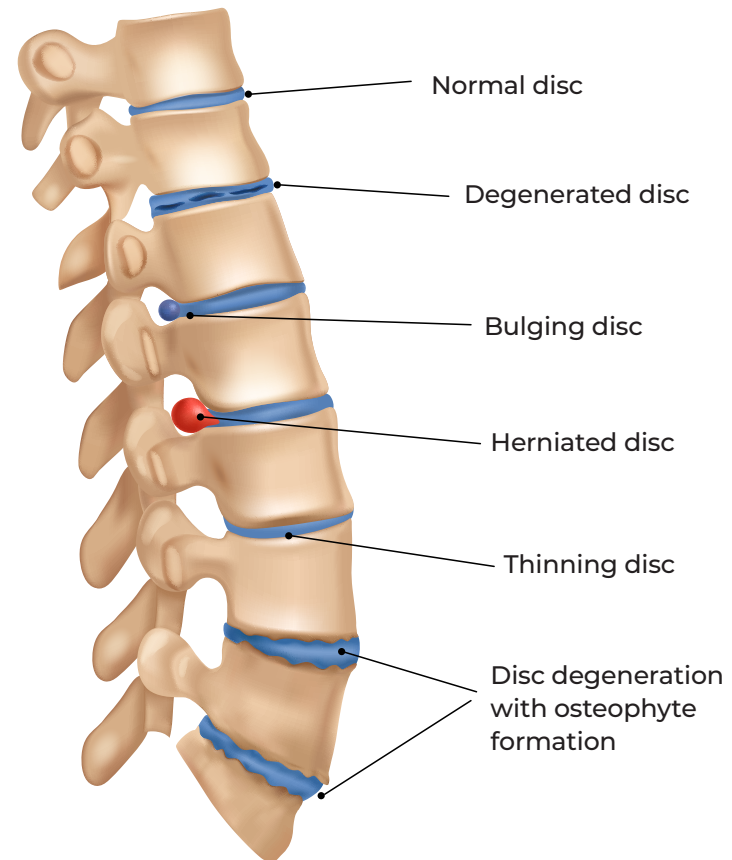
**Degenerative disc disease (DDD):** This condition happens when the disc wears down from either the natural process of aging or from injury to the back. This can contribute to a disc herniating.

**Herniated disc:** This is also called a “slipped disc.” This happens when the center of the disc ruptures and bulges through the outside of the disc. This can cause pressure on the nearby nerve root and spinal nerve to produce pain, numbness, and/or tingling.

**Spinal stenosis:** Also known as the narrowing of the spinal canal, this condition can put pressure on the spinal nerves or compress the spinal cord itself, causing weakness, numbness, and/or pain below where the narrowing occurred.

**Radiculopathy:** This condition results from compression or pinching of the nerve root or the spinal nerves and can create pain, numbness, tingling, and weakness.

**Myelopathy:** Myelopathy happens when there is damage to the spinal cord itself. This can develop from extensive stenosis and arthritic changes of the spine and may result in weakness, numbness, and problems with coordination. Myelopathy may also cause difficulty with fine motor movement.

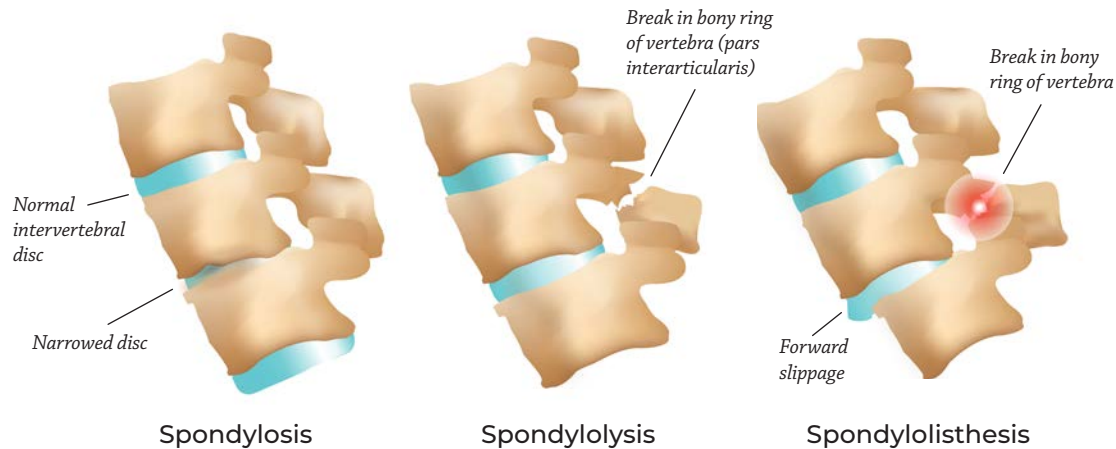


**Facet syndrome:** Defined as pain that originates from the facet joints, this condition occurs from an injury or when the joints become damaged over time.

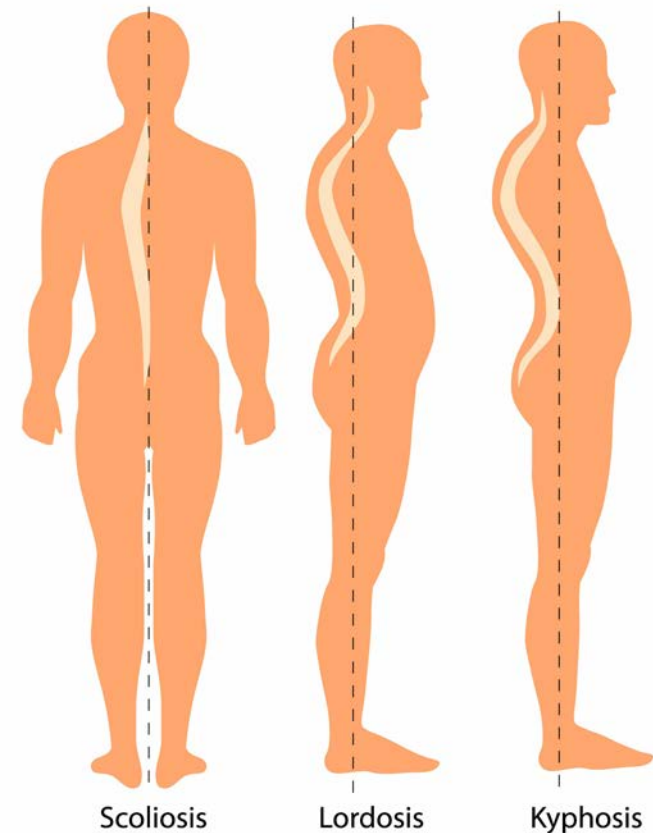
**Spondylosis:** Also known as osteoarthritis of the spine, spondylosis results from degeneration of the cartilage that coats the facet joints of the spine. When the cartilage breaks down, the joint does not move smoothly, which can cause pain and stiffness. Bone spurs can also form due to damage to the bone.

**Spondylolysis:** Spondylolysis is different from spondylosis. This condition is weakness in one of the bony bridges that connect the facet joints together.

**Spondylolisthesis:** This condition results from degeneration or trauma to the joints of the spine that lead to vertebra slipping forward and creating instability of the spine. This can cause pinched nerves and create radiating pain.



**Scoliosis, kyphosis, and lordosis:** These are all abnormal curves of the spine. Scoliosis creates an S curve from side to side. Kyphosis occurs when the bones of the thoracic spine curve outward, creating a hunchback. Lordosis is an exaggerated curve of the lumbar spine and creates a swayback appearance.



# Conditions That Benefit from Spine Surgery

Chances are high that sometime in your lifetime you will suffer from neck and/or low back pain. While surgery is often the last line of treatment, spine surgery has been found to provide significant benefits over conservative treatments in the following cases:

- › **Spinal stenosis (narrowing of the spinal canal):** Greater improvements in pain reduction and function when compared to conservative treatments, according to [findings in the Spine Patient Outcomes Research Trial \(SPORT\)](#).
- › **Persistent sciatica from lumbar disc herniation:** Less pain and greater long-term improvement with surgery, when compared to conservative treatments, according to the [SPORT study](#).
- › **Herniated discs in the lower (lumbar) spine:** Improved functioning and reduced long-term pain and disability, when compared to nonsurgical treatment, according to an [eight-year study published in Spine](#).

*List continued on next page.*



*Kim Paxton celebrates pain-free living after lumbar spinal fusion with Neurosurgery One.*

[▶ Watch her story.](#)

## SOONER IS BETTER

Undergoing surgery for herniated discs sooner rather than later is more effective, according to a [study published by the Journal of Bone and Joint Surgery](#). People who waited more than six months to undergo surgery after symptoms arose had worse results than those who had surgery within six months of the onset of symptoms.

# Conditions That Benefit From Spine Surgery

Continued

- › **Trauma:** Medical emergencies that include broken bones or damage to the spinal column typically require surgery. Patients with spinal cord injuries who undergo surgery within 24 hours are twice as likely not to suffer paralysis than those who wait, according to [a study published in PLOS ONE](#).
- › **Loss of motor or bladder control:** Conditions that result in a loss of control and function, such as cauda equina syndrome (a rare condition that affects the nerve roots in the lumbar area). The American Association of Neurological Surgeons recommends surgery within 48 hours of onset for conditions such as cauda equina syndrome to provide the best benefits and reduce the likelihood of long-term issues.

Other conditions that may require surgery include scoliosis (curvature of the spine), kyphosis (rounding of the back), spondylolisthesis (vertebrae shifting out of place), radiculopathy (nerve inflammation/irritation caused by herniated disc), and degenerative disc disease.

Nearly **90% of low back pain** is temporary and will improve without surgery, according to the American Association of Neurological Surgeons.

Watch how spinal fusion helped a woman reclaim her life after scoliosis caused debilitating pain.



# Before Choosing Spine Surgery

In most cases, with the exception of trauma or neurological emergencies, you should not be considering surgery to relieve your neck or back pain as your first option. More than 80% of cases of spine pain can be treated without surgery. At Neurosurgery One, our spine specialists are committed to helping alleviate your pain in the most conservative way possible.

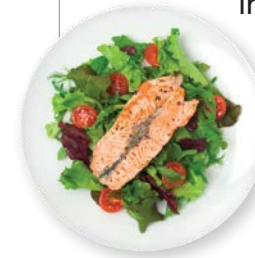
Before considering surgery, your Neurosurgery One provider will do the following:

- › Conduct a physical exam, obtain a thorough health history, and possibly order imaging tests, such as X-rays, CT or MRI scans, or try diagnostic injections to identify the underlying cause of your pain and provide an accurate diagnosis.
- › If appropriate and safe, pursue conservative treatment, which may include:
  - Physical therapy, acupuncture, and massage
  - Medications such as NSAIDs (e.g., ibuprofen), muscle relaxers and, in some cases, carefully controlled and short-term use of opioid pain medications
  - Patient weight loss, smoking cessation, and control of diabetes and hypertension
  - Referral to Neurosurgery One pain management specialists for pain relief procedures (*please see next page*)



## TAME INFLAMMATION

High-protein diets and intermittent fasting have been shown to help calm inflammation, which often is a root cause of chronic pain.





# Interventional Pain Management

If you're struggling with chronic and debilitating pain in your neck or back and you haven't found relief through physical therapy, pain medication, or other conservative treatments, there are many interventional pain management procedures that may help. These nonsurgical or minimally invasive procedures can effectively treat many types of chronic pain:

- › **Therapeutic injections** use steroids to reduce inflammation in the spine and provide enough pain relief for patients to participate in physical therapy and make other lifestyle changes.
- › **Nerve blocks** are injections of local anesthetic into a group of nerves to control acute pain.
- › **Radiofrequency ablation** is a minimally invasive procedure that uses heat to destroy the nerve that is transmitting pain signals to the brain.
- › **Neuromodulation** is a treatment that uses electricity to interrupt pain signals on their way to the brain. The electricity is delivered through a device that is implanted through a minimally invasive procedure near the spinal column.

To determine if a patient's pain can be helped by one of these procedures, Neurosurgery One's in-house physiatrists use a diagnostic test called electromyography. This procedure helps detect nerve dysfunction, muscle dysfunction, or problems with nerve-to-muscle signal transmission.



To learn more about interventional pain management procedures, [download a free guide.](#)

For patients with severe, intractable lower back pain, surgery has been found, in many cases, to worsen back pain. A [study published in Spine](#) shows that spinal cord stimulation provides better outcomes for these patients.

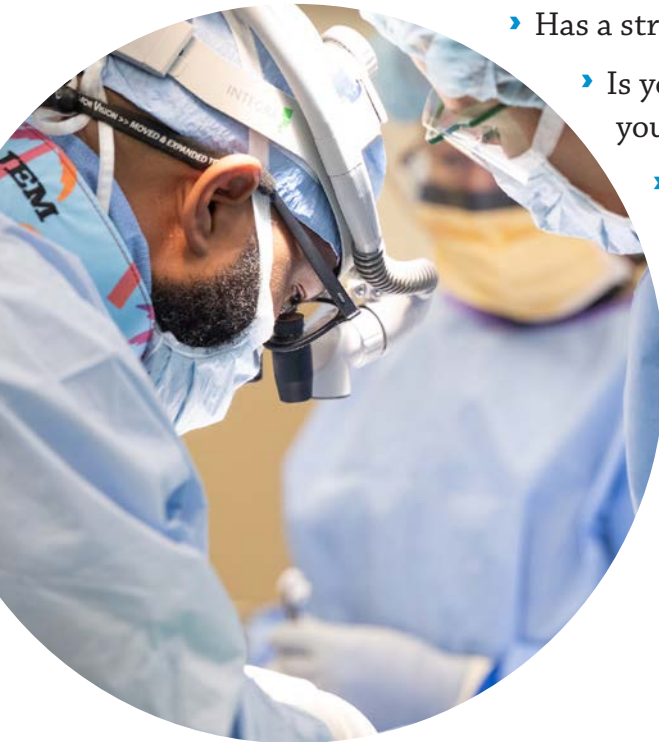
# Are You a Candidate?

Using the most advanced surgical procedures, including minimally invasive surgery, spine surgery is now safer and more effective than ever.

## **Are you a candidate for spine surgery?**

In deciding whether surgery will help you, our spine specialists will consider the following questions:

- › Have you tried physical therapy?
- › Have you tried medications?
- › Have you tried spinal injections or other pain management procedures?
- › Have you had imaging tests (X-ray, CT, MRI) of your spine and diagnostic injections?
- › Has a structural cause of your pain been identified?
- › Is your quality of life or activity level greatly diminished by your pain?
- › Does medical research show a clear and proven benefit of surgery for your condition?
- › Do you have additional spine conditions that would prevent you from gaining benefit from surgery for your main condition?
- › Does your overall health support safe and effective surgery?
- › Do your lifestyle and personal goals for your health support surgery?



*Watch a video to see if you might be a candidate.*

# How to Select a Spine Surgeon

## *Neurosurgeon vs. Orthopedic Surgeon*

While it's true that an array of surgeons can perform spine surgery, choosing a neurosurgeon to perform your spine surgery offers unique expertise and benefits. Neurosurgeons, like those at Neurosurgery One, undergo extensive training and have specific expertise to ensure consideration is given to the spinal cord and peripheral nerves during surgery to help maximize your success and minimize pain.

### **Why choose a neurosurgeon for spine surgery?**

- › Two more years of training than most orthopedic surgeons
- › Typically perform more spinal procedures during their residency than orthopedic surgeons
- › Expertise in dealing with nerves and spinal cord, critical components of any surgery involving the spine



At Neurosurgery One, physician assistants work closely with physicians to assess patients, refer for imaging, prescribe medication, and care for patients after surgery. **Read this blog** about the advantages of seeing a physician assistant and what they can do to help you with spine pain.

# How to Select a Spine Surgeon

## Experience Matters

Experience matters when it comes to spine surgery. The experience of the surgeon and the outcomes of spine surgery are directly correlated.

### Benefits of a more experienced surgeon:

- › **Reduced complication rates:** Complication rates are, on average, lower among more experienced surgeons. In surgeries for spinal stenosis, complication rates were 38 percent higher among surgeons with minimal experience (less than 15 operations in four years), compared to those who had performed more than 80 procedures during the same time period, according to a study published in [Neurosurgery](#).
- › **Lower infection rates:** Less experienced surgeons often take longer to perform surgery, which has been found to lead to increased infection rates, according to a study published by [The University of Chicago Press](#).
- › **Decreased length of hospital stays:** In general, more experienced surgeons are more accurate and efficient during surgery, resulting in lower rates of complications, anesthesia, and infections, all of which lead to shorter hospital stays.
- › **More careful patient screening:** Highly experienced spine surgeons (15 years or more in the field) are more likely to properly screen candidates for surgery, resulting in better outcomes, according to a survey published in the [Journal of Spinal Disorders and Techniques](#).
- › **Reduced reoperation rates:** A surgeon's experience plays a significant role in reducing infection, which is a primary reason for repeated spine surgery, according to [2014 research](#) on reoperation within 30 days of fusion surgery.

### How much experience is needed?

There is no magic number when it comes to experience. Experience is generally measured as either:

1. Five years of performing the procedure, or
2. Conducting at least 30 surgeries of the given procedure (e.g., 30 spinal fusions)

Each Neurosurgery One spine surgeon has extensive experience and meets these criteria.

# How to Select a Spine Surgeon

## *Interview Your Surgeon*

Spine surgery is rarely an emergency unless the underlying condition occurred during a traumatic accident. Before undergoing nonemergency surgery, it's important to select a surgeon who is right for you and your condition. Take your time to interview possible surgeons and their staff to ensure you find the right fit.

### **Ask your potential surgeon the following questions:**

- › Do you have extensive experience or fellowship training in spine surgery?
- › Have you completed this procedure before? If so, how many times?
- › What are the most common complications of this procedure?
- › What is your infection rate?
- › What is your success with this type of surgery?
- › What does recovery from this procedure entail?
- › Where do you perform surgery?

### **Additional things you should consider when choosing a spine surgeon:**

- › Do you have the surgeon's full attention?
- › Do you feel comfortable with the surgeon?
- › Does the surgeon discuss all options with you?
- › Does the surgeon's appearance reflect the attention to detail you hope to see in the operating room?
- › Are the surgeon and his or her team friendly and competent in addressing your concerns?
- › Are the staff helpful with paperwork, travel plans, scheduling, etc.?



# About Neurosurgery One

The surgeons and staff of Neurosurgery One take pride in providing patients with unbiased information that is supported by medical research. We are committed to offering patients information on all treatment options, whether those options are delivered by our practice or we need to make a referral to another specialist.

## Why choose Neurosurgery One?

- › Access to neurosurgeons who have completed hundreds of spine surgeries
- › A highly experienced surgical team
- › The latest surgical advancements, including minimally invasive surgery
- › Complication and infection rates equal or better than national averages
- › Unbiased information that is supported by medical research, offering patients information on treatment options regardless of whether they choose treatment at Neurosurgery One

## Our Locations

**Castle Rock** 2352 Meadows Boulevard, Suite 300 • Castle Rock, CO 80109

**Lakewood** 11750 W. Second Place, Suite 255 • Lakewood, CO 80228

**Littleton** 7780 S. Broadway, Suite 350 • Littleton, CO 80122

**Lone Tree** 9980 Park Meadows Drive, Suite 101 • Lone Tree, CO 80124

**Parker** 9403 Crown Crest Boulevard, Suite 200 • Parker, CO 80138

**Westminster** 14300 Orchard Parkway, Second Floor • Westminster, CO 80023

# Meet Our Neurosurgeons

Neurosurgery One is pleased to offer one of the top teams of spine surgeons in the nation.



**Zain Allison, MD**, specializes in neuro-oncology, craniotomy, vascular surgery, and minimally invasive spine fusion and decompression surgeries.



**Wissam Asfahani, MD, FAANS**, has 12 years of experience treating brain and spine disorders using surgical and nonsurgical therapies, including minimally invasive spine surgery.



**Joshua M. Beckman, MD, FAANS**, specializes in minimally invasive spine surgery, including lateral access to the thoracic and lumbar spine and other emerging advanced spine surgery techniques.



**Angela M. Bohnen, MD, FAANS**, specializes in treatment of primary, skull base, and metastatic brain tumors, as well as surgery for spine disorders and deformities.



**Abhijeet Gummadavelli, MD**, specializes in epilepsy surgery as well as minimally invasive and traditional brain tumor and spine surgeries.



**John Hudson, MD, PhD, FAANS**, is an expert in neuroendoscopic and other minimally invasive approaches to brain surgery. He also provides treatment for general spinal disorders.



**Jason E. McGowan, MD, FAANS**, specializes in degenerative spinal disorders, including scoliosis, and performs minimally invasive spine surgery and complex spinal reconstruction procedures.



**Lloyd Mobley III, MD, FAANS**, specializes in nonsurgical management and minimally invasive surgery for spine disorders, as well as complex surgical procedures for spine and brain conditions.



**J. Adair Prall, MD**, is a national expert on trigeminal neuralgia and also specializes in treating complex tumors, vascular malformations, and spinal disorders.



**David VanSickle, MD, PhD, FAANS**, is one of the country's preeminent surgeons pioneering the use of Asleep DBS surgery. He specializes in functional neurosurgery and also provides treatment for brain tumors, spinal disorders, and neuromodulation for pain.

# Meet Our Physiatrists

Neurosurgery One is pleased to offer comprehensive spine care, including interventional pain management with our board-certified physiatrists.



**Erasmus G. Morfe, DO, FAAPMR**, is a board-certified physiatrist with 14 years of experience in interventional pain management. He treats spine pain using nonsurgical techniques and performs electrodiagnostic studies (EMG/NCS) as well as ultrasound-guided injections.



**Jason Peragine, MD, FAAPMR**, is board-certified in physical medicine and rehabilitation as well as pain medicine. He performs a wide variety of complex pain management procedures, with extensive experience in cervical spine treatments.



**Esther D. Yoon, MD, FAAPMR**, is a fellowship-trained and board-certified physical medicine and rehabilitation physician who specializes in interventional spine and musculoskeletal medicine, and pain management. She treats a wide range of spine and joint disorders.

**Many types of neck and low back pain respond well to interventional pain management, including:**

- › Headaches
- › Whiplash
- › Bulging discs
- › Facet joint pain
- › Sacroiliac (SI) joint pain
- › Osteoarthritis
- › Sciatica
- › Mechanical low back pain
- › Vertebrogenic pain syndrome



# Questions and Notes

Use this space to gather more information from your spine surgeon to better understand if surgery is right for you.

Can my back or neck pain be pinpointed to a structural issue? \_\_\_\_\_

\_\_\_\_\_

What medical research supports the use of spine surgery to treat my condition? \_\_\_\_\_

\_\_\_\_\_

What outcome can I reasonably expect from spine surgery? \_\_\_\_\_

\_\_\_\_\_

Do you have any reservations or concerns about recommending spine surgery for my condition? \_\_\_\_\_

\_\_\_\_\_

How can I better prepare for spine surgery? \_\_\_\_\_

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I have additional questions about ... \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

My biggest concerns are ... \_\_\_\_\_

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