



# The Spine Center

*at Concord Orthopaedics*

Self-Schedule Your  
Appointment Online



## Comprehensive Spine Care

# OUR MISSION IS TO PROVIDE THE COMMUNITY WITH CARING, CONVENIENT EXPERT SPINE CARE

## WHY COME TO THE SPINE CENTER?

Our Spine Team is comprised of fellowship-trained, board-certified orthopaedic spine surgeons, interventional pain management specialists, physician associates, nurse practitioners, and orthotists.

## WHAT DOES THE SPINE CENTER OFFER?

We offer a full spectrum of surgical and non-surgical treatment options for traumatic and degenerative conditions. In addition, we treat and manage adult to pediatric spinal deformity and scoliosis. We also offer second opinions and work-related injury care.

## IS SURGERY MY ONLY OPTION?

No! Our dedicated team of physicians will provide a comprehensive evaluation and tailor your treatment to your individual needs. When possible, we recommend non-surgical options such as injections, physical therapy, or non-opiate medication to help manage pain.

## WHAT IF SURGERY IS NECESSARY?

Our surgeons perform a full range of spine procedures, including minimally invasive surgeries, as well as both inpatient and outpatient operations at our Orthopaedic Surgery Center, Concord Hospital, and Parkland Medical Center.

If a procedure is scheduled, plan ahead for the day of your procedure and recovery. The better prepared you are for your procedure, the smoother your recovery is likely to be. Follow all instructions given.

# MEET OUR SPINE TEAM



**Clifford M. Levy, MD**

Orthopaedic Spine Surgeon



**David J. Nagel, MD**

PM & R / Diplomate Pain Medicine



**Russell S. Brummett, MD**

Orthopaedic Spine Surgeon



**Jung-Woo Ma, MD**

PM & R / Pain Medicine



**Ross A. McEntarfer, MD**

Orthopaedic Spine Surgeon



**Jessica L. Mack, MD**

PM & R / Interventional Spine

# MEET OUR SPINE TEAM



**Alan D. Parzick, PA-C**

Spine Care Physician Associate



**Emily J. Hurst, DSc PAS, PA-C**

Spine Care Physician Associate



**Julie M. Michaud, PA-C**

Spine Care Physician Associate

# CONDITIONS TREATED AT THE SPINE CENTER

## DEGENERATIVE DISC DISEASE

A condition in which disc deteriorate between vertebrae. Some degenerative disc diseases cause no symptoms, while others may cause the spine to lose flexibility or cause bone spurs that may pinch a nerve root, causing pain or weakness.

## HERNIATED DISC

Occurs when the soft center of a spinal disc pushes through a crack in the tougher exterior casing. Some herniated discs cause no symptoms, while others can irritate nearby nerves and result in pain, numbness, or weakness in an arm or leg.

## OSTEOARTHRITIS

A form of arthritis caused by a degenerative disc disease that affects the facet joints (the small joints at each segment of the spine).

## SACROILIAC JOINT DYSFUNCTION

Improper movement of the joints at the bottom of the spine that connect the sacrum to the pelvis. This can result in pain in the lower back and buttock, or inflammation of the joints known as sacroilitis.

## PEDIATRIC & ADULT SCOLIOSIS

Curvature of the spine that generally occurs during the growth spurt just before puberty. While occasionally caused by cerebral palsy and muscular dystorophy, the cause of scoliosis is often unknown. In adults, scoliosis is typically the result of degenerative disc disease (DDD) and facet joint arthritis.

## SPONDYLOLISTHESIS

It can be the result of a degenerative change or a defect in part of the spine that causes vertebra to slip over another vertebra forwards, backwards, or sideways. This can result in symptoms including back and/or leg pain and is often found in the tendon with spinal stenosis.

## SPINAL STENOSIS

The abnormal narrowing of the bony channel occupied by the spinal nerves or the spinal cord. Symptoms include pain, numbness, or weakness in an arm or leg.

## VERTEBROGENIC BACK PAIN

Degeneration in the disc spaces can cause inflammation and degeneration where the disc meets the bones of the spine. This can result in debilitating back pain that is worse with sitting, activities, bending, and lifting.

# DIAGNOSTIC SERVICES PROVIDED AT THE SPINE CENTER

## X-RAY

As part of our commitment to patient care, every Concord Orthopaedics office has digital x-ray imaging facilities on-site. This allows us to streamline your experience and allows our providers to have immediate access to your images. The images are stored in your electronic medical record and can be made available to you on a CD, if needed, for a small fee.

## MRI

Sometime x-rays can not capture what the doctor needs to adequately diagnose you. In this situation, your provider may order an MRI (magnetic resonance imaging). MRIs have been proven invaluable for diagnosing spine, joint, and musculoskeletal disorders as they enable providers to see physical structures which may not be visible using other imaging techniques.

We have an MRI conveniently on site at our Concord location, available for early mornings, evenings, and weekends.

Gadolinium (contrast) studies are also available to those who need it. We also offer MRIs early mornings, late evenings, and weekends.

## EMG / NCS

Electromyogram (EMG) is a test that helps to diagnose a variety of disorders involving peripheral nerves, muscles, spinal nerves, and symptoms including numbness, tingling, pain, muscle weakness, low back pain, sciatica, carpal tunnel syndrome, or radiculopathy. Our board-certified providers will perform the EMG, which usually takes 30-45 minutes. There are two parts of the study: the nerve conduction study and the EMG needle study. Each part of the study gives information which will help to determine the functional quality of the peripheral nerves and muscles tested.

**At Concord Orthopaedics, our radiology department utilizes state-of-the-art technology to perform advanced diagnostic studies. Our offices conveniently offer x-ray, MRI, and EMG. Our professional radiologic technicians, physiatrists, and neurologists are here to assist to ensure your comfort throughout your exam.**

# PAIN INJECTION TREATMENT OPTION

## EPIDURAL STEROID INJECTION

Frequently used for relief of neck pain that emits to the arms or lower back pain that radiates to the legs. Steroidal (anti-inflammatory) medication is injected into the epidural space of the spine to effectively reduce the inflammation that may be caused by disc herniation, spinal stenosis, or spinal arthritis.

## FACET JOINT STEROID INJECTION

Facet joints are the small joints at each segment of the spine and can become painful due to arthritis, a back injury, or mechanical stress. A small amount of local anesthesia and/or steroid medication is injected into the facet joints to decrease inflammation.

## MEDIAL BRANCH BLOCK

A facet joint block is a diagnostic injection of local anesthesia into one or more of the joints located along the side of each vertebra on both sides of the spine in the lower back. If pain is relieved in the hours following the medial branch block procedure, this confirms the source of pain as the facet joint. Some providers will use steroids with this procedure for longer effect. This is then followed by a radiofrequency ablation procedure.

## RADIOFREQUENCY ABLATION

An electrical current produced by a radio wave is used to heat up a small area of nerve tissue, thereby decreasing pain signals from the specific area. It can be done for both neck and lower back pain, and is appropriate for patients that experienced a successful response to facet block injections.

## SACROILIAC JOINT INJECTION

Steroid and anesthetic is injected into the sacroiliac joint to decrease inflammation and pain.

## SELECTIVE NERVE ROOT BLOCK

Primarily used to diagnose the specific source of nerve root pain and for therapeutic relief of lower back and/or leg pain. This procedure involves an injection of a small amount of steroid and numbing medications around a very specific nerve root/spinal nerve as it exits out of the spinal cord.

## VERTEBROGENIC BACK PAIN

A device is implanted during a surgical procedure and may include fully implanted system or a system with an external power source. It introduces low levels of electrical current to the dorsal portion of the spinal cord to block the sensation of pain.

## INTRACEPT PROCEDURE

Relieves vertebrogenic pain by heating the basivertebral nerve (BVN) with a radiofrequency probe to stop it from sending pain signals to the brain.

# NON-SURGICAL TREATMENT OPTIONS

## PHYSICAL THERAPY

A highly-trained physical therapist evaluates and creates a treatment plan to meet your individual needs and goals. This includes exercises, manual techniques, stretching, soft tissue techniques, and other treatment methods to effectively improve your condition.

## BRACING

Limited motion of the spine with a brace is sometimes needed to expedite the healing process. Braces are recommended based on factors specific to you, such as location or degree of spinal curvature. Proper usage of the brace is vital to the success of this kind of treatment. At the Spine Center, we offer bracing services on-site in all our office locations to provide you with the convenience and accessibility you deserve. We also partner with Capital Orthotics in Concord and Manchester for custom braces.

## INJECTIONS

Concord Orthopaedics offers diagnostic and therapeutic spinal injections including epidural, facet, spinal nerve root, sympathetic blockade, and diagnostic discography.

Back/leg pain, frequently referred to as sciatica, is often caused by inflammation of a disc and/or nerves. An epidural injection targets this pain by injecting a steroid (anti-inflammatory) medicine into the epidural space.

The epidural space is the space outside the covering of the spinal cord. The epidural injection may help an injury to heal by reducing inflammation in the area. It may provide permanent relief or a period of pain relief for several months while the cause of the pain is healing. Injections are usually done as a series of three, spaced apart by two to three weeks.

While lying on a special table, your back will be cleansed and prepared. The physician will numb the skin, which may sting for a few moments. Then, a certain spinal needle will be inserted into the epidural space of the spine. A mixture of numbing solution (anesthetic) and an anti-inflammatory (steroid) medicine is injected. To ensure placement, the physician will use X-ray or fluoroscopy guidance.

After the procedure, you will be brought to the recovery area for 20 to 30 minutes. A driver will need to accompany you home. There may be some discomfort in the initial few days after the procedure. Your physician will provide specific discharge instructions.

# SURGICAL TREATMENT OPTIONS

## FRONT CERVICAL DISCECTOMY & FUSION

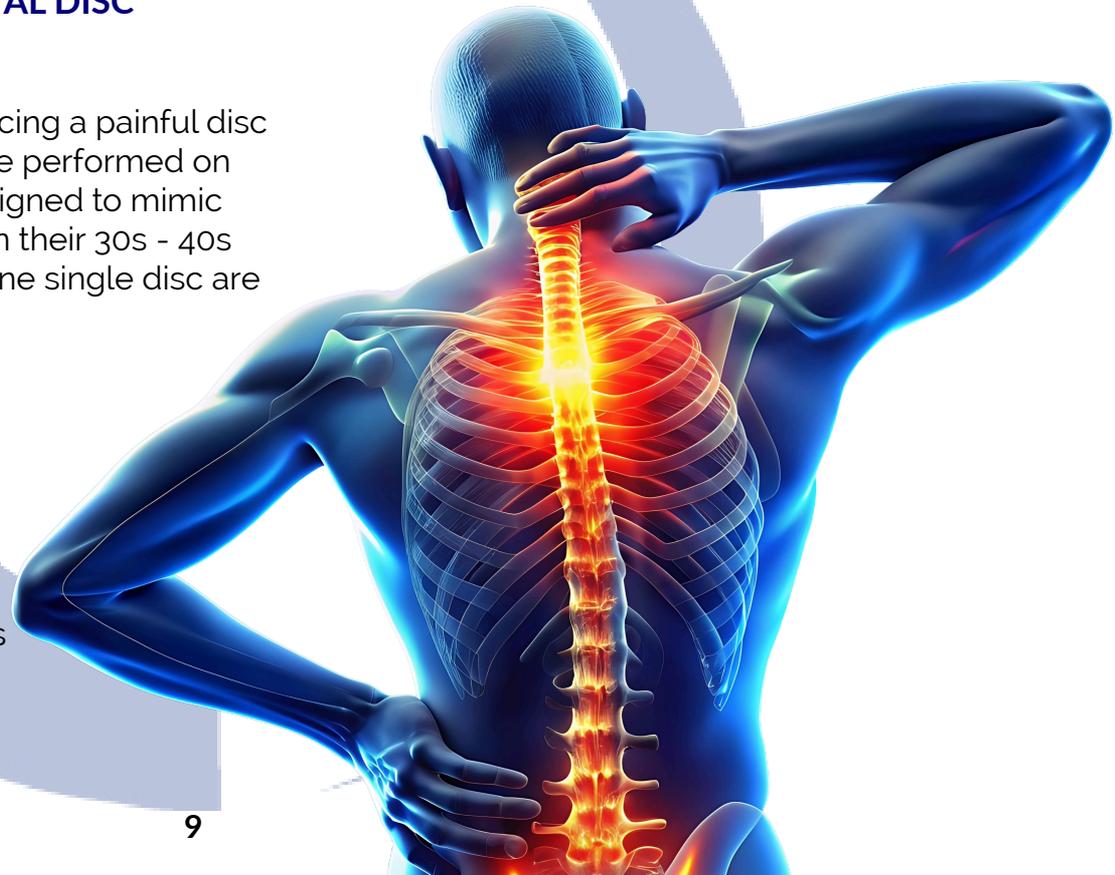
A herniated cervical disc can be removed through an anterior approach to relieve spinal cord or nerve root pressure with corresponding pain, weakness, numbness, or tingling. After the disc is removed, a bone graft or cage is inserted to fuse the bones above and below the disc space. A titanium plate and screws are usually placed over the bone graft or cage to hold the graft/cage in place during the healing process and to stabilize the spine.

## ARTIFICIAL DISC REPLACEMENT (ADR) / TOTAL DISC REPLACEMENT (TDR)

Artificial disc replacement surgery involves replacing a painful disc with an artificial disc. Artificial disc surgery may be performed on the lumbar or cervical spine. These discs are designed to mimic the form and function of a natural disc. Patients in their 30s - 40s without bone spurs and soft disc herniations at one single disc are the best candidates for ADR/TDR.

## DECOMPRESSION/LAMINECTOMY

A lumbar laminectomy, also known as a decompression, is typically performed to alleviate pain caused by neural impingement from lumbar spinal stenosis. The laminectomy is designed to remove a small portion of the bone over the nerve root and/or disc material from under the nerve root to give the nerve more space and a better healing environment.



# SURGICAL TREATMENT OPTIONS

## MICRODISCECTOMY / DISCECTOMY

In a microdiscectomy surgery, a small portion of the bone over the nerve root and/or disc material from under the nerve root is removed to relieve neural impingement and to provide more room for the nerve to heal. A microdiscectomy is typically performed for a herniated lumbar disc and is more effective for treating leg pain than lower back pain.

## SPINAL FUSION (SPINAL ARTHRODES)

This is the joining of two vertebrae permanently using a variety of different approaches and techniques. The most common reason the spine is fused from spinal instability due to conditions such as spondylolisthesis fracture, tumors, infections, or from planned instability caused by having to remove the facet joints in patients with severe spinal stenosis in order to decompress the nerves. The Spine Center at Concord Orthopaedics works with our patients to select the best techniques for each patient's situation.

The spine can be fused from different directions or approaches (i.e. anterior, lateral, posterior). The most commonly performed fusion is a posterior lumbar fusion where the lower back is fused from an incision in the back. The sides of the vertebrae and facet joints are exposed and decorticated (the outer surface of the bone is removed, allowing bone to grow outwards).

A bone graft is obtained either from the patient's own bone removed to decompress the pinched nerves (local bone graft), from the patient's pelvis, (iliac crest autogenous bone graft), cadaver bone (allograft), patient's own bone marrow (aspirate), synthetic bone graft, or sometimes a hormone which causes bone formation (Bone Morphogenetic Protein).

## SPINAL FUSION (SPINAL ARTHRODES) Cont'd

The choice of a bone graft is part of the decision making process between the patient and the surgeon. The bone graft is placed on the exposed spine surfaces and the graft helps to fuse the spine together over a period of several months to years. When the bone grows together, the excess motion, which causes pain, is eliminated and the pain is often reduced.

Sometimes, in order to expedite the healing process of the fusion, the disc is removed from the front of the spine (anterior or ALIF), the side of the spine (lateral or XLIF), or from the posterolateral region (TLIF or PLIF).

Bone graft, usually in a supportive device made from plastic, titanium, or cadaver bone, called a cage is placed to maintain or restore the disc height and allow the bone to grow through one vertebra into another. Titanium screws, rods, or plates are often used to stabilize the spine to reduce pain, decrease motion, and allow a greater chance of fusion healing. This is called spinal instrumentation.

The instrumentation we use is MRI-compatible. More recently, lumbar fusion surgery is being performed using X-ray image guidance or computer guided navigation in carefully selected patients. This allows for smaller incisions with less blood loss, muscle trauma, and quicker recoveries. This is called Minimally Invasive Spine Surgery (MISS) or Minimal Access Surgery (MAS).

# ORTHOPAEDIC SURGERY CENTER



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The Orthopaedic Surgery Center (OSC) is a collaborative effort between the physicians of Concord Orthopaedics and Concord Hospital. The physicians and anesthesiology team of Concord Orthopaedics work closely with the nurses, operating room, and recovery staff to ensure patient safety and excellence in care.

Day surgery centers, like the OSC, are designed for patients to come in for their procedures and go home on the same day. The procedures we offer at the surgery center are those which can be performed under local, regional, or general anesthesia, and are deemed safe for a short post-operative observation period followed by an at-home, same-day recovery. At the OSC, we know surgery in any setting can be intimidating, which is why we strive to create an atmosphere that is comfortable, safe, and convenient.

# WHO WE ARE



Today, Concord Orthopaedics is the largest privately owned orthopaedic practice in New Hampshire boasting multiple office locations across the state including: 2 Orthopaedic Surgery Centers (OSC) in Concord and Derry and 2 Acute Injury Clinics in Concord and Londonderry.

In January of 2021, Concord Orthopaedics unveiled our brand new Orthopaedic Surgery Center, a freestanding ambulatory (day) surgery center dedicated to providing orthopaedic care in conjunction with Concord Hospital.

Concord Orthopaedics has grown to include more than 50 highly specialized orthopaedic providers, each focused on a specific area of care including: sports medicine, total joint surgery, spine care and surgery, hand and upper extremity surgery, orthopaedic traumatology, foot and ankle surgery, and pediatric orthopaedics.

# ORTHOPAEDIC SURGERY CENTER



## ORTHOPAEDIC SURGERY CENTER



**If approved, consider the benefits of having an outpatient procedure at one of our Orthopaedic Surgery Centers**

### **LOWER COST**

Outpatient surgery centers can be less expensive than hospitals.

### **SAFER AND CLEANER**

At our surgery centers, the health and safety of our patients are our utmost priority. To protect every individual who entrusts their care to us, we have implemented a rigorous patient health screening protocol. This protocol is designed to identify and mitigate potential risks, ensuring a safe and secure environment for all our patients and staff members.

### **CONVENIENCE AND ACCESSIBILITY**

Physicians are more involved with the surgical process, as a result they can offer better pre and post-operative care.

Patients are released the same day so they can recover comfortably in their own home.

### **PREDICTABLE SCHEDULING**

Outpatient surgery centers have better control of surgical scheduling. As a result, very few procedures are delayed or rescheduled compared to the in hospital operating room.

# OUR GUIDING PRINCIPLES



## OUR PRACTICE PHILOSOPHY & COMMITMENT

The founding principle of our practice was to create a group of highly skilled and talented physicians who specialize in specific areas of orthopaedics. Each of our physicians concentrates in his or her area of interest, developing skills, and experience that would not otherwise be possible. In addition, we have more than one physician in most specialties, allowing our physicians to seek the opinions of additional experts within our practice. There is no substitute for this kind of focus and experience.

At Concord Orthopaedics, we are committed to providing the highest quality of orthopaedic care available in the State of New Hampshire.

# Experience You Can Trust

## BEDFORD

166 South River Road  
Bedford, NH 03110

## CONCORD

264 Pleasant Street  
Concord, NH 03301

## DERRY

6 Tsienneto Road, Suite 200  
Derry, NH 03038

## LONDONDERRY

50 Michels Way, Suite 206  
Londonderry, NH 03053

## NEW LONDON

247 Newport Road, Suite 101  
New London, NH 03257

## PLYMOUTH

103 Boulder Point Drive  
Plymouth, NH 03264

## TILTON

614 Laconia Road  
Tilton, NH 03276

## Concord - Orthopaedic Surgery Center (OSC)

116 Langley Parkway  
Concord, NH 03301



## Derry - Orthopaedic Surgery Center (OSC)

14 Tsienneto Road, Suite 100  
Derry, NH 03038

