

# Back to Life



**BACK PAIN?**

**How to get back  
to an active life**

**New artificial discs  
retain motion**

**Minimally Invasive Surgery  
through a 1-inch incision  
& home the same day**

# GET THE Rx FOR ROTATION IN RECREATION

**Why** is that all of the fun outdoor sports place extra strain on the back? The reality is that tennis and golf are perhaps the two most demanding "rotational" sports. Both sports require the core of the body to rotate, often in a bent over posture.

For someone recovering from a back strain, it can be a challenge to get back on the tennis court or golf course. "The key is stretching and making the back stronger, more flexible and resistant to a future strain," says Dr. Mathew Gowans, a specialist in Physical Medicine and Rehabilitation at South Carolina Spine Center. "The reason you had a back pain attack in the first place may have been that your back was

not flexible enough. To get back to some of your favorite recreational activities you'll need to improve your back's ability to handle rotation. Secondly, phase back into the sport. With golf, kick the ball out of deep rough. With tennis, start back with doubles rather than singles."

Here are some rotational exercises to help get you back outside and into your favorite recreational activity.



**DOUBLE KNEE TO FLOOR:**  
Start with your knees together pointed up. Next slowly let both knees fall to the left toward the floor. Hold for 5 seconds. Return to starting position and rotate to the right.



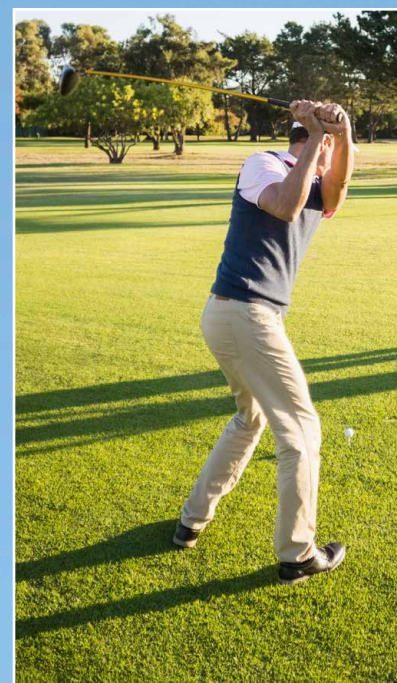
**PIRIFORMIS STRETCH:**  
This is a great back stretch. With arms spread out against the floor, bring your right knee up and across your body toward the floor as shown. Hold for 5 seconds, return to start, and then move your left knee over to the right.



**STANDING SIDE STRETCH:**  
With your hands above your head as shown, slowly lean to the right and hold for 5 seconds, then return to upright position. Repeat to the left side.



**ADVANCED STRETCH:**  
On all fours on the floor, raise and outstretch your right arm while extending your left leg backward. Hold for 5 seconds. Return to start and reach out with the left arm, and extend the right leg backward.



**ROTATION STRETCH:**  
Put a golf club or racquet behind your back as shown. Rotate your upper body to the right as far as you can go without discomfort. Then repeat with a rotation to the left. Give yourself several weeks to improve your flexibility.

# THE ARTIFICIAL DISC: NEW HOPE FOR THOSE WITH HERNIATED DISCS

While most back or neck pain is caused by either a muscle or ligament strain, which never requires surgery, some people can herniate a disc which can require spine surgery to relieve the symptoms. In some cases, the presence of a herniated disc can imply that the patient is at risk of degenerative disc disease, meaning that they may experience herniations at other levels as well.

Consequently, those who have a herniated disc at one level in their low back or neck, can sometimes have additional herniated discs appear in the future. For these people, the newest FDA-approved artificial discs available in 2017 can be of great benefit.

## The role of the healthy disc

A healthy disc acts like a shock absorber in between the bony vertebrae of the spine, enabling the spine to rotate. The disc itself resembles a jelly donut. If the disc is compressed or ruptures (from trauma or the stress of lifting something heavy) the jelly center, called the nucleus pulposus, can break through the wall of the disc. This disc nucleus can then press on nearby spinal nerves causing radiating pain and numbness. Herniated discs in the low back typically cause radiating pain or numbness or weakness in a leg or foot. Herniated discs in the neck conversely cause radiating pain or numbness or weakness into an arm or hand.

While a person can use watchful waiting for three to six months for radiating pain into a leg or arm, that is not the case when the symptom is numbness or weakness in a leg or arm. This symptom is called “neurological deficit” and signals that the herniated disc is pressing on a nerve root off the spinal cord. Those with symptoms of numbness or weakness in a leg or arm need to be

seen by a spine surgeon within 48 hours. Left untreated these symptoms can become permanent and lifelong. Another emergency symptom that appears less frequently is called cauda equina, where the person experiences loss of control of bowel or bladder because of a herniated disc in the low back.

With these symptoms, the nerve root can be permanently damaged by the pressure on the nerve root, much like a car parked in the driveway on a garden hose. Even if the car is moved, the hose may be permanently crimped.

## Fixing a herniated disc

When a disc herniates, it’s important to understand that the surgeon cannot

repair the disc wall. The surgeon instead removes the part of the disc that is pressing on a nearby nerve root. If the disc has been compressed, the surgeon must restore the disc space between the vertebrae by inserting a spacer between the two vertebrae. The spacer could be a piece of bone harvested from the patient’s

own hip bone, or a sterilized piece of cadaver bone from a bone bank. The process of removing the damaged disc and inserting the bone spacer is called a spinal fusion.

Each year in the U.S., more than 200,000 spinal fusion surgeries are performed to relieve pain or numbness

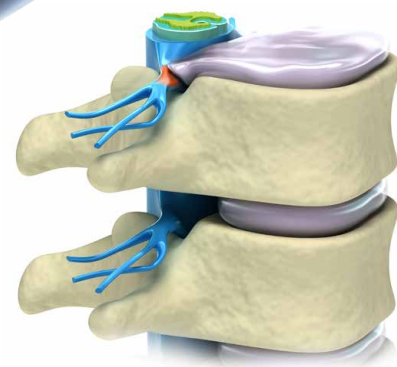
## PROS & CONS

Positives of the artificial disc:

- Retains motion of the vertebrae.
- Prevents damage to other disc levels.
- No bone graft required.
- Quicker recovery & return to activity.
- Less painful surgery than a fusion.
- Less blood loss during surgery.

Spine surgeons may be cautious about artificial discs for the following reasons:

- Wear and tear on artificial disc can require revision surgery in 10 to 20 years that can be complex.
- Disc implants only address rotational forces, not the up and down shock absorbing of the natural disc.
- Overweight people can wear out a lumbar disc prematurely.
- Newer artificial discs are in development that may be better.
- There are not many 20-year-long studies that show the long-term effects of wear on artificial discs.



caused by damaged discs in the low back and neck.

While the intent of a spinal fusion is to relieve the symptoms of pain or numbness, the downside of spinal fusion surgery is that it causes two vertebrae to become locked in place. This in turn puts additional stress on discs above and below the affected area, which can lead to further disc herniation with the discs above and below the damaged disc. This process is called “adjacent segment disease” and it’s one of the main issues that artificial discs were designed.

**How an artificial disc works**

An artificial disc replacement is intended to duplicate the rotation of a normal, healthy disc and retain motion in the spine, which lessens the risk of herniation at the other disc levels. Artificial discs have been used in Europe since 1987. Because of the FDA’s approval

process, artificial disc use in the U.S. did not begin until 2004.

Future development of new artificial discs attempt to not only mimic and reproduce the function of the normal disc by providing rotational movement but also up and down shock absorption. Other issues in artificial disc design try to take into account the possibility of revision and replacement surgery if an artificial disc wears out over 10 to 20 years.

**Artificial discs for the low back**

There is a big difference in the artificial discs used in the lumbar (low back) area, and the artificial discs used in the cervical (neck) area. Because of the weight of the body and the rotational stress that the trunk places on discs in the low back (lumbar) area, more stress is placed on artificial discs in the lumbar area than in the neck (cervical) area, which only supports the weight of the head.

A second issue relates to the ease of the artificial disc surgery and any necessary revision surgery to replace a worn out artificial disc. Because the surgeon must access the front of the spine, an incision is made in the abdomen for lumbar discs. This can require navigating around internal organs to access the discs at the front of the spine in the low back.

Conversely, the surgeon can easily access the cervical discs through a small incision in the front of the neck.

Like many other spine centers nationally, the spine surgeons at South Carolina Spine Center do not perform artificial disc surgery for the low back. They believe the disc technology is still evolving and there is the issue of complex revision surgery for discs that wear out.

The spine surgeons at South Carolina Spine Center, however, do perform artificial disc replacement surgery in the

cervical (neck) area with two artificial disc implants that they feel provides a clinical advantage over traditional fusion.

Not every patient is a candidate for an artificial disc, as the guidelines and indications are narrow. This can relate to the location of the disc in the neck, the extent of the disc herniation, as well as issues related to the patient.

**Artificial disc surgery in the neck**

There are a variety of FDA-approved artificial discs available for the neck. The spine surgeons at South Carolina Spine Center studied the array of artificial discs and now currently use Prestige LP disc for cervical artificial disc replacement.

The Prestige disc is one of the first discs approved by the US Food and Drug Administration (FDA) for use at two levels in the neck. This can be of great benefit to those people with degenerative discs at more than one level in the neck and

would otherwise need a fusion at the other level which in turn would restrict rotation.

**The lifespan of an artificial disc**

As with knee or hip joint replacement, surgeons try to postpone the implantation of an artificial joint until it is absolutely necessary so that you do not outlive your artificial joint, which may last from 15 to 20 years.

But unlike knee and hip replacement patients, who are typically in their 50s or 60s when arthritis can become common, many spine patients can benefit from artificial disc technology at a much younger age — in their 20s or 30s.

As with any artificial joint replacement, the earlier an artificial joint is implanted, the greater likelihood that it will need to be revised in the future because of normal wear and tear.

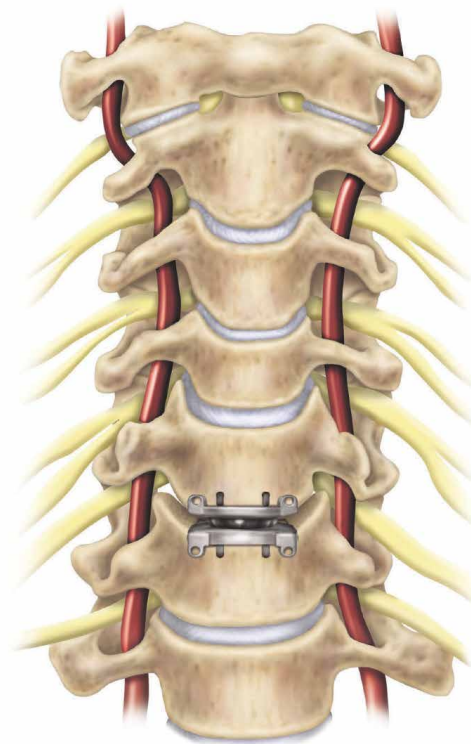
Secondly, not all disc herniations

are suitable to be replaced by an artificial disc. The spine surgeon will review your medical history, MRI films that show the location of the herniation, the extent of the herniation and your symptoms.

Spine surgery is evolving and holds great promise with innovation. It is important to remember that this artificial disc technology is still evolving with new implants continually in development. Your spine surgeon is the best resource to discuss if it is appropriate for you, and what model of artificial disc is best suited for your case.

To see if you are a candidate for artificial disc replacement, or for a second opinion on spine surgery, call South Carolina Spine Center at 888-526-8806 for a physician evaluation.

At South Carolina Spine Center, Dr. Michael Kilburn, a fellowship-trained spine surgeon uses the Prestige LP artificial disc in the cervical spine.



The spine surgeons at South Carolina Spine Center use the Medtronic Prestige LP cervical artificial disc for the neck. The Prestige LP cervical disc was one of the first artificial discs to be FDA approved for two levels in the neck. The artificial disc is designed to retain the rotary motion of the neck, which lessens risk of herniation at other adjacent disc levels.

# OPERATING THROUGH INSTRUMENTS THE WIDTH OF A BALLPOINT PEN



Spine surgery has evolved greatly over the last 10 years. The most advanced spine centers now embrace new minimally invasive technology — along with the time involved in training and the expense of the necessary instrumentation — as crucial to the spine surgery patient.

“Operating through a 1-inch incision can mean covering the area with a medium size Band-aid and enabling the patient to be home later that evening,” explains Dr. John Cole IV, spine surgeon at South Carolina Spine Center.

With that said, there are some

surgeons who are more comfortable doing traditional back and neck surgery through 3-inch long incisions because of the time involved to be trained in minimally invasive spine surgery. The hospital stay is longer; there is the potential need for donated blood with the inherent risks of that; and a longer time in recovery along with more discomfort from the larger incision.

Consequently, a patient needs to be well informed about the options available to them and to select a surgeon who is able to use the new instrumentation involved with minimally invasive spine

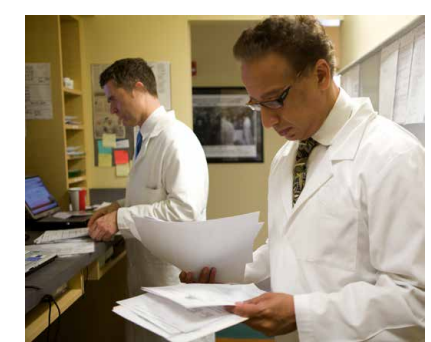
surgery. A patient should ask if a minimally invasive approach will be used, the length of the incision involved, and the length of time in recovery after surgery. Compared to a 3-inch incision in traditional spine surgery, a surgeon performing minimally invasive spine surgery can access the spine through a small hole the size of a nickel to allow special tubular retractors and instrumentation to be inserted.

At the end of the instrument is a camera with a video feed to a TV screen, enabling the surgeon to view and enlarge the surgical area through the scope. A

minimally invasive tubular retractor (MITR) is used to gain access to the spinal column. The device goes through a small keyhole in the muscles of the back, reducing damage and disruption to the spine. The portals are left in during the entire surgery to allow specially designed surgical tools to move freely into the patient’s spinal column. Consequently, there is far less disruption to the soft tissue in the back. When the portal is removed at the end of the surgery, the surrounding soft tissues slowly fall back into their normal place and a small amount of stitches are needed to close the area.

The area can often be covered with a large Band-aid. By contrast, traditional open back surgery pulls the muscles away from the spine which disrupts the tissue causing more discomfort after surgery.

“While it takes a commitment from the spine surgeon to learn how to perform minimally invasive surgery there biggest benefactor is the patient,” explains Dr. John Cole IV, spine surgeon at South Carolina Spine Center. “No one wants to spend several days in the hospital if they could be home faster and back on the golf course quicker and with less pain.”



*While it involves extensive training for a spine surgeon to become proficient in minimally invasive surgery, the main beneficiary is the patient, says Dr. Sumeer Lal, spine surgeon at South Carolina Spine Center.*



*THE SURGICAL SUITE OF THE FUTURE: Instead of a 3-inch long incision as in traditional open spine surgery, the spine surgeon who is trained in minimally invasive spine surgery operates through a 1-inch incision using instruments the width of a ballpoint pen. Using tubular retractors with tiny cameras in the tip, the surgeon uses computer monitors to visualize and enlarge the spinal vertebrae and the discs. Other instruments have cutting tools in the tip, and instrumentation can be inserted as well through the tubular retractors. Because there is less disruption to muscles and ligaments, the patient does not typically need blood from a blood bank, can often go home the same day, and have a much quicker and easier recovery.*

# NEW iFUSE IMPLANT SYSTEM RELIEVES SACRO-ILIAC JOINT PAIN

It's estimated that one in four cases of low back pain may be linked to the sacrum and it's sacro-iliac joints (SI joints). If you feel a pain in your low back when you stand up from a chair and place weight on a specific leg, it could be caused by your sacroiliac joint.

An SI joint can be inflamed by falling down, or from repetitive motions like distance running. In other cases arthritis can cause problems with an SI joint.

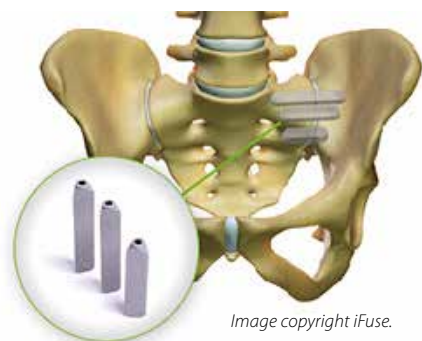


Image copyright iFuse.

According to one study, 22% of people with low back pain ultimately were diagnosed problems with their SI joint.

Main symptoms of SI joint problems include pelvis or buttock pain; sensations of numbness/tingling/weakness in a leg; difficult sitting; and pain upon standing from a sitting position.

The new iFuse implant system is a minimally invasive procedure that enables the trained spine surgeons at South Carolina Spine Center to fuse the SI Joint to relieve pain symptoms. The new SI Joint technology eliminates the need for a bone graft or other screws or rods.

South Carolina Spine Center first tries the non-surgical options which can include injections into the SI joint area using C-arm fluoroscopy for guidance. Rhizotomy is also an option to address the problematic nerves in the SI joint.

If spine surgery is needed for sacroiliac joint pain, the spine surgeons at South Carolina Spine Center are trained in the iFuse Implant System — a new minimally invasive surgical option to alleviate some causes of sacroiliac joint pain.

The iFuse system is designed to provide stabilization for the SI joint. Small titanium implants are inserted across the sacroiliac joint to maximize post-surgical stability and weight bearing capacity. The procedure is done through a small incision and takes about an hour.

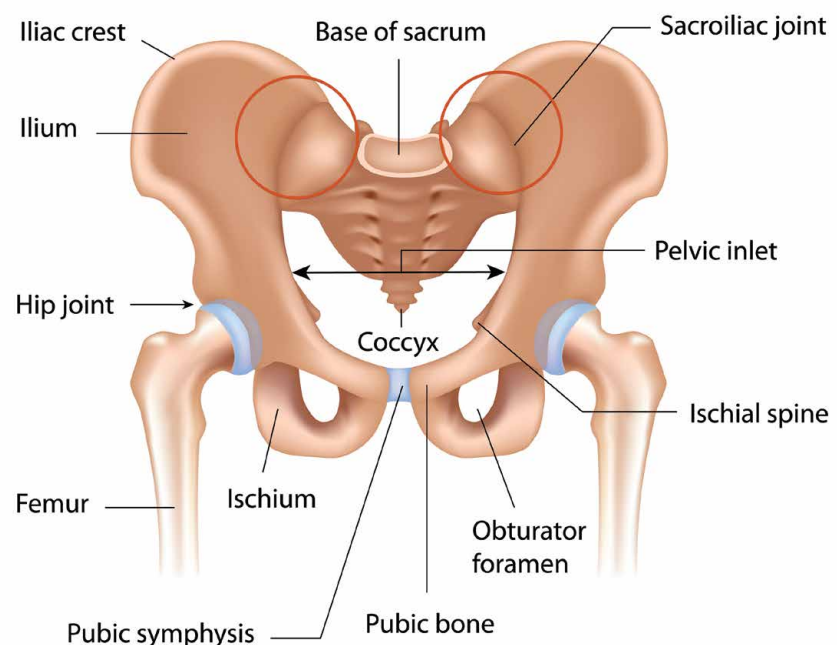
The iFuse Implant System is the only sacroiliac joint fusion system with multiple clinical studies demonstrating that treatment improved patient function, decreased pain, and better quality of life. The iFuse Implant System



for sacroiliac joint pain has been performed on over 25,000 patients.

An SI joint fusion is performed through a small incision about an inch long by the side of patient's buttock. During the procedure, fluoroscopy provides the surgeon with live imaging. Typically three implants are inserted, depending on the patient's body size.

The key benefits are that the iFuse Implant System is less invasive than traditional SI joint surgery. The iFuse Implant System uses a much smaller incision size and no bone grafting is needed as in traditional SI fusion.



# HOW ELECTRIC CURRENT HELPS DIAGNOSE THE REAL SOURCE OF PAIN

Consider that the worst possible scenario is to go through spine surgery to find out that it didn't relieve your pain symptoms. That is the role of an EMG, which is often the first step to finding out the real "pain generator" in your back or neck.

At South Carolina Spine Center, Dr. Mathew Gowans specializes in the non-surgical treatment of back and neck pain. During your physician visit at South Carolina Spine Center, the spine specialist may recommend a diagnostic test called an EMG to determine what may be causing your back or neck symptoms, including radiating pain, weakness or numbness in a leg or arm. Dr. Gowans is the specialist who performs EMG tests at South Carolina Spine Center.

EMG stands for Electromyography, which uses electrical current to record and analyze electrical impulses between muscles and nerves. These tests are crucial in the diagnosis, evaluation and successful treatment of back and neck pain symptoms.

Bottom left: Dr. Mathew Gowans checks a patient for neurological deficit. Lower left: Dr. Karl Boellert explains how a spinal injection can relieve many symptoms of a herniated disc.



The EMG diagnostic test can provide your doctor with important information about how a herniated disc can be impinging upon a nerve route and causing nerve or muscle problems. An EMG diagnostic test can also determine the exact location of the nerve disruption and give some indication whether the damage is reversible.

The EMG in some cases can prevent an unnecessary surgery. When surgery can be of benefit, the EMG can act as a road map to the surgeon to the specific disc level that may be causing radiating pain or numbness.

An EMG may be ordered for patients who experience numbness, tingling, pain, weakness, or muscle cramping.

Another test using electrical current is a Nerve Conduction Study (NCS). A Nerve Conduction Study can show your spine specialist how well the body's electrical signals are traveling to a nerve. During this test, small electrical shocks are applied to the nerve in order to record

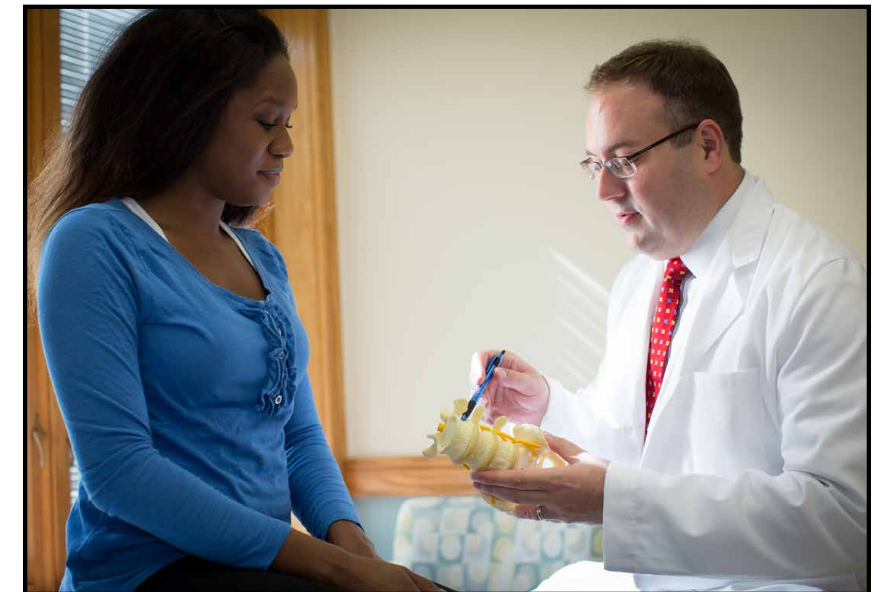
how the nerve works. The shocks may cause a quick, mild and tingling feeling. The doctor may test several nerves.

During an EMG, a small, acupuncture type needle is placed in several muscles to help diagnosis a back or neck condition. The physiatrist will only test the muscles necessary for diagnosis. Physicians are able to see and hear the electrical signals that travel from the needle to the EMG machine.

EMG testing usually takes 30 to 90 minutes, depending on the condition being tested and findings of the study. Patients can do normal activities — like eating, driving and exercising — before and after the tests. No anesthesia or pills are needed.

EMGs and Nerve Conduction Studies are crucial to determining if spine surgery is necessary, and what disc level is the true source of symptoms. It can also determine if a nerve impingement is causing lifelong problems if left untreated.

So while there may be some discomfort related to the diagnostic test, it is designed to improve the success of any surgery that may be needed.



# HOW COOLIEF\* TECHNOLOGY CAN REDUCE THE NEED FOR DRUGS

Back and neck problems can result in pain symptoms that last months. The challenge is to find treatment alternatives that do not depend on narcotics which can have damaging side effects on internal organs as well as represent significant risk of addiction to painkillers.

The best spine centers try to avoid dependence on pills and find more lasting ways to relieve pain symptoms by locating and treating the “pain generator”.

For example, Radiofrequency Ablation is a procedure used to reduce pain through the use of a high-frequency radio wave to heat up a small area of nerve tissue, thereby decreasing pain signals from that specific area.

Radiofrequency ablation is performed on an outpatient basis and requires only local anesthetic and mild sedation. Heat is applied to certain nerve pathways to “shut off” the transmission of

pain signals to the brain.

This minimally invasive procedure can provide lasting relief to those suffering from facet joint pain or for patients that experience chronic back and neck pain from the degeneration of joints.

The procedure is a proven safe way to help reduce pain with little to no side effects. It has high success and low complication rate that can provide pain relief for up to two years.

COOLIEF\* Cooled Radiofrequency is a new minimally invasive outpatient treatment option that targets nerves that are causing chronic pain. The COOLIEF technology uses cooled radiofrequency energy to safely target the sensory nerves causing pain.

The COOLIEF system circulates water through the device while heating nervous tissue to create a treatment area that is larger than conventional treatments. This

combination targets the pain-causing nerves without excessive heating, which in turn enhances the relief of pain.

Some of the benefits of this procedure may include providing chronic back pain patients with up to 24 months of pain relief, improved physical function, and reduced prescription drug intake.

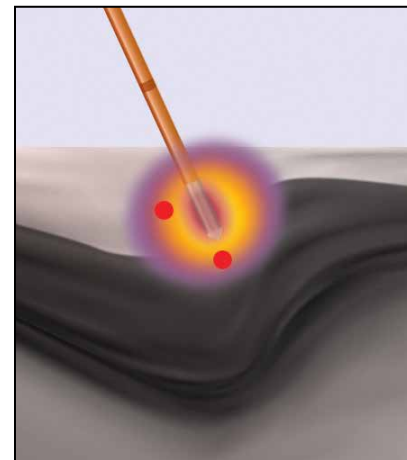
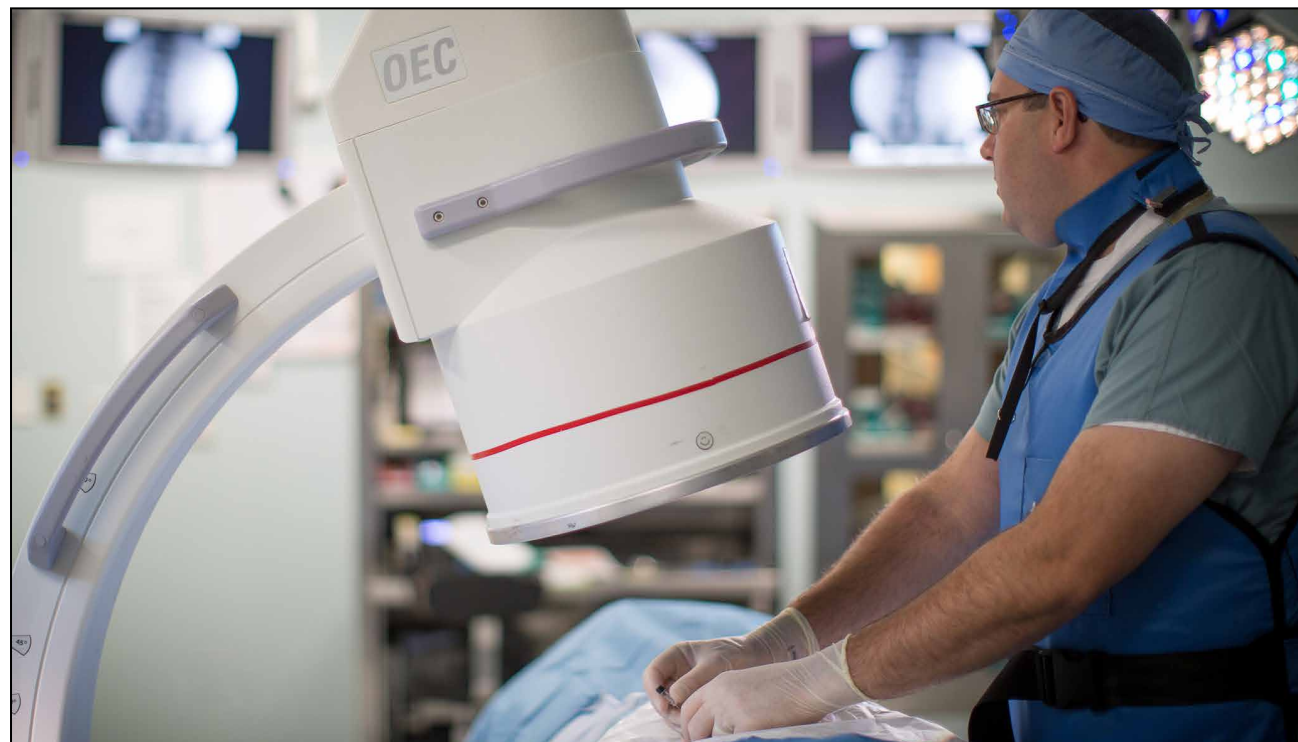


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Dr. Karl Boellert, a fellowship-trained specialist in interventional spine, uses a C-arm during spinal injections and procedures.

# HOW TO CHOOSE A SPINE SPECIALIST FOR YOUR BACK OR NECK PROBLEM

There are tremendous advances taking place in medicine today, but in order to benefit from them, the healthcare consumer must take an active role. The best healthcare will not find you; you have to seek it out. While the United States offers the highest standard of healthcare in the world, there is still huge treatment variation based on the doctor you see. Bottom line: the doctor you choose will determine the quality of care you will receive. Here is an overview of how to navigate through the healthcare system to find the best doctor for you.

## The era of the superspecialist

First, the healthcare consumer needs to understand that today's medical field is divided into very narrow specialty categories. For example, research has shown that the best care of back and neck pain is provided by multi-disciplinary spine centers that include a team composed of several complementary specialties: physical medicine MDs; spine-specialized

physical therapists who focus on non-surgical options; and highly trained spine surgeons who are proficient in the latest minimally invasive techniques.

## Proficiency & specialization

As with anything in life, practice makes perfect. All clinical outcome studies confirm that the more times a surgeon performs a procedure, the better they become at it. Consequently, spine surgeons who perform more than 150 surgeries per year will be more proficient than those who perform 50 each year.

Also new advances require physicians to become proficient in new instrumentation and procedures. While an older physician may be more comfortable using traditional techniques like a larger 3-inch incision, a younger, fellowship-trained physician may be proficient in the most modern, minimally invasive instrumentation that enables the surgeon to operate through a one-inch incision. This is of tremendous benefit to the

patient who has a shorter hospital stay and a quicker, less painful recovery.

## Be willing to travel to a spine center

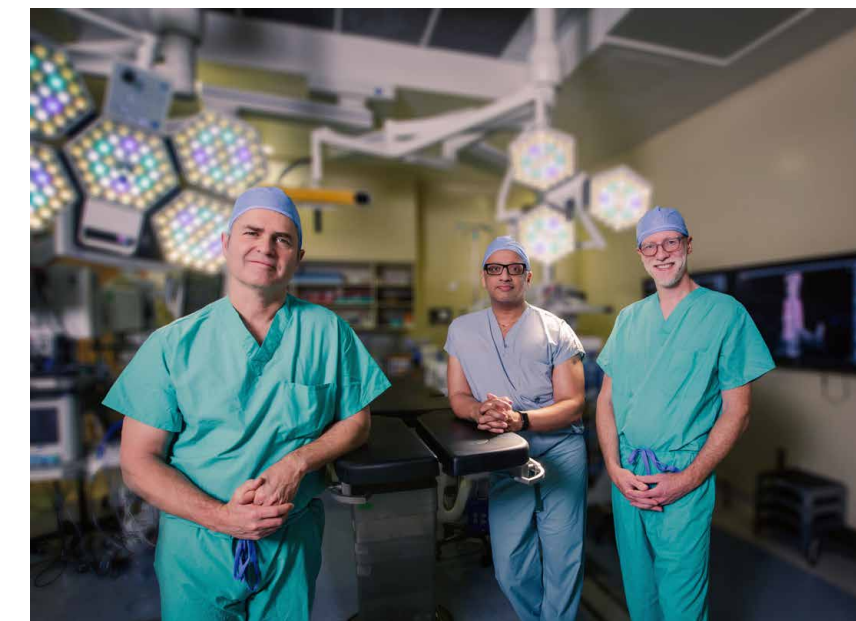
The clear trend in medicine is that the best specialists are creating centers of excellence that focus on certain problems like cancer, neuroscience, spine problems, diabetes, asthma, etc. Consequently, if you need complex surgery, be prepared to travel to one of these centers.

Fellowship training, the highest level of training in the United States, can be an indicator that the physician has invested an additional year in a specific area of specialization. Board certification is another criteria that indicates a physician has met the competency standards within an area of specialization, as judged by the specialty board.

## Focusing on outcomes & quality

South Carolina Spine Center is the only spine center in the state of South Carolina to be included in Spine Center Network, an exclusive national listing of credentialed spine centers of excellence. To be included in this national network, a spine center must combine a team on non-surgical Physical Medicine & Rehabilitation MDs working with spine-specialized surgeons and therapists — all under one roof. This team must emphasize non-surgical treatment options.

South Carolina Spine Center is the only spine center in the State to track and publish a Clinical Outcome Report Card for health insurance companies and physician referral sources. The center also has been ranked in the Top 10 percent of spine programs in the U.S. by an outside entity tracking spine surgery outcomes among hospitals in the nation.



Fellowship-trained Board-Certified Spine Surgeons Dr. Michael Kilburn, Dr. Sumeer Lal and Dr. John Cole IV.

# WHEN SHOULD YOU GO TO THE DOCTOR FOR BACK & NECK PAIN?

## UNDERSTANDING YOUR BACK OR NECK SYMPTOMS: WHEN YOU CAN USE WATCHFUL WAITING & WHEN YOU CANNOT

NOTE: A person may use "watchful waiting" for a few days for symptoms of muscle strain or even radiating pain into an arm or leg.

⚠ However, ANY WEAKNESS OR NUMBNESS in an arm or leg, or loss of control of bowel or bladder, are emergency symptoms. You need to see a spine specialist promptly (as noted below) to prevent the symptoms from becoming permanent.

### **PAIN LIMITED TO THE NECK:**

Neck pain can be caused by traumatic injury, like whiplash from a car accident, or muscle or ligament strain. See our Home Remedies section on our Internet site. If pain persists beyond a week, you should see a spine specialist to determine the underlying cause.

### **⚠ LOSS OF BOWEL OR BLADDER CONTROL:**

This is a **SERIOUS** emergency symptom (cauda equina) that needs to be treated immediately by a spine surgeon within 24 hours. If you experience these symptoms at night or on the weekend, go to the emergency room. If not treated quickly, the person may lose control over their bowel and bladder permanently.

### **RADIATING PAIN INTO THE LEG:**

Pain that radiates into a leg below the knee can imply a herniated disc in the low back. But many times radiating pain can be treated non-surgically. Radiating pain should be seen by a spine specialist within 2 weeks.

### **⚠ NUMBNESS OR WEAKNESS IN LEG OR FOOT:**

Numbness or weakness in the leg or foot is a **SERIOUS** disc-related symptom that is **NOT** appropriate for watchful waiting. Left untreated, the symptom can become permanent. You should see a spine specialist within 3 days.

### **⚠ TRAUMA / FALL/ACCIDENT:**

Any time you fall, are in a car accident, or could have fractured a bone in your back, you should see a spine specialist immediately!

### **⚠ FOOT DROP / WEAKNESS IN FOOT:**

If pain, weakness or numbness extends into the foot so that you are unable to lift your toe as you walk, that is called Foot Drop, which is an emergency disc-related symptom. You need a spine specialist within 48 hours. If not treated promptly, it could lead to permanent weakness in the foot.

### **⚠ FEVER, DROWSINESS, SEVERE HEADACHE, NAUSEA, VOMITING, UNUSUAL SENSITIVITY TO LIGHT?**

Other symptoms may be unrelated to a back or neck problem, like cervical meningitis. This can be serious. You should consult a physician immediately for any of the above symptoms.

### **RADIATING PAIN IN THE ARM:**

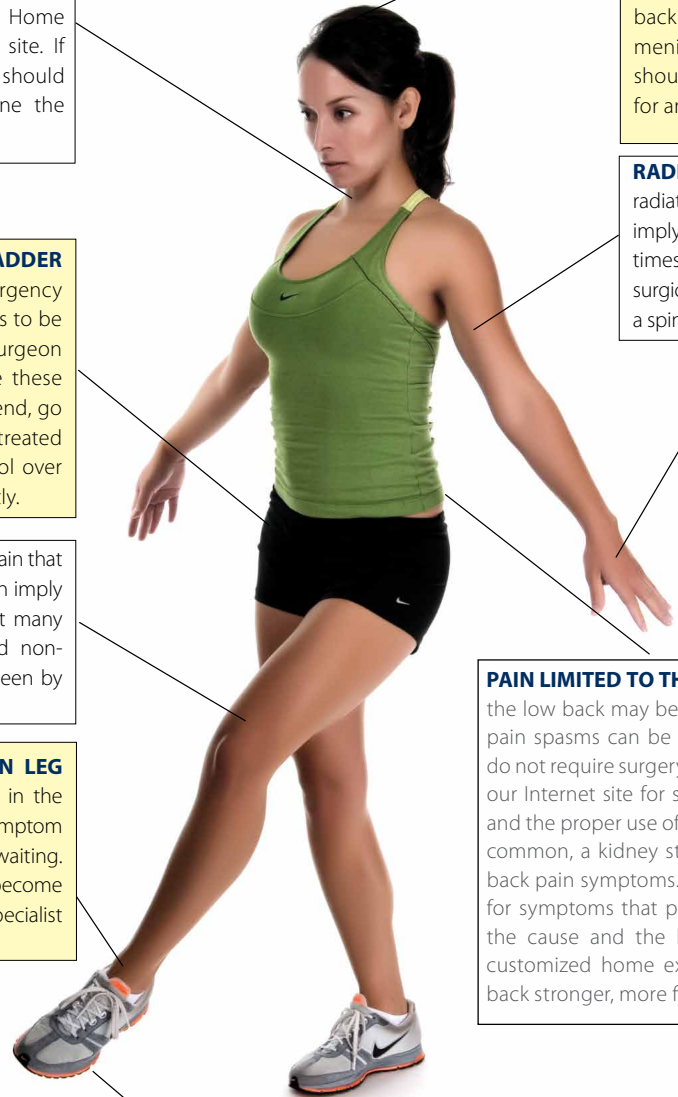
Pain that radiates into an arm below the elbow can imply a herniated disc in the neck. Many times, radiating pain can be treated non-surgically. Radiating pain should be seen by a spine specialist within 2 weeks.

### **⚠ NUMBNESS OR WEAKNESS IN ARM OR HAND:**

Numbness or weakness in the arm or hand is a more serious disc-related symptom that is **NOT** appropriate for watchful waiting. Left untreated, the symptom can become permanent. You should see a spine specialist within 3 days.

### **PAIN LIMITED TO THE LOW BACK:**

Pain that is limited to the low back may be the result of muscle strain. Although pain spasms can be excruciating, muscle strain problems do not require surgery. (See our Home Remedies section on our Internet site for special stretches that can relieve pain and the proper use of anti-inflammatories.) Though it is less common, a kidney stone or infection also may cause low back pain symptoms. You should consult a spine specialist for symptoms that persist beyond five days to determine the cause and the best treatment options, including a customized home exercise program that will make your back stronger, more flexible and resistant to future strain.



# The spine team at South Carolina Spine Center

## NON-SURGICAL SPINE CARE



### **KARL BOELLERT, MD**

*Board-Certified in Physical Medicine*

*Fellowship-Trained in Interventional Spine & Musculoskeletal Medicine*

Dr. Karl Boellert is a board-certified and fellowship-trained specialist in Physical Medicine and Rehabilitation at South Carolina Spine Center in Greenwood. Within his role at the spine center, Dr. Boellert specializes in helping patients with back and neck pain resolve symptoms through non-surgical spine treatment options. Dr. Boellert's focus of care is interventional pain medicine, including the assessment, diagnosis and nonsurgical treatment of back and neck pain problems. Dr. Boellert is proficient in pain-relieving cervical, thoracic, & lumbar epidural injections, facet injections, medial branch blocks, and radiofrequency ablation as well as sacroiliac joint injections. He is also trained in EMG / nerve conduction studies and Musculoskeletal / Orthopedic Rehabilitation.



### **MATHEW GOWANS, MD**

*Board-Certified in Physical Medicine & Rehabilitation*

Dr. Mathew Gowans is a specialist in the nonsurgical treatment of back and neck pain. He joined the staff of South Carolina Spine Center in mid 2015. He is a member of the Self Regional Healthcare medical staff. At South Carolina Spine Center, Dr. Gowans specializes in the diagnosis of back pain and neck pain, and helps patients explore nonsurgical treatment options. This can include therapy that relieves pain symptoms, and makes the back stronger, more flexible and resistant to future strain. Dr. Gowans works closely with Dr. Boellert related to spinal injections, and the spine neurosurgery team.

## FELLOWSHIP-TRAINED SPINE NEUROSURGEONS



### **MICHAEL KILBURN, MD**

*Board-certified Spinal Neurosurgeon*

*Fellowship-Trained Spinal Neurosurgeon*

Dr. Michael Kilburn is a board-certified and fellowship-trained spinal neurosurgeon at South Carolina Spine Center, who specializes in complex spine surgery, cervical disorders, degenerative spine, spinal deformities, trauma, tumor infection and minimally invasive spine surgery. He is also proficient in endoscopic spine surgery techniques. He is a member of the Self Regional Healthcare medical staff. Dr. Kilburn completed a fellowship in neurosurgery at University of Alabama. He is also a Fellow of The Royal College of Physicians and Surgeons of Canada-Neurosurgery.

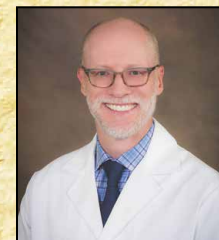


### **SUMEER LAL, MD**

*Board-certified Spinal Neurosurgeon*

*Fellowship-Trained Spinal Neurosurgeon*

Dr. Sumeer Lal is a board-certified spinal neurosurgeon with 20 years of experience, who specializes in complex spine surgery, cervical disorders, degenerative spine, spinal deformities, trauma, tumor infection and minimally invasive spine surgery. He is a member of the Self Regional Healthcare medical staff. He later completed a Neuro-oncological Fellowship at the MD Anderson Cancer Center in Houston, Texas. He is also a Fellow of The Royal College of Physicians and Surgeons of Canada-Neurosurgery. He is the director of the spine center at Self Regional Hospital. Dr. Sumeer Lal's awards include Physician of the Quarter Self Regional Hospital, ranked #1 Spine Program in South Carolina by Healthgrades and ranked #1 as individual spinal surgeon by Healthgrades in 2008, #1 ranking for spinal fusion by Carechex in 2011, and a Top 100 Surgeons Designation by the Consumer Research Council of America.



### **JOHN COLE IV, MD**

*Board-certified Spinal Neurosurgeon*

*Fellowship-Trained Spinal Neurosurgeon*

Dr. John Cole IV is a board-certified neurosurgeon who is fellowship-trained in spine. He is a member of the Self Regional Healthcare medical staff. Dr. Cole graduated with a Bachelors of Science degree from Wake Forest University in Winston-Salem, NC and received his medical degree from the University of Kentucky College of Medicine in Lexington, KY. He also completed his neurosurgical residency and a spine fellowship in Lexington at the University of Kentucky. Dr. Cole is a member of the American Board of Neurological Surgeons.



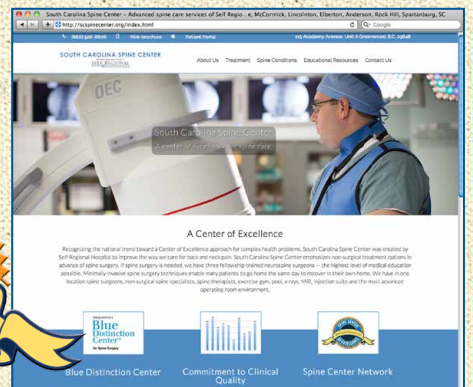
**SOUTH CAROLINA  
SPINE CENTER**

115 Academy Avenue, Unit A  
Greenwood, S.C. 29646

# South Carolina Spine Center

115 Academy Avenue, Unit A | Greenwood, S.C. 29646  
888-526-8806 | SCSpineCenter.org

Recognizing the national trend toward a Center of Excellence approach for complex health problems, South Carolina Spine Center was created by Self Regional Healthcare to improve how back and neck pain is provided. South Carolina Spine Center combines non-surgical MDs, spine therapists and fellowship-trained spine surgeons all under one roof. Additional diagnostics like X-ray, MRI and CT are on the same campus. The Spine Center includes spine therapists; two Physical Medicine MDs who specialize in non-surgical treatment options for back and neck pain, including spinal injections; and four fellowship-trained neurosurgeons — the highest level of medical education possible. South Carolina Spine Center is the only spine center in the State of South Carolina to be included in an exclusive national listing of credentialed spine centers by SpineCenterNetwork.com and is recognized as a Blue Distinction Center by BlueCross BlueShield.



## Second opinion

A second opinion can help you determine if you have considered all possible treatment options and if there are any other non-surgical options that can relieve symptoms. South Carolina Spine Center is referred complex spine cases from across the State of South Carolina and Southeastern Georgia. Call: 888-526-8806 • Email: SCspinecenter@selfregional.org



## Home Remedy Book

The Spine Center, as a community service, provides a free 36-page Home Remedy Book to those in their community with spine problems. SCSpineCenter.org is an online spine encyclopedia with symptom charts, home remedies for back problems, medical illustrations and video animations on spine conditions and surgeries.



South Carolina Spine Center is the only spine center in the state of South Carolina to be included in Spine Center Network, an exclusive national listing of credentialed spine centers of excellence, and the only program to publish a Clinical Outcome Report Card for insurance companies.



Other validation of quality was provided by BlueBlue BlueShield of South Carolina which designated South Carolina Spine Center as a Blue Distinction® Center.

Designated as a



for Spine Surgery



South Carolina

BlueCross BlueShield of South Carolina is an Independent Member of the Blue Cross and Blue Shield Association