

Back to Life

BACK PAIN? NECK PAIN?

New artificial discs
retain motion

CUSTOM STRETCHES TO
GET YOU BACK TO GOLF
& BACK TO TENNIS

HOW TO GET BACK
TO AN ACTIVE LIFE



EOS TECHNOLOGY
GIVES 3D VIEWS FOR
OPTIMAL TREATMENT



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,” Dr. Matthew J. Smith, a spine specialist at University Orthopedics. “Many times, a person can have a back spasm simply because their 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 with doubles rather than singles.”

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

“If surgery ultimately is necessary, get informed about the latest artificial discs that retain the rotary motion of the spine,” Dr. Smith adds.



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.



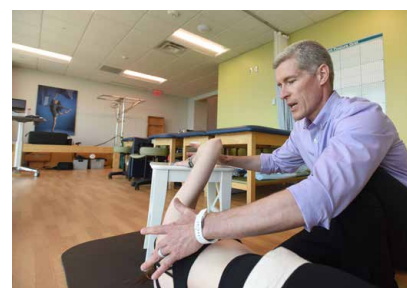
ROTATION STRETCH:
Put a golf club or racquet behind your back as shown. Rotate your upper body to the right as far as you can go without discomfort. Then repeat with a rotation to the left. Give yourself several weeks to improve your flexibility.

Dr. Matthew J. Smith, a specialist in Physical Medicine & Rehabilitation and Sports Medicine at University Orthopedics, helps patients explore non-surgical treatment options for back and neck problems. “Exercise is like lubricant for your spine,” he explains. “Rotary sports like tennis and golf require a strong and flexible core. Golfers sometimes take excessive risk trying to chop a ball out of deep rough which can strain the low back. If you have a back problem, simply move it out of deep rough. It’s not worth the risk. Also, stretching exercises like the ones shown here can reduce the risk of back strain.”



Spine therapy

relieves pain and makes the back stronger, more flexible & resistant to future strain



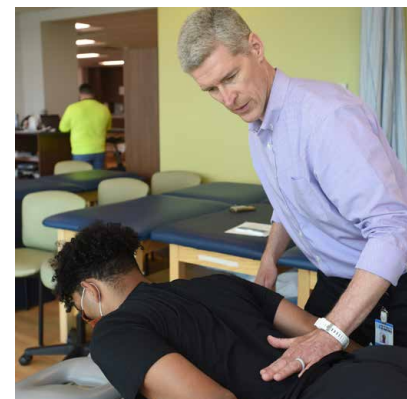
Passive, palliative “modalities” like ice, heat and massage may feel good on a sore back, but they don’t cure anything long term. That’s why health insurance companies often don’t pay for those things. The key is to make the back stronger, more flexible and resistant to future strain. Consequently the best spine therapists use custom stretches and movement.

Sadly, many back and neck pain sufferers travel from doctor to doctor trying to find relief from recurring back pain symptoms and spasms. Along the way, a doctor may have recommended therapy as a non-surgical treatment option. Unfortunately, some people may be disappointed with the result.

“Part of the problem is that people want immediate symptom relief and are attracted to passive things where they lay on their stomach and someone applies ice, heat or massage,” explains Dr. Shiqiang Tian, a specialist in Physical Medicine & Rehabilitation at University Orthopedics. “That may feel good at the time, but long term it cures nothing because they aren’t changing the physiology of your back. The

only thing that changes the physiology of your back or neck is surgery — or exercise that strengthens muscles and ligaments in your back, makes them more flexible and then more resistant to strain.”

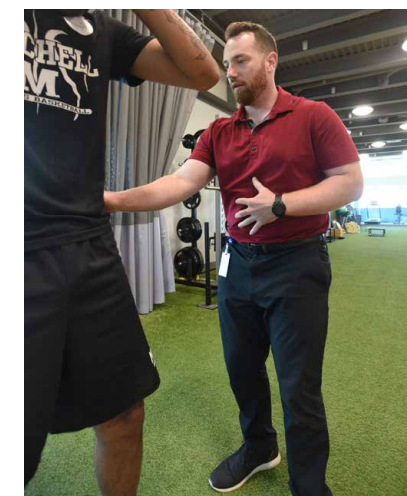
Dr. Tian notes that a spine center



should hold surgery as the last resort, after non-surgical treatment options like therapy and spinal injections have been exhausted. “Manual therapy and manipulation can relieve pain symptoms which enables the patient to move into a customized exercise prescription and stretches,” Dr. Tian explains.

“The result is that pain relief is achieved not passively, but through active movement of the joints and tissues. The back pain sufferer needs to understand that pain pills only mask symptoms. Customized stretches can help repair and strengthen soft tissues and tendons. Simply put, movement is like lubricant for your back or neck. Bed rest and inactivity merely weakens bones and muscles and causes further disability. Even a simple 20 minute walk can be good for a sore back. Research has shown that the more you restrict movement, the harder and longer your rehabilitation.”

“At University Orthopedics, we want the patient to be well-informed about the causes of back and neck pain and what really works to free yourself from recurring back pain attacks,” adds Dr. Tian. “We focus on a more permanent relief of back pain, rather than a temporary one.”



Movement strengthens the back & neck for long term relief

The bad news is that 4 out of 5 Americans will have an attack of back pain at some time in their lives. The good news is that about 80% of the time, back and neck pain can resolve without surgery. The problem is the other 20% of cases, which can quickly become complex and expensive.

Assessing the type of soft tissue injury and strain to a back or neck, and then customizing an exercise program, requires extensive training and experience. For example, certain spine problems like stenosis can be made worse with standard exercises that might otherwise be recommended for other back pain cases.



How injections

RELIEVE BACK & NECK SYMPTOMS

Back and neck pain can sometimes be caused by a disc bulge or herniation that presses on a nearby nerve root branching off from the spinal cord. This can cause painful inflammation around this nerve root. The symptoms can include pain

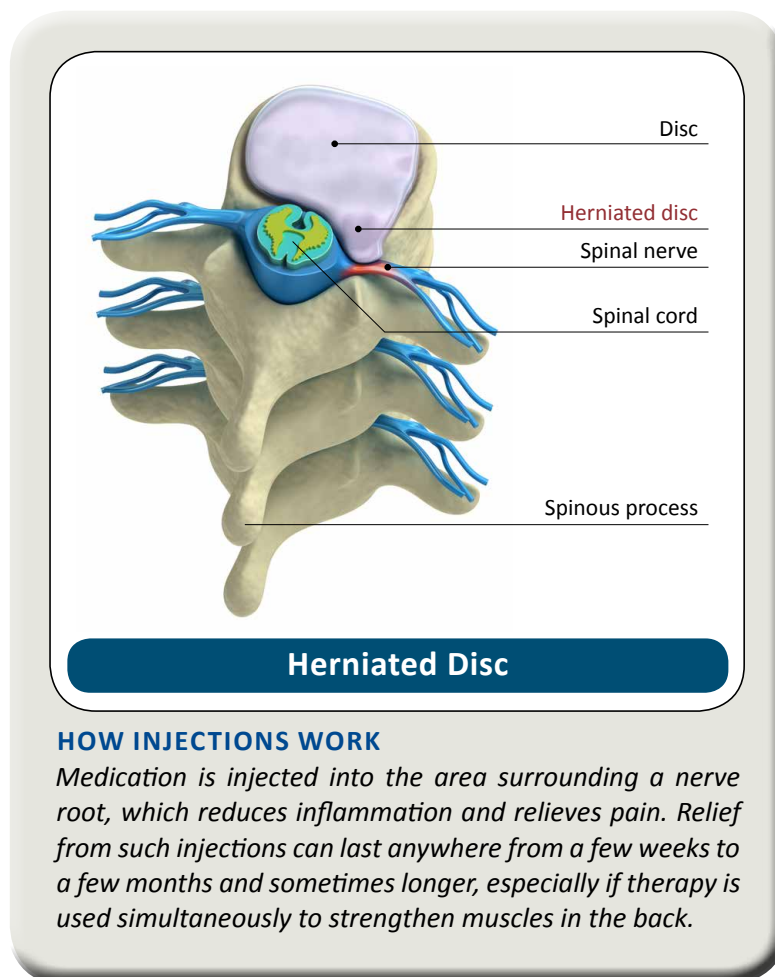
that radiates into an arm or leg, or weakness/numbness in a hand or foot. For these symptoms, a spinal injection can relieve inflammation and symptoms long enough for the person to bridge back into therapy and activity.

Injections are often recommended because they have a dual purpose. “The purpose of a spinal injection is both therapeutic and diagnostic,” explains Dr. George Pasquarello, a specialist in Physical Medicine & Rehabilitation at University Orthopedics. “If back pain symptoms respond to the injection at a certain disc level, we can then confirm that particular disc is the pain generator. So even if the relief is temporary, the injection can provide the surgeon valuable information that will help ensure a successful surgery if and when it becomes necessary.”

How injections work

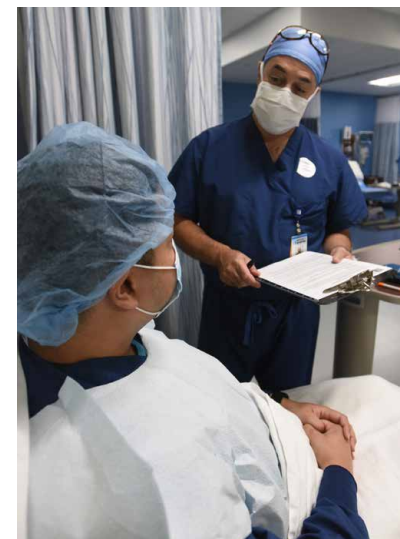
When a disc herniates it can press on adjacent nerve roots that branch off from the spinal cord. Surgery doesn’t repair the disc wall, but rather removes the herniated tissue which in turn relieves the pressure on the nerve root.

Another way to relieve pressure



HOW INJECTIONS WORK

Medication is injected into the area surrounding a nerve root, which reduces inflammation and relieves pain. Relief from such injections can last anywhere from a few weeks to a few months and sometimes longer, especially if therapy is used simultaneously to strengthen muscles in the back.



In advance of surgery, Dr. George Pasquarello, a specialist in non-surgical spine care, uses a C-arm to guide the pain-relieving medication to the exact level of a disc herniation. University Orthopedics has an internal ambulatory surgery center for injections and same-day surgery.

on a nerve root is to inject pain medication directly to this area which reduces inflammation and pain symptoms. When spine physicians choose to use injection therapy, their ultimate goal is to relieve pain long enough to enable the patient to begin physical therapy.

During an injection procedure, the patient lies on his or her stomach to enable a C-arm fluoroscopic device to provide X-ray images of the spine. Local anesthetic may be injected into the skin and underlying tissues to reduce discomfort from the injection.

Next, a thin needle is inserted into the epidural space, with the vertebrae serving as landmarks. The physician views images from the C-arm to make sure the needle is positioned correctly. Once the needle enters the epidural space, a syringe containing a corticosteroid solution is connected to it and the solution is injected.

“Years ago, a spine physician

might arbitrarily perform a series of three injections,” explains Dr. Shiqiang Tian, a specialist in Physical Medicine & Rehabilitation. “That is no longer the case. Typically, you are unlikely to benefit from repeated epidural steroid injections if the first or second does not provide relief.

“If the injection provides relief of symptoms, we may refer the patient to a spine therapist,” adds Dr. Tian. “This therapy may include some customized stretches to strengthen the back, make it more flexible and resistant to future strain. In many cases, these injections can bridge many patients back to activity without surgery.”

University Orthopedics has an ambulatory surgery center that enables patients to have a spinal injection outside the hospital and go home after about an hour. Many patients report relief of pain and numbness symptoms after a spinal injection.

The Artificial Disc

OFFERS NEW HOPE FOR THOSE WITH HERNIATED DISCS

While most back or neck pain is caused by either a muscle or ligament strain, which doesn't require 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 now 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.

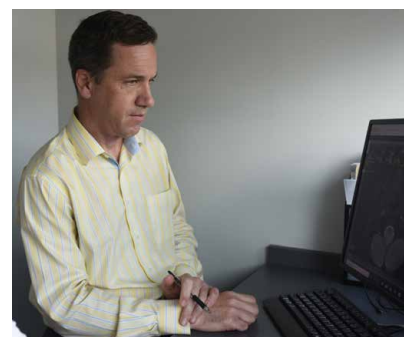
While a person can use watchful waiting for three to six months for radiating pain into a leg or arm, that is not the case when the symptom is numbness or weakness in a leg or arm. This symptom is called "neurological deficit" and signals that the herniated disc is pressing on a nerve root off the spinal cord. Those with symptoms of numbness or weakness in a foot or hand 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 "cauda equina," where the person experiences loss of control of bowel or bladder because of a herniated disc in the low back.

If these symptoms are not treated promptly, the nerve root can be permanently damaged by the pressure on the nerve root, much like a car parked in the driveway for several days 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



Dr. Alex Robertson (above) and Dr. John Czerwein, Jr. (below), both fellowship-trained spine surgeons at University Orthopedics, evaluate patients to see if they qualify for artificial disc replacement.

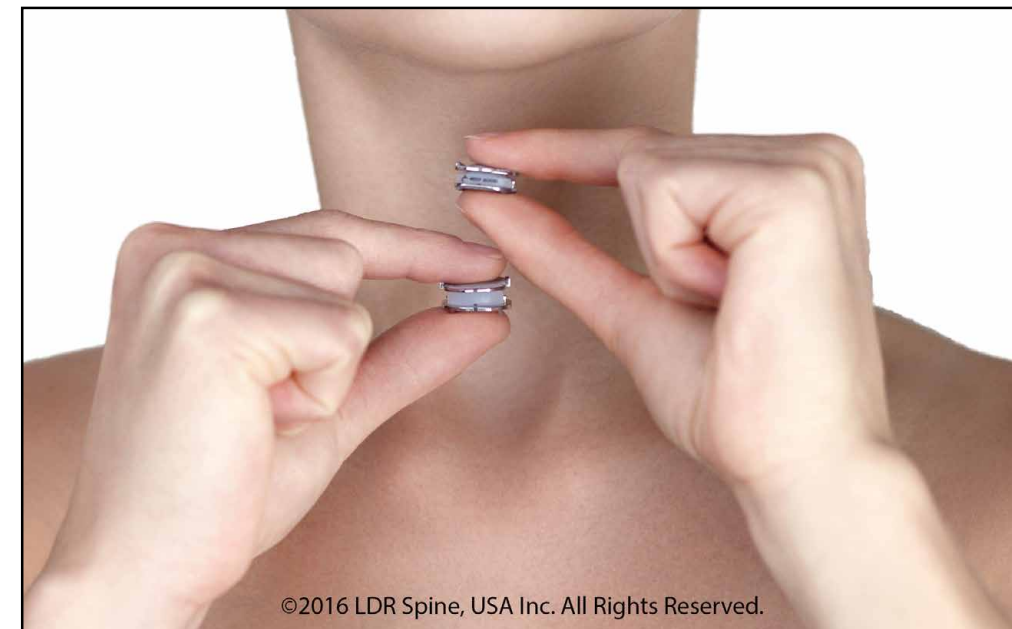


repair the disc wall. The surgeon instead removes the part of the disc that is pressing on a nearby nerve root. If the disc has been compressed, the surgeon must restore the disc space between the vertebrae by inserting a spacer between the two vertebrae.

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 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

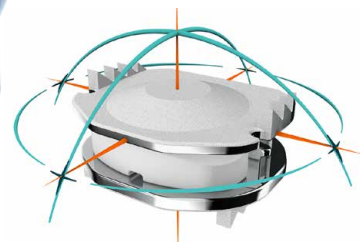
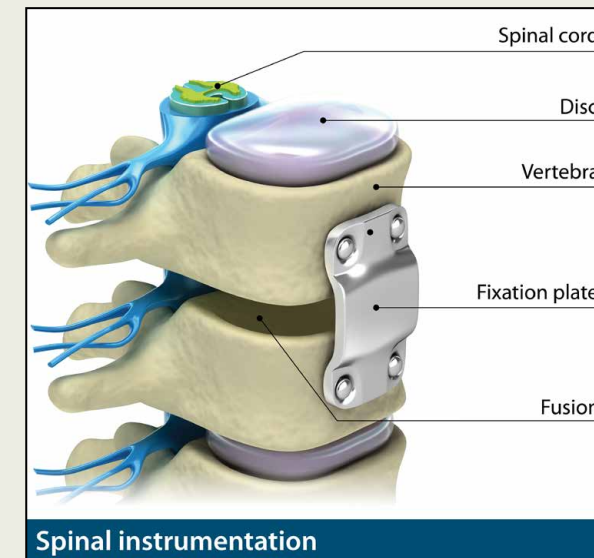
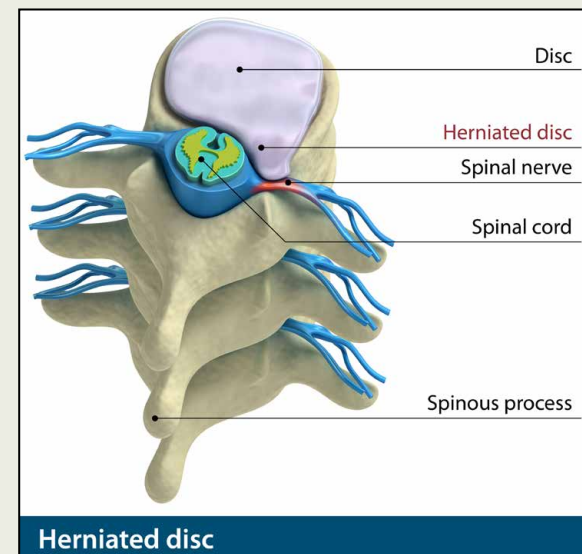


©2016 LDR Spine, USA Inc. All Rights Reserved.

The benefit of an artificial disc is that it retains the natural rotation of the vertebrae in the neck, which would otherwise be locked together in a traditional spine fusion surgery. By preserving motion, this lessens the risk that other adjacent discs might also herniate.

The problem with fusion & instrumentation

Surgery to relieve the symptoms of a herniated disc involves removing some or all of the damaged disc. But something has to be inserted between the two vertebrae in the place of the disc tissue that is removed. For the majority of patients a spinal fusion is the typical surgery. A piece of bone is inserted and often a fixation plate holds the fusion in position. However, this is less than ideal in that two vertebrae are then locked together, which can stress other discs above and below. The artificial disc, conversely, is designed to retain natural motion.



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 reasons why 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.

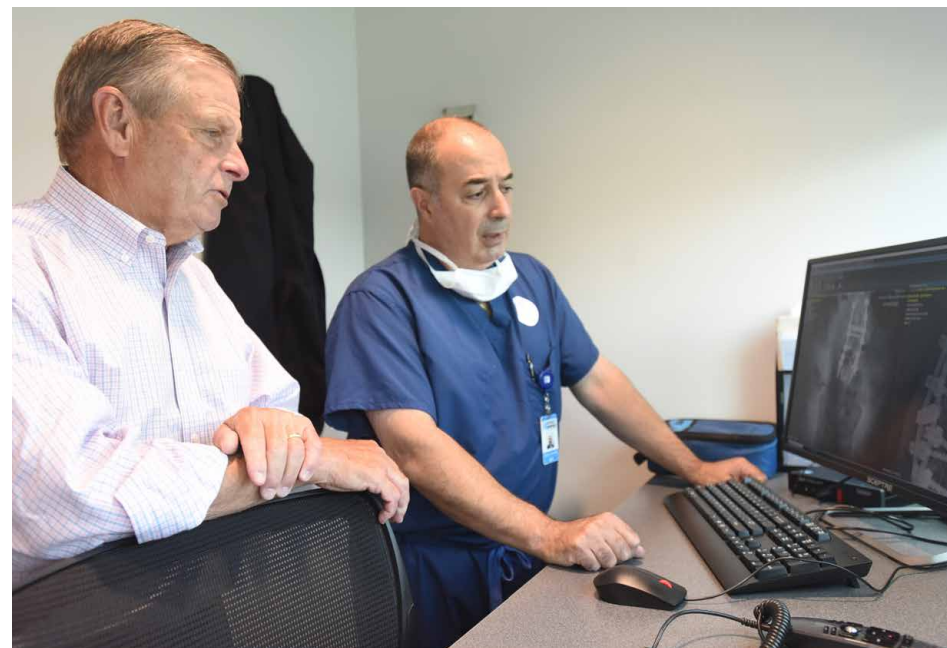
Conversely, the surgeon can easily access the cervical discs through a small incision in the front of the neck.

Dr. Dominic Kleinhenz, spine surgeon at University Orthopedics notes that the criteria for artificial disc surgery is tighter for the low back. The lumbar disc technology is still rapidly evolving and there is the issue of complex revision surgery for discs that wear out.

“Not every patient is a candidate for an artificial disc, as the guidelines and indications are narrow,” says Dr. Kleinhenz. “The spine surgeon evaluates



Dr. Dominic Kleinhenz
Spine surgeon



Dr. Phillip Lucas, a fellowship-trained spine surgeon at University Orthopedics, consults with Dr. George Pasquarello, a specialist in non-surgical spine care. The multi-disciplinary spine team ensures that patients explore non-surgical treatment options before surgery.

each patient’s case, with selection criteria relating to the disc level in the neck that needs replacement and the extent of the disc herniation.”

There are a variety of FDA-approved artificial discs available for the neck. The Mobi-C disc was the first disc 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. Other FDA-approved discs include: Prodisc-C; Prestige Disc; M6-C Disc; PCM disc; and Bryan Disc.

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

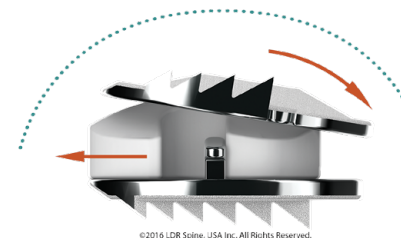
disc. As part of the medical exam and qualification process, the surgeon reviews the patient’s medical history, MRI films that show the location of the herniation, the extent of the herniation and the patient’s symptoms.

Spine surgery is evolving and holds great promise with innovation. It is important to remember that 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 University Orthopedics at 401-457-1500 for a physician evaluation.



Dr. Alan Daniels, a fellowship-trained spine surgeon, notes that artificial discs provide a new alternative to spinal fusion.



©2016 LDR Spine, USA Inc. All Rights Reserved.

PROS & CONS

Benefits of the artificial disc:

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

Spine surgeons may be cautious about artificial discs because:

- Wear and tear on artificial disc can require revision surgery in 10 to 20 years which 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.



Mobi-C images © LDR Spine
All rights reserved



©2016 LDR Spine, USA Inc. All Rights Reserved.

The artificial disc is designed to replicate the natural motion of the vertebrae in the neck. During surgery, the trained spine surgeon installs the disc through the front of the neck.



EOS technology provides a 3D view of the spine for optimal treatment

Spine surgery has evolved greatly over the last 10 years especially in the area of diagnostic imaging. One of the challenges of treating back pain is for the spine physician to be able to see the discs in the back under the weight of standing or bending and the impact of that on the hips and knees which sometimes compensate for back symptoms.

The EOS® system is a new medical imaging system that provides frontal and side X-ray images as the patient is scanned in a sitting or standing position, while limiting the dose of X-rays to the patient.

The system relies on the high sensitivity of a detector (multi-wire



Dr. Craig Ebersson, spine surgeon.

chamber) invented by Georges Charpak, which ultimately earned him the 1992 Nobel prize.

According to Dr. Craig Ebersson, a fellowship-trained spine surgeon at University Orthopedics who specializes in pediatric deformity, the EOS® system is a bi-planar device that's based on two perpendicular beams of X-rays that simultaneously scan the patient. "In a few seconds, EOS produces two simultaneous frontal and lateral, low dose images of the whole body," explains Dr. Ebersson. "There is also a micro-dose option for follow up exams that further reduces the X-ray exposure. The physician can select which functional position is needed, including standing, bending, squatting or sitting on the EOS Radiolucent Chair.

"With EOS, the spine physician can now see how the hips and knees may be compensating when the back is under load from sitting or bending," adds Dr. Ebersson. "We now have precise 2D and 3D measurements, free from magnification and stitching bias and much higher image quality with 65,000 gray levels for excellent contrast."



The EOS system is a revolutionary imaging system that provides 3D X-ray images of the discs in the spine under weight bearing as the patient is scanned in a sitting or standing position.



Dr. Alan Daniels, spine surgeon.

Dr. Alan Daniels, another fellowship-trained spine surgeon at University Orthopedics who specializes in scoliosis and deformity, notes that the EOS system provides new diagnostic information that improves the outcome of surgery that is done to correct a spinal curve. "With EOS, we now can create 3D models for the spine," says Dr. Daniels. "We can see the patient's alignment, and see the rotational components of the spinal curve. We can see how patients are compensating for that curve with their knees and hips."

Dr. Daniels also notes that the application of EOS is not limited to spine, and greatly benefits the other orthopedic specialists at University Orthopedics. "For orthopedic reconstruction, such as after a complex fracture in the leg, EOS provides a full long leg diagnostic image, to see if there is difference in the length of the legs in 3D, and that helps the surgeon plan and simulate their reconstructive surgery to improve the outcome. Patients are also excited when they see the dramatic images that are generated by EOS, and how fast the X-rays are generated by the system. This is revolutionary and groundbreaking in the field of orthopedics."



University Orthopedics' new spine navigation system provides increased precision during spine surgery

University Orthopedics installed new spinal navigation technology into the surgical suite that enables the spine surgery team to position instrumentation and implants with much greater precision.

"This new Spine Navigation System places the University Orthopedics Center for Spine Health at the forefront of computer assisted spine surgery in the United States," says Dr. Phillip Lucas, fellowship-trained spine surgeon.

"The Spine Navigation System is a vast improvement on the standard C-arm fluoroscopy which most hospitals use," Dr. Lucas adds. "The traditional C-arm system used historically is limited to a 2-dimensional view during a surgical procedure. The Stryker Spine Navigation System improves on that by providing the surgeon a detailed fluid 3-D picture of the surgical site. This imaging technology effectively provides an exact road map of the patient's spine to enable the spine surgeon to more accurately place screws

and other fixation instrumentation. Because of the precision involved in the technology, the surgical spine team and the patient spend less time in surgery and with less exposure to radiography during the surgical procedure."

The Computer assisted surgical technology at University Orthopedics has also been used by the other orthopedic surgeons in knee and hip replacement. The navigation technology does not replace the surgeon's skills, but rather provides a higher level of precision.

"Using the Spine Navigation System during spine surgery allows the surgeon to be more precise," explains Dr. Lucas. As an example, before this technology, surgeons were dependent upon 2D images, their grasp of anatomy and their existing knowledge of the patient to determine where to insert pedicle screws



to fuse vertebrae in the lumbar spine. With the 3D images and computer assisted technology the spine surgeons are more precise with placement of screws and fixation plates."

Benefits of 3D imaging include:

1. Helps reduce the radiation exposure of both the patient and medical staff.
2. Provides a complete picture of patient anatomy which shortens time in surgery.
3. Surgeons can more accurately visualize the implant position during surgery.

University Orthopedics welcomes new fellowship-trained spine surgeon Dr. Eren Kuris

Eren O. Kuris, MD joins the Center for Spine Health at University Orthopedics in 2020. Dr. Kuris completed his Medical Degree at Tulane University School of Medicine in New Orleans and a one-year spine surgery fellowship at the University of Colorado in Denver. He also completed a fellowship in trauma surgery at Brown University in Rhode Island.

In his practice in Colorado, Dr. Kuris did a

large number of cases in spinal deformity, scoliosis and artificial disc replacement in both the neck and low back.

In the cervical spine, Dr. Kuris uses

the Mobi-C artificial disc and the M-6 artificial disc. In the low back, artificial disc selection is based on the patient's particular need.

Dr. Kuris will be seeing patients at University Orthopedics Center for Spine Health in several of its offices around Rhode Island. He is also proficient in Spanish.

Away from his medical practice, Dr. Kuris enjoys ice hockey, travel, golf, cooking and surfing.



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. Many times radiating pain can be treated non-surgically. To be safe, radiating pain should be seen by a spine specialist within 2 days.

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 2 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 2 days. 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. To be safe, radiating pain should be seen by a spine specialist within 2 days.

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 2 days.

PAIN LIMITED TO THE LOW BACK: Pain that is limited to the low back (without trauma) may be the result of muscle strain. While 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. While less common, a kidney injection or kidney stone may also cause low back pain symptoms. Consequently, you should consult a spine specialist accordingly for symptoms that persist beyond 5 days to determine the cause of your symptoms and the best treatment options, including a customized home exercise program that will make the back stronger, more flexible and resistant to future strain.

PHYSICIAN BIOS

NON-SURGICAL SPINE CARE

DAVID BICA, DO, CAQSM, FAAFP, CIME
 Board-Certified Family Medicine and Sports Medicine / Independent Medical Examiner
 Assistant Clinical Professor at Brown University Department of Family Medicine



GEORGE PASQUARELLO, DO, FAAO, CAQPM
 Board-Certified Neuromusculoskeletal and Osteopathic Manipulative Medicine
 Assistant Clinical Professor at Brown University Department of Family Medicine



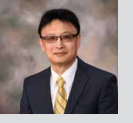
PHILIP ANTHONY SALKO, MD, FAAFP, CAQSM
 Primary Care Sports Medicine and Interventional Pain Management
 Assistant Clinical Professor, Brown University Medical School



MATTHEW J. SMITH, MD, EMHL
 Board-Certified Physical Medicine & Rehabilitation • Fellowship-Trained in Spine & Sports Medicine
 Electrodiagnostic Medicine • Certified, American Board of Independent Medical Examiners



SHIQIANG TIAN, MD, PH.D.
 Board-Certified Physical Medicine & Rehabilitation and Pain Medicine & Interventional Pain and Spine
 Clinical Assistant Professor of Orthopedics



ORTHOPEDIC SPINE SURGEONS

ALAN H. DANIELS, MD
 Board-certified Orthopedic Surgeon • Chief, Division of Spine Surgery • Adult Spinal Deformity Surgery
 Associate Professor of Orthopaedic Surgery, Brown Medical School • Chief, Adult Spinal Deformity Service



JOHN K. CZERWEIN JR., MD
 Board-certified Orthopedic Surgeon • Fellowship-Trained Spine Surgeon
 Clinical Assistant Professor of Orthopaedic Surgery



CRAIG EBERSON, MD
 Board-certified Orthopedic Surgeon • Fellowship-Trained Orthopedic Surgeon
 Chief, Division of Pediatric Orthopedics • Associate Professor of Orthopaedic Surgery, Brown Medical School



DOMINIC THOMAS KLEINHENZ, MD
 Board-eligible Orthopedic Surgeon • Fellowship-Trained Spine Surgeon
 Clinical Assistant Professor of Orthopaedic Surgery, Brown Medical School



EREN O. KURIS., MD
 Board-eligible Orthopedic Surgeon • Fellowship-Trained Spine Surgeon
 Assistant Professor of Orthopaedic Surgery, Brown Medical School



PHILLIP LUCAS, MD
 Board-certified Orthopedic Surgeon • Fellowship-Trained Spine Surgeon
 Clinical Associate Professor, Brown Medical School



ALEXANDER ROBERTSON, MD
 Board-certified Orthopedic Surgeon • Fellowship-Trained Spine Surgeon
 Clinical Assistant Professor, Brown Medical School



2 Dudley Street, Suite 200
Providence, RI 02905

Appointments & Referrals: 401-457-1500

University Orthopedics

Locations across Rhode Island

Online encyclopedia on spine and orthopedics
at UniversityOrthopedics.com

Providence • Main Office

2 Dudley Street Suite 200
Providence, RI 02905

East Greenwich

1598 S. County Trail
East Greenwich, RI 02818

East Providence • Kettle Point

1 Kettle Point Avenue
East Providence, RI 02914

Johnston

1524 Atwood Ave, Bldg D Suite 140
Johnston, RI 02919

Mansfield

10 Reservoir Avenue
Mansfield, Massachusetts 02048

Middletown

345 Valley Road
Middletown, RI 02842

Westerly

45 Wells Street, Suite 204
Westerly, RI 02891

The Center for Spine Health

NON-SURGICAL SPINE CARE:

David Bica, DO

George Pasquarello, DO

Phillip Anthony Salko, MD

Matthew J. Smith, MD

Shiqiang Tian, MD

SPINE SURGEONS:

Alan H. Daniels, MD (Director)

John Czerwein, MD

Craig P. Ebersson, MD

Dominic Kleinhenz, MD

Eren Kuris, MD

Phillip Lucas, MD

Alexander Robertson, MD



The Center for Spine Health is the only spine center in the Rhode Island region to be included in SpineCenterNetwork.com — a national listing of credentialed spine centers. To be included, a spine center must have board-certified spine surgeons; physical medicine physicians; spine therapists; and an emphasis on non-surgical capabilities. The clinical team specializes in back and neck pain, disc herniations, stenosis, tumors, trauma and scoliosis.



HOME REMEDY BOOK & EDUCATIONAL INTERNET SITE

University Orthopedics believes the best healthcare starts with a well-informed consumer. The spine center has an online encyclopedia on spine conditions at UniversityOrthopedics.com with video animations, symptom charts, home remedies and spine exercise library. Once an individual encounters back or neck pain, he or she is four times as likely to experience it again. This is why prevention is essential to long-term recovery. As a community service, the spine center provides a free, 36-page Home Remedy Book that has helped thousands of people with symptom relief. The book is provided to residents of Rhode Island and primary care physicians for their patients with back and neck symptoms.

