

# UVA Spine Center

Persistent back and leg pain can prove challenging to treat. If physical therapy and standard medication options fail, specialized spinal care can offer new options for physicians and their patients.

At UVA Spine Center, our specialists provide advanced care for adolescent and adult patients with spinal disorders, from simple to complex. We work with patients and their physicians to determine the best treatment plan. Many of the treatments we offer are nonsurgical and available in an outpatient setting; when surgery is required, we utilize the least invasive techniques possible and provide inpatient and rehabilitation care that is attuned to the patient's specific diagnosis.

## Conditions Treated

Our spine care specialists treat patients with a wide range of spinal disorders. We specialize in caring for patients with stenosis, scoliosis, disc conditions and traumatic injuries, as well as those that require surgical revisions.

### Spinal Stenosis

Many of our patients have a narrowing of the spinal column, causing tension of the spinal cord and surrounding nerves. Herniated discs, tumors, arthritic bone spurs, or thickened ligaments and joint capsules can all be causes of spinal stenosis, and our team offers care options for each of these causes and more.

### Scoliosis

Curvature deformity of the spine can develop in adolescence or as a degenerative condition in adulthood. There are many treatments available for scoliosis, including less invasive approaches, depending on the severity of the deformity. Our specialists also treat adults with adolescent-onset scoliosis who underwent treatments earlier in life but continue to struggle with pain and functional issues.

### Trauma

Our spine care specialists treat patients with all types of spinal trauma, tumors and infections at UVA Medical Center, which is designated as a Level I Trauma Center — the highest level of care available.

### Surgical Revisions

We treat many patients who have had prior spine surgeries for a variety of conditions and require revisions to improve their long-term mobility or quality of life.

### Wide-Ranging Expertise

UVA Spine Center combines the expertise of a broad range of physicians in the coordinated care of specific conditions. Our providers also see patients, including children, with other spine concerns. Additional conditions treated at UVA Spine Center include:

- Cervical, thoracic and lumbar disc disease, herniation and degeneration
- Vertebral compression fractures
- Degenerative spondylolisthesis
- Neck sprain (whiplash)

## Advanced Care

Many treatments we offer at UVA Spine Center do not involve surgery. Our surgeons coordinate care with the team's rehabilitation, neuromuscular and pain management experts to provide nonsurgical treatment options, including:

- Physical therapy
- Spinal braces
- Cervical braces
- Lumbar braces
- Medication management of pain and symptoms
- Spinal injections
- Osteopathic manipulative treatment

When surgical intervention is the best option, we offer presurgery imaging to assist in the decision-making process. Our orthopaedic surgeons and neurosurgeons use minimally invasive techniques whenever possible. To provide the best possible outcomes for our surgical patients, we utilize industry-leading approaches to spinal care.

### Imaging

Our advanced imaging capabilities include 3T MRI; in addition, we are the only center in Virginia to offer EOS, a low-dose, 3-D X-ray imaging technique. When surgical intervention is under consideration, we harness these technologies to help provide as much information as possible. In addition, image- and microscope-guided procedures are a cornerstone of our surgical spine approach, allowing for reduced invasiveness.

## Spine-Dedicated Neuroradiologists

Key collaborators in the surgical determination process are our team's neuro- and musculoskeletal radiologists, whose work is solely dedicated to interpreting spine images. These are experts in the field who can provide accurate analysis of the scans provided by our advanced imaging technology.

### Medications

Our surgeons utilize advanced medications to improve surgical outcomes, such as tranexamic acid (TXA), which reduces bleeding during spine surgery. We are also advancing the use of locally applied antibiotics, in addition to systemic antibiotics, to reduce rates of certain infections in spinal surgery patients.

## Spine-Dedicated Anesthesiologists

UVA Spine Center anesthesiologists are dedicated to surgical spine, not simply trained in it, resulting in better pain management for patients requiring spinal surgery.

### Intensive Care Unit (ICU)

Recovery and high-quality perioperative care are key for the success of any spinal surgery. At the UVA Health System ICU, specially trained nurses team with our surgeons to provide patients with a carefully managed recovery from inpatient spine surgery, including complex spinal reconstruction. We perform more than 1,500 procedures each year, from outpatient surgery to complex spinal reconstruction.

Our surgical treatments for spine disorders include:

- Artificial discs, including cervical
- Balloon kyphoplasty
- Spinal fusion
- Spinal implants
- Anterior lumbar interbody fusion (ALIF)
- Posterior lumbar interbody fusion (PLIF)
- Transforaminal lumbar interbody fusion (TLIF)
- Direct lateral interbody fusion (DLIF)

## Basic Science Research

Musculoskeletal disorders of the spine and low back pain are the leading source of disability in people under 45 years of age. To address this widespread health issue, Joshua Li, MD, PhD, assistant professor of research in orthopaedic surgery, oversees a basic science lab at UVA, where he studies musculoskeletal disorders of the spine. Dr. Li focuses on disc degeneration mechanism, growth factor treatment and disc tissue engineering, developing new and novel therapies to halt, slow or reverse the degenerative process.

Specific areas of study include:

- Pathogenesis of intervertebral disc degeneration
- Stem cell-based gene therapy for early disc degeneration
- Annulus fibrosus tissue regeneration
- Osteochondral tissue engineering
- Bioreactor application in bioengineering research
- Novel treatments for inflammatory conditions in neural injury

Dr. Li's clinical research has earned funding from a number of organizations, including:

- National Institutes of Health – National Institute of Arthritis and Musculoskeletal and Skin Diseases
- North American Spine Society
- AO Foundation
- Musculoskeletal Transplantation Foundation
- Carilion Biomedical Institute

## Clinical Outcomes Research

UVA Spine Center physicians seek to continually improve their practice based on evidence from patient outcomes research conducted at UVA and across partnering institutions. UVA spine physicians and residents regularly conduct retrospective research to analyze the outcomes from specific types of spine surgeries. Our team also participates in many prospective research studies involving many centers and supported by a variety of sources.

### Christopher & Dana Reeve Foundation

UVA has been a long-time partner of this foundation, studying treatment and outcomes from spinal cord injury. We are one of 11 U.S. sites committed to gathering and sharing data from all spinal cord patients who are willing to participate in the research.

### North American Clinical Trials Network Registry

**Description** | North American Clinical Trials Network Registry for treatment of spinal cord injury: a consortium of military, veterans' administration and civilian hospitals (IRB-HSR 1180)

UVA Principal Investigator | Christopher Shaffrey, MD  
Contact: Matthew Hamilton  
Phone: **434.243.7336**

*continued on insert* →

## Our Team

Our physicians are among the best in their field. In 2015, two of our spine surgeons were listed in the Top 20 Spine Surgeons in North America by *Orthopedics This Week*.

UVA Spine Center combines the strengths of neurosurgery, orthopaedics and rehabilitation medicine to provide patients with advanced, carefully coordinated care. This calibration allows us to communicate effectively with one another, the patient and the patient's referring physician, ensuring that everyone is informed and able to make the best possible care decisions.

This care team provides comprehensive care, including:

- Rehabilitation therapy
- Injections
- Medication management
- Electromyographies (EMGs)
- Nerve studies
- Orthopaedic surgical care
- Neurosurgical care

The team at UVA Spine Center includes a wide array of care providers:

- Orthopaedic spine surgeons
- Neurosurgeons
- Neuroradiologists
- Musculoskeletal radiologist
- Nurses
- Pain management specialists
- Neuromuscular specialists
- Rehabilitation specialists
- Physical therapists
- Occupational therapists
- Massage therapists
- Acupuncturists

We recognize that convenience of care is important to our patients and their referring providers. That's why our spine care experts provide specialized care in three locations in central Virginia:

- UVA Spine Center at Fontaine Research Park in Charlottesville
- UVA Primary and Specialty Care Zion Crossroads
- UVA Orthopedics Culpeper
- UVA Spine Clinic Harrisonburg

---

### Mark Abel, MD

Pediatric Orthopaedics, Spine Surgery

### Joseph Amalfitano, DO

Physical Medicine and Rehabilitation

### Selene Evans, NP

Neurological Surgery

### Charlie Exline, FNP

Neurological Surgery

### Lisa Foster, PAC

Neurological Surgery

### Chelsea Frame, MHS, PA

Neurological Surgery

### D. Preston Grice, MS, MD

Physical Medicine and Rehabilitation

### Ward Gypson, MD

Physical Medicine and Rehabilitation

### Hamid Hassanzadeh, MD

Spine Surgery

### Gregory Helm, MD, PhD

Neurological Surgery

### Rebecca Lehman, PAC

Spine Surgery

### Karen Lohr, BSN, MSN, AG-ACNP

Neurological Surgery

### Gavin MacCleery, PAC

Neurological Surgery

### Susan Miller, MD

Physical Medicine and Rehabilitation

### Marcia Molnar, PA

Neurological Surgery

### Lara Myers, MSN, ACNP

Neurological Surgery

### Erika Roeder, MS, PA

Neurological Surgery

### Mark Shaffrey, MD

Neurological Surgery

### Christopher Shaffrey, MD

Neurological Surgery

### Jason Sheehan, MD, PhD

Neurological Surgery, Radiosurgery

### Francis Shen, MD

Spine Surgery

### Adam Shimer, MD

Spine Surgery

### Anuj Singla, MD

Spine Surgery

### Justin Smith, MD

Neurological Surgery

### Thomas Szabo, PAC

Neurological Surgery

### Rosemarie Tyger, MS, PAC

Spine Surgery

### Dennis Vollmer, MD

Neurological Surgery

### Chun-Po Yen, MD

Neurological Surgery