



# Central States Orthopedics

Get Seen. Get Heard. Get Better.

# SPORTS MEDICINE MONTHLY

Editor: Darren H. Lunow, M.Ed, ATC, LAT, Athletic Trainer

*Surgical & Non-Surgical Care. Sports Medicine. Physical Therapy.*

Volume 8, Issue 5, December 2016

## EXAMINATION OF THE SPINE AND EXTREMITIES: THE LUMBAR SPINE

Beginning in January of this year, we began a series of newsletters examining the spine and the extremities one joint/region at a time. Beginning with the foot and working our way upward, the "Examination of the Spine and Extremities Series" is designed to provide a brief overview of the anatomy of each respective joint, an underlying review of its motion and dynamics, and likewise provide an explanation of some of the more common pathologies experienced in that particular joint.

**Bones:** 5 vertebrae and the sacrum:

**Ligaments:** Anterior Longitudinal Ligament, Posterior Longitudinal Ligament, Ligamentum Flava, Numerous Transverse & Spinous ligaments

**Muscles:** Multifidus, Psoas, Transversalis, Longissimus, Iliocostalis



### Physiology

The lumbar spine provides support for the entire upper body, transmitting the weight of upper body into the pelvis and lower limbs. As a result, most individuals will experience some form of back pain before the age of 50. Generally speaking, patient's ages 20-40 most commonly see back pain as a result of muscular injury, patients 30-50 are more likely to suffer from back pain caused by a herniated disc, and patients over 60 with low back pain are usually dealing with osteoarthritis. Why so many?

Consider the pressure increases that occur in the discs of the lumbar spine with each of the following daily activities:

*Coughing or Straining:	5 - 35% increase
*Walking:	15% increase
*Laughing:	40 - 50% increase
*Bending Forward:	150% increase
*Lifting 45lbs with your legs:	73% increase
*Lifting 45lbs with your back:	169% increase

Much like mechanical parts in an automobile can wear rapidly with harder use, your lumbar spine is an excellent example of how protected usage can lead to long-term viability.

### Central States Orthopedics Physicians

R. Clio Robertson, MD	Randall L. Hendricks, MD	Jeffrey R. Morris, DO	Brent C. Nossaman, DO	Debbie A. Gladd, DO
David R. Hicks, MD	David K. Wong, MD	Ronald S. LaButti, DO	Kathleen M. Sisler, MD	Casey L. Smith, MD
James D. Cash, MD	Bryan J. Hawkins, MD	Jeff A. Fox, MD	Troy A. Glaser, DO	Wendy B. Emerson, MD
David E. Nonweiler, MD	Thomas G. Craven, MD	Blake E. Shockley, MD	Bradley J. Lawson, MD	Chad E. Crawley, DO

#### ON-SITE ORTHOPEDIC CLINICS EACH WEEK

- No Charge
- Open to patients of all ages
- Appointments (918) 346-7800

**Collinsville Public Schools**  
Monday/Wednesday  
2:00pm—3:30pm

**Coweta Public Schools**  
Wednesday  
2:45pm—3:30pm

**Edison Preparatory School**  
Monday/Thursday  
2:45pm—3:30pm

**Glenpool Public Schools**  
Tuesday  
2:45pm—3:30pm

**Kellyville Public Schools**  
Wednesday  
Noon—12:45pm

**Regent Preparatory School**  
Wednesday  
Noon—12:45pm

**Rejoice Christian School**  
Monday/Wednesday  
2:00pm—3:30pm

**Victory Christian School**  
Tuesday  
2:45pm—3:30pm

**Wagoner Public Schools**  
Wednesday  
2:45pm—3:30pm

\*Hosted by CSO Athletic Trainers and Physician Assistants.

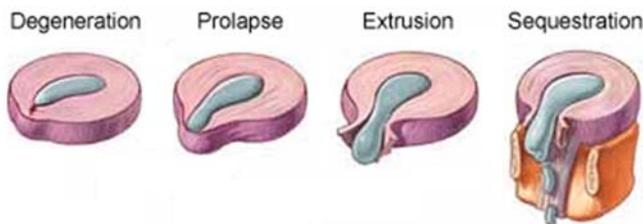
## Disc Herniations

Intervertebral discs are specifically designed with the task of managing load and stress while also maintaining the essential spacing between each vertebra. This spacing ensures for adequate room for each of the spinal nerves.

Discs are made of two basic components, a tough fibrocartilage outer casing of rings known as the annulus fibrosis and a gelatinous center known as the nucleus pulposus. As weight and shear stresses are loaded on the disc, the ability of the annulus to keep the nucleus centrally located is challenged. And, when the force is greater than the strength of the annulus, the nucleus can bulge or herniate partially or completely through the annulus.

### **Protrusion/Degeneration:**

The nucleus pulposus bulges without rupturing the annulus fibrosis.



### **Herniated/Prolapsed:**

The nucleus pulposus has entered into the annulus fibrosis and only the outer most fibers are remaining to contain the nucleus.

### **Extruded:**

The annulus fibrosis is perforated and the nucleus pulposus moves into the spinal canal.

### **Sequestered:**

As nucleus material exists outside the annulus, it tends to separate into numerous fragments.

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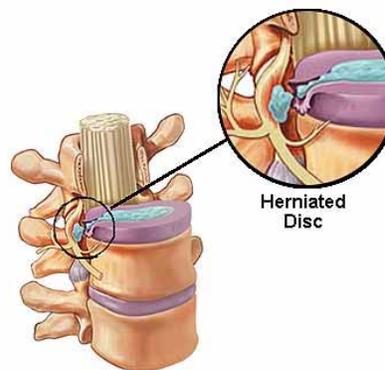
## Life After Disc Herniation

Contrary to what may seem accurate, a majority of all disc herniations are not painful and don't have associated neurological symptoms. According to one study published in the Journal of Bone & Joint Surgery in 1990, 67 individuals who never complained of low-back pain, sciatica, or other neurological symptoms underwent MRI study with the following results:

- \*20% of those under the age of 60 had a disc herniation
- \*36% of those over the age of 60 had a disc herniation and 21% had spinal stenosis
- \*Between 20 and 39 years of age, 35% had some level of disc degeneration or bulge

In other words, most patients who have a disc herniation may not even know it. Therefore, this magnifies the

importance of good, all-around core stability and posture for us all. Each day your spine is loaded and the way you handle that load directly determines the long-term health of your spine.



If you are currently under a physician's care for a disc

herniation, keep in mind that the primary goals of treatment for a disc herniation are to relieve symptoms and prevent further injury. Therefore, rest, gradual increases in activity, rehabilitation, and medication can all work together to manage/control pain and improve your long-term prognosis. Likewise, approximately 70% of patients will see improvement in the first 3 months and more than 90% will improve in 6 months without requiring surgery. For this reason, non-surgical treatment is very common and can be highly effective.

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For our entire newsletter disclaimer, visit the Sports Medicine Newsletter page on our website: <http://www.csosortho.com/sports-medicine-monthly.html>

#### Main Clinic

6585 S. Yale Ave., Ste. 200  
Tulsa, Oklahoma 74136  
918-481-2767

#### Bixby Clinic

12800 S. Memorial, Ste. D  
Bixby, Oklahoma 74008  
918-394-2767

#### South Tulsa Clinic

9716 S. Riverside Dr., Ste. 110  
Tulsa, Oklahoma 74137  
918-528-3300

#### Owasso Clinic

13616 E. 103rd St. N., Ste. B  
Owasso, Oklahoma 74055  
918-272-4488

#### Downtown Clinic

802 S. Jackson, Ste. 405  
Tulsa, Oklahoma 74127  
918-583-4400

#### Hillcrest South Medical Plaza

8803 S. 101st E. Ave, Ste. 300  
Tulsa, OK 74133  
918-994-6277