

OH , MY ACHING BACK

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Cindy Anderson MSN, APRN, ACNP-BC,
ANP-BC, CNRN

Charleston Neurosurgical Associates

STATISTICS

- 4 out of 5 people have back pain
- Second most common painful condition
- Most common cause of disability under 45
- 175 million lost work days per year
- 20-50 billion dollar annual cost
- 90% recover within 3 months

COMMON CAUSES

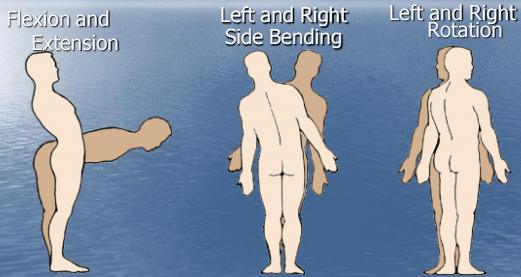
- Paraspinal muscle strain (pulled muscle)
- Ruptured/herniated disc
- Lumbar spinal stenosis (narrowing)
- Lumbar spondylolisthesis (slippage)

Almost all back disorders are the result of:

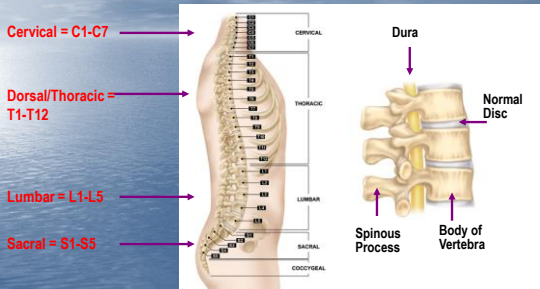
- Poor muscle tone covered by lack of exercise
- Poor posture
- Faulty body mechanics
- Stressful living and working habits
- Loss of strength and flexibility
- Excessive weight

Functions of the Spine

- Flexibility of motion in six degrees of freedom



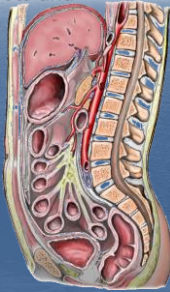
Spine Anatomy

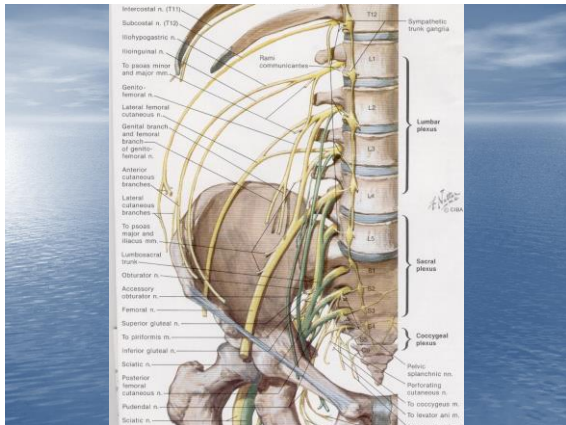


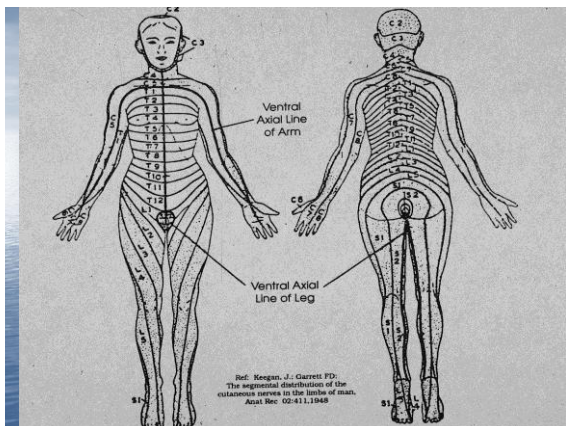
Functions of the Spine

Protection

Spinal cord, nerve roots and Internal organs







PARASPINOUS MUSCLE STRAIN

- Stretched or strained muscle in the back
- Low back pain worse on bending, lifting or position changes
- Improves with rest
- Little or no leg pain

- 9 out of 10 people experience resolution of pain within 4-6 weeks

Paraspinous muscle strain Diagnosis

- History and physical exam
- Rule out any "red flags"

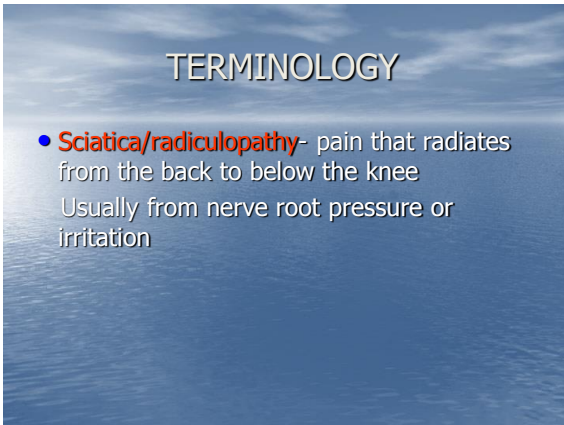
PARASPINOUS MUSCLE STRAIN Treatment

- Rest 2-4 days

- Medications- analgesics, muscle relaxers, NSAIDS
- Narcotics sparingly
- Heat or ice packs to low back
- Return to normal activities



RUPTURED/HERNIATED DISC



TERMINOLOGY

- **Sciatica/radiculopathy**- pain that radiates from the back to below the knee
Usually from nerve root pressure or irritation

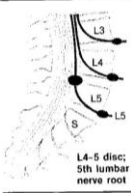
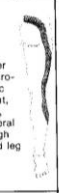

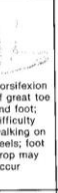

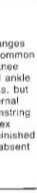
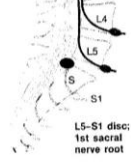
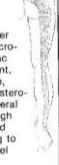

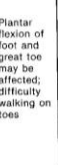




SYMPTOMS OF RUPTURED DISC

- Back and/or leg pain
- Worse on sitting
- Numbness in leg and/or foot
- Weakness in leg and/or foot
- Aggravated by coughing, sneezing or straining
- Reduced or absent reflexes

DIAGNOSIS

- History and physical examination
- Lumbar spine x-rays
- MRI
- Myelogram
- EMG (nerve test)

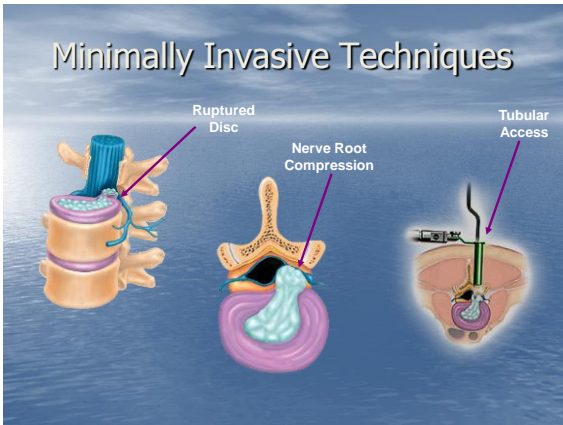
Level of herniation	Pain	Numbness	Weakness	Atrophy	Reflexes
 <p>L4-L5 disc; 5th lumbar nerve root</p>	 <p>Over sacroiliac joint, hip, lateral thigh and leg</p>	 <p>Lateral leg, first 3 toes</p>	 <p>Dorsiflexion of great toe and foot; difficulty walking on heels; foot drop may occur</p>	 <p>Minor</p>	 <p>Changes uncommon in knee and ankle jerks, but internal hamstring reflex diminished or absent</p>
 <p>L5-S1 disc; 1st sacral nerve root</p>	 <p>Over sacroiliac joint, hip, posterolateral thigh and leg to heel</p>	 <p>Back of calf, lateral heel, foot and toe</p>	 <p>Plantar flexion of foot and great toe may be affected; difficulty walking on toes</p>	 <p>Gastrocnemius and soleus</p>	 <p>Ankle jerk diminished or absent</p>



TREATMENT

- Medications (NSAIDS, muscle relaxers, narcotic analgesics, neurontin)
- Physical Therapy
- Lumbar epidural steroid injection (nerve block)
- Worsening weakness and/or no improvement from treatment-SURGERY

Minimally Invasive Techniques



"RED FLAGS"

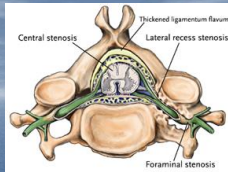
- History of trauma or cancer
- Fever, weight loss
- Bleeding disorders
- Nocturnal pain lying down
- Bilateral leg pain
- Numbness in buttocks
- New onset Bowel/bladder incontinence
- Leg weakness
- Pulsatile abdominal mass

SPINAL STENOSIS

- Older people
- Also called "Neurogenic Claudication"

Spinal Stenosis

- Most frequent in lower cervical and lower lumbar spine
- Narrowing of the spinal canal and/or lateral foramen through which the nerves travel
- Three types:
 - Central stenosis: in central spinal canal where cord or cauda equina are located
 - Lateral recess stenosis: in the tract where nerve roots exit canal



–Acquired: in lateral foramen where nerve roots exit to body

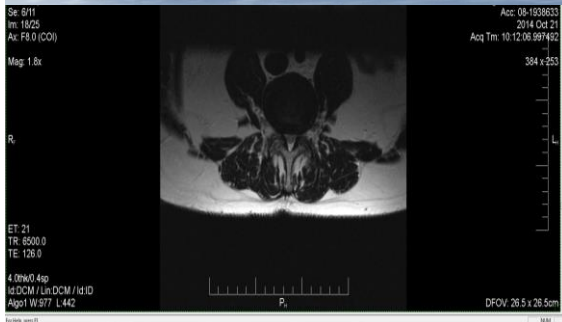
SPINAL STENOSIS Symptoms

- Shopping cart posture
- Back and leg pain worse on walking-
relieved by bending, stooping or sitting
- Aching pain, numbness and heaviness in legs

LUMBAR STENOSIS DIAGNOSIS

- History and physical examination
- MRI
- Rule out poor circulation in legs

71 year old with back pain



LUMBAR STENOSIS Treatment

- Medications
- Lumbar epidural steroid injections
- Surgery if severe or treatment unsuccessful

**Neurogenic versus Vascular
CLaudication**

WHAT IS THE DIFFERENCE ?

LUMBAR SPONDYLOLISTHESIS

- Slippage of the lumbar spine from enlarged joints (arthritis)

**LUMBAR SPONDYLOLISTHESIS
Symptoms**

- Back and posterior thigh pain
- Worsening pain with activity (standing) or bending
- Exaggeration of the lumbar curve

LUMBAR SPONDYLOLISTHESIS Diagnosis

- History and Physical examination
- Low back x-rays (bending)
- MRI

53 year old with leg pain



Degenerative Spondylolisthesis

- Wiltse Classification Type III
- Marchetti-Bartolozzi acquired type
- Most commonly occurs at L4-5
- Results from degenerative changes in facets
- May have a rotatory subluxation or lateral listhesis
- L5 nerve root commonly affected



LUMBAR SPONDYLOLISTHESIS Treatment

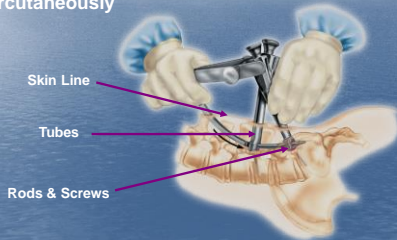
- Back brace
- Medications
- Low back exercises
- Leg weakness- Surgery

Post-op

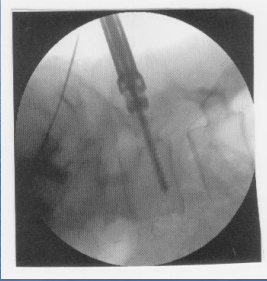


Minimally Invasive Fusion

Rods and Screws Placed
Percutaneously



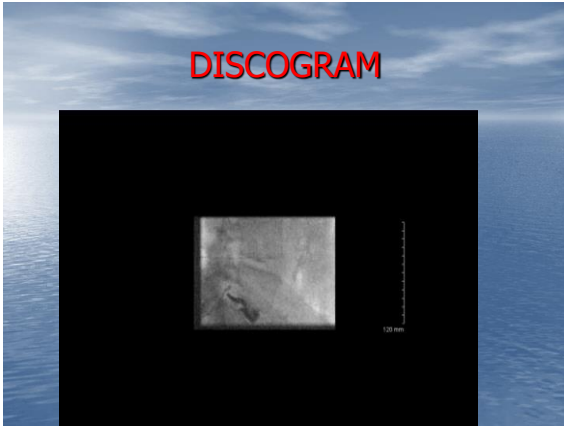
PERCUTANEOUS PEDICLE SCREW



DISCOGENIC BACK PAIN

DIAGNOSIS

- Patient evaluation
- Primary back pain
- discogram





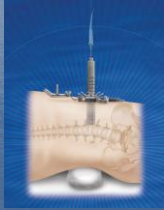
Rationale: ALIF Benefits

- Larger graft options
 - Improved restoration of disc height
 - Restoration of sagittal and coronal balance
 - Alleviates foraminal stenosis
 - Improved spondy reduction*
 - More stable in torsion control than PLIF**

*Suk KS, Jeon CH, Park MS, Moon SH, Kim NH, Lee HM. Comparison between posterolateral fusion with pedicle screw fixation and anterior interbody fusion with pedicle screw fixation in adult spondylolytic spondylolisthesis. Yonsei Med J. 2001 Jun;42(3):316-23.

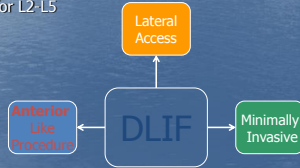
**Voor MJ, Mehta S, Wang M, Zhang YM, Mahan J, Johnson JR. Department of Orthopaedic Surgery, University of Louisville School of Medicine, Kentucky 40292, USA. 1: J Spinal Disord. 1998 Aug;11(4):328-34.

DLIF - Direct Lateral Interbody Fusion



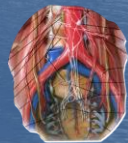
Rationale: What is Direct Lateral?

- Transpoas approach to the disc or vertebrae
- Minimally invasive variation of retroperitoneal flank approach
- Anterior interbody surgery via smaller incision
- Best suited for L2-L5



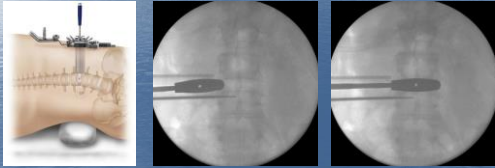
Rationale: Lateral Access Benefits

- Compared to traditional ALIF
 - No need for approach surgeon
 - No retraction of peritoneal contents
 - No direct risk to anterior vascular structures
 - Avoidance of sympathetics and retrograde ejaculation
 - Obesity less of an issue
 - Abdomen falls out of the way
 - No resection of anterior ligament



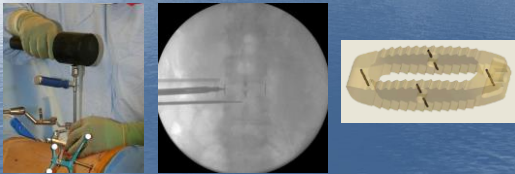
Trial/Distract

- Sequentially distract disc space
- Trial should span apophyseal ring



Implant Insertion Spinal System

- Keep inserter upright
- Carefully tamp in cage until cage spans fully across the vertebral bodies.

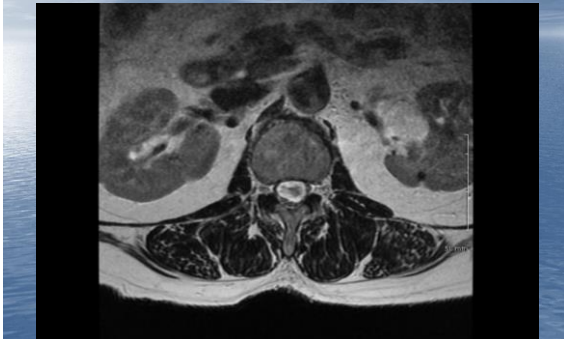


• TEST QUESTIONS

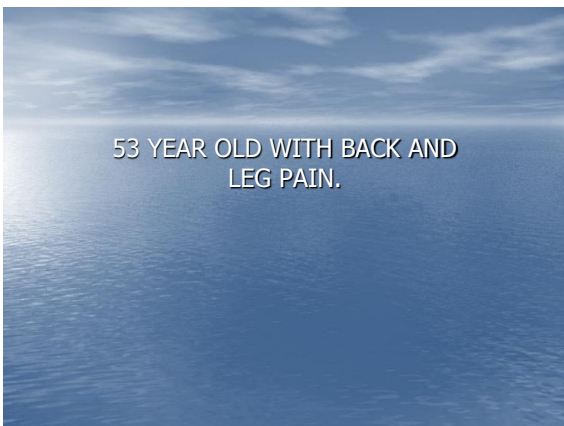
40 year old with back pain.



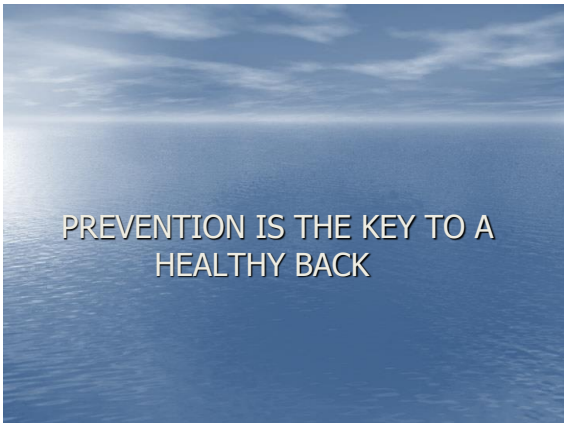
68 YEAR OLD WITH BACK PAIN AND WEAK LEGS L1-2



53 YEAR OLD WITH BACK AND LEG PAIN.









ST. FRANCIS SPINE CENTER

- At St. Francis Hospital
- Multi-practice expertise
- Seamless scheduling
- Dedicated OR, Spine Unit, Ancillary Care Facilities
- Regional Excellence in Patient Care and Outcomes

Nicholas, Maggie and Abby 2014



THANK-YOU



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