

# **Industrial Low Back Pain: Innovative Ways to Close Back Injuries with Optimal Outcomes**

## **Evidence Based Approach**

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Orthopaedic Spine Surgeon

1965



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# Acute LBP

Benign, self limited condition  
that resolves spontaneously  
without treatment

# Acute LBP

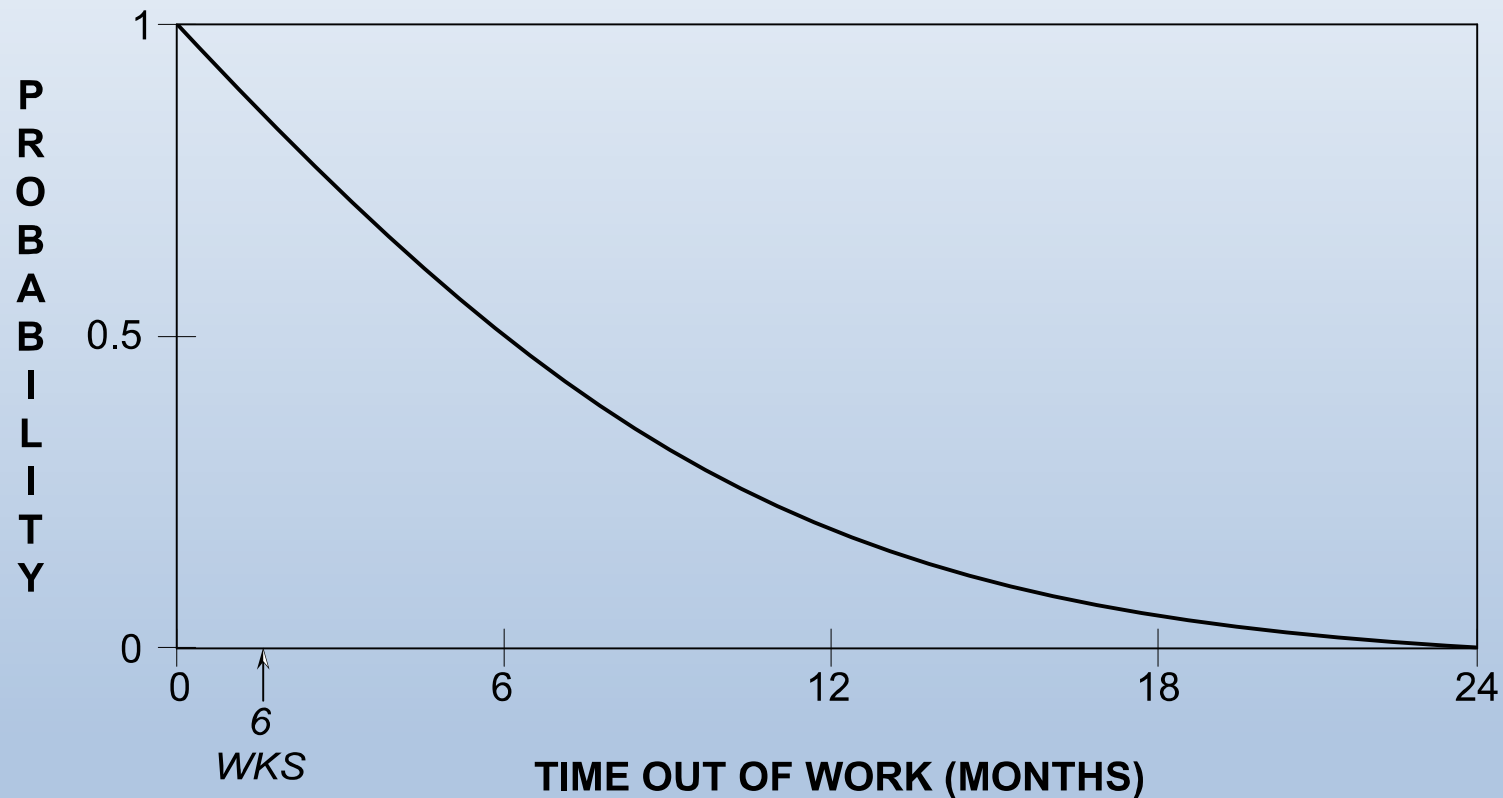
- Lumbar sprain/strain
- Lumbosacral  
musculoligamentous sprain/strain
- Mechanical LBP
- Somatic dysfunction

# Goal

Get Injured Worker back to Work and  
Close the Claim



# Urgency!!!

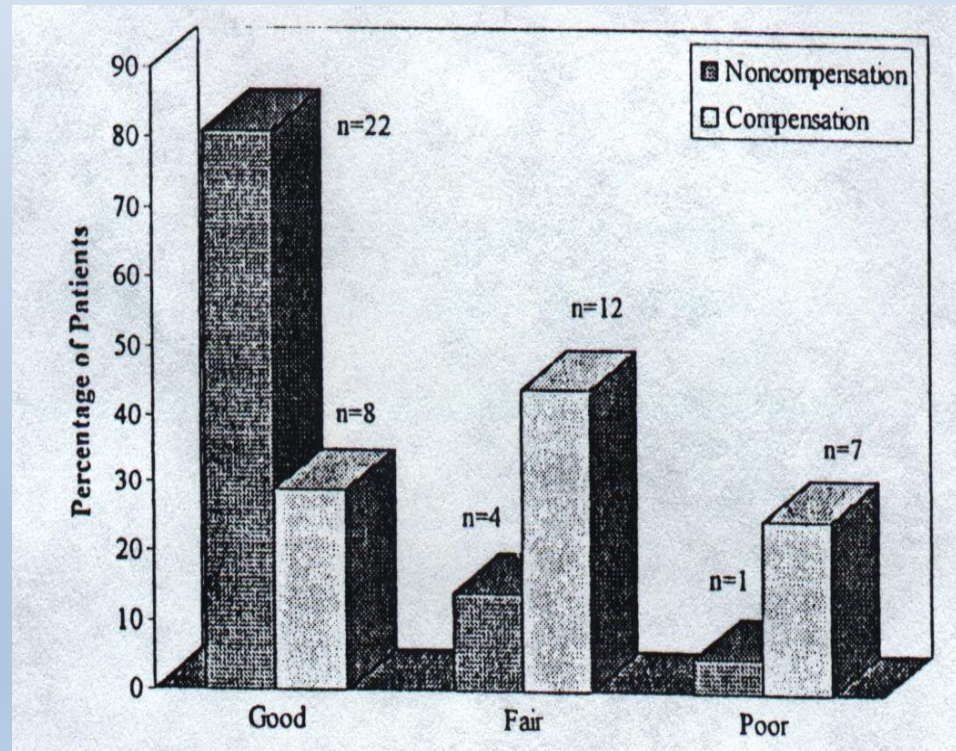


**Fig. 2.** The natural history of chronic low back pain as measured by return to work. Note the increasingly unfavorable outlook as time progresses.

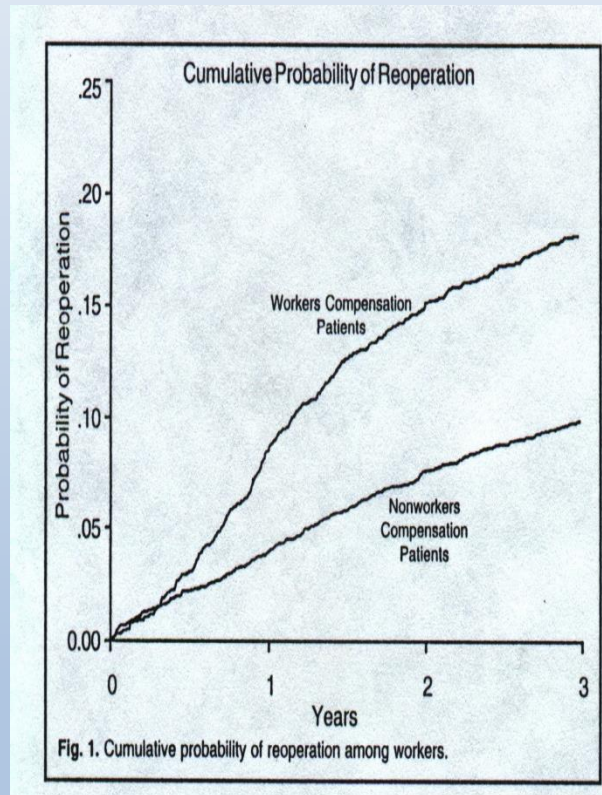


# Work Comp

## Difficult Population



# Reoperations



# Why are they Different?

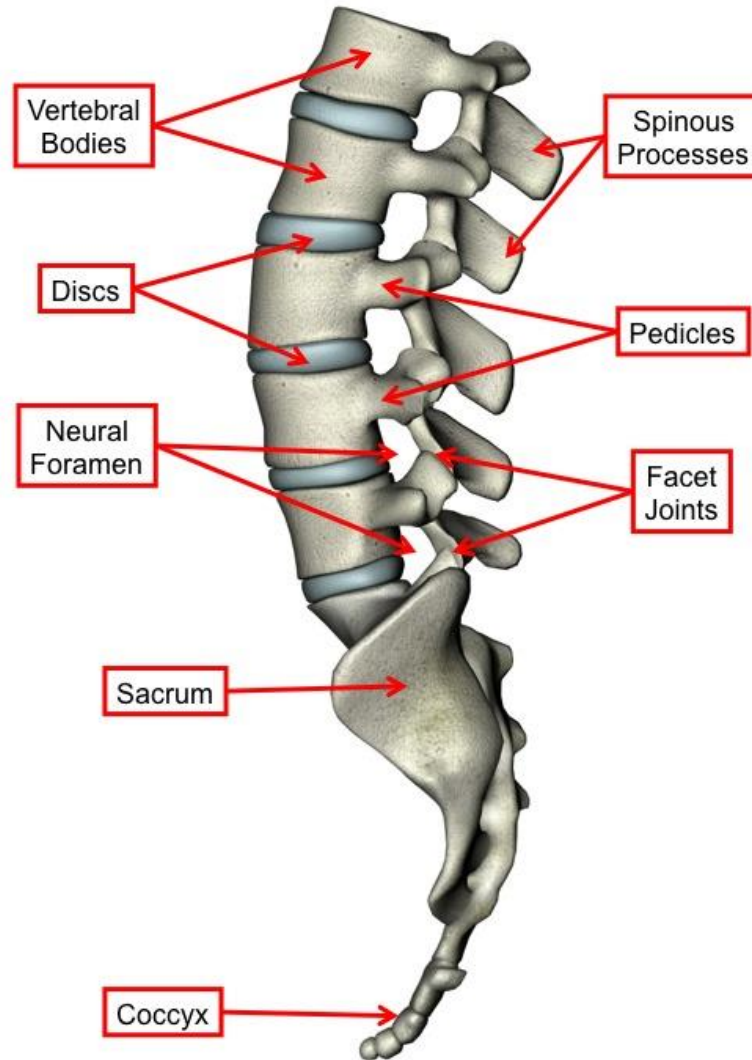
- Lower socioeconomic status
- Lower education level
- Menial task jobs
- Physically demanding work
- Unhappy with employer/supervisor
- Psychological issues

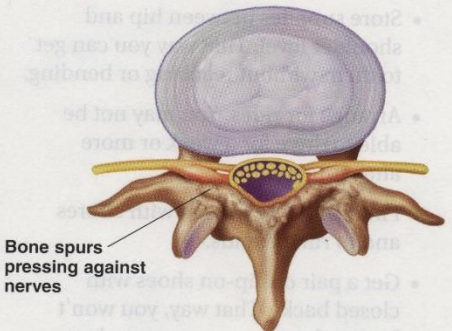
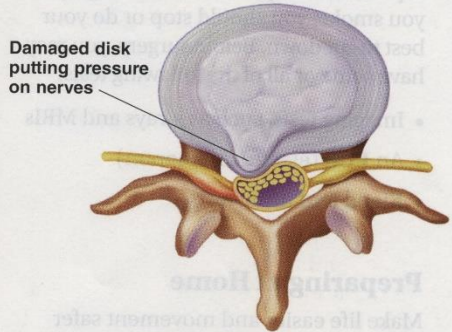
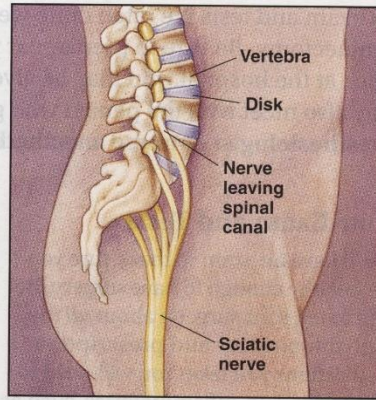




# Anatomy

The Normal Lumbar Spine Lateral / Side View

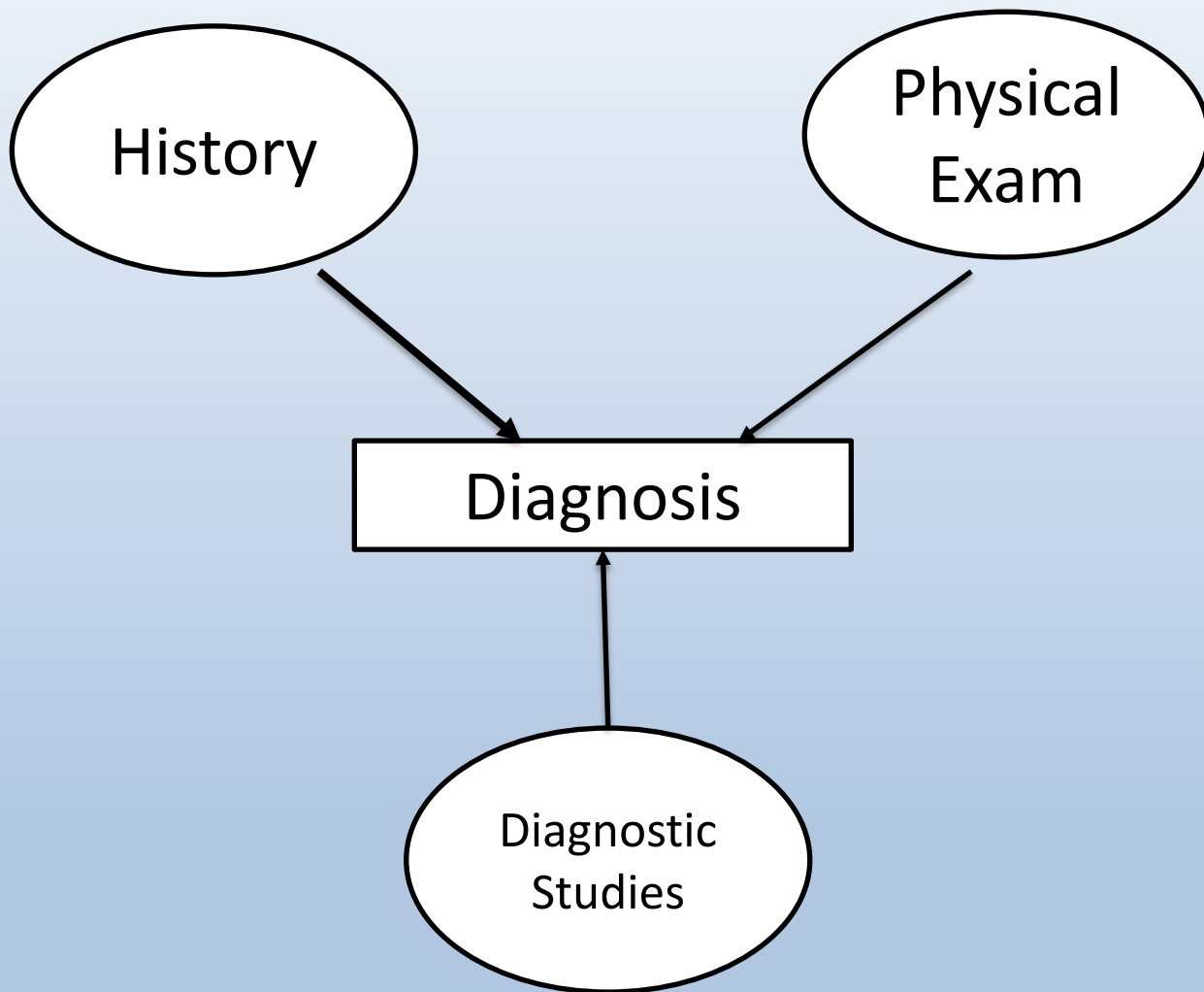




# Evaluation

- History
- Physical Exam
- Diagnostic Studies





# History

Did a work injury occur?

- Mechanism of injury
- When did the pain start?
- Pre-existing condition?
- Consistency of Symptoms

# When Did the Pain Start?

Delay in onset – NO INJURY!!



# Pre-existing Condition

- Always need to ask if they had prior back problems!



# Pre-existing Condition

Basic Question: Asymptomatic Before?



# History

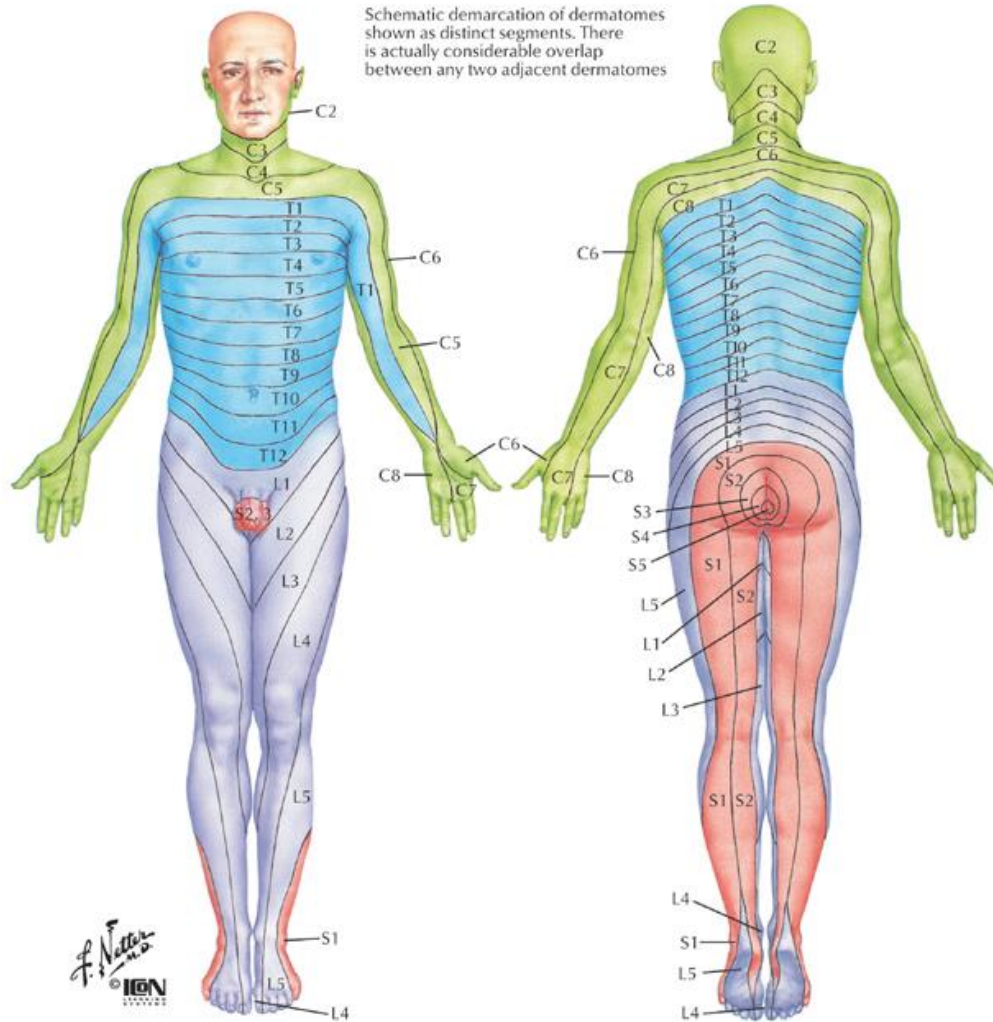
Did a work injury occur?

- Mechanism of injury
- When did the pain start?
- Pre-existing condition?
- Consistency of Symptoms

# Exam

- Any objective findings?
- Waddell signs
- Pain diagram

Schematic demarcation of dermatomes shown as distinct segments. There is actually considerable overlap between any two adjacent dermatomes



F. Netter M.D.  
© IGV

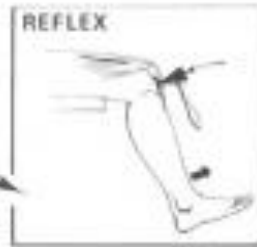
**Levels of principal dermatomes**

- C5 Clavicles
- C5, 6, 7 Lateral parts of upper limbs
- C8, T1 Medial sides of upper limbs
- C6 Thumb
- C6, 7, 8 Hand
- C8 Ring and little fingers
- T4 Level of nipples

- T10 Level of umbilicus
- T12 Inguinal or groin regions
- L1, 2, 3, 4 Anterior and inner surfaces of lower limbs
- L4, 5, S1 Foot
- L4 Medial side of great toe
- S1, 2, L5 Posterior and outer surfaces of lower limbs
- S1 Lateral margin of foot and little toe
- S2, 3, 4 Perineum



# L4 NEUROLOGIC LEVEL



# Pain Diagram

Mark the appropriate areas on your body where you feel the described sensation. Use the correct symbol. Also mark completely areas these go to. Include all the affected areas.

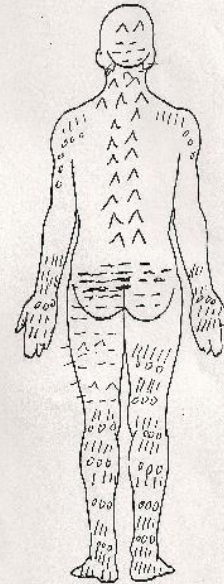
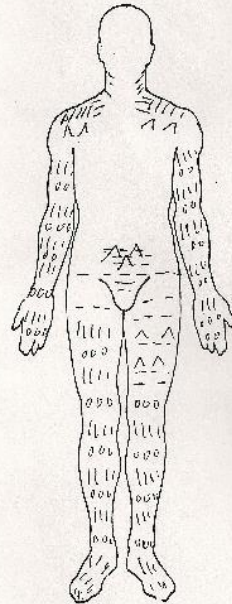
NUMBNESS: *|||||*  
*|||||*  
*|||||*  
*|||||*

ACHE: *^^*  
*^^*

BURNING SENSATION: *xxxxx*  
*xxxxx*

PINS & NEEDLES: *o o o o o*  
*o o o o o*


STABBING SENSATION: *-----*  
*-----*  
*-----*





Name \_\_\_\_\_


Date 6-14-06


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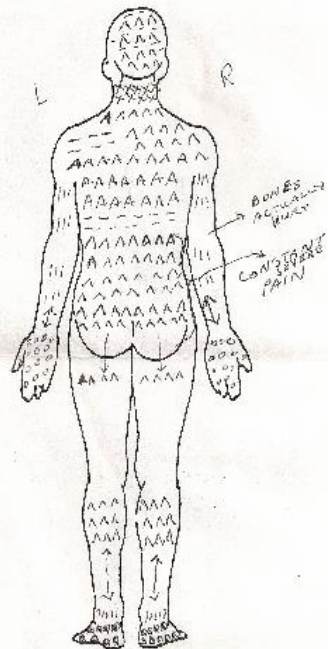
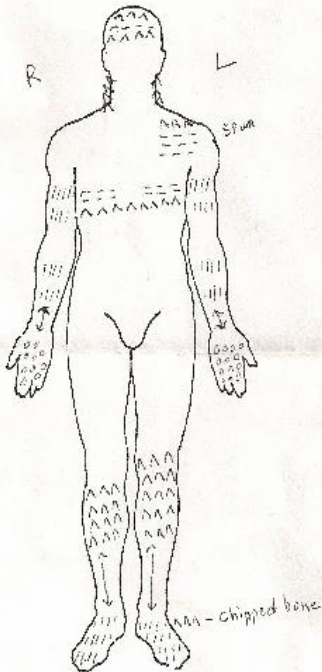
NUMBNESS: 

ACHE: 

BURNING SENSATION: 

PINS & NEEDLES: 

STABBING SENSATION: 



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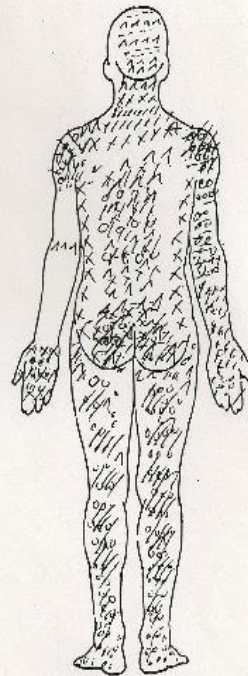
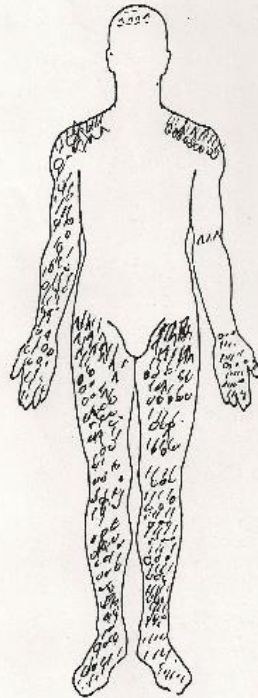
NUMBNESS: HHHH  
HHHH

ACHE: ^ ^  
^ ^

BURNING SENSATION: XXXX  
XXXX

PINS & NEEDLES: 0000  
0000

STABBING SENSATION: ----  
----  
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Name \_\_\_\_\_

Date \_\_\_\_\_

Mark the appropriate areas on your body where you feel the described sensation. Use the correct symbol. Also mark completely areas these go to. Include all the affected areas.

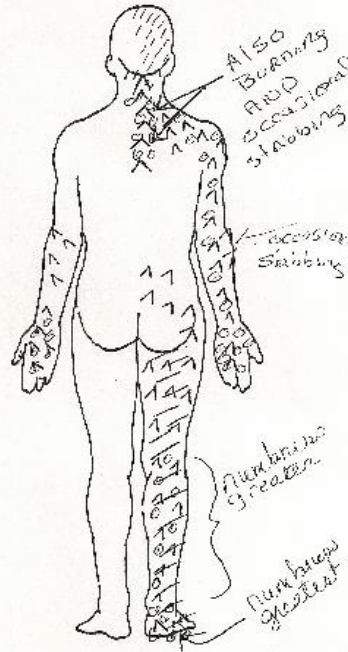
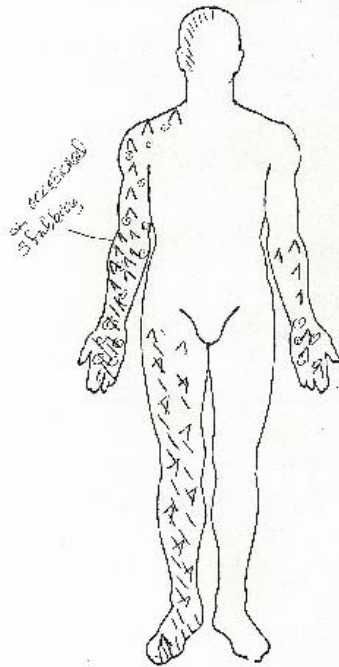
NUMBNESS: *|||||*  
*|||||*

ACHE: *<<*  
*<<*

BURNING SENSATION: *xx xxx*  
*xxxxx*

PINS & NEEDLES: *o o o o o*  
*o o o o o*

STABBING SENSATION: *-----*  
*-----*  
*-----*



Mark the appropriate areas on your body where you feel the described sensation. Use the correct symbol. Also mark completely areas these go to. include all the affected areas.

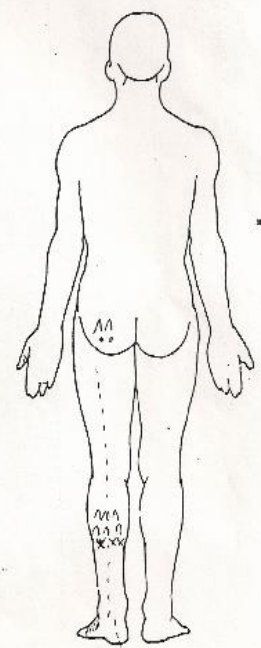
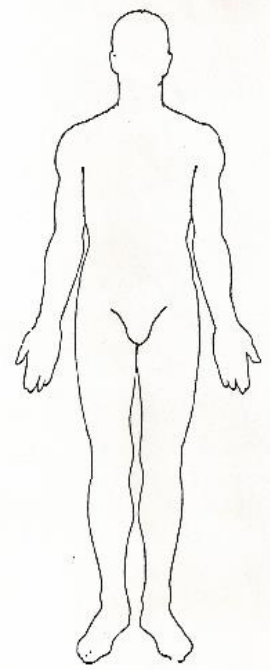
NUMBNESS: *|||||*  
*|||||*

ACHE:  $\wedge$   $\wedge$   
 $\wedge$   $\wedge$

BURNING SENSATION: *xxxxx*  
*xxxxx*

PINS & NEEDLES: *ooooo*  
*ooooo*


STABBING SENSATION: *-----*  
*-----*  
*-----*





Name \_\_\_\_\_


Date \_\_\_\_\_


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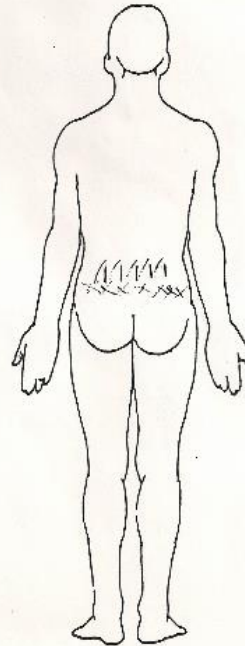
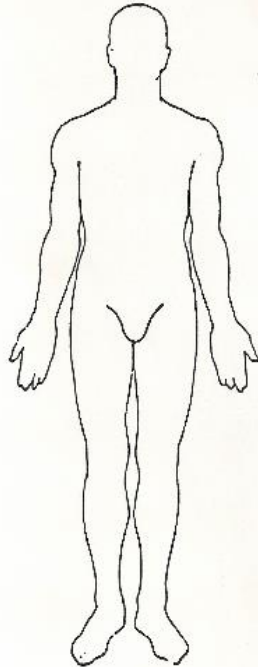
NUMBNESS: 

ACHE: 

BURNING SENSATION: 

PINS & NEEDLES: 

STABBING SENSATION: 

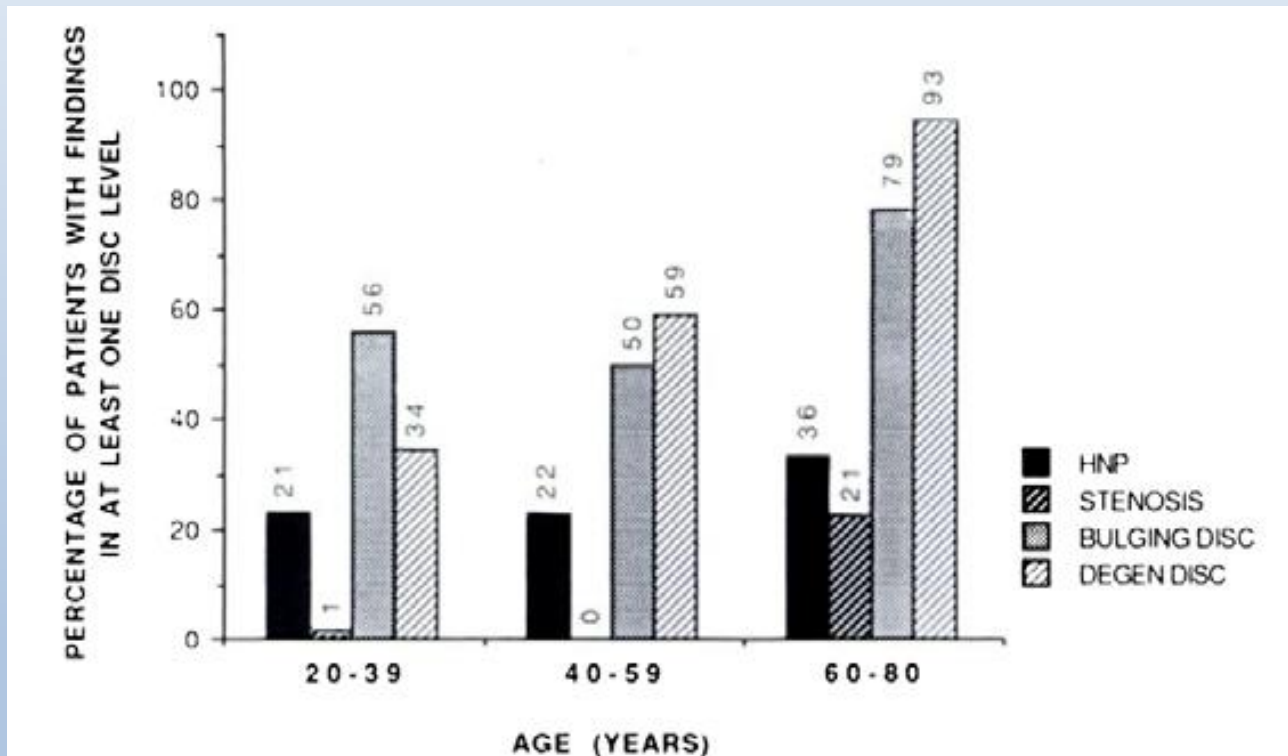


# Diagnostic Studies

- X-rays
- MRI
- CT
- EMG
- Discography

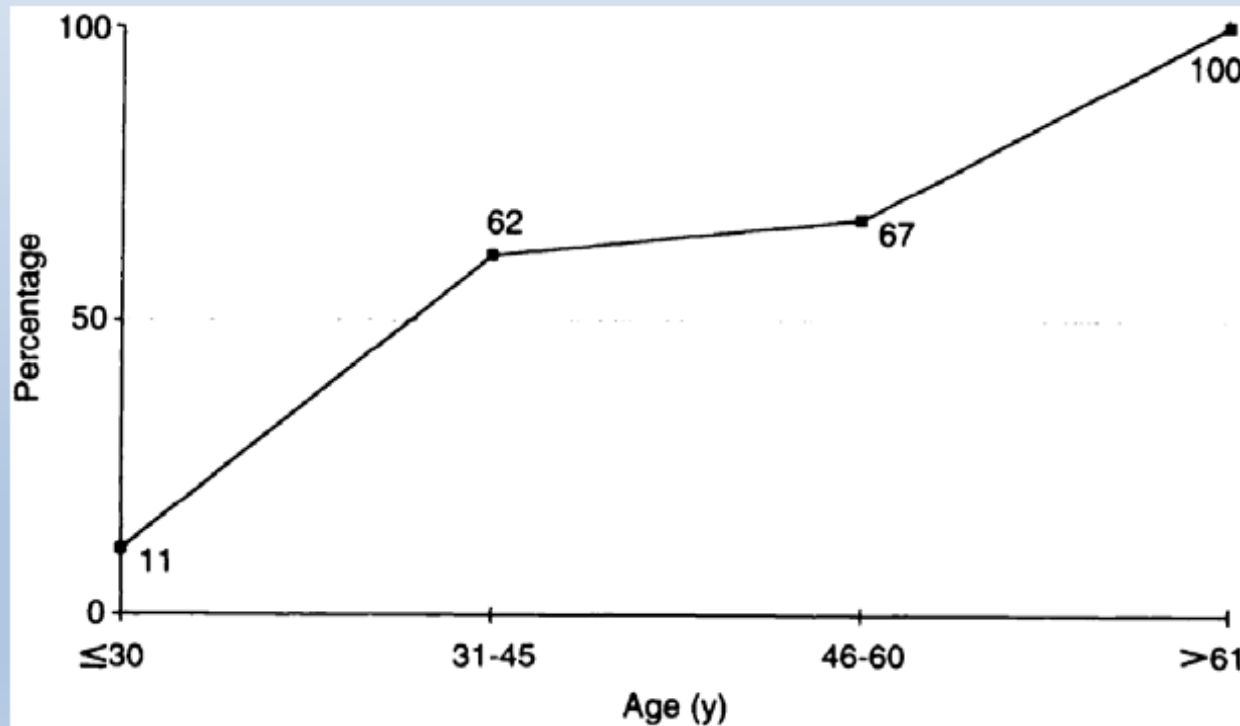


# MRI SCANS IN NORMAL INDIVIDUALS



# MRI SCANS IN NORMAL INDIVIDUALS

## “Annular tears”



## Case Example

- 58 yo male injured while working on 08/02/10
- Pulled on a pallet jack
- LBP, left thigh numbness
- Clinic      meds, pt for 1 month
- Had x-rays on 08/09/10 and MRI on 08/25/10  
(moderated degenerative changes L1-2, L2-3)
- I saw him on 09/08/10 – pain gone

# Diagnostic Studies

- X-rays
- MRI
- CT
- EMG
- Discography



FIRST DO NO HARM

# Treatment

- Reassurance
- Reassurance
- Reassurance
- Reassurance
- Reassurance



# Appropriate Treatment

- Reassurance
- Time off from work
- Meds
- PT

# Goal

Discharge in 4-6 weeks





# Treatments That May Interfere

- Long term narcotics
- Chiropractic
- Back braces
- Disc decompression
- Acupuncture
- Trigger point injections
- Facet injections
- Medial branch blocks
- Radiofrequency ablation
- Discography
- Surgery

## **Interventional Therapies, Surgery, and Interdisciplinary Rehabilitation for Low Back Pain**

An Evidence-Based Clinical Practice Guideline From the American Pain Society

Roger Chou, MD,\* John D. Loeser, MD,† Douglas K. Owens, MD, MS,‡§  
Richard W. Rosenquist, MD,¶|| Steven J. Atlas, MD, MPH,||| Jamie Baisden, MD, FACS,\*\*  
Eugene J. Carragee, MD,†† Martin Grabojs, MD,‡‡ Donald R. Murphy, DC, DACAN,§§  
Daniel K. Resnick, MD,¶¶ Steven P. Stanos, DO,|||| William O. Shaffer, MD,\*\*\* and  
Eric M. Wall, MD, MPH,††† For the American Pain Society Low Back Pain Guideline Panel

### Panel Did Not Recommend:

- > facet injections
- > trigger point injections
- > medial branch blocks
- > radiofrequency denervation
- > sacroiliac joint injections
- > botox injections
- > IDET
- > Discography

# If Treatment fails???

- Nurse Case Management
- IME
- Surveillance

# IME

- 6 weeks of treatment
- Inappropriate treatment
- Surgery recommended
- Question about injury

# Case Example

- DOI- **08/20/2020** – 32 yo female
- Press operator – temporary employment company
- A rubber piece fell from above onto her neck
- No immediate pain- pain started at home later that evening – **Delay!**
- LBP and pain into her left leg
- MRI shows left lateral HNP L3-4
- Spine & Joint(chiro) – 3 months
- ESI's – 12/8/20, 1/19/21, 4/13/21
- Neurosurgeon on 4/22/21- rec surgery
- First and only IME – **08/13/2021**

## My IME on 08/13/2021

No objective evidence of injury:

- Delay
- No objective evidence of injury on exams
- No acute findings on imaging studies
- Her history was not reliable – told me no prior history – records show she had same complaints before

Clinical Study

## Inciting events associated with lumbar disc herniation

Pradeep Suri, MD<sup>a,b,c,d,\*</sup>, David J. Hunter, MBBS, PhD<sup>a</sup>, Cristin Jouve, MD<sup>b,e</sup>,  
Carol Hartigan, MD<sup>b,e</sup>, Janet Limke, MD<sup>b,e</sup>, Enrique Pena, MD<sup>e</sup>,  
Bryan Swaim, MS<sup>a</sup>, Ling Li, MPH<sup>a</sup>, James Rainville, MD<sup>b,e</sup>

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Received 1 July 2009; revised 2 January 2010; accepted 5 February 2010

### Abstract

**BACKGROUND CONTEXT:** No prior study has investigated the frequency of patient-identified inciting events in lumbar disc herniation (LDH) or their clinical significance.

**PURPOSE:** To examine the clinical frequency of patient-identified inciting events in LDH, and to identify associations between the presence of inciting events and the severity of the clinical presentation.

**STUDY DESIGN/SETTING:** Cross-sectional analysis of data from a cohort study with prospective recruitment, with retrospective data collection on inciting events. The setting was a hospital-based specialty spine clinic.

**PATIENT SAMPLE:** One hundred fifty-four adults with lumbosacral radicular pain and LDH confirmed by magnetic resonance imaging.

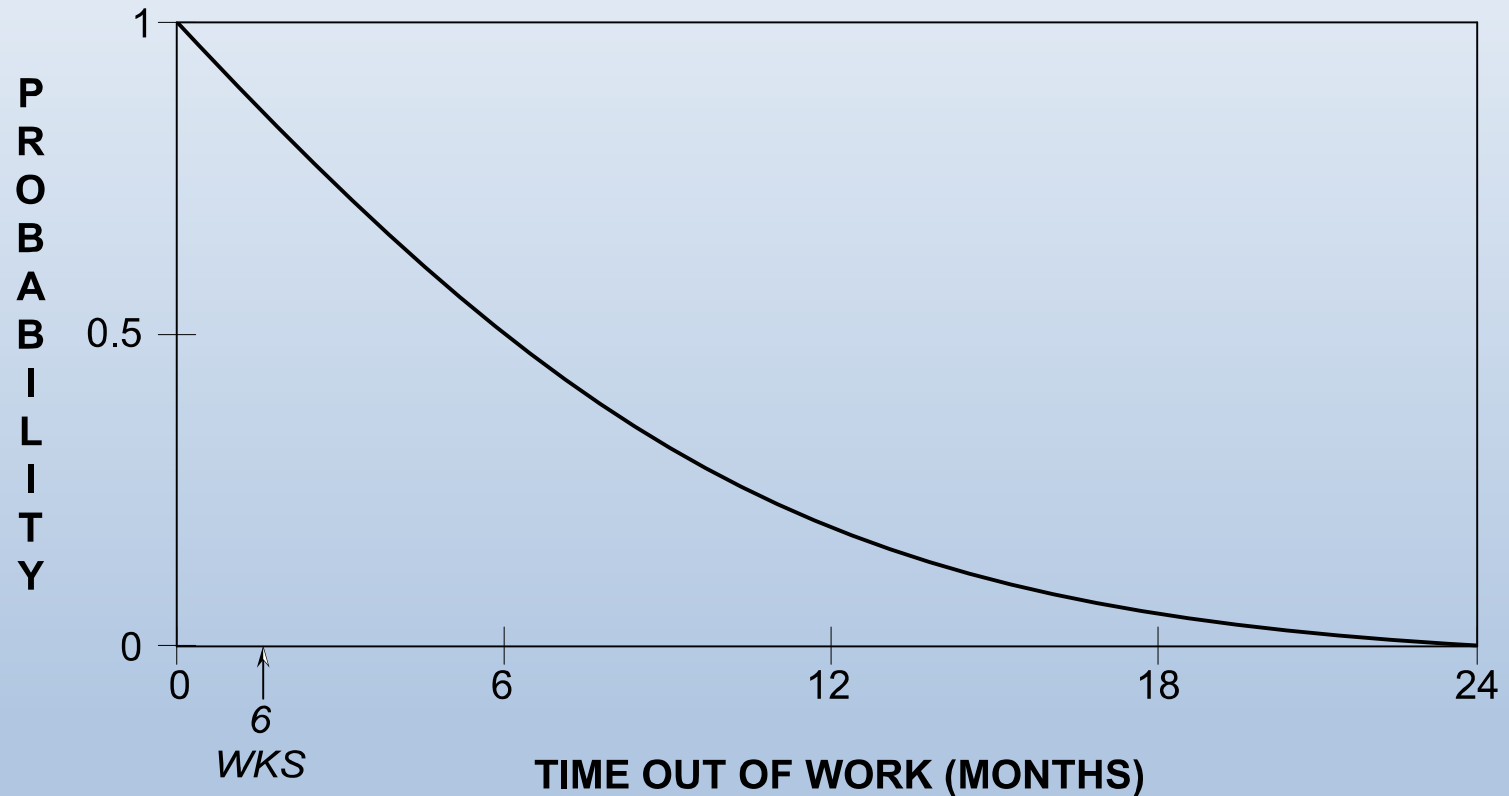
**OUTCOME MEASURES:** Self-report measures of disability measured by the Oswestry Disability Index (ODI), the visual analog scale (VAS) for leg pain, and the VAS for back pain.

**METHODS:** Dependent variables included the presence of a patient-identified inciting event, which were categorized as spontaneous onset, nonlifting physical activity, heavy lifting (>35 lbs), light lifting (<35 lbs), nonexertional occurrence, or physical trauma. We examined the association of an inciting event, or a lifting-related event, with each outcome, first using univariate analyses, and second using multivariate modeling, accounting for important adjustment variables.

**RESULTS:** Sixty-two percent of LDH did not have a specific patient-identified event associated with onset of symptoms. Nonlifting activities were the most common inciting event, comprising 26% of all LDH. Heavy lifting (6.5%), light lifting (2%), nonexertional occurrences (2%), and physical trauma (1.3%) accounted for relatively small proportions of all LDH. Patient-identified inciting events were not significantly associated with a more severe clinical presentation in crude analyses. Spontaneous LDH was significantly associated with higher baseline ODI scores in multivariate analysis, although the magnitude of this effect was small. There were no significant associations ( $p \leq .05$ ) between the presence of a lifting-associated event and the outcomes of ODI, VAS leg pain, or VAS back pain.

**CONCLUSIONS:** The majority of LDH occurred without specific inciting events. A history of an inciting event was not significantly associated with a more severe clinical presentation. There was

# When?



**Fig. 2.** The natural history of chronic low back pain as measured by return to work. Note the increasingly unfavorable outlook as time progresses.



**Industrial Low back pain:  
Innovative Ways to Close Back  
Injuries with Optimal Outcomes**

**THE END**

**Thank you!**

# Case Example

- DOI - 11/6/06 – 39 yo male
- PCP – Narcotics, trigger point injections
- Pain management
  - Facet blocks(3) on 6/25/09
  - Facet blocks(2) on 7/2/09
  - Medial branch blocks (4) on 8/3/09
  - Medial branch blocks(4) on 8/11/09
  - RFA (4) on 9/11/09
  - RFA (4) on 6/11/10
  - RFA (4) on 6/25/10
- Multiple Meds –  
Oxycontin 40mg, Percocet 10mg, Soma 350mg, Ativan 2mg,  
Cymbalta 30mg, Nuvigil
- IME was on 1/6/11

# Case Example

DOI - 10/1/13– 24 yo male

- Sheriff's office- there 2 days
- Urgent Care Clinic on 10/1/13 –Narcotics
- Spine Surgeon on 11/25/13  
Rec epidurals-denied
- MRI on 12/6/13- Small disc bulges
- PT started on 1/23/14- 4 mo after DOI
- Discography on 3/31/14
- Off work since- 7 ½ mo.

IME was on 5/14/14