

Lumbar spinal stenosis due  
to multiple disc protrusions.

Treatment with laser decompression.

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Athens



*"The present of the Future"*



**Mist = M.I.S.T.**

**MINIMAL INVASIVE SURGICAL TECHNIQUES**

**Current Clinical and Experimental Research**

# M.I.S.T. Disc Surgery



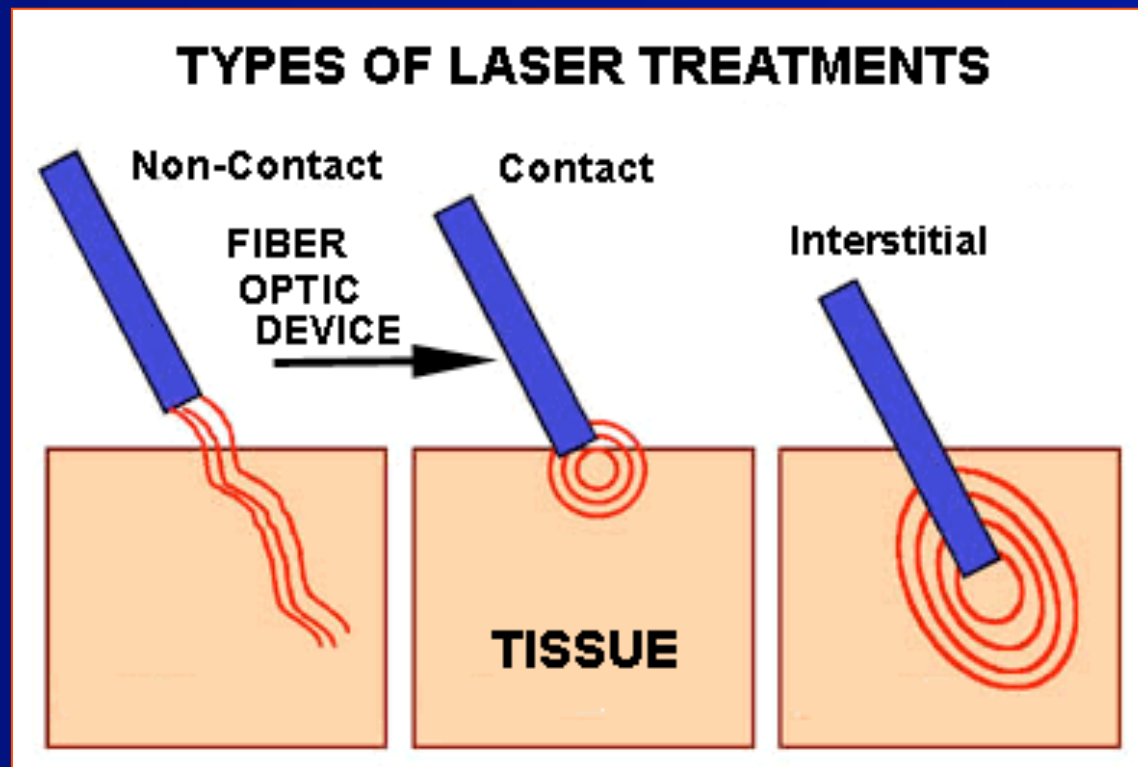
**INTRADISCAL**



**EXTRADISCAL**



# Percutaneous Laser Disc Decompression (PLDD)



# Percutaneous Laser Disc Decompression (PLDD)

Herniated Lumbar Discs in elderly patients treated with P.L.L.D.

P. Kondoyannis

3rd International IMLAS Congress, Kassel, Germany, 1996

*Choy DS, Ngeow J.* Percutaneous laser disc decompression in spinal stenosis. *J Clin Laser Med Surg.* 1998 Apr;16(2):123-5.



## The Objective of our study was three fold:

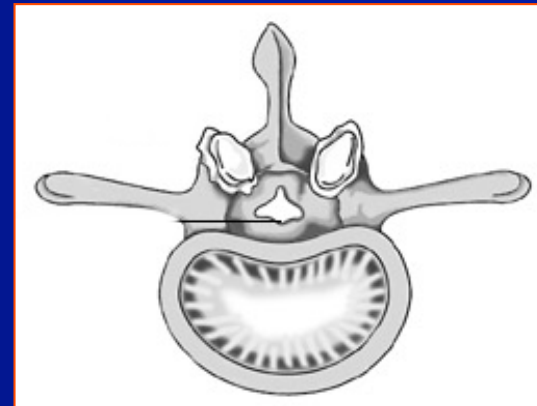
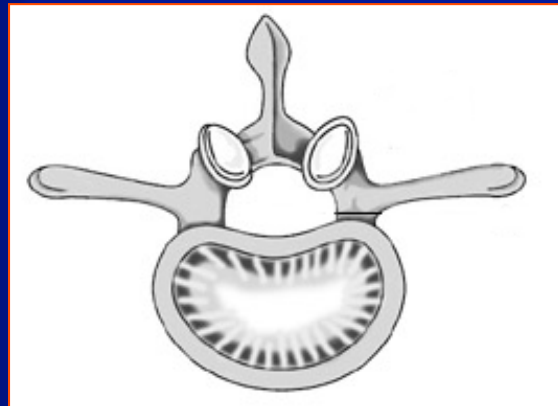
1. How the so called third age patient reacts to PLDD
2. Whether PLDD is effective in elderly people with central spinal stenosis
3. Cost effectiveness in this particular patient group



# Spinal Stenosis

## Types:

- ✓ Central Stenosis
- ✓ Lateral Recess Stenosis
- ✓ Foraminal & extra-foraminal stenosis



# Lumbar Spinal Stenosis

## Contributing Factors:

- ✓ Degenerative changes
- ✓ Disc Protrusions
- ✓ Lig. Flavum hypertrophy
- ✓ Spondylolisthesis
- ✓ Rheumatic Diseases
- ✓ Paget's Disease
- ✓ Congenital Factors
- ✓ Trauma



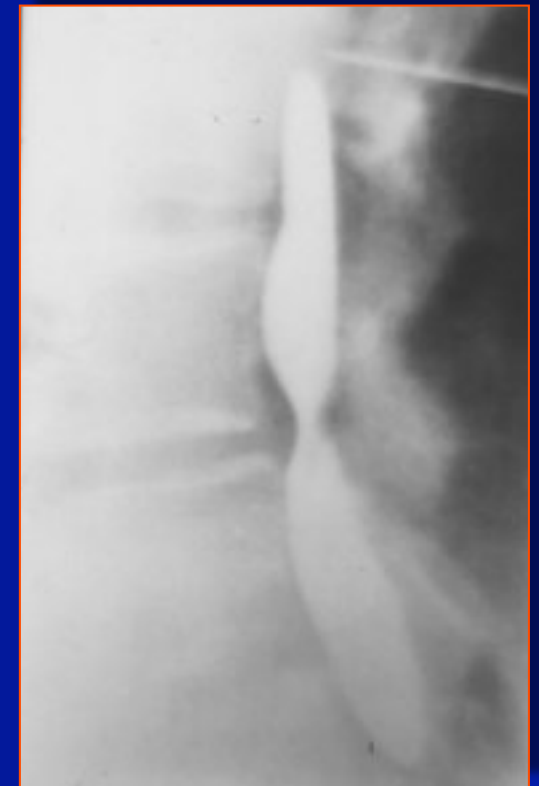


- ✓ Approximately **85%** of inhabitants of the Western world are afflicted with some degree of back or neck pain at some point in their lives.
- ✓ **8 to 10 million** people have a permanent disability from it.

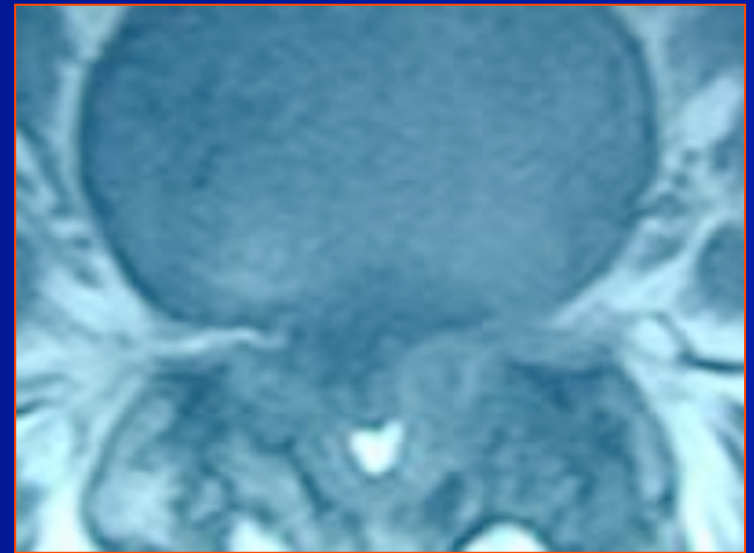


# Lumbar Spinal Stenosis

*Lumbar Spinal Stenosis*  
is possibly one of the  
most under and/or  
misdiagnosed  
syndromes today



*Neurogenic claudication*  
is the main clinical  
symptom in patients with  
spinal stenosis



# Lumbar Spinal Stenosis



## Patient Profile

- ✓ Elderly
- ✓ Insidious, chronic pain
- ✓ Leg pain > back pain
- ✓ Neurogenic claudication
- ✓ Pain worsened by lumbar extension, relieved by flexion



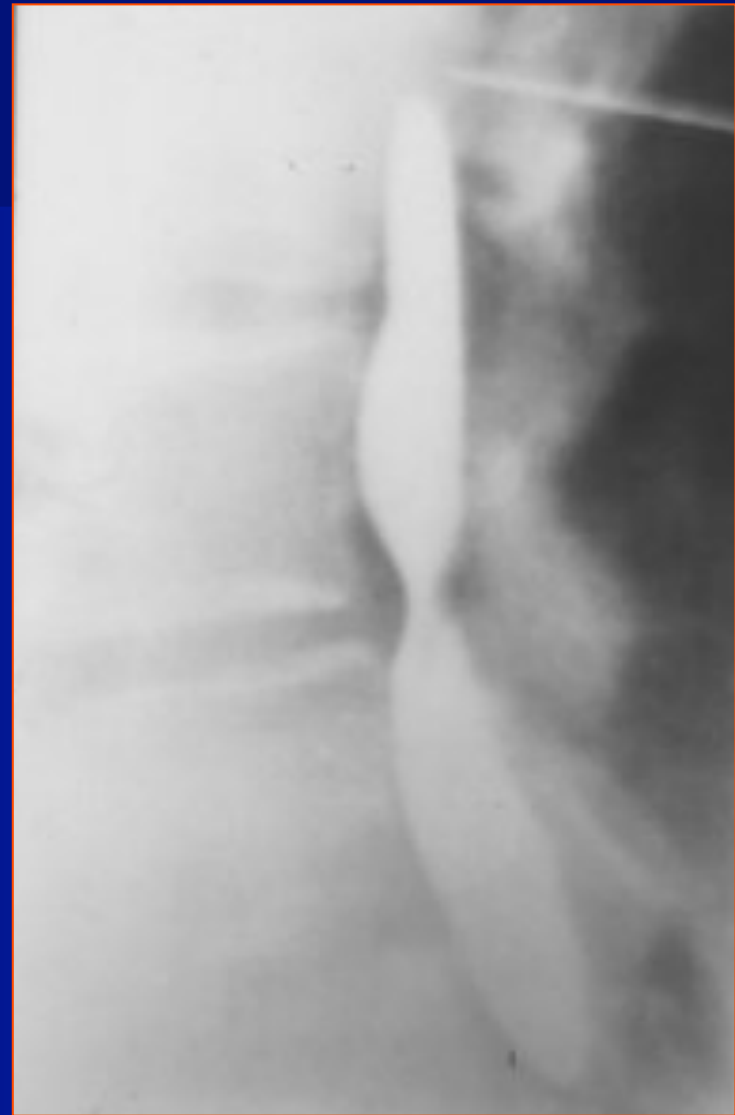
## Diagnosis of Spinal Stenosis

- ✓ Medical history
- ✓ Physical examination
- ✓ X ray
- ✓ MRI
- ✓ CT scan
- ✓ Myelogram
- ✓ Bone scan

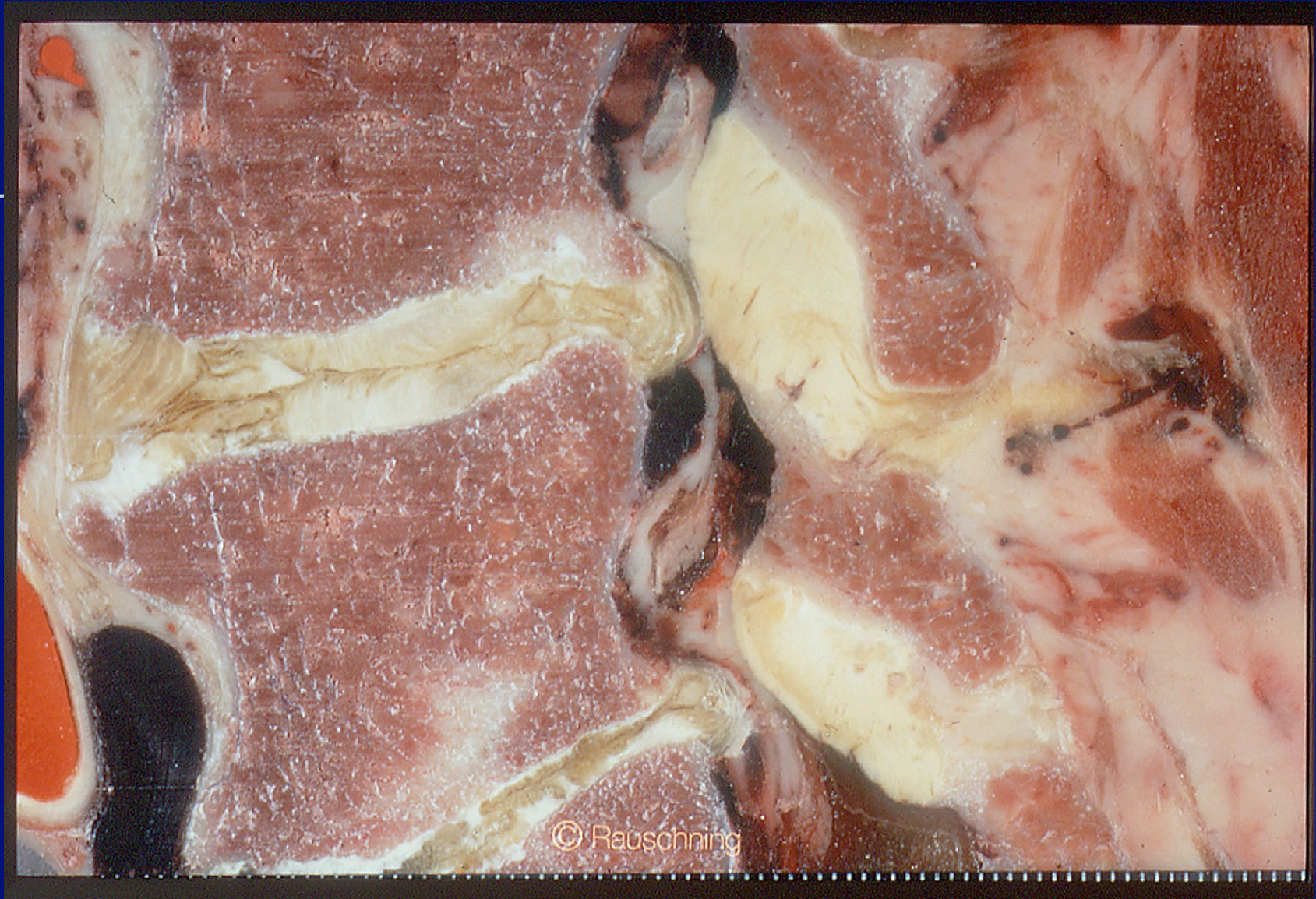


CT myelography









© Rauschnig



## Treatment of Lumbar Spinal Stenosis

- ✓ Bed Rest and Controlled Physical Activity
- ✓ Physical Therapy
- ✓ NSAIDs
- ✓ Orthosis (Lumbar brace or corset)
- ✓ Epidural Corticosteroid Injections
- ✓ Surgery (decompressive laminectomy)!!
- ✓ Spondylodesis

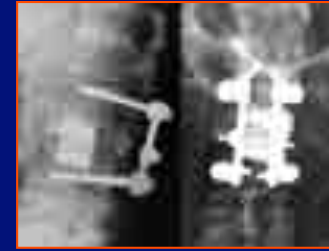




**The patients with lumbar spinal stenosis  
generally are older people who may have  
various additional health problems,  
which affect *surgery complications***



## Complications



operative hemorrhage, gastrointestinal problems, urinary tract problems, respiratory complications, cardiac problems, postoperative infections, central nervous system problems, wound dehiscence, peripheral vascular problems, transfusion problems, persistent pain, dural tears, neurological deficit, re-operations, functional disability, death



## Indications for Surgery

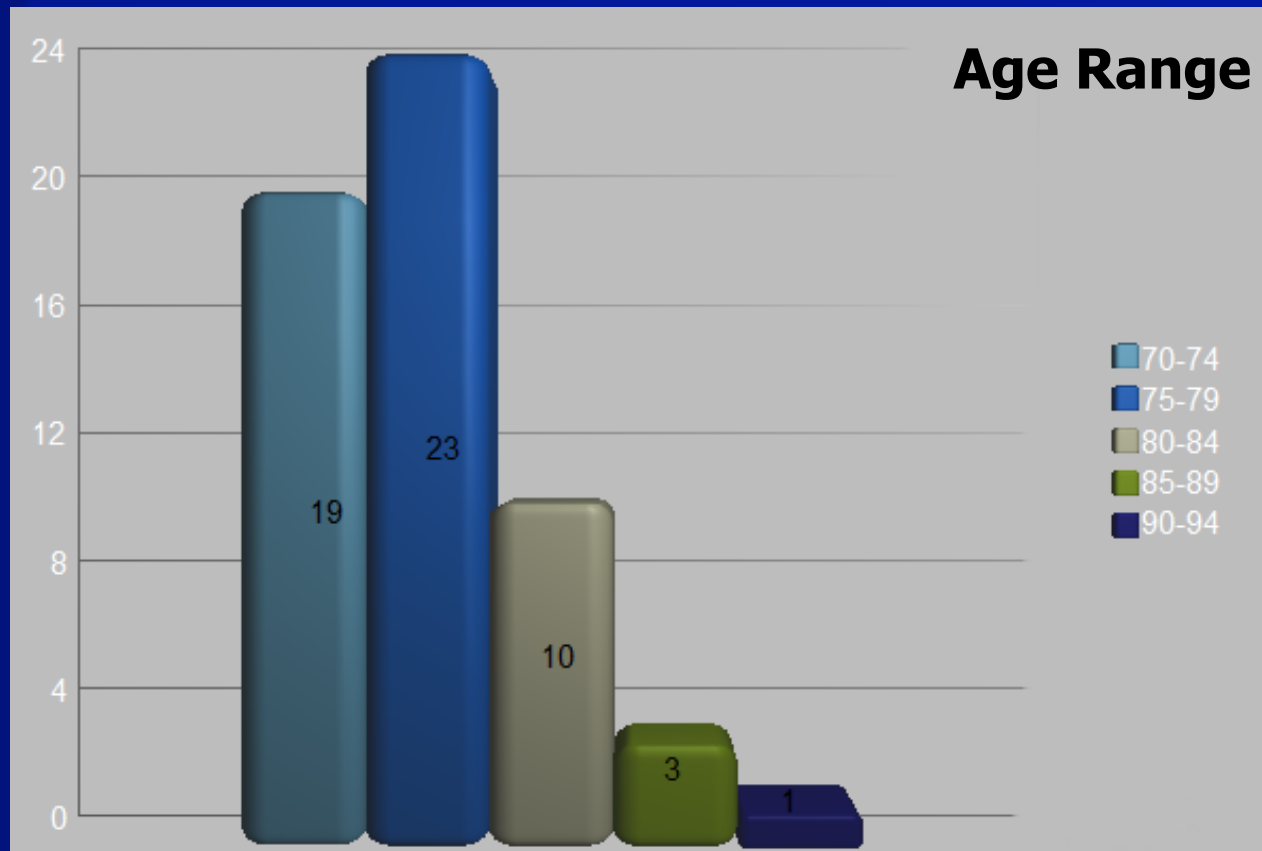
- ✓ Surgery is **elective**, performed to improve the quality of life for individuals who have disabling back and leg pain and significant limitations in walking tolerance.
- ✓ **Cauda equina** syndrome is the only absolute indication for decompressive laminectomy.



- ✓ Out of total **592** cases of patients with PLDD
- ✓ There have been **56** cases with Lumbar Spinal Stenosis and neurogenic claudication



# Patients - Methods



# Patients - Methods

## Chief Complaints:

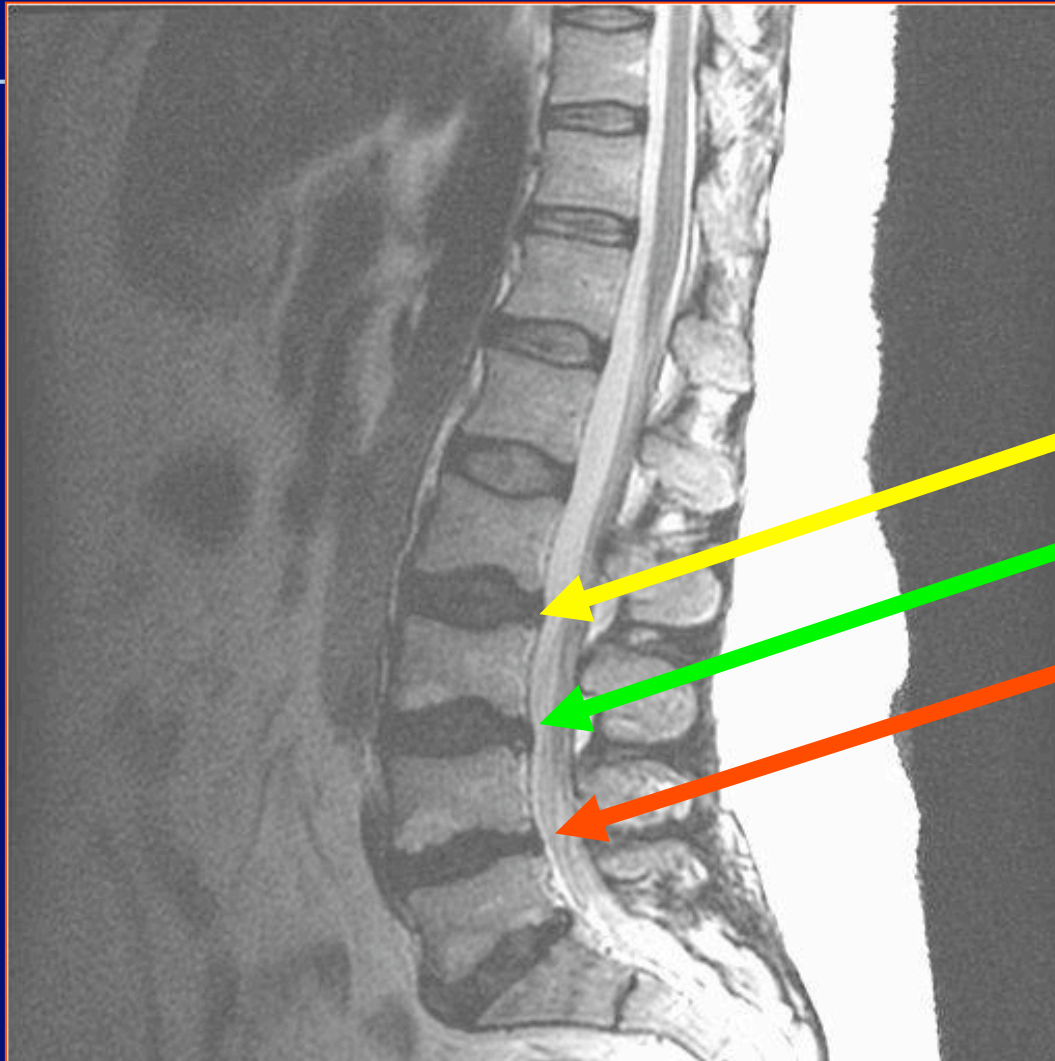
- ✓ Intermittent claudication
- ✓ Pain on one or both legs
- ✓ Duration of Pain: > 6 months

**Patient Work Up:** CT, Myelogram, MRI

**Affected Levels:** two or more



## Affected Spinal Levels



L1-L2=4

L2-L3=25

L3-L4=46

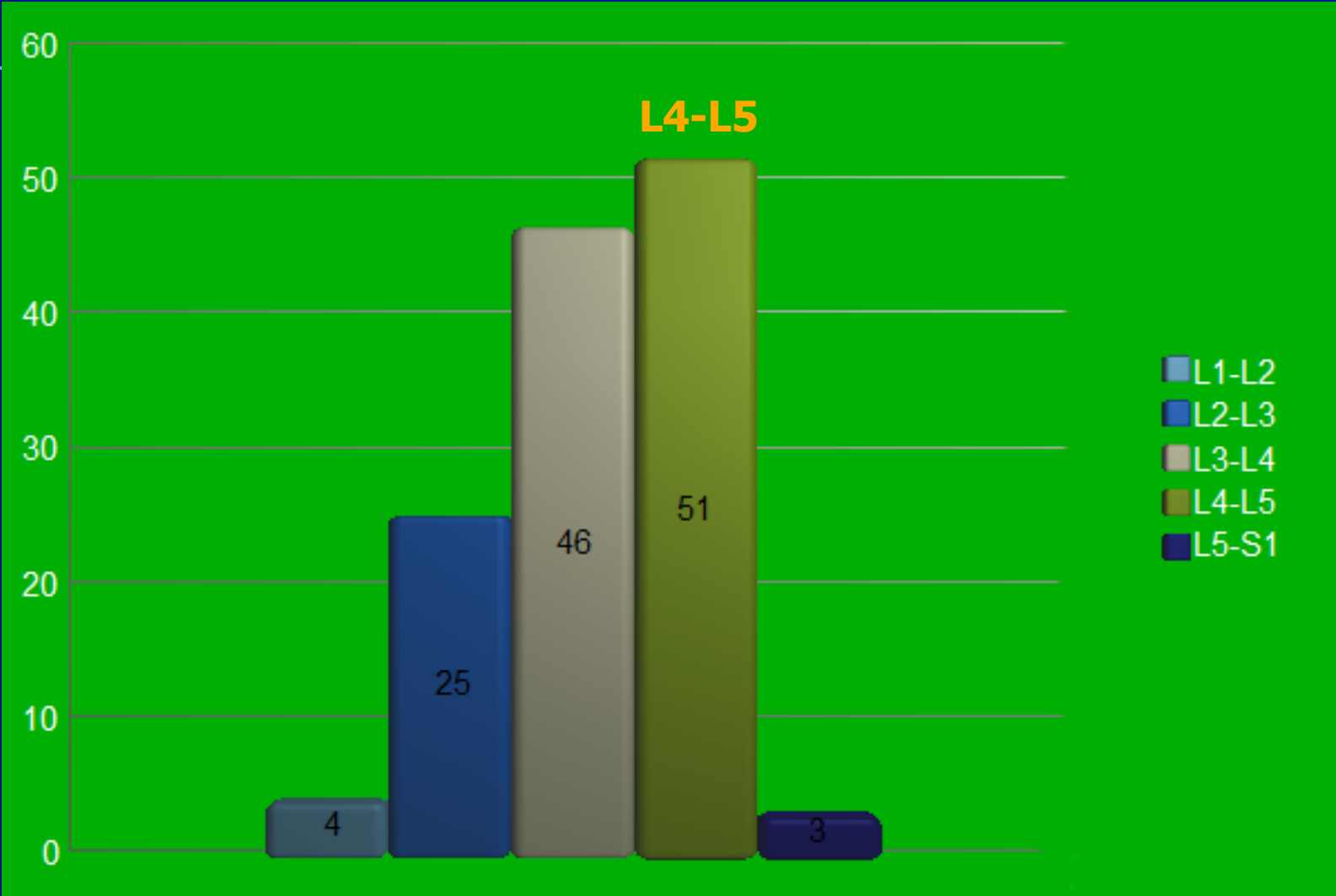
L4-L5=51

L5-S1=3

Total=129



# Affected Spinal Levels





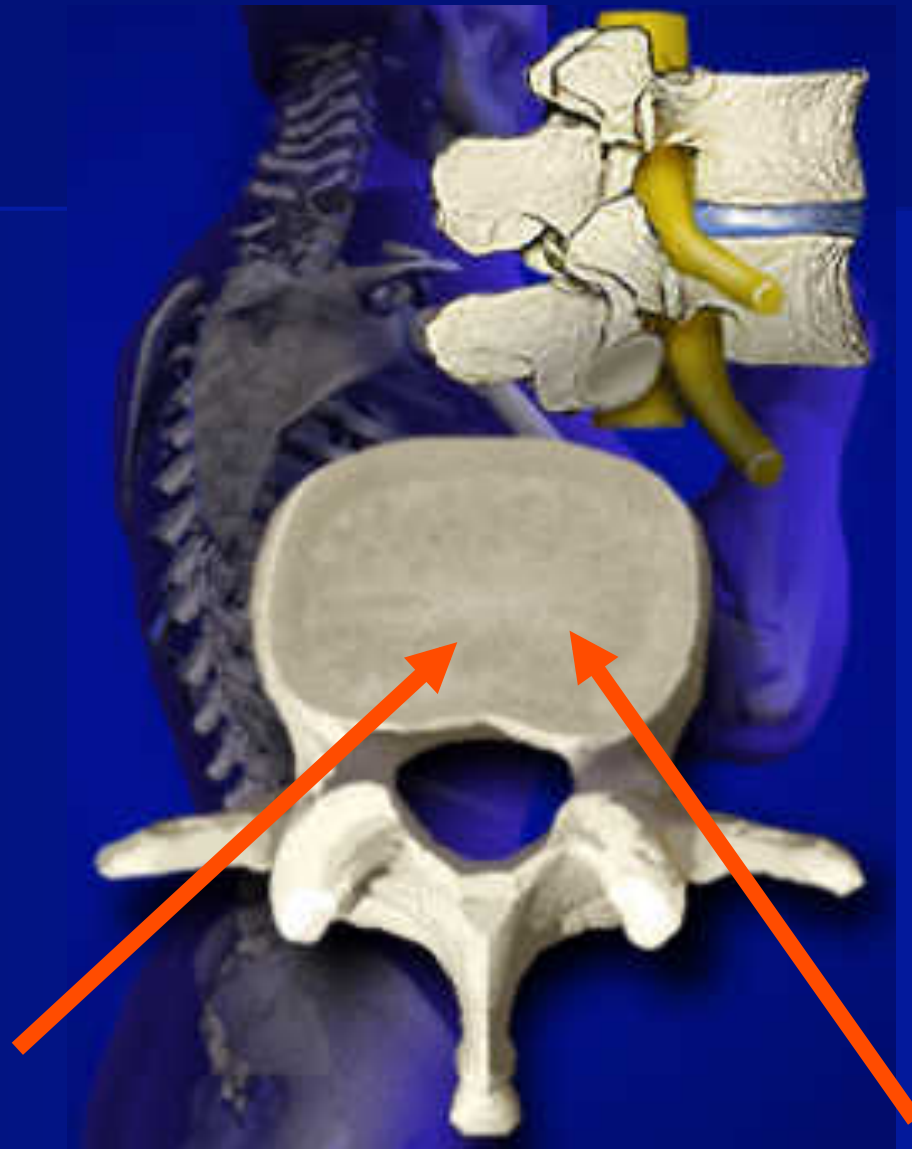
## LASER Technology and Parameters for PLDD

- ✓ **Source** Neodymium-YAG 1060 n $\mu$  WL
- ✓ **Power** 20-22 Watts
- ✓ **Energy** 1500-2200 Joules per session
- ✓ **Transmission** Flexible Optical Fibre of 600  $\mu$  m



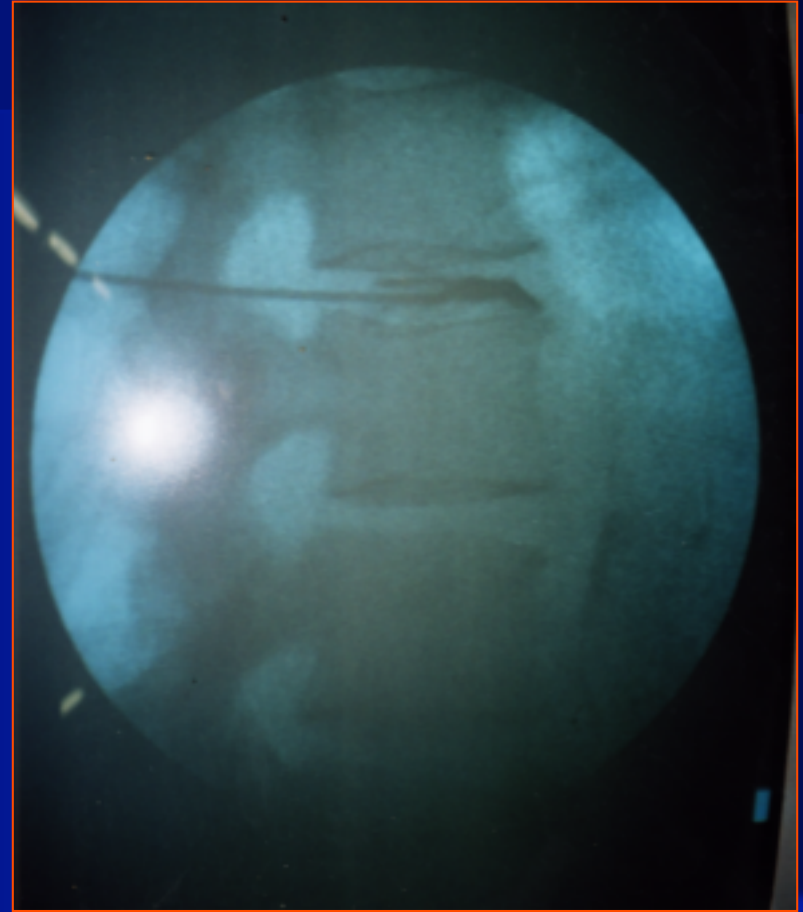
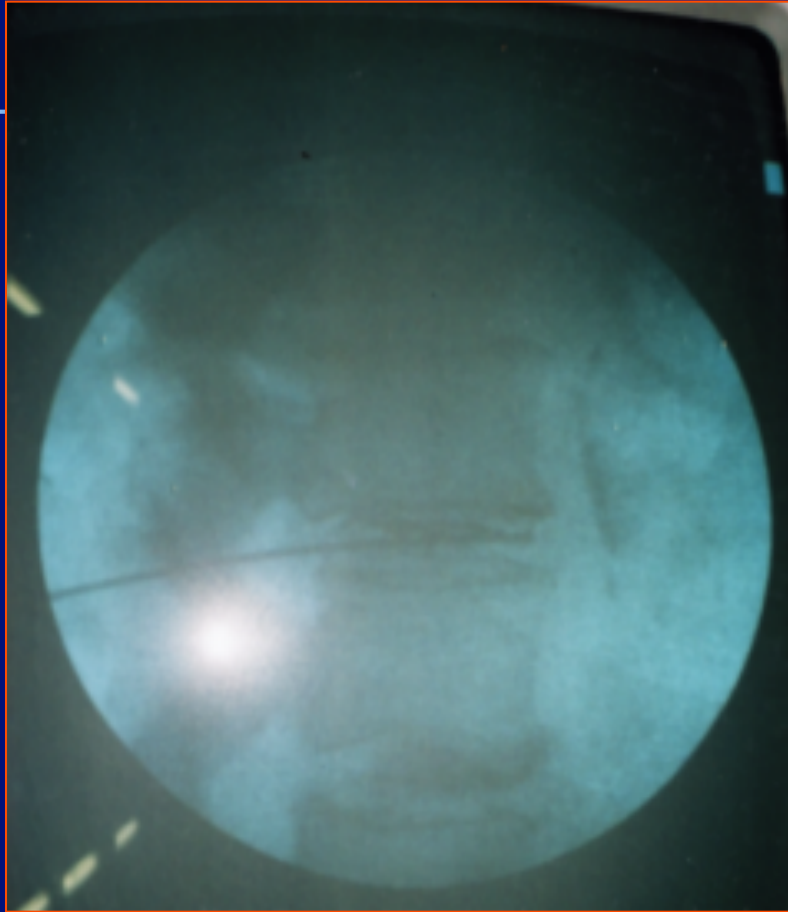
# Surgical Technique



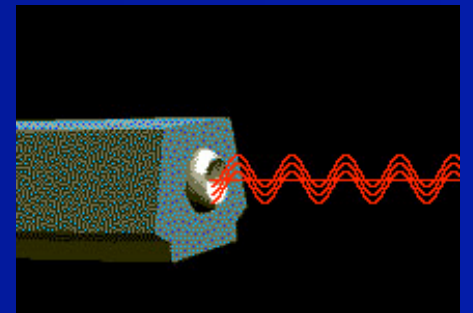
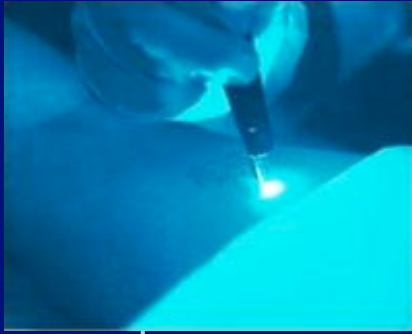












## Lumbar Spinal Stenosis - PLDD



### Follow Up

Total No of Cases	56
Follow Up	49
Length	18 m - 8 yrs



# Lumbar Spinal Stenosis - PLDD

## Results

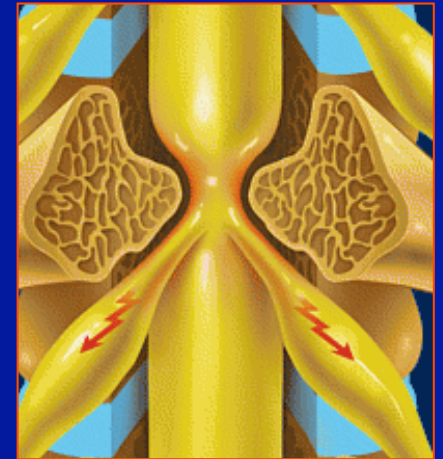
- ✓ No serious complications
- ✓ No Adverse Reactions
- ✓ 5 cases temporary LBP
- ✓ 1 case temporary acute sciatica





## RESULTS

- ✓ 2x-3x increase of the walking distance
- ✓ immediate alleviation of pain in 34 patients
- ✓ permanent pain reduction 42 patients



# RESULTS

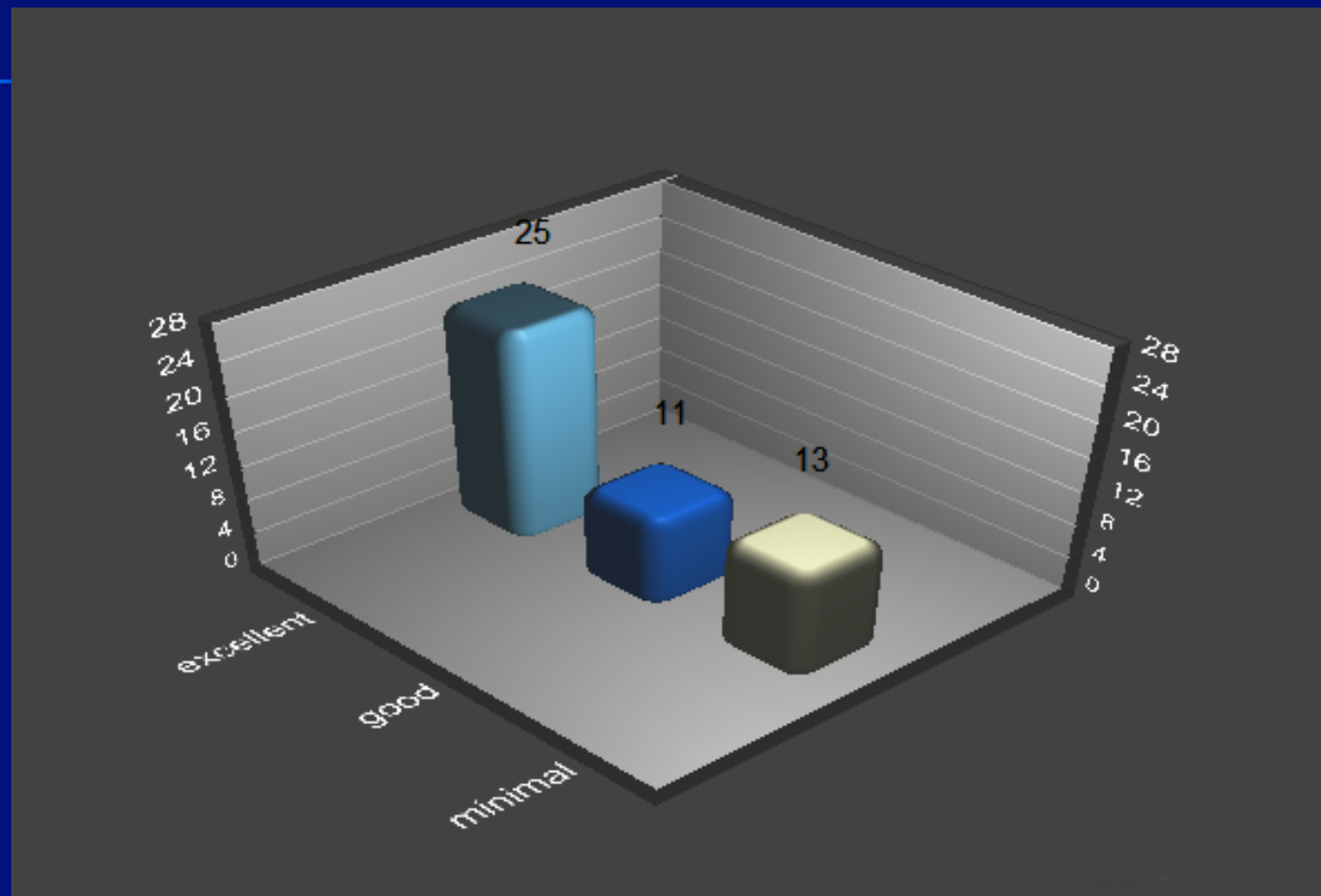
## According to the Mc Nab Criteria

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✓ Excellent results	11 patients
✓ Good result	28 patients
✓ Minimal or no improvement	10 patients
	<hr/>
	49 patients



# RESULTS



Good/excellent results 73%



# Conclusion

Percutaneous laser disc decompression (PLDD)  
is an effective treatment for spinal stenosis  
where **bulging or protruding** discs  
are a contributing factor





*“What medications can not heal, the lance will.*

*What the lance can not heal, fire will heal...”*

*Ἱπποκράτης (460-377 B.C.) “Περί  
Ἀρθρῶν”*

*Hippocrates (460-377 B.C.) “About Joints”*



**Annual Meeting of Single, Good looking, Straight, Emotionally-Stable,  
Financially-Secure, Intelligent Men Looking for a Long-Term Commitment**



# Conclusion

PLLD is a safe and in selected patients  
effective means for the treatment  
of Lumbar Spinal Stenosis  
due to multiple disc protrusions

