

# Percutaneous Laser Disc Decompression

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Editor

# Percutaneous Laser Disc Decompression

## A Practical Guide

With 149 Illustrations, 6 in Full Color



Springer

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Cover illustration: Figure 2.1. Array of 24 UV lasers aimed at a suspended deuterium pellet for a fusion experiment. (Courtesy of Institute of Optics, University of Rochester, Rochester, NY.)

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*This book is dedicated to*

*Dr. Peter Wolf Ascher, former professor of  
neurosurgery at the University of Graz, Graz,  
Austria, and presently Professor and Chairman of  
the Department of Neurosurgery at the University of  
Rostock, Rostock, Germany*

*Professor Robert B. Case, professor of medicine at the  
Columbia University College of Physicians &  
Surgeons, New York, New York*

*my patients, without whose help this book would not  
have been possible.*

# Preface

Percutaneous laser disc decompression (PLDD) is an entirely new approach to the treatment of herniated intervertebral disc disease. The traditional laminectomy and discectomy procedure was first performed at the Massachusetts General Hospital in 1934. In the intervening 69 years, science has moved forward with magnetic resonance imaging, sequencing of the human genome, ion propulsion, landing men on the moon and robots on Mars, the laptop computer, global positioning system navigation, black hole theory, string theory, and the successful cloning of animals. And yet, the same soft tissue–destroying, scar-inducing, posterior wall–weakening, and spinal instability–inducing cutting operation is still being taught and performed. Advances in orthopedics and neurosurgery occur slowly.

Percutaneous laser disc decompression is minimally invasive; it can be performed as an outpatient procedure, requires no general anesthesia, and has a high success rate, a low recurrence rate, and a low complication rate. By the middle of 2002, some 35,000 PLDD procedures had been performed worldwide.

This book covers the history of the development of PLDD, laser physics, anatomy and pathophysiology of the herniated disc, the physics and mechanical principles that form the basis of PLDD, patient selection, radiographic considerations, the neurologic examination, a step-by-step description of the PLDD procedure, the complications of PLDD and their treatments, special cases amenable to PLDD, postoperative care, and rehabilitation procedures. In short, this is a compendium of PLDD from A to Z.

The author hopes the publication of this volume will persuade a new generation of orthopedic and neurologic surgeons to open their minds and hearts to a twenty-first-century innovation in the treatment of herniated intervertebral disc disease.

*Daniel S.J. Choy, MD*

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