

# **Managing Sciatica and Radicular Pain in Primary Care Practice**

Editors

**Françoise Laroche**

**Serge Perrot**

Contributors

**Joanne L. Jordan**

**Kika Konstantinou**

**Paolo Marchettini**

**Ana Navarro-Siguero**

**Maria Teresa Saldaña**

**Noelia Sánchez**

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**Kees Vos**

**Brad Williamson**

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Editors

**Dr Françoise Laroche**

Saint-Antoine University Hospital,

Paris, France;

President, Circle of Pain Studies in Rheumatology

**Professor Serge Perrot**

Hôtel-Dieu Hospital Pain Clinic,

Paris, France;

Vice President, Circle of Pain Studies in Rheumatology

Contributors

**Joanne L. Jordan**, Systematic Reviewer

**Kika Konstantinou**, Spinal Physiotherapy Specialist

**Paolo Marchettini**, Pain Pathophysiology and Therapy Specialist

**Ana Navarro-Siguero**, General Practitioner

**Maria Teresa Saldaña**, General Practitioner

**Noelia Sánchez**, Pain Unit Nurse

**Concepción Pérez Hernández**, Chronic and Interventional Pain Specialist

**Kees Vos**, Primary Care Physician

**Brad Williamson**, Consultant in Spinal Surgery



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Artworker: Sissan Mollerfors

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# Author biographies

## Editors

**Dr Françoise Laroche** is a rheumatologist in the Pain Evaluation and Treatment Department of Saint-Antoine University Hospital in Paris, France. Dr Laroche is President of the French Pain Studies in Rheumatology Circle (CEDR), the French group of rheumatologists involved in the pain field, which is a section of the French Rheumatology Society (SFR). She has an MA in Clinical Pharmacology and is expert in chronic pain treatment and in cognitive-behavioural therapy (CBT). She implements and organises the rheumatology, pain management and CBT for chronic pain education at the University of Paris since 1993, and she is responsible for the University Diploma for Chronic Pain Management with CBT. Dr Laroche is also Clinical Researcher at the INSERM Unit (Physiopathology and Clinical Pharmacology of Pain) at the Paré Hospital, Boulogne, since 2007 and is a Medical Expert in pain and rheumatology at the French Drug Agency, since 1998. She is a member of several societies, including International Association for the Study of Pain (IASP) and the French Pain Society (SFETD).

**Professor Serge Perrot** is a rheumatologist with a special interest in pain management. He is currently Head of the Hôtel-Dieu Hospital Pain Clinic, Paris, France. Professor Perrot is the founder and current Vice President of CEDR, an organisation that links the SFR with the SFETD. He is in charge of coordination of teaching Pain Medicine at Paris Descartes University. He is currently providing expert guidance for the French Drug Agency on analgesics and is a member of several editorial boards for journals on pain.

Professor Perrot has participated in several workshops to establish national and international guidelines on pain management, especially on back pain. He has coordinated more than 50 studies on rheumatology in the field of pain. Professor Perrot has worked on morphine and inflammation for several years at INSERM, the French national medical research institute. His primary areas of interest are morphine and opioids

in rheumatology, rheumatological pain conditions like fibromyalgia, low back pain and complex regional pain syndromes. He has developed a screening tool in fibromyalgia, the Fibromyalgia Rapid Screening Tool (FiRST). Professor Perrot is member of international scientific societies in pain and rheumatology: IASP and the European League Against Rheumatism.

## Contributors

**Joanne L. Jordan**, is a systematic reviewer for Keele University at the Arthritis Research UK Primary Care Centre, providing support and training in aspects of systematic review methods, particularly information retrieval, giving guidance on information management, since 2004.

Ms Jordan completed a BSc in Mathematics for Business at Middlesex University and MSc in Statistics at the University of Kent in 1993, and, after completing a MA in Library and Information Science at Loughborough University, worked as an information specialist on a number of evidence-based products and publications. These include the *Clinical Effectiveness Bulletins* at Leeds University, an HTA report on chronic stable angina for Brunel University, evidence-based, shared decision-making tools for Dartmouth College in the United States, developing clinical guidelines for the Chartered Society of Physiotherapy and as an information specialist for The Cochrane Collaboration and *British Medical Journal's Clinical Evidence*.

**Dr Kika Konstantinou**, is a clinical academic at Keele University in the Arthritis Research UK Primary Care Centre since 2005. She has specialised in the assessment and treatment of musculoskeletal and spinal problems since 2000 and also works as a spinal physiotherapy specialist at the Haywood Hospital in Stoke-on-Trent, UK. Dr Konstantinou received a BSc in Physiotherapy, MSc in manual therapy and PhD in 2002. She leads and contributes to research programmes and projects investigating assessment and treatments for spinal and other musculoskeletal problems. Her research interests and publications are predominantly in low back pain and sciatica and in 2010 she obtained a research award for clinical epidemiological research into back pain and sciatica in primary care patients.

**Professor Paolo Marchettini**, is Professor of Pain Pathophysiology and Therapy at the University of the Italian Suisse canton Tessin, Switzerland and Consultant for Pain Medicine of the Department of Neurology at the Scientific Institute and Hospital San Raffaele, Italy. Dr Marchettini graduated in Medicine in 1979 at the University of Milan and then specialised in neurology and orthopaedic surgery. He trained in pain physiopathology and clinical research with Professor José Ochoa at the University of Wisconsin, USA and Professor Ulf Lindblom at the Karolinska Institute, Stockholm. From 1987 to 2005, Dr Marchettini was Director of the Pain Medicine Center of the Scientific Institute San Raffaele, Milan. His research contributions include the identification of muscle nociceptors in humans, the comparative analysis of the systemic effects of intravenous local anaesthetics in humans and rats and the clinical description of the most common iatrogenic nerve injuries. He pioneered intrathecal therapy in Italy, introducing morphine in the 1980s and recently ziconotide. Dr Marchettini serves on the editorial boards of the *European Journal of Pain*, the *Clinical Journal of Pain* and the *Pain Medicine Journal*. He is a founding member of the Gruppo Neuroscienze e Dolore (Neuroscience and Pain Group) of the Italian Neurological Society (SIN) and Member of the Swiss and Italian chapters and of IASP.

**Dr Ana Navarro-Siguero** is a general practitioner at the Primary Care Health Centre Puerta del Ángel in Madrid, Spain. She received a Bachelor of Medicine and Surgery degree from the Universidad Complutense de Madrid in 1992 and specialised in Family Medicine and Community MIR in 1995. Dr Navarro-Siguero was Medical Coordinator of the Health Center Angel Gate 2006–2009 and Medical Practice Teaching associate at the Department of Medicine, University Complutense of Madrid since 2009. She is a member of the Group for the Rational Use of Medicines Primary-Care Specialty Care Center District since 2011. Dr Navarro-Siguero has co-authored many articles related to pain in international journals and conference papers.

**Dr Maria Teresa Saldaña** is a general practitioner at the Primary Care Health Centre Raíces in Castrillón, Spain. She received her Bachelor of Medicine and Surgery from the University of Salamanca and specialised in Family and Community Medicine at the Hospital Carmen y Severo Ochoa. Dr Saldana has published many articles and reviews on acute and chronic pain.

**Noelia Sánchez** is a nurse in the pain unit at the University Hospital de la Princesa in Madrid, Spain. She received her Diploma in Nursing from Pontificia Comillas University. Ms Sanchez has many years of experience working in the area of pain; she has been a course instructor covering subjects such as administering medication to control pain, acute postoperative pain, pain control in nursing units, she has also tutored nursing students in clinical practice. Ms Sanchez has also been involved in the presentation of posters at pain conferences, participated as a speaker at several conferences and has been involved with more than 20 clinical trials.

**Dr Concepción Pérez Hernández** is Head of the Pain Clinic at the University Princess Hospital, Madrid, Spain and is responsible for Acute Postoperative Pain Unit. Dr Pérez Hernández specialises in chronic pain, particularly neuropathic pain, as well as interventional pain management.

She received her Bachelor of Medicine and Surgery at the Complutense University of Madrid and specialised in Anesthesiology, Resuscitation and Pain Therapy at the Hospital Universitario de la Princesa.

Dr Pérez Hernández is an Honorary Professor at the Universidad Rey Juan Carlos and is Honorary Professor of Surgery and Medicine at the Autonomous University of Madrid and actively participates in representative forums of pain, such as the Spanish Society of Pain (SED), Spanish Society of Anesthesiology, Reanimation and Pain, The European Society of Regional Anaesthesia & Pain Therapy and is a member of the SED and the Change Pain international and national groups.

She has participated in many clinical trials, published widely in books, monographs and articles and presented at a large number of conferences.

**Dr Kees Vos** is a physician at the Department of General Practice, Erasmus University, Rotterdam. He earned his MD at the Erasmus University of Rotterdam, in 1981 he completed his training in General Practice and two years later his training as a physician in Sports Medicine. In 1983, Dr Vos started as a general practitioner in Rotterdam and worked concurrently in several different facilities for Sports Medical Care and Advice. In 2002 he moved from Rotterdam and started working in a primary care centre in Spijkenisse. Between 1996 and 2004 he worked as physician at the Whiplash Centre in The Netherlands.

From the end of 1999 until 2006, Dr Vos researched acute neck pain in the Department of General Practice of the Erasmus University Rotterdam leading to his PhD thesis in 2006 and from 2001 to 2004, Dr Vos trained in Clinical Epidemiology at the EMGO Institute in Amsterdam. Since 2007 he has been the Chair of the medical advisory board of the Dutch Whiplash Patient Society. He is also a member of several national guideline committees and advisory boards on chronic pain and is an active participant and co-author in different chronic pain research projects. He has been an active organiser and chair in continuing education courses on different medical topics and is a teacher of clinical epidemiology topics for interns.

**Brad Williamson** is presently Chair of Neurosciences at Salford Royal Hospital, where he has managerial responsibility for a group of 25 surgeons performing over 3000 spinal operations each year. In addition, Mr Williamson holds a number of professional affiliations, including Senior Lecturer in Healthcare Science at the University of Salford. Mr Williamson trained in Manchester and Hong Kong. In 1991, he was appointed as Senior Lecturer at the University of Manchester and Honorary Consultant in Orthopaedic Surgery. In 1995, Mr Williamson was appointed as a full time NHS consultant in spinal surgery at Hope Hospital, Salford and the Royal Manchester Children's Hospital, since then both spinal units have expanded greatly.



His practice covers all aspects of spinal disorders and he aims to provide high quality, evidence-based care for all of his patients. Mr Williamson is research active and is the author of over twenty peer-reviewed publications as well as a number of book chapters. He currently holds grants for research into the aetiology and pathogenesis of adolescent idiopathic scoliosis and wound healing in patients with spinal tumours. He has previously held the posts of President of the British Scoliosis Society, examiner for the Royal College of Surgeons (FRCS Orth) and specialist adviser to National Institute for Health and Clinical Excellence (NICE).

# Introduction

Françoise Laroche and Serge Perrot

## **From pathophysiology to clinical assessment and therapeutic approaches: A single entity with specific approaches**

Low back pain (LBP) is a major public health issue, with a high prevalence and constant increased burden. LBP has been cited as the second most frequent reason to visit a physician for a chronic condition, the fifth most common cause for hospitalisation and the third most frequent reason for a surgical procedure of the spinal column [1–4]. In many cases LBP is associated to sciatica and radicular pain, and studies infrequently individualise this clinical aspect, while the diagnostic and therapeutic specificities of LBP are poorly analysed and described. Numerous specialities are involved in diagnosis and management of sciatica, for example, rheumatologists, neurologists, orthopaedic surgeons, rehabilitation physicians, general practitioners, and as such there can often times be a lack of consensus on the pathophysiological concepts, assessment and treatments.

This book provides an accurate update on LBP with or without sciatica, and on related concepts and issues, such as: How can radicular pain, radiculopathy and sciatica be differentiated? Is radicular pain a neuropathic pain? What are the causes of radiculopathic pain? What are the specific risk factors for developing a radiculopathy? How can sciatica be managed?

There is an increased burden of radicular pain, with between 20% to 35% of patients with back pain suffering from a neuropathic pain component. Currently, chronic lumbar radicular pain is the most common neuropathic pain syndrome [5–10]. Not all risk factors for developing radiculopathy have been determined, but a clear correlation has been established for some factors which predispose patients to radiculopathy and back pain.

Literature on sciatica and radicular pain is frequently confusing. In this book, the authors clarify these concepts and provide clear definitions of radicular pain, radiculopathy and sciatica with supporting literature.

## **Mechanisms and theories**

At least three mechanisms are involved in the pathophysiology of radicular pain: inflammation, immunological local mechanisms and local compression. The pathophysiology of radicular pain, and the specific mechanisms that may be found in different clinical conditions, like in disc herniation, diabetes, cancer, have all been summarised.

## **Clinical approaches**

Radicular pain may be related to numerous causes. The diagnosis of a lumbosacral radiculopathy should be based on clinical examination. It is recommended that clinicians conduct a focused history and physical examination of the patient with LBP in order to classify them into the correct category of back pain, for example, nonspecific LBP, back pain possibly associated with radiculopathy or spinal stenosis, or back pain possibly associated with another specific spinal cause [11]. Several diagnostic algorithms have been provided in this book to assist clinicians with diagnosis.

## **Therapeutic approaches**

International recommendations for the management of LBP and lumbar or cervical radiculopathy resulting from sciatica and other radicular pain syndromes are discussed in Chapter 8. All pharmacological therapies, such as nonsteroidal anti-inflammatory drugs, anticonvulsants, local steroid injections together with non-pharmacological techniques, are also discussed and put into context, including exercise, manual therapy, traction, acupuncture, passive physiotherapy interventions, electrotherapy, back braces or supports, bed rest and inactivity and psychological therapies.

In conclusion, this collaborative work will help physicians and therefore, most importantly, patients, to improve pain management, especially the undertreated and underdiagnosed radicular pain.

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