

Clinical Anatomy of the Lumbar Spine Second Edition

Edited by Nikolai Bogduk and Lance T. Twomey
Melbourne: Churchill-Livingstone, 1991
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Many health professionals and recent graduates trained to deal with disorders of the lumbar spine are familiar with the value and quality of the first edition of this text, as well as the numerous publications of both editors. Although the theme of *Clinical Anatomy of the Lumbar Spine* remains essentially the same, ten of the fourteen chapters have been revised to contend with the ever increasing data on the lumbar spine.

This text provides a clear understanding of the structures, movements and mechanics of the lumbar spine. It reviews the muscles, nerves and blood supply, and natural changes that occur with aging. The opening chapters provide the foundation for the consideration of common painful disorders of the lumbar spine.

The first and third chapters concentrate on the morphology and explain the nature and function of the vertebrae, zygapophyseal joints and intervertebral disc. An elaborate description of the ligaments of the lumbar spine follows. The authors' comment on the embryological origin of these structures and their significance. The text also provides the reader with the clinical understanding of the propensity for the nerve root to be compressed by the alteration of one of the structures forming the boundaries of the vertebral and radicular canals.

Basic principles of biomechanics, including a new section on forces and moments, provide the necessary background for the study of lumbar movements in the subsequent chapters. This section is completed by the addition of information on instantaneous axis of rotation, which according to the authors possibly provides a more sensitive way of detecting diagnostic movement abnormalities. This chapter is therefore important for understanding and detecting mechanical low back pain. Former views on the mechanics of lifting are refuted and replaced with current theories and new concepts. The next chapter is important to all practitioners concerned with low back pain. It reviews the lumbar spinal nerves, nerve roots, the ventral and dorsal rami, and the sympathetic trunks with their possible anomalies. Most striking however, is the addition of new findings on the microscopic innervation of the lumbar vertebral bodies and discs. Later, the authors draw interesting correlations between articular tropism and damaged annulus fibrosus in patients presenting with low back pain and sciatica.

The final section provides bridges between basic anatomy and the clinical problem of lumbar pain syndromes. The types and sources of lumbar pain based on experimental and clinical studies, and new information on dural pain are discussed.

The greatest changes appear in chapter 14, where disc herniation, as a source of low back pain, has been de-emphasized in view of its low prevalence. Emphasis is placed on the mechanical causes of LBP, discussed systematically in terms of flexion, extension, rotation and compression injuries combined with excessive forces placed on otherwise normal lumbar spine. Although treatment of these conditions is not the focus of the book, the appropriateness of spinal manipulative therapy is rightly recognized for the pathology of acute locked back.

Finally, the reader is taken through a significant discussion on the contribution of internal disc disruption to low back pain, following initially asymptomatic end-plate fracture sustained in compression type injuries.

Given the size, intention and clarity of the text, the factual and accurate information condensed from over 575 references, *Clinical Anatomy of the Lumbar Spine*, second edition, is highly recommended. Overall, the theme of the text remains the same but is presented with a large amount of new data particularly in the pathology of low back pain. The book is easy to read, well organized and illustrated with helpful figures, graphs and tables. The authors devoted a substantial amount of attention to the proper use of nomenclature. This text should be mandatory reading for all chiropractic students and interns. It also deserves to be added to the reading list of graduate chiropractors who may not have the time or availability of current literature in the area of the lumbar spine.

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Sports Injuries: Diagnosis and Management James G. Garrick, MD and David R. Webb, MD, FACSM Philadelphia: W.B. Saunders Company, 1990 338 pages, hardcover

Garrick and Webb's text, *Sports Injuries: Diagnosis and Management*, is intended for the primary care physician concerned with sports related injuries. The authors stress different aspects of clinical decision problems with emphasis given to the key historical and physical findings. Throughout the book, indications for when and what radiographs should be taken are discussed, as well as the need for other diagnostic tests for certain conditions. The role of various physical therapeutic modalities is also mentioned for the different stages in the rehabilitation process. In addition, one of the most important aspect of sports related injuries is also discussed, that is when to return to sports.

This book consists of 14 chapters. Its first chapter directs the reader on how to approach the injured athlete. The approach covers relevant aspects of the injury, the treatment, the coaches, the parents and even sports education and injury prevention. The second and third chapters are concerned with acute injuries and overuse injuries, respectively. The remaining chapters, four to thirteen, deal more specifically with the diagnosis and management of the most common sports related injuries. The last chapter concludes with the topic on decision analysis using an algorithm based on mathematical logic, where intention is to enhance clinical judgement.

The authors did not intend for this book to be all encompassing but rather to present a brief discussion of the most common and more important injuries. The overall content is well presented and well documented. Illustrations and radiographs are plentiful and appropriately placed throughout the book. The authors' admitted preference for a particular mode of treatment is evident from time to time. Although not experimentally validated, the authors' rationale for their own mode of treatment is clearly explained. They do however, review other

available forms of treatment. Therefore, it is left to the reader to decide which treatment to advocate to his patients.

In summary, the book is designed so that any particular but relatively common sports related injuries can be referred to selectively without having to read the whole book. As a result, it is an excellent up-to-date reference book, which can easily be utilized by the field practitioner. Contrary to the outcome of most books, that once they are read remain on shelves collecting dust, *Sports Injuries: Diagnosis and Management* is more likely to be referred to on a regular basis, due to its brief but concise discussion of a wide spectrum of sports related injuries. This book is an excellent working tool for the chiropractic intern, the chiropractor and even the adept practitioner with a particular interest in sports related injuries.

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***Developing Clinical Problem-Solving Skills
A Guide to More Effective Diagnosis and Treatment
Howard S. Barrows and Garfield C. Pickell
Norton Medical Books, W.W. Norton & Co., New York, 1991
\$18.92, ISBN 0-393-71010-6***

The objective of this text is to help the readers perfect their problem-solving or clinical reasoning skills. The applicability to chiropractors is self-evident. The teaching method used is based on research into the reasoning process used by physicians and on studies in cognitive and educational psychology.

The text reviews the two components of problem-solving: content and process. Content is the knowledge base a clinician possesses. It is learned both in school and through continued education after graduation. This book does not deal with content, but rather with the second component, process. Process is the method by which knowledge is applied to the patient's problem. It is by applying information that clinicians become proficient at the exercise of reasoning. It is active learning. Studies show that information gained through active learning is better retained and, therefore, more effectively used.

The authors explain each step and methodically take the reader through the structure of the clinical reasoning process. This structure is illustrated with the use of a flow chart, which is expanded in each chapter. The accompanying text explains how these steps should be practised. Topics include formulating a questioning strategy, applying appropriate history and physical, and diagnostic and therapeutic decision-making.

Readers are introduced to the patient, Mr. Bill Hawkin, in the first chapter. Throughout the entire book, information is gathered from him and applied to solving his problems. Although his complaint is chest pain, the reasoning process would be the same for low back pain or other chiropractic problems.

Written by an accomplished educator who is an authority in problem-based learning, this text is an excellent self-teaching tool. It is fast paced, and because it is an exercise in thinking, it is never dry as some textbooks can be. I believe most readers will find it interesting to see how similar their thinking processes are to the authors'.

Chiropractors, as professionals who primarily practice alone, must have good clinical problem-solving skills. I think most clinicians will find this book an enjoyable way to formally learn about a process they already perform with every patient. Students and new graduates will correctly learn a powerful thinking process in the beginning of their clinical career.

Anthony Tibbles

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***The Seven Minute Rotator Cuff Solution
Joseph Horrigan, DC and Jerry Robinson
Health For Life, Los Angeles, California, 1991
Soft cover, 140 pages***

In clinical practice, disorders involving the rotator cuff, specifically impingement syndrome, are often challenging to treat and are difficult to rehabilitate. This is especially true of athletes who are often predisposed to rotator cuff injuries because of the nature of their respective sports. *The Seven Minute Rotator Cuff Solution* should then be an essential text for any practitioner who diagnoses and treats disorders of the rotator cuff complex. This text does an excellent job of defining specific biomechanical faults of the rotator cuff and well defines rehabilitation and prevention accordingly. The text is divided into two parts. Part one defines anatomy, biomechanics and pathomechanics and part two demonstrates proper exercise routines, rehabilitation, prevention and an appendix which provides a good overall summary of issues discussed including case studies. Also included is a bibliography which includes both text sources and journal sources for further information and topic description.

The text's programs are designed by a chiropractor and a fitness expert from the Soft Tissue Center in Los Angeles, California. The contents are progressive from basic anatomy, to pathogenesis/pathomechanics, to correction and prevention. The specific stretching and strengthening routines are clearly defined, adequately described, and well illustrated. The illustrations are perfect for patient use and direction.

One aspect which we greatly appreciate is the manner in which the text was written. The content is directed at both the patient and the practitioner, making this book an excellent patient education tool as well as an important text for a patient lending library.

In my opinion, this is important reading material for the sports minded practitioner. The routines are directed specifically toward athletes of all sports including body building. The authors also do a good job of defining specific sports and activities within these sports which predispose an athlete to muscle imbalances and rotator cuff injuries.

The bottom line for us however is that this text provides information for correcting the cause of shoulder impingement rather than simply treating the symptoms of the impingement. In our practice, we have seen chronic injuries quickly resolve from utilizing guidelines for proper training and correction of specific biomechanical shortcomings of the glenohumeral joint.

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P.D.Q. Statistics

Geoffrey R. Norman and David L. Streiner

B.C. Decker Inc., 1986

3228 South Service Road, Burlington, Ontario L7N 3H8

ISBN 0-941158-92-6

P.D.Q. Statistics is an unassuming little paperback book consisting of 172 pages with black and red print loaded with useful and practical information for both the budding researcher and clinician. Although the book is not an introductory text, as the authors state, the intent of the book is to help the reader sift through and interpret seemingly overwhelming array and complexity of tables, graphs and charts frequently encountered in the scientific literature; this in turn allows readers to better critically appraise what they are reading.

You will not find this book very useful if you want to learn how to do statistics yourself. In fact, complex mathematical formulas and equations are avoided. What the authors stress is the appropriate and inappropriate use of the various statistical tools or tests. This may seem like an impossible task for someone who has very little background in statistics; however, the authors use of every day English, injected with a healthy dose of humour, make reading and digestion of the text a more pleasurable experience.

A major plus of the book, which undoubtedly goes far in helping achieve the authors intent, is the use of the "C.R.A.P. detectors". An acronym for "circular reasoning or anti-intellectual pomposity", these little gems are used to alert the reader of areas where statistical tests are commonly mis-used or mis-interpreted by researchers. Another aspect of the book which is, as they say, "worth the price of admission" is the UNABASHED GLOSSARY. I will say no more on this subject and will allow you to discover this for yourself.

Not only would this book be a useful addition to one's scientific book collection, but it would also rank as an addition to one's entertainment reading... a near impossible achievement for a STATISTICS text!! It is an excellent text and one which I would highly recommend to any reader of the scientific literature.

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The Aging Spine

Essentials of Pathophysiology, Diagnosis and Treatment

Boden, Wiesel, Laws, Rothmans

W.B. Saunders Co., 1991

Hard cover, 347 pages, \$82.00 Cdn.

ISBN 0-7216-3538-5

Pain arising from musculoskeletal origins is so ubiquitous that most of us will experience it at some time in our lives. However, the lack of definitive findings in the symptomatic aging spine makes the diagnosis difficult and thus treatment and prognosis often become very frustrating for the caring physician. Since the general population is getting older, there will be more problems associated with spinal aging. It is the intent of the authors of this text, *The Aging Spine*, to provide useful informa-

tion about the pathogenesis, diagnosis and the prognosis of problems often associated with the aging spine.

The book provides useful information about the most common complaints, typically associated with the aging population. It is a concise, well-organized and well-written book. The illustrations used are simple and effective; the algorithms presented are an interesting and useful way to systematically categorize the patients with spinal problems. The three major areas of the spine are discussed individually. Also included are two additional chapters dealing with organic conditions common in this age group such as tumours, arthritis, infections etc. . . . as well as compensation-related spinal disorders. Each section discusses methods of diagnosis, pathophysiology and a list of differentials. The book is unique in that it specifically deals with problems related to the aging spine as well as the clinical entities associated with it. The authors are to be commended for promoting and advocating conservative therapy for the majority of these problems.

Despite their recommendations, there is an inappropriate amount of information presented with respect to treatment. In particular, scant information was provided concerning spinal manipulation for the treatment of uncomplicated spinal pains. Moreover, the references which they used to support their recommendations were extracted from the early seventies with few in the eighties, and in one, the author remained anonymous. Furthermore, if more illustrations were used, particularly from the imaging modalities, the text may have been more complete. Since it is a 1991 publication, it seems appropriate that the authors should have included a more thorough and updated literature review, particularly with regard to the treatments available.

The Aging Spine is a text which can be used as a quick reference for conditions commonly affecting the older spine. However, there are weaknesses in that the treatment section is outdated and the usage of illustrations were scarce.

Peter Kim

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Mechanical Low Back Pain:

Perspectives in Functional Anatomy

James A. Porterfield, PT, MA, ATC and

Carl DeRosa, PT, MS

W.B. Saunders Company,

Harcourt Brace Javonovich Inc., 1991

The Curtis Center, Independence Square West,

Philadelphia, PA 19106

ISBN 0-7216-7291-3, \$45.50

Mechanical Low Back Pain is a 200 page hard cover text. The large type face makes it easily legible. Its illustrations are simple and clearly depicted without an exorbitant number of labels. This allows easy and quick reference to the points the authors are stressing. Examination procedures and therapeutic procedures are also supplemented by appropriate photographs.

Two of the authors' goals are to reassess evaluation and treatment ideas traditionally taught in the past, and to assist the reader in correlat-

ing current knowledge with a logical program which emphasizes active rather than passive management. In trying to achieve this they detail functional anatomy, and attempt to integrate the mechanical basis of function and dysfunction to evaluation and treatment. Their main therapeutic goal is the restoration of function. However, they recognize the important distinction between low back pain and low back disability. They stress that pain needs to be controlled and monitored, but it should not be the primary focus of treatment.

This text provides an overview of the lumbar spine and pelvis from a number of perspectives. These include microanatomical, gross anatomical, physiological and biomechanical perspectives. The authors provide a good explanation of mechanical and chemical nerve root irritation and pain, distinguish radicular from referred pain, and stress that soft tissue injuries of the low back are also a common source of low back pain along with articular and discal sources. Their cited references are current and appropriate.

Although my overall impression of this text was generally favourable, there are some points where my views would tend to differ. The terms "lumbopelvic tissues/structures" comes across as somewhat vague and unclear. Simply referring to tissues or structures in question by their proper anatomical names would have avoided possible uncertainties. The authors also state that the spinal musculature plays a greater role than the intervertebral disc in shock absorption. They describe, that the spinal musculature plays a significant role in active load bearing. This is not the same as the more passive absorptive properties of the intervertebral disc to compression and may lead to some confusion with some readers.

In the chapter on examining the lumbar spine and pelvis, the authors put much emphasis on assessing ranges of motion. They feel that the most important aspect of the examination is to determine stresses that

are responsible for the "injury - re-injury process" rather than being concerned with the exact tissue of injury. Although it is important to identify the offending stresses, as this information is used in counselling the patient on what they should and should not do, it is just as important, if not more so, to identify the injured tissues as this will ultimately provide the clinician with a working diagnosis and be very instrumental in determining a plan of management and prognosis. Each tissue, e.g., muscle, nerve, ligament and bone heals at a different rate. Knowing the natural history of a particular injury with its associated tissue involvement will aid in determining an appropriate time frame in the plan of management. Also, as most patients want to know how long it's going to take for them to get better, this information becomes even more useful.

In their final chapter the authors outline a rational and progressive approach to treatment of mechanical low back pain. This deals with the initial stage of pain, but stresses early and active patient involvement, regardless of the form of conservative treatment chosen, with emphasis on restoration of function. In doing this the authors fulfill one of their major objectives.

I would recommend this text to students of manual therapy as it provides them with basic concepts of microanatomy, gross anatomy, physiology and biomechanics, and an introduction to the current concepts in managing mechanical low back pain. These are concepts which they can build upon as they progress to higher levels of their academic and clinical training.

In general, this text provides a good introductory look at the lumbar spine and pelvis and concurs with current approaches to treatment of mechanical low back pain supporting the use of active rather than passive rehabilitation.

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