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VOLUME 2

# The Shoulder

FOURTH EDITION

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# The Shoulder

**FOURTH EDITION**  
**VOLUME TWO**

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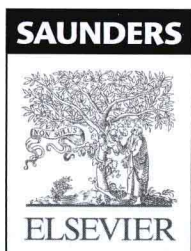
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THE SHOULDER

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# Dedication

*We dedicate these volumes first to our families, who have given us their fullest support and encouragement during our careers as shoulder surgeons. Without their constant love, we would have accomplished little. We next dedicate our work to the thousands of individuals who have consulted us regarding their shoulder problems with the hope that our efforts would enable them to regain comfort and function. Without their confidence in our efforts, we would have been unable to develop the knowledge of what works best and when. Finally, we dedicate this book to all those who are captivated by the shoulder and who continue to pursue greater insights into its function, its malfunction, and the effective treatment of its clinical disorders. Without bright new minds applied to the many challenges presented by this complex and fascinating joint, our field would not be better tomorrow than it is today.*

**CAR  
FAM  
MAW  
SBL  
EVF  
JWS**

## Foreword *to the Fourth Edition*

I am grateful for the opportunity to offer this Foreword for the fourth edition of this unique text on the shoulder—with an emphasis on the role of surgical treatment.

In the 1980s, when the first edition of *The Shoulder* was conceived, there was a tremendous need for the collection and organization of the information and wisdom that had been developed to date about the care of shoulder injuries and diseases. Ideas were changing rapidly, and technology was advancing at a fast pace.

There was an expanded understanding of the classification of fractures of the proximal humerus, and there were emerging improvements in fixation methods. The impingement syndrome was being embraced, and there was dramatically increased success with repair of torn rotator cuff tendons. Total joint arthroplasty had proven itself in the hip and the knee; there was a question about whether this would translate effectively to the shoulder. The biomechanics of shoulder instability were being developed, and the applications of these basic concepts to clinical treatment were emerging. The arthroscope was being applied effectively to the evaluation and care of rather simple knee problems, and there was a tremendous opportunity to develop and mature effective applications of this tool for the shoulder. As easily recognized, there was a steaming cauldron, if you will, of new knowledge demanding an organized expression, and that demand was answered by this text.

The basic idea to fully collect the information, to organize it, and to express it in a readable way was the genesis of *The Shoulder*. During the subsequent decades, the information available about the shoulder through courses, journals (particularly international journals), and other more focused textbooks has literally exploded.

It is a wish fulfilled that these editors, with the contributions of many insightful authors, have carried on with

the initial concept, expanding and reorganizing materials in light of this new knowledge. We readers expect a careful display of surgical anatomy and biomechanics, new information about clinical evaluation and imaging, a rethinking of the directions for care of fractures about the shoulder, a large section on the application of arthroscopy to the evaluation and care of shoulder problems, the introduction of new ideas about the care of rotator cuff-related problems, carefully organized presentations on basic concepts that can be applied to the understanding of shoulder instability, and many, many other lesser, but not unimportant, subjects, that all of us encounter in the evaluation and treatment of patients. This text delivers on the materials just listed and contains supporting chapters extensively referenced so that the readers can easily access the information codified by the authors.

We must be very thankful to these gifted educators who have chaired innumerable continuing medical education courses, who have developed fellowships, who actively participate in clinical and basic research on the shoulder, and who have been involved with other texts for sticking with their original idea and actively pursuing the incorporation of new materials. Readers can count on this as a reliable source, a database if you will, against which other ideas can be compared. Readers not only will know where we stand on current issues after reading this text but also will be able to understand how we arrived at current thinking and treatment of a large variety of subjects in this anatomic region.

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## Foreword *to the Third Edition*

Publishing companies do not re-issue books that are inaccurate, unused, or unpopular. So, there is a good reason to be excited about the third edition of *The Shoulder*, edited by Drs. Rockwood, Matsen, Wirth, and Lippitt. Not too long ago, as history is measured, we considered ourselves to be in the early stages of learning about the shoulder joint—its functional anatomy, its injury patterns, and, very importantly, its optimal treatment.

Since the first edition of this book, our technical capabilities in imaging, instrumentation, and pain control have improved tremendously. Chapters dealing with these aspects of shoulder care reflect this heightened scrutiny. Continuing interest in and understanding of both developmental and functional anatomy allow us to comprehend the biomechanics of not only the pathologic shoulder but also the normal shoulder. Without a clear picture of normal shoulder function, our devising and refinement of correctional procedures would lack a clear direction.

The editors have succeeded in assembling a panel of chapter authors with acknowledged skills in shoulder

diagnosis and management. Perhaps more importantly, the contributing authors also demonstrate a commitment to the pursuit of better understanding and more effective treatments, rather than just relying on traditional methods. And, even more importantly, these authors are also discriminating about incorporating some of these newer techniques that may represent a triumph of technology over reason.

Finally, some of you know, and most of you can imagine, how much work it is to write and assemble a quality text such as this. It is our considerable good fortune to have these editors at the forefront of our profession, willing and able to undertake this arduous task, and producing a work of such outstanding breadth and quality.

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## Foreword *to the First Edition*

It is a privilege to write the Foreword for *The Shoulder* by Drs. Charles A. Rockwood, Jr. and Frederick A. Matsen, III. Their objective when they began this work was an all-inclusive text on the shoulder that would also include all references on the subject in the English literature. Forty-six authors have contributed to this text.

The editors of *The Shoulder* are two of the leading shoulder surgeons in the United States. Dr. Rockwood was the fourth President of the American Shoulder and Elbow Surgeons, has organized the Instructional Course Lectures on the Shoulder for the Annual Meeting of the American Academy of Orthopaedic Surgeons for many years, and is a most experienced and dedicated teacher. Dr. Matsen is President-Elect of the American Shoulder

and Elbow Surgeons and is an unusually talented teacher and leader. These two men, with their academic know-how and the help of their contributing authors, have organized a monumental text for surgeons in training and in practice, as well as one that can serve as an extensive reference source. They are to be commended for this superior book.

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# Preface

Dear Readers,

Thank you for sharing our interest in the body's most fascinating joint: the shoulder. Where else could you be so challenged by complex anatomy, a vast spectrum of functional demands, and diverse clinical problems ranging from congenital disorders to fractures, arthritis, instability, stiffness, tendon disorders, and tumors?

The two of us (CAR and FAM) have been partners in the shoulder for more than 25 years. Although we have never practiced together, it became evident early on that the San Antonio and Seattle schools of thought were more often congruent than divergent—whether the topic was the rotator cuff, instability, or glenohumeral arthritis. We even agree that all rotator cuff tears cannot be and should not be attempted to be repaired!

But our story is not the only story. In these volumes we pay great respect to those with new, contrasting, or even divergent ideas, be they in other parts of the United States or abroad. We are most grateful to the chapter authors new to this fourth edition who have done much to enhance the value and completeness of *The Shoulder*.

As health care becomes one of the costliest expenses for the people of our country and others, we must now consider not only whether diagnostic tools are accurate and therapeutic methods are effective but also the appropriateness of their use and their value to individual patients (i.e., benefit of the method divided by the cost). We will be the best stewards of health care resources if we can learn to avoid ordering tests that do not change our treatment and avoid using therapies that are not cost-effective. This may be, in fact, our greatest challenge.

How can we learn what works best across the spectrum of orthopaedic practice when our knowledge is based

on the relatively small and probably nonrepresentative sample of cases published in our journals? We are surely a long way away from fulfilling Codman's "common sense notion that every hospital should follow every patient it treats, long enough to determine whether or not the treatment has been successful, and then to inquire, 'If not, why not?' with a view to preventing similar failures in the future."

In preparing this the fourth edition of *The Shoulder*, we have been joined again by editors Michael A. Wirth and Steven B. Lippitt. New to this edition are associate editors Edward V. Fehringer and John W. Sperling. All are outstanding (and younger) shoulder surgeons who have helped us immeasurably in our attempts to expand the horizon of the book while still honing in on the methods preferred by the authors selected for each of the chapters.

We encourage you to be aggressive in your pursuit of new shoulder knowledge, critical of what you hear and read, and conservative in your adoption of the many new approaches being proposed for the evaluation and management of the shoulder. We hope this book gives you a basis for considering what might be in the best interest of your patients. We hope you enjoy reading this book as much as we enjoyed putting it together.

Best wishes to each of you—happy shouldering!

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October 2008

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