

The Multiple Ligament Injured Knee

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Editor

The Multiple Ligament Injured Knee

A Practical Guide to Management

With 157 Illustrations in 217 Parts, 50 in Full Color



Springer

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*To my wife Lori, and my children,
Matthew, David, and Megan,
who are a continuous source of inspiration.*

Foreword

This is not just another book on the knee. Dr. Fanelli's book, *The Multiple Ligament Injured Knee: A Practical Guide to Management*, written with a team of experienced contributors, is about a subject that is pertinent, as well as often underestimated and underappreciated. The surgeon's thorough knowledge of this subject is essential for the care of the patient with multiple ligaments injured in the knee. Such knowledge is indispensable if the patient's well-being and future function are to be restored. Time, technique, judgment, and decisiveness are critical. These are the surgeon's responsibilities.

We have all come to be arthroscopic knee surgeons. We cannot, however, let this diminish our judgment or skill in open surgery. Often in the multiply compromised knee, open surgery is a requisite. We must return to the principles that Drs. O'Donoghue, Slocum, Hughston, Trillat, Mueller—the fathers of modern knee surgery—taught us. Open exposure may be essential in some cases; we must know when it is necessary. This textbook helps resolve the impasse that often occurs in this arena of evolving art and science. Young surgeons who were not there before the arthroscope might not appreciate the awful injury that frequently is associated with the multiligament knee injury. We all know Dr. O'Donoghue's firm dictum that early diagnosis and anatomic repair is the best and most appropriate method of treatment. Time has not invalidated this advice. Our diagnostic acumen has improved, but with this improvement there seems to be a pervasive trend to wait, to obfuscate, to substitute rehabilitation for ligament repair. For the knee with multiple ligamentous injuries and multiplanar laxity, waiting is just as much the death knell for the knee today as it was in O'Donoghue's day. Accurate diagnosis and anatomic repair have never been more needed than they are now in the era of high-speed sports, high expectations of return to play, and the stringent requirements of physical function in some industrial vocations.

How and why does *The Multiple Ligament Injured Knee* help us in our quest for knowledge? Does the knowledge help us to be ready if a patient with multiple injuries to the knee and lower extremity is thrust upon us unexpectedly, abruptly, with violence and trauma sufficient to jeopardize a limb's viability? This text is indispensable for this situation: it helps us to be prepared. Dr. Fanelli and his contributors offer solutions to these complex knee injuries that are well thought out, clearly presented, and anatomically and kinematically sound. The depth of wisdom in the chapters is apparent and useful. The chapters build upon each other, or they may stand alone. The contributing authors have been appropriately selected for

their internationally recognized credibility. Dr. Fanelli's quest for excellence is apparent everywhere. The illustrations are generous, useful, and well done. The case studies are gems. Of course, I am biased—but the case study method when appropriately applied is efficient and meaningful. Dr. Fanelli has chosen appropriate and meaningful case studies to guide us in this essential learning process. The case studies will efficiently help us to focus our diagnostic and surgical skills when that inevitable day comes that one of these horrific limb-threatening injuries is thrust upon us.

This book may be approached in many ways—as a reference text for all knee surgeons; as a library addition for in-depth perusal; as a volume the mature practitioner will want to review for update, standard of practice, and result evaluation; and to other knee surgeons as an opportunity to see how the experts do it.

It is a special honor to be invited to write the foreword for this impressive work because I have lived the history, I have known the problems, I know the authors, and I know in my experience and teaching that the knowledge contained herein is exceptional for its depth, breadth, and usefulness. So many times, I have had to hunt for a key reference in the complex area of the multiligament injured knee; to wonder if my way was the best way. No more; it is all in one place, all concise and precise, readable, and usable. Dr. Fanelli and his team are to be commended on the recognition of a niche that needed filling and on a job well done. Dr. O'Donoghue would be pleased and proud of our progress in knee surgery and the principles espoused in this text. I share his pride. This text honors his memory and the memory of so many of our mentors. To the authors, we say thank you for a job well done in a subject where the information, principles, and practical advice is useful, meaningful, and comprehensively presented.

John A. Feagin, MD, FACS
Jackson, Wyoming

Preface

Our practice environment largely determines the pathways that our individual orthopaedic careers take. It has been a blessing to be in a position that enabled me to expand my surgical techniques and research interest in the evaluation and treatment of the multiple ligament injured knee. I believe the same situation exists for other contributors to this book. We all share a passion and a commitment to the treatment of complex instabilities of the knee. The purpose of this book is to provide experienced knee surgeons, general orthopaedic surgeons, fellows, residents, medical students, and other healthcare professionals having an interest in the multiple ligament injured knee with a useful tool for the management of the complex injuries.

The Multiple Ligament Injured Knee: A Practical Guide To Management is composed of four functional segments. The chapters were organized and written so that they build upon each other, and also so that they can stand alone. This will enable the reader to explore the topic of the multiple ligament injured knee at length or to use the text as a quick, practical reference when the need arises.

Chapters 1 through 4 address anatomy and biomechanics of the knee, initial assessment, classification, and nonsurgical management of the acutely dislocated knee. Chapters 5 through 9 provide multiple authors' techniques and opinions on the surgical treatment of the multiple ligament injured knee. Chapters 10 through 17 present methods to evaluate and manage associated complex conditions that occur in treating the multiple ligament injured knee. These include vascular injuries, nerve injuries, fixed posterior tibial subluxation, revision surgery, the role of osteotomy, postoperative rehabilitation, special aspects of functional bracing, and complications. The final chapter, 18, presents six case studies in the management of the multiple ligament injured knee. Each case study presents a different knee instability problem and then takes the reader through the decision-making process, the surgical treatment, and the final outcome.

The multiple ligament injured knee is an extremely complex pathological entity. I believe that through research, improved surgical techniques, the use of allograft tissue, advancement in surgical equipment, careful documentation, and experience, we are progressively improving outcomes in treating this devastating condition. It is my personal hope that this book will serve as a launch pad for new ideas to further develop treatment plans and surgical techniques for the multiple ligament injured knee.

I want to acknowledge the following people who have directly and indirectly contributed to this textbook. Rob Albano (editor) and Merry Post (developmental editor) at Springer-Verlag, New York, for their help in cre-

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