Revision Total
Knee Arthroplasty
Revision Total Knee Arthroplasty

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Editors

Forewords by Chitranjan S. Ranawat, MD, and Roderick H. Turner, MD

With 275 Illustrations in 365 Parts, 82 in Full Color

Springer
To my wife, Meg
To my children, Andrew, Olivia, Caroline, and Thomas
To my father for his guidance and inspiration
To Rod Turner for his pioneering work in revision surgery

JVB

To my wife, Mary
To my sons, Jordan and Andrew
To our residents and fellows through the years

RDS
Revision Total Knee Arthroplasty, edited by Drs. James V. Bono and Richard D. Scott, is a comprehensive review of revision arthroplasty. The book includes discussions on all aspects of this technically challenging surgery, including detailed surgical techniques, exposure issues, allografts, custom implants, alignment, and TKA after other failed procedures. Invaluable pointers on technique, the authors’ personal experience, useful illustrations, and an in-depth review of published literature further enhance the value of this wide-ranging text. This volume is indispensible to any surgeon who performs knee arthroplasty, including surgeons in practice, fellows, and senior residents.

This book is especially useful as a compendium of the editors’ personal philosophy, which has been tested and forged by many years of concentrated practice. I hope all total knee surgeons will partake of the wisdom that these surgeons have so willingly and capably dispensed in this book.

Chitranjan S. Ranawat, MD
Chairman, Department of Orthopedics
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As senior editor of this excellent treatise on complicated knee surgery, Dr. Richard D. Scott brings three decades of experience in arthroplasty surgery to focus sharply on the title subject. Dr. Scott serves as Chief of the Implant Service at the two of the busiest orthopedic implant services in the nation: New England Baptist Hospital and Brigham and Women’s Hospital. He is a proven educator at all levels: medical student, resident, fellow, and postgraduate.

In addition to lectures and surgical demonstrations in over a dozen different countries, Dr. Scott has authored more than 200 scientific publications. These publications include 35 book chapters in well-established orthopedic texts.

Working primarily with Dr. Thomas Thornhill, Dick Scott has designed entire implant systems for primary and revision knee arthroplasty. These designers have made many innovations, such as the use of modular tibial wedges for bone deficiency. They also have designed a total hip replacement system.

Working with Drs. Insall, Dorr, and W.N. Scott, Dick Scott designed and published the Knee Society Clinical Rating System, which is universally accepted as the gold standard knee rating system.

To enumerate Dr. Scott’s lectureships and professional presentations for any given year would take several pages. A legion of postgraduate fellows from the United States and elsewhere have come to study with him at both the Brigham and Baptist Hospitals.

Perhaps most important of all is the high regard which Dr. Scott’s peers have for his judgment and technical ability. Many physicians, including a number of orthopedic surgeons, have sought out Dr. Scott when they needed major joint replacement. He is truly a surgeon’s surgeon.

Dr. James V. Bono is some 18 years younger than Dr. Scott, but his career is following a similar pattern to that of the senior author. His list of publications, chapters, and presentations would number well over 150. He was a pioneer, over a decade ago, in the use of computer graphics in medical presentations and digital templating in joint replacement surgery. These presentations by Dr. Bono are made with skill, clarity, and always come across with strong visual impact.

Jim Bono was the lead author of a text entitled Revision Total Hip Arthroplasty with Drs. McCarthy, Bierbaum, Thornhill, and myself.

I have read the current volume Revision Total Knee Arthroplasty in its entirety and have found it to be thorough, accurate, readable, and very helpful. I congratulate the skillful co-editors and all of the contributors for putting together a classical and excellent orthopedic text.

Roderick H. Turner, MD
Clinical Professor, Orthopaedic Surgery
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New England Baptist Hospital
Revision Total Knee Arthroplasty was proposed as a “how-to” text for the diagnosis and management of the failed total knee arthroplasty, with step-by-step descriptions of surgical techniques of revision total knee arthroplasty. The text was intended to be a practical reference for students, residents, fellows, and attending surgeons engaged in the treatment and follow-up of patients who have undergone knee replacement surgery.

In Part I, the need for reoperation after total knee arthroplasty is summarized from the prospective of one surgeon’s practice and brings to light Dr. Scott’s vast experience in total knee arthroplasty. This is complemented nicely by Dr. Thornhill’s chapter on the painful total knee arthroplasty, where it is emphasized that the etiology of the patient’s pain must be elucidated prior to embarking on revision surgery. Part I also includes the definitive treatise on ultra-high molecular weight polyethylene in knee arthroplasty as well as a compendium of the radiological evaluation of the failed total knee arthroplasty.

Part II emphasizes general principles of revision surgery, including management of skin, surgical exposure, and removal of femoral and tibial implants at the time of revision. The fundamental aspects of revision total knee arthroplasty, alignment, management of bone defects, and use of constrained implants are discussed in the ensuing chapters. Management of the extensor mechanism is included as a separate entity.

Part III draws attention to the wide dimension of complicating issues that frequently occur in revision knee surgery. These chapters address the topics of infection, periprosthetic fracture, and stiffness and discuss the complexities of total knee arthroplasty after failed high tibial osteotomy, after fractures about the knee, and after prior unicompartmental and hinged knee replacement. The topics of insert exchange, aseptic synovitis, and the economics of revision total knee arthroplasty are discussed individually. The final chapter discusses the role of arthrodesis as a salvage procedure.

We feel fortunate to have received the support of so many well-known master surgeons who have contributed to the text. We are grateful to all of them and are honored to have been able to present their combined experience in the ensuing pages.

We are especially grateful to Dr. Ranawat for writing the foreword and acknowledge the profound personal impact he has had on our understanding of joint replacement surgery through his commitment to patient care, teaching, and musculoskeletal research.

James V. Bono, MD
Richard D. Scott, MD
CONTENTS

Foreword I by Chitranjan S. Ranawat ...................... vii
Foreword II by Roderick H. Turner ....................... ix
Preface ...................................................... xi
Contributors ............................................. xvii

Part I  Diagnosis and Evaluation

Chapter 1  Reoperation After Total Knee Arthroplasty ............ 3
   Richard D. Scott

Chapter 2  Ultra-High Molecular Weight Polyethylene in Total Knee Arthroplasty ................. 10
   A. Seth Greenwald and Christine S. Heim

Chapter 3  The Painful Total Knee Arthroplasty ................. 24
   Nigel M. Azer and Thomas S. Thornhill

Chapter 4  Radiological Evaluation of Total Knee Arthroplasty ...... 36
   David A. Feiock, Joel S. Newman, and Arthur H. Newberg

Part II  General Principles of Revision Surgery

Chapter 5  Skin Exposure Issues .......................... 55
   Ginger E. Holt and Douglas A. Dennis

Chapter 6  Exposure Options for Revision Total Knee Arthroplasty ... 63
   Gerard A. Engh
Chapter 7
Removal of the Femoral and Tibial Components for Revision Total Knee Arthroplasty ................. 76
Daniel J. Berry

Chapter 8
Allograft in Revision Total Knee Arthroplasty ............... 81
J. Craig Morrison and Donald T. Reilly

Chapter 9
Modular Augments in Revision Total Knee Arthroplasty ... 97
J. Bohannon Mason

Chapter 10
Custom Implants in Revision Total Knee Arthroplasty ....... 105
J. Craig Morrison, David K. DeBoer, and Michael J. Christie

Chapter 11
Femoral Alignment ........................................... 117
James Huddleston, Reuben Gobezie, and Harry Rubash

Chapter 12
Tibial Alignment .............................................. 129
James V. Bono

Chapter 13
Use of Stems in Revision Total Knee Arthroplasty .......... 137
Thomas K. Fehring

Chapter 14
Restoration of Stability, Maintaining Joint Line, Gap Balancing, and Constraint Selection ......................... 145
Brian McDermott

Chapter 15
Management of the Extensor Mechanism During Revision Total Knee Arthroplasty ......................... 152
Richard S. Laskin and Burak Beksaç

Part III
Special Considerations

Chapter 16
Infection in Total Knee Arthroplasty .......................... 167
Carl Deirmengian, Samir Mehta, and Jess H. Lonner

Chapter 17
Periprosthetic Fractures After Total Knee Arthroplasty ....... 183
Michael E. Ayers, Richard Iorio, and William L. Healy

Chapter 18
Total Knee Arthroplasty After Failed High Tibial Osteotomy .................................................. 195
Michael C. Dixon and Richard D. Scott

Chapter 19
Total Knee Arthroplasty Following Prior Unicompartmental Replacement ........................................ 206
William P. Barrett

Chapter 20
Hinge Implants .................................................. 219
David W. Manning, Peter P. Chiang, and Andrew A. Freiberg

Chapter 21
Total Knee Arthroplasty After Fractures About the Knee ... 237
Russell E. Windsor and William L. Walter
<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>Insert Exchange</td>
<td>244</td>
</tr>
<tr>
<td></td>
<td>Rahul V. Deshmukh and Richard D. Scott</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Management of the Stiff Total Knee Arthroplasty</td>
<td>251</td>
</tr>
<tr>
<td></td>
<td>Van P. Stamos and James V. Bono</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>Aseptic Synovitis</td>
<td>258</td>
</tr>
<tr>
<td></td>
<td>Wolfgang Fitz and Richard D. Scott</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>Prodomes of Failure After Revision Total Knee Arthroplasty</td>
<td>265</td>
</tr>
<tr>
<td></td>
<td>Jess H. Lonner</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>Economics of Revision Total Knee Arthroplasty: Increasing Prevalence, Decreasing Reimbursement</td>
<td>269</td>
</tr>
<tr>
<td></td>
<td>Richard Iorio, William L. Healy, and Michael E. Ayers</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>Salvage Knee Surgery: Arthrodesis</td>
<td>275</td>
</tr>
<tr>
<td></td>
<td>James V. Bono and Steven R. Wardell</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Index</td>
<td>287</td>
</tr>
</tbody>
</table>
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PART I

Diagnosis and Evaluation