Section I  The Problem of Post-Traumatic Arthritis

1  Arthritis That Develops After Joint Injury: Is It Post-Traumatic Arthritis or Post-Traumatic Osteoarthritis? ................................................................. 3
   Steven A. Olson and Farshid Guilak

2  Post-Traumatic Arthritis: Definitions and Burden of Disease ............................................... 7
   Joseph A. Buckwalter and David T. Felson

3  Arthritis After Joint Injury: The Military Experience ............................................... 17
   Jessica C. Rivera, Joseph C. Wenke, James R. Ficke, and Anthony E. Johnson

Section II  Experimental Models of Joint Injury

4  In Vitro Cartilage Explant Injury Models ................................................................. 29
   Christopher T. Chen and Peter A. Torzilli

5  Animal Models of Meniscal Injury in Post-Traumatic Arthritis ........................................... 41
   Chia-Lung Wu and Dianne Little

6  Anterior Cruciate Transection/Disruption Models of Post-Traumatic Arthritis ........................................ 63
   Kelly A. Kimmerling and Farshid Guilak

7  Closed Joint ACL Disruption Murine Model of PTA ...................................................... 75
   Blaine A. Christiansen, Jasper H.N. Yik, and Dominik R. Haudenschild

8  Whole Joint Models of Articular Injury and Articular Fracture ........................................ 87
   Bridgette D. Furman and Steven A. Olson

9  Instability: Dynamic Loading Models ................................................................. 101
   Todd McKinley
10 Survey of Animal Models in Post-Traumatic Arthritis: Choosing the Right Model to Answer the Right Question ................................................................. 113
Bridgette D. Furman, Kelly A. Kimmerling, Chia-Lung Wu, Dianne Little, Farshid Guilak, and Steven A. Olson

Section III Peri-articular Tissues Response to Joint Injury

11 The Response of Cartilage to Injury ............................................ 121
Yang Wang and Alan J. Grodzinsky

12 The Response of the Subchondral Bone to Injury ..................... 135
Steven R. Goldring

13 Genetic Variability in the Response to Injury ............................ 149
Muhammad Farooq Rai and Linda J. Sandell

14 Aging and Post-Traumatic Arthritis ......................................... 165
Richard F. Loeser, Cristin M. Ferguson, and Martin K. Lotz

15 Potential Mechanisms of PTA: Cell Death ............................... 185
Shawn P. Grogan, Martin K. Lotz, and Darryl D. D’Lima

16 Potential Mechanisms of PTOA: Inflammation ....................... 201
Mary B. Goldring

17 Potential Mechanisms of PTA: Oxidative Stress ...................... 211
Mitchell C. Coleman, Joseph A. Buckwalter, and James A. Martin

18 Potential Mechanism of PTA: Alterations in Joint Loading ......... 221
Timothy M. Wright and Suzanne A. Maher

Section IV Clinical Assessment and Treatment of Patients with Joint Injury

19 Imaging Specific to Cartilage Injury ........................................ 237
Nathaniel E. Calixto, Aditi Guha, and Sharmila Majumdar

20 Outcomes of ACL Injury: The MOON Consortium ................. 259
Kurt P. Spindler and David N. Wasserstein

21 Current Treatment and Outcomes of Intra-articular Fractures ........ 269
Brandi R. Hartley, Craig S. Roberts, and Peter V. Giannoudis

22 Non-arthroplasty Treatments for PTA in the Lower Extremity .......... 285
Brandi R. Hartley and Craig S. Roberts

23 Results of Arthroplasty in Post-Traumatic Arthritis ............... 295
Antonia F. Chen and Javad Parvizi
## Section V  Developing and Future Assessment and Therapies

### 24 Measurement of Severity of Injury After Articular Fracture and Correlation with Post-Traumatic Arthritis Development

Donald D. Anderson and J. Lawrence Marsh  
305

### 25 Biomarkers of PTA

Yvonne M. Golightly, Samuel B. Adams Jr., and Virginia Byers Kraus  
317

### 26 Potential Targets for Pharmacologic Therapies for Prevention of PTA

Cecilia Pascual-Garrido and Susan Chubinskaya  
331

### 27 Stem Cell Therapies for Post-Traumatic Arthritis

Farshid Guilak, Brian O. Diekman, and Steven A. Olson  
343

### 28 Unanswered Questions and Future Directions in Post-Traumatic Arthritis

Steven A. Olson and Farshid Guilak  
349

### Index

353
Post-Traumatic Arthritis
Pathogenesis, Diagnosis and Management
Olson, S.; Guilak, F. (Eds.)
2015, XX, 360 p. 98 illus., 65 illus. in color., Hardcover