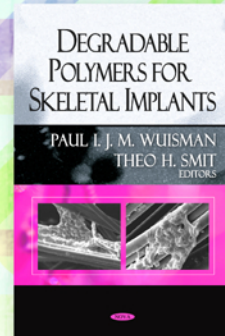


# Degradable Polymers for Skeletal Implants

Paul I. J. M. Wuisman and Theo H. Smit  
Editors



The purpose of this book is present an integrated overview of the properties of degradable polymers and their application in skeletal surgery. The book consists of three parts: A. Basic Science and Engineering; B. Clinical application of degradable implants; and C. Innovation and future developments. All chapters are written by experts with a substantial track record on the specific subject.

When skeletal structures or tissues fail due to trauma or disease, additional support is required to take over the mechanical function of the structures involved. Traditionally, skeletal implants are made of metal, but they essentially have a temporary function: once healing is achieved, their removal is desired both from both the clinical and biomechanical point of view. This consideration motivated the development of degradable implants, which have the evident advantage over metal devices that they degrade over time and thus eliminate the necessity of retrieval operations. In addition, the healing process may be stimulated by the successive loss of their mechanical properties, corresponding with increased loading on the healing tissues.

## Contents

- Preface  
About the Editors
- Part I: Basic Science and Engineering**
- Ch. 1 The Molecular Structure of Degradable Polymers *Carmen Scholz*
- Ch. 2 Time-Dependent Failure in Load-Bearing Polymers. A Potential Hazard in Structural Applications of Polylactides *Leon E. Govaert, Tom A. P. Engels, Serge H. M. Söntjens and Theo H. Smit*
- Ch. 3 Poly(lactide)s and their Copolymers: Physical Properties and Hydrolytic Degradation *Hideto Tsuji*
- Ch. 4 Composites Based on Degradable Polymers *K. E. Tanner*
- Ch. 5 Product Realization: The Processing of Bioabsorbable Polymers *G. Lawrence Thatcher*
- Ch. 6 Sterilization of Biodegradable Polymers *Tuija Annala and Minna Kellomäki*
- Ch. 7 Surface Properties of Degradable Polymers *Theo G. van Kooten and R. Kuijjer*
- Ch. 8 Biodegradation and Autocatalysis of Polylactides *Sudhir S. Chakravarthi and Dennis H. Robinson*
- Ch. 9 Biological Testing of Degradable Polymers in Vivo *O. M. Böstman*
- Part II: Clinical Applications of Degradable Implants**
- Ch. 10 Fracture Repair with Bio-Resorbable Implants *C. J. van Manen and M. van der Elst*
- Ch. 11 Fibula Regeneration after Vascularized Fibular Graft Harvesting *Arthur de Gast, Hay A. H. Winters and Paul I. J. M. Wuisman*
- Ch. 12 Degradable Polymers in Cranio-Maxillofacial Surgery *U. Eckelt*
- Ch. 13 Absorbable Materials in Shoulder Surgery *Lennart Magnusson, Jüri Kartus and Lars Ejerhed*
- Ch. 14 Degradable Polymers in Hand Surgery *Abigail R. Hamilton, Chaitanya S. Mudgal and Jesse B. Jupiter*
- Ch. 15 Degradable Polymers as ACL Substitutes *Erica D. Taylor and Cato T. Laurencin*
- Ch. 16 Fixation of ACL Grafts with Degradable Polymer Screws *Jon Olav Drogset*
- Ch. 17 Degradable Polymers in Meniscus Reconstruction *Eric L. W. de Mulder, Gerjon Hannink, Tony G. van Tienen and Pieter Buma*
- Ch. 18 Bioabsorbable Implants: Cervical Spine *Mark Dumonski, Kern Singh and Alexander R. Vaccaro*
- Ch. 19 Degradable Polymers in the Lumbar Spine *T. U. Jiji*
- Part III: Innovation and Future Developments**
- Ch. 20 Areas of Applications and Limitations for Degradable Polymer Implants *Kurt Ruffieux*
- Ch. 21 Perspectives and Possibilities for Degradable Polymers for Skeletal Implants *Ying Deng, Najmuddin Gunja and Kyriacos A. Athanasiou*
- Contributors  
Index

ISBN: 978-1-60692-426-6  
Price: \$79.00  
Binding: Hardcover  
Pub. Date: 2009



Nova Science Publishers, Inc.

400 Oser Avenue, Suite 1600, Hauppauge, N. Y. 11788-3619, USA

Phone (631) 231-7269 • Fax (631) 231-8175 • E-mail: [main@novapublishers.com](mailto:main@novapublishers.com)

Order online at [www.novapublishers.com](http://www.novapublishers.com)