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| 1. Record Nr.           | UNISALENT0991000400269707536  |
| Autore                  | Centro Europa ricerche  |
| Titolo                  | Una politica industriale per una nuova legislatura : quinto rapporto sull'industria e la politica industriale italiana / a cura del Centro Europa ricerche, CER e dell'Istituto per la ricerca sociale, IRS |
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| ISBN                    | 9788815034243   |
| Descrizione fisica      | 301 p. ; 22 cm  |
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| Altri autori (Enti)     | Istituto per la ricerca sociale   |
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| Autore                  | Rana Abou-Khalil  |
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| Descrizione fisica      | 1 online resource (466 p.)  |
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| Soggetti                | Orthopedics<br>Musculoskeletal system<br>Medicine - Research  |
| Lingua di pubblicazione | Inglese   |
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| Nota di bibliografia    | Includes bibliographical references at the end of each chapters and index.  |
| Nota di contenuto       | Experimental Research Methods in Orthopedics and Trauma; Title Page; Copyright; Contents; Foreword; Endorsement by the International Combined Orthopaedic Research Societies (I-CORS) Member Organizations; Preface; Acknowledgments; Contributors; 1 Why Do We Need Experimental Research?; 1 Evidence-Based Research; 2 Establishing a Basic Research Facility in Orthopedic Surgery; 3 Good Laboratory Practice and Quality Control; 4 How to Prepare for a Period in Research; 2 Structural Biomechanics; 5 Physiological Boundary Conditions for Mechanical Testing<br>6 Static, Dynamic, and Fatigue Mechanical Testing<br>7 Use of Human and Animal Specimens in Biomechanical Testing; 8 Whole Bone Biomechanics; 9 Biomechanics of Trabecular and Cortical Bone; 10 Biomechanics of Fracture Fixation; 11 Biomechanical Assessment of Fracture Repair; 12 Biomechanics of Cartilage; 13 Biomechanics of Joints; 14 Spine Biomechanics; 3 Functional Biomechanics; 15 Musculoskeletal Dynamics; 16 Measurement Techniques; 17 Clinical Assessment of Function; 18 Functional Biomechanics with Cadaver Specimens; 4 Numerical Biomechanics; 19 Inverse Dynamics<br>20 Principles of Finite Elements Analysis<br>21 Validation of Finite Element Models; 22 Computational Biomechanics of Bone; 23 Numerical |

Simulation of Implants and Prosthetic Devices; 24 Numerical Simulation of Fracture Healing and Bone Remodelling; 5 Imaging; 25 Micro-Computed Tomography Imaging of Bone Tissue; 26 Imaging Bone; 27 Ultrasound Techniques for Imaging Bone; 28 In Vivo Scanning; 29 Imaging of Cartilage Function; 30 Histochemistry Bone and Cartilage; 31 Immunohistochemistry; 32 Molecular Imaging In Situ Hybridization; 33 Laser Scanning Confocal Microscopy and Laser Microdissection 34 Image Analysis Histomorphometry Stereology6 Cellular Studies; 35 Cell Culture Research; 36 Cartilage Explants and Organ Culture Models; 37 Fluid Flow and Strain in Bone; 38 Biomechanics of Bone Cells; 7 Molecular Techniques in Bone Repair; 39 Molecular Testing; 40 Genetically Modified Models for Bone Repair; 8 In Vivo Models; 41 General Considerations for an In Vivo Model; 42 Animal Models for Bone Healing; 43 Models for Impaired Healing; 44 In Vivo Models for Bone and Joint Infections; 45 In Vivo Models for Articular Cartilage Repair; 46 In Vivo Soft Tissue Models; 9 Tissue Engineering 47 Scaffolds for Tissue Engineering and Materials for Repair48 Use of Growth Factors in Musculoskeletal Research; 49 Stem Cells for Musculoskeletal Repair; 50 Biological Evaluation and Testing of Medical Devices; 10 Statistics for Experimental Research; 51 Study Design; 52 Power and Sample Size Calculation; 53 Nonparametric versus Parametric Tests; 54 How to Limit Bias in Experimental Research; Index

#### Sommario/riassunto

From bioinformatics to nanotechnology, advances in basic research ultimately drive advances in clinical care. This book provides a comprehensive summary of all current research methodologies for translational and pre-clinical studies in biomechanics and orthopedic trauma surgery. With this roadmap at hand, specialists and trainees will have the tools to conduct high-quality experimental research in any area of musculoskeletal science, with a solid understanding of how the findings can be applied in patient care. Special Features: Utilizes the principles and methodology of modern, evidence-bas