
This book outlines the effects that technology-induced change will have on sport within the next five to ten years, and provides food for thought concerning what lies further ahead. Presented as a collection of essays, the authors are leading academics from renowned institutions such as Massachusetts Institute of Technology, Queensland University of Technology, and the University of Cambridge, and practitioners with extensive technological expertise. In their essays, the authors examine the impacts of emerging technologies like artificial intelligence, the Internet of Things, and robotics on sports and assess how they will change sport itself, consumer behavior, and existing business models. The book will help athletes, entrepreneurs, and innovators working in the sports industry to spot trendsetting technologies, gain deeper insights into how they will affect their activities, and identify the most effective responses to stay ahead of the competition both on and off the pitch.

Regenerative medicine offers physicians new tools to help repair damaged tissue, alleviate pain, accelerate healing, and improve function for patients with degenerative conditions or sports injuries. Regenerative Treatments in Sports and Orthopedic Medicine is the first comprehensive book devoted to orthobiologic treatments for orthopedic conditions. Authored by experts in regenerative medicine, this evidence- and experience-based guide is written for clinicians looking to understand and effectively implement these treatments in their practices. Broad yet focused coverage of the scientific underpinnings, regulatory issues, staffing and equipment, nutritional and rehabilitation concerns, and orthobiologic interventions for specific clinical problems make this the ideal procedural reference for anyone working to restore function to athletes or other patients with musculoskeletal pathologies. Key Features

Unparalleled coverage of clinical science and practical applications Written by pioneering leaders at the forefront of an emerging standard of care Evidence-based indications for initiating orthobiologic therapies Includes a review of important nomenclature for the novice Covers both Platelet Rich Plasma (PRP) and stem cell procedures A must-read guide for practitioners in academic and private practice settings

Gene therapy, bioengineered skin, and other methods in advanced biology are revolutionizing the treatment of wounds. Written by experts in research and clinical practice, Cutaneous Wound Healing examines the current knowledge and emerging treatment methods. This volume explains the normal molecular and cellular functions that occur when a wound heals, as well as dysfunctional events, such as a chronic wound or an ulcer. Such dysfunctions signal an imbalance in the body, explained here along with possible treatments. The book’s mini-atlas is an indispensable reference tool. Dermatologists, plastic surgeons, and general practitioners can benefit from this text.

Regenerative medicine (RM) is a rapidly expanding topic within orthopedic and spine surgery, sports medicine and rehabilitation medicine. In the last ten years, regenerative medicine has emerged from the fringes as a complement and challenge to evidence-based medicine. Both clinicians and patients alike are eager to be able to offer and receive treatments that don’t just surgically replace or clean old joints or inject away inflammation or work as a stop-gap measure. Regenerative medicine encompasses everything from the use of stem cells and platelet-rich plasma (PRP) to prolotherapy, vascosupplementation and beyond. This book will provide healthcare practitioners dealing with spine and joint pain with the most current, up-to-date evidence-based information about which treatments work, which treatments don’t, and which are on the horizon as potential game changers. Chapters are arranged in a consistent format and cover the spine, shoulder, elbow, hand and wrist, hip, knee, and foot and ankle, providing a thorough, top-to-bottom approach. A concluding chapter discusses current and future directions and applications of RM over the next decade or two. Timely and forward-thinking, Regenerative Medicine for Spine and Joint Pain will be a concise and practical resource for orthopedists, spine surgeons, sports medicine specialists, physical therapists and rehabilitation specialists, and primary care providers looking to expand their practice.
A comprehensive resource for focusing on returning injured athletes to their optimal performance! This book discusses exercise principles; muscle fatigue, muscle damage, and overtraining concepts; pathophysiology of overuse injuries; core evaluation in sports-specific testing; physiological basis of exercise specific to sport; and special considerations for the athlete. Special features such as evidence-based clinical application boxes provide the reader with a solid body of research upon which to base their practice. Aligned to the Guide to Physical Therapy Practice to help learn how to work with athletes' injuries and help them make a physical comeback while following best practices. Incorporation of muscle physiology demonstrates it as the basis for athlete's exercise prescription. Coverage of pathophysiology of overuse injuries illustrates the damage to the musculoskeletal system. Inclusion of treatment and training approaches for athletic rehabilitation shows how to restore the musculoskeletal system back to full flexibility, strength, power, and endurance. Evidence-based clinical application boxes found throughout the book cite key studies and provide real-world application to a clinical setting. Extensive photographs show hands-on demonstrations of important rehabilitation techniques, helping the clinician to accurately apply them during treatment.

Interleukins in Cancer Biology responds to the growing need for credible and up-to-date information about the impact of interleukins on occurrence, development and progression of cancer. It provides reliable information about all known interleukins (38), describes recent discoveries in the field, and moreover, suggests further directions of research on the most promising aspects of the subject. The structure and presentation of the work is very understandable and clear with attention to detail maintained throughout. There are multiple illustrations throughout to help in comprehending and remembering the most important facts. Summarizes and discusses existing facts on the impact of all known interleukins in occurrence, development, and progression of cancer. Categorizes and clarifies all interleukins based on their role in cancer. Contains comprehensive and exhaustive information on each molecule.

Wound healing and its treatment are subjects that have been discussed for centuries in the medical literature. Wounds are everywhere, occurring in the young and elderly and in hospital and at home, and affect patients in every clinical specialty around the world. There are many publications on wound healing, but this book intends to give an overview of its current perspectives so as to be useful to practitioners in wound healing and to improve the quality of life. It is considered that this book will be useful for clinicians who are interested in wound care.

This user-friendly, pragmatic book discusses the normal and pathological conditions of the appendicular skeleton, with a focus on the preservation of joint function, providing a detailed overview of strategies for both common and complex joint preservation. The first section covers basic topics, ranging from joints homeostasis and biomechanics, to genetics, bio-orthopedics, tissue engineering and 3D bioprinting. The following sections are each dedicated to a specific joint – its functional anatomy, pathologic conditions, diagnostics and treatment. This book is of interest to orthopedists and sports medicine specialists treating common and complex injuries of the joints.

This book gathers revised selected papers from the 3rd International Workshop on Gerontechnology, IWoG 2020, held on October 5-6, 2020, in Évora, Portugal. They report on cutting-edge technologies and optimized workflows for promoting active aging and assisting and elderly people at home, as well as in healthcare centers. It discusses the main challenges in the development, use and delivery of health care services and technologies. Not only they propose solutions for improving in practice the monitoring and management of health parameters and age-related diseases, yet they also describes improved approaches for helping seniors in their daily tasks and facilitating their communication and integration with assistive technologies, thus improving their quality of life, as well as their social integration. The book provides health professionals, researchers, and service providers with extensive information on the latest trends in the development and practical application of gerontechnology in elderly care.

This book covers the most recent developments in the field of osteochondral tissue engineering (OCTE) and covers in detail the concepts and current challenges for bone and cartilage repair and regeneration. Specific topics include viscosupplementation, biological, tissue engineering approaches, in vitro and in vivo models, and technological advances with stem cells, bioreactors, and microfluidics. Osteochondral Tissue Engineering: Challenges, Current Strategies, and Technological Advances presents challenges and strategies in the field of osteochondral regeneration and serves as a core reference for biomedical engineering students and a wide range of established researchers and professionals working in orthopedics.

This book introduces the exciting field of orthobiology, which will usher in a new array of therapeutic approaches that stimulate the body’s natural resources to regenerate musculoskeletal tissues damaged by trauma or disease. The book addresses a range of key topics and discusses emerging approaches that promise to offer effective alternatives to traditional treatments for injuries to bone, cartilage, muscles, ligaments, and tendons. It explains in detail how a variety of innovative products, including biomaterials, growth factors, autogenous cells, together provide the basis for the regeneration of these musculoskeletal structures and how recent scientific progress has created unique opportunities to address pathological situations that until recently have been treated with unsatisfactory results. The authors are experts from around the world who come together to provide a truly global overview. The book is published in collaboration with ISAKOS. It will be invaluable for all with an interest in this area of medicine, which has already attained huge popularity in Orthopaedics and Sports Medicine and has also attracted the attention of the lay public.

This book presents regenerative strategies for the treatment of knee joint disabilities. The book is composed of four main sections totaling 19 chapters which review the current knowledge on the clinical management and preclinical regenerative strategies. It examines the role of different natural-based biomaterials as scaffolds and implants for addressing different tissue lesions in the knee joint. Section one provides an updated and comprehensive discussion on articular cartilage tissue regeneration. Section two focuses on the important contributions for bone and osteochondral tissue engineering. Section three overview the recent advances on meniscus repair/regeneration strategies. Finally, section four further discusses the current strategies for treatment of ligament lesions. Each chapter is prepared by world know expert on their fields, so we do firmly believe that the proposed book will be a reference in the area of biomaterials for regenerative medicine.

The repair of musculoskeletal tissue is a vital concern of all surgical specialties, orthopedics and related disciplines. Written by recognized experts, this book aims to provide both basic and advanced knowledge of the newer methodologies being developed and introduced to the clinical arena. A valuable resource for researchers, developers, and clinicians, the book presents a foundation to
This comprehensive new volume in the Encyclopedia of Sports Medicine series, published under the auspices of the International Olympic Committee, delivers an up-to-date, state of the art presentation of the medical conditions that athletes may suffer from during training and competition. Presented in a clear style and format, The Olympic Textbook of Medicine in Sport, covers not only the basic approach to training, monitoring training and the clinical implications of excessive training, but also deals with all the major systems in the body, and focuses on medical conditions that athletes may suffer from in each system. Medical conditions in athletes with disabilities, genetics and exercise and emergency sports medicine are also uniquely examined. The Olympic Textbook of Medicine in Sport draws on the expertise of an international collection of contributors who are recognized as leaders in their respective fields. The systematic approach followed in the book will make it invaluable to all medical doctors and other health personnel who serve athletes and sports teams. Sports practitioners are provided with a clinical approach to the prevention, diagnosis, and treatment of common and less common medical problems encountered by athletes. This volume should be kept close at hand for frequent consultation.

Musculoskeletal medicine is now recognized as a distinct branch of medicine, incorporating the sub-specialties of manual medicine, orthopaedic medicine, and the neuromusculoskeletal component of osteopathic medicine. The editors of this volume have been active in promoting the discipline worldwide, and this new edition is the ideal reference for doctors and therapists wishing to expand and improve their skill base, or to further their careers and academic accomplishments, to the benefit of the patient. With contributions from international experts, Oxford Textbook of Musculoskeletal Medicine 2e is an authoritative account of the basis of musculoskeletal medicine in contemporary medical society. It provides the reader with advanced knowledge of the conceptual basis, diagnostic challenge, and pragmatic management of the neuromusculoskeletal system. Now with almost 500 illustrations, this is a practical, easy-to-read text with a clinical focus. New chapters cover the latest evidence on efficacy and effectiveness of management strategies, the provision of services, and the latest developments in musculoskeletal ultrasound, making this new edition a comprehensive reference on musculoskeletal medicine. This print edition of The Oxford Textbook of Musculoskeletal Medicine comes with a year’s access to the online version on Oxford Medicine Online. By activating your unique access code, you can read and annotate the full text online, follow links from the references to primary research materials, and view, enlarge and download all the figures and tables.

Mesenchymal Stem Cells: Isolation, Characterization, and Applications thoroughly presents the isolation, characterization, and some applications of mesenchymal stem cells in the clinic. The book has two parts: “Isolation and Characterization” and “Clinical Perspectives and Applications.” In Part I, the subsequent chapters introduce some techniques in isolation, characterization, and purification of mesenchymal stem cells in different tissues. In Part II, some applications of mesenchymal stem cells in the popular diseases, which include cartilage regeneration, spinal cord injury, and osteoarthritis, are discussed. This book provides a succinct yet comprehensive overview of mesenchymal stem cells for advanced students, graduate students, and researchers.

Rehabilitation is, by definition, the restoration of optimal form and function for an athlete. In this edition in the Encyclopedia series, the editor and contributors advocate that rehabilitation should begin as soon as possible after the injury occurs, alongside therapeutic measures such as anti-inflammatory agents and other pain killing agents. This must also include before, or immediately after, surgery. The rehabilitative process is therefore managed by a multi-disciplinary team, including physicians, physical therapists, psychologists, nutritionists, and athletic trainers, among others. This book considers the three phases of rehabilitation: pain relief, protection of the affected area and limitation of tissue damage; limitation of impairment and recovery of flexibility, strength, endurance, balance and coordination; and finally the start of conditioning to return to training and competition.

Platelet-Rich Plasma (PRP) has gained tremendous popularity in recent years as a treatment option for specialties including Orthopedics, Dentistry, Sports Medicine, Otorhinolaryngology, Neurosurgery, Ophthalmology, Urology, Vascular, Cardiothoracic and Maxillofacial Surgery, and Veterinary Medicine. Nowadays, PRP and stem cell science have added an exciting dimension to tissue repair. This book begins by giving the reader a broad overview of current progress as well as a discussion of the technical aspects of preparation and therapeutic use of autologous PRP. It is followed by a review of platelet structure, function and major growth factors in PRP (PDGF and TGFβ). The third chapter outlines the basic principles of biochemical cellular metabolism that increases the efficacy of PRP. Analogous to the preparation of soil for a garden, restoring cellular health should be the first consideration in Regenerative Medicine. Standardization of PRP preparation to clinical use still remains a challenging prospect. In this sense, a feasible strategy for studying PRP preparation is illustrated, which also allows to modulate and tailor the quality of PRP for further clinical applications. The science behind PRP and stem cells, on tissue regeneration, cell proliferation and mesenchymal stem-cells are emphasized and reviewed. Various specific uses of PRP are described with detailed illustrations of various personal experiences mainly in orthopedic injuries, ligament and tend to repair, degenerative diseases, sports medicine, chronic wound healing as well as rehabilitation aspects in tendinopathy. Expertly written by leading scientists in the field, this book provides for beginners and experienced readers scientific fundamentals, the state of art of PRP, specific uses and personal experiences with a practical approach and reference for current trends in use. Finally, this book paves the way for future developments.

This concise volume in the Encyclopedia of Sports Medicine series, published under the auspices of the International Olympic Committee, provides a dependable source of current knowledge available on tendinopathy and covers both the basic science and clinical aspects of the subject. Despite its high incidence, the precise etiopathogenesis and effective treatment of tendinopathy remain elusive. Tendinopathy in Athletes draws on the expertise of an international and prolific collection of contributors, both clinicians and scientists, who provide new insights into this specialized area. This book: provides a comprehensive resource for both clinicians and researchers with information organized logically, with an easy-to-follow progression from the basic scientific findings to clinical applications discusses the full range of treatment modalities, including new molecular and biological approaches, plus surgical and alternative approaches to tendinopathy contains "What We Need to Know" sections that suggest future areas of research for young investigators. As tendinopathy remains one of the most common injuries encountered, both in sports and at the workplace, this essential volume is sure to be a source of frequent consultation.
The first book devoted exclusively to the subject, Platelet Rich Fibrin in Regenerative Dentistry offers comprehensive, evidence-based coverage of the biological basis and clinical applications of PRF in dentistry. Co-edited by a leading researcher in tissue regeneration and the inventor of the PRF technique, it brings together original contributions from expert international researchers and clinicians. Chapters cover the biological foundation of PRF before addressing specific uses of the technology within clinical dentistry. Topics describe the use of PRF in many dental applications, including extraction socket management, sinus lifting procedures, root coverage, periodontal regeneration, soft tissue healing around implants, guided bone regeneration, and facial esthetics. The text is supplemented with color photographs and explanatory illustrations throughout. Platelet Rich Fibrin in Regenerative Dentistry: Biological Background and Clinical Indications is an indispensable professional resource for periodontists, oral surgeons and oral and maxillofacial surgeons, as well as general dentists who use PRF or are interested in introducing it into their practices. It is also an excellent resource for undergraduate and postgraduate dental students.

Written in a succinct format, this book presents a variety of pain conditions seen in acute or sub-acute rehabilitation hospitals and in outpatient clinical settings. Bio-medical and bio-psychosocial perspectives, as well as theory, clinical practice, and practical aspects of managing pain are offered throughout this volume. Chapters are organized by sections, beginning with an introduction to pain as well use of the multi-disciplinary treatment approach. Additional sections cover headache management, pain diagnostics, medication management, rehabilitation, injections and procedures, behavioral management, complementary and alternative medicine, neuromodulation, neuroablative, surgery management of pain, and novel techniques. Business and legal perspectives of pain medicine are also addressed. Comprehensive Pain Management in the Rehabilitation Patient is a handy resource for any medical, interventional, surgical, rehabilitative, behavioral, or allied health provider who treats pain across the rehabilitation continuum.

The field of interventional orthopedics is changing the landscape of orthopedic care as patients seek less invasive options for the treatment of common conditions like arthritis, rotator cuff tears, and degenerative disc disease. Offering easy-to-follow, step-by-step guidance on both peripheral joint and spinal procedures, Atlas of Interventional Orthopedics Procedures is the first reference to provide this practical content in one authoritative, user-friendly text. Abundantly illustrated and easy to read, it presents simple to advanced injection skills covering all orthopedic and physical medicine procedures using up-to-date imaging techniques. Presents foundational knowledge for interventional orthopedics as well as ultrasound and x-ray guided techniques for both peripheral joint and spinal procedures. Features nearly 1,000 high-quality images including fluoroscopy, MRIs, procedural images, and unique anatomical illustrations drawn by a physical medicine and rehabilitation physician. Covers need-to-know topics such as autologous orthobiologics, allogenic tissue grafts, prolotherapy, and principles of fluoroscopy and ultrasound injection techniques. Offers several ultrasound and fluoroscopy images for each procedure, as well as step-by-step descriptions and the authors’ preferred technique. Walks you through general injection techniques such as interventional spine procedures, peripheral joint injections, and spinal and peripheral ligament, tendon, and nerve techniques; advanced techniques include intrasosseous injections, needle arthroscopy, perineural hydrodissection, and emerging interventional techniques. Provides an up-to-date review on regenerative medicine for musculoskeletal pathology from editors and authors who are leading physicians in the field. Follows the core tenets of interventional orthopedics, including injectates that can facilitate healing of musculoskeletal tissues, precise placement of those injectates into damaged structures using imaging guidance, and the eventual development of new tools to facilitate percutaneous tissue manipulation.

Over the past decade, significant efforts have been made to develop stem cell-based therapies for difficult to treat diseases. Multipotent mesenchymal stromal cells, also referred to as mesenchymal stem cells (MSCs), appear to hold great promise in regards to a regenerative cell-based therapy for the treatment of these diseases. Currently, more than 200 clinical trials are underway worldwide exploring the use of MSCs for the treatment of a wide range of disorders including bone, cartilage, and tendon damage, myocardial infarction, graft-versus-host disease, Crohn’s disease, diabetes, multiple sclerosis, critical limb ischemia and many others. MSCs were first identified by Friedenstein and colleagues as an adherent stromal cell population within the bone marrow with the ability to form clonogenic colonies in vitro. In regards to the basic biology associated with MSCs, there has been tremendous progress towards understanding this cell population’s phenotype and function from a range of tissue sources. Despite enormous progress and an overall increased understanding of MSCs at the molecular and cellular level, several critical questions remain to be answered in regards to the use of these cells in therapeutic applications. Clinically, both autologous and allogenic approaches for the transplantation of MSCs are being explored. Several of the processing steps needed for the clinical application of MSCs, including isolation from various tissues, scalable in vitro expansion, cell banking, dose preparation, quality control parameters, delivery methods and numerous others are being extensively studied. Despite a significant number of ongoing clinical trials, none of the current therapeutic approaches have, at this point, become a standard of care treatment. Although exceptionally promising, the clinical translation of MSC-based therapies is still a work in progress. The extensive number of ongoing clinical trials is expected to provide a clearer path forward for the realization and implementation of MSCs in regenerative medicine. Towards this end, reviews of current clinical trial results and discussions of relevant topics association with the clinical application of MSCs are compiled in this book from some of the leading researchers in this exciting and rapidly advancing field. Although not absolutely all-inclusive, we hope the chapters within this book can promote and enable a better understanding of the translation of MSCs from bench-to-bedside and inspire researchers to further explore this promising and quickly evolving field.

Comprehensive Therapeutic Programs for Musculoskeletal Disorders is focused on the effective use of comprehensive therapeutic programs for the treatment of common musculoskeletal disorders encountered by physicians.

Translating Regenerative Medicine to the Clinic reviews the current methodological tools and experimental approaches used by leading translational researchers, discussing the uses of regenerative medicine for different disease treatment areas, including cardiovascular disease, muscle regeneration, and regeneration of the bone and skin. Pedagogically, the book concentrates on the latest knowledge, laboratory techniques, and experimental approaches used by translational research leaders in this field. It promotes cross-disciplinary communication between the sub-specialties of medicine, but remains unified in theme by emphasizing recent innovations, critical barriers to progress, the new tools that are being used to overcome them, and specific areas of research that require additional study to advance understanding of MSCs at the molecular and cellular level. Volume 1 of this series includes Translating Gene Therapy to the Clinic, Translating Regenerative Medicine to the Clinic, Translating MicroRNAs to the Clinic, Translating Biomarkers to the Clinic, and Translating Epigenetics to the Clinic. Encompasses the latest innovations and tools being used to develop regenerative medicine in the lab and clinic Covers the latest knowledge, laboratory techniques, and experimental approaches used by translational research
leaders in this field. Contains extensive pedagogical updates aiming to improve the education of translational researchers in this field. Provides a transdisciplinary approach that supports cross-fertilization between different sub-specialties of medicine.

This Special Issue on “Blood-Derived Products for Tissue Repair and Regeneration” reveals the evolution and diversity of platelet-rich plasma (PRP) technologies, which includes experimental research on novel formulations, the creation of combination therapies, and the exploration of potential modifiers of PRPs, as well as efficacy of PRP therapies in clinical veterinary and human applications. Scientists and clinicians are now starting to develop different treatments based on their reinterpretation of the traditional roles of platelets and plasma, and the current issue has provided a forum for sharing research and ways of understanding the associated medicinal benefits from different points of view. The research interest in this area has covered different medical disciplines, such as ophthalmology, dentistry, orthopedics, and sports medicine.

This second edition of the popular book Evidence-based Sports Medicine builds on the features that made the first edition such a valuable text and provides a completely up-to-date tool for sports medicine physicians, family practitioners and orthopedic surgeons. Updated to take into account new evidence from systematic reviews and controlled trials, Evidence-based Sports Medicine is a unique reference book on the optimum management of sports-related conditions. This second edition: contains sections on acute, chronic conditions, and injuries to the upper limb, groin and knee and to the lower leg pays increased attention to the important and emerging area of injury prevention features thoroughly revised methodology sections within each chapter, reflecting changes in technique and application MCQs and essay questions that allow readers to continually assess their knowledge and understanding of the topics covered.

This is the first book to offer a comprehensive yet concise overview of the challenges and opportunities presented by the use of big data in healthcare. The respective chapters address a range of aspects: from health management to patient safety; from the human factor perspective to ethical and economic considerations, and many more. By providing a historical background on the use of big data, and critically analyzing current approaches together with issues and challenges related to their applications, the book not only sheds light on the problems entailed by big data, but also paves the way for possible solutions and future research directions. Accordingly, it offers an insightful reference guide for health information technology professionals, healthcare managers, healthcare practitioners, and patients alike, aiding them in their decision-making processes; and for students and researchers whose work involves data science-related research issues in healthcare.

During the past decade, a wide range of scientific disciplines have adopted the use of adipose-derived stem/stromal cells (ASCs) as an important tool for research and discovery. In Adipose-Derived Stem Cells: Methods and Protocols, experts from the field, including members of the esteemed International Federation of Adipose Tissue Therapeutics and Science (IFATS), provide defined and established protocols in order to further codify the utilization of these powerful and accessible cells. With chapters organized around approaches spanning the discovery, pre-clinical, and clinical processes, much of the emphasis is placed on human ASC, while additional techniques involving small and large animal species are included. As a volume in the highly successful Methods in Molecular Biology/CTM series, the detailed contributions include introductions to their respective topics, lists of the necessary materials and reagents, step-by-step, readily reproducible laboratory protocols, and notes on troubleshooting and avoiding known pitfalls.

Comprehensive and cutting-edge, Adipose-Derived Stem Cells: Methods and Protocols serves as a vital reference text for experienced researchers as well as new students on the path to further exploring the incredible potential of ASCs.

This book gives a comprehensive insight into platelet biogenesis, platelet signal transduction, involvement of platelets in disease, the use of diverse animal models for platelet research and future perspectives in regard to platelet production and gene therapy. Being written by international experts, the book is a concise state-of-the-art work in the field of platelet biogenesis, biology and research. It represents an indispensable tool for research scientists in biomedicine, vascular biology, hematology, hemostasis and specifically for scientists in platelet research, as well as for clinicians in the field of hematology and transfusion medicine.

Practical and authoritative, this new edition delivers easy access to the latest advances in the diagnosis and management of musculoskeletal disorders and other common conditions requiring rehabilitation. Each topic is presented in a concise, focused, and well-illustrated two-color format featuring a description of the condition, discussion of symptoms, examination findings, functional limitations, and diagnostic testing. The treatment section is extensive and covers initial therapies, rehabilitation interventions, procedures, and surgery. From sore shoulders in cancer patients to spinal cord injuries, Essentials of Physical Medicine and Rehabilitation, 2nd Edition provides you with the knowledge you need to face every challenge you confront. Offers practical, clinically relevant material for the diagnosis and treatment of musculoskeletal conditions. Discusses physical agents and therapeutic exercise in the prevention, diagnosis, treatment and rehabilitation of disorders that produce pain, impairment, and disability. Presents a consistent chapter organization that delivers all the content you need in a logical, practical manner. Presents a new co-editor, Thomas D. Rizzo, Jr., MD, and a pool of talented contributors who bring you fresh approaches to physical medicine and rehabilitation. Offers current evidence and expert guidance to help you make more accurate diagnoses and chose the best treatment option for each patient. Features an entirely new section on pain management so you can help your patients reach their full recovery potential. Incorporates redrawn artwork that makes every concept and technique easier to grasp. Includes updated ICD-9 codes giving you complete information for each disorder.

This book offers a truly comprehensive overview of the understanding and treatment of massive and irreparable rotator cuff tears, a painful and disabling shoulder condition that continues to pose major challenges. A thorough examination of basic science issues and evidence lays the foundation for discussion of key controversies in the field and exposition of a practical approach to treatment in which the role of both conservative and surgical management is explained. Special insights are provided into the new biological and nonoperative approaches that are becoming increasingly popular among practitioners. All potential surgical techniques are described, from partial repair and tendon transfer, to the use of dedicated implants. In addition, the value of anesthesia and regional blocks, both during surgery and in the postoperative phase, is discussed. The concluding section addresses particularly complex scenarios and offers guidance on the management of treatment complications and failures. Written by leading international shoulder experts, the book will be of value for shoulder surgeons, rehabilitating, and other health care practitioners.
This unique resource presents current issues in sports and exercise medicine which outlines new areas of knowledge and provides updates on current knowledge in the broad field of sports and exercise medicine. Written by experts in their own sub-disciplines, Current Issues in Sports and Exercise Medicine discusses the physiology behind sports injuries and presents new and exciting approaches to manage such injuries. In addition, the book explores the relationship between exercise, health and performance by providing new information in areas such as exercise and immunity, the use of iron supplementation for performance, how exercise affects reactive oxygen species, and the proposed benefits of real and simulated altitude training. This book is well referenced and illustrated and will be a valuable resource for sports medicine specialists, physiologists, coaches, physical conditioners, physiotherapists and graduate and medical school students.

This book provides a detailed update on our knowledge of dental pulp and regenerative approaches to therapy. It is divided into three parts. The pulp components are first described, covering pulp cells, extracellular matrix, vascularization and innervation as well as pulp development and aging. The second part is devoted to pulp pathology and includes descriptions of the differences between reactionary and reparative dentin, the genetic alterations leading to dentinogenesis imperfecta and dentin dysplasia, the pulp reaction to dental materials, adverse impacts of bisphenol A and the effects of fluorosis, dioxin and other toxic agents. The final part of the book focuses on pulp repair and regeneration. It includes descriptions of various in vitro and in vivo (animal) experimental approaches, definition of the pulp stem cells with special focus on the stem cell niches, discussion of the regeneration of a living pulp and information on new strategies that induce pulp mineralization.

The field of regenerative medicine has developed rapidly over the past 20 years with the advent of molecular and cellular techniques. This textbook, Regenerative Medicine: From Protocol to Patient, aims to explain the scientific knowledge and emerging technology as well as the clinical application in different organ systems and diseases. International leading experts from four continents describe the latest scientific and clinical knowledge of the field of regenerative medicine. The process of translating science of laboratory protocols into therapies is explained in sections on regulatory, ethical and industrial issues. This textbook is organized into five parts: (I) Biology of Tissue Regeneration, (II) Stem Cell Science and Technology, (III) Tissue Engineering, Biomaterials and Nanotechnology, (IV) Regenerative Therapies and (V) Regulation and Ethics. The textbook aims to give the student, the researcher, the health care professional, the physician and the patient a complete survey on the current scientific basis, therapeutical protocols, clinical translation and practiced therapies in regenerative medicine.

This comprehensive book grants readers exclusive insight into current advancements in the field of osteoarthritis (OA). Contributions from leading scientists and clinicians provide a detailed introduction into current understanding of the pathogenesis of OA, different joint structures affected by this debilitating disease (hip, knee, elbow, shoulder, foot, ankle, hand, wrist, and spine), current knowledge and practice in imaging, joint conservative strategies, OA biomarkers as well as currently available treatments, their safety profile and future therapeutic targets. This book further discusses the potential of regenerative therapies and recent advances in OA Personalized Medicine, and how collection of OA patient’s phenotypic, genetic and proteomic data is able to direct treatment strategies through Bio-Informatics.

This book is a concise guide that provides an easy to follow template for other physicians to develop similar stem cell based treatments within their specialty. It identifies and summarizes the current world-wide orthopedic stem cell trials. Organized into three sections, Orthopedic Stem Cell Surgery presents clinical studies that examine the procedures for setting up and implementing stem cell surgery within the specialty of orthopedics. Chapters maintain an accessible narrative while also addressing complex studies related to orthopedic stem cell surgery. A sister text to the recently published, Retinal and Optic Nerve Stem Cell Surgery, and Neurologic Stem Cell Surgery this expertly written book examines critical Institutional Review Board (IRB) approved studies.