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## KEY= THERAPIES - COLLIER KERR

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### THE DENTAL PULP

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#### BIOLOGY, PATHOLOGY, AND REGENERATIVE THERAPIES

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**Springer** 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.

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#### DENTAL AND PERIODONTAL TISSUES FORMATION AND REGENERATION: CURRENT APPROACHES AND FUTURE CHALLENGES

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**Frontiers Media SA** Sequential and reciprocal interactions between oral epithelial and cranial neural crest-derived mesenchymal cells give rise to the teeth and periodontium. Teeth are vital organs containing a rich number of blood vessels and nerve fibers within the dental pulp and periodontium. Teeth are composed by unique and specific collagenous (dentin, fibrillar cementum) and non-collagenous (enamel) highly mineralized extracellular matrices. Alveolar bone is another collagenous hard tissue that supports tooth stability and function through its close interaction with the periodontal ligament. Dental hard tissues are often damaged after infection or traumatic injuries that lead to the partial or complete destruction of the functional dental and supportive tissues. Well-established protocols are routinely used in dental clinics for the restoration or replacement of the damaged tooth and alveolar bone areas. Recent progress in the fields of cell biology, tissue engineering, and nanotechnology offers promising opportunities to repair damaged or missing dental tissues. Indeed, pulp and periodontal tissue regeneration is progressing rapidly with the application of stem cells, biodegradable scaffolds, and growth factors. Furthermore, methods that enable partial dental hard tissue repair and regeneration are being evaluated with variable degrees of success. However, these cell-based therapies are still incipient and many issues need to be addressed before any clinical application. The understanding of tooth and periodontal tissues formation would be beneficial for improving regenerative attempts in dental clinics. In the present e-book we have covered the various aspects dealing with dental and periodontal tissues physiology and regeneration in 6 chapters: 1. General principles on the use of stem cells for regenerating craniofacial and dental tissues 2. The roles of nerves, vessels and stem cell niches in tissue regeneration 3. Dental pulp regeneration and mechanisms of various odontoblast functions 4. Dental root and periodontal physiology, pathology and regeneration 5. Physiology and regeneration of the bone using various scaffolds and stem cell populations 6. Physiology, pathology and regeneration of enamel using dental epithelial stem cells

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#### UNDERSTANDING DENTAL CARIES

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##### FROM PATHOGENESIS TO PREVENTION AND THERAPY

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**Springer** This book thoroughly explains the biological background of dental caries and the formation of carious lesions, providing the reader with a sound basis for understanding the role and effectiveness of different therapeutic and preventive measures. Detailed information is presented on pathogenesis, ultrastructure, and diagnosis. All aspects of the carious process are covered, including development of the initial carious lesion limited to the enamel, evolution of the enamel carious lesion toward a dentin carious lesion, superficial and deep dentin lesions, and cervical erosions. Strategies for prevention and dental tissue regeneration are elaborated and both conventional therapies and minimally invasive and non-invasive treatment approaches are discussed. A separate section is devoted to dental fluorosis and the use of fluoridation and remineralisation agents. This scientifically focused and clinically relevant book, written by acknowledged experts in the field, will appeal to dentists seeking to extend their knowledge as well as to researchers, dental students, and other dental professionals.

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#### STEM CELL BIOLOGY AND TISSUE ENGINEERING IN DENTAL SCIENCES

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**Academic Press** Stem Cell Biology and Tissue Engineering in Dental Sciences bridges the gap left by many tissue engineering and stem cell biology titles to highlight the significance of translational research in this field in the medical sciences. It compiles basic developmental biology with keen focus on cell and matrix biology, stem cells with relevance to tissue engineering biomaterials including nanotechnology and current applications in various disciplines of dental sciences; viz., periodontology, endodontics, oral & craniofacial surgery, dental implantology, orthodontics & dentofacial orthopedics, organ engineering and transplant medicine. In addition, it covers research ethics, laws and industrial pitfalls that are of particular importance for the future production of tissue constructs. Tissue Engineering is an interdisciplinary field of biomedical research, which combines life, engineering and materials sciences, to progress the maintenance, repair and replacement of diseased and damaged tissues. This ever-emerging area of research applies an understanding of normal tissue physiology to develop novel biomaterial, acellular and cell-based technologies for clinical and non-clinical applications. As evident in numerous medical disciplines, tissue engineering strategies are now being increasingly developed and evaluated as potential routine therapies for oral and craniofacial tissue repair and regeneration. Diligently covers all the aspects related to stem cell biology and tissue engineering in dental sciences: basic science, research, clinical application and commercialization Provides detailed descriptions of new, modern technologies, fabrication techniques employed in the fields of stem cells, biomaterials and tissue engineering research including details of latest advances in nanotechnology Includes a description of stem cell biology with details focused on oral and craniofacial stem cells and their potential research application throughout medicine Print book is available and black and white, and the ebook is in full color

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#### DENTAL STEM CELLS: REGENERATIVE POTENTIAL

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**Humana Press** This book focuses on the basic aspects of dental stem cells (DSCs) as well as their clinical applications in tissue engineering and regenerative medicine. It opens with a discussion of classification, protocols, and properties of DSCs and proceeds to explore DSCs within the contexts of cryopreservation; epigenetics; pulp, periodontal, tooth, bone, and corneal stroma regeneration; neuronal properties, mesenchymal stem cells and biomaterials; and as sources of hepatocytes for liver disease treatment. The fifteen expertly authored chapters comprehensively examine possible applications of DSCs and provide invaluable insights into mechanisms of growth and differentiation. Dental Stem Cells: Regenerative Potential draws from a wealth of international perspectives and is an essential addition to the developing literature on dental stem cells. This installment of Springer's Stem Cell Biology and Regenerative Medicine series is indispensable for biomedical researchers interested in bioengineering, dentistry, tissue engineering, regenerative medicine, cell biology and oncology.

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#### REGENERATIVE APPROACHES IN DENTISTRY

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##### AN EVIDENCE-BASED PERSPECTIVE

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**Springer Nature** This book provides evidence-based information in the field of regenerative dentistry discussing the most recent advances, current clinical applications, limitations and future directions. The coverage encompasses the regeneration of alveolar bone, the dentine-pulp complex, enamel, the periodontium and other tissues associated with the oral cavity. A full description is provided of regenerative approaches in dentistry including regenerative endodontics and tooth repair, regenerative periodontics, regenerative assisted orthodontics, regenerative approaches in oral medicine, and dental tissue derived stem cells and their potential applications. The book is written by an international team of leading experts. It will be beneficial for students, practitioners and researchers in the fields of endodontics, periodontics and implantology.

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#### ENGINEERING MATERIALS FOR STEM CELL REGENERATION

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**Springer Nature** This book reviews the interface of stem cell biology and biomaterials for regenerative medicine. It presents the applications of biomaterials to support stem cell growth and regeneration. The book discusses the stem cell interactions' with nanofiber, gradient biomaterial, polymer- and ceramic biomaterials, integrating top-down and bottom-up approaches, adhesive properties of stem cells on materials, cell-laden hydrogels, micro- and nanospheres, de-cellularization techniques, and use of porous scaffolds. Further, this book provides a basic introduction to the fabrication techniques for creating various biomaterials that can be used for stem cell differentiation. It also elucidates the properties of stem cells, their characteristic features, tissue culture technology, properties of pluripotency, osteogenesis, and biomaterial interaction with de-cellularized organs, cell lineage in vivo and in vitro, gene expression, embryonic development, and cell differentiation. Further, the book reviews the latest applications of bio-instructive scaffold for supporting stem cell differentiation and tissue regeneration. The book also presents stem cell for dental, alveolar bone and cardiac regeneration. Lastly, it introduces engineered stem cells for delivering small molecule therapeutics and their potential biomedical applications.

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#### CLINICAL APPROACHES IN ENDODONTIC REGENERATION

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##### CURRENT AND EMERGING THERAPEUTIC PERSPECTIVES

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**Springer** This richly illustrated book combines explanation of the scientific base underpinning vital pulp treatment with description of current and emerging trends in clinical practice. It guides the reader through modern views on pulp diagnostics, deep caries, and pulp exposure management, leading to an analysis of the biological aspects of regenerative techniques such as angiogenesis, neurogenesis, inflammation, and epigenetics. In the later chapters, practical considerations relating to bioengineering, biomaterial choice, revitalization, and stem cell-based procedures are discussed and their likely therapeutic impact considered. Aimed at dental students, postgraduates, and research-minded dental practitioners, this translational book summarizes state-of-the-art scientific knowledge on dentin-pulp

interactions and regenerative endodontics, while highlighting the opportunities to incorporate recent developments into everyday practice. Readers will also find extensive discussion of potential future developments and research avenues relating to each aspect of this exciting and rapidly developing field.

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## ESSENTIAL ENDODONTOLOGY

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### PREVENTION AND TREATMENT OF APICAL PERIODONTITIS

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**John Wiley & Sons** The authoritative reference that continues to present a systematic analysis of the scientific basis of endodontology The third edition of *Essential Endodontology: Prevention and Treatment of Apical Periodontitis* has been revised and updated to include the most recent developments in the field, maintaining its position as the major scientific treatise of apical periodontitis. Making an often-complex subject more digestible, the book explores the scientific basis of endodontology, adopting a systematic analysis of the available clinical and laboratory evidence. Promoting apical periodontitis as a disease entity, the comprehensive third edition focuses on its biology and clinical features, enabling the reader to have a better understanding of its diagnosis, prevention and treatment. In addition to thorough updates and full colour illustrations throughout, a new chapter on regenerative endodontics has been added to this edition. Written with a focus on the scientific basis of endodontology Includes a new chapter on regenerative endodontics Presents the most current information and major developments in this fast-moving field Provides helpful learning outcomes in each chapter Contains full colour illustrations, enriching the text Features contributions from a noted panel of international experts, including new contributors from across the globe Regarded as a vital companion to the pursuit of excellence in postgraduate and specialist education, *Essential Endodontology* is an indispensable and accessible resource for practicing endodontists, postgraduate students of endodontology and those seeking professional certification in endodontology.

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### REGENERATIVE DENTISTRY

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**Morgan & Claypool Publishers** Dental caries, periodontitis, tooth loss, and bone resorption are considered prevalent health problems that have direct affect on the quality of life. While, advances in stem cell biology and biotechnology have sparked hope for devastating maladies, such as diabetes, cardiovascular diseases, etc., it also provides a strategy of regenerative therapy for dental tissues. From the prospective of tissue engineering, it is of utmost importance to understand and emulate the complex cell interactions that make up a tissue or organ. Unlike other tissues in the body, dental tissues are unique in their development, function, and even in their maintenance throughout life. The harmonized stimulations of biology and mechanical regulators to promote cellular activities have matured our understanding of the value of regenerative therapy of dental tissue versus the reparative treatment. In this book, we review the current knowledge available to regenerate alveolar bone, periodontal structure, and pulp/dentin complex. The book provides researchers with detailed information about development and functional characteristics of the dental unit with detailed protocols covering a comprehensive range of various approaches to engineer dental tissues: to use isolated cells or cell substitutes as cellular replacement, to use acellular biomaterials capable of inducing tissue regeneration, and/or to use a combination of cells, biomaterial and growth factors. We are well aware, with the concept changes in the field toward in-vitro biomimetics of in-vivo tissue development. The theoretical frame work integrating these concepts of developmental biology and developmental engineering is yet to be emphasized and implemented. Until this happens, we consider this book of regenerative dentistry as a call for scientists to achieve, researchers to innovate, practitioners to apply, and students to learn the art and science of regenerative therapy in dentistry. Table of Contents: Introduction to Regenerative Dentistry / Tissue Engineering Alveolar Bone / Tissue Engineering of the Periodontal Tissues / Dynamics for Pulp-Dentin Tissue Engineering in Operative Dentistry

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### TEXTBOOK OF ENDODONTOLOGY

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**John Wiley & Sons** The third edition of *Textbook of Endodontology* provides lucid scholarship and clear discussion of endodontic principles and treatment to dental students and dental practitioners searching for current information on endodontic theories and techniques. Completely revised and updated new edition Features six new chapters Provides pedagogical features to promote understanding Includes clinical case studies to put the information in the clinical context Illustrated in full color throughout with clinical images and detailed diagrams Offers interactive multiple-choice questions on a companion website

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### HARTY'S ENDODONTICS IN CLINICAL PRACTICE E-BOOK

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**Elsevier Health Sciences** This book is a guide to proven, current clinical endodontic practice. It is designed, primarily, with the undergraduate readership in mind but is also suitable for anyone pursuing specialist training, including extended skills in endodontics, and general dental practitioners undertaking CPD, or wishing to keep up-to-date. The seventh edition is available with an online question bank containing MCQs and Clinical Cases. Practical approach to the subject, taking the reader through every step of endodontic practice from its scientific basis to patient assessment and through to clinical techniques Helpful pedagogic features – including Learning Outcomes and Summary Boxes – help reinforce learning International experts and contributors help ensure good coverage and currency of information Explores areas of debate when they exist to reflect differing approaches to treatment intervention Explains the potential impact of systemic conditions and disorders, as well as medications, on endodontic treatment planning and management Discusses the diagnosis of orofacial pain and the appropriate use of antibiotics and analgesics Explores the maintenance of pulp vitality and the prevention of apical periodontitis in the context of operative dentistry Provides an overview of instruments and devices used during endodontic treatment Describes the fundamental principles of canal filling using gutta-percha, as well as the use of alternative materials, and newer root filling techniques Discusses the management of dental trauma with emphasis on accurate diagnosis, timely and appropriate treatment, and follow-up Explores the interface between endodontic-periodontal disease in the context of diagnosis, treatment and prognostic assessment Discusses common challenges such as inadequate pain control and problems with preparation and filling of the root canal system Written at a level which is ideal for dental students, general dental practitioners and those pursuing specialist training or seeking to keep up-to-date Comes with access to an online question bank containing a wide range of MCQs and Clinical Cases to help reinforce learning! Richly illustrated with over 80 colour artworks – many created by the Gray's Anatomy illustration team – and 350 photographs, many of which are previously unpublished Explores advances in our understanding of the role of microorganisms in the pathogenesis of pulpal and periradicular diseases and the role of host defence response against root canal infection Explores the use of newer imaging techniques such as three-dimensional tomography in determining pulp space anatomy and in treatment planning Explains recent advances in material technology, molecular biology and regenerative medicine in the management of deep caries and maintenance of pulp vitality Explores the effective use of existing and newer chemomechanical preparation techniques and intracanal medication for thorough root canal system decontamination Explores advances in the techniques available for restoring endodontically treated teeth

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### NOVEL PERSPECTIVES OF STEM CELL MANUFACTURING AND THERAPIES

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**BoD - Books on Demand** In the 1950s, Nobel Prize winner Dr. E. Donnall Thomas was the first to successfully transplant hematopoietic stem cells. Since then, studies on stem cells have evolved and expanded worldwide. There are more than 650,000 scientific publications on stem cells and more than 8000 stem cell clinical trials. This book summarizes types of stem cells, key studies, ongoing trials, and future perspectives. It also includes ethical, formal, and legal aspects to give the reader a comprehensive view of the field.

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### FLOW AND HEAT OR MASS TRANSFER IN THE CHEMICAL PROCESS INDUSTRY

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**MDPI** This book is a printed edition of the Special Issue "Flow and Heat or Mass Transfer in the Chemical Process Industry" that was published in *Fluids*

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### EXTRACELLULAR MATRIX DYNAMICS IN BIOLOGY, BIOENGINEERING, AND PATHOLOGY

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**Frontiers Media SA**

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### CARIES EXCAVATION: EVOLUTION OF TREATING CAVITATED CARIOUS LESIONS

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**Karger Medical and Scientific Publishers** Currently there is no reason, in most cases of cavitated caries lesions, to remove affected tissue. This book presents evidence-based research on the topic and provides assessments of diagnostic devices. It offers new insights into how a dentine carious cavity can be managed by either tissue removal or restoration. Methods for preserving dental tissue are presented and ample evidence highlights the need to seal with a quality restorative material. An update on how to conduct a randomized clinical trial is followed by a chapter on agreed upon terminology for supporting improved communication among oral health professionals around the world. This is a must-read for general practitioners, restorative specialists, dental students, and oral hygienists/therapists.

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### DENTAL PULP STEM CELLS

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**Springer Science & Business Media** Stem cell technology is moving forward at a tremendous rate. Recent discoveries have surprised even the most expert researchers. While every piece of new data broadens the current knowledge and contributes to this moving forward, the new data also serve as paradigm shifters of fundamental knowledge of cell biology. While the question 'What is a Stem Cell' may now seem to basic to even discuss, there are still some discrepancies, however, between groups in terms of their functional roles. Teeth develop from the ectoderm of the first branchial arch and the ectomesenchyme of the neural crest. Deciduous teeth start to form between the sixth and eighth weeks, and permanent teeth begin to form in the twentieth weeks. Several studies have demonstrated that the pulp from both adult teeth and deciduous teeth contains dental pulp stem cells. Several factors have made them very attractive as a model system for many researchers; they are multipotent, ethically and non-controversially available in large numbers, immuno-compatible, developmentally primitive, easy to isolate and have high expansion potential in vitro. However, many controversies still exist in the field. There are several unanswered questions in the biology of dental pulp and odontoblasts. This new volume in the SpringerBriefs in Stem Cells series presents an evaluation of stem cells from human dental pulp as a reliable stem cell source for cell-based therapy to stimulate tissue regeneration.

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### HARTY'S ENDODONTICS IN CLINICAL PRACTICE

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**Elsevier Health Sciences** This is a new edition of the now classic book which has established itself as a standard text for dental students. Practical approach to the subject, taking the reader through every step of endodontic practice from scientific basis to patient assessment and through to clinical techniques Evidence-based approach to ensure safe clinical practice More than 250 illustrations, many in full colour, presenting clinical, diagnostic and practical information in an easy-to-follow manner A logical approach to the subject by building upon a clear explanation of the underlying scientific principles Prepared by international contributors to ensure a wider appeal Written at a level which is ideal for dental student, general and vocational dental practitioners Includes new imaging techniques such as Cone Beam Computed Tomography A new chapter on diagnosis, integral to treatment planning, patient management and care Recent research findings on the pathogenesis of endodontic disease and the management of persistent infection in previously treated teeth A completely rewritten chapter on the restoration of endodontically treated teeth Newer treatment modalities and materials such as regenerative techniques and Mineral Trioxide Aggregate in endodontics The use and development of NiTi instruments, both hand and rotary, which are increasingly popular for preparing root canals Published for the first time in full colour with over 185 new images!

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## REGENERATIVE ENDODONTICS, AN ISSUE OF DENTAL CLINICS - E-BOOK

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**Elsevier Health Sciences** Regenerative endodontics is the generation and replacement of diseased, damaged or absent pulp. This issue of Dental Clinics of North America provides a clinical view of regenerative endodontics and its aims, methods and techniques.

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## PRINCIPLES OF REGENERATIVE MEDICINE

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**Academic Press** Virtually any disease that results from malfunctioning, damaged, or failing tissues may be potentially cured through regenerative medicine therapies, by either regenerating the damaged tissues in vivo, or by growing the tissues and organs in vitro and implanting them into the patient. Principles of Regenerative Medicine discusses the latest advances in technology and medicine for replacing tissues and organs damaged by disease and of developing therapies for previously untreatable conditions, such as diabetes, heart disease, liver disease, and renal failure. Key for all researchers and institutions in Stem Cell Biology, Bioengineering, and Developmental Biology The first of its kind to offer an advanced understanding of the latest technologies in regenerative medicine New discoveries from leading researchers on restoration of diseased tissues and organs

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## PERIODONTOLOGY AND DENTAL IMPLANTOLOGY

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**BoD - Books on Demand** Periodontology explores the molecular status in periodontal disease. Optical devices in the diagnosis and management of the disease are also discussed. The book addresses the role of the oral healthcare provider in interprofessional communication in the systemic management of autoimmune bullous disease-associated conditions. A study involving chemically modified tetracyclines and host modulation with nonsurgical and surgical periodontal therapy, including postoperative pain management, is presented here. Therapeutic strategies of stem cell application in bone tissue engineering and the potential of platelet-rich fibrin-sourced growth factors in periodontal procedures to enhance wound healing and regeneration are also proposed. Supportive implant maintenance and regenerative processes are explored. Management of the endoperiodontal lesion is also discussed (note: the recent periodontal classification has not been referenced here). The book explores the best transdisciplinary practices for the management of special healthcare needs patients.

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## PRINCIPLES OF REGENERATIVE MEDICINE

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**Academic Press** Principles of Regenerative Medicine, Third Edition, details the technologies and advances applied in recent years to strategies for healing and generating tissue. Contributions from a stellar cast of researchers cover the biological and molecular basis of regenerative medicine, highlighting stem cells, wound healing and cell and tissue development. Advances in cell and tissue therapy, including replacement of tissues and organs damaged by disease and previously untreatable conditions, such as diabetes, heart disease, liver disease and renal failure are also incorporated to provide a view to the future and framework for additional studies. Comprehensively covers the interdisciplinary field of regenerative medicine with contributions from leaders in tissue engineering, cell and developmental biology, biomaterials sciences, nanotechnology, physics, chemistry, bioengineering and surgery Includes new chapters devoted to iPS cells and other alternative sources for generating stem cells as written by the scientists who made the breakthroughs Edited by a world-renowned team to present a complete story of the development and promise of regenerative medicine

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## COHEN'S PATHWAYS OF THE PULP EXPERT CONSULT - E-BOOK

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**Elsevier Health Sciences** The definitive endodontics reference, Cohen's Pathways of the Pulp is known for its comprehensive coverage of leading-edge information, materials, and techniques. It examines all aspects of endodontic care, from preparing the clinician and patient for endodontic treatment to the role the endodontist can play in the treatment of traumatic injuries and to the procedures used in the treatment of pediatric and older patients. Not only does Hargreaves and Cohen's 10th edition add five chapters on hot new topics, it also includes online access! As an Expert Consult title, Cohen's Pathways of the Pulp lets you search the entire contents of the book on your computer, and includes five online chapters not available in the printed text, plus videos, a searchable image collection, and more. For evidence-based endodontics research and treatment, this is your one-stop resource!

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## PLATELET RICH FIBRIN IN REGENERATIVE DENTISTRY

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### BIOLOGICAL BACKGROUND AND CLINICAL INDICATIONS

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**John Wiley & Sons** 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 reference for undergraduate and postgraduate dental students.

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## DENTIN/PULP COMPLEX

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### PROCEEDINGS OF THE INTERNATIONAL CONFERENCE ON DENTIN/PULP COMPLEX 2001

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Quintessence Publishing Company

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### MANAGEMENT OF DEEP CARIOUS LESIONS

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**Springer** This book describes the challenges that deep carious lesions pose for dental practitioners, including the risk of endodontic complications and the difficulty of restorative treatment, and identifies options for overcoming these challenges on the basis of the best available evidence. The opening chapter sets the scene by discussing pathophysiology, histopathology, clinical symptomatology, and treatment thresholds. The various treatment options are then systematically presented and reviewed, covering non-selective, stepwise, and selective carious tissue removal and restoration, sealing of lesions using resin sealants or crowns, and non-restorative management approaches. In each case the current evidence with respect to the treatment is carefully evaluated. Advantages and disadvantages are explained and recommendations made on when to use the treatment in question. Illustrative clinical cases and treatment pathways for clinicians are included. This book will be of value for all practitioners who treat dental caries and carious lesions, whether in the permanent or the primary dentition. It will also be of interest to under- and postgraduate students in cariology and restorative, operative, preventive, and pediatric dentistry.

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## COHEN'S PATHWAYS OF THE PULP EXPERT CONSULT

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**Elsevier Health Sciences** Find the latest evidence-based research and clinical treatments! Cohen's Pathways of the Pulp, 11th Edition covers the science, theory, and practice of endodontics with chapters written by internationally renowned experts. Full-color illustrations and detailed radiographs guide you through each step of endodontic care - from diagnosis and treatment planning to proven techniques for managing pulpal and periapical diseases. New to the print edition are seven new chapters, and the eBook version adds three more. As an Expert Consult title, Cohen's Pathways of the Pulp lets you search the entire contents of the book on your desktop or mobile device, and includes videos, case studies, and more. Edited by noted specialists Kenneth Hargreaves and Louis Berman, this book is the definitive resource in endodontics! Print version of the text includes 27 comprehensive chapters and meets the CODA requirements for endodontic dental education. eBook version of the text consists of 30 searchable chapters, including the 27 chapters in the print version, and features videos, PowerPoint® slides, review questions, case studies, and more; this expanded version makes it easy to find clinical answers quickly, and meets the needs of students, clinicians, and residents in endodontics. Videos and animations demonstrate key procedures such as palpation of the masseter muscle, introsseous anesthesia with the X-tipT system, dentin hypersensitivity, indirect ultrasound, palpation of the temporomandibular joint, and ultrasonic settling. Over 2,000 illustrations include full-color photos and line art, along with a wide range of radiographs, clearly demonstrating core concepts and reinforcing the essential principles and techniques of endodontics. NEW co-editor Dr. Louis H. Berman joins lead editor Dr. Kenneth M. Hargreaves for this edition, and a respected team of contributors includes experts from many U.S.-based dental education programs, as well as programs in Canada, the U.K., Norway, Sweden, France, Germany, Italy, and Switzerland. NEW chapter organization reflects the chronology of endodontic treatment with three comprehensive sections: Clinical Endodontics, focusing on core clinical concepts, and Biological Basis of Endodontics and Endodontics in Clinical Practice, both with information that advanced students, endodontic residents, and clinicians need to know. NEW! Three chapters are available in the eBook: Understanding and Managing the Anxious Patient, Endodontic Records and Legal Responsibilities, and Endodontic Practice Management. NEW Radiographic Interpretation chapter clarifies the diagnostic process with coverage of imaging modalities, diagnostic tasks, three-dimensional imaging, cone beam computed tomography, intra- or post-operative assessment of endodontic treatment complications, and more. NEW Pain Control chapter addresses the management of acute endodontic pain with coverage of local anesthesia for restorative dentistry and endodontics, along with nonnarcotic analgesics and therapeutic recommendations. NEW Evaluation of Outcomes chapter helps you achieve optimal treatment outcomes with information on topics such as the reasons for evaluating outcomes, outcome measurements for endodontic treatment, and the outcomes of vital pulp therapy procedures, non-surgical root canal treatment, non-surgical retreatment, and surgical retreatment. NEW Root Resorption chapter covers the early detection, diagnosis, and histological features of root resorption, as well as external inflammatory resorption, external cervical resorption, and internal resorption. NEW Iatrogenic Endodontics chapter addresses failed treatment scenarios with key information on the event itself, the etiology, soft and hard tissue implications and symptoms, and treatment options and prognosis; the events include cervico-facial subcutaneous emphysema, sodium hypochlorite accidents, perforations (non-surgical), inferior alveolar nerve injury, surgical, sinus perforation, instrument separation, apical extrusion of obturation materials, and ledge formation. NEW Vital Pulp Therapy chapter provides an overview of new treatment concepts for the preservation of the pulpally involved permanent tooth, covering topics such as the living pulp, pulpal response to caries, procedures for generating reparative dentin, indications and materials for vital pulp therapy, MTA applications, and treatment recommendations. NEW Bleaching chapter addresses procedures that can be utilized during and following endodontic treatment to eliminate or reduce any discoloration issues, reviewing internal and external bleaching procedures and their impact on pulpal health/endodontic treatment - with presentations of cases and clinical protocols.

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## NEW TRENDS IN TISSUE ENGINEERING AND REGENERATIVE MEDICINE

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### OFFICIAL BOOK OF THE JAPANESE SOCIETY FOR REGENERATIVE MEDICINE

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**BoD - Books on Demand** This book is an edited collection of all the achievements of the main members of the Dental Division of the Japanese Society for Regenerative Medicine, which derives from the Japanese Forum for Regenerative Dentistry established in 2003. Scientific meetings held by these organizations gleaned specific experiences of the academic community as well as clinical experiences of

the most renowned experts in the field of dentistry. The editors are especially proud of bringing together leading biologists and dentists of all specialties. This unique collection of reports on the achievements and experiences of experts from all over the world represents the current spectrum of possibilities in tissue engineering of substitutes not only in dentistry but also in medicine. This book has been produced and distributed with the support from The Japanese Society for Regenerative Medicine.

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## ENDODONTICS

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### PRINCIPLES AND PRACTICE

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**Elsevier Health Sciences** This 4th edition is an essential scientific & clinical building block for understanding the etiology & treatment of teeth with pulpal & periapical diseases. You'll easily understand & learn procedures through step-by-step explanations accompanied by illustrations, as well as video clips included on CD.

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## A TEXTBOOK OF ADVANCED ORAL AND MAXILLOFACIAL SURGERY

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### VOLUME 3

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**BoD - Books on Demand** Advanced oral and maxillofacial surgery encompasses a vast array of diseases, disorders, defects, and deformities as well as injuries of the mouth, head, face, and jaws. It relates not only to treatment of impacted teeth, facial pain, misaligned jaws, facial trauma, oral cancers, jaw cysts, and tumors but also to facial cosmetic surgery and placement of dental and facial implants. This specialty is evolving alongside advancements in technology and instrumentation. Volume 1 has topped 132,000 chapter downloads so far, and Volume 2 is being downloaded at the same pace! Volume 3 is basically the sequel to Volumes 1 and 2; 93 specialists from nine countries contributed to 32 chapters providing comprehensive coverage of advanced topics in OMF surgery.

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## HARTY ENDODONCJA W PRAKTYCE KLINICZNEJ

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Elsevier Health Sciences

### ORAL WOUND HEALING

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### CELL BIOLOGY AND CLINICAL MANAGEMENT

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**John Wiley & Sons** Oral Wound Healing: Cell Biology and Clinical Management brings experts from around the world together to provide an authoritative reference on the processes, principles and clinical management of wound healing in the oral mucosa. Promoting a thorough understanding of current research on the topic, this new resource draws together thinking on the basic biological processes of wound healing in the oral environment, as well as providing more detailed information and discussion on processes such as inflammation, reepithelialization and angiogenesis. Beyond this, the book goes on to examine topics pertinent to the effective clinical management of oral wound healing, bringing together chapters on large dento-facial defects, dental implants, periodontal regeneration, and pulp healing. An essential synthesis of current research and clinical applications, Oral Wound Healing will be an indispensable resource for dental specialists, oral and maxillofacial surgeons as well as researchers in oral medicine and biology.

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## REGENERATIVE MEDICINE

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### USING NON-FETAL SOURCES OF STEM CELLS

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**Springer** This book represents a major contribution to the emerging science of regenerative medicine using non-fetal sources of stem cells. The Editors, Dr Niranjan Bhattacharya and Professor Phillip Stubblefield, have brought together some of the most pre-eminent scientists working on regenerative medicine to share information on currently ongoing work in this area alongside unpublished observations that will help to shape the contours of future therapies. Regenerative Medicine: Using Non-Fetal Sources of Stem Cells discusses the potential clinical and therapeutic applications using non-fetal stem cells as well as providing instruction on the collection, isolation and characterization of stem cells from various non-fetal sources, such as menstrual blood, adipose tissue, breast milk and uprooted deciduous teeth. This book will be an invaluable resource for both active researchers and those entering the field. The Editors truly hope that the text will act as a stimulant to professionals and clinical scientists, who may be inspired to further the work of the pioneering scientists who have contributed to this volume.

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## STEM CELL THERAPY FOR ORGAN FAILURE

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**Springer** The book "STEM CELL THERAPY FOR ORGAN FAILURES" edited by Dr. S. Indumathi demonstrates the In Vitro and In vivo therapeutic strategies and applications of pre- and post-natal stem cells for treating the failures of various organ systems of our body in a wide perspective. It explores the past, present and the futuristic approach of the exciting field of stem cells and its intriguing properties involved in tissue repair and regeneration. The prime focus of this volume is to unravel the basic, advanced, therapeutic and translational approaches put-forth so far in the field of stem cells and regenerative medicine at research, pre-clinical and clinical levels. Stem cells has ushered in widespread interest and exciting possibilities for cell based therapies, albeit failures do prevail and small uncontrolled phase I/II studies are only signals generating, rather than definite proof of concept thereby limiting its applicability in curative therapeutics. Despite certain initiatives and meticulous untiring efforts, bringing this basic bench side research into advanced transitional bedside remained a challenge. Thus, this book embarked upon the expanding researches in these areas that seem decisive in improvising regenerative medical therapeutics, thereby leading to further path-breaking studies that cure all health challenges facing mankind. Overall, this book reveals the imperativeness of various stem cell sources and its utility in curative therapeutics.

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## PEDIATRIC ENDODONTICS

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### CURRENT CONCEPTS IN PULP THERAPY FOR PRIMARY AND YOUNG PERMANENT TEETH

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**Springer** This book provides dental professionals with a clear understanding of current clinical and scientific knowledge on the various aspects of pulp treatment for both primary and young permanent teeth. Diagnostic parameters are clearly presented, along with step-by-step descriptions of clinical procedures, including indirect and direct pulp treatments, pulpotomy, and pulpectomy. The rationale for the materials used in each technique and their individual merits and disadvantages are examined in detail. In the case of pulpotomy, all the materials used since the introduction of this treatment modality are discussed (e.g., formocresol, glutaraldehyde, ferric sulfate, and MTA) and the roles of sodium hypochlorite, electrofulguration, and laser therapy are elucidated. Special attention is devoted to pulpectomy and root canal treatment, with consideration of debriding and obturation techniques, rinsing solutions, and root-filling pastes. A further individual chapter is dedicated to restorations of teeth treated with the different types of pulp therapy. The various conservative treatment modalities are also presented, including specific treatments for immature nonvital permanent teeth. The concluding chapter looks to the future and the potential value of stem cells in pulp therapy.

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## CUMULATED INDEX MEDICUS

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### IPSC DERIVED PROGENITORS

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**Academic Press** iPSC Derived Progenitors, Volume Thirteen in the Advances in Stem Cell Biology series is a timely collection of information and new discoveries in the field of stem cell biology. The book addresses the importance of induced pluripotent stem cells and how they can be differentiated into different progenitors. Progenitor cells are often the first-step to making more differentiating cell types. This volume addresses iPSCs derived from bone, dental pulp, craniofacial, neural stem cells, otic, cardiac, and much more. The volume is written for researchers and scientists in stem cell therapy, cell biology, regenerative medicine, organ transplantation, and is contributed by world-renowned authors. Provides an overview of the fast-moving field of stem cell biology and function, regenerative medicine and therapeutics Covers how iPSCs can be differentiated into different progenitors Contributed by world renowned experts in the field

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## BIOMATERIALS FOR ORAL AND DENTAL TISSUE ENGINEERING

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**Woodhead Publishing** Biomaterials for Oral and Dental Tissue Engineering examines the combined impact of materials, advanced techniques and applications of engineered oral tissues. With a strong focus on hard and soft intraoral tissues, the book looks at how biomaterials can be manipulated and engineered to create functional oral tissue for use in restorative dentistry, periodontics, endodontics and prosthodontics. Covering the current knowledge of material production, evaluation, challenges, applications and future trends, this book is a valuable resource for materials scientists and researchers in academia and industry. The first set of chapters reviews a wide range of biomaterial classes for oral tissue engineering. Further topics include material characterization, modification, biocompatibility and biotoxicity. Part Two reviews strategies for biomaterial scaffold design, while chapters in parts three and four review soft and hard tissues. Connects materials science with restorative dentistry Focuses on the unique field of intraoral tissues Highlights long-term biocompatibility and toxicity of biomaterials for engineered oral tissues

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## ENDODONTIC TREATMENT, RETREATMENT, AND SURGERY

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### MASTERING CLINICAL PRACTICE

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**Springer** This book provides clear, concise guidance on a range of essential treatment strategies for the provision of reliable endodontic care. Practical clinical procedures are described step by step and key concepts emphasized with the aid of a wealth of high-quality illustrations and photographs. Examples of best practice are documented by means of clinical case examples, and the provision of concise tips and recommendations ensures that the reader will quickly be able to find solutions to any one of the myriad of endodontic challenges with which he or she may be confronted. In addition, the most relevant key literature is reviewed in order to support and reinforce the discussed clinical concepts. The described endodontic treatment strategies are all grounded in a sound scientific evidence base. The book should enable practitioners to manage any endodontic case from first principles and will be of value for both dental practitioners and endodontic trainees/specialists.

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## APPLICATIONS OF BIOMEDICAL ENGINEERING IN DENTISTRY

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**Springer Nature** This book offers readers a valuable overview of recent advances in biomedical engineering, as applied to the modern dentistry. It begins by studying the biomaterials in dentistry, and materials used intraoperatively during oral and maxillofacial surgery procedures. Next, it considers the subjects in which biomedical engineers can be influential, such as 3-dimensional (3D) imaging, laser

and photobiomodulation, surface modification of dental implants, and bioreactors. Hard and soft tissue engineering in dentistry are discussed, and some specific and essential methods such as 3D-printing are elaborated. Presenting particular clinical functions of regenerative dentistry and tissue engineering in treatment of oral and maxillofacial soft tissues is the subject of a separate chapter. Challenges in the rehabilitation handling of large and localized oral and maxillofacial defects is a severe issue in dentistry, which are considered to understand how bioengineers help with treatment methods in this regard. Recent advances in nanodentistry is discussed followed by a chapter on the applications of stem cell-encapsulated hydrogel in dentistry. Periodontal regeneration is a challenging issue in dentistry, and thus, is going to be considered separately to understand the efforts and achievements of tissue engineers in this matter. Oral mucosa grafting is a practical approach in engineering and treatment of tissues in ophthalmology, which is the subject of another chapter. Microfluidic approaches became more popular in biomedical engineering during the last decade; hence, one chapter focuses on the advanced topic of microfluidics technologies using oral factors as saliva-based studies. Injectable gels in endodontics is a new theme in dentistry that bioengineering skills can advance its development, specifically by producing clinically safe and effective gels with regeneration and antibacterial properties. Engineered products often need to be tested in vivo before being clinical in dentistry; thus, one chapter is dedicated to reviewing applicable animal models in dental research. The last chapter covers the progress on the whole tooth bioengineering as a valuable and ultimate goal of many dental researchers. Offers readers an interdisciplinary approach that relates biomedical engineering and restorative dentistry Discusses recent technological achievements in engineering with applications in dentistry Provides useful tool to dental companies for future product planning, specifically to biomedical engineers engaged in dental research