

# Advances In Intervertebral Disc Disease In Dogs And Cats

Advances in Intervertebral Disc Disease in Dogs and Cats The Intervertebral Disc The Lumbar Intervertebral Disc Intervertebral Disc Degeneration Canine Intervertebral Disc Disease: The Current State of Knowledge Underlying Mechanisms and Treatment for Intervertebral Disc Disease Gene and Cell Delivery for Intervertebral Disc Degeneration Advances in Intervertebral Disc Disease in Dogs and Cats The Biology of the Intervertebral Disc Basic Science of Spinal Diseases Cells and Biomaterials for Intervertebral Disc Regeneration Diagnosis and Treatment of Intervertebral Disc Disease The Intervertebral Disc Tissue Engineering For Degenerative Intervertebral Discs Diseases of the Intervertebral Disc and Its Surrounding Tissues IVDD in Dogs Biological Approaches to Spinal Disc Repair and Regeneration for Clinicians The Disc and Degenerative Disc Disease Lumbar Disc Disease Intervertebral Disc Disease James Fingerot Irving M. Shapiro Frank M. Phillips Allen L. Ho Natasha J. Olby Baoshan Xu Raquel Madeira Gonçalves James Fingerot Peter Ghosh Alok D Sharan Sibylle Grad M. H. Logger Anthony F. De Palma Jun Zou Reuben Rabinovitch Robe Roger Hartl Luigi Manfrè Russell W. Hardy

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advances in intervertebral disc disease in dogs and cats defines our present knowledge of this common clinical problem compiling information related to the canine and feline intervertebral disc into a single resource as a comprehensive focused work the book is an authoritative reference for understanding and treating disc disease providing a sound scientific and clinical basis for decision making offering an objective synthesis of the current literature the book supplies guidance on the approach to a potential disc rupture surgical and medical strategies and management of the patient offering a complete understanding of intervertebral disc disease the book describes and discusses the controversies and issues surrounding this topic acknowledging the gaps in our knowledge advances in intervertebral disc disease in dogs and cats presents up to date reliable information on this common condition for veterinary surgeons neurologists and general practitioners

the intervertebral disc is a complex structure that separates opposing vertebrae permits a wide range of motion and accommodates high biomechanical forces disc degeneration leads to a loss of function and is often associated with excruciating pain written by leading scientists and clinicians the first part of the book provides a review of the basic biology of the disc in health and disease the second part considers strategies to mitigate the effects of disc degeneration and discusses the possibility of engineering replacement tissues the final section is devoted to approaches to model normal development and elucidate the pathogenesis of degenerative disc disease using animal organ and cell culture techniques the book bridges the gap between the basic and clinical sciences the target audience includes basic scientists orthopaedists and neurologists while at the same time appealing to the needs of graduate students medical students interns and fellows

written by leading authorities in the field of spine care this book is a comprehensive reference for the latest techniques for managing intervertebral disc disorders affecting the lumbar spine it opens by reviewing basic science and then covers management of disc herniation and degenerative disc disease

degenerative disc disease is a significant component of spine disorders and lower back pain that now afflicts nearly one third of the adult population this represents a significant morbidity and cost burden nearly a tenth of all health care spending that is only increasing in prevalence as the elderly population continues to grow while

current treatment modalities ranging from conservative approaches to surgical interventions are continually evolving new therapies for intervertebral disc disease are also in development increased research on the cellular mechanisms underlying ddd have led to novel cell based treatments which aim to delay rates of degeneration intervertebral disc degeneration prevalence risk factors and treatments is a comprehensive text on all facets of the disease process that covers the pathophysiology biomechanics as well as the location specific pathology and treatment options for degenerative disc disease written by nationally renowned experts in neurosurgery and orthopedic surgery of the spine each chapter is a thorough cogent discussion of an essential topic related to intervertebral disc degeneration that includes many original easy to understand figures and illustrations also included are overviews of the most cutting edge and emerging surgical and biologic management options of disc disease at all levels of the spine

intervertebral disc degeneration is one of the major causes of lower back pain for which the common therapeutic interventions are not efficient a search for alternative therapies for lower back pain and intervertebral disc degeneration includes cell based therapies unfortunately intervertebral disc degeneration is avascular and thus a hostile environment for cell survival furthermore cellular characterization in intervertebral disc degeneration and particularly in the nucleus pulposus is controversial mainly due to lack of specific markers and species variability this book adds to the knowledge on cellular and molecular therapies for intervertebral disc degeneration and associated lower back pain key selling features describes the ontogeny and phenotype of intervertebral disc cells reviews the role that inflammation plays in disco genic pain highlights the types of cells that might be used as sources for treating degenerating intervertebral discs summarizes current alternative therapies explores methods for cell delivery into degenerated intervertebral discs

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this book is a comprehensive guide to the basic science of spinal diseases for trainees and clinicians divided into four sections the authors begin with detailed discussion on the anatomy physiology and pathophysiology of the intervertebral disc the following sections examine the science of spinal instrumentation and spinal interventions clinical chapters are structured in a uniform format beginning with the presentation of a clinical case followed by detailed discussion and supporting evidence each case ends with challenging questions to direct further investigation this book is a highly useful compilation of research work from recognised surgeons from the usa and the netherlands specialising in the fields of physiology biology biomechanics and mechanobiology key points comprehensive guide to the basic science of spinal diseases based on research work of specialists in physiology biology biomechanics and mechanobiology us and dutch author and editor team includes nearly 240 full colour images and illustrations

disorders related to the intervertebral disc ivd are common causes of morbidity and of severe life quality deterioration ivd degeneration although in many cases asymptomatic is often the origin of painful neck and back diseases in western societies ivd related pain and disability account for enormous health care costs as a result of work absenteeism and thus lost production disability benefits medical and insurance expenses although only a small percentage of patients with disc disorders finally will undergo surgery spinal surgery has been one of the fastest growing disciplines in the musculoskeletal field in recent years nevertheless current treatment options are still a matter of controversial discussion in particular they hardly can restore normal spine biomechanics and prevent degeneration of adjacent tissues while degeneration affects all areas of the ivd the most constant and noticeable changes occur in the gel like central part the nucleus pulposus np recent emphasis has therefore been put in biological ways to regenerate the np however there are a number of obstacles to overcome considering the exceptional biological and biomechanical environment of this tissue different biological approaches such as molecular gene and cell based therapies have been investigated and have shown promising results in both in vitro and in vivo studies nonetheless considerable hurdles still exist in their application for ivd regeneration in human

patients the choice of the cells and the choice of the cell carrier suitable for implantation pose major challenges for research and development activities this lecture recapitulates the basics of ivd structure function and degeneration mechanisms the first part reviews the recent progress in the field of disc and stem cell based regenerative approaches in the second part most appropriate biomaterials that have been evaluated as cell or molecule carrier to cope with degenerative disc disease are outlined the potential and limitations of cell and biomaterial based treatment strategies and perspectives for future clinical applications are discussed table of contents cell therapy for nucleus pulposus regeneration recent advances in biomaterial based tissue engineering for intervertebral disc regeneration

low back pain is a common disorder in the clinical treatment of the department of orthopedics lumbar intervertebral disc degeneration is a main reason for the chronic pain and the process is difficult to reverse traditional treatment methods include conservative treatment and surgical treatment although the clinical symptoms caused by intervertebral disc degeneration can be alleviated to a certain extent these treatment methods do not solve the fundamental issues and they also produce corresponding complications the rise of tissue engineering technology and its applications in different fields have brought new ideas for the treatment of intervertebral disc degeneration this book discusses the fundamentals as well as more recent developments in stem cell therapy and tissue engineering technology and offers an alternative for treating degeneration of intervertebral discs

when your dog suddenly yelps stiffens or can't use their back legs the way they normally do it feels like the ground drops out from under you in that moment you don't need internet chaos you need clarity calm steps and a plan you can trust intervertebral disc disease ivdd is one of the most misunderstood conditions dog owners face this guide explains what's happening inside the spine in plain compassionate language without watering down the medical truth so you can understand your veterinarian make confident decisions and protect your dog during recovery you'll learn how to understand ivdd clearly including what a slipped disc really means and why nerve pain behaves differently than muscle pain recognize red flags and know when it's an emergency versus when careful monitoring is appropriate choose between conservative care and surgery with realistic expectations not fear based guessing do crate rest the right way and avoid the small handling mistakes that cause setbacks navigate pain management

safely including the key differences between nsails and steroids and why switching improperly can be dangerous handle bladder and bowel changes with practical troubleshooting and clear call the vet thresholds rebuild strength with safer rehab and everyday routines that protect the spine long term set up your home your harness your lifting technique and your daily habits so your dog can move through life with less risk this book does not replace veterinary care it helps you understand it follow it and advocate for your dog with confidence especially when you're scared tired and just trying to do the right thing if you want a clear practical roadmap from first symptoms to long term mobility ivdd in dogs is for you author robe

top experts share clinical insights on biological interventions for spine related disease although there have been significant advancements in minimally invasive spinal surgery techniques in the last few decades optimal outcomes for chronic low back pain remain elusive a number of promising clinical trials have been conducted using tissue engineering and biological interventions for disc degeneration written by renowned innovators this is the first book that covers implementation of these groundbreaking approaches for disc disease the text begins with key fundamentals including anatomy and physiology pathophysiology imaging and biomechanics to delineate healthy versus diseased spine subsequent sections discuss treatment strategies research findings and future developments throughout each chapter renowned spine surgeons and scientists share clinical pearls gleaned from hands on experience key highlights the current state of the art in biological and tissue engineering procedures for spinal disorders treatment methodologies including nucleus replacement and repair annulus fibrosus repair total disc transplantation and mechanical total disc replacement innovative treatment strategies for disc regeneration such as genes and proteins growth factors including platelet rich plasma prp which has shown promise for the stimulation and acceleration of bone and soft tissue healing cell based therapy for spinal disc regeneration and repair including the use of stem cells and chondrocytes in depth discussion of research including animal versus human model in vitro and a summary of biologic clinical trials this is a must have resource for trainee and practicing orthopaedic surgeons and neurosurgeons who treat patients for spine related conditions it is essential reading for all clinicians who have an interest in cutting edge tissue engineering and biological treatment interventions

this easy to consult guide examines the most advanced techniques in the radiological evaluation of the disc and

degenerative disc disease using conventional functional dynamic and advanced imaging it provides clear information on a range of ct x ray and mri guided techniques presents all disc treatments in connection with symptomatic disc herniations evaluates conservative chemical esi steroid ozone ethanol gel injections and physical treatments coblation laser decompressors endoscopy and assesses the possibility of repairing and or regenerating the disc in the context of reversible disc degeneration like other books in the springer series new procedures in spinal interventional neuroradiology this practice oriented volume will fill a significant gap in the literature and meet the need expressed by many specialists interventional neuroradiologists and radiologists neurosurgeons and orthopedists for a topical and handy guide that specifically illustrates the currently available materials and methods

the revised and updated second edition of this volume is for clinicians requiring a practical reference on the latest advances in lumbar disc disease management the greatly expanded second edition aims to be the most current complete and authoritative clinical reference on the diagnosis and the operative and nonoperative management of lumbar disc disease and related conditions including the failed back syndrome osteomyelitis of the spine and lumbar stenosis the second edition s coverage of surgical treatment features new chapters on spinal instrumentation and fusion and on newer disc excision techniques such as percutaneous discectomy full consideration of the complications of lumbar spine surgery and the medicolegal issues arising from such complications an updated chapter on spinal imaging providing essential information on mri and other current technologies and a new chapter on spinal manipulation and expanded coverage of nonoperative management of chronic low back pain

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