

# swelling after acl reconstruction

**swelling after acl reconstruction** is a common and expected response following anterior cruciate ligament surgery. This postoperative swelling results from inflammation, fluid accumulation, and tissue trauma induced during the surgical procedure. Understanding the causes, symptoms, and management strategies for swelling after ACL reconstruction is essential for optimizing recovery and preventing complications. This article explores the physiological basis of swelling, typical recovery timelines, effective treatment options, and when to seek medical attention for abnormal swelling. Additionally, it provides practical rehabilitation tips aimed at reducing discomfort and promoting joint healing. The following sections detail these aspects comprehensively to support patients and healthcare providers in managing postoperative swelling effectively.

- Causes of Swelling After ACL Reconstruction
- Symptoms and Signs of Postoperative Swelling
- Management and Treatment Strategies
- Recovery Timeline and Expectations
- Potential Complications Related to Swelling

## Causes of Swelling After ACL Reconstruction

Swelling after ACL reconstruction occurs primarily due to the body's inflammatory response to surgical trauma. During the procedure, tissues including ligaments, muscles, and blood vessels are disrupted, triggering an influx of immune cells and release of inflammatory mediators. This leads to increased blood flow and capillary permeability, allowing fluid to accumulate in the knee joint and surrounding soft tissues. Additionally, bleeding into the joint space, known as hemarthrosis, can contribute to swelling. The use of grafts, fixation devices, and manipulation of the knee during surgery also exacerbate tissue irritation and fluid retention.

## Inflammatory Response

The body's natural healing mechanism activates an inflammatory cascade to repair surgical damage. Cytokines and prostaglandins increase vascular permeability, promoting fluid leakage into the interstitial space. This response results in visible swelling and warmth around the knee, which typically peaks within the first 48 to 72 hours post-surgery.

## Fluid Accumulation and Hemarthrosis

Excess fluid within the joint capsule, often called effusion, can be caused by both inflammatory exudate and bleeding. Hemarthrosis occurs when blood collects inside the joint, increasing pressure

and swelling. It is a frequent contributor to postoperative knee distension and may require drainage if severe.

## **Tissue Trauma and Surgical Technique**

The extent of swelling is influenced by the surgical technique used and the degree of tissue manipulation. More invasive procedures or prolonged operative times generally result in greater postoperative inflammation. Additionally, the choice of graft type, such as patellar tendon versus hamstring tendon, can affect the amount of swelling experienced.

## **Symptoms and Signs of Postoperative Swelling**

Recognizing the typical symptoms of swelling after ACL reconstruction helps differentiate normal recovery from complications. Swelling is usually accompanied by pain, stiffness, and a sensation of tightness in the knee. The affected area may appear visibly enlarged and feel warm to the touch. Patients might also experience reduced range of motion and difficulty bearing weight on the leg.

## **Visible and Palpable Changes**

The knee often appears puffy or ballooned due to fluid accumulation. Palpation may reveal a soft, spongy consistency compared to the non-operated side. In some cases, swelling extends beyond the knee to the surrounding tissues such as the calf or thigh.

## **Pain and Discomfort**

Swelling is commonly associated with moderate to severe pain, exacerbated by movement or pressure. The intensity of pain generally decreases as inflammation subsides but may persist during initial rehabilitation phases.

## **Functional Limitations**

Excessive swelling can restrict knee flexion and extension, limiting mobility and function. Patients may notice difficulty walking, climbing stairs, or performing routine activities. Stiffness is often reported due to joint capsule distension and muscle guarding.

## **Management and Treatment Strategies**

Effective management of swelling after ACL reconstruction focuses on reducing inflammation, controlling pain, and facilitating early mobilization. A combination of conservative treatments and rehabilitation protocols is typically employed to optimize outcomes.

## RICE Protocol

The foundational approach to managing postoperative swelling is the RICE method:

- **Rest:** Avoid excessive weight-bearing and minimize activities that exacerbate swelling.
- **Ice:** Apply cold packs to the knee for 15-20 minutes every 2-3 hours to constrict blood vessels and reduce fluid buildup.
- **Compression:** Use elastic bandages or compression sleeves to limit swelling and provide support.
- **Elevation:** Keep the leg elevated above heart level to promote venous return and decrease swelling.

## Medications

Nonsteroidal anti-inflammatory drugs (NSAIDs) such as ibuprofen may be prescribed to alleviate pain and inflammation. In some cases, stronger analgesics or corticosteroids can be utilized under medical supervision. It is important to follow dosage instructions carefully to avoid adverse effects.

## Physical Therapy and Rehabilitation

Early initiation of physical therapy is critical to restoring knee function and preventing chronic stiffness. Therapists employ gentle range-of-motion exercises, muscle strengthening, and manual techniques to reduce swelling and improve circulation. Gradual progression to weight-bearing and functional activities is essential for recovery.

## Use of Assistive Devices

Crutches or knee braces may be recommended to offload the joint and provide stability during the healing phase. These devices help minimize stress on the reconstructed ligament and surrounding tissues, potentially reducing swelling.

## Recovery Timeline and Expectations

Understanding the typical timeline for swelling resolution after ACL reconstruction helps set realistic expectations for patients and clinicians. Swelling is most pronounced during the first week post-surgery and gradually decreases over several weeks.

## **Initial Postoperative Period**

The first 72 hours are characterized by peak swelling and pain due to acute inflammation. Adherence to RICE and medication protocols during this phase is crucial to limit excessive fluid accumulation.

## **Subacute Phase (Weeks 2-6)**

During this period, swelling diminishes progressively as tissue healing advances. Patients begin more active physical therapy with emphasis on regaining motion and strength. Mild residual swelling may persist but should not interfere significantly with function.

## **Long-Term Recovery (3-6 Months)**

By three to six months, most patients experience minimal to no swelling at rest. Occasional mild swelling may occur after strenuous activity but generally resolves quickly. Full resolution of swelling corresponds with successful ligament integration and joint stabilization.

## **Potential Complications Related to Swelling**

While swelling is a normal postoperative response, excessive or persistent swelling may signal complications requiring medical evaluation. Identifying these issues early can prevent long-term damage and ensure appropriate intervention.

### **Infection**

Infections can present with increased swelling, redness, warmth, and severe pain. Systemic symptoms such as fever may also be present. Prompt diagnosis and treatment with antibiotics or surgical drainage are essential.

### **Deep Vein Thrombosis (DVT)**

Swelling accompanied by calf pain, tenderness, or discoloration may indicate a blood clot in the deep veins. DVT is a serious condition requiring immediate medical attention and anticoagulant therapy.

### **Joint Hemarthrosis**

Excessive bleeding into the joint can cause severe swelling and limited motion. In some cases, aspiration of the joint fluid is necessary to relieve pressure and prevent cartilage damage.

### **Arthrofibrosis and Chronic Edema**

Persistent swelling and stiffness may be due to scar tissue formation or lymphatic obstruction. These

conditions often require specialized physical therapy or surgical intervention to restore mobility.

## Frequently Asked Questions

### Is swelling after ACL reconstruction surgery normal?

Yes, swelling after ACL reconstruction is normal and expected due to the trauma from surgery and the body's natural inflammatory response.

### How long does swelling typically last after ACL reconstruction?

Swelling can last for several weeks after ACL reconstruction, often peaking in the first few days and gradually decreasing over 4 to 6 weeks with proper care.

### What are effective ways to reduce swelling after ACL reconstruction?

To reduce swelling, patients should apply ice packs regularly, keep the leg elevated, use compression bandages, and follow their physical therapy regimen as advised by their doctor.

### When should I be concerned about swelling after ACL reconstruction?

You should contact your doctor if swelling is severe, worsening, accompanied by intense pain, redness, warmth, or fever, as these may indicate infection or complications.

### Can swelling affect recovery time after ACL reconstruction?

Excessive or prolonged swelling can delay recovery by limiting range of motion and increasing discomfort, so managing swelling effectively is important for optimal healing.

## Additional Resources

#### 1. *Managing Swelling After ACL Reconstruction: A Comprehensive Guide*

This book provides an in-depth look at the causes and treatment of swelling following ACL reconstruction surgery. It covers both surgical and non-surgical methods to reduce inflammation, including physical therapy protocols and medication options. Designed for patients and healthcare providers, it offers practical advice to promote faster recovery and minimize complications.

#### 2. *Swelling and Inflammation Control in Knee Surgery Recovery*

Focusing on knee surgeries like ACL reconstruction, this book explores the physiological mechanisms behind postoperative swelling. It discusses various techniques such as cryotherapy, compression therapy, and elevation to manage edema effectively. The text also emphasizes the importance of early intervention and patient compliance to ensure optimal healing outcomes.

### *3. Post-ACL Reconstruction Rehabilitation: Managing Edema and Pain*

This resource is tailored for physical therapists and patients undergoing ACL reconstruction recovery. It highlights strategies to control swelling, reduce pain, and restore joint mobility through targeted exercises and therapeutic modalities. Case studies demonstrate successful rehabilitation approaches that minimize postoperative complications related to swelling.

### *4. Understanding Postoperative Swelling: Insights for ACL Surgery Patients*

Written for patients, this book simplifies the complex process of swelling after ACL surgery. It explains why swelling occurs, how it affects recovery, and what patients can do at home to manage symptoms. The guide includes tips on diet, activity modification, and when to seek medical advice to avoid chronic issues.

### *5. Innovations in Swelling Reduction Techniques Post-ACL Reconstruction*

This title delves into the latest advancements in medical technology aimed at reducing swelling after ACL surgery. It reviews novel devices, pharmaceutical developments, and emerging protocols that improve patient comfort and accelerate healing. The book is ideal for surgeons and rehabilitation specialists interested in cutting-edge treatment options.

### *6. Nutrition and Swelling: Supporting ACL Reconstruction Recovery*

Exploring the role of nutrition in managing postoperative swelling, this book outlines dietary strategies to reduce inflammation and promote tissue repair. It discusses anti-inflammatory foods, supplements, and hydration tips tailored for ACL surgery patients. The content supports a holistic approach to recovery, integrating diet with physical therapy.

### *7. Physical Therapy Techniques to Minimize Swelling After ACL Surgery*

This practical guide focuses on hands-on and exercise-based methods to control swelling following ACL reconstruction. It includes detailed protocols for manual lymphatic drainage, mobility exercises, and the use of modalities like ultrasound and electrotherapy. Therapists and patients alike will find step-by-step instructions to enhance recovery.

### *8. Psychological Impact of Swelling and Recovery After ACL Reconstruction*

Highlighting the mental and emotional challenges associated with postoperative swelling, this book addresses anxiety and frustration that patients may experience. It offers coping strategies, stress management techniques, and motivational advice to support a positive rehabilitation journey. The book underscores the connection between mental health and physical healing.

### *9. Complications of Swelling Post-ACL Reconstruction: Prevention and Treatment*

This detailed reference covers potential complications arising from uncontrolled swelling, such as stiffness, infection, and deep vein thrombosis. It provides guidelines for early detection, prevention strategies, and medical interventions to mitigate risks. Aimed at clinicians, the book ensures comprehensive care in managing swelling-related issues after ACL surgery.

## **Swelling After Acl Reconstruction**

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**swelling after acl reconstruction: Return to Sport after ACL Reconstruction and Other Knee Operations** Frank R. Noyes, Sue Barber-Westin, 2019-11-05 The wealth of information provided in this unique text will enable orthopedic surgeons, medical practitioners, physical therapists, and trainers to ensure that athletes who suffer anterior cruciate ligament (ACL) injuries, or who require major knee operations for other reasons, have the best possible chance of safely resuming sporting activity at their desired level without subsequent problems. Divided into seven thematic sections, the coverage is wide-ranging and encompasses common barriers to return to sport, return to sport decision-based models, and the complete spectrum of optimal treatment for ACL injuries, including preoperative and postoperative rehabilitation. Advanced training concepts are explained in detail, with description of sports-specific programs for soccer, basketball, and tennis. Readers will find detailed guidance on objective testing for muscle strength, neuromuscular function, neurocognitive function, and cardiovascular fitness, as well as validated assessments to identify and manage psychological issues. In addition, return to sport considerations after meniscus surgery, patellofemoral realignment, articular cartilage procedures, and knee arthroplasty are discussed. Generously illustrated and heavily referenced, Return to Sport after ACL Reconstruction and Other Knee Operations is a comprehensive resource for all medical professionals and support staff working with athletes and active patients looking to get back in the game with confidence.

**swelling after acl reconstruction: Pathology and Intervention in Musculoskeletal Rehabilitation** David J. Magee, James E. Zachazewski, William S. Quillen, 2008-01-01 Design and implement a rehab program on your own with Pathology and Intervention in Musculoskeletal Rehabilitation, 2nd Edition. Part of Magee's popular Musculoskeletal Rehabilitation Series, this pathology text for physical therapists provides clear guidance on patient management relative to specific musculoskeletal pathology, injury, and illness - all based on a sound understanding of basic science and principles of practice. It focuses on the specific pathologies most often seen in the clinic, and discusses the best methods for intervention for the different areas of the body in the context of the tissue-healing model. Each intervention features a rationale, along with the pathology and problem presented; stage of healing; evidence in the literature; and clinical reasoning considerations. Dedicated and focused information on the specific pathologies most often seen in the clinic, as well as the best methods for intervention for the different areas of the body, minimizes

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**swelling after acl reconstruction: Controversies in ACL Reconstruction, An Issue of Clinics in Sports Medicine** Darren L. Johnson, 2016-11-23 ACL reconstruction remains one of the most common orthopedic procedures performed today. This issue will discuss controversies that can arise. Articles to be included are: Diagnosis of ACL Injury: Epidemiology, mechanism of injury patterns, history, PE, and ancillary test findings including x-ray and MRI; Anatomy of the ACL: Gross, arthroscopic, and Radiographic as a basis of ACL surgery; Graft selection in ACL surgery: Who gets what and why; Management of the ACL injured knee in the skeletally immature athlete; Indications for Two-incision (outside in) ACL Surgery and many more exciting articles!

**swelling after acl reconstruction: Current Concepts in ACL Reconstruction** Freddie H. Fu, Steven B. Cohen (M.D.), 2008 From evaluation to outcome, Current Concepts in ACL Reconstruction will help you keep pace with the latest techniques for the treatment of anterior cruciate ligament injuries. This text provides the most complete and up-to-date information for the surgical reconstruction of a torn ACL including details about the newer double-bundle procedure. Both American and international perspectives on the treatment of ACL injuries are included to provide the most comprehensive review on the market today. Inside this richly illustrated text, Drs. Freddie H. Fu and Steven B. Cohen along with contributions from the world's most experienced knee surgeons review the basic science, kinematic, imaging, and injury patterns surrounding the ACL. Surgical concepts, various techniques for reconstruction, and diverse opinions on approaching the ACL are also included. Current Concepts in ACL Reconstruction explains the anatomical basis in order to provide the most current surgical principles to ensure the patient receives the best surgical outcomes. To reflect recent advancements in ACL treatment, the emerging double-bundle technique is comprehensively covered. The differences between the single- and double-bundle techniques are discussed with perspectives from leading international experts in double-bundle reconstruction. An accompanying video CD-ROM demonstrates the various procedures mentioned throughout the text.

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**swelling after acl reconstruction: The ACL-Deficient Knee** Vicente Sanchis-Alfonso, Joan Carles Monllau, 2012-12-18 This book approaches the ACL deficient knee from a different perspective than those of the previous classical ways. The common approach is the analysis of closed compartments; anatomy, biomechanics, physical findings, imaging, surgical treatment and rehabilitation. The approach of this book is completely opposite, focusing on questions, controversies, problem analyses and problem solving, besides analyzing the possibility of prevention. Therefore, in each chapter, the biomechanics, anatomy, and other areas that are relevant to the topic are reviewed. There are chapters where highly specialized surgical techniques are presented (acute ACL repair, double bundle reconstruction, chondral lesions treatment or meniscal transplant). These chapters are written by internationally renowned specialists that are pioneers in the topic analyzed. Another interesting aspect of this book are the step by step surgical techniques videos, that will allow a knee specialist to perform the technique presented by the author. Moreover, the videos will include anatomy and physical therapy techniques.

**swelling after acl reconstruction: Noyes' Knee Disorders: Surgery, Rehabilitation, Clinical Outcomes E-Book** Frank R. Noyes, 2016-02-02 Frank R. Noyes, MD - internationally-renowned knee surgeon and orthopaedic sports medicine specialist - presents this unparalleled resource on the diagnosis, management, and outcomes analysis for the full range of complex knee disorders. - Relies on Dr. Noyes' meticulous clinical studies and outcomes data from peer-reviewed publications as a scientifically valid foundation for patient care. - Features detailed post-operative rehabilitation programs and protocols so that you can apply proven techniques and ease your patients' progression from one phase to the next. - Presents step-by-step descriptions on soft tissue knee repair and reconstruction for anterior cruciate ligament reconstruction, meniscus repair, soft tissue transplants, osseous malalignments, articular cartilage restoration, posterior cruciate ligament reconstruction, and more to provide you with guidance for the management of any patient. - Contains today's most comprehensive and advanced coverage of ACL, PCL, posterolateral, unicompartmental knee replacement, return to sports after injury, along with 1500 new study references supporting treatment recommendations. - Features all-new content on unicompartmental and patellofemoral knee replacement, updated operative procedures for posterior cruciate ligament and posterolateral ligament deficiency, updated postoperative rehabilitation protocols, and new information on cartilage restoration procedures and meniscus transplantation. - Includes some of the most comprehensive and advanced discussions on arthrofibrosis, complex regional pain syndrome, tibial and femoral osteotomies, and posterolateral reconstructions available in modern published literature. - Covers gender disparities in ligament injuries for more effective analysis and management. - Includes access to 46 outstanding videos encompassing nearly 11 hours of surgery, live patient rounds, and live presentations. - Expert Consult eBook version included with purchase. This enhanced eBook experience allows you to search all of the text, figures, images, and references from the book on a variety of devices.

**swelling after acl reconstruction: Orthopedic Secrets** David E. Brown, Randall D. Neumann, 2004 Suitable for clinicians as a refresher or for students as a review for oral exams, this title covers virtually every area of orthopedics in its approximately 100 chapters.

**swelling after acl reconstruction: Controversies in Knee Surgery** Riley Williams, David Johnson, 2004-09-09 This is the essential up to date review of the difficult topics in surgery for knee injuries and sports injuries to the knee. The book draws international authors to include detailed reviews of treatment options and outcomes and will update surgeons and allied clinicians as to current thinking to provide a guide to treatment of the more difficult knee problems.

**swelling after acl reconstruction: The Handbook of Sports Medicine and Science** Douglas B. McKeag, 2008-04-30 Basketball covers the epidemiology of basketball injury, the physiological demands of basketball, preventive medicine, pre-participation examination and special considerations to be given to the young basketball player, and finally looks at the 'special' basketball player -- diabetics, asthmatics, epileptics, etc.

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**swelling after acl reconstruction: Insall & Scott Surgery of the Knee E-Book** W. Norman Scott, 2017-02-10 Insall & Scott Surgery of the Knee by Dr. W. Norman Scott remains the definitive choice for guidance on the most effective approaches for the diagnosis and management of the entire scope of knee disorders. This edition reflects a complete content overhaul, with more than 50 new chapters and over 400 contributors from around the world. The video program includes 70 new video clips, while new and expanded material covers a range of hot topics, including same-day surgery and hospital management of knee arthroplasty patients and anesthesia specific for knee surgery. - Extensive visual elements and video program include nearly 70 new videos -- over 230 in total - as well as a Glossary of Implants featuring 160 demonstrative pictures. - Over 50 new chapters and brand-new sections on Same Day Surgery and Hospital Management of Knee Arthroplasty Patients; Quality and Payment Paradigms for TKA; Anesthesia Specific for Knee Surgery; and Preoperative Assessment, Perioperative Management, and Postoperative Pain Control. - An expanded Adult Reconstruction Section informs readers about Enhanced Primary Revision and the treatment of Peri-prosthetic fractures in TKA. - Includes enhanced worldwide approaches for all aspects of disorders of the knee from nearly 400 contributors worldwide. - Boasts updated pediatric knee considerations and updated tumor surgery principles for the treatment of tumors about the knee. - Expert Consult eBook version included with purchase. This enhanced eBook experience allows you to search all of the text, figures, images, videos (including video updates), glossary, and references from the book on a variety of devices.

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**swelling after acl reconstruction: The Anterior Cruciate Ligament: Reconstruction and Basic**

*Science E-Book* Chadwick Prodromos, 2017-05-31 The Anterior Cruciate Ligament: Reconstruction and Basic Science, 2nd Edition, by Dr. Chadwick Prodromos, provides the expert guidance you need to effectively select the right procedure and equipment, prevent complications, and improve outcomes for every patient. Written and edited by world leaders in hamstring, allograft, and bone-patellar tendon-bone (BTB) ACL reconstruction, this revised reference is a must-have resource for the full range of anterior cruciate ligament reconstruction techniques, plus fixation devices, rehabilitation, revision ACLR surgery, and much more! - Covers the latest clinical and technical information on pain control, genetics and biologics, the use of ultrasound, and much more. - EBook access features an exhaustive ACL bibliography database more than 5000 available articles. - Features dozens of new chapters that offer up-to-date information on pain control after ACLR, single vs. double bundle repairs, genetics and collagen type, all-inside techniques, biologics, pediatrics, ACL ganglion cysts, prognosis for ACLR success, allografts vs. autografts, and more. - Provides the experience and insight of a dream team of ACL experts, including James Andrews on sports medicine, Frank Noyes on HTO and ACLR, and Andrew Amis on the benefits of the older femoral tunnel placement technique. - Expert Consult™ eBook version included with purchase. This enhanced eBook experience allows you to search all of the text, figures, Q&As, and references from the book on a variety of devices.

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**swelling after acl reconstruction: Physical Agents in Rehabilitation - E Book** Michelle H. Cameron, 2017-09-06 With straightforward, in-depth coverage of the use of physical agents to improve patient outcomes, Physical Agents in Rehabilitation: An Evidence-Based Approach to Practice, 5th Edition reflects how physical agents and modalities are being discussed in the classroom. This new edition brings the ideal balance of evidence and practical instruction to the learning and practice of physical agents in rehabilitation. Comprehensive coverage of all physical agents includes the mechanisms, clinical effects, and application techniques for thermal agents, ultrasound, electrical currents, electromagnetic radiation, hydrotherapy, traction, and compression. Plus, each chapter includes a scientific rationale and step-by-step instructions in the use of the agent(s), as well as up-to-date research support and new Find the Evidence tables. The new edition is supported with electronic ancillaries including review questions for students, PowerPoints®, and links to all references on Medline. - Comprehensive coverage of all physical agents includes the mechanisms, clinical effects, and application techniques for thermal agents, ultrasound, electrical currents, electromagnetic radiation, hydrotherapy, traction, and compression. - Find the Evidence tables guide the reader in finding up-to-date, patient-specific evidence using the PICO framework. - UNIQUE Step-by-step illustrated application techniques boxes guide you in reproducing effective treatment options. - Electronic ancillaries - Electrical Stimulation, Ultrasound & Laser Light Handbook helps you to understand the material and can be printed out for quick reference to use in the clinical setting. - NEW! Chapter on biofeedback complements the coverage of powered devices used in rehabilitation. - UNIQUE! New Find the Evidence tables guide the reader in finding up-to-date, patient-specific evidence using the PICO framework.

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in knee trauma; use of external fixators; articular cartilage injury and repair; osteochondral and chondral fractures; extensile exposure of the knee; distal femoral fractures; tibial plateau fractures; patellar fractures; extensor mechanism disruption; anterior and posterior cruciate ligament injuries; collateral ligament injuries; meniscal injury and repair; malunions and nonunions of the knee; total knee replacement for posttraumatic arthritis; patellar fractures and extensor mechanism disruption in total knee replacement. Contributors include prominent surgeons from throughout North America. Features over 300 clear line drawings created especially for this book, plus 400 clear, informative radiographs and operative photographs.

**swelling after acl reconstruction: The ACL Handbook** Martha M. Murray, Patrick Vavken, Braden Fleming, 2013-05-14 The new age of biologic treatment of the ACL is coming. In *The ACL Handbook: Knee Biology, Mechanics, and Treatment*, the authors cover the past and current state of ACL injuries and treatment, and then introduce and explain the key concepts for understanding the new biologic approach to ACL treatment. The use of factors to enhance graft healing are reviewed, as well as an in-depth review of the science of platelet-rich plasma and its cellular components (platelets, white cells, and plasma). Chapters on in vitro models for science as well as the advantages and disadvantages of animal models for ACL research are included, as are chapters on the new technique of bio-enhanced ACL repair. All are discussed in easily readable text aimed at anyone with an interest of what is coming next in ACL surgery.

**swelling after acl reconstruction: Posterior Cruciate Ligament Injuries** Gregory C. Fanelli, MD, 2015-02-27 Now in a revised and expanded second edition including ten new chapters, this classic text on the diagnosis and management of posterior cruciate ligament injuries represents the state of the art. Comprehensive and used-friendly, the book covers PCL anatomy and biomechanics, diagnosis and evaluation, and both surgical and non-surgical treatment strategies. Surgical chapters discuss graft selection and open and arthroscopic techniques, including both primary and revision surgery and combined reconstruction with other knee ligaments. New chapters illustrate cutting-edge and advanced surgical techniques in reconstruction and primary repair, articular cartilage resurfacing and meniscus transplant in the PCL injured knee, mechanical graft tensioning, the role of osteotomy, treatment of PCL injuries in children, results of treatment and outcomes data in PCL injuries, clinical case studies, and the editor's experience chapter based on 24 years of treating PCL injuries. Complications, bracing and rehabilitation round out the presentation. Written and edited by leaders in the management of injuries to the knee, this will be an invaluable text for orthopedic surgeons and sports medicine practitioners alike.

**swelling after acl reconstruction: Advanced Quantitative Imaging Of Knee Joint Repair** Ravinder R Regatte, 2014-03-24 Over the last two decades, there have been numerous exciting developments in the surgical field of articular cartilage repair. Magnetic resonance imaging plays a critical role in pre-operative surgical planning, through its ability to identify the extent and severity of cartilage lesions. It also plays an important role in post-operative management, by allowing surgeons to noninvasively monitor the morphological status of repaired cartilage tissue. This book covers recent advances in ultra high field MRI and biochemical MRI techniques such as T2 mapping, delayed gadolinium enhanced MRI of cartilage (dGEMRIC), gagCEST and sodium MRI. It is written by a multidisciplinary team including basic scientists, radiologists, orthopaedic surgeons and biomedical engineers. The volume is an ideal reference guide for musculoskeletal radiologists, basic research scientists, orthopedic surgeons and biomedical engineers etc.

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