

## Visions & Voices: Velocity and Vulnerability: Home

This LibGuide was created to accompany the Visions & Voices event: Velocity and Vulnerability: Baseball Pitchers and the Limits of Human Performance, March 31 at Dedeaux Field at USC at 6:00 pm

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### Velocity and Vulnerability: Baseball Pitchers and the Limits of Human Performance

Why do we expect athletes to transcend human limits and seek perfection? Join us for a conversation at USC's storied Dedeaux Field with pitching legend Tom House, USC Biological Sciences and Biomedical Engineering professor Jill McNitt-Gray and Keck School of Medicine orthopedic surgeon Dr. Seth Gamradt.

#### Here's the wind-up ...



#### ... and the pitch!

Will baseball pitchers ever throw 120-mile-per-hour fastballs, or have we reached the human body's speed limit? What does it mean that we expect athletes to transcend limits and seek perfection? Questions like these pertain to both the beautiful science of biomechanics and the often-unforgiving culture of sports fandom. Join us for a conversation under the lights of USC's storied Dedeaux Field with pitching legend and USC alumnus **Tom House**, former Major League reliever **Robb Nen**, USC Biological Sciences and Biomedical Engineering professor **Jill McNitt-Gray** and Keck School of Medicine orthopedic surgeon **Dr. Seth Gamradt**, who works closely with USC's Athletic Medicine Department, providing care for student-athletes and sports teams. After the discussion, test your arm against the pros with radar guns and motion-capture equipment. In conjunction, the USC Libraries and USC Athletics will present an exhibition of baseball memorabilia and other items from their collections, including the Biomechanics of Motion collection in the USC Digital Library.

Organized by USC Athletics and the USC Libraries.

#### How can I help you?



**Ben Lea**

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#### Contact:

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 (next to the photocopier)  
 ben.lea@usc.edu  
 (213) 740-5775

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## Visions & Voices: Velocity and Vulnerability: Dr. Seth Gamradt

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### About Dr. Gamradt



**Dr. Seth Gamradt** is a specialist in the field of orthopaedic surgery and sports medicine at the Keck Medical Center of USC. Dr. Gamradt is the Director of Orthopaedic Athletic Medicine for USC Athletics. Dr. Gamradt's practice has an emphasis on arthroscopic shoulder surgery; arthroscopic knee surgery and ligament reconstruction (ACL surgery); shoulder replacement; and elbow arthroscopy/ligament reconstruction. He has a special interest in caring for athletes of all ages and is a team physician for the USC Trojans. Dr. Gamradt is also a team physician for United States Women's Soccer. A native of Minnesota, Dr. Gamradt attended college at Pepperdine University where he graduated Magna Cum Laude. Dr. Gamradt then graduated with honors from Weill Cornell Medical College in New York City. He completed his residency training in Orthopaedic Surgery at UCLA during which he completed a one-year research fellowship. After residency, Dr. Gamradt completed a sports medicine and shoulder surgery fellowship at the top-ranked Hospital for Special Surgery in New York City. During fellowship, Dr. Gamradt was an assistant team physician to the New York Giants football team. Prior to his appointment at USC, Dr. Gamradt spent many years as a team physician and orthopaedic surgeon at UCLA. Dr. Gamradt is part of the exclusive international association comprised of shoulder and elbow surgeons: The American Shoulder and Elbow Surgeons. He is one of the "Top Doctors" as ranked by US News and World Report. Dr. Gamradt has been involved in both clinical and laboratory research for over 10 years and is the author of numerous peer-reviewed research articles, book chapters, and presentations. Dr. Gamradt is on the editorial board of the journal: Techniques in Shoulder and Elbow Surgery and The Journal of Bone and Joint Surgery Sports Medicine Highlights.

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## Visions & Voices: Velocity and Vulnerability: Tom House

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### About Tom House



**Tom House**, who played at USC in 1967, is a well-known pitching guru with an extensive background. After being selected by the Atlanta Braves in the third round (48th overall) of the 1967 secondary draft, House made his major league debut in 1971. He would play through the 1978 season with career stops at Atlanta, Boston and Seattle.

He went 5-3 with a 1.43 ERA in 94 2/3 innings during his 1967 season at USC. In his 289 **major league appearances**, House compiled a 29-23 record with a 3.79 ERA and 33 saves.

He has been instrumental in researching ways to improve the health and performance of pitchers at all levels. Prior to joining the USC staff, he was the founder and CEO of the National Pitching Association, based in San Diego, which provided pitchers, parents and coaches with three-dimensional motion analysis, functional strength screens, mental/emotional profiles and nutritional assessments.

House graduated from USC in 1971 with a bachelor's degree in management. He earned his first master's degree in marketing in 1974 and his second master's degree in performance psychology in 1981 before earning his doctorate based in psychology in 1984.

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## Visions & Voices: Velocity and Vulnerability: Dr. Jill McNitt-Gray

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**Professor McNitt-Gray** studies mechanisms organisms use to control and distribute mechanical load during goal-directed multijoint movements involving external loading.

**Honors and Awards**

- ▶ Mellon Mentoring Award for Mentorship of Undergraduate Students, 3/2010-
- ▶ President-Elect, President, Past-President American Society of Biomechanics, 8/25/2009-8/26/2012
- ▶ Zumberge Fellow for Interdisciplinary Research with Flashner, H., University of Southern California, 1998, 8/1/1998-12/31/1999
- ▶ USC Innovative Teaching Award, USC Center for Excellence in Teaching Innovative Teaching Award, 1992
- ▶ Winner of Prince Alexandre de Merode Award- Physical Sciences- International Olympic Committee, Medical Commission, 2002. Requejo P.S.\*, McNitt-Gray, J.L., & Flashner, H. Flight phase joint control required for successful gymnastics landings. Presented by P.S. Requejo., 1988-1989

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### About Robb Nen



A 1987 draftee out of Los Alamitos High School by the Texas Rangers, **Robb Nen** made his major league debut in April, 1993. Over the course of a 10-year major league career, he saved 314 games for the Marlins and Giants. In 2000, he finished 4th in the Cy Young balloting, and 12th in the MVP race. The following year, he led the National League in saves with 45, and finished out 71 games, a major league record that stands to this day.

The all-time leader in saves for both the Marlins and the Giants, Nen's career was derailed in 2002, when a surgery to "clean up loose particles" in his pitching shoulder revealed a torn labrum. In a younger pitcher, a condition which often necessitates ulnar collateral surgery (aka, Tommy John surgery).

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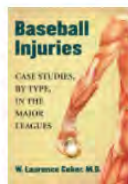


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### Books / e-books

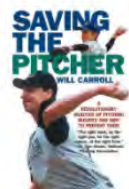


**Baseball Injuries** by W. Laurence Coker

ISBN: 9780786468683

Publication Date: 2013-03-25

In baseball, injuries to players fall into two main categories: overuse and traumatic. Over 162 games, repetitive pitching and batting motions and the stress of base running can damage joints, bones, and soft tissues, making overuse injuries the most common. Traumatic injuries like beanings, sliding injuries, and concussions, while less frequent, add to the DL list each year. This work explores the various types of injuries in baseball and provides case studies of individual player injuries to demonstrate the cause of injuries, the different treatment options, and the effect of injuries on a player's career. Throughout, discussions show the link between injuries and innovations in the game, like the batting helmet and padded outfield walls, and innovations in medicine, such as Tommy John surgery.



**Saving the Pitcher** by Will Carroll

ISBN: 1566637287

Publication Date: 2007-03-14

The most dangerous thing in baseball is a pitcher with potential. More than half of all starting pitchers will end up on the Disabled List and over the last three seasons, more than two hundred pitchers at all levels of professional baseball have undergone ligament replacement surgery that has cost them more than a year of an already finite resource, their baseball career. Teams are losing on the field because of an inability to keep their own pitchers healthy. Teams are losing on their ledgers as they pay out ever increasing salaries to pitchers that are unable to perform and overpaying those pitchers that do somehow remain healthy. In baseball, there is a new orthodoxy that "there is no such thing as a pitching prospect." Too many young flamethrowers simply burn out, then fade away, their potential never reached and their team never seeing any gain from their sizeable investments of time and money. Can young arms be saved from the torture and abuse subjected on them by the lords of baseball? The answer is yes. We are losing pitchers far too young, far too early, and it can be prevented. Saving the Pitcher addresses all aspects of pitcher injuries, pitcher abuse, pitcher workload, pitcher mechanics, and most importantly, injury prevention. Knowledge from doctors, trainers, coaches, pitchers, biomechanists, and researchers make this book the first complete look at pitcher health. These injuries don't have to happen. From major leaguers to little leaguers, this book is a must read for pitchers, parents, and baseball fans everywhere.

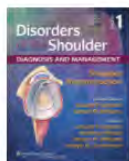


**Sports Injuries** by Reha N. Tandoan (Associate Editor); Gideon Mann (Associate Editor); René Verdonk (Associate Editor); Mahmut Nedim Doral (Editor)

ISBN: 9783642156298

Publication Date: 2011-11-07

In recent years, research studies into sports injuries have provided healthcare professionals with a better understanding of their etiology and natural history. On this basis, novel concepts in the diagnosis and management of these conditions are now being explored. This timely book offers a complete guide to the latest knowledge on the diagnosis and treatment of the full range of possible sports injuries. Individual sections are devoted to biomechanics, injury prevention, and the still emerging treatment role of growth factors, which foster more rapid tissue healing. Sports injuries of each body region are then examined in detail, with special attention to diagnostic issues and the most modern treatment techniques. In addition, pediatric sports injuries, extreme sports injuries, the role of physiotherapy, and future developments are extensively discussed. All who are involved in the care of patients with sports injuries will find this textbook to be an invaluable, comprehensive, and up-to-date reference.



**Disorders of the Shoulder** by Joseph P. Iannotti; Gerald R. Williams

ISBN: 9781451127454

Publication Date: 2013-09-16

Designed to address all aspects of shoulder reconstruction, this volume in the Disorders of the Shoulder series provides complete and practical discussions of the reconstructive process--from diagnosis and planning, through surgical and nonsurgical

treatments, to outcome and return to functionality. This informative resource offers... Comprehensive coverage addresses all aspects of diagnosis and operative management of recurrent or irreparable rotator cuff tears, complications of instability surgery, arthritis, stiff shoulder, shoulder arthroplasty and hemiarthroplasty, management of bone loss, and more... Authoritative Guidance from acknowledged leaders. Luminaries in the field discuss the evidence on which they base their decision-making and operative strategies. Step-by step depictions of procedures in full color Detailed Approach makes this the ideal resource for shoulder specialists, orthopedic surgeons with an interest in shoulder disorders, orthopedic residents and fellows, and rehabilitation professionals.



**Introduction to Sports Biomechanics** by Roger Bartlett

ISBN: 9780415632430

Publication Date: 2014-02-25

Introduction to Sports Biomechanics: Analysing Human Movement Patterns is a genuinely accessible and comprehensive guide to all of the biomechanics topics covered in an undergraduate sports and exercise science degree. Now in a fully revised and updated third edition, the book explores both the qualitative and quantitative analysis of human movement, covering the following key topics: Movement patterns - the essence and purpose of sports biomechanics Qualitative analysis of sports movements Sports movement patterns and the geometry of motion Quantitative motion analysis in sports biomechanics What causes sports movements? Forces and moments of force The anatomy of human movement Every chapter contains cross references to key terms and definitions, learning objectives and summaries, study tasks to confirm and extend understanding, and suggestions for further reading. In addition to the printed textbook, readers of this new edition will also have access to an Interactive eTextbook version, a new kind of e-book that can be used on both mobile and desktop devices offering students an unparalleled level of interactivity. Featuring video, data files, pop-up definitions, hyperlinks, self-test quizzes and interactive labelling and sorting tasks, this new electronic edition brings the subject of sports biomechanics to life like no other textbook. With downloadable resources also provided for instructors, including PowerPoint slides and answer guidelines, this remains an essential course text for students of sport and exercise, human movement sciences, ergonomics, biomechanics, physical education, and sports performance and coaching.

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### Articles

- **Reconstruction of the ulnar collateral ligament in athletes**  
F W Jobe ; H Stark ; S J Lombardo  
Journal of Bone and Joint Surgery American Volume  
1986 Oct; 68 (8): 1158 -1163  
[more...](#)
- **The results of repair of massive tears of the rotator cuff**  
Gerber, C; Fuchs, B; Hodler, J  
JOURNAL OF BONE AND JOINT SURGERY-AMERICAN VOLUME  
Volume: 82A Issue: 4 Pages: 505-515 Published: APR 2000
- **Arthroscopic repair of full-thickness tears of the supraspinatus: Does the tendon really heal?**  
Boileau, P; Brassart, N; Watkinson, DJ; et al.  
JOURNAL OF BONE AND JOINT SURGERY-AMERICAN VOLUME  
Volume: 87A Issue: 6 Pages: 1229-1240 Published: JUN 2005

Other articles can be found in journals such as the [Journal of Bone and Joint Surgery](#), the [American Journal of Sports Medicine](#), the [Journal of Shoulder and Elbow Surgery](#), and many others.

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### Websites

- [Under the Knife](#)

Quite possibly the definitive source for news about athletes' injuries, as well as discussion of injuries in lay terms and analysis from medical professionals.

- [American Sports Medical Institute](#)

A not-for-profit sports medicine research and education foundation located at St. Vincent's Hospital in Birmingham, Alabama. ASMI was founded in 1987 by renowned orthopaedic surgeon Dr. James R. Andrews.

The mission of ASMI is to improve the understanding, prevention and treatment of sports-related injuries through research and education.

- [National Pitching Association](#)

Founded by Tom House, the National Pitching Association was formed by leading coaches, athletes and management teams to help pitchers safely develop to their fullest potential. Its goal is to provide pitchers of all levels the opportunity to learn, develop, achieve, and enjoy the game of baseball.

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