ISAKOS

ISAKOS NEWSLETTER 2022 • VOLUME II

Current Concepts on Arthroscopy, Knee Surgery & Orthopaedic Sports Medicine

BACK TO IN-PERSON

INNOVATIVE, NEW PROGRAM!

REGISTRATION OPENS
November 1

PG 6 2023 ISAKOS CONGRESS PRELIMINARY PROGRAM

ISAKOS CONGRESS 2023

Boston
Massachusetts
June 18–June 21

in this issue

International Society of Arthroscopy, Knee Surgery and Orthopaedic Sports Medicine

567 Sycamore Valley Road West
Danville, CA 94526–3900 USA
isakos@isakos.com

OFFICE MESSAGE

The past two and a half years have brought upon the world some unprecedented times. But that time allowed the ISAKOS Office to work with leadership to introduce a number of new offerings that have taken ISAKOS education to the next level. After launching monthly webinars in 2020, an entirely virtual ISAKOS Congress in 2021, and transitioning the *Journal of ISAKOS* to fully open access earlier this year, we are now excited that 2022 will witness the return of in-person ISAKOS learning events.

For several years, ISAKOS has desired to pilot an "interim" meeting held in the years between ISAKOS Congresses. After the pandemic foiled our plans for such a meeting in Sweden in 2020, this year planning is in full swing for the first ever ISAKOS Knee Arthroplasty Forum in Viña del Mar, Chile. Scheduled for October 21 and 22, this course will bring together renowned knee arthroplasty faculty from around the world, offering interactive sessions that create excellent opportunities for engagement and learning.

ISAKOS also will close out this year with not one, but two new hands-on lab courses, helping satisfy the mission of ISAKOS by bringing hands-on education to key regions across the globe. On September 28, ISAKOS will present a Knee & Shoulder Surgical Skills Lab in Bangkok, Thailand. Offered with support from TOSSM and APKASS, this cadaveric workshop will teach participants cutting-edge techniques in knee and shoulder surgery. In November, ISAKOS is partnering with AANA to host a Knee & Shoulder Arthroscopy lab course at the MARC Institute in Doral, Florida USA. Featuring world-class AANA and ISAKOS surgeons, this course will be a global education opportunity like none other. Included in the course are two days of two-on-one hands-on cadaver labs and access to instruction in both English and Spanish.

Registration will open soon for an AOSSM-ISAKOS Specialty Day scheduled for March 11, 2023, at the AAOS meeting in Las Vegas. This is the first time ISAKOS will participate in a Specialty Day, bringing an international perspective to a wide range of topics. More details on this and other new educational offerings in 2023 are headed your way.

Meanwhile, we are excited to unveil (page 9) the refreshed and innovative program for our 2023 ISAKOS Congress next June 18-21, 2023, in Boston, Massachusetts USA. We can't wait to welcome the return of the in-person ISAKOS Congress the world remembers, as we deliver this highly engaging event that the Program Chairs and committees have worked diligently to create. Abstracts have been submitted and are currently in review. The top scoring submissions will be selected for podium presentations and awards. We're positive you won't want to miss the latest program, plus networking with peers! Registration opens for all on November 1, 2022.

There will be one additional major development next June: Niek van Dijk recently announced he will be closing his time as our journal's Editor-in-Chief. Over his seven years in this role, Dr. van Dijk has effectively shepherded the development of *JISAKOS* ever since its creation and official launch in 2016. He has done

Here We Come Viña del Mar & Boston–IN PERSON!

ISAKOS's first international meeting dedicated entirely to Knee Arthroplasty will take place October 20–21 in Viña del Mar, Chile. World renowned experts in knee replacement surgery will teach symposia, participate in debates, and also interact in case-based discussions. Important clinical challenges will be discussed and the latest research advancements will be covered as well. Willem M. van der Merwe from South Africa along with David Figueroa from Chile will serve as course directors.

In 2023, ISAKOS will come to the USA for our biennial, in-person congress in Boston. The meeting will feature new technologies including virtual reality, robotics and artificial intelligence. As always, there will be cutting-edge surgical demonstrations for attendees to learn the latest procedures and techniques. As well, there will be an increase in female faculty, plus a first-time reception for female members of ISAKOS hosted by our Gender & Diversity Task Force.

Having recently attended my first in-person congress in over two years at the SLARD congress this past March, I realize how much I missed learning in-person with other surgeons and socializing with colleagues from around the world. The meeting was in Cartagena, Colombia, run by Manuel "Mosco" Mosquera and Paulo Llinás. It was very well organized and also well attended by surgeons from Latin America and faculty from around the world. The energy and enthusiasm at the congress was incredible. We often don't realize how much we enjoy something we stop doing, until we can have the same experience again. That was how I felt returning to an in-person meeting - and I believe you will have the same feeling.

See you in person soon!

Robert G. Marx, MD

ISAKOS Newsletter Editor
UNITED STATES

OFFICE MESSAGE (continued)

a tremendous job shaping and developing ISAKOS's journal into the respected, indexed, and open access journal it is today. Most recently under Dr. van Dijk's watch, *JISAKOS* launched a new surgical video library—bringing together a collection of peer-reviewed surgical techniques, featuring succinct guidelines for surgical indications, positioning, approach, technique, and closure. Visit jisakos.com to view the library and submit your next video technique. He also introduced a 100% discount on the *JISAKOS* APC charge for ISAKOS members. We thank Dr. van Dijk for these innovations, for his years of service to *JISAKOS*, and for his continuing unwavering support of our society. We wish him the best of luck on his future endeavors!

CORRECTION

Please note: In the 2022 Vol. I Issue of the ISAKOS Newsletter, Current Concept "All-Inside Suture Meniscus Repair," the author photos were misordered in the print/mailed version. Please find the corrected version of the article online on ISAKOS Global Link **(isakos.com/GlobalLink): https://bit.ly/3A4CvwH**

Guillermo Arce, MD
President, 2021–2023
Buenos Aires, ARGENTINA

Greetings from ISAKOS

We are all excited at the thought of the world slowly opening back up after a two-year plus global pandemic — a renewed sense of normalcy, making us all eager to return to the things we haven't been able to do for so long. Indeed, near the top of that list are international travel and the return of in-person meetings.

As 2021–2023 ISAKOS President, I have been lucky enough to start traveling once again and to represent ISAKOS around the world.

One of my main objectives for the first half of this year was to attend our partner societies' meetings. I thought it was a way to thank those friendly societies that share our mission and vision. It's been refreshing to reconnect with colleagues and friends — handshakes and hugs that were truly missed and long overdue.

In early March, I began to travel with a trip to the **SLARD Congress in Cartagena, Colombia.** We had some previous talks with the SLARD leadership in January. They had some concerns about running almost the first in-person meeting in the region, but Dr. M. Mosquera and P. Llinas made the right decisions. The SLARD leadership did a fantastic job. We shared science and friendship in a highly positive atmosphere. ISAKOS collaborated with two ICLs and two Symposia addressing knee and shoulder topics with excellent feedback from the audience. The SLARD Congress was a great success.

Three weeks after SLARD, I attended the **AAOS Annual Meeting in Chicago, Illinois.** It was nice to see the Executive Committee and BOD members in person, with their enormous contributions to our society's growth. Many thanks to all the BOD members for that. I also had the opportunity to see the incredible ISAKOS office team in person. Everyone worked hard that week, but we had the privilege to have Jason Koh as a local host, who made our stay gorgeous.

In April, I went to the **ESSKA Congress in Paris.** After many cancellations, Jacques Menetrey, David Dejour, and Roland Becker finally did it. It was an extraordinary meeting with a unique scientific and social program. ISAKOS participated in an ACLR session, giving its global perspective.

After returning from Paris in May, I flew to **San Francisco, California, for the 2022 AANA Annual Meeting.** AANA celebrated its 40th anniversary. Mark Getelman and his team held a big congress with more than one thousand attendees. It was nice to see, in person, so many good friends. ISAKOS presented at a meniscus ICL led by Jason Koh and John Lane. I also met the ISAKOS staff at the ISAKOS exhibit booth, plus presented Marc Safran with his official Past President's pin.

Next on my travel list was **Mexico for the AMECRA Congress** in early June. What a strong society. Antonio Ortega's leadership organized a fantastic event, and his hospitality and friendship are always of the best. ISAKOS partnered with SLARD and shared an exhibit booth to promote future ISAKOS events. During the AMECRA meeting, ISAKOS set up a shoulder course where Dr. Marie-Eve LeBel from Canada represented our society giving exciting lectures. The expert panel and audience enjoyed a new interactive educational format.

At the end of June, I had the privilege to join the **ISAKOS Shoulder Committee Consensus Meeting in Madrid, Spain.** The topic for this meeting was "Shoulder Arthritis Across the Lifespan." Gus Mazzocca chaired the event with help from Emilio Calvo and Giovanni di Giacomo. ISAKOS is honored to have an incredibly strong shoulder committee with worldwide champions—discussing current challenges and concerns with a truly global perspective.

While in Madrid, we also recorded a panel discussion offering international perspectives on Shoulder Instability, for a symposium that ISAKOS offered in July, when AOSSM celebrated its 50th Anniversary with their **2022 AOSSM Annual Meeting in Colorado Springs, Colorado.** ISAKOS Past President Marc Safran, ISAKOS CEO-Executive Director Sue Reimbold, 2023 Program Committee Deputy Chair Alan Getgood and Past Program Chair Volker Musahl were among those representing ISAKOS at this important milestone meeting for AOSSM.

Next up in my busy travel season is an upcoming flight to Thailand to attend the APKASS Congress in September. Chanakarn Phornphutkul has planned a great meeting. ISAKOS is collaborating with APKASS and TOSSM on a pre-congress, hands-on lab, training the teachers to expand novel knee and shoulder techniques at this course for skilled regional surgeons. David Parker has worked hard to make this happen.

This November, **ISAKOS and AANA will host a Knee and Shoulder hands-on lab in Miami, Florida.** I will co-chair this unique opportunity to learn cutting-edge surgical techniques. All lectures (presented in English and Spanish) will be sent to the registrants in advance; therefore, the two days will be focused on lab skill training.

I look forward to welcoming you to ISAKOS's first-ever Knee Arthroplasty Forum this October in Viña del Mar, Chile, and our 2023 Congress in Boston next June as we return to the in-person, international networking that ISAKOS is known for!

It has been quite a busy past few months, but I'm delighted that we could connect with all of ISAKOS's partner societies and so many colleagues across the globe. It felt good to meet face-to-face with one another, fulfill my presidential duty and help advance the ISAKOS mission further with each connection and presentation.

I am looking forward to seeing you in Thailand, Chile, Miami and Boston!

Until then, all the best, and enjoy

YOUR TRAVELS!

THANK YOU, ISAKOS!

C. Niek van Dijk, MD, PhD
NETHERLANDS
Editor in Chief, *JISAKOS*
c.niekvandijk@jisakos.com

"The principal aim is to advance the worldwide dissemination of knowledge and research in orthopaedic sports medicine and traumatology, arthroscopy, surgery and degenerative joint disease. The ultimate goal is to improve the quality of life for our patients."
– Me

The above quote was published in the *Journal of ISAKOS* press release written by then-publisher, BMJ, in June 2015. That was the year we announced that ISAKOS was starting its own journal. It was also the year I was selected as its Editor-in-Chief. It's hard to believe that more than seven years have gone by since then, and I can't help but to be proud of it all. In just seven years, *JISAKOS* has flourished into the indexed, open access journal that it is today.

As for my own role, I have decided to move on from my position as Editor-in-Chief in mid-2023. It has been a great privilege to work with you all and to help the journal grow from a concept journal into a well-respected educational resource for our field. It is important to hand over one's responsibilities at the correct moment, and I believe that this moment has arrived.

I strongly believe that a journal can and will only profit from new blood. Obviously, I will assist the new Editor-in-Chief—once chosen—in order to ensure a smooth transition. On a side note, this move will also provide me with more time for my teaching activities.

I encourage all of you to continue to support our journal. Now that it is indexed in Medline/PUBMED and the Clarivate Emerging Sources Citation Index and has officially moved to open access, *JISAKOS* is well on its way to the top! In addition, we are now offering a **100% article processing charge (APC) discount to ISAKOS Members***. The APC for *JISAKOS* is USD $750 for shorter articles and USD $1,500 for full-length articles. This is an important and exclusive member benefit! Also, don't forget that *JISAKOS* recently launched its surgical video library! Be sure to take advantage of these benefits by submitting your research or video technique at **jisakos.com.**

Thank you all for your input, energy, and work for our journal. Its progress over the years would not have been possible without your ideas, support, and assistance, as well as those of the Board, JIBOT, Editorial Board, committees, office staff, Leendert Blankevoort (Managing Editor), publishers, and, most of all, the authors and reviewers who believed in us.

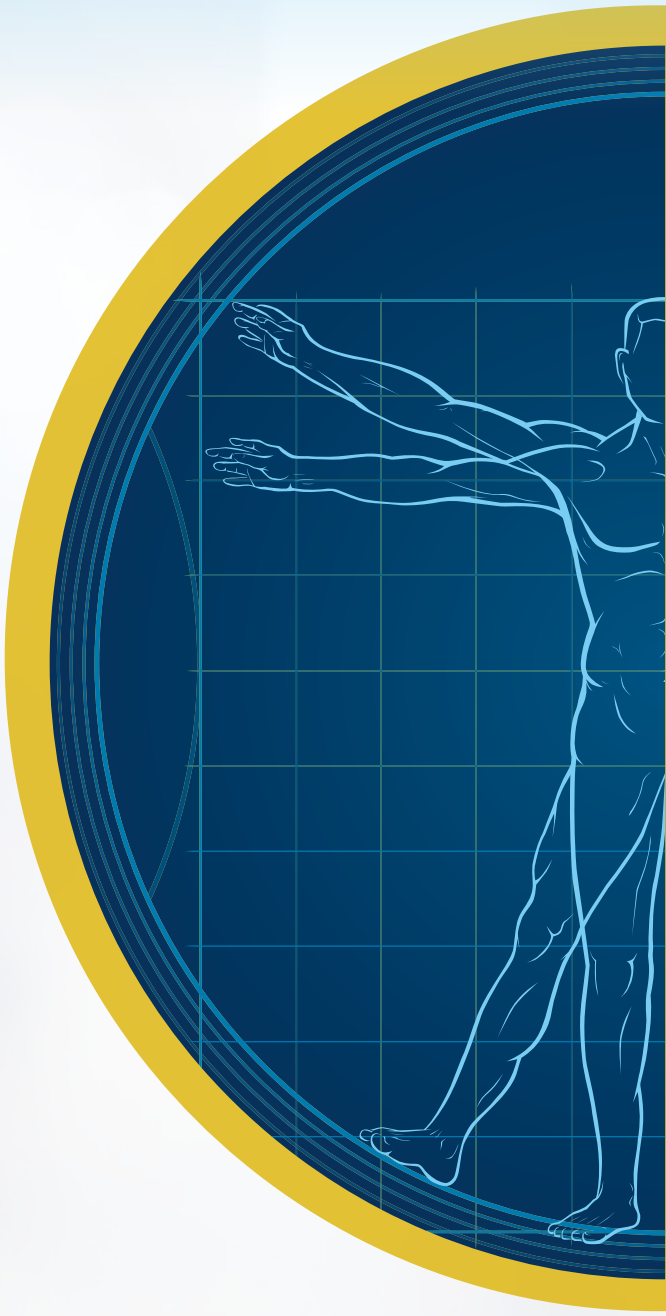
Thank you, ISAKOS, for this once-in-a-lifetime opportunity!

*Corresponding authors who are ISAKOS members are eligible for a 100% APC discount for a limited time. Non-member corresponding authors have the ability to join ISAKOS and access the APC discount.

LAST CHANCE
ISAKOS 2021: Global Congress Content

Only USD $50

ISAKOS global link



Access 4,000+ Congress presentations, surgical demonstrations, webinars, microlearning, current concepts, historical videos, industry sponsored content… and more!

isakos.com/GlobalLink

ISAKOS CONGRESS 2023

Boston
Massachusetts
June 18–June 21

SAVE THE DATE

2023

isakos.com/2023Congress

Dear ISAKOS Members, Colleagues and Friends,

We hope that this update finds you well as the world emerges from the COVID-19 pandemic and we eagerly anticipate new opportunities to come together. We thank you for your continued support, and we extend our sincere gratitude to the many dedicated ISAKOS members who have begun planning for the 14th Biennial ISAKOS Congress, June 18–21, 2023, in Boston, Massachusetts, USA. As we look forward to meeting face-to-face once again, we would like to share the following message from the ISAKOS Leadership.

The ISAKOS Congress provides a variety of new preventative, therapeutic, and surgical technique information, enabling participants to expand their knowledge and enhance their surgical skills. This four-day meeting at the John B. Hynes Veterans Memorial Convention Center will include a wide variety of educational opportunities from Sunday through Wednesday, including live surgical demonstrations, a battle of the knee arthroplasty robots, virtual reality surgical demonstrations, paper presentations, debates, global case-based discussions, Meet the Expert roundtable sessions, lectures, symposia, and instructional course lectures. Lunchtime sessions, e-posters, technical exhibits, and many networking and social activities also will be offered to Congress attendees. Special emphasis will be placed on increased opportunities for rich exchange and discussion between faculty and delegates with one third of each session allocated for discussion. We'll also host our very popular 2.5-day Sports Rehabilitation Concurrent Course, starting Saturday afternoon, June 17.

With these thoughts in mind, we wanted to share just a few topical and programmatic highlights of the 2023 Congress. Please plan to join us!

You'll hear the latest in orthopaedic content including sessions on:

- Artificial Intelligence and Virtual Reality Implementation in our Future Practice
- Shoulder Committee 2023 Consensus Statement: Shoulder Arthritis Across the Lifespan
- When Should I Add a Lateral Procedure to an ACLR
- Legends – Lives & Contributions Relating to Pathology or Operative Technique
- Taking Care of the Elite Knee
- Women in Orthopaedics: What Is Going On?
- Robotic TKA Debate: Is This the Future or a FAD? – Followed by a Battle of the Robots
- Restoring Articular Cartilage: Do Any of These Treatments Actually Work?
- Big Data, Machine Learning, and the Rise of Algorithmic Sports Medicine: When Will We Be Replaced by AI?
- How to Get Published in the *Journal of ISAKOS* Symposium with Editor's Tips for Maximizing Your Journal Submissions

And enjoy unique programming through:

Over **20** **Live Surgical Demonstrations** led by ISAKOS legends

10 **highly interactive and engaging "Meet the Experts" sessions** with ISAKOS leaders on a range of topics including TKR, massive rotator cuff repairs, foot and ankle injuries, articular cartilage, elbow and wrist, shoulder instability, and others

15 **Knee Arthroplasty sessions** with international faculty offering a global perspective on the very latest in knee arthroplasty

36 **Instructional Course Lectures** with 9 each day of the Congress

Presentation of ISAKOS's first **Freddie Fu** Lifetime Achievement Award

ISAKOS Awards Ceremonies celebrating the winners and finalists of **8** **ISAKOS Scientific Awards**

The **ISAKOS Research Symposium,** which introduces the ISAKOS Young Investigator's Scholarship and Research Mentoring program offering guidance on the grant, research, and publishing process with recognition of the **20** **Young Investigator Award winners**

Best of the Best Podium and e-Poster presentations

Plus, more symposia, debates, and case-based discussions with global faculty offering their perspectives on the very latest research and techniques in orthopaedics

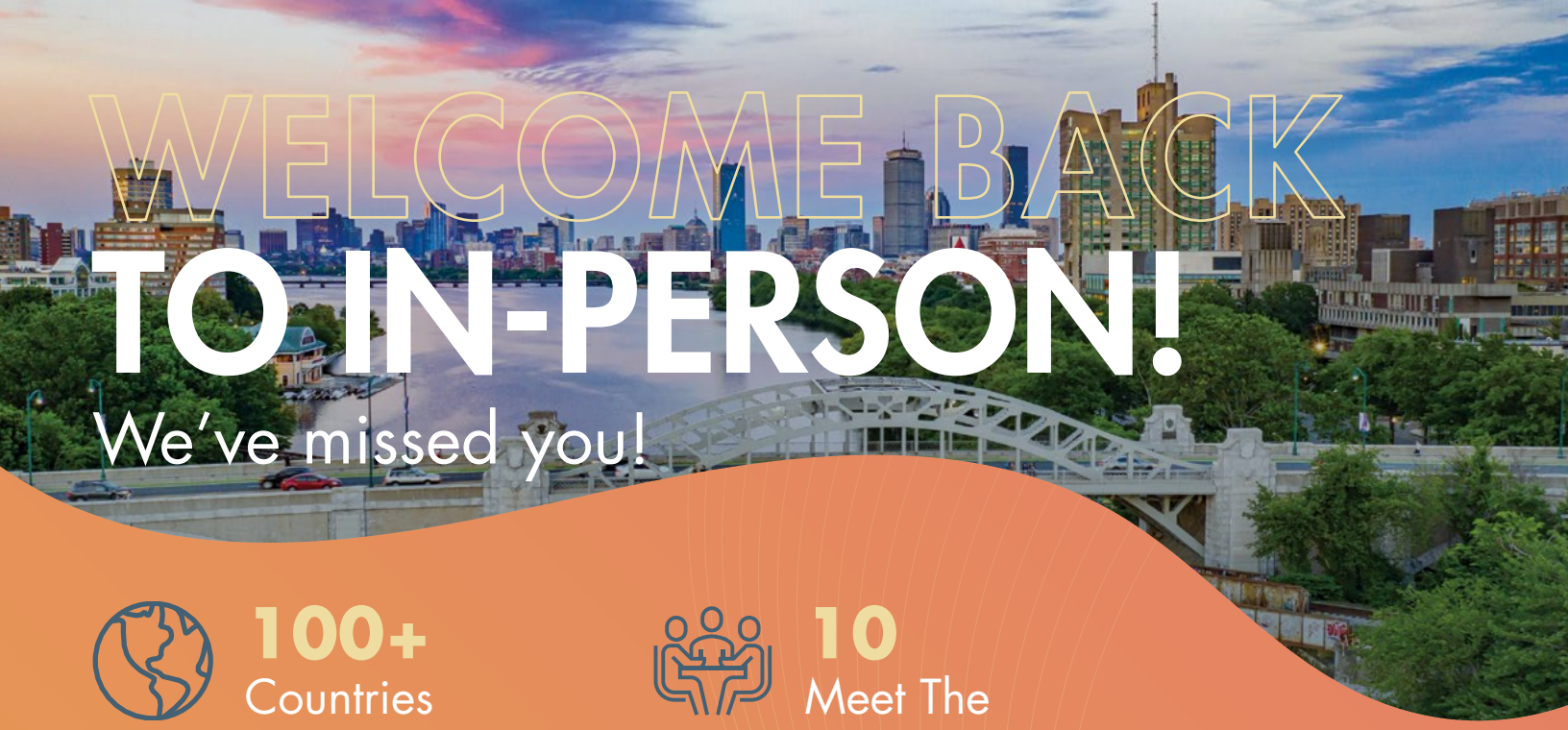
We are committed to providing you with the highest-quality program and events that an ISAKOS Congress can offer. Please make note that Congress registration will open on November 1, 2022. The Congress website will continue to be updated with pertinent and new information as the year unfolds.

We appreciate your continued support of ISAKOS, and we look forward to welcoming you to the 2023 ISAKOS Congress in Boston, Massachusetts, USA on June 18–21.

Sincerely,

Mark Clatworthy, FRACS
NEW ZEALAND
2021-2023 ISAKOS Program Committee Chair

Alan Getgood, MD, FRCS(Tr&Orth), DipSEM
CANADA
2021-2023 ISAKOS Program Committee Deputy Chair



WELCOME BACK TO IN-PERSON!

We've missed you!

100+
Countries Represented

10
Meet The Expert Sessions

500+
Presenters

8
Debates

51
Symposia

8
Award Presentations

36
Instructional Course Lectures

6
Global Case-Based Discussions

20+
Live Surgical Demonstrations

800+
Abstract & ePoster Presentations

REGISTRATION OPENS
NOVEMBER 1, 2022

ISAKOS CONGRESS 2023

Boston
Massachusetts
June 18–June 21

2023 ISAKOS CONGRESS PROGRAM

MEET THE EXPERTS SESSIONS

Renowned leaders in the field share their unique perspectives and experiences on emerging issues in these highly interactive, limited-attendance sessions. Congress delegates can engage with ISAKOS experts in small group discussions on a wide range of topics including management of massive rotator cuff tears, issues in hip/groin and elbow/wrist treatment, approaches to the off-track glenoid track lesion, ligaments of the knee, TKA revision, foot and ankle injuries, articular cartilage, and shoulder instability management.

SURGICAL DEMONSTRATIONS

The true hallmark and unique feature of the ISAKOS Congress, more than 20 cadaveric surgeries will be broadcast into General and Concurrent sessions with analysis and moderated discussion.

DEBATES

This format aims at presenting different points of view on compelling or controversial topics. Experts square off with opposing or varied approaches on a topic, followed by moderated discussion and audience Q&A allowing all to compare and contrast the differing perspectives.

- Pediatric ACL Rupture: Early Intervention vs Delayed Reconstruction
- ACL Acute Lesions in Young Athletes: Repair or Replace?
- TKA Alignment: Mechanical, Kinematic, Functional or Patient Specific
- Is Joint Line Obliquity in Knee Osteotomy Overrated?
- Acute ATFL Tears: Conservative versus Surgical Management
- TKA Robotics Debate: A Game Changer or a Fad?
- Current MSC-based Therapy in Musculo-skeletal System: Fact or Fiction?
- Unicompartmental Knee Replacement or High Tibial Osteotomy

GLOBAL CASE-BASED DISCUSSION SESSIONS

Moderators present multiple cases to illustrate specific challenges in orthopaedic treatment as panels of international experts discuss various approaches to the case and offer solutions for audience consideration and inquiry.

- Painful Shoulder in the Overhead Athlete
- Save the Meniscus? When to Repair and When to Reset Meniscal Lesions
- Meniscus Root Repair
- Revision Hip Arthroscopy: When, How and On Whom?
- Revision ACL: Last Chance to Get it Right! Case-based Symposium
- ISAKOS Consensus on AC Joint Classification: Revisited After 10 Years

INSTRUCTIONAL COURSE LECTURES

ICLs are at the heart of the scientific program reflecting ISAKOS' core educational mission. ISAKOS' leaders share knowledge and techniques in the field of orthopaedic sports medicine. ICLs offer immersion in an important topic and may offer a mix of didactic lecture, case presentations, and robust discussion and Q&A.

ANKLE & FOOT

- Return to Play Following Common Foot and Ankle Injuries
- Update on Ankle Ligament Injuries
- Strategies in Ankle OCL Management Around the World

BIOLOGICS

- PRP and BMAC: Clinical Applications and Evidence
- PRP Update: Alone or Combined?
- From the Injury to the Healing: Biological Strategies in Muscle, Ligaments and Tendons

ELBOW, WRIST & HAND

- Indication and Limits to Open and Arthroscopic Elbow Surgery
- Post-traumatic Carpal and DRUJ Instability

HIP

- Basics of Hip Arthroscopy
- Extra-Articular Hip Impingement Syndromes
- Innovation and Technology in Hip Preservation

KNEE

- Legends in High Tibial Osteotomy (HTO)
- Pediatric Knee Conditions Treated the ISAKOS Way
- Multi-ligament Injuries of the Knee: Case-based Instructional Course Lecture
- Meniscal Injuries: When to Leave, Resect or Repair?
- Managing the Posterolateral Corner
- Robotics in Osteotomies and Ligament Surgery

KNEE: ACL

- Ensuring Good Results from Primary ACL Reconstruction
- The Anterolateral Knee and the ACL: From Segond to Your Patient in 2023
- How to Revise ACL Successfully

KNEE: PATELLOFEMORAL JOINT

- Management of Patellofemoral Instability: Case-based ICL
- Management of Focal Chondral Defect of Patella in the Young
- The Role of Osteotomy in the Management of Patellofemoral Conditions

KNEE: TOTAL KNEE REPLACEMENT

- Alignment Strategies in Total Knee Replacement
- Comprehensive Management of Sepsis in TKA
- Unicompartmental Knee Replacement
- Revision Total Knee Replacement with Bone Loss and Instability: How to Improve Outcomes

ORTHOPAEDICS AND SOCIAL MEDIA

- The Internet and Social Media in Orthopaedics

RESEARCH

- How to Get Started in Clinical Orthopaedic Research

SHOULDER

- How to Become a Shoulder Surgeon: Tips and Tricks from Experts Around the World
- Tips and Tricks for Reverse Shoulder Arthroplasty

SHOULDER: INSTABILITY

- The Painful Stable and Unstable Shoulder
- Bone Defects with Shoulder Instability–Do We Know What to Do?

SHOULDER: ROTATOR CUFF

- Management of Massive Rotator Cuff Tears
- Shoulder: Partial Rotator Cuff Tears - Operate or No?

SPORTS MEDICINE

- Approach to Musculotendinous Injuries in High Performance Athletes

SYMPOSIA, LECTURES AND PARTNER SOCIETY PRESENTATIONS

ANKLE & FOOT

- Advances in Arthroscopic Techniques Around the Foot and Ankle
- Controversies in Achilles Tendon Ruptures
- Subtalar Instability: What is It?

BIOLOGICS

- BMAC and Adipose Stem Cells in Early and Advanced OA of Different Joints
- Elderly Patients: Can Orthobiologic Be an Option?
- The Osteochondral Unit: Subchondral Bone Cartilage and Joints

CARTILAGE

- APKASS Cartilage
- Restoring Articular Cartilage: Do Any of These Treatments Actually Work?

ELBOW, WRIST & HAND

- Post-traumatic Elbow Stiffness
- Post-traumatic Elbow Instability
- Post-traumatic Wrist Stiffness

GENDER DIVERSITY IN ORTHOPAEDICS

- Women in Orthopedics: What Is Going On?

HIP

- Debridement, Repair, Augmentation or Reconstruction of the Labrum
- Microinstability of the Hip
- Evidence in Hip Preservation Surgery: Lessons Learned

INNOVATIONS AND NEW TECHNOLOGY

- Artificial Intelligence and Virtual Reality Implementation in our Future Practice

KNEE

- Taking Care of the Elite Knee
- Osteotomies for the Treatment of Ligament Insufficiencies of the Knee
- ESSKA Osteotomy
- The Posterior Cruciate Ligament Reconstruction: How Do I Get It Tight and How Do I Get It Right?
- AOSSM Knee Dislocation
- Middle-Aged Athlete's Arthritic Knee
- Meniscus Substitution: Indications, Techniques, and Outcomes

KNEE: ACL

- When Should I Add a Lateral Procedure to an ACLR
- Timing of ACL Reconstruction, With and Without Meniscal and Collateral Structures Involved
- ACL Registries: What Have They Taught Us?
- ACL Graft Choice: Allograft or Autograft or Artificial Graft? Including the Short Graft
- Female ACL Treatment
- ACL Prevention
- New Understanding of the MCL Anatomy, Biomechanics, and Relevance to MCL Surgery and Associated ACL Injury
- Robotics in ACL and Osteotomies

KNEE: PATELLOFEMORAL JOINT

- Tricks and Pearls for the Management of Patellofemoral Instability in Children and Adolescents
- What's New in Patellar Tendinopathies?
- ISAKOS and Patellofemoral Foundation Highlights

KNEE: TOTAL KNEE REPLACEMENT

- Educating the Patient Before TKR including Prehab and Adjusting Expectations
- TKA Registries
- How to Investigate and Manage the Hidden Causes of the Unhappy TKR
- Tips for Improving Range or Motion with TKR and How to Manage the Stiff TKR
- Outpatient Total Knee Replacement: How to Set Up and Perform
- New Technology for Knee Sports Medicine Surgery: How to Choose between the Winners and the Duds
- What's New on Sports after TKR?
- UKA

ORTHOPAEDICS AND MEDIA

- *Journal of ISAKOS:* How to Write a Manuscript and Get Published!
- Social Media in Orthopaedics

RESEARCH IN ORTHOPAEDICS

- ISAKOS Research Symposium: Keys to Success in Grants, Trials and Manuscript Development

SHOULDER

- Shoulder: Tips and Tricks for Treatment and Diagnosis of Proximal Humerus Fractures
- Reverse Shoulder Arthroplasty: State of the Art
- ISAKOS Shoulder Committee 2023 Consensus Statement: Shoulder Arthritis Across the Lifespan
- Evaluation and Treatment of Scapulo Thoracic Abnormal Motion (STAM)

SHOULDER: INSTABILITY

- SLARD Shoulder Instability
- Tips and Tricks for Shoulder Instability

SHOULDER: ROTATOR CUFF

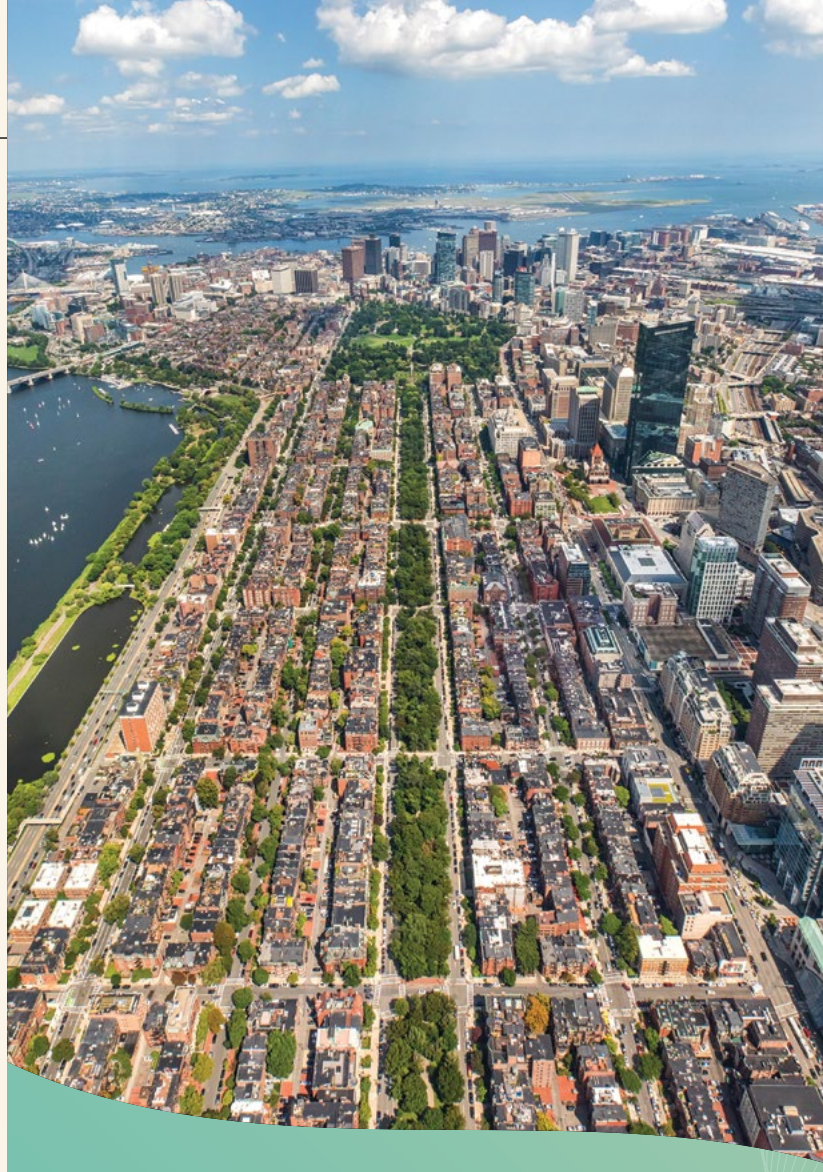
- Treatment of Rotator Cuff Tears
- Surgical Treatments for the Young Patient with Massive Rotator Cuff Tears
- AANA Shoulder Rotator Cuff Repair

SPECIAL SESSIONS

- "Legends - Lives & Contributions" Relating to Pathology or Operative Technique
- What's New in Radiology and Orthopaedics?

SPORTS MEDICINE

- Injury Prevention in Sports
- How to Manage Muscle Injuries
- Big Data, Machine Learning and the Rise of Algorithmic Sports Medicine: When Will We Be Replaced by AI?
- Return to Sport after ACL Surgery



2023

INVITED FACULTY

Program and faculty subject to change

Ferran Abat, MD, PhD SPAIN
Nasef Mohamed N. Abdelatif, MD, PhD EGYPT
Nobuo Adachi, MD, PhD JAPAN
Christopher S. Ahmad, MD UNITED STATES
Michael J. Alaia, MD UNITED STATES
Arturo Almazan, MD MEXICO
Karl F. Almqvist, MD, PhD UNITED ARAB EMIRATES
Annunziato Amendola, MD UNITED STATES
Andrew A. Amis, PhD, FREng, DSc UNITED KINGDOM
Peter Angele, MD GERMANY
Peter T. Annear, FRACS(Orth) AUSTRALIA
Stephen Kenji Aoki, MD UNITED STATES
Guillermo Arce, MD ARGENTINA
Robert A. Arciero, MD UNITED STATES
Elizabeth A. Arendt, MD UNITED STATES
Claudia Arias, MD PERU
Azeta Arif, MD INDONESIA
Diego Costa Astur, MD, PhD BRAZIL
Emmanuel A. Audenaert, MD BELGIUM
Olufemi R. Ayeni, MD, PhD, MSc, FRCSC CANADA
Clara Azevedo, MD, PhD PORTUGAL
Roald Bahr, MD, PhD NORWAY
Gregory I. Bain, MBBS, FRACS (Ortho), FAOrthoA, PhD AUSTRALIA
Simon Ball, MA, FRCS(Tr&Orth) UNITED KINGDOM
Björn Barenius, MD, PhD SWEDEN
Alfonso R. Barnechea Rey, MD PERU
Gabriel Baron, MD CHILE
David S. Barrett, MD, FRCS UNITED KINGDOM
Johannes Barth, MD FRANCE
John Bartlett, AM MB BS, FRACS, FAOA AUSTRALIA
Thomas Bauer, MD, PhD FRANCE
Roland Becker, MD, PhD, Prof. GERMANY
Asheesh Bedi, MD UNITED STATES
Knut Beitzel, Prof. GERMANY
John A. Bergfeld, MD UNITED STATES
Stephane Bermon, MD, PhD MONACO
Alessandra Berton, MD ITALY
Tahsin Beyzadeoglu, MD, Prof. TURKEY
Deepak N. Bhatia, MS(Orth), DNB(Orth) INDIA
Leela C. Biant, MS, MFSTEd, FRCSEd(Tr&Orth) UNITED KINGDOM
Hamid Rahmatullah Bin Abd Razak, MBBS, FRCSEd (Ortho), FRCSGlasg (Tr&Orth), FAMS SINGAPORE
Leendert Blankevoort, PhD NETHERLANDS
Berte Bøe, MD, PhD NORWAY
Nicolas Bonin, MD FRANCE
Michel P. Bonnin, MD, PhD FRANCE
Kyle Borque, MD UNITED STATES
Matthew J. Brick, MBChB, FRACS NEW ZEALAND
Emmanouil V. Brilakis, MD, MSc, PhD GREECE
Mats G. Brittberg, MD, PhD, Prof. SWEDEN
Charles H. Brown, Jr., MD UNITED ARAB EMIRATES
Nicolaas C. Budhiparama, MD, PhD, FICS, Prof. INDONESIA
William Bugbee, MD UNITED STATES
Jacob Giovanni Calcei, MD UNITED STATES
James D. Calder, OBE, MBBS, MD, PhD, FRCS, FFSEM(UK) UNITED KINGDOM
Emilio Calvo, MD, PhD, MBA SPAIN
Gianluca Camillieri, MD ITALY
Gian Luigi Canata, MD ITALY
Michael Carmont, FRCS(Tr&Orth) UNITED KINGDOM
Ana Catarina Angelo PORTUGAL
Andrea Celli, MD ITALY
Simone Cerciello, MD ITALY
Jorge Chahla, MD, PhD UNITED STATES
Chih-Hwa Chen, MD, Prof. TAIWAN
Shiyi Chen, MD, PhD, Prof. CHINA
Jiwu Chen, MD, PhD CHINA
Antonia F. Chen, MD, MBA UNITED STATES
Bancha Chernchujit, Prof. THAILAND
Franck P. D. A. Chotel, MD, PhD, Prof. FRANCE
Constance R. Chu, MD UNITED STATES
Steven Claes, MD, PhD BELGIUM
Mark G. Clatworthy, FRACS NEW ZEALAND

Justin P. Cobb, BMBCh, FRCS, MCh UNITED KINGDOM
Carina Cohen, PhD BRAZIL
Moises Cohen, MD, PhD, Prof. BRAZIL
Camila Cohen Kaleka, PhD BRAZIL
Christopher Angelo Colasanti, MD UNITED STATES
Brian J. Cole, MD, MBA UNITED STATES
Naama Constantini, MD ISRAEL
Myles R. J. Coolican, FRACS AUSTRALIA
Andrew J. Cosgarea, MD UNITED STATES
Alberto Costantini, MD ITALY
Riccardo Cristiani, MD, PhD SWEDEN
Magali Cucchiarini, PhD GERMANY
Ramon Cugat Bertomeu, MD, PhD SPAIN
Pieter D'Hooghe, MD, PhD QATAR
Joseph P. DeAngelis, MD UNITED STATES
Ignacio Dallo, MD SPAIN
Francesca de Caro, MD, PhD ITALY
Thomas Michael DeBerardino, MD UNITED STATES
David H. Dejour, MD FRANCE
Franco Della Vedova, MD ARGENTINA
Francesco Della Villa, MD ITALY
Marco K. Demange, MD, PhD BRAZIL
Ricardo Guillermo Denari, Prof. ARGENTINA
Brian M. Devitt, MD, PhD, FRCS, FRACS AUSTRALIA
Giovanni Di Giacomo, MD ITALY
Gregory S. Difelice, MD UNITED STATES
Patrick Djian, MD FRANCE
Benjamin G. Domb, MD UNITED STATES
Jon Olav Drogset, Prof. NORWAY
Pascal Edouard, MD, PhD FRANCE
Benno Ejnisman, MD BRAZIL
Leandro Ejnisman, MD, PhD BRAZIL
Bassem T. Elhassan, MD UNITED STATES
Lars Engebretsen, MD, PhD NORWAY
Pieter J. Erasmus, MBChB, MMed, FCS(Orth) SOUTH AFRICA
Karl Eriksson, MD, PhD, Asst. Prof. SWEDEN
João Espregueira-Mendes, MD, PhD PORTUGAL
Filippo Familiari, MD, Prof. ITALY
Gregory C. Fanelli, MD UNITED STATES
Lutul Dashaun Farrow, MD UNITED STATES
Julian A. Feller, FRACS, FAOrthA AUSTRALIA
Mario Ferretti, MD, PhD BRAZIL
David H. Figueroa, MD CHILE
Francisco Figueroa, MD CHILE
Christian Fink, MD, Prof. AUSTRIA
Ponky Firer, Prof. SOUTH AFRICA
David C. Flanigan, MD UNITED STATES
Margaret W. M. Fok, FRCSEd(Ortho), MBChB HONG KONG
Magnus Forssblad, MD, PhD SWEDEN
Francesco Franceschi, MD, PhD ITALY
Rachel M. Frank, MD UNITED STATES
Michael T. Freehill, MD, FAOA, FAAOS UNITED STATES
Niklaus F. Friederich, MD, Prof. SWITZERLAND
Brett A. Fritsch, MBBS BSc(Med), FRACS, FAOrthA AUSTRALIA
John P. Fulkerson, MD UNITED STATES
Pablo E. Gelber, MD, PhD SPAIN
Alan Getgood, MD, FRCS(Tr&Orth), DipSEM CANADA
Mark Glazebrook, MD, PhD, MSc, FRCS(C) CANADA
Alberto Gobbi, MD ITALY
Danny P. Goel, MD, MSc, FRCSC CANADA
Andreas H. Gomoll, MD UNITED STATES
Deepak Goyal, MBBS, MS(Ortho), DNB(Ortho) INDIA
Daniel A. Grande, PhD UNITED STATES
Karin Grävare Silbernagel, PT, PhD, ATC UNITED STATES
Benjamin R. Graves, MD UNITED STATES
Daniel W. Green, MD, MS, FACS UNITED STATES
Matteo Guelfi, MD ITALY
Daniel Guenther, MD, PD GERMANY
Stéphane Guillo, MD FRANCE
Ashish Gupta, MBBS, MSc, FRACS AUSTRALIA
Ranjan Gupta UNITED STATES
Vicente Gutierrez, MD CHILE
Dan Guttmann, MD UNITED STATES
Chul-Won Ha, MD, PhD KOREA, REPUBLIC OF
Fares S. Haddad, MCh(Orth), BSc, FRCS(Orth) UNITED KINGDOM
Laszlo Hangody, MD, PhD, DSc HUNGARY
Michail E. Hantes, MD, PhD, Prof. GREECE
Christopher D. Harner, MD, FAOA UNITED STATES
Joshua D. Harris, MD UNITED STATES
Camilo P. Helito, MD, PhD BRAZIL
Katarzyna Herman, MD POLAND
Laurie A. Hiemstra, MD, PhD, FRCSC CANADA
Michael T. Hirschmann, MD, Prof. SWITZERLAND
MaCalus V. Hogan, MD, MBA UNITED STATES
Per Hölmich, DMSc, Prof. DENMARK
Christian Hoser, MD AUSTRIA
Yuichi Hoshino, MD, PhD JAPAN
Stephen M. Howell, MD UNITED STATES
Gregory A. Hoy, FRACS, FAOrthA, FACSP, FASMF AUSTRALIA
Johnny Huard UNITED STATES
James Hui, MD SINGAPORE
Kenneth J. Hunt, MD UNITED STATES
Gazi Huri, Assist Prof., MD TURKEY
Mark R. Hutchinson, Professor, MD, FACSM, FAANA, FAAOS UNITED STATES
José F. Huylebroek, MD BELGIUM
Mohamed A. Imam, MD, MSc, DSportMed, PhD, FRCS UNITED KINGDOM
Andreas B. Imhoff, MD, Prof. Emeritus GERMANY
Magaly Iñiguez, MD CHILE
Sebastián Irarrázaval, MD CHILE
James J. Irrgang, PT, PhD, FAPTA UNITED STATES
Eiji Itoi, MD, PhD JAPAN
Andrew Jawa, MD UNITED STATES
Patrick Wakefield Joyner, MD, MS UNITED STATES
Christopher C. Kaeding, MD UNITED STATES
Jon Karlsson, MD, PhD, Prof. SWEDEN
Francois M. Kelberine, MD FRANCE
John G. Kennedy, MD, FRCS UNITED STATES
Gino M. M. J. Kerkhoffs, MD, PhD, Prof. NETHERLANDS

Raghbir S. Khakha, MBBS, BSc (Hons), FRCS UNITED KINGDOM
Moin Khan, MD, MSc, FRCSC CANADA
Vikas Khanduja, MA(Cantab), MBBS, MSc, FRCS, FRCS(Orth), PhD UNITED KINGDOM
William B. Kibler, MD UNITED STATES
Jin-Goo Kim, MD, PhD KOREA, REPUBLIC OF
Yuka Kimura, MD JAPAN
Kristian Kley, MD GERMANY
Mininder Kocher, MD, MPH UNITED STATES
Jason L. Koh, MD, MBA UNITED STATES
Elizaveta Kon, Prof., MD ITALY
Michaela Kopka, MD, FRCSC, DipSportMed CANADA
Nanne P. Kort, MD, PhD NETHERLANDS
Christos Koukos, MD GERMANY
Aaron J. Krych, MD UNITED STATES
Rik Kundra, MD, FRCS(Orth), MFSEM(UK), DipSportsMed UNITED ARAB EMIRATES
Ryosuke Kuroda, MD, PhD JAPAN
Masahiro Kurosaka, MD JAPAN
Ajay C. Lall, MD, MS, UNITED STATES
Philippe Landreau, MD UNITED ARAB EMIRATES
John G. Lane, MD UNITED STATES
Robert F. LaPrade, MD, PhD UNITED STATES
Christian Lattermann, MD UNITED STATES
Frédéric Lavoie, MD, MSc, FRCSC CANADA
Tiago Lazzaretti Fernandes BRAZIL
Emily V. Leary, PhD UNITED STATES
Myung Chul Lee, MD, PhD, Prof. KOREA, REPUBLIC OF
Yee-Han Dave Lee, MBBS, FRCS(Ortho) SINGAPORE
Dave Lee, MD SINGAPORE
Kong Hwee Lee, SINGAPORE
Lasse Lempainen, MD, PhD FINLAND
William N. Levine, MD UNITED STATES
Bruce A. Levy, MD UNITED STATES
Manuel Leyes, MD, PhD SPAIN
Denny T. T. Lie, MBBS, FRCS, FAMS SINGAPORE
Albert Lin, MD UNITED STATES
Martin Lind, MD, PhD, Prof. DENMARK
Daphne Ling, PhD, MPH UNITED STATES
Paulo J. Llinas Hernandez, MD, Prof. COLOMBIA
Parth Lodhia, MD, FRCSC CANADA
Adolph V. Lombardi, Jr., MD, FACS UNITED STATES
Umile Giuseppe Longo, MD, MSc, PhD, Prof. ITALY
Timothy Lording, MBBS, FRACS AUSTRALIA
Hamish Love, FRACS NEW ZEALAND
Christian Lozano, MD, MBA PERU
Riccardo Luchetti, PhD ITALY
Bent Lund, MD DENMARK
Sebastien Lustig, MD, PhD FRANCE
Stephen L. Lyman, PhD UNITED STATES
Jeffrey A. Macalena, MD UNITED STATES
Rodrigo Maestu, MD ARGENTINA
Robert A. Magnussen, MD, MPH UNITED STATES
Sheanna Maine, FRACS AUSTRALIA
Gregory B. Maletis, MD UNITED STATES
William J. Maloney, MD UNITED STATES
Ajay Malviya, PhD, FRCS (T&O), MSc, MRCS Ed, MS (T&O), MBBS UNITED KINGDOM
Bert R. Mandelbaum, MD, DHL(Hon) UNITED STATES
Mihkel Mardna, MD ESTONIA
Rodrigo M. Mardones, MD CHILE
Theodorakys Marín Fermín, MD QATAR
Oliver Marín-Peña, MD, PhD. SPAIN
Juan Pablo Martinez-Cano, MD, MSc COLOMBIA
Robert G. Marx, MD UNITED STATES
Shuichi Matsuda, MD, PhD JAPAN
Hamed Mazoochy, MD IRAN, ISLAMIC REPUBLIC OF
Augustus D. Mazzocca, MS, MD UNITED STATES
David R. McAllister, MD UNITED STATES
Colm McCarthy, MD, CM, MSc, FRCSC UNITED STATES
Eric C. McCarty, MD UNITED STATES
Steven MacDonald, MD, FRCSC CANADA
Peter James McEwen, MBBS, FRACS(Orth), FAOrthA, DlpModLang AUSTRALIA
Jacques Ménétrey, Prof. SWITZERLAND
Frederick Michels, MD BELGIUM
Teruhisa Mihata, MD, PhD JAPAN
Guiseppe Milano, MD ITALY
Raffy Mirzayan, MD UNITED STATES
Gilbert Moatshe, MD, PhD NORWAY
Nick Mohtadi, MD, MSc, FRCSC, Dip. Sport Med; Clinical Professor CANADA
Paul Monk, DPhil (Oxon), FRCS NEW ZEALAND
Daichi Morikawa, MD, PhD JAPAN
Joan C. Monllau, MD, PhD, Prof. SPAIN
Hayden G. Morris, FRACS AUSTRALIA
Manuel F. Mosquera Arango, MD COLOMBIA
Daniel Moya, MD ARGENTINA
Mary K. Mulcahey, MD UNITED STATES
Arun Mullaji, FRCS Ed, MCh Orth, MS INDIA
Christopher D. Murawski, MD UNITED STATES
Martha M. Murray, MD UNITED STATES
Volker Musahl, MD UNITED STATES
Peter T. Myers, MBBS, FRACS, FAOrthA AUSTRALIA
Norimasa Nakamura, MD, PhD JAPAN
Toshiyasu Nakamura, MD, PhD JAPAN
Pablo A. Narbona, MD ARGENTINA
Lisandro Nardin, MD ARGENTINA
Thomas Neri, MD, PhD, Asst. Prof. FRANCE
Philippe Noel Neyret, MD, PhD, Prof. FRANCE
Geoffroy Nourissat, MD, PhD FRANCE
Frank R. Noyes, MD UNITED STATES
Benedict U. Nwachukwu, MD, MBA UNITED STATES
Evan A. O'Donnell, MD UNITED STATES
John Nyland, EdD, DPT UNITED STATES
John M. O'Donnell, MBBS, FRACS, FAOrthA AUSTRALIA
Mitsuo Ochi, MD, PhD JAPAN
Luke S. Oh, MD UNITED STATES
Matthieu Ollivier, MD FRANCE
Yasunari Oniki, MD, PhD JAPAN

Cristian A. Ortiz, MD CHILE
Sam Oussedik, FRCS UNITED KINGDOM
Samuel Okoth Owinga, MMED(Surg) KENYA
Vivek Pandey, MBBS, MS(Orth) INDIA
Dinshaw Pardiwala, MS(Orth), DNB(Orth), FCPS INDIA
David A. Parker, MBBS, BMedSc, FRACS AUSTRALIA
Kevin Parvaresh, MD UNITED STATES
Javad Parvizi, MD UNITED STATES
Nikolaos K. Paschos, MD, PhD UNITED STATES
Leo Pauzenberger, MD, PhD, MSc AUSTRIA
Andrew D. Pearle, MD UNITED STATES
Luigi A. Pederzini, MD ITALY
Manuel Jose Pellegrini, MD CHILE
Hélder M. D. Pereira, MD PORTUGAL
Bruno S. Pereira, MD, PhD PORTUGAL
Marc J. Philippon, MD UNITED STATES
Chanakarn Phornphutkul, MD THAILAND
Sergio Rocha Piedade, MD, MSc, PhD, Associate Professor BRAZIL
Kevin D. Plancher, MD, MPH UNITED STATES
Alberto C. Pochini, MD, PhD BRAZIL
Gary G. Poehling, MD UNITED STATES
Juan Pablo Previgliano, MD ARGENTINA
Andrew James Price, DPhil, FRCS(Orth) UNITED KINGDOM
Matthew T. Provencher, MD UNITED STATES
Nicolas Pujol, MD FRANCE
Anil S. Ranawat, MD UNITED STATES
Ehud Rath, Prof. ISRAEL
Bruce Reider, MD UNITED STATES
Dustin Richter, MD UNITED STATES
Horacio F. Rivarola-Etcheto, MD ARGENTINA
James R. Robinson, MBBS, MS, FRCS(Tr&Orth) UNITED KINGDOM
Martin Roche, MD UNITED STATES
Anthony A. Romeo, MD UNITED STATES
Nahum Rosenberg, MD, PhD, MOrthop, FRCS, Prof. ISRAEL
Bhushan Madhav Sabnis, MS-Orth, DNB-Orth, MRCS(Ed), FRCS(Tr&Orth), DipCAOS INDIA
Maristella Francesca Saccomanno, MD, PhD ITALY
David Sadigursky, MD, MSc BRAZIL
Boguslaw Dariusz Sadlik, MD, PhD POLAND
Marc R. Safran, MD, Prof. UNITED STATES
Adnan Saithna, Prof., MD, FRCS UNITED STATES
Tomoyuki Saito, MD, PhD JAPAN
Thomas G. Sampson, MD UNITED STATES
Kristian Samuelsson, Prof, MD, PhD, MSc SWEDEN
Parag Sancheti, FRCS (Ed), MS(ORTH), DNB(ORTH), MCh(UK), PhD(UK) INDIA
Vicente Sanchis-Alfonso, MD, PhD SPAIN
Maria Gala Santini Araujo, ARGENTINA
Daniel Saris, MD, Prof. UNITED STATES
André Sarmento, MD PORTUGAL
Larissa Sattler, MPhty AUSTRALIA
Felix H. Savoie III, MD UNITED STATES
Khay Yong Saw, MB ChB, MCh Orth, FRCS(Edin) MALAYSIA
Fabio Valerio Sciarretta, MD ITALY
Romain Seil, MD, Prof. LUXEMBOURG
Jong-Keun Seon, MD, PhD, Prof. KOREA, REPUBLIC OF
Elvire Servien, MD, PhD, Prof. FRANCE
Bujar Shabani, MD, PhD KOSOVO
Nilesh J. Shah, MS(Orth) INDIA
Jobe Shatrov, MD AUSTRALIA
Kevin P. Shea, MD UNITED STATES
Seth L. Sherman, MD UNITED STATES
Rainer Siebold, Prof. Dr. Med. GERMANY
Beth Ellen Shubin Stein, MD UNITED STATES
Petri J. Sillanpää, MD, PhD FINLAND
Daniel A. Slullitel, MD, Prof. ARGENTINA
Konrad Slynarski, MD, PhD POLAND
Robert Smigielski, MD, PhD POLAND
Martyn Snow, FRCS UNITED KINGDOM
Lynn Snyder-Mackler, PT, ScD, FAPTA UNITED STATES
Bertrand Sonnery-Cottet, MD FRANCE
Tim Spalding, FRCS(Orth) UNITED KINGDOM
Pietro Spennacchio, MD LUXEMBOURG
Kurt P. Spindler, MD UNITED STATES
Michael J. Stuart, MD UNITED STATES
Allston Stubbs, MD, MBA UNITED STATES
Hiroyuki Sugaya, MD JAPAN
Silvampatti Ramasamy Sundararajan, MS(Orth) INDIA
Dawid Szwedowski, MD POLAND
Masato Takao, MD, PhD JAPAN
Yasuhito Tanaka, Prof. JAPAN
Juichi Tanaka, JAPAN
Miho J. Tanaka, MD UNITED STATES
Kanglai Tang, MD, PhD, Prof. CHINA
Sachin Ramchandra Tapasvi, MBBS, MS, DNB, FRCS INDIA
Ettore Taverna, MD ITALY
Mathieu Thaunat, MD FRANCE
Patricia Thoreux-Dumas, FRANCE
John M. Tokish, MD UNITED STATES
Marc Tompkins, MD UNITED STATES
Yves Tourne, MD FRANCE
Anders Troelsen, MD, PhD, DMSc, Prof. DENMARK
Maria Tuca, MD CHILE
Soshi Uchida, MD, PhD JAPAN
Hajime Utsunomiya, MD, PhD JAPAN
Alex Vaisman, MD, Prof. CHILE
Willem M. van der Merwe, MBChB, FCS(SA)Ortho SOUTH AFRICA
C. Niek van Dijk, MD, PhD NETHERLANDS
Pim Van Dijk, MD NETHERLANDS
Ronald J. Van Heerwaarden, MD, PhD NETHERLANDS
Jordi Vega, MD SPAIN
Rene E. Verdonk, Prof em , MD, PhD BELGIUM
Peter Verdonk, MD, PhD BELGIUM
Christopher J. Vertullo, MBBS, PhD, FRACS(Orth) AUSTRALIA
Maria-Roxana Viamont-Guerra BRAZIL
Tomas Rafael Vilaseca, MD ARGENTINA
Gustavo Vinagre, MD, PhD PORTUGAL
Andrew Vincent, MBCHB, FRACS NEW ZEALAND
Michael Lee Voight, DHSc, PT, FAPTA UNITED STATES
Richard P. von Bormann, MD SOUTH AFRICA
Jon J. P. Warner, MD UNITED STATES
Andreas Voss, MD GERMANY
Daniel C. Wascher, MD UNITED STATES

Stephen C. Weber, MD UNITED STATES
Kate E. Webster, PhD AUSTRALIA
Daniel B. Whelan, MD, MSc, FRCSC, Dip. Sports Med CANADA
Nathan P. White, B Physio, MBBS, FRACS, FAOrthA AUSTRALIA
Timothy S. Whitehead, MBBS, FRACS AUSTRALIA
Leo A. Whiteside, MD UNITED STATES
Andy Williams, MBBS, FRCS(Orth), FFSEM(UK) UNITED KINGDOM
Adrian J. Wilson, MBBS, BSc, FRCS UNITED KINGDOM
Ivan Wong, MD, FRCSC, MACM, Dip. Sports Med CANADA
John Xerogeanes, MD UNITED STATES
Carlos H. Yacuzzi, MD ARGENTINA
Masahito Yoshida, MD, PhD JAPAN
Simon W. Young, MD, FRACS NEW ZEALAND
Patrick S. H. Yung, MBChB, FRCS(Orth), FHKCOS, FHKAM, FRCS HONG KONG
Stefano Zaffagnini, MD, Prof. ITALY

SPORTS REHABILITATION CONCURRENT COURSE: THE GLOBAL PERSPECTIVE

JUNE 17–19, 2023

ISAKOS is pleased to offer the sixth ISAKOS Sports Rehabilitation Concurrent Course, Saturday, June 17 through Monday, June 19. The Course is intended for physicians, athletic trainers, physiotherapists, and coaches concerned with the management or prevention of injuries to the athlete. These topics will be viewed through the international perspective of a diverse and multinational faculty of orthopaedic surgeons and physical therapists.

Chairs:

Yonatan Kaplan, PhD, MSc(Med), BSc(Physio)
ISRAEL

Lynn Snyder-Mackler, PT, ScD, FAPTA
UNITED STATES

PRELIMINARY PROGRAM TOPICS

UPDATES IN HIP ARTHROSCOPY

- Debate: Hip Arthroscopy
- Greater Trochanteric Pain Syndrome
- Rehabilitation After Hip Arthroscopy

KNEE ACL

- Strength Training in Early Rehabilitation
- On-field Rehab
- Late Rehab and Return to Sport Testing
- Is ACL Surgery Durable in Young Pivoting Sport Athletes?
- Rehabilitation of the ACL Tendon Graft: Targeting the Graft Site Using Principles of Tendon Healing

KNEE

- Debate: Knee Injury Prevention
- Global Case-based Panel Discussion

PATELLOFEMORAL, MENISCUS, AND CARTILAGE

- Patellofemoral Pain–State of the Art in Rehab
- Update on PF Surgery
- Rehab After PF Instability Surgery
- Pathoanatomy of the PF Joint
- Updates on Knee Preservation Surgery
- Rehab After Meniscal Preservation/Replacement
- Cartilage Repair Rehabilitation

INJURY PREVENTION

- Debate: We Know IP Programs Work, But Do the Effects Last?
- Integrating Psychological Aspects in ACL Prevention and Rehabilitation–Where Are We Now?
- Knee Injury Prevention–Clinical Practice Guidelines
- Global Case-based Discussion Session: Secondary Prevention Cases

MUSCLE, BONE, AND TENDON INJURY

- Bone Stress Injuries: When to Return Safely Back to Sport?
- Achilles Tendon and Exercise Load: Pain or No Pain
- Exercise Versus Corticosteroid Injection for Gluteal Tendinopathy
- Lateral Elbow Tendinopathy Rehab
- Hamstring Injuries in the NFL
- Debate: Hamstring Injuries Can Be Prevented: Myth or Fact?

OVERHEAD SPORTS INJURIES

- Rehab of the Throwing Athlete
- Advances in Shoulder Surgery

MODALITIES IN REHAB

- Neuromuscular Electrical Stimulation in Rehab
- Shock Wave Therapy in Orthopaedic Sports Medicine: Does It Really Work?

REHAB IN THE 2020s

- Is TeleRehab Here to Stay?
- Post COVID-19 Sequelae and Rehabilitation in Athletes
- Advanced Technology in Return to Sport Assessment
- Return to Sport After COVID-19 Infection
- Making Evidence-Based Rehab a Reality

ISAKOS
KNEE ARTHROPLASTY FORUM

VIÑA DEL MAR
CHILE
October 20-21
2022

ISAKOS KNEE ARTHROPLASTY FORUM

REGISTER TODAY
OCTOBER 20 – 21, 2022

Sheraton Miramar Hotel & Convention Center

Viña del Mar, CHILE

As the world's only truly global knee society, ISAKOS is proud to announce its first international meeting dedicated entirely to Knee Arthroplasty.

Through symposia, debates, surgical demonstrations and interactive case-based discussion, world-renowned experts will offer insights into clinical challenges and research advancements.

Featuring an Innovative and Interactive Meeting Format!

- Controversial Topics
- New Technology
- Debates
- Consensus

Cutting-edge, international knowledge you can take home!

Forum Directors

Willem M. van der Merwe, MBChB, FCS(SA)Ortho SOUTH AFRICA

David Figueroa, MD, Prof. CHILE

Chairs & Moderators

Myles R. J. Coolican, FRACS AUSTRALIA

Sebastien Lustig, MD, PhD, Prof. FRANCE

Philippe N. Neyret, MD, PhD, Prof. FRANCE

David A. Parker, MBBS, BMedSc, FRACS AUSTRALIA

Invited Faculty

Claudia Arias, MD PERU

Nicolaas Budhiparama, MD, PhD, FICS, Prof. INDONESIA

Mark G. Clatworthy, FRACS NEW ZEALAND

Moises Cohen, MD, PhD, Prof. BRAZIL

Magaly Iñiguez, MD CHILE

Rodrigo Maestu, MD ARGENTINA

Peter McEwen, MBBS, FRACS(Orth), FAOrthA, DIpModLang AUSTRALIA

Kevin D. Plancher, MD, MPH USA

Daniel C. Wascher, MD USA

ISAKOS.COM/2022KAFORUM

I Want to Be a Mentor

Claudia Arias, MD
Hospital Edgardo Rebagliati Martins
Clínica Internacional San Borja
Lima, PERU

Tania Soledad Alvarado Chavez, MD, Prof.
Omnihospital, State University of Guayaquil
Guayaquil, ECUADOR

"Tell me and I'll forget; teach me and I'll remember; involve me and I'll learn"
Benjamin Franklin

In recent years, we have often heard the word *mentoring* and how mentoring is beneficial for our professional development as female orthopaedic surgeons. But do we really understand what this word means?

If we search the literature, we will find many definitions of mentoring. Lancer described mentoring as "using one's wisdom to help another person build their own wisdom." According to the *Dictionary of the Royal Spanish Academy*, a mentor is a "counselor or guide, teacher, godfather" – in other words, a person who, with her wisdom, experience, and knowledge, shares what she knows with other people who know less and want to learn. Parsloe and Wray point out that mentoring "is generally understood as a special type of relationship in which objectivity, credibility, honesty, trustworthiness and confidentiality are essential" and that the role of the mentor is to support the mentees to "develop their skills, maximize their potential, improve their performance and become the person they want to be"[1] through this relationship, meaning that mentors are going to become permanent guides.

Melvin et al., in 2020, reported that almost half of orthopaedic departments did not have any mentorship program, mostly because of the lack of time, funding, or compensation for the mentors[2]. With this in mind, institutions should understand that one of the main benefits of mentoring is a better distribution of orthopaedists' schedules. Teaching the benefits of mentoring programs should be the first step in creating the programs[2]. Insufficient mentorship was reported in one study as having a substantial negative impact on women´s career experiences.

Even so, informal mentorship works better for some women as such relationships are based mainly on common interests, values, and motivations. As such, these relationships are more authentic and tend to yield maximum success. In such relationships, the mentor accepts the individuality of the mentee and serves as a permanent source of support. Mentoring women by women can help to provide exposure to those minorities and diversify the workforce[4].

Once Upon a Time, There was a Mentor

Beyond being a teacher, counselor, confidant, protector, and role model, being a mentor is identifying the mentee's goals, actively listening to them, giving them time, and, above all, stimulating discussion. However, while the focus is on giving, there also are some benefits for the mentor[2]:

1. **Increase in job satisfaction**
2. **Retention of the worker**
3. **Academic production**

Ego and the "Queen Bee Syndrome" can play tricks on us and can result in the failure of mentoring. Some women, if they have had a tough time becoming successful in their career, may feel that more junior women coming up behind them are a threat. Instead of becoming role models and mentors, these women may decide to be unpleasant to their junior colleagues or deliberately block their career path. We need to be aware of this possibility in order to avoid failure. It is useful to remember that the primary roles of a mentor are to

- eMpower
- Engage
- eNcourage
- MoTivate
- SuppOrt
- Retain

How Women Can Mentor Other Women

Studies have shown that mentoring is more important for women than men; however, women have less access to formal mentoring than men[3]. Reasons for this disparity may include a lack of older women who are available to serve as mentors, a lack of mentors with expertise, and a lack of formal programs for women[5]. Until there are enough female mentors, women will be mentored by men.

Some strategies to start:

1. Create personal connections with a proactive approach
2. Develop and optimize mentoring programs
3. Expand informal networking
4. Recognize the professional and personal achievements of female orthopaedic surgeons

How to Strengthen the Mentor-Mentee Relationship

This relationship is a very strong one—it is a deep lace, marked by an interchange of confidentiality, empathy, and understanding. The relationship must be a synergistic one in which both sides benefit.

"I have learned much from my teachers, more from my colleagues, and the most from my students" (Talmud)

We need to develop the skills to create a successful mentoring; these skills include being accessible, being good listeners, and affirming our mentees´ qualities[5]. The mentor-mentee relationship goes beyond teaching. The mentee is the protagonist of her own decisions and development and will learn by listening, reading, asking questions, and putting into practice what she has learned. The relationship is one marked by two-way continuous learning.

Stages of the Mentor-Mentee Relationship

The relationship has 4 stages, all of which are important and have the same level of priority.

- **Initiation:** For the relationship to work, the mentor and mentee must be the right match. As such, they should discuss their common interests, goals, values, and dreams. Communication is the key to avoid misunderstandings. It is the responsibility of the mentor to build trust in the mentee.
- **Negotiation:** Set goals, define strategies, organize meetings, agree on frequency and time, and establish some rules and shared responsibilities.
- **Growth:** Once we start to work on our goals, learning and development must occur on both sides. Both the mentor and the mentee need to receive feedback.
- **Closure:** More than an ending, closure is an opportunity to celebrate the success of the program. Rethink what worked and what did not and start again.

The importance of mentorship—specifically, breaking down entry barriers to academic and professional development as orthopaedic women—is indisputable. This mentoring will provide orthopaedic women with role models and will serve as an equalizing force. There is no formula to determine how to develop the relationship between mentor and mentee; this process takes mutual effort in order to work.

As mentors, let us inspire and support, propose the creation of mentoring programs, offer ourselves as volunteers, look out for our mentees, and encourage more women to be mentors. In doing so, we can change the future—everything is in our hands.

References

1. Levine WN, Braman JP, Gelberman RH, Black KP. Mentorship in orthopaedic surgery-road map to success for the mentor and the mentee: AOA critical issues. J Bone Joint Surg Am. 2013 May 1;95(9):e59. **2.** Melvin P, Trojan J, Sobel A et al. Faculty Mentorship Programs in Orthopaedic Surgery Departments in the United States [version 1]. MedEdPublish 2020, 9:134. **3.** Shen MR, Tzioumis E, Andersen E, Wouk K, McCall R, Li W, Girdler S, Malloy E. Impact of Mentoring on Academic Career Success for Women in Medicine: A Systematic Review. Acad Med. 2022 Mar 1;97(3):444-458. **4.** Mulcahey, Mary K. MD; Waterman, Brian R. MD; Hart, Robert MD; Daniels, Alan H. MD. The Role of Mentoring in the Development of Successful Orthopaedic Surgeons, Journal of the American Academy of Orthopaedic Surgeons: July 1, 2018 - Volume 26 - Issue 13 - p 463-471. **5.** Vasquez R, Pandya AG. Successful mentoring of women. Int J Womens Dermatol. 2019;6(1):61-62. Published 2019 Aug 8.

Irreparable Rotator Cuff Tears

Can Doruk Basa, MD
Health Science University,
Tepecik Training and Research Hospital
Istanbul, TURKEY

Sachin Tapasvi, MS, DNB, FRCS
The Orthopaedic Speciality Clinic
Pune, INDIA

Haluk Celik, MD, Assoc. Prof.
Health Science University,
Umraniye Training and Research Hospital
Istanbul, TURKEY

Ismail Turkmen, MD, Assoc. Prof.
Göztepe City Hospital
Istanbul, TURKEY

Mustafa Karahan, MD, Prof.
Acibadem Mehmet Ali Aydınlar University
Istanbul, TURKEY

Introduction

Rotator cuff tears (RCTs) exceeding 5 cm were historically described as massive RCTs. Gerber et al more recently defined massive tears as those involving complete rupture of at least two tendons.[1] *Irreparable* RCTs can be defined as chronic tears associated with tendon retraction, muscle atrophy, and fatty infiltration. The presence of an irreparable cuff tear is best judged during surgery if RCT cannot be repaired on the footprint despite the necessary soft-tissue release and tendon mobilization.

Although it has been reported that most massive RCTs can be repaired, failure rates of 25% to 94% have been observed as a result of tight repair and tendon degeneration. Therefore, tears that are likely to result in failure should also be considered as irreparable tears.

Physical Examination

Patients with irreparable RCTs may exhibit specific pathological findings such as deltoid and periscapular muscle atrophy or static subluxation of the shoulder. Stiffness has been reported to be more common in patients with posterosuperior and traumatic tears. Active anterior elevation is particularly important for detecting pseudoparalysis. Supraspinatus weakness can be detected with use of the Empty Can test (performed with the arm in 90° of abduction, 30° of horizontal adduction, and 90° of internal rotation; the elbow extended; the thumb pointing toward floor; and the patient resisting downward pressure). The external rotation lag sign helps to identify a posterolateral RCT. With the arm in 40° of abduction and the elbow in 90° of flexion, the shoulder is kept in maximum external rotation. If the patient cannot hold this position, infraspinatus or supraspinatus insufficiency is expected. The Hornblower test (performed with elbow flexed and the arm abducted and externally rotated to 90°) indicates a teres minor tendon tear when the patient is unable to hold this position.

In patients with anterolateral tears, weakness of the subscapularis may be noted. The lower half of the subscapularis muscle is evaluated with the lift-off test described by Gerber, while the Bear Hug and Belly Press tests are used for the upper half of the subscapularis.

Imaging

In cases of massive RCTs, the critical shoulder angle (CSA), acromiohumeral distance, and arthritis (Hamada classification) are evaluated with a true anteroposterior (AP) radiograph of the shoulder. Acromion type and osteophytes are determined with use of the scapular Y view. Medial retraction of the tear (Patte classification) and fatty degeneration of the muscle (Goutallier classification) are evaluated with use of magnetic resonance imaging (MRI). In addition, the configuration of the tendons with tears (Collin classification) and postoperative re-tear evaluation (Sugaya classification) can also be detected with use of MRI.

Patient-Related Factors in Treatment Selection

Age and activity level are the first factors to be considered in treatment selection. Nonoperative treatment and reverse shoulder arthroplasty are usually preferred for elderly and sedentary patients, whereas tendon transfers and superior capsular reconstruction are at the forefront for young and active patients.

The Value of ISAKOS **Membership**

$1,500+ Value
Free Access to the latest ISAKOS Books

Up to $1,500 Value
100% discount on APC for *JISAKOS*

$300+ Value
Discounts on ISAKOS Congress and Courses

$100 Value
Online Access to *Journal of ISAKOS* and *Arthroscopy*

$100 Value
Global Link Portal with Access to Training Videos

$100 Value
Premium OrthoEvidence Access

$100 Value
Subscription to ISAKOS Newsletter, Digital Digest, Member Directory, and Forums

Benefits Valued at $3,500+!

- International Networking & Global Perspective
- ISAKOS Webinar Collection
- Optional subscriptions to KSSTA and other Orthopaedic Journals
- ISAKOS Research Grant and Traveling Fellowship Opportunities
- Access to more than 35 ISAKOS Publications
- ISAKOS Virtual Courses & Surgical Skills Workshops
- ISAKOS Society App
- Teaching Centers and Approved Courses Opportunities
- Serve on ISAKOS Committees (Active Members)

Learn more at **isakos.com/membership**

Irreparable Rotator Cuff Tears

Acute tears may be repaired successfully; however, tears associated with long-term symptoms and those lacking a history of substantial trauma likely require reconstructive treatment methods. Associated pathologies and habits that will affect the prognosis of surgical treatment should also be evaluated in cases in which surgical treatment is being considered. In the presence of diabetes mellitus, hypercholesterolemia, steroid use, thyroid disease, and smoking, the prognosis of soft-tissue healing procedures such as tendon repair or tendon transfer will be adversely affected, and treatment methods such as conservative treatment and arthroscopic decompression should be considered and discussed with the patient. It should also be known that surgical treatment results may be poor after previous RCT procedures, infection, or repetitive steroid injections.

Evaluation of Imaging and Physical Examination in Indication Selection

Although an irreparable RCT is best identified during surgery, preoperative radiological imaging may suggest such a lesion. A tear length of >4.2 cm on the sagittal MRI section and >3.7 cm on the coronal MRI section, and a Patte and Goutallier classification of >3, are indicative of an irreparable RCT. Severe joint degeneration, decreased acromiohumeral distance (<7 mm), extension into the lower part of the teres minor or subscapular tendon, and involvement of the muscle-tendon junction decrease the chance of successful repair. Repair also may not be successful in the presence of positive lift-off and Hornblower tests, which define dysfunction of the lower part of the subscapularis and teres minor. Detection of pseudoparalysis during range of motion is crucial. Although different definitions have been reported, limitation of active anterior elevation of <90° is defined as pseudoparalysis. While the presence of pseudoparalysis leads us to use a reverse shoulder prosthesis in elderly patients, superior capsular reconstruction or tendon transfers should be considered in young patients. The treatment options to be preferred in cases of irreparable RCT are summarized in Figure 1.

Nonoperative Treatment

Conservative therapy can also be used in cases of irreparable RCT, given that a substantial number of patients are asymptomatic or have minimal symptoms. Conservative treatment can include deltoid and parascapular muscle-strengthening exercises, oral and topical non-steroid anti-inflammatory drugs, or subacromial corticosteroid injections. Conservative treatment is generally appropriate for patients with advanced age, low activity level, and comorbidities that preclude surgical treatment. If conservative treatment is chosen for young, active patients, care should be taken to monitor for possible joint arthrosis and close clinical and radiological follow-up should be performed.

Arthroscopic Debridement, Biceps Tenotomy, Acromioplasty

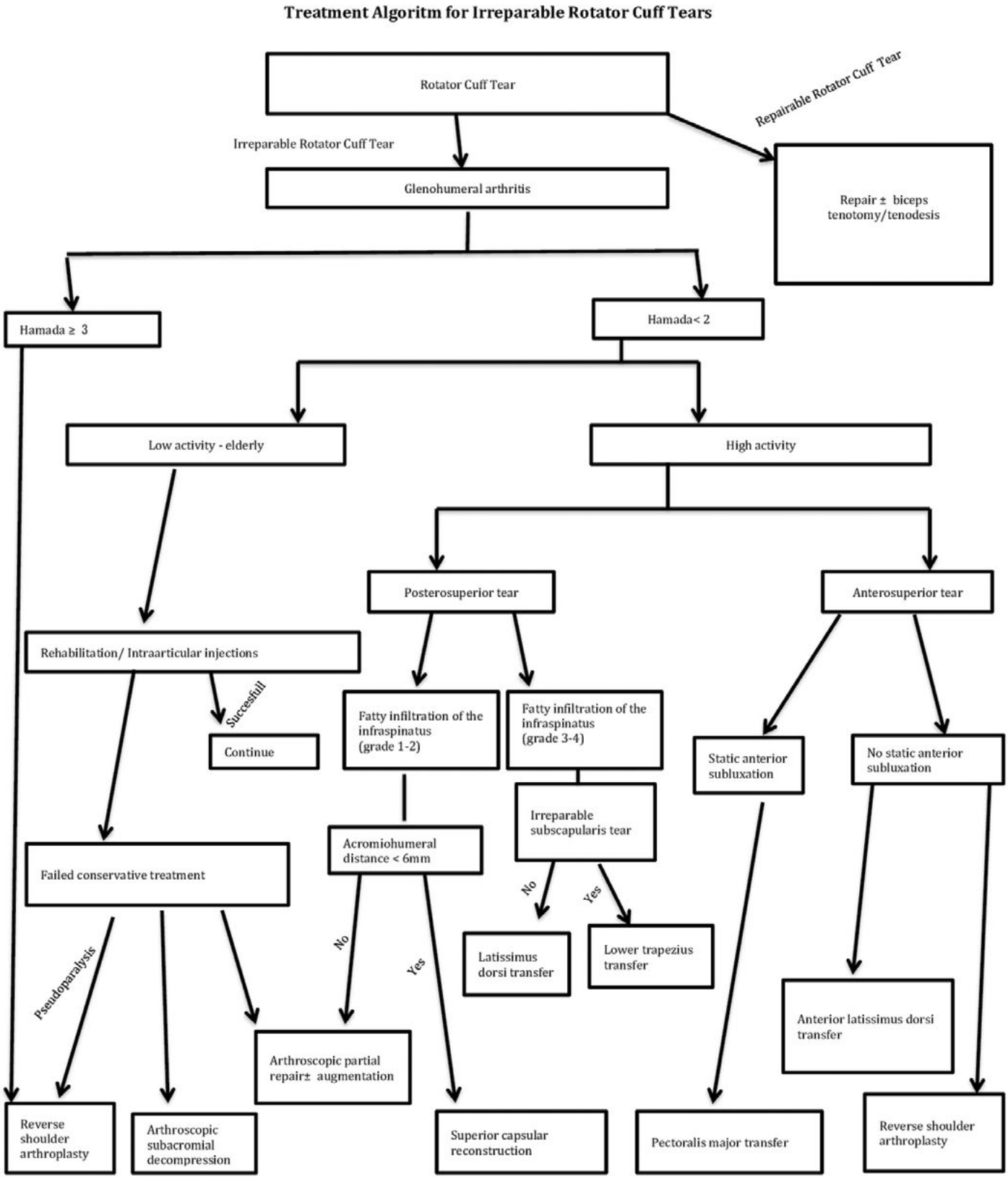
Synovitis, bursal hypertrophy, and degeneration and inflammation of the inflamed biceps tendon can cause pain in patients with a massive RCT. In addition to conservative treatment, certain operative procedures can be performed for patients with low expectations, elderly patients, and patients with comorbidities that are not suitable for operations requiring advanced surgery. Specifically, procedures such as arthroscopic synovectomy, bursectomy, acromioplasty, or biceps tenotomy can help to facilitate functional recovery by providing pain palliation.

Partial Repair

The most successful treatment for symptomatic massive RCTs is complete repair. Treatment of massive irreparable tears is controversial. Partial repair can be applied in cases in which anatomical complete repair is not possible. Generally, surgical procedures such as acromioplasty, biceps tenotomy, and arthroscopic debridement are also added to partial repair. Studies have shown that partial non-anatomic repair causes an increase in subjective shoulder scores, a decrease in pain, and an improvement in range of motion. This procedure is thought to provide anterior and posterior balance in the shoulder, creating a suspension bridge and restoring stability. Although failure rates of up to 50% have been reported after partial repair, clinical results continue to be good even in patients with failure. This is thought to be due to the additional procedures performed and the rehabilitation and muscle strength recovery facilitated by these procedures. However, partial repair should never be considered as an alternative to complete repair. Complete repair must be considered in cases in which a complete repair can be made to the tendon footprint.

Superior Capsular Reconstruction

Superior capsular reconstruction (SCR) is a treatment of choice that may be used in cases of irreparable RCT. This procedure can be used especially in young, active patients who have not yet developed arthrosis. SCR is contraindicated in superiorly fixed cases in which the acromiohumeral distance is narrowed and cannot be reduced with use of the sulcus maneuver. When this procedure was first described, tensor fasciae latae autograft was used for reconstruction; today, however, dermal allografts, xenografts, or synthetic materials can also be used for reconstruction. It is thought that a superior capsular defect causes pain secondary to subacromial impingement and also causes muscle weakness in the shoulder. With SCR, the aim is to repair the superior capsular defect caused by rotator cuff deficiency. Reconstruction provides glenohumeral joint stability by re-establishing static superior stability.



01 Treatment algorithm for irreparable RCTs.

Irreparable Rotator Cuff Tears

During this surgical procedure, the medial side of the graft is fixed to the superior of the glenoid, while the lateral side is fixed to the greater tubercle. Fixation materials, graft type, arm position during fixation, knot type, and additional procedures (e.g., acromioplasty, biceps tenotomy/tenodesis, etc.) may vary among surgeons. The fixation of the graft to the anterior structures is controversial. In clinical studies, SCR has been associated with a decrease in pain scores, an increase in shoulder scores, and an improvement in range of motion. Failure rates of up to 36.1% have been reported. While preliminary outcomes are promising, additional investigation is necessary to confirm these results.

Graft Interposition

The aim of this technique is to create a bridge between the retracted rotator cuff and the anatomic footprint. Autograft, allograft, xenograft, or synthetic materials can be used for interposition. The clinical and functional results up to 24 months after graft interposition are promising. Although repair of a fatty, degenerated, and atrophic tendon is thought to be impossible, clinical improvement and decreased pain have been observed in patients. As such, interposition graft repair is a suitable option for young, active patients with good tendon quality and mild arthrosis.

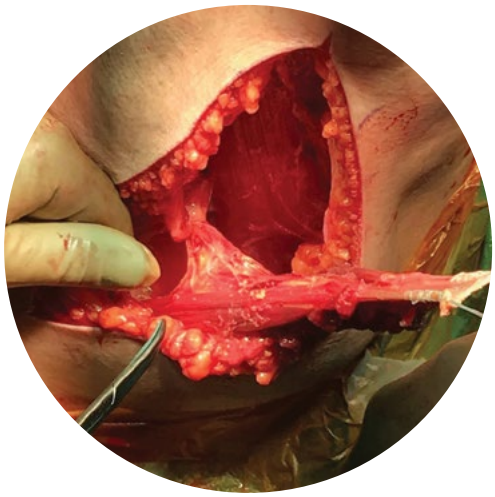
Tendon Transfers for Massive Irreparable Rotator Cuff Tear

Several surgical techniques have been described as an alternative to arthroplasty for massive irreparable RCTs. Tendon transfers are used for this purpose and are still being developed. While lower trapezius, teres major, and latissimus dorsi tendon transfers were developed to treat posterosuperior cuff insufficiency, pectoralis major and latissimus dorsi tendon transfers were developed to treat subscapularis insufficiency. Of these, the most commonly used method is the latissimus dorsi transfer.

The latissimus dorsi is the most commonly transposed tendon in the shoulder joint. The technique is used in plastic and reconstructive surgery procedures, for the treatment of obstetric palsy sequelae, for the treatment of massive and irreparable RCTs, and as a component of reverse shoulder arthroplasty. Transfer of the latissimus dorsi tendon was first performed in breast reconstruction surgery as a musculocutaneous flap. Later, the teres major tendon transfer technique was used to eliminate the external rotation deficit of children with obstetric palsy. The procedure was first performed by Gerber in 1988. This procedure was performed to gain active external rotation strength in posterior rotator cuff tears.[2] Although the lower trapezius and teres major may be transferred to the infraspinatus tendon or “footprint” for the restoration of active external rotation, however, the latissimus dorsi continues to be the most commonly transferred tendon.

Transfer of the latissimus dorsi muscle is considered a surgical option for the treatment of young patients who do not have glenohumeral arthritis and who have functional deficiencies caused by an irreparable posterior RCT. Contraindications to latissimus dorsi transfer include deltoid muscle insufficiency, subscapularis tear, glenohumeral arthritis (Hamada ≥3 lesions), and advanced age.

The latissimus dorsi is a large tendon with good blood supply, reducing the cuff defect and exerting an external rotational moment, allowing the deltoid muscle to move more effectively. In its natural position, the latissimus dorsi muscle contributes to internal rotation, retroversion, and adduction of the shoulder (Figure 2). When the latissimus dorsi is transferred to the greater tubercle, it loses its internal rotator feature and becomes an external rotator.



02 Excursion of the latissimus dorsi muscle when preparing the tendon.

Although tendon transfer can lead to significant improvements in terms of range of motion and pain, strength gains are less substantial. Up to 40% increase in muscle strength has been reported compared to preoperative levels. In a systemic review, Namdari et al reported that the procedure can be expected to result in an approximately 70% gain in abduction strength.[3] The inability of the tendon to properly center the humeral head has been shown to be the cause of decreased abduction strength. Strength gains do not appear to affect daily activities. Another factor that may affect postoperative results is the patient’s cooperation with a strict physiotherapy program, which is necessary to improve neuromuscular control in order to use latissimus dorsi as an external rotator instead of an internal rotator.

Degenerative changes in the glenohumeral joint after latissimus dorsi transfer have been demonstrated in several studies, and the results are controversial.

Although Gerber et al reported that progression was slower after latissimus dorsi transfer than after conservative treatment, they stated that there was structural deterioration comparable with that following nonoperative treatment.[4] Gerhart et al reported significant osteoarthritic changes over time.[5] However, it has been reported that radiological findings related to joint degeneration are not correlated with clinical results. Latissimus dorsi tendon transfer is an effective treatment for maintaining range of motion, providing strength, preventing humeral escape, and relieving pain in relatively young patients with massive, retracted, and irreparable RCTs.

Arthroplasty

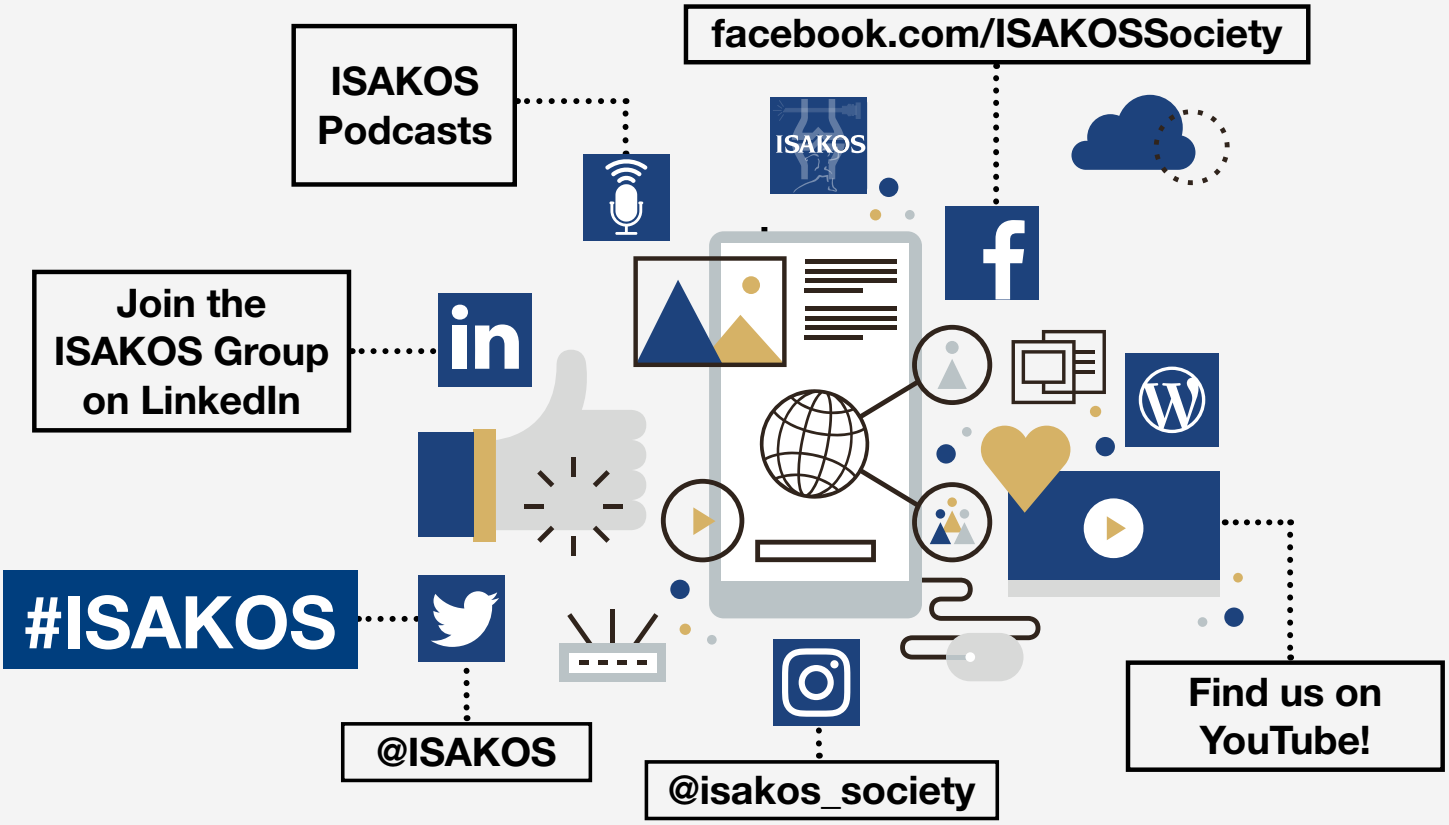
Secondary arthritis may develop in patients with irreparable RCTs, and arthroplasty can be applied in cases in which secondary cuff tear arthropathy develops. Arthroplasty options include both hemiarthroplasty and reverse total shoulder arthroplasty. Hemiarthroplasty is suitable for patients who do not have pseudoparalysis and who have coracoacromial arch intact. Pain is reduced following hemiarthroplasty in these patients, but bone loss and humeral head instability may develop over the long term. Given that non-arthroplasty treatment options are generally preferred for elderly patients without pseudoparalysis, hemiarthroplasty has a limited place in treatment.

Reverse total shoulder arthroplasty is appropriate for patients with cuff tear arthropathy accompanied by pseudoparalysis. Today, reverse total shoulder arthroplasty can be used for patients with irreparable cuff tears without cuff tear arthropathy, and successful results have been reported. However, it should not be forgotten that reverse total shoulder arthroplasty is the last treatment option for patients >65 years of age; if possible, it should be reserved for cases in which joint-protecting salvage procedures cannot be performed.

References

1. Gerber C, Fuchs B, Hodler J. The results of repair of massive tears of the rotator cuff. J Bone Joint Surg Am. 2000;82(4):505-515. doi:10.2106/00004623-200004000-00006. **2.** Gerber C, Vinh TS, Hertel R, Hess CW. Latissimus dorsi transfer for the treatment of massive tears of the rotator cuff. A preliminary report. Clin Orthop Relat Res. 1988; 232:51–61. **3.** Namdari S, Voleti P, Baldwin K, Glaser D, Huffman GR. Latissimus dorsi tendon transfer for irreparable rotator cuff tears: a systematic review. J Bone Joint Surg Am. 2012; 94(10): 891-8. **4.** Gerber C, Rahm SA, Catanzaro S, Farshad M, Moor BK. Latissimus dorsi tendon transfer for treatment of irreparable posterosuperior rotator cuff tears: long-term results at a minimum follow-up of ten years. J Bone Joint Surg Am. 2013; 95(21): 1920-6 [http://dx.doi.org/10.2106/JBJS.M.00122]. **5.** Gerhardt C, Lehmann L, Lichtenberg S, Magosch P, Habermeyer P. Modified L'Episcopo tendon transfers for irreparable rotator cuff tears: 5-year follow-up. Clin Orthop Relat Res. 2010; 468(6): 1572-7.

Join the **ISAKOS Global Conversation!**



Tweeting About ISAKOS?

Include **#ISAKOS** in your Tweets to join the global conversation!

Return to Play After All-Arthroscopic Shoulder Stabilization

Maximilian Hinz, MD
Technical University of Munich
Munich, GERMANY

Daniel P. Berthold, MD
Technical University of Munich
Munich, GERMANY

Andreas B. Imhoff, MD,
Prof. Emeritus
Technical University of Munich
Munich, GERMANY

Knut Beitzel, MD, MA
ATOS Orthoparc Clinic
Cologne, GERMANY

Traumatic shoulder instability occurring during high-impact athletic activity predominantly affects young and active patients. When left untreated, almost 90% of the patients under the age of 20 years and 60% of the those between the ages of 20 and 40 years suffer from recurrent shoulder instability. This rate decreases to <10% only among patients ≥40 years of age.[1]

However, when shoulder instability is treated operatively with use of all-arthroscopic Bankart repair and capsulorrhaphy, the risk of recurrent instability may be decreased to around 11% in the young and active population.[2] As the majority of patients aim to return to their pre-injury level of sport and activity,[3] it is the physician´s objective to guide their path by restoring full functionality and avoiding future shoulder instability. As such, emphasis should be placed on the early postoperative phase as recurrent instability following surgery most often occurs in the early postoperative stage (<2 years).[4]

This article serves to provide a guideline that can be applied in daily practice.

Expected Level of Performance Following Surgery

A recent systematic review of anterior shoulder stabilization in athletes showed high rates of return to sports following arthroscopic Bankart repair (97.5%), open Bankart repair (86.1%), open Latarjet procedure (83.6%), arthroscopic Latarjet procedure (94%), and arthroscopic Bankart repair with remplissage (95.5%). Interestingly, among athletes who successfully returned to sports, those who had been treated with an arthroscopic Bankart repair had the highest rate of return to pre-injury levels (91.5%).[5] In a cohort of patients who had been treated with arthroscopic bony Bankart repair, only 19% reported shoulder-related causes for their decrease in sports activity.[6] Similarly, Dekker et al[7] reported a 96% rate of return to the previous level of competition in a study of professional athletes. Additionally, there was no difference in the rate of return to competition between contact and non-contact athletes or between those treated with an arthroscopic Bankart repair and those treated with an open Latarjet procedure. However, it should be noted that, following surgery, athletes in contact sports had a shorter career length than non-contact athletes.

In general, time to return to sports can be expected 4 to 5 months after surgery. However, because time since surgery alone is not a sufficient criterion for clearing patients for a safe return to sports activity, a more comprehensive approach focusing on range of motion, restoration of physiological movement patterns and, optimally, absence of pain and instability should be emphasized instead.[8]

Rehabilitation After Surgery

While arthroscopic shoulder stabilization yields high rates of return to sport in general, the diversity of sports activities must be considered as variations between different sports determine what is demanded of the athlete. Therefore, the rehabilitation process needs to be structured and tailored to each supervised patient accordingly.

The American Society of Shoulder and Elbow Therapists developed consensus guidelines on the rehabilitation procedure after anterior shoulder stabilization, providing a comprehensive review of the various phases of rehabilitation (Table 1).[8]

Return to Play After All-Arthroscopic Shoulder Stabilization

Phase	Goal(s)	Therapeutic Measures	Milestones for Progression to Next Phase
Phase 1 ***POW 0 to 6***	– Maximal protection of the surgical repair	– Immobilization of the arm via a sling for the first few postoperative days – Achievement, without excess, of staged passive & active ROM goals – Patient education regarding limiting the use of their arm for ADL	– Appropriate healing of the surgical repair by adhering to the precautions and immobilization guidelines – Staged ROM goals achieved, (but not exceeded) – Minimal to no pain with ROM within limits
Phase 2 ***POW 6 to 12***	– Restoration of physiological ROM	– Basic rotator cuff and scapular neuromuscular control – Initiation of functional movement patterns	– Appropriate scapular posture at rest and dynamic scapular control during ROM and strengthening exercises – Completion of strengthening exercises with minimal to no pain
Phase 3 ***POW 12 to 24***	– Normalization of strength, endurance, neuromuscular control and power – Resumption of full ADL, work and recreational activities	– Progressive strengthening and endurance exercises – Activity-specific progression: sport, work, hobbies	– No complaints of pain at rest and minimal to no pain while performing activities – Minimal to no sensation of instability – Restoration of ROM sufficient to perform desired activities
Phase 4 ***POW > 24***	– Staged resumption of sporting activity	– Relearning and improvement of pre-traumatic movement patterns – Correction of pre-exisiting functional deficits to decrease the likelihood of reoccurence	– N/A

Phase I: 0 to 6 Weeks Postoperatively

The first 6 postoperative weeks represent the first phase of rehabilitation. During this phase, the aim is to maximally protect the surgical repair construct while achieving, but not exceeding, the range of motion (ROM) objectives. Because of the minimally invasive nature of the procedures used today, some patients feel minimal to no pain, and therefore, may use their arm more than what is advisable during this phase of recovery. This factor highlights the importance of patient education during this early phase.

Furthermore, the need for proper patient education cannot be overstated as patients spend more time performing activities of daily living than they spend on rehabilitation exercises. Specifically, the longevity of the tissue-healing process should be stressed frequently with patients.[8]

As the rotator cuff muscles are not detached during capsulolabral surgery, it is advisable that both passive and active-assistive ROM be performed cautiously and only after an initial 1 to 2-day immobilization phase following surgery.[8]

Additionally, emphasis should be placed on exercises designed to achieve scapular control, including scapular retraction as it minimizes the amount of shoulder extension needed for functional tasks, thereby limiting stress on the anteroinferior capsule and labrum.[9]

Phase II: 6 to 12 Weeks Postoperatively

Phase II of postoperative rehabilitation starts, at the earliest, 6 weeks following surgery and after every milestone of Phase I has been achieved. During this phase, the aims are to gradually achieve increased ROM, submaximal tissue loading, and dynamic stabilization to initiate rotator cuff and scapular neuromuscular control. Optimally, full ROM is achieved by the 12th postoperative week, with the exception of end-range external rotation at 90° of abduction (and other provocative positions) and heavy lifting, which patients are instructed to avoid. If forward flexion and external rotation ROM goals are not met, joint mobilization or stretching may be facilitated cautiously.[8]

After ROM goals have been achieved, the rehabilitative focus may shift to neuromuscular training incorporating a program focused on scapular stability and maintaining the humeral head in a centralized position. This neuromuscular retraining must provide a stepwise increase in muscular demand as abnormal movement patterns may occur at the scapulothoracic and glenohumeral joints if muscular demand is increased too quickly.[8]

ISAKOS Global Connection

Education, Research and Collaboration

Thank You to Our Industry Partners for Their Educational Grant Support

Smith+Nephew

DJO™ GLOBAL

To learn more or to make a donation,
visit **isakos.com/GlobalConnection**

ISAKOS
International Society of Arthroscopy, Knee Surgery and Orthopaedic Sports Medicine

Return to Play After All-Arthroscopic Shoulder Stabilization

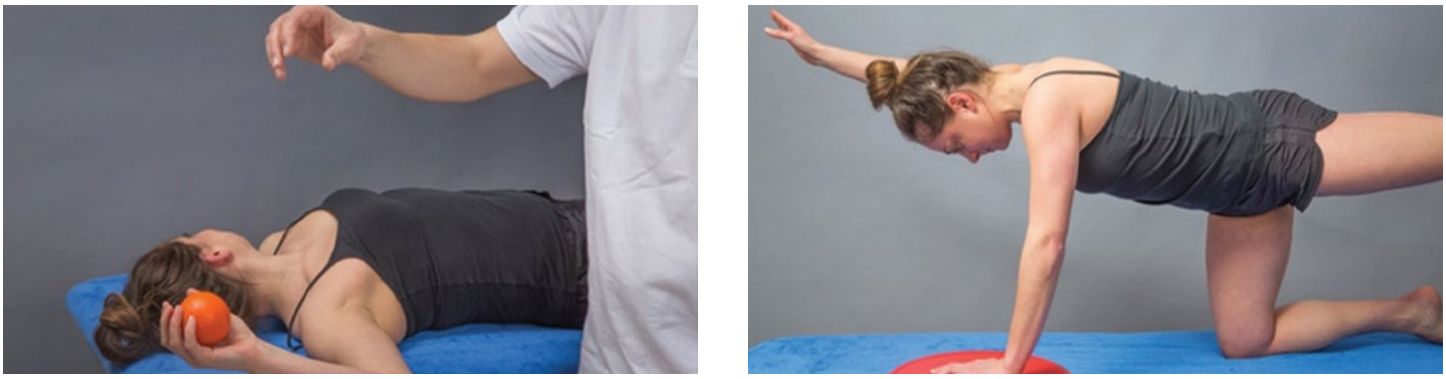


Figure 01 Normalizing neuromuscular function by training the glenohumeral setting through dynamic stabilization exercises in Phase III of rehabilitation.[14] With permission from Springer Nature©.

Phase III: 12 to 24 Weeks Postoperatively

Phase III of rehabilitation is initiated at approximately 12 weeks postoperatively, after all rehabilitative goals of Phase II are met. The primary goal during this stage is normalizing neuromuscular functionality in a way that ensures gradual advancement of the stress placed on the capsulolabral structures. This should be done through progressions of ROM via increasing submaximal loading and dynamic stabilization (Figure 1). This phase aims to maximize the patient's ability to fully return to daily living, work, and recreational activities.[8]

Phase-III goals need to be tailored to the patient. For instance, a professional volleyball player who desires to return to a professional career requires a great degree of external rotation in an overhead position and an ability to control the shoulder girdle at high speeds. A construction worker who desires to return to work has a very different focus for the shoulder joint due to the nature of the job (repeated heavy lifting from the waist to shoulder level). Patients who simply wish to return to their activities of daily living require neither extreme external ROM nor high levels of strength, and therefore, need a different level of neuromuscular control, strength, and flexibility as compared with the previously mentioned volleyball player and construction worker.[8]

Return to sport may be allowed only after patients are free of symptoms and have demonstrated an appropriate ROM necessary in their sports activity with good levels of strength, control, and endurance.[8] Patients should not have a difference in internal rotation higher than 18° to 25°, nor should the overall ROM difference exceed 5° compared with the contralateral side. Regarding strength levels, an isokinetic external rotation/internal rotation (ER/IR) ratio of 66% and an isometric ER/IR ratio of 75% to 100% is advised.[10] Apprehension needs to be absent at 90° of abduction and external rotation at the glenohumeral joint before patients may be cleared for return to sport.[11]

Return to Play

As sports activities vary, the criteria for return to play should be defined correspondingly. Multiple factors influence the speed at which athletes want to return to their sports. Recreational athletes may take time off from sports more liberally as they may not face the external pressures that professional athletes do (contracts, relatives, managers, etc.). Non-contact athletes such as distance runners may return to competition sooner after an anterior stabilization than contact athletes such as boxers do as a result of the differences in the strains and physical demands placed on the shoulder in their respective sports. Another important factor is whether patients want to return to an athletic activity that they previously practiced or one that they want to try for the first time. Although time alone is most frequently used as the criterion for approval to resume sports activity, return to sport should be based more comprehensively on multiple factors such as strength and range of motion with the absence of pain and instability.[12]

Clearing patients for a safe return to sport needs to be based on not just the "when" but also the "how". A staged approach according to the principle "train to train, train to play, train to compete" is advised. Training in a safe environment, preferably individually, to achieve decent levels of sport-specific endurance, strength, and coordination is necessary before the patient takes up activities in a team or with a partner. After this process has been successfully accomplished, the patient may return to play, and thereafter, to competition.[13] The criteria for safe return to play proposed by the American Society of Shoulder and Elbow Therapists are the absence of symptoms and appropriate ROM, strength, control, endurance, and power necessary for the sport.[8]

Conclusion

In general, full return to sports following arthroscopic shoulder stabilization is expected at about 4 to 5 months postoperatively. However, time since surgery is not an ideal parameter for clearing patients for their safe return to sport. A more comprehensive approach focusing on range of motion, restoration of physiological movement patterns, and absence of pain and instability should be emphasized before a patient is cleared for sports activities.[8]

References

1. McLaughlin, H.L. and W.U. Cavallaro, Primary anterior dislocation of the shoulder. The American Journal of Surgery, 1950. 80(6): p. 615-621. **2.** Harris, J.D., et al., Long-term outcomes after Bankart shoulder stabilization. Arthroscopy: The Journal of Arthroscopic & Related Surgery, 2013. 29(5): p. 920-933. **3.** Plath, J.E., et al., Patients' expectations of shoulder instability repair. Knee Surgery, Sports Traumatology, Arthroscopy, 2018. 26(1): p. 15-23. **4.** Cole, B.J., et al., Comparison of arthroscopic and open anterior shoulder stabilization: a two to six-year follow-up study. JBJS, 2000. 82(8): p. 1108. **5.** Abdul-Rassoul, H., et al., Return to sport after surgical treatment for anterior shoulder instability: a systematic review. The American Journal of Sports Medicine, 2019. 47(6): p. 1507-1515. **6.** Plath, J.E., et al., Arthroscopic suture anchor fixation of bony Bankart lesions: clinical outcome, magnetic resonance imaging results, and return to sports. Arthroscopy: The Journal of Arthroscopic & Related Surgery, 2015. 31(8): p. 1472-1481. **7.** Dekker, T.J., et al., Anterior Shoulder Instability in the Professional Athlete: Return to Competition, Time to Return, and Career Length. Orthopaedic Journal of Sports Medicine, 2020. 8(11): p. 2325967120959728. **8.** Gaunt, B.W., et al., The American Society of Shoulder and Elbow Therapists' consensus rehabilitation guideline for arthroscopic anterior capsulolabral repair of the shoulder. Journal of Orthopaedic & Sports Physical Therapy, 2010. 40(3): p. 155-168. **9.** Weiser, W.M., et al., Effects of simulated scapular protraction on anterior glenohumeral stability. The American Journal of Sports Medicine, 1999. 27(6): p. 801-805. **10.** Cools, A.M., et al., Evidence-based rehabilitation of athletes with glenohumeral instability. Knee Surgery, Sports Traumatology, Arthroscopy, 2016. 24(2): p. 382-389. **11.** Wilk, K.E., et al., Return to sport participation criteria following shoulder injury: A clinical commentary. International Journal of Sports Physical Therapy, 2020. 15(4): p. 624. **12**. Ciccotti, M.C., et al., Return to play criteria following surgical stabilization for traumatic anterior shoulder instability: a systematic review. Arthroscopy: The Journal of Arthroscopic & Related Surgery, 2018. 34(3): p. 903-913. **13.** Beitzel, K., et al., "Return to sports" nach Schulterstabilisation. Arthroskopie, 2016. 29(1): p. 32-37. **14.** Beitzel, K., D. Berthold, and M. Klose, Sports Rehabilitation, in The Sports Medicine Physician. 2019, Springer. p. 99-105.

AANA
ADVANCING THE SCOPE™

ISAKOS

Knee & Shoulder Arthroscopy Lab Course

November 18–19, 2022
Miami Anatomical
Research Center (MARC)
Doral, FL

IN-PERSON,
HANDS-ON CADAVER LAB!

Course Chairs

Guillermo R. Arce, MD
ARGENTINA

John G. Lane, MD
UNITED STATES

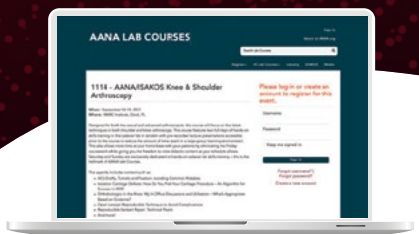
Nicholas Sgaglione, MD
UNITED STATES

Larry D. Field, MD
UNITED STATES

Designed for both the casual and advanced arthroscopist, this course will focus on the latest techniques in both shoulder and knee arthroscopy. This course features two full days of hands-on skills training in tandem with pre-recorded presentations (accessible prior to the course!).

- ACL Grafts, Tunnels and Fixation
- Isolation Cartilage Defects
- Orthobiologics in the Knee
- Open Latarjet
- Reproducible Bankart Repair

And More!



isakos.com/Arthroscopy2022

Limited Spots Available–
REGISTER TODAY!

Radiographic Parameters of Adult Hip Dysplasia

Matthew J. Kraeutler, MD
Houston Methodist Hospital
Houston, TX UNITED STATES

Tigran Garabekyan, MD
Southern California Hip Institute
Los Angeles, CA UNITED STATES

Laura A. Vogel, MD
The Orthopedic Clinic Association at Banner Health
Phoenix, AZ UNITED STATES

Omer Mei-Dan, MD
University of Colorado School of Medicine
Aurora, CO UNITED STATES

Introduction

Our knowledge of the natural history of pre-arthritic hip conditions continues to evolve, with vast improvements in understanding the etiology of premature hip failure occurring in the past 20 years. There is now an established body of evidence that femoroacetabular impingement (FAI) and hip dysplasia are the two main causes of early hip degeneration. Therefore, there has been a focus recently on preserving the hip joint in these patients prior to end-stage degeneration.

Patients with frank hip dysplasia often require osseous realignment, with periacetabular osteotomy (PAO) being the current procedure of choice. However, patients with borderline hip dysplasia (BHD) present a challenging treatment decision, as it remains unclear if these patients should be treated with hip arthroscopy and/or PAO.[1]

While patients with BHD have demonstrated improvement in symptoms and function following PAO, this procedure is only performed by highly specialized hip-preservation surgeons and is associated with potentially greater morbidity and a relatively high rate of complications. Furthermore, there is not a universal definition of BHD, and imaging parameters may be used to determine which of these patients may be at higher risk of failure with an arthroscopy-only treatment approach.[1]

Although there has been significant advancement in diagnostic imaging modalities such as magnetic resonance imaging (MRI) and computed tomography (CT) techniques, the initial anteroposterior (AP) pelvic radiograph remains part of the gold standard in the initial evaluation of a patient with hip pain.[2] In fact, as knowledge about the etiology and morphologic characteristics of hip pain in the young adult evolved, so did the clinician's ability to assess for various pathologies of the hip on an AP pelvic radiograph. A comprehensive understanding of how to fully evaluate the AP pelvic radiograph can lead to earlier diagnosis, minimize unnecessary additional imaging, and prompt the provider as to the correct next steps in work-up and management. An AP pelvic radiograph is the initial bedside assessment tool utilized by the clinician, which, together with the physical examination and history, can assist and prompt further needed evaluation and treatment strategies. The purpose of this review was to detail various signs and measurements on AP pelvic radiographs that can aid in the diagnosis of adult hip dysplasia.

Technical Aspects

A proper technique is critically important for accurate interpretation of the AP radiograph. Although AP pelvic radiographs are often performed with the patient in the supine position, this may not represent the functional position of the pelvis and standing radiographs better incorporate the dynamic influences of the periarticular musculature. In addition, technically suboptimal radiographs, especially with regard to non-anatomic pelvic tilt and rotation, have been shown to result in overestimation of abnormal acetabular morphology.

Lateral Center-Edge Angle

An estimation of acetabular coverage of the femoral head can be made with measurement of the lateral center-edge angle (LCEA), also called the center-edge angle of Wiberg (Figure 1). The LCEA most specifically defines the superolateral acetabular coverage of the femoral head, whereas anterior coverage is best assessed with the anterior center-edge angle, which is measured on a false-profile view of the hip or axial CT scan. The LCEA is an angle formed by two lines. Both lines originate at the center of the femoral head, with one line extending superiorly and perpendicular to the transverse axis of the pelvis and the other line passing through the lateral edge of the acetabulum.

01 **Lateral center edge angle.** The LCEA is an angle formed by a line from the center of the femoral head extending superiorly and perpendicular to the transverse axis of the pelvis (arrowed line) and a line from the center of the femoral head through the lateral acetabular rim (dashed line, LCEA of Wiberg) or the lateral edge of the sourcil (solid line, LCEA of Ogata).

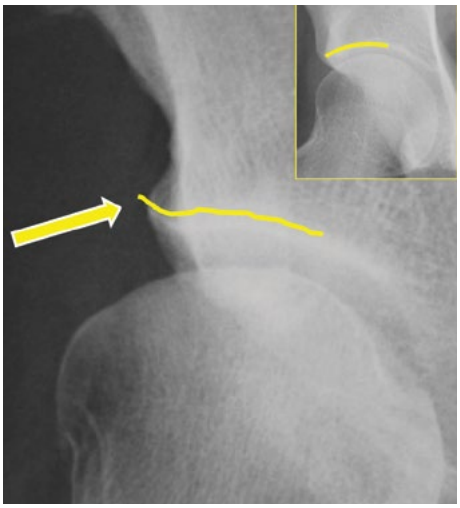
The latter line was more specifically defined to intersect the most superolateral point of the sclerotic weight-bearing zone of the acetabulum (sourcil). This refinement to the definition of the LCEA was proposed by Ogata et al., who noted that acetabular retroversion in patients with dysplasia yields an overestimation of the functional lateral coverage with the conventional technique of measuring the LCEA. Ogata's LCEA technique is a more functional method for assessing acetabular coverage as it only includes the weight-bearing portion of the lateral acetabular rim. Wiberg's method has been found to overestimate acetabular coverage by an average of 4° because of the inclusion of a bony area that functions as the labral base but does not come into contact with the femoral head, thereby not contributing directly to coverage or osseous area, which is located posterior to the true 12 o'clock position. An LCEA of <25° is associated with inadequate femoral head coverage, whereas an LCEA of >40° is conversely indicative of overcoverage and pincer-type FAI.

Tönnis Angle

Acetabular inclination is one of the most useful and important parameters evaluated on an AP pelvic radiograph. The Tönnis angle (also referred to as the sourcil angle, acetabular roof obliquity, and horizontal toit externe [HTE] angle) is the most commonly used measurement for the classification of acetabular inclination. The angle is measured by drawing a horizontal line, parallel to the transverse pelvic axis, at the medial-most edge of the sclerotic sourcil and then making a second line extending out from the medial edge to the lateral-most aspect of the sourcil. This angle classifies acetabular inclination into normal, increased, or decreased categories. A normal Tönnis angle is between 0° and 10°. Generally, an angle of >10° denotes structural instability and hip dysplasia, whereas an angle of <0° places the hip at increased risk for pincer-type FAI.

Sourcil Morphology

A normal sourcil has a concave shape that mirrors, and is congruent with, the femoral head. In dysplasia, the sourcil may have a flattened and incongruous shape, creating laterally directed shear forces within the hip joint (Figure 2). The sourcil morphology must be taken into consideration when measuring the LCEA for assessing true functional lateral coverage in cases of suspected instability.



02 **Upsloping lateral sourcil.** Insert: Normal (downsloping) sourcil for comparison.

Sharp Angle

Although less commonly used, another measurement of acetabular inclination is the Sharp angle, which provides an estimate of total acetabular inclination. This angle is formed with the vertex at the distal point of the acetabular teardrop and one arm in line with the transverse pelvic axis and the other arm extending out to the superolateral rim of the acetabulum. An angle of ≥45° is associated with acetabular dysplasia.

CALL FOR PAPERS

Limited time offer!

ISAKOS Members Eligible for 100% APC Discount

JISAKOS is Open Access

The *Journal of ISAKOS* accepts submissions across a wide range of article types, including original articles and state of the art, systematic, current concept reviews, and case reports.

Interested in Becoming a Reviewer?

Log in to isakos.com/myisakos and select your preference in myAccount.

jisakos.org

Radiographic Parameters of Adult Hip Dysplasia

Roof Length

Klaue et al. characterized some dysplastic acetabuli as having a "short roof," in that the acetabular weight-bearing zone is short, yet remains congruent with the femoral head. This term has been modified to "flat roof," as roof length is short in most cases of dysplasia due to the low volume of the acetabulum. While many instances have an up-sloping roof with a sourcil angle of >10°, there is a subset with a "flat roof" that can present with a normal sourcil angle.

Acetabular Version

Acetabular version is associated with hip pathology, with anteversion strongly correlated with developmental dysplasia and retroversion traditionally correlated with pincer-type FAI. However, it is instrumental to understand that the acetabular version, whether assessed on radiographs or CT scans, is essentially an indication of the relationship between the anterior and posterior walls. The version cannot capture the volume of the socket and, as a result, can give an inaccurate representation in cases of abnormal acetabular volume such as dysplasia or global overcoverage. Numerous parameters have been proposed to determine acetabular version on AP pelvic radiographs.

Central or equatorial acetabular version refers to the transverse orientation of the acetabular opening in the AP direction in relation to the horizontal axis of the pelvis, measured at the center of the femoral head. Normal version has been determined to lie within 13° to 20° anteriorly. Importantly, pelvic tilt has been shown to significantly impact acetabular version on radiographic imaging. Increased (positive) pelvic tilt will reduce acetabular version, and decreased (negative) pelvic tilt may falsely elevate acetabular anteversion.

Neck Axis Distance (NAD)

Neck axis distance is measured on the AP pelvic radiograph by first drawing a line (line N) down the axis of the femoral neck that bisects the center of a best-fit circle about the femoral head. The distance between the anterior wall and the posterior wall along line N is then measured. A measurement of ≥14 mm is associated with excessive anteversion.

Shenton Line

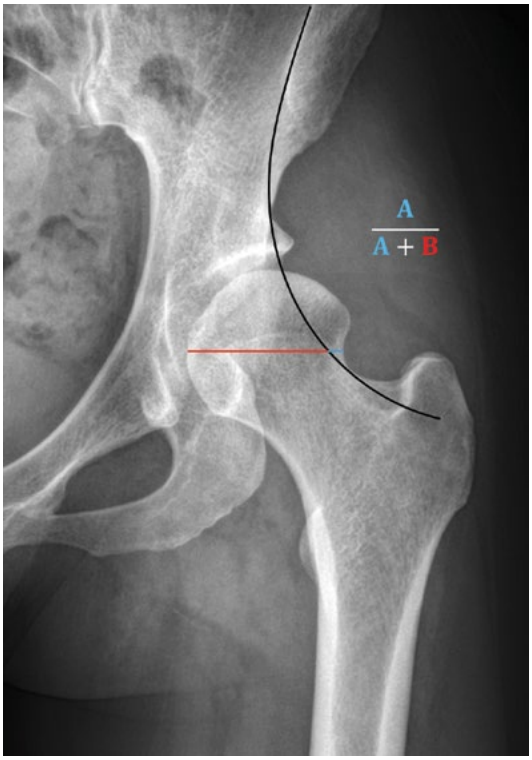
The Shenton line is a commonly used qualitative radiographic marker of acetabular dysplasia. It is defined as an unbroken arch formed by the top of the obturator foramen and the inner side of the femoral neck. The Shenton line is determined to be broken if the inferior femoral neck projection is cephalad to the superior arch of the obturator foramen. A break in the Shenton line is indicative of more severe forms of acetabular dysplasia with a superolateral hip center, whereas a continuous line does not exclude an unstable hip.

Iliofemoral Line

The iliofemoral line (IFL) is defined as the smooth line extending from the apex of the concavity of the lateral femoral neck through the inner cortical lip of the ilium on an AP pelvic radiograph (Figure 3).[3] Percent medialization of the iliofemoral line is defined as the horizontal distance of the exposed femoral head lateral to the IFL relative to the horizontal femoral head width at the center of the femoral head. Values of percent medialization exceeding 22% are representative of frank acetabular dysplasia, whereas values between 15% and 22% are consistent with borderline dysplasia.[3]

Femoral Head Extrusion Index

A more complex, but very useful, quantification of acetabular coverage is called the femoral head extrusion index (FHEI), which is the percentage of the femoral head not covered by the acetabulum. This percentage is calculated by measuring the width of the femoral head that lies lateral to the lateral extent of the acetabulum (A), dividing it by the total horizontal width of the covered femoral head (B), and multiplying it by 100 ([A/B] × 100). A normal hip has an extrusion index of <25%. Similar to this measurement is "femoral head coverage," which represents the distance between the medial cortex of the femoral head and the lateral acetabular rim, divided by the diameter of the femoral head. In this calculation, a value of <75% is pathologic and indicates undercoverage or potential dysplasia.



03 **Iliofemoral line.** Percent medialization of the iliofemoral line is represented by the ratio A/(A+B), with greater percent medialization indicative of more severe hip dysplasia.

Cliff Sign

To assess for the presence of the cliff sign, a perfect circle is created around the femoral head on an AP pelvic radiograph (Figure 4).[4] If the lateral femoral head does not completely fill the perfect circle, the cliff sign is considered to be present, indicating microinstability of the hip joint.[4]

04 **Cliff sign.** This hip radiograph demonstrates a positive cliff sign in which the lateral femoral head does not fill a perfect circle drawn around the femoral head.

FEAR Index

The femoro-epiphyseal acetabular roof (FEAR) index is measured by drawing a straight line along the central portion of the femoral head physeal scar (Figure 5).[5] A second line is drawn from the most medial to lateral portions of the sclerosis of the sourcil. A positive FEAR index is indicated by a laterally directed angle. A FEAR index of<5° represents a stable hip in patients with borderline dysplasia.

05 **Femoro-epiphyseal acetabular roof (FEAR) index.** A laterally directed angle represents a positive FEAR index, with an angle > 5 degrees at higher risk of instability.

Summary

Despite the rapid growth and advancement within the field of hip preservation, the AP pelvic radiograph remains the first image that should be obtained for the evaluation of hip pain. As we continue to improve our understanding in this area, more information about the etiology of symptoms can be gleaned from this image alone, making it an instrumental first stage in diagnosis and a more important tool than MRI or CT.

References

1. Kraeutler MJ, Safran MR, Scillia AJ, Ayeni OR, Garabekyan T, Mei-Dan O. A contemporary look at the evaluation and treatment of adult borderline and frank hip dysplasia. Am J Sports Med. 2020;48(9):2314-23. **2.** Welton KL, Jesse MK, Kraeutler MJ, Garabekyan T, Mei-Dan O. The anteroposterior pelvic radiograph: Acetabular and femoral measurements and relation to hip pathologies. J Bone Joint Surg Am. 2018;100(1):76-85. **3.** Kraeutler MJ, Ashwell ZR, Garabekyan T, et al. The iliofemoral line: A radiographic sign of acetabular dysplasia in the adult hip. Am J Sports Med. 2017;45(11):2493-500. **4.** Packer JD, Cowan JB, Rebolledo BJ, et al. The cliff sign: A new radiographic sign of hip instability. Orthop J Sports Med. 2018;6(11):2325967118807176. **5.** Wyatt M, Weidner J, Pfluger D, Beck M. The femoro-epiphyseal acetabular roof (FEAR) index: A new measurement associated with instability in borderline hip dysplasia? Clin Orthop Relat Res. 2017;475(3):861-9.

Digital Transformation: Do We Already Benefit from This in Orthopaedics?

Nanne P. Kort, MD, PhD
CortoClinics
Nederweert, NETHERLANDS

Peter Pilot, PhD
IMUKA
Roosteren, NETHERLANDS

Nicolaas C. Budhiparama, MD, PhD, FICS, Prof.
Nicolaas Institute of Constructive Orthopaedic Research & Education Foundation
Jakarta, INDONESIA

Digital technology has changed many aspects of our lives. We live in a dynamic digital era, with changes occurring every day. But what about the changes in our professional environment? Is the orthopaedic world changing at the same pace as other aspects of our lives? Traditionally, health care has been lacking when it comes to technological innovation. If we look around, we see a range of developments, from small technological innovations such as health care apps to major innovations such as robotic arm-assisted surgery. The big question is: are these developments innovations, or are they just hype? Many articles have been devoted to this topic of "hope or hype." With previous topics, such as minimally invasive hip and knee arthroplasty, metal-on-metal hips, and navigation still fresh in our memories, we might place current developments into the same category: hype. But maybe this is a reaction of our reptile brain? Is it fair to see the surgical robot as an expensive motorized sawing machine, or should we see it more as a data-driven dynamic solution with multiple aspects that are just underdeveloped?

Classical evidence-based medicine has toughened us to look back and build on the past. And to be honest, this model has brought us a lot! But in 2015, after 250 years, the world entered the fourth phase of the industrial revolution. In the current era, we must not forget to look further ahead and see new possibilities.

Perhaps this fast-changing world will also require us to develop new skills and methods. Evidence-based medicine should be upgraded to evidence-based medicine 2.0, in which we combine evidence and data. In this setting, causality has a new friend: associative data. Associative data are used in many other industries, so why not use them more frequently in health care? Instead of using only data from clinical trials, we have the possibility to use real-world data. We also have access to digital tools to collect patient-generated data, providing the opportunity to shift toward personalized medicine. Personalized medicine can allow for higher precision in terms of diagnosis, therapy, and prognosis that can ideally be tailored to the individual patient [Nardini et al, 2021]. On our way to achieving personalized medicine, we can improve ourselves and health care by learning from new data sources that become available. In sports, for example, advanced analytics are commonly used to improve performance. Advanced analytics are used not only in high-tech sports, such as Formula 1 racing, but also in sports such as cycling, golf, and many others that were formerly seen as analog. This brings us back to the questions: How is our orthopaedic world changing? Are we fit for the future? Can we serve our patients in a way that fits into the 2020s?

Let's look at some examples of innovative changes that could change our professional lives. Apps, for example, are relatively simple and cheap innovations with great potential for advanced analytics. The primary function of apps is to educate patients with timely medical information through smartphones or tablets. However, they can also improve patient knowledge; provide insights into medication or treatment adherence, satisfaction, and clinical outcomes; and positively affect health care economics [Timmers, 2020]. An often-overlooked aspect of these tools is the ability to analyze the use of the app (e.g., how often and for what reason), the effectiveness of push-notifications, and communication tiredness. With this information, we can optimize information delivery, learn about the needs of our patients, and maximize the use of clinical resources.

To continue our debate on digital transformation, we all recognize the importance of good surgical instruments in the setting of hip and knee arthroplasty. Therefore, it is a natural evolution that robotic arm-assisted surgery has transformed the instruments into smart instruments. But do we use the "smart" part of the system in a mature fashion? As with smartphones, it will take a few generations before we start to use the smart part of the device to a larger extent that will make it worthwhile. From this perspective, robotic arm-assisted surgery is more than an expensive motorized sawing machine; it is an example of how technology can change a surgical field. We now need to start using the digital nature of the robot and work with the generated performance data to its full potential. Then we will see how these instruments' smart part will help us develop the field.

From this view, we believe that telemetry data, data science, training, and simulator possibilities will enormously impact health care.

Finally, developments such as robotic arm-assisted surgery offer new possibilities in terms of training and testing practical skills. We can use apps to learn new cognitive decision-making features and use simulators to train eye-hand-feet coordination in combination with a different focus of the surgeon (i.e., on the screen instead of the wound). From large datasets, we can create simulations of challenging patient scenarios and can practice the procedures without an actual patient, similar to how simulators are used in aviation and Formula 1 racing. Why is the use of such simulators not so standard in health care? In health care, we commonly *analyze* a problem. In business and other sectors, it is more common to use *analytics*. This distinction represents a subtle difference in wording but a major difference in practice. Let's use digital technology to address complex challenges.

In conclusion, health care has always been lacking in technology uptake. But to maintain our high level, we need to adapt faster to technology. Ask yourselves the question: are you digitally capable enough to judge technological innovations to determine future standards? In health care, establishing benchmarks has been less specific due to insufficient data, with comparisons often targeting the average results rather than the best ones. To overcome this challenge, we need to acknowledge the lack of objective data on surgical performance, comparison with peers, and best practices. Surgeons cannot determine whether their efforts are satisfactory or exceptional, and more importantly, what needs improvement [O'Logbon, 2020]. Beyond that, the development of patient engagement platforms offers us a major step forward in learning more about our patients. We believe that these two developments clearly show the potential of digital transformation

Nardini C, Osmani V, Cormio PG, Frosini A, Turrini M, Lionis C, Neumuth T, Ballensiefen W, Borgonov E, D'Errico G. The evolution of personalized healthcare and the pivotal role of European regions in its implementation. Per.Med. (2021) 18(3);283–294.DJ 7/26 ISSN 1741-0541.

O'Logbon J. What can surgery learn from other high-performance disciplines? Ann Med Surg (Lond). 2020 Apr 24;55:334-337. doi: 10.1016/j.amsu.2020.04.007. eCollection 2020 Jul.

Timmers T, Janssen L, Kool RB, Kremer JA. Educating Patients by Providing Timely Information Using Smartphone and Tablet Apps: Systematic Review. J Med Internet Res. 2020 Apr 13;22(4):e17342. doi: 10.2196/17342.

Insertional Tendoachilles Ruptures

SR Sundararajan, MS(Orth)
Ganga Medical Centre & Hospitals Pvt Ltd
Coimbatore, Tamil Nadu, INDIA

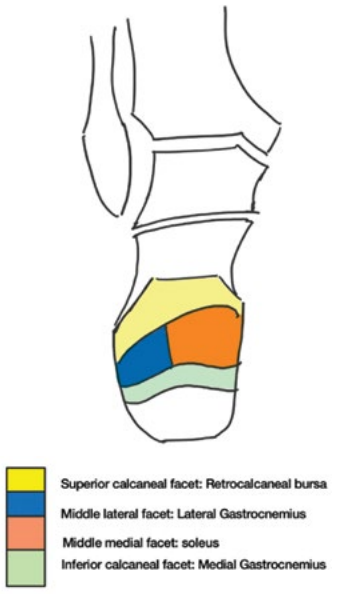
Terence Dsouza, MS Ortho, DNB Ortho, FNB
Ganga Medical Centre & Hospitals Pvt Ltd
Coimbatore, Tamil Nadu, INDIA

Ramakanth Rajagopalakrishnan, DOrtho, DNB, DSICOT
Ganga Medical Centre & Hospitals Pvt Ltd
Coimbatore, Tamil Nadu, INDIA

Shanmuganathan Rajasekaran, MS, FRCS(Ed), MCh (Liv), PhD
Ganga Medical Centre & Hospitals Pvt Ltd
Coimbatore, Tamil Nadu, INDIA

Introduction

Insertional ruptures of tendoachilles (TA)/sleeve avulsions with or without an osseous fragment are less commonly studied than mid-substance tears. This article elucidates the relevant anatomy, predisposing factors, and current management of insertional TA ruptures.



01 **Footprint anatomy of Achilles tendon insertion.**

Anatomy of the Achilles Footprint

The Achilles tendon is formed by the confluence of the medial head of the gastrocnemius (MG) and the lateral heads of the gastrocnemius (LG) and soleus (SL) muscles. As it courses distally, the Achilles tendon twists over itself with rotation of each of its constituent fascicles/subtendons. The MG subtendon courses posteriorly, whereas the LG and SL subtendons course anteriorly. The anatomical footprint of the Achilles insertion at the calcaneus is divided into three facets (Fig 1). The superior facet accommodates the retrocalcaneal bursa, the middle facet gives insertion to the LG subtendon laterally and the SL subtendon medially, and the inferior facet gives insertion to the posteriorly/superficially coursing MG subtendon[1].

The degree of spiraling influences the insertion of the subtendons, dividing the pattern of insertion into three different types. Type 1 is the least-twisted arrangement, whereas Type 3 is the most-twisted pattern, placing the tendon under substantial torsion. The majority of the population has the Type-1 pattern.

The LG subtendon is the most commonly affected subtendon in insertional tears (as a result of the relative hypovascularity of this structure as compared with other regions of the Achilles tendon), whereas the MG subtendon is commonly spared.

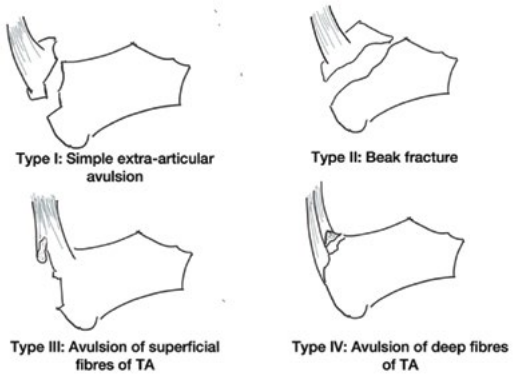
Predisposing Factors

Repeated overuse results in excessive mechanical stress at the Achilles insertion, which may lead to collagen breakdown, inflammation, fibrosis, and calcific metaplasia. These findings constitute insertional tendinopathy that may be a forerunner in most insertional ruptures. The Haglund deformity is a commonly associated finding that results in mechanical impingement, exacerbating the wear and tear at the TA insertion. Insertional enthesophytes/retrocalcaneal spurs are also usually seen, possibly indicating a response to repeated mechanical stresses at the insertional site.

This chronic inflammation may result in partial dissection of the tendon that may progress to complete insertional rupture following trivial trauma. Iatrogenic causes such as steroid injections or inadvertent use of fluroquinolones also increase the risk of insertional ruptures. Rarely, these avulsions can be secondary to metabolic diseases (e.g., alkaptonuria) that weaken the enthesis.

Investigations

Calcaneal sleeve avulsions can be divided into Type I-IV fractures on plain radiographs according to the classification system of Beavis and Rhee[2] (Fig 2). Ultrasound or magnetic resonance imaging (MRI) may be useful for assessing the degeneration at tendon stump and for determining the extent of retraction. This information can aid in the placement of incisions, especially when using limited dual-incision approaches.



02 **Beavis and Rhee classification of calcaneal tuberosity avulsions.**

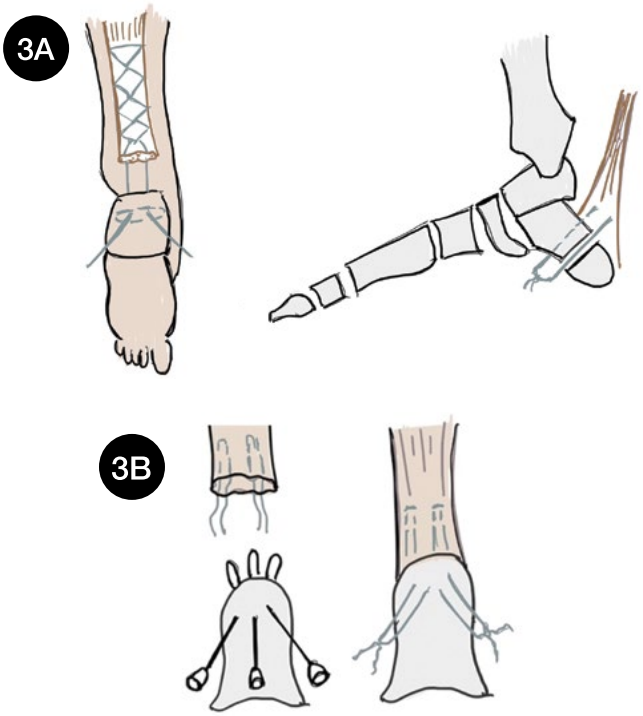
Treatment:

Insertional calcaneal ruptures are challenging to treat because the remaining tendon tissue on the calcaneus is inadequate for end-to-end tendon repair and the bone at the tendon stump is inadequate for bone-to-bone fixation. Repair of these injuries mainly relies on tenodesis principles with tendon-to-bone repair.

The cornerstone of management involves excision of the associated Haglund bump (calcaneoplasty) and debridement of the calcific degenerated portion of the tendon followed by reattachment of the avulsed tendon.

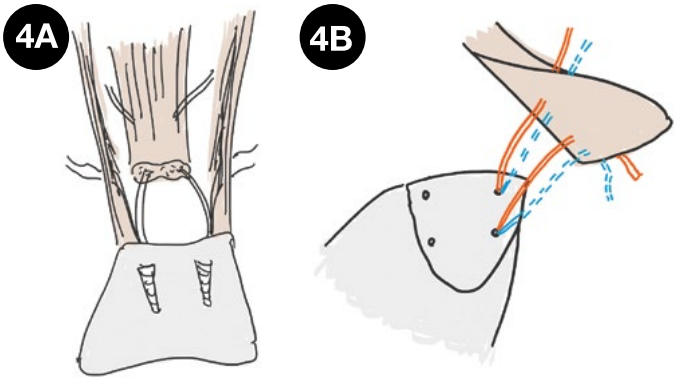
Commonly used techniques for TA reattachment include transosseous repair, suture anchor repair (single or double row), combined transosseous repair and suture anchor tenodesis, and primary reconstruction with use of hamstring autograft. The principles of these techniques are described below.

1. **Transosseous repair.** This technique was first described by Bibbo et al. in 2003[3]. This technique involves suturing the torn end of the Achilles tendon with use of the Bunnel technique, after which the suture ends are shuttled across two tunnels drilled in the calcaneum and tied over an osseous bridge through a plantar incision (Fig 3A). This technique was recently modified wherein three tunnels were employed for a more robust repair (Fig 3B).



03 **Transosseous technique.** A: The TA is sutured with the Bunnel technique and is shuttled across two tunnels at the calcaneus and is tied over an osseous bridge through a plantar incision. B: Modification using three calcaneal tunnels.

2. **Suture anchor tenodesis.** This technique involves repair of the central torn portion of the tendon to the footprint with use of one set of sutures and repair of the intact peripheral fibers and paratenon with another set of fiber-wires to complete the repair (Fig 4A). The double-row technique employs an upper row and a lower row of suture anchors for a more anatomical footprint repair (Fig 4B).



04 **Suture anchor tenodesis.** A: Single-row repair using one set of fiber-wires for the avulsed central tendon and another set for the peripheral intact fibers and paratenon. B: Double-row repair using an upper row and a lower row of anchors.

ISAKOS | GIANTS in Orthopaedic Sports Medicine

ISAKOS has a new video series available on Global Link

Giants in Orthopaedic Sports Medicine

Each episode features an up-close interview with incredible legends of ISAKOS.

View the latest interviews with ISAKOS Past President, Gary G. Poehling, MD USA and Stephen S. Burkhart, MD USA.

Videos are available on Global Link and podcast versions are also available wherever you get your podcasts.

isakos.com/GlobalLink/Giants-in-Ortho

Insertional Tendoachilles Ruptures

3. **Combination of transosseous repair and suture anchor tenodesis.** This technique employs suture anchor tenodesis for the central portion of the tendon and a transosseous repair for the peripheral part of the tendon.
4. **Reconstruction using hamstring tendon graft.** A free semitendinosus hamstring graft harvested through the mini-incision technique is passed through the distal end of the Achilles tendon and the free ends are fixed to the calcaneum with use of interference screws. The proponents of this technique argue that the torn end, being degenerated, may not be ideal for tenodesis.

Chronic tears may have to be mobilized with use of V-Y plasty (with use of single midline approach or a limited dual-incision technique) or may require flexor hallucis longus (FHL) transfer or reconstruction with use of semitendinosus free autograft.

Outcomes

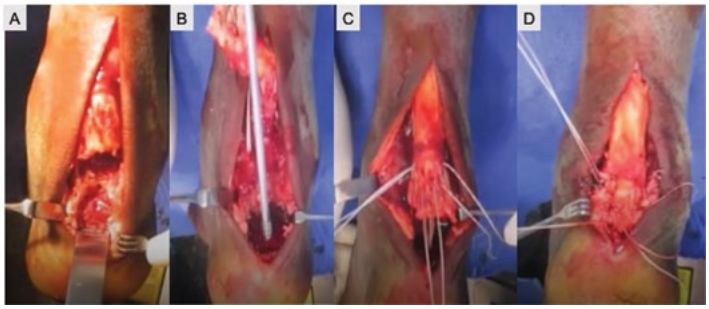
Most studies pertaining to insertional TA tears have been limited to case series and case reports. Bibbo et al. reported no differences in terms of strength (as measured with isokinetic testing) or function (AOFAS scores) between operative limb (transosseous technique) and the matched control (unaffected limb) in their report of six patients[3]. Huh et al., in a retrospective analysis of 11 patients, showed significant improvement in AOFAS hindfoot scores, VAS scores, and plantar flexion strength after a mean follow-up of 38.4 months after suture anchor tenodesis[4]. At present, there is no evidence in the current literature to prefer one surgical technique over another for the repair of insertional TA ruptures.

Our Experience

We employ a posterior midline approach to address these tears. Although the avulsed tendon stump usually is easily identifiable, in cases of partial insertional ruptures, the tendon outer sheath has to be incised in the midline to delineate the centrally avulsed tendon. The tendon stump is debrided until all of the degenerated tendon and osseous fragments are removed. We excise the Haglund bump in all cases. In cases without retraction, the tendon stump is attached to the calcaneus with use of one or two 5.5-mm double-loaded suture anchors with the ankle in neutral flexion (Fig 5). In cases with 2-5 cm of retraction of the tendon stump in which the tendon fails to slide down to the insertion site despite sustained traction, V-Y plasty is necessary. In cases with a retraction gap of >5 cm, the flexor hallucis longus (FHL) is transferred alone to the TA insertional site and is fixed with use of interference screws. Postoperatively, the leg is immobilized with use of a below-the-knee cast, with a window made at the wound site for regular dressings. The patient is advised to remain non-weight bearing for 6 weeks.

Thereafter, weight-bearing is started in a gradual manner, starting with partial weight-bearing with use of modified footwear with heel raise initially, followed by progression to full weight-bearing eventually.

We had excellent outcomes in patients undergoing surgery for insertional ruptures with use of a single suture anchor tenodesis, with a mean hindfoot AOFAS score of 92.2 ± 5.3 after a mean follow-up of 31.5 months. There were no re-ruptures and the infection rate was 8%, with majority being superficial infections that resolved with antibiotics[10].



05 **TA repair using a single double-loaded suture anchor.** A: Insertional TA rupture. B: Suture anchor insertion after excision of the Haglund bump. C: Two sutures are passed through the central tendon, and another two are passed through the periphery of the tendon. D: Completed repair.

Summary

Insertional TA tears have good outcomes and low complication rates following surgical repair, irrespective of the technique employed. It is necessary to address associated factors such as the Haglund bump and retrocalcaneal spur at the time of repair. Advancement techniques such as V-Y plasty and FHL transfer may be employed in chronic cases with retracted tendons.

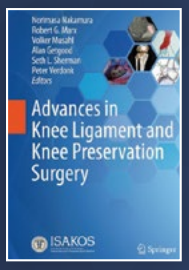
References

1. Ballal MS, Walker CR, Molloy AP. The anatomical footprint of the Achilles Tendon. Bone Jt J. 2014;96B(10):1344–8. **2.** Lee SM, Huh SW, Chung JW, Kim DW, Kim YJ, Rhee SK. Avulsion fracture of the calcaneal tuberosity: Classification and its characteristics. Clin Orthop Surg. 2012;4(2):134–8. **3.** Bibbo et al. Repair of the Achilles Tendon Sleeve Avulsion: Quantitative and Functional Evaluation of a Transcalcaneal Suture Technique - PubMed [Internet]. [cited 2020 Jul 5]. Available from: https://pubmed.ncbi.nlm.nih.gov/12921359/ **4.** Huh J, Easley ME, Nunley JA 2nd. Characterization and Surgical Management of Achilles Tendon Sleeve Avulsions. Foot Ankle Int. 2016 Jun;37(6):596-604. doi: 10.1177/1071100716629778. **5.** Ramakanth R, Sundararajan SR, Goud BH, Dsouza T, Rajasekaran S. Insertional versus non-insertional tendoachilles tears: a comparative analysis of various predisposing factors and outcome following a repair. Int Orthop. 2022 May;46(5):1009-1017. doi: 10.1007/s00264-022-05337-w

ISAKOS PUBLICATIONS

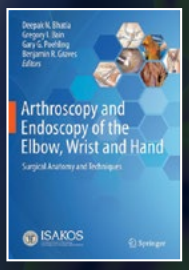
Free Access for **ISAKOS Members**

isakos.com/myISAKOS/myPublications



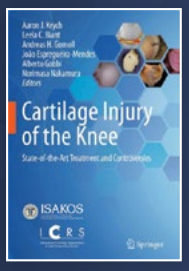
Advances in Knee Ligament and Knee Preservation Surgery

Norimasa Nakamura, Robert G. Marx, Volker Musahl, Alan Getgood, Seth L. Sherman, Peter Verdonk



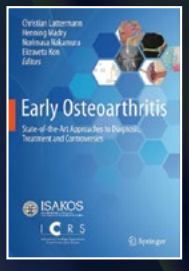
Arthroscopy and Endoscopy of the Elbow, Wrist and Hand

Deepak N. Bhatia, Gregory I. Bain, Gary G. Poehling, Benjamin R. Graves



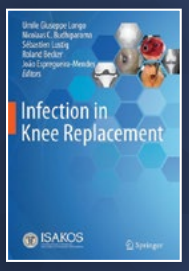
Cartilage Injury of the Knee

Aaron J. Krych, Leela C. Biant, Andreas H. Gomoll, João Espregueira-Mendes, Alberto Gobbi, Norimasa Nakamura



Early Osteoarthritis: State-of-the-Art Approaches to Diagnosis, Treatment and Controversies

Christian Lattermann, Henning Madry, Norimasa Nakamura, Elizaveta Kon



Infection in Knee Replacement

Umile Giuseppe Longo, Nicolaas C. Budhiparama, Sébastien Lustig, Roland Becker, João Espregueira-Mendes

Joint Function Preservation: A Focus on the Osteochondral Unit

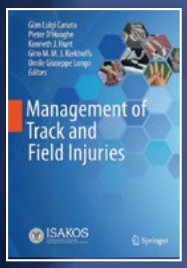
Alberto Gobbi, John G. Lane, Umile Giuseppe Longo, Ignacio Dallo

12

New Books **AVAILABLE**

From 2021-2022

$1500+ value, FREE for members!

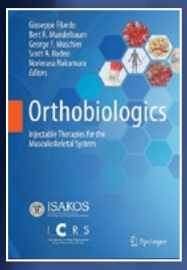


Management of Track and Field Injuries

Gian Luigi Canata, Pieter D'Hooghe, Kenneth J. Hunt, Gino M. M. J. Kerkhoffs, Umile Giuseppe Longo

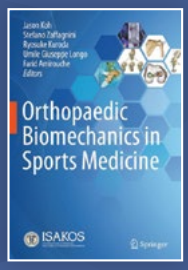
The Patellofemoral Joint– A Case-Based Approach

Jason L. Koh, Ryosuke Kuroda, João Espregueira-Mendes, Alberto Gobbi



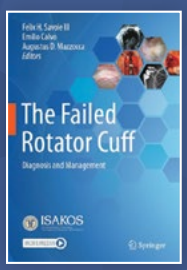
Orthobiologics

Giuseppe Filardo, Bert R. Mandelbaum, George F. Muschler, Scott A. Rodeo, Norimasa Nakamura



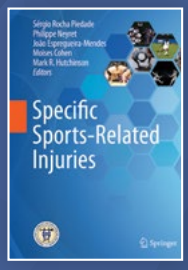
Orthopaedic Biomechanics in Sports Medicine

Jason Koh, Stefano Zaffagnini, Ryosuke Kuroda, Umile Giuseppe Longo, Farid Amirouche



The Failed Rotator Cuff: Diagnosis and Management

Felix H. Savoie III, Emilio Calvo, Augustus D. Mazzocca



Specific Sports-Related Injuries

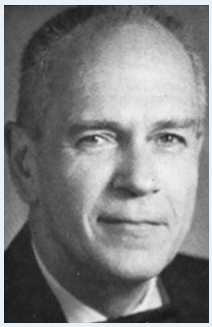
Sergio Rocha Piedade, Philippe Neyret, Joao Espregueira-Mendes, Moises Cohen, Mark Hutchinson

isakos.com/books

The Impact of an ISAKOS Award: The John J. Joyce Award

John Bartlett, AM MBBS, FRACS, FAOA
ISAKOS Honorary Member
ISAKOS Archives Committee Chair
AUSTRALIA

John J. Joyce Award



Prestigious awards represent some of the highlights of each ISAKOS Congress. Many of these awards are named in honor of individuals who have been prominent in the areas of research, teaching, and the development of techniques related to the specialties represented in ISAKOS. To have one's excellence acknowledged and rewarded can be a major event in a young surgeon's career.

The oldest award is that honoring John J. Joyce, which was first offered in 1981 at the International Arthroscopy Association (IAA) Congress. The winner that year was James Glick (USA).

Dr. Joyce (1914-1991) started performing arthroscopic surgery in 1971 after having been inspired by the presentation of Robert Jackson (Canada) at the Combined Meeting of the English-speaking Orthopaedic Associations Congress in Sydney, Australia, in 1970. He subsequently visited Dr. Jackson and his friend Dr. Ward Casscells, and, after "practicing" on 50 cadaver knees with the Watanabe #21 arthroscope, he then used it in surgical procedures.

Along with the aforementioned gentlemen as well as others, Dr. Joyce was instrumental in forming the IAA, the first President of which was Dr. Masaki Watanabe.

John J. Joyce endowed his award for "the best arthroscopy paper read by a young surgeon during the IAA Congress" and, of course, this award has been bestowed at every ISAKOS Congress since 1997.

In 1984, the second such award was won by Gregory Keene (Australia) for his paper entitled "Arthroscopic Electrosurgery: A New Technique."

This is Greg's story.

1984 John JOYCE Award Winner

Gregory Keene, MBBS, FRACS, FA(Orth)A, FASMF, FAICD
Sportsmed.SA, University of Adelaide
AUSTRALIA

Thanks, John, for your inquiry about this award. The title of my presentation that won the award in 1984 at the IAA meeting in London was "Arthroscopic Electrosurgery: A New Technique."

The paper summarized the development of a simple set of arthroscopic electrosurgery (ES) instruments for cutting and smoothing joint tissues and for controlling synovial bleeding during arthroscopy. The idea came to me during my early surgical training in the use of electrosurgery during pediatric endoscopic urology procedures. This was a time when lasers were being developed for arthroscopic surgery, and it occurred to me that ES could serve a similar function far more cheaply and easily. To investigate this possibility, we evaluated and compared the results for 50 patients who underwent conventional meniscectomy and 50 patients who underwent arthroscopic ES meniscectomy. The ES group had faster recovery, less pain and effusion. Since then, ES has become standard in most centers, whereas laser arthroscopic surgery has "faded."

I was surprised, flattered, and extremely proud of winning that award in 1984, especially considering the caliber of some of the winners at that time and since, namely, Philippe Neyret, Freddie Fu, Alfredo Panni, Simon Thompson, and many others.

Awards such as the John J. Joyce Award are an important part of our orthopaedic community in that they help to "stimulate and reward younger researchers who contribute high-quality data and presentations." These were John's own words in establishing the award.

I met John Joyce in Toronto in 1979-80 during my 1-year Arthroscopy and Knee Surgery Fellowship with Prof. Bob Jackson, regarded as the father of modern arthroscopy. These were dizzy days with frequent visits by many of the "doyens" of modern orthopaedic surgery, all of whom were good friends with Bob. I was always introduced politely by Bob as "young Greg – my Fellow from Australia."

John Joyce himself was a very nice man, with whom it was always great to chat to about knee surgery. He and all of the other surgeons I met in Toronto and the US during the Fellowship have been very inspiring to me throughout my career.

When I had the privilege to serve as President of the Australian Knee Society and as Program Chairman for an IAA meeting, it was a pleasure to give back to the orthopaedic community after having received so much support and friendship from people such as John Joyce, Bob Jackson, and of course, senior Australian surgeons such as Merv Cross, Glen Maguire, David Marshall, and many others.

As I am facing (and looking forward to) retirement myself this year (after 42 years of doing only knee surgery, having performed approximately 40,000 knee operations), I can honestly say that it has been a wonderful journey along with the fantastic group of people who make up the world of knee surgery. Knowing John Joyce, and receiving the award bearing his name, remain cherished highlights along that journey.

ISAKOS 2021: Global Traveling Fellowship Recipient Highlight

Julian A. Feller, FRACS, FAOrthA
Traveling Fellowship Committee Chair
AUSTRALIA

The ISAKOS Global Traveling Fellowship was established in 2017 with the first winners traveling to South America in the lead-up to the ISAKOS Congress in Cancun in 2019. Under the guidance of David Figueroa from Chile and with support from SLARD, it was a tremendous success.

Unfortunately, the COVID pandemic prevented the next group of fellows travelling to the Middle East and Africa in 2019. However, they will be traveling to North America in the lead-up to the ISAKOS Congress in Boston in 2023. The fellows were introduced in the last newsletter:

- Joseph Ruzbarsky, MD, UNITED STATES
- Saroj Rai, MD, Phd, NEPAL
- Oyoo Were, MD, KENYA
- Pamela Castro, MD, PERU
- Wybren van der Wal, MBChB, MMed, IOC Dip Sp Phy, NETHERLANDS (missed in the last Newsletter, included in this one)

Their godfather will be Ponky Firer from Johannesburg, South Africa. He was to lead them in 2019 and we are very grateful that he is available for 2023. Ponky has specialised in knee surgery for well over three decades, initially with a primary interest in the ACL and more recently in the treatment of osteoarthritis. Together with Dr. Clive Noble he started the first sports injury clinic in Johannesburg back in 1976. Over the years he has helped many younger surgeons establish their niche in Orthopaedics and Sports medicine making him an ideal person to take on the role of godfather. As an undergraduate he played field hockey. He now enjoys a round of golf.

ISAKOS has been able to fund a further group of Global Traveling Fellows for 2023. They will also travel around North America and finish at the Congress in Boston. There was tremendous interest in the fellowship this year with 110 applications from 37 countries. The standard of the applications was extremely high making the selection process challenging.

The members of the Traveling Fellowship Committee did a tremendous job with each application being reviewed by three members. The successful applicants were Niv Marom, MD, Israel (Middle East/Africa Region); Alexander S. Nicholis, MSc, FRACS, Australia (Asia Pacific Region); Umile Giuseppe Longo, MD, MSc, PhD, Prof., Italy (Europe Region); Claudia Arias, MD, Peru (Latin America Region); and Giovanna Ignacio Subira Medina, MD, PhD, United States (North America Region).

Their godfather will be John Bergfeld who is well known to the ISAKOS membership. John Bergfeld is a Senior Surgeon at the Cleveland Clinic. He was inducted into the AOSSM Hall of Fame and designated “Mr. Sports Medicine” in 2009. He has a long involvement with professional sports most notably as team physician for the Cleveland Browns and the Cleveland Cavaliers. He has been active in many sports medicine organisations and is a Past President of not only ISAKOS, but also AOSSM and ACSM. His extensive network of colleagues will open many doors for his traveling fellows.

I would like to take this opportunity to thank my deputy chairs John Bergfeld and Kevin Shea, as well as all the members of the Traveling Fellowship Committee for their support. Although it is a relatively new committee, it has quickly established itself as an important contributor to ISAKOS and the Global Traveling Fellowship represents all that makes ISAKOS such an important organisation.

Wybren van der Wal, MD
ZGV Ede
Utrecht, NETHERLANDS

I am very grateful to have been selected as Europe’s 2021 ISAKOS Global Traveling Fellowship recipient. I always look forward to attending the biennial ISAKOS Congress and have attended in Rio de Janeiro, Lyon, Shanghai, Cancun and the virtual Cape Town Congress. It is a great honor to be a part of the Global Traveling Fellowship next year and to attend the Boston Congress afterward. I believe the best way to improve knowledge and skills is to visit experts in the field and see and learn how they work and have organized their sports practice. I am looking forward to discussing operative techniques, patient management and scientific research with the other fellows and our Godfather. In my practice, I treat professional and recreational athletes in a hospital that has a large sports department and a collaboration with the Dutch Olympic Committee. I have specialized in knee surgery and have joined and initiated several research projects in the last few years.

I am confident that the ISAKOS Global Traveling Fellowship will be very motivational and an unforgettable experience.

I would like to thank the Traveling Fellowship Committee for this opportunity. And a special thank you to Robert LaPrade for his great support in my career so far.

Learn more about the fellowship at isakos.com/Global-Traveling-Fellowship

Access ISAKOS On-the-Go with the ISAKOS App

Connect with others through Anatomical & Specialty Community Forums!

JISAKOS articles one touch away

Directory of colleagues at the ready

Global Link videos with the push of a button

Program content instantly accessible

Download ISAKOS App

ISAKOS

International Society of Arthroscopy, Knee Surgery and Orthopaedic Sports Medicine

IS YOUR MEETING, WEBINAR, OR VIRTUAL COURSE AN...

ISAKOS APPROVED COURSE

The 4th Congress and 10th Annual Meeting of IOSSMA 2022: Advancing Arthroscopic Surgery in Orthopaedic Sports Injury
Pullman Hotel, Bandung Grand Central
Bandung, INDONESIA
September 1–3, 2022
Chair(s): Dr. Andri M.T. Lubis, SpOT (K), Assoc. Prof.
For further information, please contact:
Email: iossmasummit2022@gmail.com
Tel: +6281313144211
www.iossma.or.id

3rd Advanced Techniques in Knee Surgery
ATT Center
Athens, GREECE
September 10–11, 2022
Chair(s): Dimitrious Koulalis
For further information, please contact:
Flora Sklia
Email: op@attcenter.eu
Tel: +0030 2106109992
www.attcenter.eu/training-programs/orthopaedic-surgery?course=advanced-techniques-in-knee-surgery

XVI Congreso Internacional de la Asociación Argentina de Artroscopia
Argentina Hotel Hilton, Puerto Madero
Buenos Aires, ARGENTINA
September 21–23, 2022
Chair(s): Juan Pablo Previgliano, Rivarola Etcheto Horacio
For further information, please contact:
Email: cd.artroscopia@gmail.com
Tel: +54 911 41794533
www.artroscopia.com.ar

20th Lyonnaise Days of Knee Surgery: The Patella
Convention Center
Lyon, FRANCE
September 22–24, 2022
Chair(s): Guillaume Demey
For further information, please contact:
Email: florence.bondoux@lysks.fr
Tel: +0033 632071990
www.lyon-knee-congress.com

5th Patras Fellowship: 3-day Live Surgical Skills Course
Patras University Hospital
Patras, GREECE
September 28–30, 2022
Chair(s): Andreas Panagopoulos
For further information, please contact:
Email: andpan21@gmail.com
Tel: +306944363624
www.patrasfellowship.com

The Combined Meeting of TOSSM & APKASS 2022
PEACH, Royal Cliff Hotels Group
Pattaya, THAILAND
September 29–October 1, 2022
Chair(s): Chanakarn Phornphutkul
For further information, please contact:
Niti Prasataporn
Email: nprasathaporn@gmail.com
Tel: (+662) 7165437
Fax: (+662) 7165440
www.apkass2022.org

ICRS Focus Meeting Bologna
Rizzoli Orthopedic Institute
Bologna, ITALY
October 6–7, 2022
Chair(s): Brunella Grigolo, Stefano Zaffagnini
For further information, please contact:
Stephan Seiler
Email: office@cartilage.org
Tel: +41 44 503 73 73
www.cartilage.org/icrs-focus-bologna/

4th International Orthopedics Sports Medicine Conference
Virtual Meeting
October 15–16, 2022
Chair(s): Prof. Philippee Neyret
For further information, please contact:
Heba Fares
Email: heba@mco.ae
Tel: +971552488353
www.mco.ae

6th ICRS Summit Joint Preservation: Where We Are in 2022?
Doral National Miami
Miami, UNITED STATES
November 17–19, 2022
Chair(s): Tom Minas
For further information, please contact:
Melanie Twerenbold
Email: office@cartilage.org
Tel: +41445037371
www.cartilage.org/icrs-summit-miami/

7th ICRS Surgical Skills Course / Wet-Lab Doha
Aspetar Orthopaedic & Sports Medicine Hospital
Doha, QATAR
January 26–28, 2023
Chair(s): Emmanuel T. Papacostas
For further information, please contact:
Stephan Seiler
Email: office@cartilage.org
Tel: +41 44 503 73 73
www.cartilage.org/surgicalskills2023/

www.isakos.com/meetings

Reimagine reconstruction

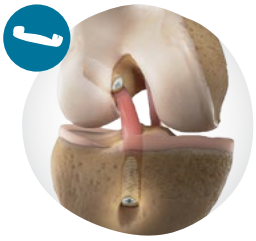
Knee Ligament Solutions

ACL tears will vary by patient, so why should reconstruction approaches be any different? In collaboration with leading experts, we developed a suite of graft-specific techniques to offer the versatility to adapt to patient needs. Using innovations such as ULTRABUTTON◊ Adjustable Fixation Device and BIOSURE◊ REGENESORB◊ Interference Screw, we invite surgeons to take a fresh look at techniques...and reimagine reconstruction. Learn more at **smith-nephew.com/reimagine**.

Smith+Nephew

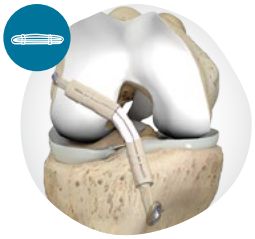
UltraSTAR
Quadrupled semitendinosus

UltraSURE
Semitendinosus and gracilis



REGENESORB◊ BTB
Bone-tendon-bone

REGENESORB QT-B
Quad-tendon-bone



All-inside
Quadrupled semitendinosus

International Society of Arthroscopy,
Knee Surgery and Orthopaedic Sports Medicine
567 Sycamore Valley Road West
Danville, CA 94526–3900 USA

Telephone: +1 925 807–1197
Fax: +1 925 807–1199
isakos@isakos.com
www.isakos.com