

Programme

9th November  
2023



British Orthopaedic Sports Trauma  
and Arthroscopy Association

The Royal College of Surgeons of England  
has awarded up to 6 CPD points

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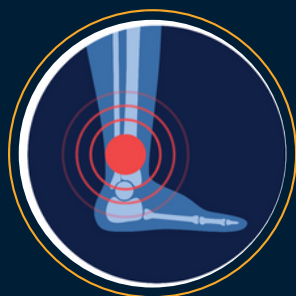
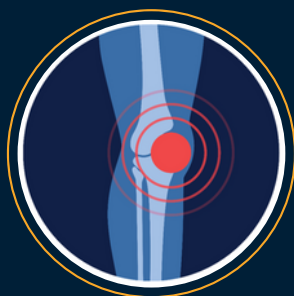
# BOSTAA 2023 ANNUAL SCIENTIFIC MEETING

Instability in Sports Trauma



## Why attend?

- Diverse faculty covering upper and lower limbs.
- Topics in focus: instability, covering operative and non-operative treatment of ligament injuries in the world of sport, and other principles of joint preservation.
- Complex cases discussion
- Social networking reception



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<i>Registration fee includes: coffee breaks, buffet lunch and networking reception.</i>	<b>Early Bird Fee</b> <i>before 31 August 2023</i>	<b>Mid Fee</b> <i>before 20 October 2023</i>	<b>Late Fee</b> <i>from 21 October 2023</i>
<b>BOSTAA Members</b> Current subscription paying members only	<b>£ 95</b>	<b>£ 120</b>	<b>£ 150</b>
<b>Non Members</b> Non member Consultants, Trainees and Allied Health Professionals	<b>£ 130</b>	<b>£ 155</b>	<b>£ 185</b>

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# My Journey to Date

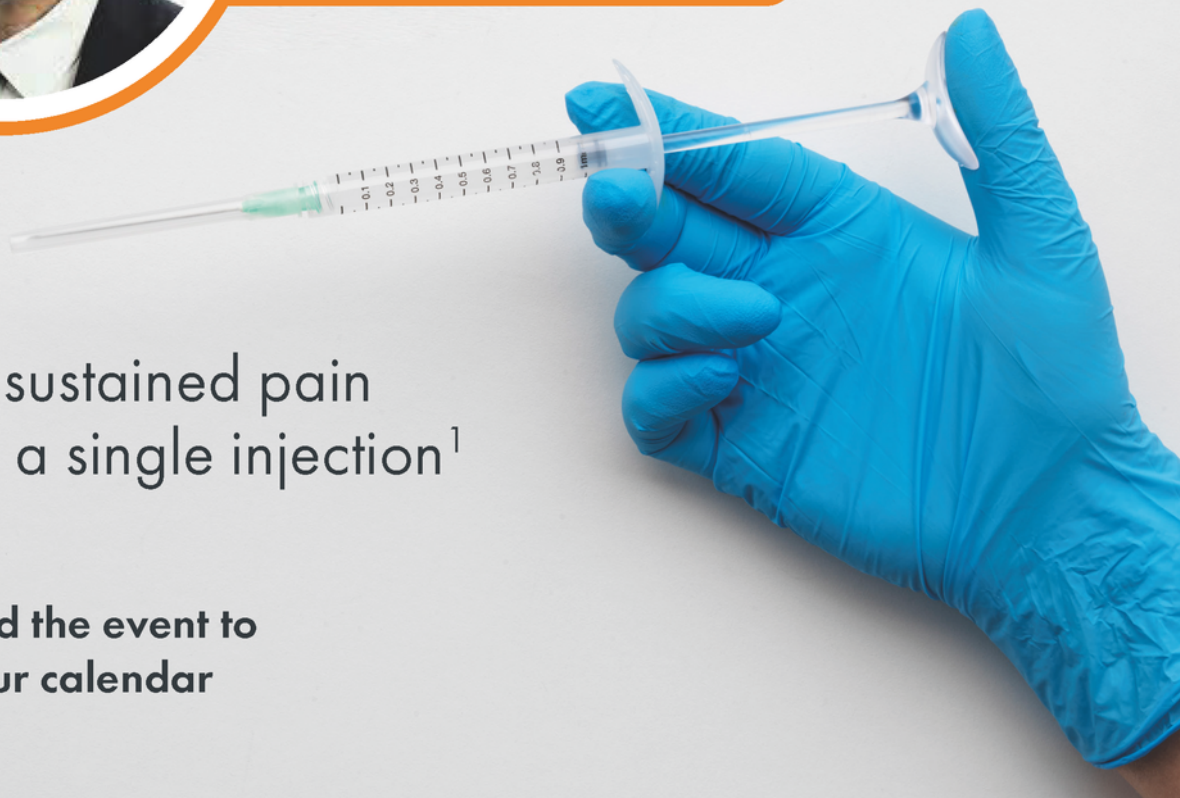


9TH NOVEMBER 2023

12:15 – 12:30 PM

with Mr Sean Curry

Orthopaedic Surgeon,  
United Kingdom



Safe and sustained pain  
relief with a single injection<sup>1</sup>



Add the event to  
your calendar



**Room:** Thomas Lord Suite

08:15 **REGISTRATION**

08:40 **WELCOME**



**Deiary Kader**  
President, BOSTAA

## SESSION 1: UPPER LIMB

**Chairs:**



**Neil Jain**  
Consultant Orthopaedic Surgeon - Wilmslow



**Ricci Plastow**  
Consultant Trauma and Orthopaedics - UCLH



**Kapil Kumar**  
Consultant  
Shoulder and Elbow Surgeon - Aberdeen



**Shantanu Shahane**  
Consultant  
Shoulder and Elbow Surgeon - Chesterfield



**Nanette Oakes**  
Extended Scope  
Physiotherapist  
Chesterfield



**Monica Khanna**  
Consultant  
Musculoskeletal Radiologist - London



**Shamim Umarji**  
Consultant  
Hand and Wrist Surgeon  
London



**David Bartlett**  
Lead Physiotherapist  
Welsh Fire

08:45 **ACROMIOCLAVICULAR JOINT INJURIES**

**Kapil Kumar**

09:05 **SHOULDER INSTABILITY IN THE ADOLESCENT ATHLETE PART I - SURGERY**

**Shantanu Shahane**

09:15 **SHOULDER INSTABILITY IN THE ADOLESCENT ATHLETE PART II - NON-SURGICAL MANAGEMENT**

**Nanette Oakes**

09:30 **IMAGING OF THE UNSTABLE ELBOW AND SHOULDER TRICKS AND TIPS**

**Monica Khanna**

09:45 **THUMB ULNA COLLATERAL LIGAMENT - GETTING BACK AFTER INJURY**

**Shamim Umarji**

10:00 **INJURIES IN ELITE CRICKET- IT'S NOT JUST THE SHOULDER**

**David Bartlett**

10:15 **DISCUSSION**

10:30 **COFFEE | INDUSTRY EXHIBITION | POSTERS** (see full abstracts on pages 21-26 online only)

**Room:** Thomas Lord Suite**SESSION 2: LOWER LIMB****Chairs:****Vipin Asopa**  
Consultant Orthopaedic  
Surgeon - SWLEOC**Sanjeev Anand**  
Consultant Orthopaedic  
Surgeon - Leeds**Dominic O'Dowd**  
Consultant Orthopaedic  
Surgeon - Sheffield**Rhidian Thomas**  
Consultant Orthopaedic  
Surgeon - London**Rick Brown**  
Consultant  
Foot and Ankle  
Surgeon - Oxford**Sunil Bajaj**  
Consultant  
Foot and Ankle  
Surgeon - London11:00 **POPLITEUS, POPLITEOMENISCAL LIGAMENTS AND THE LATERAL MENISCUS****Dominic O'Dowd**11:15 **MEDIAL COLLATERAL LIGAMENT INJURIES OF THE KNEE - WHICH ONES NEED SURGERY?****Rhidian Thomas**11:30 **LATERAL ANKLE LIGAMENT INJURY- WHERE ARE WE IN 2023?****Rick Brown**11:45 **INJURIES OF THE ANKLE SYNDESMOSIS - HOW TO TREAT?****Sunil Bajaj**12:00 **DISCUSSION**12:15 **MY JOURNEY TO DATE**

Mr. Sean Curry started his Arthrosamid® journey in December 2021 and has treated 58 patients (74 knees) with an age range of 43-89 to date. In this session he will detail his journey with the product and share his 'real-life' patient experience with case studies.

**Sean Curry**  
Consultant Orthopaedic Surgeon  
The London Orthopaedic Clinic**12:30 LUNCH | INDUSTRY EXHIBITION | POSTERS** (see full abstracts on pages 21-26 online only)

**Room:** Thomas Lord Suite

## SESSION 3: HIPS

**Chairs:**



**Fazal Ali**  
Consultant Orthopaedic  
Surgeon - Sheffield



**Nick Nicolaou**  
Consultant Orthopaedic  
Surgeon - Sheffield



**Ajay Malviya**  
Consultant  
Hip Surgeon - Northumbria



**Prof. Damian Griffin**  
Professor of Trauma  
and Orthopaedic Surgery - Warwick

13:30 **HOW TO APPROACH THE 'SNAPPING' HIP?**

**Ajay Malviya**

13:45 **HIP MICROINSTABILITY IN ATHLETES - CAUSES AND TREATMENT**

**Damian Griffin**

14:05 **DISCUSSION**

## PODIUM SCIENTIFIC PAPERS - SESSION ONE

**4 minutes presentation followed by discussion as shown below**

Please refer to full abstracts on pages 12 - 20 (online version only)

**Chairs:**



**Fazal Ali**  
Consultant Orthopaedic  
Surgeon - Sheffield



**Amanda Isaac**  
Consultant MSK Radiologist  
Guy's and St Thomas' NHSFT

14:20 **(#11) JAMES LIND ALLIANCE FIRST TIME SOFT TISSUE KNEE INJURIES PRIORITY SETTING PARTNERSHIP: TOP 10 RESEARCH PRIORITIES**

**Humza Osmani**, Nicolas Nicolaou, Sanjeev Anand, Jonathan Gower, Andrew Metcalfe, Stephen McDonnell  
Addenbrooke's Hospital, Cambridge, UK

14:24 **(#39) MENISCAL ANOMALIES IN CONGENITAL CRUCIATE LIGAMENT DEFICIENCY- EXPERIENCE IN A TERTIARY CHILDREN'S KNEE UNIT**

**Sheba Basheer**, Tariq Kwaees, Chun Tang, Fazal Ali, Paul Haslam, Nicolas Nicolaou  
Sheffield Children's Hospital, Sheffield, UK



Room: Thomas Lord Suite

## PODIUM SCIENTIFIC PAPERS - SESSION ONE

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Chairs:



**Fazal Ali**

Consultant Orthopaedic Surgeon - Sheffield



**Amanda Isaac**

Consultant MSK Radiologist  
Guy's and St Thomas' NHSFT

14:28 **(#32) IMPROVING THE OUTCOMES OF ANTERIOR CRUCIATE LIGAMENT SURGERY IN PROFESSIONAL ATHLETES: AN ANALYSIS OF 342 PATIENTS WITH A MEAN FOLLOW-UP OF 100 MONTHS**

Graeme Hopper, Amy Haddock, Charles Pioger, Corentin Philippe, Abdo El Helou, Joao Pedro Campos, Lampros Gousopoulos, Alessandro Carrozzo, Thais Dutra Vieira, Bertrand Sonnery-Cottet  
Centre Orthopedique Santy, Lyon, France

14:32 **DISCUSSION of papers #11, #39, #32.**

14:35 **(#41) WORK LIMITING INJURIES SUSTAINED BY ATHLETES IN THE WORLD'S HARDEST RACE**

David Ferguson, Rory Cuthbert, Frank Acquaah, Lucky Jeyaseelan  
Tygerberg Academic Hospital, Cape Town, South Africa

14:39 **(#34) ADDITIONAL MCL SURGERY DOES NOT AFFECT OUTCOMES AFTER ACL RECONSTRUCTION BUT ADDITIONAL POSTEROLATERAL SURGERY DOES IN ELITE ATHLETES**

Mary Jones, Vitor Hugo Pinheiro, Mitzi Laughlin, Kyle Borque, Andy Williams  
Fortius Clinic, London, UK

14:43 **(#15) QUANTIFYING ANTERIOR MEDIAL ROTATIONAL STABILITY IN ANTERIOR CRUCIATE LIGAMENT INJURED PATIENTS WITH ASSOCIATED COLLATERAL INVOLVEMENT**

Natasha Allott, Matthew Banger, Jonathan Korgaonkar, Rhidian Thomas, Alison McGregor  
Charing Cross Hospital, London, UK

14:47 **DISCUSSION of papers #41, #34, #15.**

14:50 **(#18) EXTRA-ARTICULAR KNEE LIGAMENT RECONSTRUCTIONS USING LARS (LIGAMENT AUGMENTATION AND RECONSTRUCTION SYSTEM) SYNTHETIC GRAFTS IN ELITE ATHLETES**

Mary Jones, Vitor Hugo Pinheiro, Sam Church, Simon Ball, Andy Williams  
Fortius Clinic, London, UK

**Room:** Thomas Lord Suite**PODIUM SCIENTIFIC PAPERS - SESSION ONE****4 minutes presentation followed by discussion as shown below**

Please refer to full abstracts on pages 12 - 20 (online version only)

**Chairs:****Fazal Ali**

Consultant Orthopaedic Surgeon - Sheffield

**Amanda Isaac**Consultant MSK Radiologist  
Guy's and St Thomas' NHSFT**14:54 (#1) A MEDIUM TERM REVIEW OF THE OUTCOMES OF TALAR OSTEOCHONDRAL LESIONS TREATED WITH MATRIX ASSOCIATED STEM CELL TRANSPLANTATION****Angela Faustino**, Evelyn Murphy, Michael Curran, Stephen Kearns  
Galway University Hospital, Saolta Hospital Group, Republic of Ireland**14:58 (#12) WHAT DRIVES INNOVATION AND CHANGE IN ACL SURGERY? AN ANALYSIS OF 14,352 PATIENTS****Ashwini Garneti**, Matthew Clark, James Stoddard, Graeme Hancock, Matthew Hampton  
Sheffield Teaching Hospitals, Sheffield, UK**15:02 DISCUSSION of papers #18, #1, #12.****15:05 (#43) HOME-BASED REHABILITATION FOLLOWING ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION IN THE KURDISTAN REGION OF IRAQ: EPIDEMIOLOGY AND OUTCOMES****Samantha Jones**, Nardeen Kader, Ziyad Serdar, Paul Banaszkiwicz, Deiry Kader  
South West London Elective Orthopaedic Centre, Epsom, UK**15:09 (#20) ANTERIOR CRUCIATE LIGAMENT INJURY PREVENTION PROGRAMS IN WELSH NETBALL: SURVEY OF KNOWLEDGE, IMPLEMENTATION AND BARRIERS AMONGST PLAYERS AND COACHES****Wahid Abdul**, Isabel Moore, Angus Robertson  
University Hospital of Wales, Wales, UK**15:13 (#33) QUADRICEPS AUTOGRAFT FOR MPFL RECONSTRUCTION IN PAEDIATRIC PATELLOFEMORAL INSTABILITY-EXPERIENCE FROM A TERTIARY CHILDREN'S KNEE UNIT****Sheba Basheer**, Fazal Ali, Nicolas Nicolaou  
Sheffield Children's Hospital, Sheffield, UK**15:17 DISCUSSION of papers #43, #20, #33.****15:20 TEA | INDUSTRY EXHIBITION | POSTERS** (see full abstracts on pages 21-26 online only)

Room: Thomas Lord Suite

**SESSION 4: KNEES****Chairs:**

**Mazin Ibrahim**  
Consultant Orthopaedic  
Surgeon - London



**Rhidian Thomas**  
Consultant Orthopaedic  
Surgeon - London



**Andy Williams**  
Consultant  
Knee Surgeon - London



**David Hollingshurst**  
Consultant Hip and Knee  
Surgeon - Swindon

15:50 **ANTEROMEDIAL INSTABILITY OF THE KNEE****Andy Williams**16:05 **THE 'NEW' LIGAMENTS IN PATELLOFEMORAL INSTABILITY -  
MPML/MPTL/ MQTFL****David Hollingshurst**16:20 **DISCUSSION****PODIUM SCIENTIFIC PAPERS - SESSION TWO****4 minutes presentation followed by discussion as shown below**

Please refer to full abstracts on pages 12 - 20 (online version only)

**Chairs:**

**Nick Nicolaou**  
Consultant Orthopaedic  
Surgeon - Sheffield



**Samantha Jones**  
Associate Director of Research  
South West London Elective  
Orthopaedic Centre (SWLEOC)

16:35 **(#2) ROTATOR CUFF TEAR IN FRACTURE SHOULDER DISLOCATION**  
**Mohamed Elgendy**, Daoud Makki, Christopher White, Ahmed ElShafey  
West Hertfordshire Teaching Hospitals, Hertfordshire, UK16:39 **(#30) LONG-TERM CLINICAL OUTCOMES AFTER SINGLE VERSUS DOUBLE-BUNDLE ACL  
RECONSTRUCTION: A MATCHED-PAIR ANALYSIS FROM THE SANTI STUDY GROUP**  
**Archie Hems**, Graeme Hopper, Jae-Sung An, Mohammed Lahsika, Giancarlo Giurazza,  
Thais Dutra Vieira, Bertrand Sonnery-Cottet  
Centre Orthopedique Santy, Lyon, France16:43 **(#38) 12-MONTH CLINICAL OUTCOMES OF ARTHROSCOPIC LATERAL ANKLE LIGAMENT  
RECONSTRUCTION FOR CHRONIC ANKLE INSTABILITY: A PROSPECTIVE CASE SERIES**  
**Thomas Lewis**, Samuel Franklin, Vikram Vignaraja, Robbie Ray  
King's College Hospital NHS Foundation Trust, London, UK16:47 **DISCUSSION of papers #2, #30, #38.**



**Room:** Thomas Lord Suite**PODIUM SCIENTIFIC PAPERS - SESSION TWO****4 minutes presentation followed by discussion as shown below**

Please refer to full abstracts on pages 12 - 20 (online version only)

**Chairs:****Nick Nicolaou**Consultant Orthopaedic  
Surgeon - Sheffield**Samantha Jones**Associate Director of Research  
South West London Elective  
Orthopaedic Centre (SWLEOC)**16:50 (#10) KNEE ARTHROSCOPY: SHOULD KNEE ARTHROSCOPY SIMULATION BE PART OF THE TRAINING CURRICULUM IN THE UK?**Reyan Saghir, Katherine Watson, **Alastair Martin**, Andrew Cohen, James Newman,  
Vishal Rajput  
Pinderfields General Hospital, Mid Yorkshire NHS Foundation Trust, Yorkshire, UK**16:54 (#25) MID-TERM OUTCOMES OF TROCHLEOPLASTY IN THE TREATMENT OF SEVERE TROCHLEAR DYSPLASIA****Nikhil Sharma**, Andrew George, Matthew Hampton, Andrew Barnett  
Robert Jones & Agnes Hunt Orthopaedic NHS Hospital (Oswestry), UK**16:58 (#21) ASSESSING THE USE OF THE TEGNER ACTIVITY SCALE IN CHILDREN IS IT A USEFUL TOOL?****Alex Fawdry**, Dominic O'Dowd  
Rotherham District General Hospital, Rotherham, UK  
Sheffield Children's Hospital, Sheffield, UK**17:02 DISCUSSION of papers #10, #25, #21.****BOSTAA Travelling Fellowship Report**17:05 **Matt Hampton**17:10 **Stephen Dagleish**17:15 **Graeme Hopper****17:20 Awards: Best Podium Paper, Best Poster and special award for dedication to BOSTAA****17:25 Annual General Meeting (BOSTAA Members only)****17:30 Networking Reception**

**PODIUM PAPER ABSTRACTS****(#11) JAMES LIND ALLIANCE FIRST TIME SOFT TISSUE KNEE INJURIES PRIORITY SETTING PARTNERSHIP: TOP 10 RESEARCH PRIORITIES**

**Humza Osmani**, Nicolas Nicolaou, Sanjeev Anand, Jonathan Gower, Andrew Metcalfe, Stephen McDonnell  
Addenbrooke's Hospital, Cambridge, UK

**Introduction:** The knee is the most commonly injured joint in sporting accidents, leading to substantial disability, time off work and morbidity (1). Treatment and assessment varies around the UK (2), whilst there remains a limited number of high-quality randomised controlled trials assessing first time, acute soft tissue knee injuries (3,4). As the clinical and financial burden rises (5), vital answers are required to improve prevention, diagnosis, treatment, rehabilitation and delivery of care. In association with the James Lind Alliance, this BASK, BOSTAA and BOA supported prioritising exercise was undertaken over a year.

**Methods:** The James Lind Alliance methodology was followed; a modified nominal group technique was used in the final workshop. An initial survey invited patients and healthcare professionals to submit their uncertainties regarding soft tissue knee injury prevention, diagnosis, treatment, rehabilitation and delivery of care. Seventy-four questions were formulated to encompass common concerns. These were checked against best available evidence. Following the interim survey, 27 questions were taken forward to the final workshop in January 2023, where they were discussed, ranked and scored in multiple rounds of prioritisation by groups of healthcare professionals, patients and carers.

**Results:** Over 1000 questions were submitted initially. Twenty seven were taken forward to the final workshop following the surveys. Nearly half of the responses were from patients/carers. The Top 10 (Figure 1) includes prevention, diagnosis, treatment and rehabilitation questions, reflecting the concerns of patients, carers and a wider multidisciplinary team.

**Conclusion:** This validated process has generated an important, wide- ranging Top 10 priorities for future soft tissue knee injury research. These have been submitted to the National Institute for Health and Care Research and are now available for researchers to investigate. The final 27 questions which were taken to the final workshop have also been published on the James Lind Alliance website. Research into these questions will lead to future high quality research, thus improving patient care & outcomes.

**(#39) MENISCAL ANOMALIES IN CONGENITAL CRUCIATE LIGAMENT DEFICIENCY - EXPERIENCE IN A TERTIARY CHILDREN'S KNEE UNIT**

**Sheba Basheer**, Tariq Kwaees, Chun Tang, Fazal Ali, Paul Haslam, Nicolas Nicolaou  
Sheffield Children's Hospital, Sheffield, UK

**Objectives:** Congenital cruciate ligament deficiency is a rare condition that may occur in isolation or in association with longitudinal limb deficiencies such as fibular hemimelia or proximal femoral focal deficiency. Often anomalies of the menisci and their attachments can be very abnormal and impact on surgical management by standard techniques. Arthroscopic surgical knee reconstruction is undertaken to improve symptomatic instability and/or to stabilise and protect the knee for future planned limb lengthening surgery. The aim of this study is to evaluate the arthroscopic findings of patients undergoing surgery for congenital cruciate ligament deficiency, and specifically to determine the frequency and types of meniscal anatomical variations seen in these cases.

**Methods:** Patients undergoing surgery for congenital cruciate ligament deficiency were identified from a prospectively collated database. Diagnosis was confirmed through review of the clinical notes and imaging. Operative notes and 4K saved arthroscopic images and video recordings for these cases were reviewed.

**Results:** Over a six-year period (July 2017 – September 2023), 42 patients underwent surgery for congenital ligament deficiency and tibiofemoral instability (45 surgical episodes). Median age of patients at time of surgery was 10 years (range 4 – 17 years). The most frequent diagnosis was congenital longitudinal limb deficiency syndromes in 27 cases, with the most frequent being fibular hemimelia. Isolated congenital ligament deficiency without any other associated extra-articular manifestations occurred in 11 cases. Absence of meniscal root attachments or hypertrophy of menisiofemoral ligaments acting as 'pseudo-cruciates' were seen in over 25% of patients. In isolated ACL deficiency these were injured causing onset of instability symptoms and pain following trauma. Often these abnormal structures required addressing to allow surgical reconstruction.

**Conclusions:** Our findings demonstrate that there are often meniscal variations seen in association with congenital absence or hypoplasia of the cruciate ligaments. In these patients hypertrophied menisiofemoral ligaments may act as cruciate-like structures and play a role in providing a degree of sagittal plane stability to the knee. However, when the knee becomes unstable to the point that cruciate ligament reconstruction is indicated, these meniscal variants may often require stabilisation using complex meniscal root repair techniques or variations to standard cruciate ligament reconstruction techniques to accommodate the variant anatomy.

**PODIUM PAPER ABSTRACTS****(#32) IMPROVING THE OUTCOMES OF ANTERIOR CRUCIATE LIGAMENT SURGERY IN PROFESSIONAL ATHLETES: AN ANALYSIS OF 342 PATIENTS WITH A MEAN FOLLOW-UP OF 100 MONTHS**

**Graeme Hopper**, Amy Haddock, Charles Pioger, Corentin Philippe, Abdo El Helou, Joao Pedro Campos, Lampros Gousopoulos, Alessandro Carrozzo, Thais Dutra Vieira, Bertrand Sonnery-Cottet  
Centre Orthopedique Santy, Lyon, France

**Introduction:** Anterior cruciate ligament (ACL) injuries are one of the most common knee injuries amongst elite athletes and usually require an ACL reconstruction (ACLR) to enable return to sport. Secondary surgery can result in a longer rehabilitation period and often a significant time away from sport which can have implications to the athlete including contract obligations and sponsorship. Advances in ACLR techniques and meniscal repair techniques as well as an awareness of meniscal root lesions, ramp lesions and lateral extraarticular procedures (LEAPs) during ACL surgery has improved outcomes. The purpose of this study was to evaluate the rates of secondary surgery following the introduction of a systematic arthroscopic evaluation of the knee, improved meniscal repair techniques and the addition of a concomitant LEAP. This systematic approach was introduced after October 2012 (10/2012).

**Methods:** Professional athletes who underwent primary ACLR with a minimum follow-up of 2 years were identified from the (blinded for review). Those who had undergone major concomitant procedures such as multiligament reconstruction or osteotomy were excluded. Analysis of the database and review of medical records identified athletes who had undergone secondary surgery procedures.

**Results:** A total of 342 athletes with a mean follow-up of 100.2 +/- 51.9 months (range, 24-215 months) were analysed. 130 athletes underwent surgery before 10/2012 and 212 athletes underwent surgery after 10/2012. Overall, 74 patients (21.6%) underwent secondary surgery. 39 patients (30.0% including 13.1% for graft rupture) before 10/2012 and 35 patients (16.5% including 6.6% for graft rupture) after 10/2012. A multivariate analysis was performed using the Cox model and demonstrated that athletes undergoing ACLR before 10/2012 were at almost 2-fold risk of secondary surgery (hazard ratio (HR), 1.768(1.103;2.836), p=0.0256) when compared with those undergoing ACLR after 10/2012. (Figure 1).

**Conclusion:** Professional athletes undergoing ACLR with a systematic arthroscopic evaluation with the use of advanced meniscal repair techniques and the combination with a LEAP results in a significantly lower rate of secondary surgery.

**(#41) WORK LIMITING INJURIES SUSTAINED BY ATHLETES IN THE WORLD'S HARDEST RACE**

**David Ferguson**, Rory Cuthbert, Frank Acquaah, Lucky Jeyaseelan  
Tygerberg Academic Hospital, Cape Town, South Africa

**Introduction:** The Tour de France, commonly recognised and the hardest physical endurance event on the planet, is an iconic cycling competition with a history of ever impressive performances and increasingly notable injuries. This study aims to methodologically catalogue and analyse injuries sustained by professional riders over a span of six years and understand the operative workload created by this prestigious race. (2018-2023).

**Methods:** Data was gathered from multiple publicly available sources, including pro-cycling stats, news articles, team press releases and independent medical reports. Each injury was categorized by year, rider, and injury type.

**Results:** From 2018-2023, there was a significant diversity in both injured body part and mechanism of injury. Of the 124 recorded race ending incidents clavicle fractures accounted 19.4%, laceration/contusions 12.1%, patella fractures 10.5% and elbow fractures 7.3%. Other notable other body areas undergoing surgical intervention were hand fractures 5.6%, pelvic fractures 2.4% and femoral fracture 1.6%. At a mean of 20.67 injuries per tour, this accounts for almost exactly one race ending injury per day where an athlete finishes the day on the operating table, rather than the team bus.

**Discussion:** The Tour de France's rigorous challenges are mirrored in its injury statistics. Over six years, clavicle fractures were most prevalent, likely due to cyclists' instinct to brace during crashes. Lacerations, contusions, and patella fractures also featured prominently. Alarming, each race stage averaged an injury severe enough for surgical intervention. This data highlights the imperative need for enhanced protective measures, race regulations, and medical preparedness to protect these elite athletes.



**PODIUM PAPER ABSTRACTS**
**(#34) ADDITIONAL MCL SURGERY DOES NOT AFFECT OUTCOMES AFTER ACL RECONSTRUCTION BUT ADDITIONAL POSTEROLATERAL SURGERY DOES IN ELITE ATHLETES**

Mary Jones, Vitor Hugo Pinheiro, Mitzi Laughlin, Kyle Borque, Andy Williams  
Fortius Clinic, London, UK

**Introduction:** To evaluate career length after surgical treatment of combined ACL + medial collateral ligament (MCL) and ACL + posterolateral corner (PLC) surgeries in all elite athletes. Secondly, in a subgroup of male professional footballers to determine career length and competition level after ACL+MCL or ACL+PLC reconstructions and compare this to a cohort who underwent isolated ACL reconstruction (ACL-R) alone.

**Methods:** A consecutive cohort of elite athletes undergoing combined ACL+MCL surgery and combined ACL+PLC surgery between February 2001 and October 2019 were analysed. A subgroup of male footballers from this population was compared to a previously identified cohort of male, professional footballers having had primary ACL reconstruction without other ligament surgery. A minimum 2-years follow-up was required. Outcome measures were career length and competition level.

**Results:** Ninety-eight elite athletes were included, 50 had ACL+PLC and 48 had ACL+MCL surgeries. The timeline for return to play (RTP) was significantly longer for ACL+PLC injuries (12.8 months) as compared to ACL+MCL injuries (11.1 months,  $p=.019$ ). On average, career length after surgery of an athlete in the ACL+PLC group was 4.8 years and for the ACL+MCL group 4.2 years (n.s.). In the subgroup analysis of footballers, a significantly lower number of players with combined ACL+PLC surgery were able to RTP (88%,  $p=.003$ ) compared to 100% for ACL+MCL surgery and 97% for isolated ACL reconstruction, as well as requiring almost 3 months longer RTP timeline ( $12.9\pm 4.2$  months,  $p=.002$ ) when compared to isolated ACL ( $10.2 \pm 3.9$  months) and combined ACL+MCL groups ( $10.0\pm 2.4$  months). However, career length and competition level were not significantly different between groups.

**Conclusion:** The addition of MCL surgery to ACL-R did not affect RTP time and rate in elite athletes, nor competition level in male professional footballers compared to ACL-R alone. Moreover, the career length after successful RTP following combined ACL+MCL or ACL+PLC surgeries were the same. However, professional footballers with combined ACL+PLC surgery return at a lower rate and require a longer RTP time when compared to the ones with isolated ACL-R or combined ACL+MCL surgery. For the factors assessed in this study additional MCL surgery to ACL-R alone did not alter outcome from that with ACL-R in professional soccer players.

**(#15) QUANTIFYING ANTERIOR MEDIAL ROTATIONAL STABILITY IN ANTERIOR CRUCIATE LIGAMENT INJURED PATIENTS WITH ASSOCIATED COLLATERAL INVOLVEMENT**

Natasha Allott, Matthew Banger, Jonathan Korgaonkar, Rhidian Thomas, Alison McGregor  
Charing Cross Hospital, London, UK

**Introduction:** Anterior tibial translation (ATT) is assessed in the acutely injured knee to investigate for ligamentous injury and rotational laxity. Specifically, there is a growing recognition of the significance of anterior medial rotary laxity (AMRI) as a crucial element in assessing knee stability. Anterior cruciate ligament (ACL) injuries are often accompanied with medial collateral ligament (MCL) damage. It has been suggested that Deep MCL (dMCL) fibres are a primary restraint in rotational displacement. This research aims to quantify the difference in rotational laxity of patients with ACL and MCL injuries to deem if the Feagin-Thomas test can robustly capture metrics of AMRI. 2.

**Methods:** AMRI was assessed using the Feagin-Thomas test in 7 isolated ACL (iACL) injured participants, 3 combined ACL and superficial fibre MCL (sMCL) injuries, 5 combined ACL and deep fibre MCL injuries, and 21 healthy controls. Displacement values were recorded using an optical motion capture (OMC) system and bespoke processing pipeline which map and model the knee's anterior displacement values relative to the medial compartment. Since absolute values (mm) of rotational laxity vary dependant on the person, values were recorded as a proportion of the rotational laxity obtained from the subject's contralateral leg. Values were compared between each patient group using an ANOVA test and Tukey's honest significant difference post hoc test. 3.

**Results:** The healthy control group had a median proportion of 0.97 (3SF), whilst the iACL was 1.12 (3SF), a 12% increase in rotational laxity in the injured leg. The sMCL group yielded a result of 1.64 (3SF), a 64% increase in rotational laxity in the injured leg; finally, dMCL resulted in a proportion of rotational laxity of 1.90 (3SF), a 90% increase in rotational laxity [table 1]. Whilst all groups showed differences in the increase of rotational laxity, dMCL was significantly different from the healthy control group ( $P$  value 0.0041). 4.

**Conclusion:** ACL injuries with MCL involvement led to an increase in anterior medial rotary laxity and this is more evident in patients where deep MCL fibres are involved. The Feagin-Thomas test appears to be sensitive in detecting differences in AMRI and should be considered when performing comprehensive clinical knee examination.

**PODIUM PAPER ABSTRACTS****(#18) EXTRA-ARTICULAR KNEE LIGAMENT RECONSTRUCTIONS USING LARS (LIGAMENT AUGMENTATION AND RECONSTRUCTION SYSTEM) SYNTHETIC GRAFTS IN ELITE ATHLETES**

Mary Jones, Vitor Hugo Pinheiro, Sam Church, Simon Ball, Andy Williams  
Fortius Clinic, London, UK

**Introduction:** To determine if elite athletes can return to professional sport after MCL or posterolateral (PLC) reconstruction using LARS ligaments. The secondary aims are to demonstrate the safety and efficacy of LARS by reporting sport longevity, subsequent surgeries and complications.

**Methods:** A retrospective review of all extra-articular knee ligament reconstructions, utilising a LARS synthetic ligament, by 3 sports knee surgeons between 2013 and 2020 was undertaken. All elite athletes aged over 16 years and a minimum of 2 years post reconstruction were included. No LARS were used for ACL reconstructions, and they were excluded if a LARS ligament was used for a PCL reconstruction. Return to play (RTP) was defined as competing at professional level or national/ international level in amateur sport.

**Results:** Sixty-four (84.2%) MCL reconstructions and 12 (15.8%) PLC reconstructions were included. 52 (68.4%) underwent concomitant autograft cruciate(s) reconstruction including 6 (7.8%) bicruciate reconstructions. The mean age was 25.1 years (SD +/- 4.50). 35 (46.1%) were footballers and 35 (46.1%) were rugby players. Sixty-seven athletes (88.2%) returned to elite sport, 7 (9.2%) did not RTP and RTP status was unknown for 2 (2.6%)(Figure 1). 65 out of 67 (97.0%) RTP at the same/higher Tegner level. 56 (83.6%) and 20 (57.1%) were still playing at 2 and 5 years post-surgery Six (7.9%) players required further surgery due to irritation from the metal fixation implants. One had an inflammation adjacent to the synthetic material at the femoral end and the other cases involved the tibial staples. All six cases were able to RTP. One athlete, following bicruciate /MCL surgery had the LARS removed due to laxity. There was one MCL re-rupture, sustained while jumping, 4 years after returning to football.

**Conclusions:** Utilising LARS in extra-articular knee ligament reconstructions allows 88.2% of athletes with a variety of knee ligament injuries to return to elite sport. The results compare well regarding RTP, complication, and revision rates with the published evidence for other types of MCL and PLC grafts. This, coupled with 57% of athletes still playing 5 years post-surgery suggests the LARS is safe and effective in these cases.

**(#1) A MEDIUM TERM REVIEW OF THE OUTCOMES OF TALAR OSTEOCHONDRAL LESIONS TREATED WITH MATRIX ASSOCIATED STEM CELL TRANSPLANTATION**

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**Introduction:** Osteochondral lesions (OCLs) of the talus are a challenging and increasingly recognized problem in chronic ankle pain. Many novel techniques exist to attempt to treat this challenging entity. Difficulties associated with treating OCLs include lesion location, size, chronicity and problems associated with potential graft harvest sites. Matrix associated stem cell transplantation (MAST) is one such treatment described for larger lesions >15mm<sup>2</sup> or failed alternative therapies. This cohort study describes a medium term review of the outcomes of talar lesions treated with MAST.

**Methods:** A review of all patients treated with MAST by a single surgeon was conducted. Preoperative radiographs, MRIs and FAOS outcome questionnaire scores were conducted. Intraoperative classification was undertaken to correlate with imaging. Postoperative outcomes included FAOS scores, return to sport, revision surgery/failure of treatment and progression to arthritis/fusion surgery.

**Results:** 58 MAST procedures in 57 patients were identified in this cohort. The mean follow up was 5 years. There were 20 females and 37males, with a mean age of 37 years (SD 9.1). 22 patients had lateral OCLs and 35 patients had medial OCLs. Of this cohort 32 patients had previous surgery and 25 had this procedure as a primary event. 15 patients had one failed previous surgery, 9 patients had two, four patients had three previous surgeries and three patients had four previous surgeries. 12 patients had corrective or realignment procedures at the time of surgery. In terms of complications 3 patients of this cohort went on to have an ankle fusion and two of these had medial malleolar metal work taken out prior to this, 5 patients had additional procedures for arthrofibrotic debridements, 1 patient had a repeat MAST procedure, 1 additional patients had removal of medial malleolar osteotomy screws for pain at the osteotomy site, there were 2 wound complications one related to the ankle and one related to pain at the iliac crest donor site.

**Conclusion:** MAST has demonstrated positive results in lesions which prove challenging to treat, even in a " failed microfracture" cohort. RCT still lacking in field of orthobiologics for MAST. Longer term follow up required to evaluate durability.

**PODIUM PAPER ABSTRACTS****(#12) WHAT DRIVES INNOVATION AND CHANGE IN ACL SURGERY? AN ANALYSIS OF 14,352 PATIENTS**

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**Introduction:** Anterior cruciate ligament reconstruction (ACLR) is the most widely published operation in the orthopaedic literature. Over recent years there has been increased interest in the surgical technique and role of concomitant procedures performed during ACLR. The National Ligament Registry (NLR) collects robust data on ACLR performed in the UK. In this registry analysis we explore trends in ACLR surgery and how they relate to published literature and the growing industry portfolio available to surgeons.

**Methods:** Using data from the NLR, 14,352 ACLR performed between 2013-2021 were analysed. High impact papers on ACLR were then cross referenced against this data to see if surgical practice was influenced by literature or whether surgical practice dictated publication. Common trends were also compared to key surgical industry portfolios (Arthrex, Smith and Nephew) to see how new technology influenced surgical practice.

**Results:** The number of ACLR performed in isolation is decreasing. The number of ACL reconstructions involving meniscal surgery shows an increasing trend since 2013, with 57% of ACLR in 2021 now involving meniscus surgery. The number of ACLR with lateral extra-articular tenodesis (LET) has increased sharply since 2018, preceding the stability trial publication in 2020. Graft preference and size has remained static despite the introduction of new graft harvest and fixation devices. Additional procedures such as other ligament reconstruction and additional cartilage surgery have also remained static over time.

**Conclusion:** In this analysis we looked at surgical trends in ACLR and their relation to literature and industry. Meniscal intervention is increasing, in keeping with the growing level of literature in this area. In the setting of LET, a high impact level 1 study appears to have significantly changed the practice of UK surgeons with a sharp increase in the number of LET procedures being performed. Industry appears to have little influence on the change in surgical trends, suggesting high quality evidence is what drives innovation in ACLR while industry supports rather than influences innovation. It will be interesting to see the impact of the stability 2 study, recent work on the medial structures of the knee and the commissioning of cartilage centres on future trends.

**(#43) HOME-BASED REHABILITATION FOLLOWING ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION IN THE KURDISTAN REGION OF IRAQ: EPIDEMIOLOGY AND OUTCOMES**

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**Introduction:** Over the past 30 years multiple wars and embargos have reduced healthcare resources, infrastructure and staff in Iraq. Subsequently, there are a lack of physiotherapists to provide rehabilitation after an anterior cruciate ligament reconstruction (ACLR). The implementation of home-based rehabilitation programmes may provide a potential solution to this problem. This study, set in in the Kurdistan region of Iraq, describes the epidemiology and outcomes of anterior cruciate ligament reconstruction (ACLR) followed by home-based rehabilitation alone.

**Methods:** A cohort observational study of patients aged  $\geq 16$  years with an ACL rupture who underwent an ACLR under a single surgeon. This was performed arthroscopically using a hamstring autograft (2 portal technique). Patients completed a home-based rehabilitation programme of appropriate simplicity for the home setting. The programme consisted of stretching, range of motion and strengthening exercises based on criterion rehabilitation progressions. A full description of the programme is provided at: <https://ngmvcharity.co.uk/>. Demographics, mechanisms of injury, operative findings, and outcome data (Lysholm, Tegner Activity Scale (TAS), and revision rates) were collected from 2016 to 2021. Data were analysed using descriptive statistics.

**Results:** The cohort consisted of 545 patients (547 knees), 99.6% were male with a mean age of 27.8 years (SD 6.18 years). The mean time from diagnosis to surgery was 40.6 months (SD 40.3). Despite data attrition Lysholm scores improved over the 15-month follow-up period, matched data showed the most improvement occurred within the first 2 months post-operatively. A peak score of 90 was observed at nine months. Post-operative TAS results showed an improvement in level of function but did not reach pre-injury levels by the final follow-up. At final follow-up, six (1.1%) patients required an ACLR revision.

**Conclusion:** Patients who completed a home-based rehabilitation programme in Kurdistan had low revision rates and improved Lysholm scores 15 months post-operatively. To optimise resources, further research should investigate the efficacy of home-based rehabilitation for trauma and elective surgery in low- to middle-income countries and the developed world.



**PODIUM PAPER ABSTRACTS****(#20) ANTERIOR CRUCIATE LIGAMENT INJURY PREVENTION PROGRAMS IN WELSH NETBALL: SURVEY OF KNOWLEDGE, IMPLEMENTATION AND BARRIERS AMONGST PLAYERS AND COACHES**

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**Introduction:** Anterior Cruciate Ligament (ACL) injury prevention programs can reduce injury risk in various sports. The perception of ACL injury prevention programs amongst professional netball players and coaches has not been studied. The purpose of the study was to determine (1) level of awareness and experience of ACL injury prevention programs; (2) use of ACL injury prevention programs; and (3) barriers and potential facilitators to implementing a sustainable ACL injury prevention program in netball.

**Methods:** This cross-sectional observational study was undertaken using the CHERRIES checklist. Female netball players representing Welsh senior and under-21 teams and elite and amateur coaches were invited electronically to participate in this web-based study between 1st May – 31st July 2021. Information on ACL injury susceptibility and seriousness, knowledge, experience, and implementation of ACL injury prevention programs were ascertained.

**Results:** Twenty-eight players (77.8%) and 29 coaches (13.2%) completed the questionnaire. Seventeen (60.7%) players and 15 (51.7%) coaches reported female athletes were at greater risk for sustaining ACL injuries. Over 90% of respondents identified netball as high-risk, whilst 89% of players and 76% of coaches reported these injuries to be preventable. Only two (7.1%) players and 6 (20.7%) coaches utilised an ACL injury prevention program with lack of time and engagement from coaches and players identified. Majority of respondents indicated that their club has neither promoted, advocated the use nor demonstrated exercises for ACL injury prevention. Over 90% of respondents would utilise an ACL injury prevention program if it minimised players risk with appropriate information and demonstration of exercises.

**Conclusion:** This study highlights limited knowledge of female athletes' increased susceptibility of ACL injuries amongst players and coaches with lack of communication and education of ACL injury prevention programs between sporting associations, coaches, and players. However, the results demonstrate willingness amongst both players and coaches to implement an ACL injury prevention program in netball.

**(#33) QUADRICEPS AUTOGRAFT FOR MPFL RECONSTRUCTION IN PAEDIATRIC PATELLOFEMORAL INSTABILITY-EXPERIENCE FROM A TERTIARY CHILDREN'S KNEE UNIT**

**Sheba Basheer**, Fazal Ali, Nicolas Nicolaou  
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**Introduction:** Patellofemoral instability is one of the most common presentations to a children's orthopaedic clinic. Recurrent patellar dislocations and instability episodes are painful, disabling and increase the risk of irreversible chondral damage. The medial patellofemoral ligament is the primary static stabiliser to prevent lateral dislocation of the patella and is almost always torn or attenuated in these cases. Reconstruction of this ligament is commonly performed using autologous hamstring tendon however there has been some interest recently in use of quadriceps tendon as a graft. Children with patellar instability also present unique challenges due to the small size of the patella and the presence of open growth plates which may require adaptations to the common techniques.

**Methods:** Patients undergoing medial patellofemoral ligament reconstruction using quadriceps tendon autograft were identified using electronic theatre records. Prospectively collected clinical records and imaging findings were reviewed and underlying pathology, additional procedures at time of MPFL reconstruction, current function and need for further revision surgery determined.

**Results:** Between January 2019 and August 2023, 50 MPFL reconstructions were performed in 37 children using partial thickness quadriceps autograft. Patient age at time of surgery ranged from 5 to 17 years (median age 13 years). The technique was utilised for a variety of indications including recurrent traumatic and habitual patellofemoral instability, fixed dislocations, and revision MPFL reconstruction.

**Conclusion:** Partial thickness quadriceps tendon autograft can be used safely to primarily reconstruct the medial patellofemoral ligament in paediatric population, including those children with open growth plates. It also has utility in revision cases following previous failed hamstring MPFL reconstruction. We have noted that the younger the child, the more distal to the physis lies the femoral point of isometry, rendering this a safe and reproducible treatment in this age group. Use of this technique has increased in our unit as we have observed that patients seem to be satisfied with their clinical and functional outcomes with a low incidence of short- and medium-term complications.

**PODIUM PAPER ABSTRACTS**

**(#2) ROTATOR CUFF TEAR IN FRACTURE SHOULDER DISLOCATION**

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**Introduction:** We aim to assess whether radiographic characteristics of the greater tuberosity fragment can predict rotator cuff tears in patients with anterior shoulder dislocations combined with an isolated fracture of the greater tuberosity.

**Methods:** A retrospective single-centre case series of 61 consecutive patients that presented with anterior shoulder dislocations combined with an isolated fracture of the greater tuberosity between January 2018 and July 2022. Inclusion criteria: patients with a traumatic anterior shoulder dislocation associated with an isolated fracture of the greater tuberosity with a minimum follow-up of 3-months. Exclusion criteria: patients with other fractures of the proximal humerus or glenoid. Rotator cuff tears were diagnosed using magnetic resonance or ultrasound imaging. Greater tuberosity fragment size and displacement was calculated on plain radiographs using validated methods.

**Results:** The case series was composed of 22 men and 39 women with a mean age of 65 years (29 - 91 years). The mean follow-up was 15 months and median follow up 8.5 months (3 - 60 months). A rotator cuff tear was diagnosed in 14 patients (16%) and involved the supraspinatus (13), infraspinatus (4) and subscapularis (2). Full-thickness tears occurred in 6 patients and partial-thickness tears in 8 patients. The mean time from initial injury to rotator cuff tear diagnosis was 5 months (2 - 22 months). The mean greater tuberosity fragment length was 23.4 mm in rotator cuff tear patients versus 32.6 mm in those without a tear ( $p = 0.006$ , CI: -15 - -2). The mean greater tuberosity fragment width was 11.1 mm in rotator cuff tear patients versus 17.8 mm in those without a tear ( $p = 0.0004$ , CI: -10 - -2). There was no significant difference in the superoinferior and anteroposterior fragment displacement between the two groups.

**Conclusion:** In patients with shoulder dislocations combined with an isolated fracture of the greater tuberosity, rotator cuff tears are associated with a smaller sized greater tuberosity fragment.

**(#30) LONG-TERM CLINICAL OUTCOMES AFTER SINGLE VERSUS DOUBLE-BUNDLE ACL RECONSTRUCTION: A MATCHED-PAIR ANALYSIS FROM THE SANTI STUDY GROUP**

**Archie Hems**, Graeme Hopper, Jae-Sung An, Mohammed Lahsika, Giancarlo Giurazza, Thais Dutra Vieira, Bertrand Sonnery-Cottet  
Centre Orthopedique Santy, Lyon, France

**Introduction:** It has been contentious whether an anatomic double-bundle technique for anterior cruciate ligament reconstruction (ACLR) is superior to that of a single-bundle technique. It has been hypothesized in the literature that the double-bundle technique could provide function closer to that of the anatomical knee joint. The purpose of this study was to compare the long-term clinical outcomes after single-bundle ACLR versus double-bundle ACLR. We hypothesized that the double-bundle technique would not be superior to the single-bundle technique.

**Methods:** A retrospective, non-randomized, matched-paired comparative study was performed. Patients undergoing primary anterior cruciate ligament reconstruction, using either a double-bundle or single-bundle technique, between 2003 and 2008 were included and matched 1:1. Matching included age, sex, BMI, time from injury to surgery, side of injury and type of sport. Patients who underwent revision procedures, multiligament reconstruction or other ACLR techniques were excluded. Patients were subsequently followed up, noting occurrence of graft rupture and any other complications.

**Results:** A total of 1377 ACLRs were performed during the study period. Seven hundred and fifty-six patients were excluded, leaving 396 patients to be included in the matching (198 matched pairs). Mean follow-up time was 176.7 +/- 7.7 months (range, 166-211 months). Overall, 40 patients (10.1%) suffered from a graft rupture which consisted of 22 patients (11.1%) in the single-bundle group and 18 patients (9.1%) in the double-bundle group. A multivariate analysis was performed using the Cox model and demonstrated that graft failure had no significant association with the surgical technique (hazard ratio (HR), 0.857(0.457;1.609),  $p=0.6313$ ). (Figure 1) Five patients (2.5%) in the single-bundle group and 7 patients (3.5%) in the double-bundle group underwent secondary surgery for cyclops syndrome ( $p=0.5637$ ). Three patients (1.5%) in the single-bundle group and 2 patients (1.0%) in the double-bundle group underwent arthrolysis ( $p=0.6547$ ). Seven patients (3.5%) in the single-bundle group underwent secondary meniscectomy compared to 6 patients (3.0%) in the double-bundle group ( $p=0.7630$ ).

**Conclusion:** Double-bundle ACLR is not superior to single-bundle ACLR at long-term follow up. Therefore, orthopaedic surgeons do not need to use a double-bundle technique when performing ACL reconstruction.

**PODIUM PAPER ABSTRACTS****(#38) 12-MONTH CLINICAL OUTCOMES OF ARTHROSCOPIC LATERAL ANKLE LIGAMENT RECONSTRUCTION FOR CHRONIC ANKLE INSTABILITY: A PROSPECTIVE CASE SERIES**

**Thomas Lewis**, Samuel Franklin, Vikram Vignaraja, Robbie Ray  
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**Introduction:** Chronic ankle instability is a common condition that can be effectively treated with arthroscopic lateral ankle ligament reconstruction to restore ankle stability and function. The aim of this study was to assess the functional outcomes of arthroscopic lateral ligament reconstruction using the MOXFQ, VAS, and EQ5D patient-reported outcome measures (PROMs).

**Methods:** This prospective series included 38 patients who underwent arthroscopic lateral ligament reconstruction for chronic ankle instability between December 2019 and April 2022. All patients completed the MOXFQ, VAS, and EQ5D PROMs preoperatively, as well as at 6, and 12 months postoperatively. The MOXFQ is a disease-specific PROM that assesses foot and ankle function, while the VAS measures pain and the EQ5D evaluates health-related quality of life.

**Results:** At the 12-month follow-up, the mean MOXFQ Index score had improved significantly from  $53.3 \pm 23.1$  preoperatively to  $16.0 \pm 21.1$  ( $p < 0.001$ ). Similarly, the mean VAS score had improved from  $36.2 \pm 22.4$  preoperatively to  $14.7 \pm 15.0$  ( $p < 0.001$ ), and the mean EQ5D score had improved from  $0.55 \pm 0.26$  preoperatively to  $0.87 \pm 0.12$  ( $p < 0.001$ ). No major complications were observed.

**Conclusion:** Arthroscopic lateral ligament reconstruction is an effective treatment for chronic ankle instability, with significant improvements in clinical and health-related quality of life outcomes.

**(#10) KNEE ARTHROSCOPY: SHOULD KNEE ARTHROSCOPY SIMULATION BE PART OF THE TRAINING CURRICULUM IN THE UK?**

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**Introduction:** Knee arthroscopy can be used for ligamentous repair, reconstruction and to reduce burden of infection. Understanding and feeling confident with knee arthroscopy is therefore a highly important skillset for the orthopaedic surgeon. However, with limited training or experience, furthered by reduced practical education due to COVID-19, this skill can be under-developed amongst trainee surgeons.

**Methods:** At a single institution, ten junior doctors (FY1 to CT2), were recruited as a part of a five, two-hour session, training programme utilising the Symbionix® ARTHRO Mentor knee arthroscopy simulator, supplemented alongside educational guidance with a consultant orthopaedic knee surgeon. All students had minimal to no levels of prior arthroscopic experience. Exercises completed included maintaining steadiness, image centring and orientation, probe triangulation, arthroscopic knee examination, removal of loose bodies and meniscectomy. Pre and post experience questionnaires and quantitative repeat analysis on simulation exercises were undertaken to identify levels of improvement.

**Results:** Comparing pre and post experience questionnaires significant improvements in levels of confidence were noted in the following domains: naming arthroscopic instruments, port positioning and insertion, recognising normal anatomy arthroscopically, holding and using arthroscopic instruments and assisting in a live theatre setting ( $p < 0.05$ ). Significant improvements were also noted in time taken to complete and distance covered in metres, of the simulated exercises on repeat performance ( $p < 0.05$ ).

**Conclusion:** Overall, with only five sessions under senior guidance, using a simulator such as the ARTHRO Mentor, significant improvements in both levels of confidence and skill can be developed even among individuals with no prior experience.



**PODIUM PAPER ABSTRACTS****(#25) MID-TERM OUTCOMES OF TROCHLEOPLASTY IN THE TREATMENT OF SEVERE TROCHLEAR DYSPLASIA**

**Nikhil Sharma**, Andrew George, Matthew Hampton, Andrew Barnett  
Robert Jones & Agnes Hunt Orthopaedic NHS Hospital (Oswestry), UK

**Introduction:** Trochleoplasty is an effective surgical procedure for patients with severe trochlear dysplasia and recurrent patella instability. Previous work has suggested patients demonstrate early improvements in knee function and quality of life. However, concerns regarding longer term outcomes due to the development of stiffness and patellofemoral osteoarthritis remain a concern for these patients. Our aim was to assess mid-term patient-reported outcome and quality of life measures for trochleoplasty performed at a single centre for severe trochlear dysplasia.

**Methods:** Retrospective review of 28 knees (23 patients) having undergone trochleoplasty for severe trochlear dysplasia were reviewed. Due to the non-parametric nature of the data, median and interquartile range (IQR) were determined for pre-operative and mid-term follow-up scores. Statistically significant differences between groups were assessed using paired Wilcoxon-signed rank test with statistical significance set at  $p < 0.05$ . Data were analysed using a statistical software package (IBM® SPSS® Statistics 26.0).

**Results:** Median time from surgery to follow-up for all patients in the series was 5.3 years (IQR 3.9 – 7.0 years). Median pre-operative Kujala score improved from 57.0 (IQR 45 – 66) to 96.3 (IQR 83 – 100). Median pre-operative IKDC score improved from 42.6 (IQR 35.9 – 51.3) to 92.6 (IQR 71.6 – 98.7). Median EQ-5D score also improved from 0.691 (IQR 0.414 – 0.727) to 1.000 (IQR 0.8178 – 1.000). Improvement in Kujala scores, IKDC scores and EQ-5D were all statistically significant with  $p < 0.001$  in all domains.

**Discussion:** Our data suggests patients experience significant improvements in knee function and quality of life following trochleoplasty surgery for severe dysplasia. We demonstrate an absolute improvement in scores at a mean of 5.3 years follow-up of 39.3 points for Kujala, 50 for IKDC and 0.309 for EQ-5D. Minimal clinically important differences (MCID) have been reported to be in the region of 10 for the Kujala score, 8.8-15.6 for IKDC and 0.085 for EQ-5D. Our data shows improvements which far exceed the published MCID, suggesting trochleoplasty confers a large treatment effect and patients benefiting from sustained improvements in knee function and overall quality of life at mid-term follow-up.

**Conclusion:** Following trochleoplasty for severe trochlear dysplasia, patient reported outcomes demonstrate continued improvements in knee function and quality of life at mid-term (5-year) follow-up. There is a large absolute treatment effect which likely impacts on both physical and psychological wellbeing for these patients. Continued surveillance of patient reported outcomes in this clinically complex cohort is indicated.

**(#21) ASSESSING THE USE OF THE TEGNER ACTIVITY SCALE IN CHILDREN IS IT A USEFUL TOOL?**

**Alex Fawdry**, Dominic O'Dowd  
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Sheffield Children's Hospital, Sheffield, UK

**Introduction:** Activity scales are used throughout orthopaedics as a component of PROMs. Tegner Activity Scale is commonly used and is validated in various knee injuries in adults. It has a reading age of 18 years presenting an understanding problem for children. An alternative is HSS-PediFABS, but this looks at specific skills like running, cutting, pivoting rather than sporting level. Our aim was to determine if children understood TAS and whether their answers compared to how their parents scored them, and determine if our suggested sporting levels were more appropriate for them.

**Method:** We created a study form to compare levels given by children and their parent. We added our own suggested levels, with a reading age of 9, created by a discussion group of paediatric orthopaedic surgeons. Following ethics approval a sample size was determined via power calculation. All patients over 7 and their parents presenting to the orthopaedic clinic at SCH over a 4 month period were asked to fill out the TAS, baseline questions and rank the new suggested sporting levels.

**Results:** 51 patients and their parents were recruited, with a mean age of 13 ( $\pm 0.31$ , 8-17). 35% female. The mean TAS score for children rating themselves was 7.04 ( $\pm 0.32$ , 2-10) vs 6.43 ( $\pm 0.37$ , 0-10) for parents rating the child ( $p = 0.31$ ). The average weekly activity time rated by children was 6.72 hours ( $\pm 0.84$ , 0-30) vs 7.48 ( $\pm 1.02$ , 0-36) rated by the parent ( $p = 0.68$ ). Our suggested levels for paediatric patients were ordered correctly by both groups (mode score). The mean new activity level for children was 4.9 ( $\pm 0.24$ , 2-9) vs 4.81 ( $\pm 0.26$ , 1-8) by their parent ( $p = 0.79$ ). The mean score difference for TAS was 1.42 vs 1.2 in the new score ( $p = 0.38$ ).

**Conclusion:** Paediatric patients had difficulty understanding the TAS and there was poor agreement of activity levels between patients and parents.

## POSTER ABSTRACTS

## POSTER #1

**(#36) VALIDATING THE GLENOID TRACK CONCEPT USING DYNAMIC ARTHROSCOPIC ASSESSMENT**

**Mustafa Rashid**, Saho Tsuchiya, Kristie More, Justin LeBlanc, Aaron Bois, Cory Kwong, Ian Lo  
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**Introduction:** Surgeons treating patients with recurrent traumatic anterior shoulder instability utilise a variety of factors to aid surgical decision-making. Failure after isolated Bankart repair has led many surgeons to consider when to address the Hill Sachs lesion, which is thought to be a contributor to recurrent instability. One approach utilises the glenoid track concept to determine whether a Hill Sachs lesion is classified as 'off track', suggesting the addition of a remplissage procedure may aid stability. However, the accuracy and reliability of utilising this approach requires validation using an appropriate reference. The purpose of this study was to determine the accuracy and reliability of utilising the glenoid track concept against dynamic arthroscopic assessment of Hill Sachs lesion engagement.

**Methods:** 49 patients undergoing arthroscopic Bankart repair surgery for recurrent traumatic anterior shoulder instability were enrolled in this diagnostic validation study. Shoulders were classified as 'on track' or 'off track' using 3DCT and static arthroscopic measurements. These classifications were compared to dynamic arthroscopic assessment (engagement of the Hill Sachs lesion on the anterior glenoid rim in the athletic position) to determine their accuracy and reliability.

**Results:** 3DCT based measurements to determine glenoid track status had a higher positive predictive value (66% vs 42%), higher specificity (47% vs 42%), and higher accuracy (65% vs 59%) compared to static arthroscopic measurements. Static arthroscopic measurements to determine glenoid track status had a higher negative predictive value (96% vs 64%) and higher sensitivity (96% vs 81%) compared to 3DCT based measurements. Inter-rater reliability (Krippendorff's  $\alpha$ ) was fair for determining the glenoid track status using 3DCT (0.368; 95% CI 0.217-0.519) and moderate for static arthroscopic measurements (0.523, 95% CI 0.364-0.666). Intra-rater reliability (ICC 3,k) was moderate for 3DCT measurements (0.660, 95% CI 0.444-0.798) and good for static arthroscopic measurements (0.769, 95% CI 0.629-0.862).

**Conclusion:** Determining glenoid track status using either 3DCT or static arthroscopic measurements yielded moderate accuracy and reliability. Surgeons using the glenoid track concept to aid surgical decision-making in traumatic recurrent anterior shoulder instability should utilise 3DCT or static arthroscopic measurements with caution.

## POSTER #2

**(#13) LARGE TO MASSIVE ROTATOR CUFF TEARS CAN BE EFFECTIVELY MANAGED WITH LONG HEAD OF BICEPS TENDON AUTOGRAFT: A SYSTEMATIC REVIEW**

**Natalie Green**, Robert Jordan, Tanujan Thangarajah, Peter D'Alessandro, Hubert Laprus, Jarrett Woodmass, Shahbaz Malik  
Royal Orthopaedic Hospital Birmingham, Birmingham, UK

**Introduction:** The surgical management of massive rotator cuff tears remains a challenge due to chronic wear, significant retraction and poor soft tissue quality, with reported re-tear rates as high as 94%. Grafting techniques have been described in order to augment repair, avoid excessive tension and confer biological healing. The easy harvestability and autograft nature of the long head of biceps tendon (LHBT) makes it an appealing graft option, with its use described in a variety of techniques. The aim of this systematic review is to review the functional, clinical and radiological outcomes of patients undergoing large to massive rotator cuff repair with LHBT autograft, as well as compare these to standard arthroscopic cuff repair

**Methods:** A review of the online Medline database was conducted on 20 October 2022 according to PRISMA guidelines. The review was registered prospectively on the PROSPERO database. Clinical studies assessing patients with large to massive rotator cuff tears undergoing LHBT autograft repair were included. All studies reported on functional outcomes, range of movement (ROM) and radiological re-tear rates. The Methodological Index for Non-Randomised Studies (MINORS) tool was used to appraise all studies.

**Results:** The search strategy identified ten studies for inclusion (five cohort studies and five case series) including a total of 594 patients. Five studies were comparable (346 patients), assessing LHBT autograft repair against arthroscopic rotator cuff repair without autograft. A variety of techniques of LHBT autograft were used across all studies, with most reporting on a bridging or augmentation style technique. Radiographic comparison showed lower re-tear rates in the LHBT autograft group with two studies demonstrating statistically significant results. Pain scores, functional outcomes (ASES, Constant, UCLA, Korean Shoulder Score and Simple Shoulder Test) and ROM (forward flexion and abduction) were significantly improved post-operatively in all studies for LHBT autograft patients, with no significant difference when compared to standard arthroscopic repair.

**Discussion:** LHBT autograft looks to significantly improve functional scoring and range of motion in patients with large to massive rotator cuff tears. When compared to standard arthroscopic cuff repair, LHBT autograft appears to significantly reduce the re-tear rate. Further randomised studies are needed to assess the efficacy of LHBT autograft repair in managing this challenging patient population.

## POSTER ABSTRACTS

## POSTER #3

**(#23) TOPICAL PREPARATIONS FOR REDUCING CUTIBACTERIUM ACNES INFECTION IN SHOULDER SURGERY: A SYSTEMATIC REVIEW AND NETWORK META-ANALYSIS.**

**Yash Sewpaul**, Richard Huynh, Brook Leung, Alexander Hartland, Harry Alcock, Sandeep Nayar, Mustafa Rashid  
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**Introduction:** The aim of this study was to evaluate the relative effects of topical preparations in reducing C. Acnes in shoulder surgery.

**Methods:** The study protocol was registered with PROSPERO (CRD42022310312). We searched the MEDLINE, Embase, PsycINFO, and Cochrane Library databases in March 2022. Randomised controlled trials (RCTs) comparing any form of skin preparation in arthroscopic or open shoulder surgery were included. The primary outcome was reduction in the number of positive C. Acnes cultures. Secondary outcomes were adverse events related to application of topical preparations. We performed a network meta-analysis (NMA) to facilitate simultaneous comparison between multiple preparations across studies. We calculated differences between preparations using odds ratios (ORs) and their 95% confidence intervals (CIs). Risk of bias was assessed using the Cochrane risk-of-bias v2.0 tool.

**Results:** We found 16 RCTs (1,062 patients), of which 13 were suitable for NMA (927 patients). 4 RCTs were deemed as "low" risk-of-bias and 12 raised "some concerns". Preparations included benzoyl peroxide (BPO), BPO combined with clindamycin, chlorhexidine gluconate (CHG), hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>), povidone-iodine, and water with soap. Only BPO resulted in a significantly lower odds of a positive C. Acnes culture compared to placebo or soap and water (OR 0.14 95% CI 0.05-0.36). There was no statistically significant difference with all other skin preparations (BPO with clindamycin: OR 0.64 95% CI 0.07-5.50; CHG: OR 0.46 95% CI 0.09-2.53; H<sub>2</sub>O<sub>2</sub>: OR 0.52 95% CI 0.18-1.54). The only adverse events were skin irritation from BPO and CHG in a small number of reported cases.

**Conclusions:** BPO is the most effective topical agent in reducing prevalence of C. Acnes in shoulder surgery. These results are limited by the combination of indirect and direct data. Future studies should focus on establishing optimal frequency and duration of pre-operative BPO to further reduce the burden of C. Acnes.

## POSTER #4

**(#17) TECHNIQUE AND EARLY RESULTS OF ENDOSCOPIC FHL TRANSFER WITH INTERFERENCE SCREW AND ADDITIONAL TENSION SLIDE CORTICAL BUTTON FOR ACHILLES TENDON RUPTURE**

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Princess Royal University Hospital, King's College Hospital NHS Foundation Trust, London, UK

**Background:** Endoscopic flexor hallucis longus (FHL) transfer can be used in the management of acute Achilles tendon rupture, including in elite sportspeople. A recent cadaveric study demonstrated greater strength can be achieved using an FHL transfer with interference screw and cortical button slide technique compared to an interference screw alone. Our current practice involves performing this augmented technique endoscopically, the results of which we aim to present here.

**Methods:** We reviewed the complications and patient related outcome measures (PROMs) of 9 patients who underwent Achilles tendon rupture repair using the aforementioned technique. Validated scoring systems were utilised (EQ-5D, Manchester.Oxford Foot Questionnaire (MOxFAQ) and Visual Analogue Score for pain (VAS Pain)) with results collected via the BOFAS Amplitude registry pre-operatively and at 6 monthly intervals post-operatively.

**Results:** 9 patients (6 male, 3 female) are included. Mean (SD) age at time of surgery is 52 (12.5) years. EQ-5D improved from a mean (SD) of 0.46 (0.37) pre-operatively to 0.59 (0.43) at 6 months post operatively. Similarly, VAS Pain improved from an average of 40.8 (27.5) pre-operatively to 29 (40) at 6 months. Improvements in MOxFAQ were reported across all three domains when comparing pre-operative with post-operative scores. In terms of complications, one patient developed tibial nerve neuritis: no further complications were reported.

**Conclusion:** Endoscopic FHL transfer for Achilles tendon rupture can be augmented using a cortical button applied using a tension slide technique. We describe a safe and effective method capable of providing a stronger and more stable repair endoscopically. Our early patient data shows improvements in quality of life, pain and specific foot and ankle outcome measures following surgery. Further studies are required with longer term follow up and greater patient numbers to further assess the efficacy of this technique with clinical comparison to standard interference screw fixation.

## POSTER ABSTRACTS

## POSTER #5

**(#19) RISK FACTORS FOR INJURY INCIDENCE IN UNIVERSITY COLLEGE LONDON (UCL) RUGBY UNION TEAMS IN THE 2022/23 SEASON A PROSPECTIVE COHORT STUDY****Aadil Ali**, Madi Davies, Sajeed Ali

Institute of Sports and Exercise Health, UCL, London, UK

**Introduction:** Rugby Union is a global sport with high injury incidence creating concerns over the long-term musculoskeletal and neurological sequelae of retired players. "Injury" was defined as an in-game player experience that requires medical attention and/or time-loss from rugby. The Rugby Football Union does not complete injury surveillance projects for male and female university cohorts who participate in regional leagues.

The objective was to identify the injury frequency and most common injury locations across the UCL Clubs in the 2022/23 season. Secondary objectives were to identify the injury incidence rate (IIR), injury severity across each club, and the association of individual risk factors with IIR.

**Methods:** This is a prospective cohort study where injury and match details were recorded for each participant using a Data Champion (Figure 1). Following completion of injury surveillance for the season, IIR, injury severity, and match exposure were measured. Poisson regression (SPSS v29) was used to calculate the relationship between risk factors (playing position, sex, match exposure, month of the season) and IIR.

**Results:** 93 injuries across 48 matches resulted in a mean IIR of 90.3 injuries per 1000 match hours played and a mean 1.3 matches missed per injury. 'Head and neck' was the most common injury region (43%). Male rugby players have a significantly higher IIR than female players (male = 111.5 injuries/1000 hours, female = 29.3  $p < 0.001$ ). Backs had a significantly lower IIR than forwards (backs = 82.0, forwards = 97.8  $p < 0.001$ ). Match exposure had a negative association with IIR ( $p < 0.001$ ). IIR was highest in the months directly after seasonal breaks.

**Conclusion:** There is an absence of current injury surveillance data at the sub-elite university level, where increased injury management interventions are required.

## POSTER #6

**(#24) MODIFIED MASON ALLEN FIXATION FOR MEDIAL MENISCAL POSTERIOR ROOT TEARS: A SYSTEMATIC REVIEW AND META-ANALYSIS****Andre Martins**, Khalis Boksh, Randeep Aujla, Mohamed Elbashi, Tarek Boutefnouché

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**Introduction:** Various suture configurations are available for medial meniscus posterior root tear (MMPRT) repair. The Modified Mason-Allen (MMA) technique has been proposed as a refixation technique for MMPRT to those of the conventional two simple stitches (TSS). This is in view of its superior biomechanical characteristics.

To perform a systematic review and meta-analysis to compare MMA and TSS configuration techniques for MMPRT repair. We aimed to identify whether any differences existed between the 2 techniques in terms of clinical outcomes, medial meniscal extrusion (MME) and post-operative healing.

**Methods:** The Cochrane Controlled Register of Trials, PubMed, Medline and Embase were used to perform a systematic review and meta-analysis using the PRISM (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) criteria with the following search terms: ('meniscus' OR 'meniscal injuries') AND ('Mason-Allen' OR 'simple stitch' OR 'suture techniques'). Data pertaining to all patient-reported outcome measures (PROMs), post-operative complications, MME, post-operative healing, cartilage degeneration and progression of knee osteoarthritis (OA) were extracted from each study. The pooled outcome data were analysed by random- and fixed-effects models.

**Results:** After abstract and full-text screening, 6 clinical studies were included. In total, there were 291 patients; 160 had an MMA fixation whilst 131 had TSS technique. The majority of studies had similar surgical techniques regarding repair technique, suture material, tibial fixation, number and position of tibial tunnels. There were no differences between the groups in terms of PROMs at 14.2 months. Both techniques were also similar in the degree of post-operative MME and meniscal healing.

**Conclusion:** Despite the superior biomechanical characteristics of Mason-Allen fixation to those of two simple stitches, this does not translate to improved functional outcomes, reduced medial meniscal extrusion or improved meniscal healing. The two simple stitch technique appears to have advantages of being less technically demanding with a shorter operative time. However, a randomized controlled trial with large sample sizes, longer follow-up and assessment of chondral degeneration and presence of osteoarthritis are required to assess whether a true difference exists, as the majority of included studies were poor to fair quality.



POSTER ABSTRACTS

**POSTER #7**

**(#40) THE HYPERMOBILE LATERAL MENISCUS: A NARRATIVE REVIEW OF THIS DIFFICULT AND UNCOMMON DIAGNOSIS**

**Sam Trowbridge**, Stamatios Tsamados  
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**Introduction:** Lateral meniscus hypermobility is a novel entity that is associated with mechanical symptoms, such as locking and restriction of the range of motion of the knee. Diagnosis is difficult, with many cases studies highlighting that no radiological abnormality or identifiable pathology on magnetic resonance imaging (MRI) had been found pre-operatively<sup>1</sup>. However, more recent literature suggests that certain signs on MRI may allow radiologists to suggest the diagnosis of a hypermobile lateral meniscus<sup>2</sup>. Despite this, the pathological process and treatment of choice is not yet fully understood<sup>3</sup>. This study aims to present an up-to-date review of the evidence regarding the diagnosis and management options of this uncommon condition.

**Methods:** A retrospective review of the literature and current management of hypermobility of the lateral meniscus was performed, with particular focus on the pathophysiology, diagnosis, surgical management and post-operative outcomes.

**Results:** Literature is limited, with most outcomes reported from case reports and case series. The hypermobile lateral meniscus represents a challenging diagnosis given the frequently normal imaging findings on MRI. The majority of authors advocate that a high clinical suspicion is required for diagnosis and management of this novel condition. Arthroscopic all-inside meniscal repair techniques appear to achieve satisfactory results and low recurrence rates, from the limited data available.

**Conclusion:** The hypermobile lateral meniscus is a difficult condition to diagnose and treat. Novel methods of identifying this condition radiologically may improve the diagnosis and treatment of this condition, as well as inform more robust scientific study on the subject in the future.

**POSTER #8**

**(#42) SHORT-TERM STRUCTURAL AND CLINICAL OUTCOMES OF ACROMIOCLAVICULAR JOINT RECONSTRUCTION USING SUSPENSORY FIXATION AND ALLOGRAFT TENDON WRAP**

**Yash Sewpaul**, Andrew Sheean, Robert Hartzler  
Burkhart Research Institute for Orthopaedics, San Antonio, Texas, USA

**Introduction:** The purpose of this study is to evaluate the short-term clinical and structural outcomes for patients who underwent acromioclavicular joint (ACJ) reconstruction with suspensory coracoclavicular fixation and allograft tibialis anterior tendon wrap. It was hypothesized that this technique would result in maintenance of reduction and improved clinical outcomes.

**Methods:** The study is a retrospective review of prospectively collected data for a single, fellowship-trained shoulder surgeon. All patients underwent arthroscopic assisted coracoclavicular (CC) suspensory fixation with titanium buttons and allograft reconstruction using tibialis anterior tendon wrapped under the coracoid and around the clavicle. The ACJ proper was open reduced and reconstructed using the allograft tails. Patients underwent surgery between January 2018 and September 2022. Patient reported outcome measures were collected prospectively and included American Shoulder and Elbow Surgeons (ASES) score, Simple Shoulder Test (SST), single assessment numeric evaluation (SANE) score, and VAS pain at preoperative and 6 and 12 months postoperative. The difference between preoperative and postoperative radiographic measurements and patient-reported outcomes was calculated using the paired t-test for continuous variables and the Fisher exact test for nominal variables. All statistical analyses were performed on Microsoft Excel.

**Results:** Thirteen patients with mean age 44.2 years were included, mean follow up time of 32 months. Eleven chronic (> 6 months) and two acute injuries were included. Rockwood classification of injuries were 5 type III, 1 type IV, and 7 type V. Mean CC distance reduced from 23 mm to 12 mm immediately postoperatively on plain radiographs ( $p = 0.0003$ ); however this increased to 13 mm at 6 months ( $p = 0.07$ ). ASES scores increased from 36 to 87 ( $p < 0.001$ ) at 6 months and 89 ( $p < 0.001$ ) at 12 months postoperatively. Percent maximum SST scores increased from 40 to 68 ( $p = 0.004$ ) at 6 months and 87 ( $p = 0.0005$ ) at 12 months. SANE scores increased from 33.62 to 71 ( $p = 0.0001$ ) at 6 months and 87 ( $p = 0.0005$ ) at 12 months. VAS pain scores decreased from 6 to 1.3 ( $p < 0.001$ ) at 6 months and 1.2 ( $p = 0.47$ ) at 12 months. No complications or reoperations were reported.

**Conclusions:** Acromioclavicular reconstruction using coracoclavicular suspensory fixation and allograft wrap with open AC joint reconstruction provides both satisfactory clinical and structural outcomes with little risk of complications or reoperations at 12 months postoperatively.

## POSTER ABSTRACTS

**POSTER #9****(#26) BIBLIOMETRIC ANALYSIS OF CRICKET INJURY RESEARCH: A GLOBAL PERSPECTIVE**

**Sameer Agarwal**, Mandeep S Dhillon, Siddarth Sharma

Postgraduate Institute of Medical Education and Research, Chandigarh, India

**Introduction:** Cricket is a widely popular sport in the Indian subcontinent and Commonwealth countries. However, injuries in cricket are a significant concern, negatively impacting player performance and leading to considerable absenteeism from the game. To gain comprehensive insights into the existing research landscape, this study presents a bibliometric analysis of published research on cricket injuries.

**Methods:** The Web of Science database was searched. The obtained search results were then analyzed using the R Bibliometrix package. Bibliometric parameters, including top authors, journals, countries, and keywords, were examined. Co-occurrence networks were generated, and thematic mapping was performed to identify emerging research topics.

**Results:** A total of 423 publications from 126 journals were included in the analysis. JW Orchard emerged as the highest-published author, while Australia stood out as the leading country in terms of the number of publications. The published research predominantly focused on injuries sustained by fast bowlers, with major research themes centered around epidemiology, consensus definitions, and spinal issues in fast bowlers. On the other hand, there was relatively limited research on injuries concerning batsmen, wicketkeepers, and fielders.

**Conclusions:** The study findings reveal that most of the cricket injury research originates from developed countries. The primary research areas include epidemiology, injury prevention, and biomechanics, with a particular emphasis on fast bowlers. However, there is a need for more research to encourage publications that focus on injuries experienced by batsmen, wicketkeepers, and fielders, as well as cricket in the developing world.

**POSTER #10****(#31) THE ALL-SOFT TISSUE QUADRICEPS TENDON FOR ACL RECONSTRUCTION IS CLINICALLY AND FUNCTIONALLY EQUAL TO A QUADRUPLED HAMSTRING GRAFT**

**Fady Awad**, Faiz Khan, John McIntyre, Randy Guro, Luke Hathaway, Rahul Kotwal, Amit Chandratreya

Princess of Wales Hospital, Bridgend, UK

**Introduction:** To investigate the outcomes of an all-soft tissue quadriceps graft for ACL reconstruction and to compare the outcomes between a quadrupled single hamstring tendon to the quadriceps tendon.

**Methods:** This is a single centre comparative analysis of prospectively collected data of patients who had an ACL reconstruction (either with single tendon quadrupled hamstring graft or soft tissue quadriceps tendon graft). All surgeries were performed by a single surgeon using the All-inside suspensory technique. For this study, there were 20 patients in each group. All patients received the same post-operative rehabilitation protocol and were added to the National Ligament Registry. Strength testing was performed on all patients using the Mark-10 dynamometer.

**Results:** The average age of patients in the QT group was 28 years (12 males, 8 females) and in the hamstring group was 26 years (17 males, 3 females). The most common mechanism of injury in both groups was a contact twisting injury. There were no statistical differences between the two patient groups in regards to PROMS and need for further revision surgery. There were also no differences observed in strength testing between the two groups.

**Conclusions:** In our study, we found the all-soft tissue QT graft to have a low complication rate with less harvest morbidity. We have demonstrated that the quadriceps muscle strength does not decrease following the harvest. The QT graft is equivocal to quadrupled hamstring graft in terms of patient function and recovery graft characteristics.

## POSTER ABSTRACTS

## POSTER #11

**(#35) ENDOSCOPIC FLEXOR HALLUCIS LONGUS TRANSFER ACHILLES TENDON RUPTURE: TECHNIQUE AND EARLY RESULTS**

**Thomas Lewis**, Samuel Franklin, Vikram Vignaraja, Robbie Ray  
King's College Hospital NHS Foundation Trust, London, UK

**Introduction:** Endoscopic flexor hallucis longus (FHL) transfer can be used in the management of acute Achilles tendon rupture, including in elite sportspeople. A recent cadaveric study demonstrated greater strength can be achieved using an FHL transfer with interference screw and cortical button slide technique compared to an interference screw alone. Our current practice involves performing this augmented technique endoscopically, the results of which we aim to present here.

**Methods:** We reviewed the complications and patient related outcome measures (PROMs) of 9 patients who underwent Achilles tendon rupture repair using the aforementioned technique. Validated scoring systems were utilised (EQ-5D, Manchester.Oxford Foot Questionnaire (MOxFAQ) and Visual Analogue Score for pain (VAS Pain)) with results collected via the BOFAS Amplitude registry pre-operatively and at 6 monthly intervals post-operatively.

**Results:** 9 patients (6 male, 3 female) are included. Mean (SD) age at time of surgery is 52 (12.5) years. EQ-5D improved from a mean (SD) of 0.46 (0.37) pre-operatively to 0.59 (0.43) at 6 months post operatively. Similarly, VAS Pain improved from an average of 40.8 (27.5) pre-operatively to 29 (40) at 6 months. Improvements in MOxFAQ were reported across all three domains when comparing pre-operative with post-operative scores. In terms of complications, one patient developed tibial nerve neuritis: no further complications were reported.

**Conclusion:** Endoscopic FHL transfer for Achilles tendon rupture can be augmented using a cortical button applied using a tension slide technique. We describe a safe and effective method capable of providing a stronger and more stable repair endoscopically. Our early patient data shows improvements in quality of life, pain and specific foot and ankle outcome measures following surgery. Further studies are required with longer term follow up and greater patient numbers to further assess the efficacy of this technique with clinical comparison to standard interference screw fixation.



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