ABSTRACTS BOOK

BASK 2026

14TH & 15TH APRIL
SEC GLASGOW

ABSTRACTS KINDLY SPONSORED BY

Arthrex

JOINT OPERATIONS

BRITISH ASSOCIATION FOR SURGERY OF THE KNEE

Accredited by

Royal College of Surgeons of England

CLOCKWORK MEDICAL

PODIUM PRESENTATIONS

Submission ID	Name	Page Number
8	Florence Shekleton	6
25	James Murray	7
27	Ben Tyas	8
36	Andrew Amis	9
43	Neel Badhe	10
93	Andrew Amis	11
47	Omar Javed	12
50	Helen Samuel	13
127	Muaaz Tahir	14

SHORT PRESENTATIONS (2 minutes 2 Slides)

Submission ID	Name	Page Number
62	Florence Judge-Clayden	15
82	Conor Hennessy	16
24	Christopher Madden-McKee	17
29	Rudi Carrino	18
34	Andreas Fontalis	19

POSTER PRESENTATIONS

Submission ID	Name	Page Number
2	Mustafa Al-Zubaidy	20
3	Mustafa Al-Zubaidy	21
4	Mustafa Al-Zubaidy	22
5	Mustafa Al-Zubaidy	23
6	Conor O'Driscoll	24
7	Abu Saeed	25
9	Debayan Sinharoy	26
10	Darby Elliott	27
11	Megan Boulton	28
12	Aashay Sonkusale	29

POSTER PRESENTATIONS

Submission ID	First Name	Page Number
13	Aashay Sonkusale	30
14	Aashay Sonkusale	31
15	Gautam Chadalavada	32
16	Abd Al-Azeez Al-Omairi	33
17	Shady Hermena	34
18	Shady Hermena	35
19	Slade Badenhorst	36
20	Slade Badenhorst	37
21	Slade Badenhorst	38
22	Jason Jia Shyan Ong	39
23	Sree Kanakala	40
26	Jason Jia Shyan Ong	41
28	Ben Tyas	42
30	Omar Javed	43
31	Rohan Prakash	44
33	Neel Dalal	45
35	Alexander Curtis	46
37	Sree Kanakala	47
38	Ahmed Tayar	48
39	Ahmed Tayar	49
40	Dina Atra	50
41	John Bayram	51
42	Dina Atra	52
44	Neel Badhe	53
45	Neel Badhe	54
46	Neel Badhe	55
51	Max Matta	56
52	Gerald Tan	57
53	ANDREW DAVIES	58
54	Moksh Sachdeva	59
56	Sina Abdolrazaghi	60
58	Sanjay Londhe	61
59	Kieran Almond	62
60	Khaled Youssef	63
61	Jeremy Telford	64

CONTENTS

POSTER PRESENTATIONS

Submission ID	First Name	Page Number
63	Ahmed Al-Saadawi	65
66	Ahmed Al-Saadawi	66
68	Bavin Pathmaraj	67
69	Ahmed Tayar	68
70	Eliott Martinson	69
72	James Murray	70
73	Samuel Newman	71
74	Samuel Newman	72
75	Thomas Williamson	73
76	Nicola Wightman	74
77	Patrick Nicholas	75
78	Khaled Youssef	76
79	Ella Snowdon	77
80	Conor Hennessy	78
81	Conor Hennessy	79
85	Henry Clarke	80
86	Henry Clarke	81
88	Conor McCann	82
94	lukas andr	83
95	Eshaan Ganatra	84
97	Rachael Cullinan	85
98	Konstantinos Tsikopoulos	86
99	Meera Dackombe	87
100	Joachim Ho	88
102	Salam Obaidi	89
103	Salam Obaidi	90
105	Chetan Khatri	91
106	Sunandan Datta	92
107	Katherine Hatt	93
113	Sina Abdolrazaghi	94
114	Kais Al Suyyagh	95
116	Preemal Patel	96
117	David Langton	97
118	Ghiath Ismayl	98
120	mohamed mansour	99

POSTER PRESENTATIONS

Submission ID	First Name	Page Number
121	Katherine Alker	100
123	Louis Hainsworth	101
128	Anish Loharuka	102
129	Abu Saeed	103
130	Mohamed Elshial	104
131	Ahmed Hamada	105

Submission ID 8

THE ALL-POLYETHYLENE MONOBLOC TIBIAL COMPONENT IN TOTAL KNEE ARTHROPLASTY – AN UNDERUTILISED RESOURCE?

Florence Shekleton, Ben Lankester
Yeovil District Hospital, Yeovil, United Kingdom

Presentation Time: Tuesday 14th April 16:45

Introduction
Monoblock all-polyethylene tibial (APT) components were used in the earliest total knee replacements (TKR) but were replaced by modular metal-backed designs after early failures. With improvements in polyethylene processing, implant geometry, and surgical technique, contemporary APT designs have demonstrated excellent survivorship. However, their clinical use remains limited, accounting for only 1.3% of TKRs in the UK National Joint Registry (NJR).

Methodology
This study aimed to evaluate the utilisation, revision rate, and cost implications of the Triathlon® APT TKR (Stryker, Limerick, Ireland) performed in a single centre, comparing against metal-backed tibial component within the same period using NJR outcome data.

A retrospective review was conducted of all primary TKR procedures using APT components. Demographic data, revision rates, and Kaplan–Meier survival analyses were performed and compared against metal-backed tibial data. A cost analysis of APT versus modular metal-backed TKRs was undertaken.

Results
A total of 2155 TKRs performed between 2014-2025 were included. 35% utilised the APT. APT implants demonstrated improved survival rates compared to modular counterparts, with statistically significant reduction in total revisions (p: 0.001), aseptic loosening (p: 0.01) and infection (p: 0.041). Cost analysis revealed an estimated saving of over £50,000 across the primary TKR cohort over 10 years.

Conclusion
The findings, corroborated by multiple clinical studies and registry data, confirm the non-inferiority of APT components in the TKR. Their lower cost, reduced wear, and simplified revision process offer potential advantages. Given these benefits and equivalent clinical outcomes, the underutilisation of APT components in modern arthroplasty warrants reconsideration.

Submission ID 25

UNDERSTANDING SURGICAL DEMANDS IN HANDHELD ROBOTIC-ASSISTED REVISION KNEE ARTHROPLASTY THROUGH NASA-TLX WORKLOAD ASSESSMENT

James Murray[1], Andrew Porteous[1], Max Ettinger[2], Peter Savov[2], Matteo Innocenti3[3], Gijs van Hellemondt[4], Koen DeFoort[4], Juan Carlos Martinez-Pastor[5], Peter Bollars[6], Francesco Zambianchi[7], Alberto Belluati[8], Gianluca Piovan[9], Etienne Cavaignac[10], Cat Whitall[11]

[1]Southmead Hospital, Bristol, United Kingdom. [2]2University Clinic For Orthopaedic surgery, Oldenburg, Germany. [3]3Centro Traumatologico Ortopedico di Firenze, Turin, Italy. [4]Sint Marteenskliniek, Nijmegen, Netherlands. [5]Hospital Clinic Barcelona, Barcelona, Spain. [6]6Sint-Trudo Ziekenhuis, Sint-Truiden, Belgium. [7]Azienda Ospedaliero Universitaria di Modena, Modena, Italy. [8]Ospedale S. Maria delle Croci, Ravenna, Italy. [9]IRCCS Ospedale Sacro Cuore Don Calabria, Calabria, Italy. [10]Hôpital Pierre Paul Riquet, Bordeaux, France. [11]Smith and Nephew, Watford, United Kingdom

Presentation Time: Tuesday 14th April 16:52

Introduction

This prospective multicentre project evaluated the impact of handheld robotic-assisted (RA) technology on operating room staff wellbeing during revision total knee arthroplasty (rTKA). The aim was to determine whether RA using the CORI™ Surgical System (Smith & Nephew, USA) reduced perceived workload compared with conventional manual instrumentation, measured by the NASA Task Load Index (NASA-TLX) instrument.

Methodology

NASA-TLX surveys were completed by surgeons, trainees, scrub nurses, and circulating nurses after rTKA procedures performed with either RA or manual instrumentation across six European centres. The tool assesses six domains—Mental, Physical, Temporal demand, Performance, Effort, and Frustration—to produce an Overall Workload Score (OWS; −50 best to +50 worst). In total, 212 complete responses were analysed (manual n=94; RA n=118), with a subgroup analysis of the lead surgeons only (manual n=39; RA n=61).

Results

The results demonstrated a significant reduction in the overall workload with RA compared with manual instrumentation (median overall workload score 0.0 vs 8.5 respectively, p=0.0003). Domain-specific analyses revealed significantly lower mental demand, physical demand, and effort in the RA group without compromising perceived surgical performance, temporal demand, or frustration. A subgroup analysis of the lead surgeons showed consistent workload reductions consistent with the overall findings

Conclusion

This evaluation provides compelling real-world evidence that the handheld RA surgical system significantly reduces intraoperative workload during rTKA, as measured by the NASA-TLX. Overall, these findings support the integration of RA as a strategy to enhance surgical comfort, reduce physical strain, and enhance safety in revision knee arthroplasty.

Submission ID 27

IMPLANT SELECTION AT FIRST-TIME ELECTIVE ASEPTIC REVISION KNEE ARTHROPLASTY: AN ANALYSIS OF DATA FROM THE NATIONAL JOINT REGISTRY FOR ENGLAND, WALES, NORTHERN IRELAND AND THE ISLE OF MAN

Ben Tyas[1,2], Catherine Hewitt[1], David Deehan[3,4], Paul Baker[2,1]

[1]University of York, York, United Kingdom. [2]University Hospitals Tees, Middlesbrough, United Kingdom. [3]Newcastle Hospitals NHS Foundation Trust, Newcastle, United Kingdom. [4]Newcastle University, Newcastle Upon Tyne, United Kingdom

Presentation Time: Tuesday 14th April 16:59

Introduction
Using data from the National Joint Registry for England, Wales, Northern Ireland and the Isle of Man, this study aimed to characterise temporal trends and factors associated with implant selection at first-time elective aseptic revision knee arthroplasty (rTKA).

Methodology
Patients undergoing first-time elective aseptic rTKA between 2009-2023 were included. The outcome of interest was implant selection; this included constraint level, stem design, use of metaphyseal fixation devices and the use of fixed versus mobile bearings. Descriptive analyses and logistic regression were used to identify associations between patient and clinical characteristics, mean annual surgeon volume, and implant selection.

Results:
12,950 cases were analysed. The most common level of constraint used was condylar-constrained (53.9%). There was an increasing use of condylar-constrained and hinged prostheses over time. Revisions were most frequently undertaken using cementless stems (57.3%). The use of metaphyseal fixation increased from 8.5% of revisions in 2009 to 38.0% in 2021. This was accompanied by a decreasing use of long cementless stems. Low-volume surgeons were more likely to use unconstrained/posterior-stabilised implants (HR=1.445, $p<0.001$) and perform rTKA without intramedullary stems (HR=1.559, $p<0.001$). Revision for instability was associated with an increased use of hinged prostheses (HR=3.973, $p<0.001$).

Conclusion
This study highlights temporal changes in implant selection in aseptic rTKA over the last 15 years. Surgeons have increasingly adopted higher-constraint designs, whilst fixation strategies are evolving to include the use of metaphyseal fixation devices. Further studies are required to determine whether these changes are associated with improved outcomes for patients.

Submission ID 36

THE MECHANISM OF ACL AND SECONDARY RESTRAINT INJURIES IN ELITE FOOTBALLERS

Charlotte McMain[1], Petra Bonacic-Bartolin[1], David Haslhofer[2], Simon Ball[2], Andy Williams[2], Andrew Amis[1]

[1]Imperial College, London, United Kingdom. [2]Fortius Clinic, London, United Kingdom

Presentation Time: Tuesday 14th April 15:25

Introduction:

The objective was to explain the mechanism of non-contact ACL injuries of elite footballers by analysing MR images and reconstructing the bone displacements when bone bruises (BB) occurred. Calculating ligament strains would predict damaged secondary restraints.

Methods

90 MRIs were obtained post ACL injury and 20 were analysed. 3D bone models with BBs were manipulated to oppose the femoral and tibial BBs. Ligament attachments defined each major ligament in the anatomical posture, then the bones were moved in 20 steps towards the BB posture and ligament strains calculated. Ruptures were predicted from published tensile data.

Results:

None of 90 MRIs had medial compartment impact BBs, so 100% of the injuries were in valgus. What appeared to be medial "BB"s were avulsions of femoral deep MCL or tibial ramp lesions. BBs were in the sulcus of the lateral femoral condyle and posterolateral tibial plateau. With the BBs opposed the tibia was flexed 60deg and externally rotated 15deg. The ACL rupture occurred at step 8/20 (20mm anterior drawer) and the deep MCL at step 11/20, thus both in 100% of the knees, with the POL rupturing in 65%, the superficial MCL 35%, the ALL in 30% and the LCL in 0%.

Conclusions:

There was a valgus plus external rotation mechanism in 100%. Medial bone lesions were avulsions. The deep MCL failed in 100% of knees analysed. The ACL ruptured at less than half the subluxation towards the BB impact, releasing the tibia to move further and damage the secondary restraints.

Submission ID - 43

THE RELATIONSHIP BETWEEN BONE MARROW LESIONS, ARTICULAR CARTILAGE LOSS AND SYNOVITIS TO PAIN SENSITIZATION IN KNEE OSTEOARTHRITIS. A PROSPECTIVE STUDY

Neel Badhe[1], Robert Kerslake[2], Thomas Kurien[1]
[1]University of Nottingham, Nottingham, United Kingdom.
[2]Versus Arthritis Pain Centre, Nottingham, United Kingdom

Presentation Time: Wednesday 15th April 15:35

Introduction:
Radiographic findings often fail to reflect knee osteoarthritis pain. This study aimed to evaluate associations between MRI-detected features of knee osteoarthritis (articular cartilage loss, bone marrow lesions (BMLs), and synovitis) and pain thresholds at the knee and distant sites, measured objectively by quantitative sensory testing (QST).

Methods:
Forty-two knee osteoarthritis patients and 21 healthy controls completed Oxford Knee Score (OKS), Visual Analogue Scale (VAS) pain, Total Intermittent and Constant Osteoarthritis Pain (ICOAP), and PainDETECT questionnaires. Pressure pain thresholds (PPTs) at the affected knee, distal (tibialis anterior), and remote (extensor carpi radialis longus) sites were assessed using QST. MOAKS quantified MRI-detected articular cartilage loss, BMLs, and synovitis. Correlations between PPTs and MRI findings were evaluated.

Results:
Knee OA patients exhibited significantly worse Patient-Reported Outcome Measures (PROMs) scores compared to healthy controls. Knee PPTs correlated with overall cartilage loss ($r = -0.4210$) and more strongly with medial cartilage loss ($r = -0.5775$). Tibialis anterior PPTs correlated with medial cartilage loss ($r = -0.3728$), while ECRL PPTs correlated with both overall ($r = -0.3786$) and medial cartilage loss ($r = -0.4765$). BMLs were associated with PPTs at the knee ($r = -0.5075$), tibialis anterior ($r = -0.4299$) and ECRL ($r = -0.3716$). No associations between PPTs and synovitis were observed.

Conclusion:
Cartilage loss and BMLs in knee OA patients are associated with reduced PPTs locally and at distant sites, suggesting peripheral and central sensitisation. These associations may help identify patients at risk of heightened pain sensitivity and suboptimal outcomes following knee arthroplasty.

Submission ID - 93

LATERAL TIBIAL POSTERIOR SLOPE INDUCES ANTERIOR TIBIAL TRANSLATION WHILE LATERAL-MEDIAL SLOPE DIFFERENCE INDUCES INTERNAL ROTATION: A CADAVERIC BIOMECHANICAL STUDY

Shuntaro Nejima[1,2], Jonathan Holt[2], Richard van Arkel[2], Andy Metcalfe[3], Nick Smith[3], Andrew Amis[2]

[1]Yokohama City University, Yokohama, Japan. [2]Imperial College, London, United Kingdom. [3]Warwick University, Coventry, United Kingdom

Presentation Time: Wednesday 15th April 15:42

Introduction:
Posterior tibial slope (PTS) influences tibiofemoral kinematics and anterior cruciate ligament (ACL) function. However, the isolated roles the medial or lateral PTS remain unclear. This study aimed to evaluate the influence of medial and lateral PTS changes on anterior translation and internal rotation under axial loading.

Methods:
Eight fresh-frozen knees were mounted in a compression loading machine. Tibiofemoral kinematics were measured at 500 N load at 0° and 20° flexion using optical tracking. Unicondylar slope-changing osteotomies were performed with a custom cutting guide, preserving key ligament and meniscal root attachments. Medial (M) and lateral (L) PTS were adjusted independently across -5° to +10° using 3D-printed wedges. Repeated-measures ANOVA, post-hoc t-tests and Pearson correlations were used.

Results:
No significant difference was found between the intact and L0°M0° conditions, indicating no procedural effect. Increasing lateral PTS significantly increased anterior translation ($r=0.966$, $P=0.0004$), while increasing medial PTS did not ($r=0.091$, $P=0.847$ at 20°). Internal rotation was most influenced by delta PTS at both 0° and 20° flexion ($r=0.908$, $P=0.0047$ at 20°), altering lateral or medial PTS alone did not significantly change rotation. At 20° flexion the largest rotational differences were observed between wedge combinations with opposing delta PTS values: L5M−5 vs L0M10 (13.5°, $P=0.003$), L10M0 vs L0M10 (12.5°, $P=0.006$).

Conclusions
Lateral PTS was the primary determinant of anterior translation, whereas delta PTS was the principal determinant of internal rotation under axial loading. These findings suggest the potential utility of unicondylar slope-changing osteotomy in ACL reconstruction with rotational instability.

Submission ID - 47

EARLY OUTCOMES AND UNPLANNED RE-OPERATION AFTER SINGLE-STAGE & TWO-STAGE MULTILIGAMENT KNEE SURGERY

Omar Javed[1], Sabri Bleibleh[1], Hammad Sadique[1], Francisco Barbosa[1], Tom Kurien[1,2], Jimmy Ng[1]

[1]Trauma & Orthopaedics Department, Nottingham University Hospitals NHS Trust, Nottingham, United Kingdom. [2]Academic Orthopaedics, Trauma and Sports Medicine, University of Nottingham, Nottingham, United Kingdom

Presentation Time: Wednesday 15th April 09:30

Introduction
Multiligament knee injury (MLKI) commonly affects young, active patients and is associated with significant morbidity. Debate exists regarding whether a single-stage or two-stage approach balances early rehabilitation and stabilisation against complications such as arthrofibrosis. This study assessed unplanned re-operation and outcomes following single-stage or two-stage MLKI surgery.

Methodology
This was a single-centre observational cohort study of patients undergoing MLKI surgery between January 2023 and January 2026. Staging strategy was at the treating surgeons' discretion. The primary outcome was unplanned re-operation, excluding any planned second-stage surgery. Secondary outcomes included International Knee Documentation Committee (IKDC) score and range of motion (ROM).

Results
Fifty-seven patients were included (50 single-stage, 7 two-stage), with 41 males and 16 females (median 21 years, range 15-56). Primary outcome data were complete. Fifteen patients required ≥1 unplanned re-operation, with similar rates in the single-stage (13/50, 26%) and two-stage groups (2/7, 29%). Re-operations included surgery for arthrofibrosis (manipulation under anaesthesia [MUA] or arthroscopic release), secondary meniscal or graft-related pathology, infection, and implant-related symptoms. The most common indication for re-operation was arthrofibrosis. At 12 months, IKDC scores were available for 21 patients (median 58, IQR 50-74). At 6 months, ROM data were available for 25 patients, with 88% achieving full extension and 84%achieving flexion ≥110°. Patients with persistent ROM deficit underwent subsequent intervention.

Conclusion
Unplanned re-operation was common following both single-stage and two-stage MLKI surgery. Arthrofibrosis following persistent ROM deficit was the main indication, highlighting the importance of early identification and management through coordinated surgical and rehabilitation strategies.

Submission ID - 50

TWO YEAR OUTCOMES OF ENDOSCOPIC ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION USING LIVING DONOR HAMSTRING ALLOGRAFT FROM A PARENT – THE LIVD_ACLR STUDY

Helen Sankey, Nicholas Bowman
Maidstone & Tunbridge Wells NHS Trust, Tunbridge Wells, United Kingdom

Presentation Time: Tuesday 14th April 15:32

Purpose
Anterior Cruciate Ligament (ACL) rupture is increasingly identified in children, but few prospective research studies reporting outcomes following specific surgical interventions in this population exist. We report two-year outcomes of skeletally immature patients in the UK undergoing endoscopic ACL reconstruction using living donor hamstring tendon allograft (LDHA) from a parent.

Methods
Twenty skeletally immature patients were recruited, from those routinely referred to the Knee injury clinics of Maidstone & Tunbridge Wells NHS Trust, with ACL rupture confirmed on MRI, and a parent willing to donate hamstring tendon. For all cases a trans-physeal technique was used and Lateral extra-articular tenodesis performed. Patient reported IKDC and Lysholm ratings were recorded and Long leg radiographs performed preoperatively and at 1 and 2 years post operatively.

Results
The children's mean age was 14 years & 6 months (range 10-17). 90% were male. In 60%, the cause of primary injury was football. 55% had associated meniscal tears (4 lateral, 4 medial, 3 medial & lateral) all were repaired at the time of surgery. Average graft size achieved from the parent donor was 8.4mm (± 0.6mm).

At 2-year post operation there were no incidence graft rupture, contralateral ACL rupture or growth disturbance. Mean IKDC scores and Lysholm scores were 96.1 and 96.8 respectively.

Conclusions
In a prospective cohort of 20 children, 2 years post ACL reconstruction with LDHA, there were no graft ruptures and no incidence of growth arrest. Excellent patient scores were reported. Good hamstring graft size was achieved from maternal and paternal donors.

Submission ID - 127

PAEDIATRIC MENISCAL ALLOGRAFT TRANSPLANTATION: CLINICAL AND FUNCTIONAL OUTCOMES AT MID- TO LONG-TERM FOLLOW-UP

Muaaz Tahir, Samuel Harris, Danielle Johnson, Adrian Davidescu, Nicholas Smith, Feisal Shah, Peter Thompson, Nicola MacKay, Tim Spalding

University Hospitals Coventry & Warwickshire, Coventry, United Kingdom

Presentation Time: Wednesday 15th April 09:37

Introduction
Meniscal allograft transplantation (MAT) is infrequently performed in the paediatric population, resulting in limited evidence regarding graft survivorship and clinical outcomes. While MAT is well established in adults for reducing pain and improving function, paediatric data remain scarce. This study aims to evaluate clinical and functional outcomes following MAT in children and adolescents.

Methodology
A prospectively maintained database comprising 480 patients was analysed retrospectively. Patients aged ≤18 years at the time of surgery with minimum 1-year follow-up were included. Demographic data, concomitant procedures, complications, reoperations, and patient-reported outcome measures (PROMs) were analysed at latest follow-up.

Results
A total of 53 patients were included (58% female), with median age of 16 years (range 8-18). Majority of procedures involved the lateral meniscus (81%), several patients underwent concomitant procedures including osteotomy (9%), ligament reconstruction (12%), or cartilage procedures (13%). Mean follow-up was 7.8±3.8 years. Significant improvements were observed across all PROMs, including Lysholm (57±19 to 78±18, $p<0.001$), Tegner (3±1 to 5±2, $p<0.001$), IKDC (44±16 to 68±19, $p<0.001$) and all KOOS subscales. Thirteen patients (23%) required further arthroscopic intervention. There were 3 graft failures (5.7%), and mean time to failure was 5.3±3 years. Other complications included superficial wound infection (4%), and deep-vein-thrombosis (2%).

Conclusion
Paediatric MAT demonstrates favourable mid- to long-term outcomes, with improved function and excellent graft survivorship. These findings support MAT as an effective treatment for the symptomatic meniscal-deficient paediatric knee. Early referral should be considered for children and adolescents with post-meniscectomy symptoms.

Submission ID - 62

SOLID-ORGAN TRANSPLANT RECIPIENTS DO NOT EXPERIENCE INFERIOR IMPLANT SURVIVAL FOLLOWING PRIMARY TOTAL KNEE ARTHROPLASTY

Florence Judge-Clayden[1], Ben Tyas[1,2], Jonathan Murray[3,4], Paul Baker[1,2,4]

[1]Trauma and Orthopaedics, University Hospitals Tees, Middlesborough, United Kingdom. [2]University of York, York, United Kingdom. [3]Renal Unit, University Hospitals Tees, Middlesborough, United Kingdom. [4]School of Health & Life Sciences, Teesside University, Middlesborough, United Kingdom

Presentation Time: Wednesday 15th April 14:26

Introduction
This study compared patient and implant survival, and the incidence of 90-day medical complications, between patients with prior solid-organ transplant (SOT) and those without solid-organ transplant (Non-SOT) following primary total knee arthroplasty (TKA).

Methods
Data were extracted from TriNetX, a global healthcare database covering 21 countries. Patients undergoing TKA between 2005-2025 were first classified as SOT or non-SOT patients, and SOT patients further categorised by transplant type. Descriptive analyses reported incidence of prosthetic joint infection (PJI), patient and implant survival at 1, 2 and 5 years, and 90-day medical complications, stratified by SOT status and transplant type. Propensity score-matched analysis compared outcomes between SOT and non-SOT cohorts. Cox regression identified covariate-adjusted relative risk of PJI at two years between SOT and non-SOT patient groups.

Results
In total 671,661 patients were included with a median follow-up of 4.7 years. Patients in the SOT group (n=2802) had significantly inferior 5-year patient survivorship (87.1% vs 96.1%, $p<0.001$). Liver transplant patients had the highest incidence (4.8%) and hazard of PJI at 2-years compared to non-SOT group (HR 2.09, $p<0.001$). After matching, there was no difference in 5-year implant survival (HR= 1.25, p= 0.146). Solid-organ transplant patients had an increased risk of nearly all 90-day medical complications, most notably acute kidney injury (RR=6.68, $p<0.001$).

Conclusion
While peri-operative risks following TKA were higher for SOT patients, 5-year implant survival was equivalent. Solid-organ transplant status alone should not be a contraindication to TKA. Patients should be appropriately optimised pre-operatively through a multidisciplinary approach.

Submission ID - 82

SURVIVAL OF THE NATIVE KNEE FOLLOWING KNEE OSTEOTOMY: ARTHROPLASTY CONVERSION RATES FROM A 25-YEAR NATIONAL DATA REGISTRY STUDY, ENGLAND UK

Conor Hennessy[1], Simon Abram[2]

[1]Nuffield Department of Orthopaedics, Rheumatology and Musculoskeletal Sciences, University of Oxford, Oxford, United Kingdom. [2]Musculoskeletal Research Unit, Translational Health Sciences, University of Bristol, Bristol, United Kingdom

Presentation Time: Wednesday 15th April 14:28

Objectives
Knee osteotomy is an established joint-preserving surgical procedure. Despite this, there has been little data to inform our understanding of subsequent rates of conversion to knee arthroplasty. We sought to use the National Health Service (NHS), England UK, procedure registry database to examine the arthroplasty conversion rate to a maximum of 25-years following knee osteotomy.

Methods
Using NHS Hospital Episode Statistics (HES) data between 01/04/98 to 31/03/2023 we identified isolated knee osteotomies in patients between 16 to 80 years of age. Only the first osteotomy per patient, per side was included; bilateral cases within <6 months were excluded. Conversion to arthroplasty was determined using OPCS-4 codes linked by recorded laterality; the primary outcome was arthroplasty free survival.

Results
24,947 knee osteotomies (18,871 HTO, 4,490 DFO, 1,586 doubles; 23,371 patients) were included (mean age: 40.83 years; 62.12% male; Charlson index 0: 80.42%). Overall arthroplasty free survival was 93.45% (95% CI 93.1-93.8) at 5 years, 84.9% (95% CI 84.3-85.4) at 10 years, and 67.95% (95% CI 66.1-69.8) at 25 years. Female sex and older age were predictive of higher conversion rates, with female patients aged 40-59 showing highest rate of conversion to arthroplasty at 5 years (88.7%; 95% CI 87.5-89.7), 10 years (74.2%; 95% CI 72.2-76.1%) and 25 years (52.5%; 95% CI 48.2-56.5%).

Conclusions
Including the whole cohort, the observed rate of conversion to arthroplasty in this study was roughly 1.5% per year. Higher rates of conversion were seen in the 40-59 age group, particularly in female patients.

Submission ID - 24

CEMENTLESS TOTAL KNEE ARTHROPLASTY IN OBESE PATIENTS – IS A BMI OF 45 THE NEW 40?

Chris Madden-McKee, Kerry Bowsie, Roslyn Cassidy, Richard Napier, Paul Karayiannis, David Beverland

Musgrave Park Hospital, Belfast, United Kingdom

Presentation Time: Wednesday 15th April 14:20

Introduction
It is widely perceived that morbid obesity is associated with unacceptable rates of complication after total knee arthroplasty (TKA), with many surgeons using a body mass index (BMI) of 40 as a cut-off. The aim of this study was to assess the outcomes of two patient groups undergoing cementless TKA in a high-volume unit: one with morbid obesity (BMI 40 to 44.9) and the other non-obese (BMI 20 to 29.9).

Methodology
This was a retrospective single-centre comparative case series of 2,674 fully cementless TKAs. Of these, 568 were morbidly obese and 2,106 were non-obese. Median follow-up was 7.3 years (range, 1 to 13). Data was collected via electronic databases and radiology systems.

Results
All-cause revision rates were 0.7% (4 of 568) in the morbidly obese, and 0.9% (19 of 2,106) in the non-obese (P=0.801). There were no revisions for non-infective causes in the morbidly obese group. Other key outcomes, such as mortality, venous thromboembolism (VTE), and patient-reported outcomes scores (PROMs), were also comparable.

The reoperation rate for periprosthetic fracture (PPF) was significantly lower in the morbidly obese (1.1%, [6 of 568]) compared to the non-obese (3.6% [76 of 2,106], P=0.002). Reoperation rate, excluding PPF, was also significantly lower in the morbidly obese (1.1% [6 of 568]) compared to the non-obese (3.0% [63 of 2,106], P=0.010).

Conclusions
Cementless TKA can be performed safely, and with a significantly lower reoperation rate, in the morbidly obese with BMI up to at least 45, as compared to the non-obese, in a high-volume environment.

Submission ID - 29

INVESTIGATIING THE RELATIONSHIP BETWEEN PRE-OPERATIVE ANATOMY, IMPLANT POSITIONING, AND PATIENT-REPORTED OUTCOMES IN ROBOTIC ARM-ASSISTED TOTAL KNEE ARTHROPLASTY.

Rudi Carrino, Sophie Stewart, Audrey Kemayou, Luke Farrow

Aberdeen Royal Infirmary, Aberdeen, United Kingdom

Presentation Time: Wednesday 15th April 14:22

Despite growing utilisation of Robotic arm-assisted total knee arthroplasty (RA-TKA), there remains a limited understanding of how individual patient anatomy and the resulting intraoperative decisions influence patient-reported outcome measures (PROMs).

A retrospective cohort study was undertaken with relevant perioperative data collected from patients undergoing RA-TKA at a large University teaching hospital between 2022-2024. Outcomes were 6 week and 1-year Oxford Knee Scores (OKS) Minimum Clinically Important Difference (MCID) attainment. Multivariable logistic regression (adjusting for age, sex, baseline OKS, and pre-operative Coronal Plane Alignment of the Knee (CPAK) classification) was performed to assess the relationship between OKS MCID attainment and: (1) Change in CPAK classification (2) Implant positioning outside industry defined radiological parameters, and (3) Degree of coronal deformity correction. Statistical significance was set at $p \leq 0.05$.

A total of 374 patients (mean age 72, 56% female) were included, of which 229 and 142 had 6 week and 1-year OKS available respectively. 82% patients changed CPAK classification post-op, with no significant association with 6 week / 1-year MCID attainment. Femoral or tibial coronal alignment outside the recommended parameters was however associated with significantly greater 1-year MCID attainment (OR 4.57 (1.09-24.35, p - 0.05). Every 1 degree of alignment correction towards neutral was also associated with 3% greater chance of 1-year PROMs MCID attainment (Coefficient 0.03 0.01 to 0.06, p = 0.012).

Patient anatomy and implant positioning do appear to influence PROMs following RA-TKA. Further work is required to understand optimal implant placement for specific anatomical knee phenotypes at an individual patient level.

Submission ID - 34

A PROSPECTIVE DOUBLE-BLINDED RANDOMISED CONTROLLED TRIAL COMPARING CONVENTIONAL JIG-BASED VERSUS ROBOTIC-ARM ASSISTED MEDIAL UNICOMPARTMENTAL KNEE ARTHROPLASTY

Babar Kayani, Andreas Fontalis, Jenni Tahmassebi, Sujith Konan, Ricci Plastow, Usman Wazir, Munuzza Shah, Sam Oussedik, Fares S. Haddad

Department of Trauma and Orthopaedic Surgery, University College Hospital, 235 Euston Road, Bloomsbury, London, NW1 2BU, London, United Kingdom

Presentation Time: Wednesday 15th April 14:24

Introduction
This study reports interim outcomes from a randomised controlled trial comparing component positioning accuracy, early recovery, patient-reported outcomes, and complications between conventional jig-based unicompartmental knee arthroplasty (CO UKA) and robotic-arm assisted unicompartmental knee arthroplasty (RO UKA) in patients with medial compartment knee osteoarthritis.

Methodology
A total of 107 patients with symptomatic medial compartment knee osteoarthritis were prospectively randomised to undergo CO UKA (n=52) or RO UKA (n=55). All patients underwent CT-based preoperative planning, procedures were performed via a medial parapatellar approach and a standardised postoperative rehabilitation protocol was applied. Predefined outcomes were collected at regular intervals up to two years postoperatively.

Results
RO UKA demonstrated significantly greater accuracy in achieving planned femoral ($p<0.001$) and tibial ($p<0.001$) component positions compared with CO UKA. RO UKA was associated with lower inpatient pain scores ($p<0.001$), reduced opioid consumption ($p=0.008$) and shorter time to hospital discharge ($p=0.004$). There were no significant differences between groups in the Oxford Knee Score ($p=0.299$), Knee Injury and Osteoarthritis Outcome Score ($p=0.261$) or Western Ontario and McMaster Universities Arthritis Index ($p=0.281$) at two-year follow-up. RO UKA was associated with higher Forgotten Joint Scores at six months ($p=0.002$) and two years ($p=0.021$). Recruitment declined during the trial due to patient preference for RO UKA and loss of surgeon equipoise.

Conclusion
Interim results demonstrate that RO UKA improves component positioning accuracy, enhances early recovery and reduces length of hospital stay compared with CO UKA, with superior joint awareness outcomes at short-term follow-up.

Submission ID - 2

IMPACT OF GRAFT CHOICE ON SHORT-TERM PATIENT OUTCOMES FOLLOWING ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION

Mustafa Al-Zubaidy[1], Michelle Rogger[2], Oday Al-Dadah[1,2]

[1]Translational and Clinical Research Institute, Faculty of Medical Sciences, Newcastle University, Framlington Place, United Kingdom, NE2 4HH, Newcastle-upon-Tyne, United Kingdom. [2]Department of Trauma and Orthopaedic Surgery, South Tyneside District Hospital, Harton Lane, NE34 0PL, South Shields, United Kingdom

Background:
Anterior cruciate ligament reconstruction (ACLR) is most frequently performed using either an autologous hamstring or bone-patellar tendon-bone (BPTB) graft. Surgeons often have a preference, but there is no clear evidence supporting one over the other. The aim of this study was to evaluate whether autograft type influences patient outcome following ACLR.

Method:

Six validated patient-reported outcome measures (PROM) where collected pre-operatively and 1 year post-operatively following ACLR. These included the Knee Injury and Osteoarthritis Outcome Score (KOOS), International Knee Documentation Committee (IKDC), Lysholm, Tegner, EQ-5D-5L, and Short Form 12-item Health Survey. Data was stratified pertaining to the type of autograft used at the time of surgery to compare the BPTB group with the Hamstring group.

Results:
A total of 45 patients were included in this study. There was a significant longitudinal improvement ($p<0.05$) of almost all PROM scores following surgery in both the Hamstring Group (n=30) and also the BPTB Group (n=15). No significant differences were found pre-operatively between the BPTB group and the Hamstring group. Post-operative comparison also showed no significant between-group difference, with the exception of the IKDC Score, which showed a superior outcome for the BPTB group ($p=0.035$).

Conclusion:
Overall, the clinical outcomes of BPTB autograft are equivalent to hamstring autograft following ACLR.

Submission ID - 3

IMPACT OF CONCURRENT MENISCUS TEARS AND ARTICULAR CARTILAGE LESIONS ON THE CLINICAL OUTCOME OF ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION

Mustafa Al-Zubaidy[1], Michelle Rogger[2], Oday Al-Dadah[1,2]

[1]Translational and Clinical Research Institute, Faculty of Medical Sciences, Newcastle University, Framlington Place, United Kingdom, NE2 4HH, Newcastle-upon-Tyne, United Kingdom. [2]Department of Trauma and Orthopaedic Surgery, South Tyneside District Hospital, Harton Lane, NE34 0PL, South Shields, United Kingdom

Background:
Anterior cruciate ligament reconstruction (ACLR) is performed for patients with symptomatic ACL rupture. Patients will often have concurrent injuries including meniscal tears and articular cartilage lesions. The aim of this study was to investigate the influence of concurrent injuries and their treatment on the clinical outcome following ACLR.

Method:
Data pertaining to six validated patient-reported outcome measures (PROMs) were collected pre- and post-operatively along with demographic data and the presence of concurrent injuries in patients undergoing ACLR. PROM scores included Lysholm, Tegner, International Knee Documentation Committee (IKDC), Knee Injury and Osteoarthritis Outcome Score (KOOS), Short Form-12 Item (SF-12) and EQ-5D-5L

Results:
A total of 45 patients were included in this study. Overall, no significant difference ($p>0.05$) was found with or without the presence of either meniscal tears or articular cartilage lesions. However, concurrent meniscal repair demonstrated significantly better outcomes as compared to meniscectomy for KOOS symptoms ($p=0.019$), KOOS activities of daily living ($p=0.013$), KOOS sport/recreation ($p=0.031$), KOOS overall ($p=0.039$), Lysholm ($p=0.029$), Tegner ($p=0.047$) and SF-12 physical component summary ($p=0.042$).

Conclusion:
ACLR is successful surgery irrespective of the presence of concomitant injuries. Overall, the clinical outcome of concurrent meniscal repairs is superior to that of meniscectomies and should be performed were feasible.

Submission ID - 4

CLINICAL OUTCOME FOLLOWING PATELLAR STABILISATION SURGERY AND ITS CORRELATION WITH RADIOLOGICAL PARAMETERS

Mustafa Al-Zubaidy[1], Kira Faircloth[2], Oday Al-Dadah[1,2]

[1]Translational and Clinical Research Institute, Faculty of Medical Sciences, Newcastle University, Framlington Place, United Kingdom, NE2 4HH, Newcastle-upon-Tyne, United Kingdom. [2]Department of Trauma and Orthopaedic Surgery, South Tyneside District Hospital, Harton Lane, NE34 0PL, South Shields, United Kingdom

Background:
Patella instability (PI) is a common cause of anterior knee pain and functional impairment, often associated with anatomical abnormalities identified on imaging. While radiological parameters are widely used to guide diagnosis and surgical planning, their relationship to patient symptoms remains unclear. This study aimed to evaluate clinical outcomes following patella stabilisation surgery and investigate the correlation between radiological parameters and patient-reported outcome measures (PROMs).

Methods:
This observational cohort study included patients with recurrent PI undergoing patella stabilisation surgery. Eleven validated radiological parameters, including patellofemoral angles and patella height indices, were measured using X-ray and magnetic resonance imaging (MRI). Eight validated PROMs were collected pre- and post-operatively to assess knee function and quality of life (QoL).

Results:
Fifty-five knees with recurrent PI were included. Significant improvements were observed post-operatively across almost all PROM scores ($p<0.05$). Pre-operatively, two moderate-strength direct correlations were identified between the congruence angle ($r=0.47$, $p=0.009$), lateral patellar shift ($r=0.47$, $p=0.012$), and Knee Injury and Osteoarthritis Outcome Score QoL on MRI. Additionally, eight weak- to moderate-strength direct correlations were observed between Modified Insall-Salvati ratio and various PROMs ($rs=0.38$-0.65, $p<0.05$). Post-operatively, four moderate-strength direct correlations were found between the patellar tilt angle and PROMs ($r=0.45$-0.65, $p<0.05$). Two moderate-strength direct correlations were observed between Insall-Salvati ratio and PROMs ($rs=0.41$, $p<0.05$).

Conclusion:
Patella stabilisation surgery significantly improves clinical outcomes and patient reported symptomatology. However, radiological parameters show only limited correlation with PROMs, indicating that while radiological assessments are important for evaluating anatomical abnormalities, they should be considered independently in PI assessment.

Submission ID - 5

CLINICAL AND FUNCTIONAL OUTCOMES OF SURGICAL APPROACHES FOR DISTAL PERIPROSTHETIC FEMORAL FRACTURES: A SYSTEMATIC REVIEW

Mustafa Al-Zubaidy[1], Imad Madhi[2], Oday Al-Dadah[1,2]

[1]Translational and Clinical Research Institute, Faculty of Medical Sciences, Newcastle University, Framlington Place, United Kingdom, NE2 4HH, Newcastle-upon-Tyne, United Kingdom. [2]Department of Trauma and Orthopaedic Surgery, South Tyneside District Hospital, Harton Lane, NE34 0PL, South Shields, United Kingdom

Background:
Distal periprosthetic femoral fractures (DPFFs) following total knee arthroplasty are increasingly common and challenging due to poor bone quality, complex fracture patterns, and physiological status. Surgical approaches include locking plate fixation (LP), intramedullary nailing (IMN), and distal femoral replacement (DFR). However, comparative clinical and functional outcomes of these techniques remain underexplored. This systematic review aims to evaluate clinical, functional, and complication outcomes associated with each surgical approach for DPFFs.

Methods:
MEDLINE, Embase, PubMed, and Cochrane Library databases were searched to identify eligible studies published between 2013 and 2025 reporting operative management of DPFFs. Primary outcomes included time to union, time to weight-bearing (WB), patient-reported outcome measures (PROMs), and range of motion (ROM). Complication profiles were also assessed.

Results:
Twenty-six studies comprising 807 patients were included. LP and IMN demonstrated comparable union times, with IMN typically facilitating earlier WB. Functional outcomes and ROM were generally satisfactory across interventions, though inconsistently reported. DFR is suitable for complex fractures, offering immediate WB and mechanical stability, but was associated with higher deep infection rates (up to 3.8%) compared to non-union rates with LP (7.0%) and IMN (8.7%). Overall complication rates were similar across interventions from (18–21%).

Conclusion:
LP, IMN, and DFR each provide acceptable functional outcomes with comparable complication rates for DPFFs. IMN supports earlier mobilisation, while DFR offers immediate stability in cases where fixation is not feasible. Surgical approach should be based on fracture complexity, bone quality, and patient factors. Further prospective studies with standardised outcomes and cost-effectiveness data are needed

Submission ID - 6

HIGHER FAILURE TO RETURN TO SPORT RATES AMONGST FEMALE PATIENTS: CLINICAL OUTCOMES FOLLOWING ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION IN YOUNG SKELETALLY IMMATURE PATIENTS AGED 13 YEARS OR LESS.

Conor O'Driscoll, Ryan Roopnarinesingh, Patrick Kiely, Patrick O'Toole

Royal College of Surgeons Ireland, Dublin, Ireland

Introduction
The volume of Anterior Cruciate Ligament (ACL) Reconstruction surgery has increased worldwide, however there remains a paucity of information relating to clinical outcomes in skeletally immature patients aged 13 years or less.

Methods
Twenty-nine patients aged 13 years or less who underwent ACL reconstruction surgery over a 9-year period at our unit with minimum 1 year follow up were contacted. Data recorded included re-rupture, return to sport and functional outcomes in terms of Internal Knee Documentation Committee and Tegner scores. The mean age at time of reconstruction surgery was 12 years and 9 months, with mean follow up 62 months.

Results
Twenty-two (76%) patients returned to sport at the same level or higher, at mean 12.9 months post reconstruction. An analysis of those seven patients (24%) who did not return to sport showed a significant association with female gender, p=0.036. The most common contributory reason cited for failure to return to sport was fear of re-injury which was cited by each patient who did not return. (100%) The mean International Knee Documentation Committee (IKDC) score was 92.1 (69-97) and Tegner index level of activity declined from mean 8.7 to 7.8.

Three patients (10%) experienced an ipsilateral re-rupture post ACL reconstruction. This occurred at mean 56 months (45-63) post reconstruction. One patient (3%) experienced a contralateral ACL rupture.

Conclusion
Significant variation in return to play between genders was exhibited, with a high prevalence of fear of re-injury in those patients who did not return to play.

Submission ID - 7

IMAGE-BASED VS. IMAGE-FREE ROBOTIC KNEE SYSTEMS - A SYSTEMATIC REVIEW AND META-ANALYSIS OF CLINICAL AND RADIOLOGICAL OUTCOMES

Abu Z. Saeed[1], Ahmad Faraz[2], PETER S.E. DAVIES[1], Usman Ahmed[3], Nadim Aslam[3], Amit Meena[4], Darren de SA[5], Shahbaz S. Malik[3,6]

[1]Robert Jones and Agnes Hunt Orthopaedic Hospital, Oswestry, United Kingdom. [2]Betsi Cadwaladr University Health Board, Bangor, United Kingdom. [3]Worcestershire Acute Hospitals NHS Trust, Worcester, United Kingdom. [4]Shalby Multi-Specialty Hospital, Division of Orthopedics, Jaipur, India. [5]McMaster University, Division of Orthopaedic Surgery, Hamilton, Canada. [6]Birmingham Knee School, Birmingham, United Kingdom

Robotic total knee replacement systems can either be image-based(IB) or image-free(IF), and each has a different pre-operative imaging requirement and workflow. The primary aim of this review is to compare the differences in post-operative radiographic alignment and implant position between IB and IF systems. The secondary aim is to compare patient-reported outcome measures(PROMs) and complications between IB and IF systems.

A systematic review and meta-analysis were conducted in accordance with PRISMA guidelines. Studies reporting on implant position, radiological alignment, clinical outcomes or complications between IB and IF robotic knee systems were included.

Five studies fulfilled the inclusion criteria. There was no significant difference in outlier rates between IB and IF systems for femoral coronal alignment 6.8% vs. 2.6% [OR 2.00, (95% CI 0.81 to 4.96)], tibial coronal alignment 3.4% vs. 2.1% [OR 1.49, (95% CI 0.57 to 3.89)], posterior tibial slope 23.5% vs. 4.4% [OR 2.90, (95% CI 0.11 to 73.49)], HKA 4.8% vs. 2.5% [OR 1.38, (95% CI 0.19 to 9.81)] between the two groups. There was no significant difference in complication rate between IB and IF groups, 7.6% vs. 3.0% [OR 2.53, (95% CI 0.86 to 7.42)]. No studies reported improved PROMs between IB and IF robotic TKR systems.

This meta-analysis did not find evidence of any improvement in radiological, clinical or PROMs outcomes in IB systems compared to IF systems. Further randomised controlled trials are required to assess the superiority of either system as the current evidence base is small with heterogenous measurement methodologies.

Submission ID - 9

IMPROVED CLINICAL AND RADIOLOGICAL OUTCOMES WITH DOUBLE LEVEL OSTEOTOMY COMPARED TO ISOLATED HTO FOR SEVERE VARUS DEFORMITY IN A SOUTH-ASIAN COHORT

Debayan Sinharoy

Baksi Orthopedic Trauma and Rehabilitation Centre, Kolkata, India

Introduction
Varus deformity is more prevalent in the South Asian population and contributes to a higher burden of medial compartment knee osteoarthritis. Alignment-correcting osteotomy remains a key joint-preserving strategy. This study evaluates whether single-level medial opening wedge high tibial osteotomy (MOWHTO) provides outcomes comparable to double-level correction combining lateral closing wedge distal femoral osteotomy (LCWDFO) with MOWHTO in severe varus deformity.

Methodology
We analyzed 36 osteotomies in 20 patients with significant varus deformity, defined by at least one of the following: Mikulicz line falling outside the tibial plateau, planned postoperative mMPTA >92°, or required medial opening wedge >12 mm. Eleven patients (7 bilateral; 18 osteotomies) underwent isolated MOWHTO, and nine patients (all bilateral; 18 osteotomies) underwent double-level osteotomy. Radiographic parameters and functional outcomes using the Oxford Knee Score (OKS) were assessed at 3, 6, and 12 months.

Results
All patients achieved the planned correction. Mean postoperative JLO was 3.8° in the MOWHTO group and 1.8° in the double-level group. The mean postoperative mMPTA was 92.3° for MOWHTO and 90.3° for double-level osteotomy. The double-level group demonstrated higher OKS at all follow-up intervals. Seven patients had a Takeuchi type 2 tibial hinge fracture, and one experienced nonunion of a medial femoral hinge fracture.

Conclusion
Double-level osteotomy provided more accurate alignment and superior functional recovery than isolated MOWHTO for severe varus deformity, indicating it may offer a more physiologic and effective correction strategy in South Asian patients.

Submission ID - 10

ARE THERE GENDER DISPARITIES IN RETURN TO SPORT AFTER ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION? A SYSTEMATIC REVIEW AND META-ANALYSIS

Darby Amelia Elliott, Saran Singh Gill, Chinmay Madhukar Gupte

Imperial College London, London, United Kingdom

Background:
Gender disparities in return to sport (RTS) outcomes following anterior cruciate ligament reconstruction (ACLR) remain poorly reported. Female athletes demonstrate significantly higher rates of Anterior Cruciate Ligament injuries compared to males yet exhibit lower Return To Sport (RTS) rates. This systematic review and meta-analysis aimed to comprehensively examine sex-based differences in RTS and re-tear rates following ACLR.

Methods:
A systematic search of PubMed, MEDLINE, Embase, Scopus, and Web of Science was conducted to September 2025, following PRISMA guidelines. Studies directly comparing RTS outcomes between males and females following primary ACLR with A12 months follow-up were included. Data were synthesised using random-effects meta-analysis. Odds ratios (ORs) with 95% confidence intervals (CIs) were calculated for dichotomous outcomes, and mean differences for continuous variables.

Results:
Twenty-five studies including 7,183 athletes (2,892 females, 4,291 males) met inclusion criteria. Female athletes demonstrated significantly lower odds of RTS at 12 months (OR 0.76, 95% CI 0.62–0.92, $p = 0.005$) and up to and including 24 months (OR 0.72, 95% CI 0.61–0.85, $p < 0.001$). No significant sex-based differences were observed for RTS to competition or return to pre-injury levels. Graft re-tear rates also did not differ by sex (OR 0.92, 95% CI 0.64–1.33, $p = 0.671$).

Conclusion:
Female athletes are significantly less likely to return to sport following ACLR during the critical mid-term recovery period. These findings highlight the need for gender-specific rehabilitation and psychological support strategies to optimise RTS outcomes in female athletes.

Submission ID - 11

ROTATIONAL ALIGNMENT OF THE NATIVE KNEE JOINT USING MAGNETIC RESONANCE IMAGING COMPARED TO CURRENT OPTIMAL ANGLES IN TOTAL KNEE REPLACEMENT

Megan Boulton[1], Oday Al-Dadah[2,3]

[1]The Medical School, Newcastle University, Newcastle-upon-Tyne, United Kingdom. [2]Department of Trauma and Orthopaedic Surgery, South Tyneside District Hospital, South Tyneside, United Kingdom. [3]Translational and Clinical Research Institute, Faculty of Medical Sciences, Newcastle University, Newcastle-upon-Tyne, United Kingdom

Introduction
Rotational malalignment is a key contributing factor to poor patient satisfaction following total knee replacement (TKR). Currently accepted target points may not be optimal for all patients. The aim of this study was to assess rotational alignment of native knee joints using magnetic resonance imaging (MRI).

Methods
Radiological cohort study evaluating MRI scans of native knee joints. A total of twelve rotational angle measurements of the distal femur and proximal tibia were analysed and compared with currently accepted values in TKR.

Results
A total of 100 patients were evaluated. The posterior condylar angle (PCA) (mean 2.3º; range -3.1º to 5.8º) was significantly different to the conventional 3º used in TKR ($p<0.001$), and was also significantly different between males (1.2º) and females (3.4º) ($p<0.001$). There were also significant gender differences in the condylar twist angle (CTA) ($p<0.001$) and the angle between Whiteside's line and the posterior condylar femoral line (PCFL) ($p=0.014$). Height was inversely correlated with PCA ($r=-0.46$, $p<0.001$), CTA ($r=-0.37$, $p<0.001$) and the angle between Whiteside's line and PCFL ($r=-0.32$, $p=0.001$). Conversely, height was directly correlated with the angle between the surgical transepicondylar axis (sTEA) and the posterior tibial condylar axis (PTCA) ($r=0.28$, $p=0.005$), and between the anatomical transepicondylar axis (aTEA) and the PTCA ($r=0.23$, $p=0.024$).

Conclusion
There were significant differences between rotational alignment of the native knee joint and the values considered optimal in TKR. Gender differences and significant correlations with anthropometric data highlight the need for a more tailored and individualised approach to rotational alignment in TKR.

Submission ID - 12

DOES HIGH BMI AFFECT ACL STATUS AND FUNCTIONAL OUTCOME? - COMPARATIVE STUDY BETWEEN MOBILE BEARING OUKA VS FIXED BEARING RUKA WITH MID-TERM FOLLOW-UP OF 5-7 YEARS

Aashay Sonkusale[1], Ashok Kumar PS[1], Vijay Bose[1], Pichai Suryanarayan[1], Kalaivanan Kanniyan[1], Shantanu Patil[2]

[1]Asian Orthopaedic Institute, SIMS hospital, Chennai, India. [2]SRM Medical College Hospital & Research Centre, SRM Institute of Science and Technology, Kattankulathur,, Chennai, India

Introduction
The traditional contraindications for Unicompartmental Knee Arthroplasty (UKA) like obesity and ACL deficiency are no longer valid. The aim of this study was to compare the functional outcomes, complication rates in patients between fixed bearing robotic arm-assisted (rFB) and mobile bearing Oxford UKAs (oMB)- applied when patients when grouped according to 1) the BMI and 2) degree of ACL dysfunction.

Methodology
82 oMB and 109 rFB performed from 2015-2024 were identified from our institutional database. The patients were stratified according to BMI (non-obese-<30 and obese >30) and ACL dysfunction (0- Normal, 1- synovial damage, 2- longitudinal splits, 3- friable & fragmented, 4- absent). Oxford Knee Score (OKS) was used for functional assessment.

Results
Almost half the cohort in both groups were obese (45% in MB and 51% in FB). There was no co-relation between BMI and OKS in both the groups. The rFB group had a superior improvement in post-operative OKS ($p<0.001$). 48.7% in oMB and 85.32% in rFB had an ACL dysfunction of grade 1 and above. There was no co-relation between the BMI and grade of ACL dysfunction in both the groups. There were 2 revisions to TKAs in the oMB group. No complications were seen in the rFB group till the last follow-up.

Conclusion
High pre-operative BMI does not co-relate to degree of ACL dysfunction. Obesity is not a contraindication for medial UKA, in appropriately selected patients supplemented by intra-operative assessment of functional stability of the knee. Robotic assistance helps in accurate joint line restoration.

Submission ID - 13

DOES PREOPERATIVE VARUS ALIGNMENT IMPACT FUNCTIONAL OUTCOMES IN ROBOTIC ASSISTED MEDIAL UNICOMPARTMENTAL KNEE ARTHROPLASTY? MID-TERM ANALYSIS

Aashay Sonkusale[1], Ashok Kumar PS[1], Vijay Bose[1], Pichai Suryanarayan[1], Kalaivanan Kanniyan[1], Shantanu Patil[2]

[1]Asian Orthopaedic Institute, SIMS hospital, Chennai, India. [2]SRM Medical College Hospital and Research Centre, SRM Institute of Science and Technology, Kattankulathur, Chennai, India

Introduction
The aims of our study are 1) to evaluate clinical outcomes of robotic-assisted medial unicompartmental knee arthroplasty (UKA) in varying degrees of varus deformities 2) what should be the target for correction of the varus deformities? 3) To validate intraoperative robotic hip-knee-ankle (HKA) axis (dynamic HKA) against HKA obtained from long leg radiographs (LLR) (static HKA).

Methodology
212 fixed-bearing medial UKA performed from 2017 to 2024 with the help of a burr-based robot platform were evaluated with a mean follow-up of 56 months. All the patients were classified on the basis of static HKA and dynamic HKA into three groups of varus deformities: mild (>172°), moderate (168° to 172°), and severe (<168°). The functional outcome was assessed using the Oxford Knee Score (OKS) and the modified Kujala Score (MKS).

Results
85 (40.2%) had a mild, 94 (44.3%) moderate, and 33 (15.5%) had a severe varus preoperatively. All the patients demonstrated a significant increase in OKS, MKS after surgery ($p<0.001$) with no difference between the three groups ($p>0.05$). There was poor correlation between preoperative dynamic HKA and postoperative OKS, MKS ($r=0.06$, $r=0.41$). A good agreement was noted between the static and dynamic HKAs (96.2% preoperatively, 97.7% postoperatively).

Conclusion
Degree of preoperative varus deformity does not negatively impact the functional outcomes to achieve satisfactory functional outcomes. The target postoperative HKA shoulde be 50% of the preoperative deformity. Preoperative LLRs represent static alignment of the limb and can be safely done away with in high volume robotic centres.

Submission ID - 14

IS ONE TECHNOLOGY BETTER THAN THE OTHER IN ACHIEVING CPAK CLASSIFICATION IN TOTAL KNEE ARTHROPLASTY- A COMPARATIVE ANALYSIS OF IMAGED BASED VS IMAGELESS VS NAVIGATION VS AUGMENTED REALITY

Aashay Sonkusale[1], Ashok Kumar PS[1], Vijay Bose[1], Pichai Suryanarayan[1], Kalaivanan Kanniyan[1], Shantanu Patil[2]

[1]Asian Orthopaedic Institute, SIMS hospital, Chennai, India. [2]SRM Medical College Hospital and Research Centre, SRM Institute of Science and Technology, Kattankulathur, Chennai, India

Introduction
The Coronal Plane Alignment of the Knee (CPAK) classification provides a phenotype-based framework to guide alignment strategies for total knee arthroplasty (TKA). Although several technologies—image-based robotics, imageless robotics, computer-assisted navigation (CAS), and augmented reality (AR)—have been developed to enhance precision, comparative evidence on their ability to restore CPAK phenotype and improve functional outcomes remains limited. This study evaluates four different technological platforms in achieving CPAK alignment and postoperative functional improvement after TKA.

Methodology
A retrospective comparative study was performed on 100 primary TKAs (25 per technology: MAKO®, CORI®, OrthoMap®, Pixee®) performed between 2022 and 2023. Radiographic parameters including mechanical HKA, aHKA, JLO, and CPAK phenotype were recorded pre- and postoperatively. CPAK restoration rates for each technology were calculated. Functional outcomes were assessed using Knee Society Score (KSS) and Oxford Knee Score (OKS).

Results
CPAK restoration rates were similar among image-based (24%), imageless (24%), CAS (24%), and AR (28%) platforms, with no significant difference ($p = 0.983$). Functional outcomes improved significantly across the entire cohort: mean KSS increased from 63.8 ± 12.8 to 96.9 ± 15.6 ($p < 0.001$), and OKS improved from 21.27 ± 3.3 to 42.44 ± 4.8 ($p < 0.001$), both reflecting large effect sizes.

Conclusion
Image-based robotics, imageless robotics, CAS, and AR-assisted TKA systems demonstrated equivalent capability in restoring CPAK phenotype and achieving significant early postoperative functional improvement. Clinical and workflow considerations rather than expected radiologic or functional differences may therefore guide technology selection.

Submission ID - 15

OUTCOMES OF DEBRIDEMENT, ANTIBIOTICS, AND IMPLANT RETENTION (DAIR) FOR PROSTHETIC KNEE JOINT INFECTIONS: A CASE SERIES

Gautam Chadalavada, Momin Eltayeb, Tanmay Talavia, Alvin Karunakaran, Randeep Aujla, Amit Bishnoi, Muhammad Korim

Leicester Royal Infirmary, Leicester, United Kingdom

Background
Prosthetic joint infection (PJI) of the knee is a devastating complication, particularly in frail patients. Debridement, Antibiotics, and Implant Retention (DAIR) is a limb-salvaging procedure for well-fixed implants, though success rates vary. We evaluated outcomes and predictors of success for DAIR in knee PJI at our institution.

Methods
We performed a retrospective review of 76 patients undergoing DAIR for suspected or confirmed acute knee PJI between 2018 and 2025. Success was defined as being clinically infection free at follow-up with antibiotics stopped. Failure included 30-day mortality, revision surgery for infection, or chronic suppressive antibiotics. Binary logistic regression identified predictors of outcomes.

Results
The cohort had a mean age of 83 years and BMI of 31.5 kg/m^2, with 83% classified as ASA grade 3 or 4. Treatment success was achieved in 61% at a mean follow-up of 2.7 years. One-year mortality was 12%. Higher ASA classification was a strong predictor of failure (p=0.008, OR=0.073). Conversely, higher initial CRP was associated with slightly increased success (p=0.034, OR=1.006). Microbiological aetiology and time to CRP normalization were not statistically significant predictors.

Conclusion
DAIR achieved a 61% success rate in a frail, high-comorbidity cohort. High ASA grade significantly predicts failure, suggesting host status is a critical determinant of outcomes in acute knee PJI. Higher initial CRP may indicate a more responsive, acute inflammatory presentation that benefits from this treatment.

Submission ID - 16

COMPARISON OF ROBOTIC-ASSISTED VS CONVENTIONAL TOTAL KNEE REPLACEMENT: A SYSTEMATIC REVIEW AND META-ANALYSIS

Abdulazeez Omairi, Oday Al-Dadah, Ryan Kenny

Newcastle University - Faculty of Medical Sciences, Newcastle upon Tyne, United Kingdom

Introduction
Total knee arthroplasty is one of the most common orthopaedic surgical interventions, with robotic-assisted total knee arthroplasty (RTKA) increasingly emerging as an alternative to conventional total knee arthroplasty (CTKA). While RTKA promises improved patient outcomes, its true effectiveness remains uncertain. This systematic and meta-analysis aims to compare and CTKA in different outcomes to evaluate the effect of using robotic assistance.

Methods
A comprehensive search of databases included 52 studies (randomised controlled trials and observational cohorts). Primary outcomes included postoperative alignment (Hip-Knee-Ankle angle, femoral/tibial component angles) and Patient Reported Outcome Measures (PROMs). Secondary outcomes include operative time, LOS (Length of Stay), blood loss, and complications. Data were pooled using random-effects models, with heterogeneity assessed via I^2 statistics using R.

Results
RTKA demonstrated superior accuracy in component alignment, reducing outliers by nearly 50%. Most PROMs showed minimal differences, the only exception being FJS, where RTKA was higher by 10.5 points at short-term. Operative time was longer for RTKA (18 to 28 minutes), but hospital LOS was shorter (16 hours). RTKA had lower blood loss and inflammatory markers but comparable revision rates and inflammatory markers but comparable revision rates.

Conclusion
RTKA improves mechanical alignment precision and reduces outliers, with modest short-term advantages in PROMs and recovery metrics. However, long-term clinical benefits remain inconclusive, necessitating further high-quality studies with standardised outcome measures.

Submission ID - 17

EVALUATION OF THE CARE FOR THE FIRST-TIME LATERAL PATELLAR DISLOCATION AGAINST THE BRITISH ORTHOPEDIC ASSOCIATION STANDARDS FOR TRAUMA [BOAST].

Shady Hermena, Eilidh Walker, Kyla Michie, Andrew Suttie, Stephen Dalgleish

Ninewells Hospital NHS Tayside, Dundee, United Kingdom

Introduction
Lateral patellar dislocation is a common presentation requiring early standardised assessment to stratify risk and guide management. This audit evaluated adherence to the British Orthopaedic Association Standards for Trauma (BOAST) in the management of first-time lateral patellar dislocation.

Methodology
Consecutive patients presented to the Emergency Department with a first-time lateral patellar dislocation between December 2022 and August 2023 were identified. Patients with recurrent dislocations, patellar fractures, or other knee pathology were excluded.

Results
Forty-two patients met the inclusion criteria, comprising 22 females (52.4%) and 20 males (47.6%), with a mean age of 20.6 ± 7.9 years. The right knee was affected in 20 cases (47.6%) and the left in 22 (52.4%). Immediate reduction was achieved in all patients, and haemarthrosis aspiration was avoided. Radiographs were obtained in 40 patients (95.2%), although no initial skyline views were performed. All patients were immobilised in a canvas knee brace. Forty patients (95.2%) were reviewed face-to-face at a mean of 10.94 ± 6.11 days post-injury, and recognised risk factors for recurrent instability were documented in 40 cases (95.2%). Physiotherapy assessment occurred within three weeks for all patients. MRI was performed in 25 patients (59.5%), including all who subsequently underwent surgery. Thirty-seven patients (88.1%) were managed non-operatively, while five (11.9%) underwent surgery, with a mean time to surgery of 22.3 days.

Conclusion
Overall, management demonstrated strong adherence to BOAST standards, with timely review and physiotherapy access. Service improvements include implementing a post-reduction electronic imaging bundle and reserving hinged knee braces for patients with severe instability.

Submission ID - 18

AGE-RELATED DIFFERENCES IN CLINICAL OUTCOMES FOLLOWING MEDIAL PATELLOFEMORAL LIGAMENT (MPFL) RECONSTRUCTION FOR RECURRENT PATELLAR INSTABILITY: A SYSTEMATIC REVIEW OF RANDOMIZED CONTROLLED TRIALS

Shady Hermena[1,2], Ha Phuong Do Le[1], Sarah Henderson[1], Mina Sarkis[2], Rohan Vijayvikram[2], Chris Popoola[2], Stephen Dalgliesh[1]

[1]Ninewells Hospital NHS Tyaside, Dundee, United Kingdom. [2]University of Dundee, Dundee, United Kingdom

Introduction
Medial patellofemoral ligament (MPFL) reconstruction is a well-established treatment for recurrent patella instability. This systematic review evaluates whether age influences clinical, radiographic, and patient-reported outcomes after MPFL reconstruction

Methodology
This systematic review was conducted in line with PRISMA guidelines and registered in PROSPERO. PubMed/MEDLINE, Embase, Web of Science, and the Cochrane Library were searched for relevant randomised controlled trials (RCTs). Risk of bias was assessed using RoB 2. Random-effects meta-analyses pooled pre-post change scores, heterogeneity was assessed using I^2, and random-effects meta-regression (Knapp-Hartung) evaluated mean age as a continuous moderator. Sensitivity analyses tested alternative pre-post correlations ($r = 0.0, 0.5, 0.8$).

Results
Eleven RCTs (629 patients; mean age 25.0 years; 60.4% female; mean follow-up 36.6 months) were included. Functional outcomes improved for Kujala (mean change 33.02; 95% CI 27.03-39.00) and Lysholm scores (20.46; 95% CI 2.68-38.24), with no association between age and functional improvement. Radiographic alignment improved for patellar tilt (-9.32°; 95% CI -13.33 to -5.32) and congruence angle (-15.36°; 95% CI -28.48 to -2.24), without age-related effects. Lateral patellar shift improved overall, with greater correction observed in younger patients (3.16 mm per year; 95% CI 0.83-5.49; $p = 0.02$).

Conclusion
MPFL reconstruction produces meaningful functional and radiographic improvement across age groups. Age was not associated with changes in functional scores, patellar tilt, or congruence angle; however, younger age was associated with greater correction in lateral patellar shift. These findings support the use of MPFL reconstruction across a broad age range.

Submission ID - 19

TOTAL KNEE ARTHROPLASTY REVERSES FRAILTY: A SYSTEMATIC REVIEW

Slade Badenhorst, Yeon Joo Lee, Vipin Asopa, David Sochart

South West London Elective Orthopaedic Centre, Epsom, United Kingdom

Introduction

Frailty reduces quality of life, increasing the risks of surgical complications, re-admission and death, causing a significant healthcare burden. Total knee arthroplasty volume is increasing in an aging population in whom there is a high prevalence of frailty, but there is limited understanding of how arthroplasty impacts frailty trajectories post-operatively.

Methodology

A systematic review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. PubMed, Embase, Cochrane Library, and ClinicalTrials.gov were searched for studies assessing changes in frailty following primary hip or knee arthroplasty. Eligible studies included adults undergoing elective arthroplasty with longitudinal assessment using validated frailty measures.

Results

Six cohort studies published between 2022 and 2024 met the inclusion criteria, with a total of 6,184 patients. Five validated frailty assessment tools were used, with follow-up periods ranging from 3 months to 2 years. All studies reported significant post-operative improvement in frailty. Reduction in the number of patients classified as pre-frail or frail pre-operatively ranged from 10.3% to 56.6%. From the studies that stated total numbers of patients pre- and post-operatively (2447 patients) there was a pooled reduction of 12.9%. Frailty improvement was predominantly driven by improvements in mobility and activities of daily living rather than changes in comorbidity burden or social domains.

Conclusion

Primary knee arthroplasty was consistently associated with post-operative improvements in frailty status, despite heterogeneity in the assessment tools. These findings confirm broader benefits of arthroplasty beyond simply joint function and may support more holistic shared decision-making.

Submission ID - 20

DEFINING THE OPTIMUM SAFE INTERVAL: CONSULTANT OPINIONS ON THE TIMING OF TOTAL KNEE ARTHROPLASTY AFTER SOFT TISSUE INFECTION OR ULCERATION

Slade Badenhorst, Sarkhell Radha, David Sochart

South West London Elective Orthopaedic Centre, Epsom, United Kingdom

Introduction

Active soft tissue infection or ulceration are recognised contraindications to elective knee arthroplasty, but there are no guidelines defining the safe interval between resolution and surgery. This creates uncertainty regarding optimum timing and perioperative risk. This study describes current practice regarding timing and perioperative decision-making for patients with a history of skin or soft tissue infection (SSTI).

Methodology

An anonymous online questionnaire was distributed to consultant arthroplasty surgeons, which explored current thresholds, and perioperative considerations when planning elective total knee arthroplasty (TKA) after SSTI.

Results

Forty responses were received. Most respondents frequently or occasionally encountered patients with cellulitis (64%) or ulcers (55%). The majority (76%) reported having no minimum interval between resolution of SSTI and proceeding with TKA. Among those who did, six weeks was the most common threshold. No respondents cited existing guidelines to aid decision-making. Over half requested additional assessment, most commonly specialty review (52.5%) or blood tests (50%), while only 25% undertook no further investigations. Recurrent SSTI frequently disrupted surgical scheduling (80%), and 59% of respondents would not proceed with primary TKA between infective episodes. Factors of greatest concern included recurrent infection, diabetes, peripheral vascular disease, oedema, venous insufficiency, and prior hospitalisation for SSTI. 55% reported modifying their antibiotic prophylaxis regimen due to recent SSTI.

Conclusion

This survey highlights significant heterogeneity in UK practice and a lack of consensus or evidence-based guidance regarding timing of TKA following SSTI. The absence of clear recommendations underscores the need for prospective research to define a safe and standardised interval.

Submission ID - 21

COMPARING OUTCOMES IN SEXUAL FUNCTION AFTER TOTAL HIP AND KNEE ARTHROPLASTY: A SYSTEMATIC REVIEW

Slade Badenhorst, Sai Pendyala, Nimra Akram, Vipin Asopa, David Sochart

South West London Elective Orthopaedic Centre, Epsom, United Kingdom

Introduction
Sexual function is an important contributor to quality of life for those undergoing lower limb arthroplasty, yet it is rarely discussed in clinics and inconsistently measured in research. Evidence suggests there is improvement after surgery, but findings differ between hips and knees, rating instruments vary, and a direct joint-wise comparison is lacking. This review compares sexual outcomes following total hip and total knee arthroplasty across three prespecified domains: return to sexual activity, frequency of sexual activity, and sexual satisfaction or fulfilment of preoperative expectations.

Methodology
A systematic search of Pubmed, EMBASE, Cochrane CENTRAL, Scopus and Google Scholar was conducted per the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines. Eligible studies reported on sexual function after primary hip or knee arthroplasty. Twenty-seven studies, comprising 9,267 patients (5,350 THA, 3,917 TKA) met the inclusion criteria.

Results
Patients returned to sexual activity earlier following TKA, but a greater proportion of THA patients achieved higher sexual satisfaction (75.4%, 703 of 932) than TKA patients (69.3%, 843 of 1,216; P-value = 0.0013) and reported greater increases in frequency of sexual activity (P-value < 0.001). Study quality was variable, with marked heterogeneity in methodology and outcome measures.

Conclusion
Arthroplasty improves sexual function, but recovery patterns differ: TKA patients return earlier, while THA patients achieve greater gains in frequency and satisfaction. These differences have important implications for counselling and expectation setting. Progress in this field requires standardised, validated instruments and high-quality prospective studies.

Submission ID - 22

FIXED-BEARING UNICOMPARTMENTAL KNEE ARTHROPLASTY IN MORBIDLY OBESE PATIENTS: SURVIVORSHIP AND POSTOPERATIVE COMPLICATIONS AT MID- TO LONG-TERM FOLLOW-UP

Jason Ong, Francisco Barbosa, Navjot Bhangoo, Robert Straw, Guido Geutjens

University Hospital of Derby and Burton NHS Foundation Trust, Derby, United Kingdom

Morbid obesity(body mass index [BMI]≥40kg/m^2) is increasingly prevalent among patients undergoing knee arthroplasty. Although unicompartmental knee arthroplasty(UKA) offers functional advantages and outcomes comparable to those in non-obese and Class I obese patients, its use in Class III morbidly obese individuals remains controversial. There is limited data evaluating implant survivorship, early revision, and postoperative complications in this population, particularly with fixed-bearing designs. This study aimed to assess these outcomes.

A single-centre, multi-surgeon retrospective review was conducted of 135 consecutive primary UKA procedures in patients with BMI≥40 kg/m^2, between January 2015 and October 2025. Mobile-bearing, lateral compartment, and patellofemoral UKA were excluded. The final cohort comprised 114 fixed-bearing medial compartment UKA. The primary outcome was implant survivorship using revision for any reason as the endpoint. Secondary outcomes included 90-day and cumulative complications, reoperations, and range of motion.

The mean age was 59.8±9.0 years and mean BMI was 43.5±4.6kg/m^2. 95 procedures were performed by consultant surgeons and 19 by surgeons in-training. 21 patients underwent bilateral UKA, including 14 same-sitting procedures. At mean follow-up of 10.5 years(95% CI 10.1–10.8), cumulative implant survivorship was 96.7%. One patient underwent conversion arthroplasty for progressive arthritis, and two revisions were performed for infection. Three patients developed tibial aseptic loosening and four developed postoperative complications. Four unrelated deaths occurred.

This study demonstrated excellent mid- to long-term survivorship with low revision and complication rates. Morbid obesity alone should not be considered an absolute contraindication to fixed-bearing UKA in appropriately selected patients.

Submission ID - 23

OBJECTIVELY MEASURED PHYSICAL ACTIVITY: AN IMPORTANT FUNCTIONAL OUTCOME FOLLOWING KNEE ARTHROPLASTY

Sree Kanakala[1], Milos Brkljac[1], Matthew Banger[1], James Doonan[2], Mark Blyth[2], Philip Rowe[3], Bryn Jones[2], Angus MacLean[2], Tim Lindsay[1]

[1]Imperial College London, London, United Kingdom. [2]University of Glasgow, Glasgow, United Kingdom. [3]University of Strathclyde, Strathclyde, United Kingdom

Introduction

Knee arthroplasty is increasingly performed in younger, more active patients with high functional expectations. Patient-reported outcome measures (PROMs) remain the cornerstone of functional assessment in knee arthroplasty. PROMs may be limited by ceiling effects that obscure meaningful differences in activity once high scores are reached. Objective physical activity (OPA) monitoring may address these limitations; however, it remains unclear whether OPA discriminates high-functioning individuals more effectively than PROMs.

Methodology

Data were analysed from a randomised controlled trial comparing total and bi-unicompartmental knee arthroplasty. OPA outcomes included physical activity energy expenditure (PAEE), sedentary time (ST), light (LPA) and moderate-to-vigorous activity (MVPA), and proportional intensity contributions to PAEE. PROMs included the Oxford Knee Score (OKS) and New Knee Society Function score (NKSS Function). Pre- and postoperative distributions of OPA and PROMs were compared, including in high-functioning patients (OKS ≥44), to assess floor and ceiling effects.

Results

Fifty preoperative and sixty postoperative participants were included. Preoperatively, both OPA and PROMs approximated normality, with no floor or ceiling effects, except for MVPA. Postoperatively, all OPA distributions, bar MVPA, approximated normality, including in high-functioning patients (OKS ≥44). In contrast, postoperative PROMs were non-normal and showed ceiling compression, with the OKS showing greater skew than the NKSS Function.

Conclusion

OPA was sensitive to differences in function following knee arthroplasty that PROMs compressed, particularly at higher activity levels. OPA is therefore a valuable outcome measure in knee arthroplasty, especially for patients with high functional expectations.

Submission ID - 26

UNPLANNED MENISCAL RE-INTERVENTION AFTER SINGLE-STAGE VERSUS TWO-STAGE SURGERY IN LOCKED KNEES WITH ACL RUPTURE AND BUCKET-HANDLE MENISCAL TEARS

Jason Jia Shyan Ong[1], Omar Javed[1], Sabri Bleibleh[1], Hammad Sadique[1], Francisco Barbosa[1], Ross Sian[1], Thomas Kurien[2,1], Jimmy Ng[1]

[1]Nottingham University Hospitals NHS Trusts, Nottingham, United Kingdom. [2]Academic Orthopaedics, Trauma & Sports Medicine, University of Nottingham, Nottingham, United Kingdom

Locked knee secondary to bucket-handle meniscal tear (BHMT) with concomitant anterior cruciate ligament (ACL) rupture remains a surgical challenge.

Early single-stage surgery may lead to stiffness, but a staged approach may not be beneficial for meniscal healing along with prolonged rehabilitation. This study compares clinical and functional outcomes following single-stage versus two-stage surgical management.

This single-centre, multi-surgeon observational cohort study included patients with displaced BHMT and ACL injury who underwent either single-stage (concomitant BHMT surgery and ACL reconstruction) or two-stage (BHMT surgery followed by delayed ACL reconstruction) surgery between March 2022 and October 2025. The primary outcome was unplanned meniscal re-intervention, due to repair failure or re-tear. Secondary outcomes included International Knee Documentation Committee (IKDC) score, range of motion (ROM), limb symmetry index (LSI) for hamstring and quadriceps strength, and details on return to sport and/or work.

61 patients were included, 65% sustaining sporting injuries; 48 (78.7%) underwent single-stage surgery. Mean age was 27.4 years in the single-stage group and 30 years in the two-stage group. Unplanned meniscal re-intervention was statistically significant (p=0.006), occurring in 1/48 (2.1%) in single-stage group and 4/13 (30.8%) in two-stage group. At 6-months, there were no statistically significant differences between ROM deficit (p=1.0) or LSI for hamstring and quads strength (p=0.327) between both groups. IKDC was available for a subset of patients across follow up, with no clear difference between groups.

Single-stage surgery was associated with fewer unplanned meniscal re-interventions than two-stage surgery with no increase in stiffness, comparable strength, and comparable functional outcomes.

Submission ID - 28

CONDYLAR-CONSTRAINED PROSTHESES ARE ASSOCIATED WITH OPTIMAL LONG-TERM IMPLANT SURVIVAL FOLLOWING FIRST-TIME ELECTIVE ASEPTIC REVISION KNEE ARTHROPLASTY: AN ANALYSIS OF DATA FROM THE NATIONAL JOINT REGISTRY FOR ENGLAND, WALES, NORTHERN IRELAND AND THE ISLE OF MAN

Ben Tyas[1,2], Catherine Hewitt[1], David Deehan[3,4], Paul Baker[2,1]

[1]University of York, York, United Kingdom. [2]University Hospitals Tees, Middlesbrough, United Kingdom. [3]Newcastle Hospitals NHS Foundation Trust, Newcastle Upon Tyne, United Kingdom. [4]Newcastle University, Newcastle Upon Tyne, United Kingdom

Introduction
This study aimed to compare long-term implant survivorship and patient-relevant outcomes associated with the level of constraint used at first-time elective aseptic revision knee arthroplasty (rTKA).

Methodology
Data from the National Joint Registry for England, Wales, Northern Ireland and the Isle of Man were linked to Hospital Episode Statistics and national PROMs datasets. Patients undergoing first-time elective aseptic rTKA between 2009-2023 were included. Implant constraint was categorised as unconstrained, posterior-stabilised, condylar-constrained (CCK), or hinge. The primary outcome was all-cause re-revision rate at 10-years. Pre-specified sub-groups analysed included patients at high risk of re-revision and those revised for aseptic loosening or instability. Secondary outcomes included PROMs at six months; 90-day mortality and complications; and length of stay. Re-revision risk was estimated using competing risk models, with death as a competing event.

Results
12,950 cases were analysed, with a mean follow-up of 7.7 years. Unadjusted analyses demonstrated CCK prostheses had the lowest cumulative incidence of re-revision at 10 years overall (9.2% (8.4, 10.1)) and across all sub-group analyses. After adjusting for covariates, CCK implants continued to be associated with the lowest risk of re-revision, whilst hinged prostheses were associated with the highest (sHR=1.664, p<0.001). Condylar-constrained implants were associated with the highest proportion of patients achieving a minimum clinically important change in Oxford Knee Score.

Conclusion
Condylar-constrained prostheses were consistently associated with the lowest re-revision rates across a range of clinical scenarios. These data support that surgeons can appropriately escalate to CCK implants without concern for compromised long-term implant survival.

Submission ID - 30

EARLY OUTCOMES AND REHABILITATION BURDEN FOLLOWING QUADRICEPS TENDON AUTOGRAFT ACL RECONSTRUCTION

Omar Javed[1], Sabri Bleibleh[1], Hammad Sadique[1], Francisco Barbosa[1], Tom Kurien[1,2], Jimmy Ng[1]

[1]Trauma & Orthopaedics Department, Nottingham University Hospitals NHS Trust, Nottingham, United Kingdom. [2]Academic Orthopaedics, Trauma and Sports Medicine, University of Nottingham, Nottingham, United Kingdom

Introduction
Quadriceps tendon autograft is an effective option in anterior cruciate ligament (ACL) reconstruction surgery, though there is growing recognition of a rehabilitation burden relating to extensor mechanism recovery. This study assessed complications and early functional outcomes following surgery.

Methodology
This was a single-centre observational cohort study of patients undergoing ACL reconstruction using quadriceps tendon autograft. The primary outcome was further surgery related to the index procedure. Secondary outcomes included International Knee Documentation Committee (IKDC) score, minor complications, range of motion (ROM) deficit and limb symmetry index (LSI).

Results
Forty-five patients were included between 2023 and 2025 (25 male, 20 female; median age 22 years). Primary outcome data were available for all patients. Two patients (2/45) required further surgery (arthroscopy, debridement and notchplasty) for stiffness due to extension deficit. Two patients experienced superficial wound issues, and one patient had ongoing anterior knee pain with quadriceps tendinosis seen at one year post-operatively. Secondary outcomes demonstrated heterogeneous recovery at follow-up (median 9 months, range 4-18). Post-operative IKDC scores (n=14) had a median of 56 (range 35-78). Objective quadriceps weakness was common, with 45% demonstrating a limb symmetry index <60%, and deficits persisting beyond 12 months in some patients. There were no graft re-ruptures.

Conclusion
Quadriceps tendon autograft demonstrated a low rate of major complications or further surgery. However, a clinically relevant rehabilitation burden was seen in a subset of patients, showing delayed quadriceps strength recovery and extension deficit. This should be considered during graft selection and patient counselling.

Submission ID - 31

SINGLE-STAGE MINCED CARTILAGE PROCEDURES IN THE KNEE SHOW GOOD EARLY TO MID-TERM CLINICAL AND RADIOLOGICAL OUTCOMES: A SYSTEMATIC REVIEW AND META-ANALYSIS

Rohan Prakash[1], Mohammed Choudri[1], Manpreet Sidhu[1], Tanweer Ashraf[1], Faisal Hussain[1], Omer Alanie[1], Shahbaz Malik[2]

[1]Royal Orthopaedic Hospital, Birmingham, United Kingdom. [2]Worcestershire Acute Hospitals NHS Trust, Worcester, United Kingdom

Introduction
Autologous chondrocyte implantation remains the gold standard for chondral knee defects, however single-stage techniques are increasingly popular as they avoid ex-vivo cell expansion and a second procedure. This systematic review evaluates autologous minced cartilage procedures (MCI) in the knee, illustrating early and mid-term clinical and radiological outcomes.

Methodology
Registered with Prospero, a systematic review was performed using PubMed, Cochrane Library, and Google Scholar according to PRISMA guidelines. Eligible studies investigated mechanically-processed autologous cartilage applied in a single-stage procedure for knee chondral lesions. Critical appraisal of studies was conducted using the Methodological Index for Non-Randomised Studies (MINORS) and Cochrane Risk of Bias tools.

Results
Eleven studies met inclusion, including one randomised trial, two prospective, and eight retrospective studies, with four comparative studies. 382 patients (64% male) were included, with mean follow-up of 26 months (13.7–65). Lesion sizes ranged from 0.24 to >6 cm^2. Three studies reported superior KOOS and IKDC scores in MCI compared with MACI, AMIC, and microfracture, though one study favoured AMIC. Six studies reported KOOS subscores, with greatest mean improvement in sports and recreation (41.9). The mean improvement in IKDC scores was 41.1, whilst mean VAS improvement was 4. Seven studies reported radiological outcomes, with MOCART scores ranging from 40.6 – 76 and one study showing improved scores with MCI compared to MACI.

Conclusion
MCI yields promising clinical and radiological outcomes up to 5 years, with results often favourable to AMIC, MACI, and microfracture. Heterogeneity in technique and patient selection underscores the need for standardized, prospective trials.

Submission ID - 33

FUNCTIONAL OUTCOMES OF PAEDIATRIC SINGLE-LEVEL SUPRA-MALLEOLAR TIBIAL OSTEOTOMY WITH OR WITHOUT MPFL RECONSTRUCTION FOR RECURRENT PATELLAR DISLOCATION / ANTERIOR KNEE PAIN WITH FEMORAL AND TIBIAL TORSIONAL ABNORMALITIES.

Neel Dalal[1], Paul Stanier[2], Nicolas Nicolaou[2]

[1]University hospital North Midlands, Stoke-on-Trent, United Kingdom. [2]Sheffield children's hospital, sheffield, United Kingdom

Background
Transverse plane deformities such as increased femoral intorsion (IFT) and external tibial torsion (ETT) increase the risk of recurrent patellar instability (PFI).

Methods
A retrospective observational study was conducted using prospectively collected data from a tertiary paediatric centre (January 2015–January 2025). Inclusion criteria were PFI , retro-patellar pain, femoral and tibial torsional abnormalities, and hip external rotation >15°. Clinical assessment included pre- and postoperative KOOS and IKDC scores. Radiographic evaluation included Caton–Deschamps ratio, CT- rotational profiles, and trochlear dysplasia (OBC), tibiofemoral rotation and TG–TT distance.

Results
Thirty knees in 22 patients were included, with a mean follow-up of 4.12 years and a mean surgical age of 13.9-years. Mean femoral intorsion was 25.56° ± 10.5, and mean tibial extorsion was 49.1° ± 5.24. On MRI, 6 knees showed convex and 4 flat trochlea morphology. PFI occurred in 22 knees, with 20 requiring combined/staged MPFLR. Modified Grammont/Fulkerson osteotomy were performed in cases with elevated CD ratio. Two patients with fixed bilateral dislocations had quadricepsplasty and MPTL reconstruction.

KOOS scores improved 38.1 ± 14.7 to 78.7 ± 42.6 ($P < 0.005$), with the greatest gains in activities of daily living. IKDC scores improved from 35.74 to 73.73.Complications included metalwork prominence (46%), one case of CRPS, and one transient saphenous nerve injury with mo postoperative dislocations . One patient with severe trochlear dysplasia required trochleoplasty.

Conclusion
Supramalleolar tibial derotational osteotomy, with or without MPFLR, is effective for paediatric patients with significant femoral (>25°) and tibial (>45°) torsional deformities. Severe trochlear dysplasia may require later trochleoplasty.

Submission ID 35

IS THERE A ROLE FOR AUTOLOGOUS CONDITIONED SERUM INJECTIONS IN OSTEOARTHRITIS? A SYSTEMATIC REVIEW AND META-ANALYSIS OF RANDOMISED CONTROLLED TRIALS

Alexander Curtis[1], Andrew Beswick[2], Lydia Jenkins[2], Michael Whitehouse[2]

[1]Cheltenham General Hospital, Cheltenham, United Kingdom. [2]University of Bristol, Bristol, United Kingdom

Introduction
Autologous Conditioned Serum (ACS) injections may improve PROMs for patients with osteoarthritis but no high-quality systematic review has considered this.

Methodology
Databases and clinical trial registers were searched to March 2024 for RCTs comparing ACS vs comparators/controls. Primary outcomes were pain, function and stiffness measured with WOMAC and VAS. Secondary outcome was complications. Risk of bias and certainty of evidence were assessed using RoB2 and GRADE respectively. Meta-analysis was undertaken using RevManv5.4. Results are presented as standardised mean differences (SMD) or mean differences (MD) with 95% confidence intervals. Sensitivity analysis compared all comparators and saline control.

Results
Five RCTs were identified (n=741 participants); two (n=529 participants) compared ACS against saline (placebo). Three studies were 'some concern' and two studies 'high risk' for bias. Analysis comparing ACS with all comparators significantly favoured ACS at six months for WOMAC: SMD -0.61 (95% CI -1.01 to -0.21; p=0.003) ; and VAS: SMD -1.24 (95% CI -2.11 to -0.38; p=0.005); with high heterogeneity. Comparing ACS with saline, there was no significant difference in WOMAC or VAS at six months: SMD -0.40 (95% CI -0.93 to 0.12; p=0.13) and MD -9.87 (95% CI -27.73 to 7.98, p=0.28). Complications were similar: ACS (24.8%) vs saline (24.4%), with serious complications rare.

Conclusion
There is currently insufficient data to support the use of ACS in OA with conflicting results when compared to alternative therapies and saline control, with high heterogeneity. Before consideration as a potential treatment, a high-quality multi-centre RCT is required to assess efficacy of ACS.

Submission ID 37

OBJECTIVELY MEASURED PHYSICAL ACTIVITY FOLLOWING KNEE ARTHROPLASTY: SYSTEMATIC REVIEW & META ANALYSIS

Sree Kanakala[1], Riese Patel[2], Temour Abid[2], Sourab Surana[2], Saran Gill[1], Milos Brkljac[1], Tim Lindsay[1]

[1]Imperial College London, London, United Kingdom. [2]University of Birmingham, Birmingham, United Kingdom

Introduction
Knee arthroplasty (KA) reliably improves pain and disability in patients with osteoarthritis. However, the trajectory of free-living physical activity (PA), a determinant of all-cause mortality, following KA, remains unclear.

Methodology
PubMed, MEDLINE, EMBASE, and Scopus databases were searched to July 2025. Eligible studies measured objective PA in adults undergoing primary, unilateral knee arthroplasty. Random-effects models were used to calculate standardised mean change (SMC) between pre- and postoperative timepoints (3, 6, 12 months). PA volume outcomes were pooled, and separate meta-analysis was performed for moderate-to-vigorous intensity physical activity (MVPA).

Results
33 studies (n = 5,736) were included in meta-analysis. PA volume improved with a SMC of 0.28 (95% CI: 0.12, 0.43) at 3 months, 0.45 (95% CI: 0.27, 0.63) at 6 months, and 0.79 (95% CI: 0.33, 1.24) at 12 months post-op. MVPA did not change at 3 months (SMC: 0.33, 95% CI: -5.08, 5.74) or 6 months (SMC: 0.50, 95% CI: -0.12, 1.12), but improved at 12 months (SMC: 0.79, 95% CI: 0.29, 1.29). Heterogeneity was high (I2 > 75%) across all analyses.

Conclusion
KA was associated with increases in PA volume at 3, 6 and 12 months postoperatively. MVPA increased at 12 months, but not earlier. Our results suggest that recovery of PA intensity may lag behind gains in PA volume. Targeted behavioural strategies may be required to help patients carry out high intensity activity, and fully realise the functional capacity gained through knee arthroplasty.

Submission ID 38

OUTCOMES AND FAILURE RATE FOLLOWING MENISCAL REPAIR: A RETROSPECTIVE STUDY WITH MINIMUM FIVE-YEAR FOLLOW-UP

Mamdouh Elbannan[1], Ahmed Gad[2], Andrew Davies[3]

[1]Wales Deanery, ST 5 at Cardiff & Vale University Health Board, Cardiff, United Kingdom.
[2]Wales Deanery, ST 4, Swansea Bay University Health Board, Swansea, United Kingdom.
[3]Swansea Bay University Health Board, Swansea, United Kingdom

Background
Meniscal repair is increasingly favoured to preserve knee biomechanics and reduce the risk of osteoarthritis, yet reported failure rates remain high and predictors of failure are unclear.

Purpose
To evaluate factors associated with failure following meniscal repair at a minimum five-year follow-up.

Methods
A retrospective cohort study was performed of patients undergoing meniscal repair between January 2018 and December 2020, allowing a minimum postoperative follow-up of five years. Ninety-four knees were initially identified. After excluding root tears, discoid menisci, anterior horn tears, allograft procedures, revision repairs, and cases with concomitant cartilage restoration, 79 knees were included in the primary analysis. Failure was defined as clinical re-presentation with persistent or recurrent knee symptoms. Univariable analyses were performed using appropriate non-parametric and categorical tests. Variables demonstrating clinical relevance or univariable trends were entered into a multivariable logistic regression model. A secondary exploratory analysis compared failure rates between root and body meniscal repairs.

Results
The median age was 34.5 years (IQR 28–40), and 77.2% of patients were male. Failure occurred in 42 of 79 knees (53.2%). No variables were significantly associated with failure on univariable analysis. On multivariable analysis, neither meniscus side (OR 2.02, 95% CI 0.77–5.30, p = 0.152) nor number of sutures (OR 1.25, 95% CI 0.78–2.02, p = 0.352) independently predicted failure. Failure rates did not differ between root and body repairs (p = 0.475).

Conclusion
No independent predictors of meniscal repair failure were identified at five-year follow-up. Failure appears multifactorial.

Submission ID 39

VERTICAL PATELLAR HEIGHT INDEX (VPHI): A SIMPLE SAGITTAL MRI-BASED TOOL FOR ASSESSING PATELLAR LATERALISATION

Ahmed Gad[1], Mansoor Thekkinithethil[2], Mamdouh Elbannan[3], Morgan Bayley[2]

[1]Wales Deanery ST4, Swansea Bay University Health Board, Swansea, United Kingdom. [2]Swansea Bay University Health Board, Swansea, United Kingdom. [3]Wales Deanery ST5, Swansea Bay University Health Board, Cardiff, United Kingdom

Introduction
Patellar lateralisation is a key factor in patellofemoral instability. The tibial tubercle–trochlear groove (TT–TG) distance is commonly used to assess lateralisation but may be unreliable in the presence of trochlear dysplasia or poor axial MRI quality. We developed the Vertical Patellar Height Index (VPHI), a simple sagittal MRI measurement to assess patellar lateralisation.

Methods
We retrospectively reviewed knee MRIs from 44 patients: 23 with patellar mal-tracking and 21 controls. VPHI was calculated as the ratio between the vertical patellar height measured on the sagittal slice at the level of the anterior cruciate ligament and the maximum vertical patellar height observed on any sagittal slice. Lower values indicate greater lateralisation. TT–TG distances were measured on axial images using standard techniques. Both measurements were analysed as continuous variables and categorised into clinical grades. Groups were matched for age, sex, and side.

Results
Median VPHI was significantly lower in the mal-tracking group compared with controls (0.69 vs 0.90, $p = 0.006$). Median TT–TG distance was significantly greater in mal-tracking patients (17 mm vs 10 mm, $p < 0.001$). Severe VPHI lateralisation was more frequent in mal-tracking cases (30.4% vs 4.8%). VPHI grades showed a moderate correlation with TT–TG grades ($A= 0.425$, $p = 0.004$).

Conclusion
VPHI is a simple sagittal MRI index that distinguishes patellar lateralisation and may complement or substitute TT–TG when axial imaging is limited.

Submission ID 40

PSYCHOLOGICAL READINESS AFTER REVISION ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION: A SYSTEMATIC REVIEW AND META-ANALYSIS OF ACL-RSI OUTCOME

Islam A. Sherif[1], Maddison Wordon[2], Dina Atra[2], Amit Meena[3], Darren De Sa[4,5], Peter D'Alessandro[6,7], Shahbaz S Malik[8,9]

[1]Warwickshire Orthopaedic Surgical Training Programme, Health Education England, Coventry, United Kingdom. [2]Warwick Medical School, University of Warwick, Coventry, United Kingdom. [3]Division of Orthopaedics, Shalby Multi-Specialty Hospital, Jaipur, India. [4]Division of Orthopaedic Surgery, McMaster University, Hamilton, Canada. [5]Department of Paediatric Orthopaedic Surgery, McMaster University, Hamilton, Canada. [6]Orthopaedic Research Foundation of Western Australia, Perth, Australia. [7]Medical School, Discipline of Surgery, University of Western Australia, Perth, Australia. [8]Department of Orthopaedic Surgery, Worcestershire Acute Hospitals NHS Trust, Worcester, United Kingdom. [9]Birmingham Knee School, Birmingham, United Kingdom

Introduction and purpose

To evaluate psychological readiness after revision anterior cruciate ligament reconstruction (R-ACLR) using the ACL-Return to Sport after Injury (ACL-RSI) scale and to compare readiness between revision and primary ACL reconstruction (ACLR).

Methods

A PRISMA-guided systematic review and meta-analysis searched MEDLINE, Embase, Scopus, Web of Science, and the Cochrane Library from inception to October 2025. Studies reporting ACL-RSI outcomes after R-ACLR were included. Random-effects meta-analysis using restricted maximum likelihood estimated pooled outcomes and 95% prediction intervals. Methodological quality was assessed with the Newcastle-Ottawa Scale.

Results

Eight studies (873 revision ACLR patients) were included (mean age 27.3 years; mean follow-up 16.5 months). Mean postoperative ACL-RSI scores ranged from 43.4 to 77.4, with a pooled score of 59.5 (95% CI 51.7-67.3; I^2 = 95.6%). Earlier follow-up (< 6 months) was associated with lower scores, while 12-24-month follow-up showed higher readiness. Four comparative studies (947 primary, 199 revision ACLR) demonstrated higher readiness after primary ACLR (mean difference +9.3 points, 95% CI 3.2–15.4; I^2 = 62%). Return-to-sport rates after R-ACLR ranged from 62% to 87%, and return to pre-injury level from 12% to 57%.

Conclusion

Psychological readiness after revision ACLR is generally low and inferior to primary ACLR. These findings support routine psychological assessment and targeted psychological rehabilitation for patients undergoing revision ACLR.

Submission ID 41

AN APEX PROXIMAL SHIFT IN JOINT LINE OBLIQUITY IS ASSOCIATED WITH IMPROVED EARLY OXFORD KNEE SCORES IN VALGUS CPAK PHENOTYPES AFTER TOTAL KNEE ARTHROPLASTY

John M. Bayram[1,2,3], Ghaith Al-Abbasi[1], Swati Chopra[1], David Wallace[1], Fahd F. Mahmood[1], Nicholas J. Holloway[1], Nicholas E. Ohly[1], Jon V. Clarke[1]

[1]Department of Orthopaedics, Golden Jubilee University National Hospital, Glasgow, United Kingdom. [2]School of Medicine, University of St Andrews, St Andrews, United Kingdom. [3]Edinburgh Orthopaedics, Edinburgh, United Kingdom

Introduction
The debate between kinematic and mechanical alignment (MA) in total knee arthroplasty (TKA) focuses on whether to preserve or 'correct' coronal plane alignment. Using the changes in Coronal Plane Alignment of the Knee (CPAK) inherent to manual TKA, this study examined whether CPAK changes influenced patient-reported outcomes in different CPAK phenotypes.

Methodology
A retrospective cohort of 1000 manual MA TKAs was screened, with 621 knees included. Knees were grouped by CPAK phenotype. Multivariable regression assessed associations between postoperative changes in CPAK, arithmetic hip-knee-ankle angle (aHKA), and joint line obliquity (JLO) categories, and their deltas (Δ), with Oxford Knee Scores (OKS) and satisfaction at 6-weeks and 1-year.

Results
Overall, changing CPAK phenotype was associated with higher 6-week OKS (β 1.97, 95%CI 0.24-3.71, p=0.026) and increased odds of 1-year satisfaction (OR 2.84, 95%CI 1.10-6.80, p=0.023). In CPAK III knees, changing JLO category (β 4.19, 95%CI 0.02-8.36, p=0.049) and increasing ΔJLO (β 0.49, 95%CI 0.02-0.97, p=0.041) were associated with higher 6-week OKS. CPAK VI knees also showed higher 6-week OKS with increasing ΔJLO (β 1.10, 95%CI 0.35-1.85, p=0.005). Conversely, CPAK V knees had lower 1-year OKS with increasing ΔJLO (β -1.13, 95%CI -2.13—0.14, p=0.026).

Conclusion
Although changing CPAK phenotype improved early outcomes overall, this was primarily driven by valgus phenotypes (CPAK III and VI) benefitting from apex proximal JLO shifts. In contrast, CPAK V knees performed worse with apex proximal shifts. These findings suggest universal TKA alignment strategies may not be optimal, supporting further research into individualised, phenotype-specific alignment targets.

Submission ID 42

RETURN-TO-SPORT AFTER OSTEOTOMY AROUND THE KNEE IN ELITE ATHLETES: A SYSTEMATIC REVIEW AND META-ANALYSIS

Dina Atra[1], Ajmal Ahmed[1], Islam Sherif[2], Ahmed Mostafa[3], Emmanuel Papakostas[4], Alishba Ahmed[3], Loren Hackett[5], Khaled Elmenawi[5], Marawan Sayed[6]

[1]Warwick Medical School, Coventry, United Kingdom. [2]University Hospitals Coventry & Warwickshire, Coventry, United Kingdom. [3]University of Bath, Bath, United Kingdom. [4]Aspetar Hospital (Orthopaedic Department), Doha, Qatar. [5]Cleveland Clinic, Cleveland, USA. [6]Indiana University, Bloomington, USA

Introduction & purpose

Knee malalignment with chondral or meniscal pathology threatens sustained sport participation in highly active individuals by accelerating degeneration & impairing performance. Joint-preserving osteotomies - including distal femoral, proximal tibial, tibial tubercle & anterior closing wedge procedures - aim to restore biomechanics, delay arthroplasty & facilitate return to sport (RTS), yet existing evidence is heterogeneous & largely derived from mixed-activity cohorts. This systematic review & meta-analysis evaluated RTS rates & timelines following knee-preserving osteotomies in highly active individuals, with secondary outcomes including functional outcomes, sport performance, complications, reoperation & patient satisfaction.

Methods

A systematic review & meta-analysis were conducted in accordance with PRISMA 2020 guidelines (PROSPERO: CRD420251161679). MEDLINE, Embase, Scopus, Web of Science & Cochrane Library were searched from inception to September 2025 for studies reporting RTS outcomes in highly athletic populations. RTS rates were pooled using a random-effects model with restricted maximum likelihood estimation, with 95% prediction intervals calculated. Study quality was assessed using the Newcastle-Ottawa Scale.

Results

3 studies comprising 49 patients were included. Mean age was 42.1 years, with a mean follow-up of 54.3 months. The pooled RTS rate was approximately 88%. Substantial heterogeneity was observed (I^2 = 84%; Q(2) = 6.99, p = 0.030), interpreted cautiously due to the small number of studies. Functional outcomes were inconsistently reported, precluding quantitative synthesis & requiring descriptive analysis.

Conclusion

Knee joint-preserving osteotomies are associated with high RTS rates in highly active individuals, with nearly 9 out of 10 patients resuming sport. However, heterogeneity, small sample sizes & inconsistent outcome reporting limit generalisability. Larger studies using standardised outcome measures are needed.

Submission ID 44

DOES THE USE OF PERIOPERATIVE ORAL MEDICATIONS REDUCE THE RISK OF DEVELOPING POSTOPERATIVE ARTHROFIBROSIS IN PATIENTS HAVING SURGERY TO THE KNEE? A SYSTEMATIC REVIEW

Haseeb Khawar[1], Adeel Ikram[1], Neel Badhe[1], Aaminah Chaudhry[2], Shahbaz Malik[3], Thomas Kurien[1], Jimmy Ng[2]

[1]University of Nottingham, Nottingham, United Kingdom. [2]Nottingham University Hospitals NHS Trust, Nottingham, United Kingdom. [3]Worcester Acute Hospitals NHS Trust, Worcester, United Kingdom

Introduction
Arthrofibrosis, characterised by excessive scar tissue formation, is a common complication following knee surgery causing pain, stiffness, and significant functional limitations. Oral medications have gained interest for their potential to reduce this risk. This systematic review evaluates the impact of perioperative oral medications on postoperative arthrofibrosis risk.

Methods
A systematic review of randomised controlled trials (RCTs) and comparative studies was conducted according to PRISMA guidelines. Comprehensive searches of MEDLINE, EMBASE, and Cochrane Central databases was conducted in December 2025. Included studies investigated the influence of perioperative oral medications on the risk of developing arthrofibrosis following knee surgery compared to controls.

Results
Thirteen studies involving 612,513 patients were included. Losartan demonstrated reduced arthrofibrosis risk in large studies (OR 0.80-0.94; $p<0.023$). COX-2 selective inhibitors (OR 0.80-0.86; $p<0.007$) and traditional disease-modifying antirheumatic drugs (DMARDs) (OR 0.71; $p=0.003$) were also associated with reduced arthrofibrosis rates. Evidence for NSAIDs was mixed, with one study reporting a significant reduction (OR 0.67; $p = 0.045$), while another found no significant difference. The only RCT reported a non-significant reduction in arthrofibrosis with Vitamin C (10.4% vs 23.4%; $p=0.099$). In contrast, peri-operative warfarin (OR 1.17-4.20; $p<0.032$) and Factor Xa inhibitors (OR 1.42-1.96; $p<0.001$) may increase arthrofibrosis risk.

Conclusion
Losartan, anti-inflammatory medications such as NSAIDs and COX-2 selective inhibitors, and traditional DMARDs may help to reduce arthrofibrosis rates, whereas patients taking warfarin or Xa inhibitor anticoagulants are at a higher risk. Further research is needed to determine which oral medication is most effective at reducing post-operative arthrofibrosis rates.

Submission ID 45

INTERNAL FIXATION USING BIOABSORBABLE OR METAL SCREWS FOR UNSTABLE OSTEOCHONDRITIS DISSECANS LESIONS OF THE KNEE. A SYSTEMATIC REVIEW OF IMPLANTS AND CLINICAL OUTCOMES

Neel Badhe[1], Vipul Mandalia[2], Thomas Kurien[1]

[1]University of Nottingham, Nottingham, United Kingdom. [2]Royal Devon University Healthcare NHS Trust, Exeter, United Kingdom

Introduction
Osteochondritis Dissecans (OCD) is a common cause of knee pain and dysfunction, with unstable OCD lesions often requiring internal fixation to preserve joint integrity. This systematic review evaluates the clinical outcomes regarding following screw fixation for the treatment of unstable OCDs.

Methods
A systematic review was conducted in December 2025 according to PRISMA guidelines. PubMed, Cochrane CENTRAL, and Web of Science databases were searched for studies reporting outcomes following screw fixation of unstable OCDs. Patient-reported outcome measures (PROMs) and complication rates were analysed.

Results
Ten studies involving 189 patients undergoing internal fixation of unstable OCDs were included. Metal screws improved Lysholm scores from 59 to 97 ($p<0.001$) and Kujala scores from 44 to 92.6 ($p<0.001$), while Tegner scores decreased from 5.8 to 4.8 ($p<0.001$) postoperatively. Bioabsorbable screws showed greater improvements, with Lysholm scores increasing from 33.4 to 83.0 ($p<0.001$), Tegner scores from 2.8 to 6.1 ($p<0.001$), IKDC from 40.6 to 85.5 ($p<0.001$), KOOS from 44.4 to 87.6 ($p<0.001$). Comparing fixation devices, bioabsorbable screws provided greater improvements in Lysholm (+48 vs +37, $p<0.001$) and Tegner (+3.0 vs -0.5, $p<0.001$) scores compared with metal screws. There were no significant differences in the complication rates following fixation with either implant.

Conclusion
Both bioabsorbable and metal screws provide significant improvements in PROMs after surgery. Fixation with bioabsorbable screws has demonstrated greater PROMs improvements, but there are no significant differences in complication rates between implants. However, larger prospective studies are required to determine the ideal implant for unstable OCDs.

Submission ID 46

EFFICACY AND SAFETY OF GLP-1 RECEPTOR AGONISTS FOR OBESITY AND WEIGHT LOSS IN PATIENTS WITH LOWER LIMB OSTEOARTHRITIS: A SYSTEMATIC REVIEW

Neel Badhe, Christopher Busby, Thomas Kurien, Ben Marson

University of Nottingham, Nottingham, United Kingdom

Introduction
GLP-1 receptor agonists (GLP1-RA), commonly used in type 2 diabetes and weight loss, have potential benefits for osteoarthritis (OA) patients by influencing body weight, inflammation and articular cartilage. This systematic review evaluates the effects of GLP-1 RAs for treating OA in obese patients.

Methods
A systematic review of randomised controlled trials (RCTs) and comparative studies was conducted in June 2025 according to PRISMA guidelines. Searches of OVID Medline, PubMed, Cochrane CENTRAL, and EMBASE databases were performed. Included studies measured OA-related outcomes in obese patients treated with GLP-1 RAs or placebo/non-pharmacological intervention. OMERACT-OARSI Core Domain Set outcomes, change in body weight, and need for joint replacement were extracted.

Results
Nine studies involving 2,560,695 patients were included. GLP-1 RA treatment consistently reduced body weight compared to placebo/control ($p<0.001$). Improvements in WOMAC pain, stiffness, and physical function were inconsistent between trials. However, GLP-1 RAs improved worst daily knee pain (MD: -1.10, $p<0.001$), SF-36 physical function score (MD: 5.50, $p<0.001$) and 6-minute walk distance (MD: 42.60, $p<0.001$). Evidence on the impact of GLP-1 RAs on OA progression is inconsistent. There was no significant difference in serious adverse events between GLP-1 RA and placebo.

Conclusion
GLP-1 RAs demonstrate promise for the management of OA in obese patients. Administering GLP-1 RAs after weight loss does not reduce pain or improve joint function. However, in patients without a preceding weight-loss requirement, GLP-1 RA therapy provides significant improvements in pain and function. Further RCTs, with extended follow-up, are required to demonstrate long-term efficacy and safety.

Submission ID 51

NEXT-GENERATION CLINICAL OUTCOMES FOR KNEE ARTHROPLASTY USING CONTINUOUS DIGITAL PHYSICAL ACTIVITY DATA

Richard Mark Kwasnicki, Max Matta, Jack Graham, Gareth Jones

Imperial College London, London, United Kingdom

Introduction
Current recovery measures used after knee arthroplasty provide an incomplete picture of recovery. This study aimed to validate smartphone physical activity data as a continuous, objective measure of recovery post-arthroplasty.

Methodology
We conducted a single-centre, retrospective cohort study at Imperial College Healthcare NHS Trust. Physical activity data from 28 days preoperatively to 12 months postoperatively was extracted from Apple Health and expressed as a percentage of individual preoperative baseline. Recovery trajectories were compared between total knee replacement (TKR) and unicompartmental knee replacement (UKR), as well as hip arthroplasty groups. Multivariable linear regression identified predictors of recovery, and correlations were assessed between short- and long-term activity, and patient-reported outcome measures (PROMs).

Results
There were 109 participants, including 35 TKR and 29 UKR patients. Both knee groups recovered to baseline activity by 3 months and plateaued at 120–130% of baseline, with no significant difference between groups until 9-12 months (favouring UKR). Early postoperative activity modestly predicted long-term recovery (Spearman $r = 0.282$, $p = 0.003$) and 12-month PROMs (Spearman $r = 0.280$, $p = 0.047$). Age, smoking, and baseline activity level were negative predictors of recovery. Hip arthroplasty patients demonstrated faster and greater recovery, highlighting the distinct functional trajectory following knee arthroplasty.

Conclusion
Smartphone activity data provides an objective, continuous assessment of recovery post-knee arthroplasty. TKR and UKR demonstrated similar functional recovery trajectories, supporting their equivalence in real-world activity outcomes. Digital recovery monitoring may enable earlier identification of patients at risk of delayed recovery and support more personalised postoperative care.

Submission ID 52

METAL HYPERSENSITIVITY IN TOTAL KNEE ARTHROPLASTY: IS A SPECIAL IMPLANT NECESSARY?

Gerald Tan[1], Chea Tze Ong[2], Anthony Ugwuoke[1]

[1]East Cheshire NHS Trust, Macclesfield, United Kingdom. [2]University Hospital of Derby and Burton NHS Foundation Trust, Derby, United Kingdom

Introduction
Metal hypersensitivity to nickel, cobalt, and chromium has been suggested as a potential cause of persistent pain, stiffness, and unexplained dissatisfaction following total knee arthroplasty (TKA). In recent years, increased access to metal allergy testing and hypoallergenic implants has contributed to variation in clinical practice, despite uncertainty regarding their clinical benefit.

Methodology
A systematic review was conducted in accordance with PRISMA guidance. MEDLINE, Embase, and Cochrane were searched for studies published between 2016 and 2025. Following duplicate removal and screening, 71 eligible articles were assessed with fourteen studies meeting the inclusion criteria. Only original clinical studies reporting outcomes related to metal hypersensitivity in primary or revision TKA were included. The final dataset included one randomised controlled trial, ten cohort studies, and three Level IV observational studies. Due to heterogeneity in study designs, findings were synthesised narratively.

Results
Considerable variation was identified in diagnostic strategies, including self-reported allergy history, patch testing, and lymphocyte transformation testing, with limited agreement between methods. In primary TKA, most cohort studies reported no clinically meaningful differences in pain, patient-reported outcome measures, or revision rates between patients with metal allergy and non-allergic controls. In revision TKA, selected Level IV studies described symptomatic improvement following revision to hypoallergenic implants for suspected metal hypersensitivity.

Conclusion
Evidence published over the last decade does not support routine metal hypersensitivity testing or routine use of hypoallergenic implants in primary TKA. Metal hypersensitivity should be considered a diagnosis of exclusion in the assessment of symptomatic TKA.

Submission ID 53

OUTCOMES OF THE LATELLA 2 DEVICE AT 10 YEARS FOLLOW UP

Moustafa Aly, Anas Altahir, Matthew Dodd, Andrew Davies

Morriston Hospital, Swansea, United Kingdom

Introduction
The Latella 2 one-piece extra-articular device was designed to elevate the Ileo-Tibial band laterally to offload the Medial Tibio-Femoral compartment and fill the 'treatment gap' before arthroplasty surgery.

Methods
Between December 2015 and August 2016 we performed five Latella devices in five patients as day cases. Each had a failing medial compartment but no bare bone to justify arthroplasty. We present the clinical results of these cases at 10 years follow-up.

Results
All patients reported immediate improvement of knee pain and improved function post-operatively. There were no intra- or peri-operative complications.

One patient remains well functioning at 10 years with no reduction of joint space and no knee symptoms.

The four other patients reported return of medial knee pain at 6 months, 6 years, 7 years and 9 years follow-up. Consequently one awaits removal of the device and revision to Total Knee Replacement (TKR). Three patients have undergone removal of the device and staged revision to standard Medial UKR (2 cases) or TKR (1 case) with good clinical outcomes. Removal of the device can be challenging because the Titanium screws can fracture at time of removal. One patient suffered a femoral fracture at the surgical site three weeks post removal of Latella device that required femoral nailing and removal of metal prior to TKR.

Conclusion
The design principle of the Latella 2 device is sound and sustained clinical benefit can last beyond 10 years. The intact capsule allows for standard subsequent arthroplasty. The titanium screws were a design weakness.

Submission ID 54

WHAT DRIVES SUCCESS AFTER MENISCECTOMY? AN ANALYSIS OF PATIENT REPORTED OUTCOME MEASURES

Moksh Sachdeva[1,2], Anji Kingman[2], Kevin Emmerson[2], Scott Muller[2], Helen Vint[2], Derek Kramer[2]

[1]Newcastle University, Newcastle Upon Tyne, United Kingdom. [2]Northumbria Healthcare Trust, Newcastle Upon Tyne, United Kingdom

Background
Patient-reported outcome measures (PROMs are central to evaluating meniscectomy outcomes. Although smoking is associated with adverse orthopaedic outcomes, its relationship with clinically meaningful post-operative improvement across age groups and meniscal compartments remains unclear. This study examined the association between smoking status, age, and meniscal compartment on post-operative PROM outcomes following meniscectomy.

Method
A retrospective cohort study of 494 meniscectomy patients was conducted. Patients were stratified by age (18–40 vs. 41–65 years), smoking status, and operative compartment. KOOS and EQ-5D-3L were collected pre-operatively and at 6 and 12 months. Clinical significance was defined as MCID $\geq$10 points within KOOS domains.

Results
Median KOOS change varied by age, operative compartment, and smoking status. Non-smokers aged 41–65 years achieved clinically significant improvement across all KOOS domains by 6 months after medial and lateral meniscectomy, sustained at 12 months. In non-smokers aged 18–40 years, outcomes were compartment-specific, with earlier MCID attainment after lateral than medial meniscectomy. Smokers aged 41–65 years showed delayed improvement, particularly after lateral meniscectomy, but exceeded MCID across all domains by 12 months. In contrast, smokers aged 18–40 years had the poorest outcomes, with lateral meniscectomy failing to achieve MCID in most domains at 12 months.

Conclusion
Clinically meaningful PROM improvement after meniscectomy varies by age, smoking status, and compartment. Older non-smokers, particularly those aged 41–65, show the most consistent benefit, while younger patients, especially smokers, experience reduced symptomatic gains, particularly after lateral meniscectomy. These factors should inform pre-operative counselling regarding expected outcomes.

Submission ID 56

IMPACT OF OBESITY ON OUTCOMES FOLLOWING MULTILIGAMENT KNEE RECONSTRUCTION: A SYSTEMATIC REVIEW AND META-ANALYSIS

Sina Abdolrazaghi[1], Jaison Patel[2], Aashish Ahluwalia[3], Benjamin Gabbott[2], Joshua Lee[2]

[1]West Hertfordshire Teaching Hospitals NHS Trust, Watford, United Kingdom. [2]Barts Health NHS Trust, London, United Kingdom. [3]University College London Hospitals NHS Foundation Trust, London, United Kingdom

Introduction
Multiligament knee injuries (MLKIs) are complex injuries that often require surgical reconstruction. Obesity is associated with adverse outcomes in orthopaedic surgery, but its impact on outcomes following MLKI reconstruction remains unclear. This systematic review and meta-analysis evaluated the association between obesity and surgical, post-operative, and patient-reported outcomes after MLKI reconstruction.

Methodology
A systematic review was conducted in accordance with PRISMA guidelines and registered with PROSPERO. PubMed/MEDLINE, Embase, Scopus, and the Cochrane Library were searched up to May 2025 for studies reporting outcomes of MLKI reconstruction stratified by body mass index (BMI). Primary outcomes were post-operative complications and patient-reported outcome measures (PROMs). Secondary outcomes included specific complications and reoperation. Pooled outcome data were analysed by random- and fixed-effects models.

Results
Ten studies comprising 1,426 patients were included, of whom 30.6% were obese. Pooled analysis of overall complications demonstrated a higher complication rate in obese patients that did not reach statistical significance (OR 1.50, 95% CI 0.83 to 2.71; p = 0.18). Obesity was associated with a significantly increased risk of post-operative infection and graft failure. Obese patients demonstrated inferior functional outcomes, with significantly lower Lysholm and IKDC scores. Rates of arthrofibrosis, revision surgery, thromboembolic events, and conversion to total knee arthroplasty did not differ significantly between groups.

Conclusion
Obesity is associated with inferior patient-reported outcomes and increased risks of infection and graft failure following MLKI reconstruction. These findings support careful pre-operative counselling, risk stratification, and peri-operative optimisation in obese patients undergoing MLKI surgery.

Submission ID 58

REDUCED INCIDENCE OF MID-FLEXION INSTABILITY WITH MISSO JOINT ROBOT–ASSISTED TOTAL KNEE ARTHROPLASTY

Sanjay Londhe[1,2], Govindkumar Baranwal[1], Kunal Patel[1]

[1]Criticare Asia Hospital, Mumbai, India. [2]Holy Spirit Hospital, Mumbai, India

Introduction

Mid-flexion instability is an important cause of pain, functional limitation, and patient dissatisfaction after total knee arthroplasty (TKA), with reported incidence ranging from 20% to 36%. It is often related to inadequate gap balancing and the limited ability of conventional TKA to assess knee stability dynamically across the full range of motion. Robotic-assisted total knee arthroplasty (RATKA) using the MISSO Joint robotic system allows accurate three-dimensional CT–based preoperative planning and real-time intraoperative assessment of knee stability at multiple flexion angles. This study aimed to evaluate the incidence of mid-flexion instability in MISSO Joint–assisted RATKA and compare it with historical conventional TKA data.

Methodology

A retrospective review of prospectively collected data was performed on 100 patients who underwent MISSO Joint–assisted RATKA for advanced knee arthritis between March 2022 and May 2023. All patients received posterior-cruciate-substituting, multi-radius knee prostheses. Conventional and revision TKA cases were excluded. Intraoperatively, medial and lateral gaps were measured at full extension, 30°, 45°, 60°, 90°, and maximum flexion. A knee was considered balanced when the medial–lateral gap difference was less than 2 mm. The incidence of mid-flexion instability was compared with historical controls using the chi-squared test.

Results and Conclusion

Mid-flexion instability was observed in 2 patients (2%) at 30° and 60° of flexion and was corrected intraoperatively by implant modification. This incidence was significantly lower than historical reports ($p < 0.0001$), indicating that MISSO Joint–assisted RATKA may improve intraoperative knee balance and postoperative outcomes.

Submission ID 59

THE PRODUCTIVITY PARADOX IN ROBOTIC-ASSOCIATED TOTAL KNEE ARTHROPLASTY

Kieran Almond, Mia Moore, Joanne Yorke, Victor Granero, James Chapman, Andrew Phillipson
Broadgreen Hospital, Liverpool, United Kingdom

Background
Technological advancements continue to push boundaries of surgical care. Enhanced 'Precision' vs productivity loss remain a hot topic. This single-centre retrospective cohort study compares case productivity of r-TKA, using the Synthes VELYs system, versus manual TKA.

Methods
Six consultant surgeons were selected to use the VELYs robotic-assisted system for TKA. We compared the first cumulative seventy cases using VELYs (V) to their last seventy cases of manual (M) TKA. Data was collected from our theatre tracking system. Patient demographics were collected alongside four surgical domains (theatre set-up time, surgical time, time to leaving theatre, and cumulative total theatre time). Length of stay (LOS) in hospital was recorded. Statistical analysis was performed.

Results
There was no statistically significant difference in patient demographics. Median times were higher for VELYs in all four domains; median surgical time- twelve minutes longer (M-84, V-96); total theatre time- twenty minutes longer (M-96, V-116). Mann-Whitney U testing found each collected data point was statistically significant. Clinically, however, there was no reduction in output of cases whilst using VELYs. VELYs had a shorter mean LOS (V-3.29, M-3.65), though not statistically significant.

Conclusion

Whilst a statistically significant increase in operative time using VELYs, this did not translate to reduced surgical list output. This is encouraging, particularly considering this was the first seventy cases whilst utilising this novel system, with room for improvement over time and familiarity with VELYs. PROMs data looking at patient outcomes will be the next step at evaluating the use of Robotic technology in TKAs.

Submission ID 60

FIVE-YEAR OUTCOMES OF MPFL RECONSTRUCTION USING FIBRE-TAPE INTERNAL BRACING VERSUS HAMSTRING AUTOGRAFT IN ADOLESCENTS

Khaled Youssef[1], Themistoklis Vampertzis[2], Rohit Gangadharan[1], Darius Rad[1], Morgan Bailey[1], Farokh Wadia[1]

[1]Southampton general hospital, Southampton, United Kingdom. [2]St George's Hospital, London, United Kingdom

Medial patellofemoral ligament (MPFL) reconstruction is commonly used to manage adolescent patellar instability. Fibre-tape internal bracing has been introduced in many centres due to technical simplicity, but mid-term comparative outcomes versus hamstring autograft remain limited.

This study analysed 22 patients undergoing MPFL reconstruction between 2019 and 2020. One patient with a four-limb motor disorder was excluded, leaving 20 patients (7 hamstring, 13 fibre-tape) with a minimum five-year follow-up. Functional outcomes were assessed using Pedi-IKDC scores, with re-dislocation and anatomical risk factors recorded.

The cohort included 16 females and 4 males, mean age 13.8±3.35 years. In the hamstring group, mean Pedi-IKDC was 84.28±9.23, no re-dislocations occurred, and mean surgical time was 83 minutes. In the fibre-tape group, 11 patients were assessed functionally; mean Pedi-IKDC was 79.27±11.2, with 3 of 13 patients (23%) experiencing re-dislocation, including one with mild cerebral palsy and two otherwise healthy adolescents, one with genu valgum. Mean surgical time was shorter at 64.4 minutes.

Differences in functional outcomes and stability may reflect the small cohort size and the early learning curve of the fibre-tape technique, particularly in achieving optimal graft tension.

In conclusion, both hamstring autograft and fibre-tape MPFL reconstructions provide satisfactory five-year outcomes. Hamstring grafts showed slightly higher functional scores and lower re-dislocation rates, while fibre-tape offered shorter surgical times, suggesting practical efficiency. Larger, long-term studies are needed to further validate fibre-tape use in adolescent MPFL reconstruction.

Submission ID 61

WHERE DOES YOUR ALLOGRAFT TISSUE COME FROM? ALLOGRAFT USE IN RECONSTRUCTIVE ORTHOPAEDIC SURGERY: A REVIEW OF THE NHSBT PROVISION OF MUSCULOSKELETAL ALLOGRAFTS IN THE UK

Jeremy Telford[1], Edward Cornish[2], Tim Spalding[3], Bilal Barkatali[4]

[1]The Robert Jones and Agnes Hunt Orthopaedic Hospital, Oswestry, United Kingdom. [2]Royal Bolton Hospital, Bolton, United Kingdom. [3]Cleveland Clinic London, London, United Kingdom. [4]Orthteam Centre Spire Manchester Hospital, Manchester, United Kingdom

Introduction

The use of musculoskeletal (MSK) allografting techniques in reconstructive surgery of the knee is well established, with the most common application being in revision anterior cruciate ligament reconstruction. However, the journey from donor to recipient is poorly understood by orthopaedic surgeons. This review seeks to clarify the allograft production process at NHSBT

Methodology

This review describes NHSBT protocols for MSK allograft provision attained via publicly available data, correspondence with NHSBT staff and a tour of the facility in Speke, Liverpool. In addition, a review of the literature was performed to establish international practice, and the effect methods of retrieval, processing and storage can have on disease transmission and biomechanical properties. This review describes the production of MSK allografts by NHSBT in the UK

Results/conclusion

NHSBT Tissue Service in Liverpool is one of the largest tissue banks in Europe, and provides MSK allograft tissue to hospitals in the UK, though it is not the sole provider. All stages of the process, from donor identification to distribution are tightly regulated by the Human Tissue Act 2004 to provide MSK allografts which retain the biomechanical properties required, whilst also being at an extremely low risk of disease transmission. This is achieved through a rigorous donor selection process and protocols for the harvesting, shaping, preservation, decontamination, sterilisation, packaging and storage of tissues.

Submission ID 63

FORECASTING KNEE REPLACEMENT SURGERY WITH DEEP LEARNING: AN INTEGRATED APPROACH USING ROUTINE CLINICAL DATA AND RADIOGRAPHS

Ahmed Al-Saadawi[1], Omar Musbahi[2], Thomas Hall[2], Alexis Alibert[2], Gareth G. Jones[2], Prof Justin Cobb[2], Richard J. van Arkel[2]

[1]East & North Hertfordshire NHS Trust, Stevenage, United Kingdom, Stevenage, United Kingdom. [2]Imperial College London, London, United Kingdom, London, United Kingdom

Introduction
We aimed to develop and validate a practical deep learning model integrating routinely collected clinical data and knee radiographs to predict the need for knee replacement (total or partial) in patients with, or at-risk of, knee osteoarthritis, as well as the time to surgery.

Methodology
Data from the Multicenter Osteoarthritis Study (MOST) and the Osteoarthritis Initiative (OAI) were utilised. The MOST dataset, comprising 3,026 patients, was the primary training and testing cohort, while the OAI dataset provided external validation. The final architecture was based on DenseNet-201, with a head that combined outputs from the radiographic analysis with routinely collected clinical data. Model evaluation used the area under the curve (AUC) of the receiver operating characteristic curve (ROC).

Results
The integration of clinical and radiographic data significantly improved predictive accuracy. The combined model achieved an AUC of 0.85, outperforming models using either data source alone. External validation with the OAI dataset yielded an AUC of 0.79, confirming the model's generalisability. The AUC for surgical interventions within 40 months was 0.83 on the validation dataset, demonstrating higher predictive accuracy for earlier surgical needs.

Conclusion
This study highlights the potential of deep learning models, which integrate routine clinical and radiographic data, to predict the need for knee replacement. The robust performance and generalisability of the developed model could streamline clinical pathways and predict local demand for surgery during the next three years. This will facilitate resource planning for providers and accurate and timely access to surgical interventions for patients.

Submission ID 66

DELAYS BEYOND 18 WEEKS FOR KNEE ARTHROPLASTY IS ASSOCIATED WITH INCREASED POST-OPERATIVE COMPLICATIONS AND HOSPITAL REATTENDANCE: A 20-YEAR NATIONWIDE UK COHORT STUDY

Mr. Omar Musbahi[1], Dr. Ahmed Al-Saadawi[2], Mr. Saran S. Gill[1], Ms. Sara Sousi[3], Prof Justin Cobb[1], Mr. Gareth G. Jones[1], Prof Alex Bottle[3]

[1]MSk Lab, Sir Michael Uren Hub, White City Campus, Imperial College London, London, UK, London, United Kingdom. [2]East & North Hertfordshire NHS Trust, Stevenage, United Kingdom, Stevenage, United Kingdom. [3]School of Public Health, White City Campus, Imperial College London, London, UK, London, United Kingdom

Aim:
This study aims to examine the association between patients waiting greater than the NHS 18-week standard for knee arthroplasty and clinical outcomes, including hospital reattendance, complications, and mortality, using a 20-year linked national NHS dataset.

Methods
A cohort study was conducted using the UK Clinical Practice Research Datalink (CRPD), linked to Hospital Episode Statistics (HES) and the Office for National Statistics death registry. Adults undergoing primary knee arthroplasty between 1998 and 2021 were included. Patients were classified according to whether they waited more than 18 weeks for surgery. The primary outcomes were A&E attendance, hospital readmission, and critical care admission. Secondary outcomes included 30-day complication rates.

Results
In total, 345,206 patients were included in the final analysis, of whom 213,185 (61.8%) waited longer than 18 weeks for their procedure. Waiting more than 18 weeks was associated with higher rates of critical care admission (TKR: 2.9% vs 1.9%, $p < 0.001$; UKR: 2.6% vs 1.9%, $p < 0.001$). Regarding complications, rates of pulmonary embolism (TKR: 0.6% vs 0.5%, $p < 0.001$), prosthetic joint infection (UKR: 1.0% vs 0.7%; $p = 0.017$), deep vein thrombosis (TKR: 0.7% vs 0.4%, $p < 0.001$), and all infections (TKR: 1.8% vs 1.5%, $p < 0.001$; UKR: 1.7% vs 1.3%, $p = 0.008$) were also slightly higher with delayed surgery.

Conclusion
Waiting more than 18 weeks for knee arthroplasty in England is associated with adverse clinical outcomes. These findings highlight the urgent need for system-level interventions to reduce waiting times and mitigate the growing strain on the NHS.

Submission ID 68

OUTCOMES OF INTERNAL FIXATION FOR OSTEOCHONDRITIS DISSECANS OF THE SKELETALLY IMMATURE KNEE: SYSTEMATIC REVIEW AND META-ANALYSIS

Bavin Pathmaraj[1], Dillan Dhanak[2], Kaivalya Bhagat[2], Kavindu Rathnayake[2], Minoran Satkunanathan[2], Victor Lu[3], Tak Man Wong[4]

[1]Chelsea and Westminister Hospital NHS Trust, London, United Kingdom. [2]UCL Medical School, London, United Kingdom. [3]Chinese University of Hong Kong, Hong Kong, China. [4]University of Hong Kong, Hong Kong, China

Introduction
Osteochondritis dissecans commonly affects skeletally immature adolescents and is usually treated conservatively. Internal fixation is reserved for unstable or refractory lesions. This review assesses clinical, radiological and patient-reported outcomes of internal fixation in juvenile OCD, focusing on recurrence and reoperation rates.

Methods
A systematic search across four databases: MEDLINE, EMBASE, PUBMED, and Web of Science, identified primary studies reporting outcomes of internal fixation for OCD in patients with open physes at the time of surgery. Risk of bias was assessed using RoB 2.0 and ROBINS-I tools. The review followed PRISMA guidelines and was registered on PROSPERO (CRD42024529128).

Results
From 4,840 identified articles, 22 studies met inclusion criteria, evaluating 573 knees with open physes and a minimum follow-up of 6 months. The pooled recurrence rate was 19.1% (95% CI: 0.09–0.36), reoperation rate was 9.6% (95% CI: 0.05–0.16), and adverse event rate was 0.82% (95% CI: 0.0012–0.055). At 24 months postoperatively, significant improvements were observed in the Knee injury and Osteoarthritis Outcome Score (KOOS) (SMD: 6.18; 95% CI: 1.66–10.69; p=0.028) and Lysholm score (SMD: 4.04; 95% CI: 2.84–5.23; p=0.0002). No significant difference was found in IKDC scores at 24 months (SMD: 5.27; 95% CI: −0.21–10.75; p=0.055), though paediatric IKDC scores improved significantly at 12 months (SMD: 6.10; 95% CI: 3.04–9.16; p=0.025).

Conclusion
Internal fixation for juvenile OCD results in significant postoperative improvements in clinical outcomes. However, notable recurrence and reoperation rates highlight the need for careful, individualised patient selection when considering this treatment option.

Submission ID 69

OUTCOMES AND FAILURE RATES FOLLOWING MENISCAL REPAIR: A RETROSPECTIVE STUDY WITH MINIMUM FIVE-YEAR FOLLOW-UP

Mamdouh Elbannan[1], Ahmed Gad[2], Andrew Davies[3]

[1]ST5, Wales Deanery, Cardiff & Vale University Health Board, Cardiff, United Kingdom.
[2]ST4, Wales Deanery, Swansea Bay University Health Board, Swansea, United Kingdom.
[3]Swansea Bay University Health Board, Swansea, United Kingdom

Background
Meniscal repair aims to preserve knee biomechanics and reduce the risk of osteoarthritis. Despite advances in surgical techniques, failure rates remain substantial, and predictors of failure are incompletely understood.

Purpose
To evaluate demographic, injury-related, and operative factors associated with failure following meniscal repair at a minimum five-year follow-up.

Methods
Patients undergoing meniscal repair between January 2018 and December 2020 were analysed retrospectively. After excluding root tears, discoid menisci, anterior horn tears, allograft procedures, revision repairs, and cases with concomitant cartilage restoration, 79 knees were included in the primary analysis. Failure was defined as clinical re-presentation with persistent or recurrent knee symptoms.

Results
The median age was 34.5 years (IQR 28–40), and 77.2% of patients were male. Failure occurred in 42 of 79 knees (53.2%). On univariable analysis, age, sex, timing from injury to surgery, tear pattern, anterior cruciate ligament status, sutures device used, and number of sutures were not significantly associated with failure. Meniscus side (medial versus lateral) demonstrated a non-significant trend, with higher failure rates observed following lateral meniscal repair ($p = 0.065$). On multivariable analysis, neither meniscus side (OR 2.02, 95% CI 0.77–5.30, $p = 0.152$) nor number of sutures (OR 1.25 per suture, 95% CI 0.78–2.02, $p = 0.352$) independently predicted failure. In a secondary analysis including root tears, failure rates did not differ significantly between root and body repairs ($p = 0.475$).

Conclusion
No independent predictors of meniscal repair failure were identified at a minimum five-year follow-up. Failure appears multifactorial

Submission ID 70

METAL BLOCK AUGMENTED TIBIAL PROSTHESIS CONSTRUCT IN PRIMARY AND ASEPTIC REVISION CEMENTED TOTAL KNEE ARTHROPLASTY: PATIENT-REPORTED OUTCOME MEASURES AND IMPLANT SURVIVAL

Nick Clement[1], Rory Moran[2], Eliott Martinson[1], Gillian Leitch[1], Phillip Simpson[1], Gavin Macpherson[1], Chloe Scott[1]

[1]Edinburgh Orthopaedics, Edinburgh, United Kingdom. [2]The University of Edinburgh Medical School, Edinburgh, United Kingdom

Introduction
Bone loss presents a technical challenge in primary/revision total knee arthroplasty (TKA). Despite increasing utilisation, there is limited evidence concerning functional outcomes and implant survivorship associated with medial tibial block augment (TBA) use in TKA.

Methodology
A retrospective single-centre study compared patient-reported outcome measures (PROMs) and survivorship of TKA using TBAs in both primary (tbapTKA) and revision (revTKA) procedures against a cohort of primary-TKA (pTKA) without augments. Patients undergoing TKA using 5mm/10mm TBA from 2011-2020 were identified from institutional implant registry and linked to prospectively collected PROMs. PROMs included Oxford Knee Score (OKS), EQ-5D-3L, and EQ-VAS assessed pre and postoperatively at 12-months.

Results
89-patients underwent aseptic revTKA and 34 underwent tbapTKA using TBA. At mean follow-up of 8 years, there were no revisions and one periprosthetic fracture, reoperation survival of 98.8% (95%CI 96.5to100%). Improvement in PROMs did not differ significantly ($p \geq 0.212$) between revTKA/tbapTKA with pTKA without augments after adjustment for confounders, with no clinically meaningful differences between groups. However, tbapTKA patients had significantly worse unadjusted preoperative OKS (mean difference 4.6, p=0.001), not significantly different postoperatively (p=0.078) due to greater improvement. revTKA for medial unicompartmental knee arthroplasty showed clinically meaningful worse improvement in OKS (-3.1, p=0.064), EQ-5D (-0.078, p=0.112), and EQ-VAS (-5.0, p=0.162) compared to pTKA, but without statistical significance.

Conclusion
TBA as part of primary/aseptic revision TKA was associated with excellent implant survival and comparable PROMs compared to standard pTKA. This supports use of TBA as a reliable reconstructive strategy for medial tibial bone loss.

Submission ID 72

COLLAGEN MATRIX MENISCAL WRAPPING IMPROVES STRENGTH OF MENISCUS REPAIR

James Murray[1], Konstantinos Tsikopoulos[1], Nathaniel Kelly[2], HS (Richie) Gill[2]

[1]Southmead Hospital, Bristol, United Kingdom. [2]University of Bath, Bath, United Kingdom

Introduction

Meniscus repair has variable failure rates (15-37%) with a mean of 26%. Meniscal wrapping has been proposed to increase success in complex tears. The aim of this study was to evaluate the biomechanical effect of meniscal wrapping as an adjunct to repair.

Methods

Following ethical approval, 8 human tibial plateaux (Joint Operations Ltd, UK) were potted to allow medial meniscal testing using (Instron) with a standardized loading cycle through specialized plates (INTACT). Pressure distribution was recorded using pressure sensitive Fuji-film placed between meniscus and plateau. The meniscus was then transected radially and then repaired with hashtag suture tape, before repeated testing (REPAIRED). Then a revision of the repair was performed, wrapping the same meniscus with ChondroGide membrane (2 vertical mattress sutures); there were no additional circumferential sutures. A final loading and pressure recording were performed (WRAPPED). Load - displacement curves were analysed by calculating the area under curve (AUC)

Results

Meniscal repair generally increased the amount of displacement, but this was reduced by wrapping. There was a significant ($p<0.007$) decrease in AUC during loading for the repair, wrapping lead to a recovery in the AUC during loading. Repair led to a significant increase in median pressure (INTACT: 2.5 ±1.2 MPa REPAIRED: 6.1±1.8 MPa,) and a reduction in the area experiencing high loading. Wrapping led to non-significant reduction in median pressure relative to repaired condition (WRAPPED: 4.9±2.3 MPa) and an increase in the loaded area

Discussion

This biomechanical evidence supports meniscal wrapping in complex meniscal repair techniques.

Submission ID 73

FAILURE MODES OF DIFFERENT UNICONDYLAR KNEE ARTHROPLASTY BEARING TYPES: AN ANALYSIS FROM THE NATIONAL JOINT REGISTRY

Samuel Newman, Matthew Hampton

Sheffield Teaching Hospitals, Sheffield, United Kingdom

Introduction

There is still no conclusive evidence on modes of failure for the two different unicondylar knee arthroplasty (UKA) implant bearing types used: fixed bearing (FB) and mobile bearing (MB). If we know likely causes of failure, we may be able to tailor the choice of implant to patient characteristics and use.

Methodology

After application we were granted access to NJR data for all UKA to total knee arthroplasty (TKA) revision surgeries. Data was cleaned and statistics were performed on the NJR data access portal software.

Results

Of the 2865 FB implants and 6526 MB implants revised to TKA, 41.4% and 45.5% respectively, had progressive arthritis as an indication. Aseptic loosening of the tibia (FB 22.6%; MB 16%) and femur (FB 14%; MB 13.7%), polyethylene wear (FB 9%; MB 8.2%) and instability (FB 7.5%; MB 8.8%) were the other most common indications. Dislocation/subluxation was indicated in 4.9% of MB revisions (vs 0.9% FB), as was component dissociation in 2.7% of cases (vs 1% FB).

Conclusion

Most common modes of failure were the same for the different UKA implant bearing types. As one might expect from biomechanics, FB implants have slightly increased rates of aseptic loosening and wear, whereas MB implants have increased rates of instability, subluxation and dissociation.

Submission ID 74

REVISION OF UNICONDYLAR KNEE ARTHROPLASTY TO TOTAL KNEE ARTHROPLASTY: NOT SO SIMPLE? AN ANALYSIS FROM THE NATIONAL JOINT REGISTRY

Samuel Newman, Michael Petrie, Matthew Hampton

Sheffield Teaching Hospitals, Sheffield, United Kingdom

Introduction
As the use of unicondylar knee arthroplasty (UKA) increases in the UK, there will be an inevitable increase in the number of UKA revision surgeries to match. Revision of UKA to total knee arthroplasty (TKA) is classed as R1 ('less-complex') as per the Revision Knee Complexity Classification, but there is dispute amongst surgeons about how 'simple' these cases really are.

Methodology
After application we were granted access to National Joint Registry (NJR) data for all UKA to TKA revision surgeries. Data was cleaned and statistics were performed on the NJR data access portal software.

Results
9403 cases were included. 5.1% (483/9385) were revised to a varus-valgus constrained implant and 1.2% (113/9385) to a rotating hinge. 35.9% (3377/9403) required a tibial stem, with a mean stem length of 72mm. 18.8% (1766/9403) required a tibial augment: 13.0% (1227/9403) had a wedge and 5.7% (539/9403) had a cone/sleeve. 1.9% (174/9403) required a femoral augment. Bone grafting of the tibia and femur was done in 7.1% (663/9395) and 4.6% (433/9395) of cases respectively. The rate of reported intra-operative surgical complications was 2.1% (197/9395).

Conclusion
Revisions of UKA to TKA required tibial stems in over a third, tibial augments in nearly a fifth, and an increased constraint implant in 6.3% of cases. We can therefore dispel the myth that these 'simple' revisions are akin to undertaking a primary TKA. As such, we recommend they are undertaken by surgeons familiar with the revision implants often required, and in centres where they are available.

Submission ID 75

CLINICALLY MEANINGFUL VALUES OF THE OXFORD KNEE SCORE, EQ-5D-3L, AND EQ-VAS IN PATIENTS UNDERGOING ASEPTIC REVISION TOTAL KNEE ARTHROPLASTY

Thomas R Williamson[1,2], Liam Z Yapp[1], Gavin J MacPherson[1], Chloe EH Scott[1], Nick D Clement[1]

[1]Edinburgh Orthopaedics, Royal Infirmary of Edinburgh, Edinburgh, United Kingdom. [2]School of Population Health Sciences, University of Edinburgh, Edinburgh, United Kingdom

INTRODUCTION
This retrospective study aimed to define the clinically meaningful values for the Oxford Knee Score (OKS), EQ-5D-3L, and EQ-VAS following revision total knee arthroplasty (rTKA), which have not been assessed at one-year.

METHODOLOGY
A consecutive cohort of 581 patients (330 female, 56.8%) undergoing rTKA were included. Mean age was 70.9 years (SD9.9). Anchor-based methods (satisfaction) were used to define the minimal clinically important difference (MCID), minimal important change (MIC; cohort and individual), and patient acceptable symptom state (PASS) at one-year postoperatively.

RESULTS
One-year OKS were available for 323 aseptic rTKA (55.6%), of which 95 (29.4%) were 'very satisfied', 76 'satisfied' (23.5%), 40 'neutral' (12.4%), 24 'dissatisfied' (7.4%), 13 'very dissatisfied' (4%), and 75 unknown (23.2%). Increasing satisfaction was associated with significantly greater improvements in all scores ($p<0.001$). No ceiling effects were observed: OKS (0.93%), EQ-5D (11.6%), and EQ-VAS (2.8%).

The MCIDs were 0.255 for EQ-5D-3L, 4.9 for EQ-VAS, and 6.7 for OKS.

The MICcohort were 0.273 for EQ-5D-3L, 3.3 for EQ-VAS, and 11.6 for OKS. The MICindividual were 0.105 for EQ-5D, 4 for EQ-VAS, and 7 for the OKS.

PASS was 0.725 for the EQ-5D-3L (area under the curve [AUC] 0.753), 70.5 for the EQ-VAS (AUC 0.724), and 25 (AUC 0.81) for the OKS. PASS and MICindividual thresholds showed excellent discriminatory capacity in the OKS, and acceptable discrimination in the EQ-5D-3L and EQ-VAS.

CONCLUSION
The clinically meaningful values defined for the OKS, EQ-5D-3L and EQ-VAS can help inform the assessment of outcomes following rTKA, and inform sample size calculations.

Submission ID 76

THE NEED FOR SPECIALIST REVIEW OF FIRST-TIME PATELLA DISLOCATIONS

Nicola Wightman[1,2], David Hamilton[2], Oliver Bailey[1], Rahul Bhattacharyya[1], Graeme Hopper[1]

[1]NHS Lanarkshire, Glasgow, United Kingdom. [2]Glasgow Caledonian University, Glasgow, United Kingdom

INTRODUCTION

First time patellar dislocation (FTPD) is a complex multi-factorial condition. BASK recommends optimal management is through specialist assessment to allow appropriate evaluation and risk stratification. However, current practice varies with patients being managed out with specialised clinics. The aim of this study was to evaluate rates of presentation of FTPD to a regional tertiary hospital and diagnosis/management.

METHOD

From March 2024 to February 2025 all patients attending a tertiary hospital who were diagnosed with a FTPD in A&E and/or virtual fracture clinic were referred to a specialist acute knee clinic. Patient demographics, clinical assessment and management details were retrospectively obtained from initial assessment and patient records (approval ref: ref 2656).

RESULTS

134 patients initially presenting as FTPD were referred to the acute knee clinic. 20 (15%) patients were subsequently diagnosed with alternative pathologies; 9 ACL tears, 5 bucket handle meniscal tears, 4 meniscal tears, 1 PCL tear and quads tendon tear. 10 (50%) of which required urgent surgical intervention. 114 patients presented with FTPD in the study window and were included in further analysis. Demographics show a female to male ratio of 51:62 with age range 9-44 years of age. Recurring instability occurred in 15 (13%) patients, 9 (7.8%) were found to have osteochondral defects, 2 of which required surgical intervention.

CONCLUSION

This 1-year patient cohort demonstrates the need for specialist review of patients with FTPD as a relatively large number of cases were identified as having alternative pathologies that required surgical management.

Submission ID 77

INVESTIGATING PREDICTORS OF ACL GRAFT FAILURE: BEYOND NOTCH WIDTH TO PATIENT AND GRAFT FACTORS

Patrick Nicholas[1,2], Suleyman Ulla[1], Conor Rankin[1,2], Lewis Davidson[1], David Young[3], Simon Spencer[1,2], Michael Brown[1,2]

[1]QEUH, Glasgow, United Kingdom. [2]University of Glasgow, Glasgow, United Kingdom. [3]University of Strathclyde, Glasgow, United Kingdom

Introduction
Graft failure following anterior cruciate ligament reconstruction (ACL-R) remains relevant. Notch Width Index (NWI) describes intercondylar notch width relative to bicondylar width. There is conflicting literature regarding whether smaller NWI increases risk of graft failure following ACL-R. We hypothesised that smaller NWI increases graft failure risk and that age, gender, graft type and graft diameter were also predictors.

Methodology
452 patients who underwent primary ACL-R between 2012 to 2024 were identified from our institutional database. NWI was measured on preoperative coronal MRI. Clinical records identified graft failures requiring revision surgery. Statistical analyses compared graft failure versus non-failure groups with respect to NWI, patient age, sex, graft type and graft diameter.

Results
20 graft failures occurred with minimum 12 month follow-up following ACL-R. No significant difference was found in NWI between failure and non-failure groups (p=0.237). Younger age was significantly associated with graft failure (p=0.008), as was smaller tibial graft diameter (p=0.049). No association was found between sex and failure (p=0.483) or graft type (hamstring vs bone–patellar tendon–bone [BTB]) and failure (p=0.536). No failures were observed in patients undergoing concomitant lateral extraarticular tenodesis (LET).

Conclusion
Smaller NWI was not associated with ACL graft failure, suggesting notch morphology does not independently predict graft rupture. Younger age and smaller graft diameter appeared more relevant risk factors. LET should be considered in this group and small graft diameter should be avoided. BTB grafts did not reduce risk of failure. Larger, prospective studies are required to validate predictors of ACL graft survival.

Submission ID 78

CLINICAL OUTCOMES OF MEDIAL PATELLOFEMORAL LIGAMENT RECONSTRUCTION USING FIBRETAPE IN THE PAEDIATRIC AND ADOLESCENT POPULATION: A COHORT STUDY

Khaled Youssef[1], Themistoklis Vampertzis[2], Rohit Gangadharan[1], Darius Rad[1], Morgan Bailey[1], Farokh Wadia[1]

[1]Southampton general hospital, Southampton, United Kingdom. [2]St George's Hospital, London, United Kingdom

Background
Medial patellofemoral ligament (MPFL) reconstruction is an established treatment for recurrent patellar instability in children and adolescents. FibreTape reconstruction has been proposed as a less invasive alternative to hamstring autograft reconstruction; however, paediatric outcome data remain limited.

Methods
A retrospective cohort study included 56 patients (77 knees) undergoing MPFL reconstruction using FibreTape. Twenty-one patients (37.5%) underwent bilateral procedures and 35 (62.5%) unilateral procedures. There were 40 female and 16 male patients, with a mean age at surgery of 14.3 years (range: 8.2–17.7). Paediatric International Knee Documentation Committee (Pedi-IKDC) scores were collected pre-operatively and post-operatively for 65 knees (84.4%).

Results
The mean pre-operative Pedi-IKDC score was 50.03 (range: 23–80), improving to a mean post-operative score of 78.87 (range: 25–99) at a mean follow-up of 2.5 years, demonstrating significant functional improvement. Recurrent instability occurred in 5 of 77 knees (6.5%), with 1 case (1.3%) following trauma. Persistent extensor lag of 5–10 degrees was identified in 17 of 65 knees (26.2%), with one outlier measuring >20 degrees. Four knees (5%) required a steroid injection for medial patellofemoral pain. No growth-related complications were observed.

Conclusion
MPFL reconstruction using FibreTape provides significant functional improvement with low recurrent instability and an acceptable complication profile at mid-term follow-up in skeletally immature patients. Longer-term follow-up is required to assess durability.

Submission ID 79

SHORT TERM OUTCOMES COMPARING THE USE OF HAMSTRINGS VS QUADRICEPS IN ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION

Ella Snowdon[1], Annalisa Newson[1], Brooke Cully[1], Majed Al Najjar[1,2], Jill Rutherford-Davies[1]

[1]Northern Care Alliance, Manchester, United Kingdom. [2]Royal Manchester Children's Hospital, Manchester, United Kingdom

Introduction

Despite the widespread use of hamstring autografts for ruptured ACL reconstructions, recent studies have suggested favourable outcomes from the use of quadriceps grafts. We thus aimed to determine if quadriceps tendon ACL reconstructions were non-inferior to hamstrings in a variety of short-term surgical and functional metrics.

Methodology

A multi-centre retrospective review of ACL reconstructions between 2018-2025. Metrics exported from patient notes included re-ruptures, complications, pain, knee extension, straight leg raise, muscle power, squat, single leg dip and stand, and return to activity. Chi-squared/Fisher's and Independent t-test/Mann-Whitney-U were used for data analysis.

Results

126 operations were included, with 82.5% hamstrings predominance. 7 patients required a revision ACL reconstruction, with a 2:5 quadriceps:hamstrings ratio. No significant association was found between the graft type and re-rupture rates ($p=0.61$), level of post-operative pain experienced ($p=0.92$), or additional complication rate ($p=0.38$). For functional outcomes, there was no significant difference in time to return of full knee extension ($p=0.60$), straight leg raise ($p=0.078$), muscle power ($p=0.49$), or patient activity ($p=0.32$). There was however a significant delay in return of squatting with equal weight bearing in hamstrings reconstruction relative to quadriceps ($p=0.041$).

Conclusion

Quadriceps grafts are non-inferior to hamstrings across a variety of short-term metrics, with no increase in graft failure or delays to movement return. Discussions should be held with all patients to deduce the optimal graft type for their individual goals. More research is needed in larger cohorts over longer follow up periods to identify if the quadriceps repair remains comparable.

Submission ID 80

RATES OF ADVERSE OUTCOMES FOLLOWING HIGH TIBIAL AND DISTAL FEMORAL KNEE OSTEOTOMY SURGERY IN ENGLAND: ANALYSIS OF HOSPITAL EPISODE STATISTICS DATA OVER TWENTY-FIVE YEARS

Conor Hennessy[1], Bilal Rayes[2], Ben Faber[2], James Murray[2], Simon Abram[2]

[1]Nuffield department of Orthopaedics, Rheumatology and musculoskeletal sciences, Oxford, United Kingdom. [2]Musculoskeletal Research Unit, Translational Health Sciences, University of Bristol, Bristol, United Kingdom

Purpose
Knee osteotomy is an established joint-preserving procedure. While short-term functional outcomes are well described, population-level studies are needed to understand the rates of rare but serious complications.

Methods
Data on isolated knee osteotomy patients were extracted from NHS Hospital Episode Statistics. Patients aged <16 or >80 and bilateral procedures within 6 months were excluded. Reoperations and 90-day serious complications were identified using ICD-10 and OPCS-4 codes. Primary outcomes were reoperation at 90 days and 1 year; secondary outcomes were 90-day serious complications (PE, MI, stroke, LRTI, AKI, UTI, neurovascular injury, fasciotomy). Logistic regression was done to estimate odds for serious complications.

Results
24,947 osteotomies (18,871 HTO, 4,490 DFO, 1,586 doubles; 23,371 patients) were included (mean age: 41 years; 62% male). Within 90-days, 2.27% (95% CI 2.08-2.47) underwent a reoperation, including 0.38% (95% CI 0.28-0.43) for infection. At 1-year, 7.26% (95% CI 6.93-7.61) of patients underwent at least one reoperation, including 1.04% (0.91-1.18) for infection; 0.38% (0.31-0.47) underwent arthroplasty. Within 90-days, 1.12% (95% CI 0.99-1.27) experienced at least one serious complication. Serious complication rates included PE 0.39% (95% CI 0.32-0.47; n=96), MI 0.029% (0.01-0.05; n=7), stroke 0.029% (0.01-0.05; n=7), AKI 0.35% (0.28-0.43; n=85). Age and greater comorbidity index were associated with greater odds of serious complications.

Conclusions:
Osteotomy is a safe procedure performed in a predominantly young, healthy population, with low 90-day morbidity. Older age and higher comorbidity are predictors of serious complications. These findings will inform consent discussions and may support future risk stratification.

Submission ID 81

TEMPORAL TRENDS AND REGIONAL VARIATION IN HIGH TIBIAL AND DISTAL FEMORAL KNEE OSTEOTOMY SURGERY IN ENGLAND: ANALYSIS OF HOSPITAL EPISODE STATISTICS DATA OVER TWENTY YEARS

Conor Hennessy[1], Nick Howells[2,3], Mike McNicholas[4,5], Leela Biant[5], Simon Abram[3]

[1]Nuffield Department of Orthopaedics, Rheumatology and Musculoskeletal Sciences, University of Oxford,, Oxford, United Kingdom. [2]North Bristol NHS Trust, Bristol, United Kingdom. [3]Musculoskeletal Research Unit, University of Bristol, Bristol, United Kingdom. [4]University Hospital Aintree, Liverpool, Manchester, United Kingdom. [5]University of Manchester, Manchester, United Kingdom

Objectives
Knee osteotomy is an established joint preserving procedure, but its national utilisation has been poorly understood. This study investigated twenty-year trends and geographic variation in high tibial osteotomy (HTO) and distal femoral osteotomy (DFO) rates in England.

Methods
Hospital episode statistics (HES) records for knee osteotomy (excluding patellofemoral osteotomies) from 1 January 2002 to 31 December 2022 were identified by procedure code; patients aged <16 or >80 were excluded. Age- and sex-standardised rates were calculated using Office for National Statistics (ONS) population denominators and analysed nationally and by NHS Integrated Care Board (ICB).

Results
In total, 24,516 cases (22,900 patients) were identified: These included 17,445 high tibial osteotomies (HTO), 4,181 distal femoral osteotomies (DFO), and 1,528 double level osteotomies. In 2022, intervention rates were 7.3/100,000 in patients aged 16–19 years, 3.9/100,000 in the 20–39-year age group, and 4.8/100,000 in the 40–59-year age group. Nationally, the intervention rate was 1.3/100,000 in 2002, which peaked in 2019 at 5.1/100,000, and was 3.9/100,000 in 2022. This represents an increase of over 300% over the study period. Marked regional variation in practice was detected, ranging from 1/100,000 to 9.5/100,000 in 2022 depending on the ICB responsible for care in the region.

Conclusions
Rates of osteotomy surgery increased over the twenty-year period, but a high degree of regional variation was detected. These findings suggest a need for standardised treatment guidance and review of service provision to ensure patients have access to the procedure when indicated.

Submission ID 85

RADIOGRAPHIC JOINT SPACE WIDENING OF THE UNAFFECTED COMPARTMENT IN VARUS OR VALGUS KNEES IS ASSOCIATED WITH ABNORMAL INTRAOPERATIVE LIGAMENTOUS LAXITY

Austin Wininger, Jose Iturregui, Zachary K. Christopher Zachary K. Christopher, Binghan Joshua, Mark Spangehl, Henry Clarke

Mayo Clinic, Phoenix, USA

Introduction

Krackow Type II valgus deformity is defined by attenuation of the medial collateral ligament (MCL). However, little quantitative information exists about associated intra-operative MCL laxity. Furthermore, a corollary may exist in varus deformity with associated lateral ligament laxity but is poorly described. Robotic-assisted total knee arthroplasty (raTKA) includes quantitative assessment of intraoperative ligament function. This study evaluated whether increased preoperative medial or lateral radiographic joint space width (JSW) in valgus or varus knees, was associated with increased intraoperative soft tissue laxity of the respective compartment.

Methodology

Intraoperative data from 348 consecutive raTKAs with 270 varus knees (hip-knee-ankle angle [HKA]<-2°), and 78 valgus knees, (HKA>2°) were retrospectively reviewed. For varus knees, lateral JSW was measured on preoperative, standing anteroposterior radiographs to determine lateral widening (threshold 8.0mm). For valgus knees, medial JSW was evaluated to determine medial widening (threshold 7.0mm). Intraoperative medial and lateral gaps at 0° and 90° had been recorded during manual stress testing . Linear regression was performed to determine associations between intra-operative gaps, radiographic JSW, and HKA.

Results

51 varus knees demonstrated lateral widening and 15 valgus knees had medial widening. In varus knees, lateral JSW was positively associated with the lateral extension (β=0.76, P<0.001) and flexion (β=0.74, P<0.001) gaps. Similarly, for valgus knees, medial JSW was positively associated with the medial extension (β=0.75, P<0.001) and flexion (β=0.77, P<0.001) gaps.

Conclusion

Increased preoperative radiographic JSW of the medial and lateral compartment in valgus and varus knees, predicted increased intraoperative gaps of that compartment, consistent with ligament attenuation.

Submission ID 86

CORONAL PLANE ALIGNMENT OF THE KNEE (CPAK) CLASSIFICATION CAN ONLY BE ACCURATELY DETERMINED ON LONG-LEG RADIOGRAPHS.

Austin Wininger[1], Clayton Wing[2], Joshua Bingham[1], Mark Spangehl[1], Cameron Ledford[2], Henry Clarke[1]

[1]Mayo Clinic, Phoenix, USA. [2]Mayo Clinic, Jacksonville, USA

Introduction
The coronal plane alignment of the knee (CPAK) classification is a pragmatic method to characterize constitutional limb alignment. CPAK classification was originally described using standing, long-leg radiographs (LLRs). However, many surgeons do not obtain LLRs before total knee arthroplasty (TKA). Therefore, measurements from alternative modalities, including supine computed tomography (CT) scanograms and standing, short knee radiographs (SKRs), have also been used. This study was performed to evaluate correlations in radiographic measurements and the agreement of CPAK classification between these three imaging modalities.

Methods
300 knees undergoing primary TKA were retrospectively reviewed. All knees had preoperative LLRs, CT scanograms, and SKRs. Two reviewers independently measured the mechanical lateral distal femoral angle (mLDFA) and mechanical medial proximal tibial angle (mMPTA) on each modality. Correlation coefficients for measurements between imaging modalities were evaluated. The distribution of CPAK phenotypes using each modality was compared.

Results
When compared to LLR measurements, strong correlations were found for the mLDFA and mMPTA measurements from CT scanograms (correlation coefficient, 0.839 and 0.819, respectively) and SKRs (0.845 and 0.896, respectively). Moderate agreement for the CPAK type on LLRs was determined from CT scanograms (61.7% agreement; Cohen's kappa, 0.455) and SKRs (68.7% agreement; 0.571). However, a different CPAK classification versus LLRs was determined from CT scanograms and SKRs in over 30% of knees.

Conclusion
Despite moderate or strong correlation between imaging modalities for radiographic measurements of limb alignment, only moderate agreement was noted in CPAK types. Therefore, LLRs should be used for determining CPAK for clinical and research purposes.

Submission ID 88

"WAITING POORLY" FOR HIP AND KNEE ARTHROPLASTY: DECLINING QUALITY OF LIFE AND A PERCEIVED LACK OF SUPPORT - FINDINGS OF THE MULTICENTRE WAIT-DATA STUDY

Conor McCann[1,2], Nick Clement[1,3], Christopher Gee[2,4,5], Jon Clarke[2], Phil Walmsley[1,6,7], Nicholas Ohly[2], David Deehan[8], Deiary Kader[9], Ciara Stevenson[10]

[1]School of Medicine, University of St Andrews, St Andrews. [2]Department of Orthopaedics, Golden Jubilee University National Hospital, Clydebank. [3]Edinburgh Orthopaedics, Royal Infirmary of Edinburgh, Edinburgh. [4]Scottish Committee for Orthopaedics and Trauma (SCOT), Edinburgh. [5]Centre for Sustainable Delivery (CfSD), NHS Scotland, Clydebank. [6]Scottish Arthroplasty Project (SAP), Public Health Scotland, Edinburgh. [7]National Treatment Centre, Fife Orthopaedics, Kirkcaldy. [8]Department of Orthopaedics, Freeman Hospital, Newcastle. [9]South West London Elective Orthopaedic Centre, Surrey. [10]Department of Orthopaedics, Musgrave Park Hospital, Belfast.

Introduction
Prolonged waiting times for hip and knee arthroplasty are associated with deterioration in health-related quality of life. The lived experience of waiting for arthroplasty remains poorly characterised. This study evaluated patients' experiences of preoperative information, advice, and support, and identified groups reporting the lowest satisfaction.

Methodology
The `What Are the Implications to Delayed Access to Arthroplasty?` (WAIT-DATA) study was a prospective multicentre audit of patients awaiting elective hip or knee arthroplasty across 14 UK hospitals. Participants completed a standardised questionnaire assessing satisfaction with nine domains of preoperative information and support, each rated on a five-point Likert scale. Composite "Information and Advice" and "Support" scores were derived, and associations with demographic, clinical, and psychosocial factors were examined using multivariable linear regression.

Results
Among 851 respondents (mean age 69; 57.7% female), overall satisfaction was moderate. Patients were generally well informed about their condition (mean 4.14±0.92) and operation (4.34±0.88), but less satisfied with support for weight management (3.49±0.98), general health (3.54±1.01), and mental wellbeing (3.46±1.02) ($p < 0.001$). Older age, obesity, deprivation, and new physical or mental diagnoses were associated with lower satisfaction, although effect sizes were small. Poorer self-reported health and quality-of-life change showed stronger links with dissatisfaction, particularly regarding waiting time. Almost half reported opioid use, and most described deteriorating function and activity while waiting.

Conclusion
Patients awaiting arthroplasty experience significant physical and psychological decline yet receive inconsistent support. The waiting period should be reframed as an active phase of preparation, with proactive multidisciplinary support.

Submission ID 94

TEN YEAR SURVIVORSHIP OF THE JOURNEY II TOTAL KNEE REPLACEMENT: A SINGLE CENTRE SUVIVAL ANALYSIS

Loukas Andritsos, Weng Chee Ho, Zeeshan Ali-Qazalbash, Joanne Yorke, Jill Pope, Joanne Banks, John Davidson, Andrew Phillipson, Alasdair Santini

Liverpool University Hospitals NHS Foundation Trust, Liverpool, United Kingdom

The Journey II BCS total knee replacement was launched in 2013 to replace the Journey I implant which had demonstrated some early failures. This study is the first 10-year survivorship report on the Journey II BCS implant.

This is a retrospective study of prospectively collected data, analyzing all patients who underwent Journey II BCS TKR between 2013 and 2015 in a single centre. Implant failure was defined as revision surgery for any cause. Survival analysis and sub-group analysis were performed.

187 patients were assessed: M:F 72:115, Mean age: 60.5 [25-79]. 17 died and 3 were lost to follow-up by 10-years. 13 revisions were performed; 4 for patella resurfacing, 3 for aseptic loosening of the tibia (at 2, 3 and 7 years post-operatively), 2 for polyethylene peg fracture (occurring at 10-years post-operatively), 2 for stiffness, 1 for deep infection and 1 for persistent effusion with instability. None demonstrated aseptic femoral loosening. The cumulative success rate for revision for any reason at 10 years was 93.2%. The aseptic loosening rate survival was 93.5%. Overall 129 (69%) patients had primarily their patella resurfaced and of those who did not, 6.9% required secondary patella resurfacing.

This is the first study to report on Journey II's 10-year survivorship and shows excellent results with 93% 10-year survival and low rates of aseptic loosening. Peg fractures are a worrying complication and needs monitoring. Secondary patellar resurfacing seems to be a major factor for revision and we would advocate considering it for all Journey II BCS cases.

Submission ID 95

OUTCOMES OF CORRECTIVE SURGERY FOR MISERABLE MALALIGNMENT SYNDROME: A SINGLE-CENTRE RETROSPECTIVE COHORT STUDY

Isteqlal* Miakhil[1], Eshaan* Ganatra[1], Dahami Herath Mudiyanselgae[1], Piers Mitchell[2], Mariusz Chomicki[2], Jose Blanco[2]

[1]University of Leicester, Leicester, United Kingdom. [2]North West Anglia NHS Foundation Trust, Peterborough, United Kingdom

Background
Miserable malalignment syndrome (MMS) is characterised by abnormal femoral anteversion and tibial torsion and may present with patellofemoral pain, instability, coronal malalignment, and foot deformities. Corrective osteotomy is undertaken in selected patients. This study reports outcomes following corrective surgery for MMS.

Methods
A retrospective cohort study was undertaken at an orthopaedic centre. Patients undergoing corrective surgery for MMS were identified using OPCS procedural coding. Pre-operative CT scans were used to define rotational deformity. Outcomes were assessed from post-operative clinic documentation, including patient-reported improvement, union, complications, and metalwork removal. Outcomes were analysed per procedure using descriptive statistics.

Results
From 141 patients, 46 corrective procedures were included, including staged bilateral operations. Primary rotational correction comprised isolated tibial shaft osteotomy in 20 procedures, isolated femoral osteotomy in 6, and combined femoral and tibial shaft osteotomy in 4. Tibial tubercle–trochlear groove (TT–TG) osteotomy was performed in 18 cases. Fixation for tibial shaft osteotomy included K-wires (17 cases), ORIF (15), and plates (5); femoral osteotomies stabilised using ORIF (10), while TT–TG osteotomies used cannulated screws (9) or combined K-wire and screw fixation (9). Follow-up documentation was available for all procedures. Patient-reported improvement was recorded following 45/46 procedures (98%). Union was achieved in all cases. Complications occurred in 7/46 procedures (15%), and subsequent metalwork removal was required following 18/46 procedures (39%).

Conclusion
Corrective surgery for MMS was associated with high union rates and favourable patient-reported outcomes when analysed per procedure. Pre-operative CT imaging enabled objective quantification of deformity and supported surgical decision-making.

Submission ID 97

EARLY COMPLICATIONS, GRAFT FAILURE, AND THE NEED FOR FURTHER SURGERY FOLLOWING ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION: ANALYSIS OF INCIDENCE AND CLINICAL RISK FACTORS IN 512 CONSECUTIVE PATIENTS

Rachael Cullinan[1], Christopher Gee[1], Phil Walmsley[2], Andrew Hall[1]

[1]Golden Jubilee National Hospital, Clydebank, United Kingdom. [2]Victoria Hospital, Fife, United Kingdom

Introduction
To evaluate outcomes of patients undergoing anterior cruciate ligament reconstruction (ACLr) with respect to complications, function, and satisfaction.

Methology
A retrospective cohort study of all patients undergoing ACLr procedures between 2014-2018 within NHS Scotland. Data was collected and followed up for a minimum of 24 months, included: demographics; injury; treatment, and complications. Patient-reported outcome measures included: International Knee Documentation Committee (IKDC) score; sport participation; work/life effects; satisfaction, and net promotor score (NPS).

Results
There were 268/512 (52%) patients that participated. Median age was 27 years (13-65 years) and 193/268 (72%) were Male. The most common index procedure was ACLr 161/268 (60.1%). Early (<2 years) postoperative complications were seen in 74/268 (27.6%) patients (infection most common [n=18]), and 53/268 (19.8%) required further surgery. Post-surgery mean satisfaction was 8/10 (SD±2.2), mean NPS was 9/10 (SD±1.8) (0=worst,10=best), and mean IKDC score was 80 (SD±16.5). Negative effects on quality of life were experienced by the majority (172/268 [64.2%]), with 47/268 (17.5%) describing severe impact. Forty percent (106/268) reported negative effects on work (severe in 20/268 [7.5%]), with 90% requiring sick leave (median 7.4 weeks [interquartile range {IQR} 9.0 weeks]). A quarter (65/268 [24.5%]) reportednegative effects on relationships (severe in 13/268 [4.9%]). Median return to play (RTP) was 52 weeks (IQR 44), and 81/261 (31%) did not RTP within 4 years.

Conclusion
Patients requiring ACLr experienced significant impacts on work, relationships, sports, and quality of life. Thesefindings support the need for high-quality surgical and rehabilitation support following ACL injury.

Submission ID 98

THE IMPACT OF DIFFERENTIAL POSTERIOR TIBIAL SLOPE ON CLINICAL OUTCOMES FOLLOWING REVISION ANTERIOR CRUCIATE RECONSTRUCTION SURGERY. A SINGLE-CENTRE RETROSPECTIVE STUDY

Luke Duggleby[1], Konstantinos Tsikopoulos[2], James Robinson[3], Konstantinos Kazamias[4], Kamrul Hasan[5], Paul White[6], Nick Howels[1], James Murray[1]

[1]Orthopaedic Department, North Bristol NHS Trust, Bristol, United Kingdom. [2]National and Kapodistrian University of Athens, Athens, Greece. [3]Spire Hospital, Bristol, United Kingdom. [4]Aneurin Bevan University Health Board, Newport, United Kingdom. [5]Ashford and Saint Peter's Hospital, Surrey, United Kingdom. [6]University of the West of England, Bristol, United Kingdom

Background
Patients undergoing anterior cruciate ligament (ACL) revision surgery tend to have a larger differential posterior tibial slope compared to healthy individuals. Although it has already been established that this parameter results in higher risk of ACL re-rupture, the impact of differential slope on outcomes following revision ACL surgery remains unclear.

Methods
Patients undergoing revision ACL surgery between 2014 and 2024 in our institution were eligible for inclusion. The primary outcome was the change in subscales of the Knee injury and Osteoarthritis Outcome Score (KOOS) preoperative to at least 1-year postoperative. Medial and lateral posterior tibial slopes were measured by four assessors on magnetic resonance imaging (MRI) scans; the differential slope was calculated as the difference between lateral and medial values. Intra- and inter-observer variability was assessed using Bland-Altman analyses and the intra-class correlation coefficient (ICC).

Results
Thirty one revision ACL cases were included. The mean pre- and >1- year post-operative KOOSs pain subscale were 67.5 (17.78) and 80.1 (16.36), respectively (mean difference 12.6 [95% CI 4.44 to 20.86]; p = 0.004). Bland-Altman analysis showed no evidence of a systematic bias in rater assessments along with excellent ICC (0.87, 95% CI 0.776, 0.931). There was a statistically significant correlation between increased mean differential slope and pain KOOS subscale (Pearson correlation was -0.595, p<0.001).

Conclusions
In patients undergoing ACL reconstruction, greater differential posterior tibial slope is associated with poor patient reported outcomes. Differential slope can be reliably measured on MRI with excellent inter-observer agreement, potentially aiding in preoperative risk stratification.

Submission ID 99

DOES THE INTRODUCTION OF A "ROBOT" FOR TOTAL KNEE ARTHROPLASTY IN AN NHS INSTITUTION RESULT IN THE SIGNIFICANT DOWNSIDES THAT MANY SURGEONS AND BUDGET HOLDERS ARE WORRIED ABOUT?

George Dixon, Meera Dackombe, Alex Anderson, Andrew Legg

Trauma and Orthopaedics, The Rotherham NHS Foundation Trust, Rotherham, United Kingdom

Introduction

Approximately 18% of patients report dissatisfaction following TKR, hence the interest in robotic assistance to achieve a functional alignment. Potential advantages include precise implant positioning with less soft tissue releases and less blood loss. An increasing body of evidence suggests better clinical outcomes. However, there are concerns about the cost, learning curve, increased surgical time and risks. This initial evaluation assesses whether robotic TKR (rTKR) is equivalent in safety and efficiency as manual TKR (mTKR), since introducing the Robotic Orthopaedic Surgical Assistant (ROSA) at The Rotherham NHS Foundation Trust.

Methodology

Using patient records and theatre tracking software, outcomes from TKR performed by the same surgeons were compared one year before and after ROSA in April 2024. Primary comparisons were tourniquet time, length of surgery, haemoglobin drop, length of stay and complications.

Results

65 rTKR, 62 mTKR. Mean tourniquet time was 1 minute longer for rTKR (67 mins) than mTKR (66 mins). Mean length of surgery was 14 minutes longer for rTKR (96 mins) than mTKR (82 mins). Haemoglobin drop was 4g/dL less for rTKR (17g/dL) than mTKR (21g/dL). Mean post-op length of stay was 0.2 days longer for rTKR (3.7 days) than mTKR (3.5 days). Complications had no difference.

Conclusion

This evaluation finds that rTKR has no significant learning curve in terms of surgical time, results in less blood loss, has an equivalent length of stay, without further complications and is not prohibitively costly. Those who wish to explore differing alignment philosophies can do so without those concerns.

1Submission ID 00

LATERAL EXTRA-ARTICULAR TENODESIS VERSUS ANTEROLATERAL LIGAMENT RECONSTRUCTION IN REVISION ACL RECONSTRUCTION: A QUANTITATIVE POOLED ANALYSIS

Yuxin Ying[1], Margaret O'Riordan-Stamato[1], Ernest Chew[1], Joachim Ho[2,3], Khalid Al Hourani[4,5], Ciaran McGarvey[4], Shehzaad Khan[4,5]

[1]Frimley Health NHS Foundation Trust, Frimley, United Kingdom. [2]Betsi Cadwaladr University Health Board, Bangor, United Kingdom. [3]University of Edinburgh, Edinburgh, United Kingdom. [4]Wexham and Heatherwood Knee Unit, Frimley Health NHS Foundation Trust, Frimley, United Kingdom. [5]Falcon Sports Clinic, Windsor, United Kingdom

Revision anterior cruciate ligament reconstruction (rACLR) is associated with higher graft failure rates, inferior functional outcomes, and lower return-to-sport compared with primary reconstruction. Graft re-rupture prompts increasing use of lateral extra-articular augmentation to improve stability and protect the revision graft. While both lateral extra-articular tenodesis (LET) and anterolateral ligament (ALL) reconstruction show benefit in primary ACL reconstruction, their comparative effectiveness in the revision setting remains unclear.

A systematic search of PubMed, Embase, and the Cochrane Library identified studies evaluating rACLR augmented with LET or ALL. Twenty-nine studies were included, with only two directly comparing the two techniques. Given the limited head-to-head evidence, a quantitative descriptive pooled analysis was performed across non-comparative cohorts. Continuous outcomes were summarised using weighted pooled means and standardised mean differences (SMDs), while dichotomous outcomes were summarised using pooled odds ratios (ORs) with 95% confidence intervals.

Postoperative Lysholm scores were lower following LET (mean 62.1) compared with ALL (69.0), corresponding to a moderate effect size (SMD −0.43). Postoperative Tegner and IKDC scores were slightly higher following LET (SMD 0.23 and 0.22), indicating small differences in activity-level and functional outcomes. Pooled dichotomous analysis demonstrated higher odds of graft failure following LET (OR 2.87, 95% CI 1.39–5.95), while return-to-sport rates were similar.

Across pooled cohorts, ALL augmentation in rACLR is associated with higher knee-specific symptom scores and lower graft failure risk compared with LET, with broadly comparable functional and activity-level outcomes. Further adequately powered comparative studies are required to define the optimal augmentation strategy in revision ACL reconstruction.

Submission ID 102

CAN EOS REPLACE CT FOR FEMORAL TORSION MEASUREMENT? A RELIABILITY AND AGREEMENT STUDY OF FOUR CT METHODS

Salam Ismael, Ishani Gurung, Michelle Robinson-Miller, Rahul Anaspure, Vipul Mandalia

Royal Devon and Exeter Hospital, Devon, United Kingdom

Introduction

CT is the reference standard for assessing lower-limb torsional alignment. EOS is a low-dose biplanar imaging system enabling 3D reconstruction and automated torsion measurement. This study compared EOS-derived femoral torsion with four established CT techniques.

Materials and Methods

Twenty-eight patients who underwent both CT and EOS were reviewed. EOS torsion was measured by an experienced MSK radiologist using standardised 3D reconstructions. Two senior orthopaedic fellows measured CT torsion using four published methods in two independent rounds. Agreement between EOS and CT was assessed using Pearson correlation, and CT inter- and intra-observer reliability using ICC(2,1). Method-related bias and limits of agreement were evaluated with Bland–Altman analysis.

Results

Twenty-eight patients (56 femora; mean age 32 years) were included. Mean CT torsion values were 15° (Lees), 19° (Reikers), 30° (Toms), and 30° (Murphy); mean EOS torsion was 18°. All CT techniques showed excellent inter- and intra-observer reliability (ICC 0.95–0.98). EOS strongly correlated with all CT methods (r = 0.88–0.91). Agreement was method-dependent: Reikers showed minimal bias relative to EOS, Toms and Murphy overestimated torsion by ~11–12°, and Lees underestimated torsion by ~3–4°.

Conclusion

EOS provides a reliable, radiation-sparing alternative to CT for measuring femoral torsion. EOS aligns most closely with the Reikers method, which shows minimal systematic bias.

Submission ID 103

DISTAL TT–TG AS A PREDICTOR OF PROXIMAL TROCHLEAR GROOVE POSITION: A NARROW ±2 MM CORRIDOR AND THE TROCHLEAR DYSPLASIA DILEMMA?

Salam Ismael, Michelle Robinson-Miller, Rahul Anaspure, Vipul Mandalia

Royal Devon and Exeter Hospital, Exeter, United Kingdom

Introduction
Trochlear dysplasia (TD) is a major contributor to recurrent patellar instability, yet measurement of proximal tibial tubercle–trochlear groove (TT–TG) distance is challenging when the proximal groove is poorly formed. Establishing the relationship between distal and proximal TT–TG may allow distal TT–TG to serve as a reliable surrogate and provide intraoperative guidance during trochleoplasty.

Methods
Fifty knee MRI scans from individuals without patellofemoral symptoms and with normal trochlear morphology were analysed. TT–TG distance was measured at proximal, mid, and distal trochlear levels by two radiologists on two occasions. Proximal–distal relationships were assessed using linear regression and threshold analyses. Inter-observer reliability was evaluated using intraclass correlation coefficients (ICC).

Results
Mean proximal, mid, and distal TT–TG distances were 10.1 ± 3.0 mm, 9.6 ± 3.0 mm, and 9.6 ± 2.8 mm, respectively. The proximal trochlear groove was only 0.5 mm more medial than the distal groove on average (SD ≈ 1.6 mm). Regression demonstrated a strong linear relationship between distal and proximal TT–TG (Proximal TT–TG ≈ 1.2 + 0.94 × Distal TT–TG; R^2 = 76%). Seventy percent of knees showed a proximal–distal difference within ±2 mm. ICC values were excellent (0.93–0.96).

Conclusion
In normal knees, distal and proximal TT–TG measurements differ by less than ±2 mm in most cases, supporting distal TT–TG as a reliable surrogate when the proximal groove is unclear. This close relationship may also guide optimal groove orientation during trochleoplasty. Differences exceeding 2–3 mm are uncommon and may be clinically meaningful.

Submission ID 105

COMBINING FOUR PATIENT REPORTED OUTCOME MEASUREMENT INSTRUMENTS TO DEVELOP A PRECISE COMMON METRIC COMPUTERISED ADAPTIVE TEST TO MEASURE OUTCOME AFTER TOTAL KNEE REPLACEMENT

Chetan Khatri[1], Nick Clement[2], Deborah MacDonald[2], Chloe Scott[2], Andrew Metcalfe[1], Jeremy Rodrigues[1], Conrad Harrison[3]

[1]Warwick clinical trials unit, coventry, United Kingdom. [2]Edinburgh Orthopaedics, Royal Infirmary of Edinburgh, Edinburgh, United Kingdom. [3]4. Surgical Intervention Trials Unit, Nuffield Department of Orthopaedics, Rheumatology and Musculoskeletal Sciences, University of Oxford,, Oxford, United Kingdom

Background
To map the Oxford Knee Score (OKS), OKS Activity & Participation Questionnaire (OKS-APQ), Forgotten Joint Score (FJS) and High Activity Arthroplasty Score (HAAS) to a common scale. Using the common scale, we built a computerised adaptive test (CAT) to reduce item burden.

Design
Participants undergoing TKR provided pre-operative and post-operative (6- and 12-months) paired responses for four PROM instruments, with OKS being the common linking instrument. A computerised adaptive test algorithm was developed.

Results
6,301 paired responses were included. Confirmatory factor analysis demonstrated that the four PROM instruments measured a similar construct, described as 'knee health'. Combining all four instruments into a common metric resulted in higher test level information than any individual instrument (higher precision). The CAT reduced 36 items to a median of 8 items, while maintaining high measurement precision (standard error of measurement 0.29).

Conclusions
The common metric provides more precise measurement of knee health than any of the individual instruments that are currently used and avoids floor and ceiling effects inherent in individual scores. The CAT algorithm reduces item burden to a median of 8 items, which is lower than the FJS or OKS, when used as individual instruments. It allows for standardisation of outcome reporting and pooling of results across databases that use any of the four instrument to facilitate individual, and meta-analyses across different scores.

Submission ID 06

EFFICACY OF ARTIFICIAL INTELLIGENCE IN SURGICAL PLANNING FOR CORRECTION OF PATELLA ALTA

Sunandan Datta, Gordon Gillespie, Mark Kemp, Jonathan Manara

Aneurin Bevan University Health Board, Newport, United Kingdom

Introduction
This study assesses the predictive efficacy of two Large Language Models (LLMs), Gemini and Copilot, in determining the requisite distalisation for Tibial Tubercle Osteotomy (TTO) for patients requiring surgery for patella alta. Model performance was benchmarked against surgeon-determined values using three distinct prompts: a general inquiry (Q1), and specific queries targeting the Insall-Salvati (IS) Ratio (Q2) and Caton-Deschamps Index (CDI) (Q3).

Methods
This retrospective analysis of pre-operative lateral knee radiographs of 25 TTO cases used the surgeon's intraoperative distalisation measurement as the baseline.The performance of six AI-prompt combinations was quantified using Mean Absolute Difference (MAD) for accuracy and standard deviation of the difference for reliability.

Results
The Copilot model demonstrated superior performance over Gemini across all prompts.The combination of the Copilot model with the Q1 (general inquiry) prompt yielded the highest accuracy, achieving the lowest Mean Absolute Difference of 2.84 mm.This general prompt outperformed the specific, index-based queries for the superior model. Despite its high accuracy and reliability (SD = 3.70 mm), this optimal combination still produced clinically significant errors (> ±4 mm) in 20% of cases.

Conclusions
The efficacy of LLMs in surgical planning is highly contingent upon the specific model and prompting strategy. For the Copilot model, a general, goal-oriented prompt yielded the most accurate predictions. However, the persistence of significant errors confirms that current LLMs are unsuitable for autonomous surgical planning. Their role should be confined to that of an adjunctive decision-support tool, providing a quantitative estimate that necessitates verification and final judgment by an experienced surgeon.

Submission ID 107

GENICULAR NERVE BLOCK IN KNEE PAIN: A RETROSPECTIVE STUDY IDENTIFYING PREDICTORS OF FUNCTIONAL TREATMENT RESPONSE

Katherine Hatt, Isabella Petrie, Dale Opon, Michael Hockings

Torbay Hospital, Torquay, United Kingdom

Introduction
Genicular nerve block (GNB) is increasingly used to manage chronic knee pain, particularly in patients with limited surgical options. However, real-world functional outcomes and predictors of response remain poorly defined. This pilot study evaluated short-term outcomes following GNB and explored factors associated with clinically meaningful functional improvement.

Methodology
A retrospective observational study was conducted using routinely collected outcome data from an orthopaedic knee clinic. The primary outcome was change in Oxford Knee Score (OKS) at 6 weeks. Secondary outcomes included responder status (≥5-point OKS improvement). Subgroup analyses examined baseline severity, early pain trajectory (defined using week-1 and month-1 VAS), age (<60/≥60), BMI (<40/≥40 kg/m^2), joint type (native/prosthetic), and symptom chronicity. Effect sizes with 95% confidence intervals were reported alongside p-values.

Results
In 335 patients, OKS improved significantly from baseline to 6 weeks, with mean improvement of 8.5 points ($p<0.001$), with 57.6% achieving responder status. Worse baseline OKS was associated with greater improvement ($p=0.026$). No significant differences in OKS improvement were observed when stratified by age, BMI, symptom duration, joint type, or surgical eligibility ($p>0.05$). Among 260 patients with early pain data, early response was a strong prognostic indicator, with sustained low pain in the first month associated with superior OKS improvement.

Conclusion
GNB was associated with clinically meaningful short-term functional improvement in a real-world knee pain cohort. Baseline severity and early pain trajectory were the strongest predictors of response. This study supports further prospective, stratified evaluation of GNB, particularly in high-risk and surgically ineligible populations.

Submission ID 113

EVALUATION OF THE DIAGNOSTIC ACCURACY OF MRI IN DETECTING RAMP LESIONS

Aashish Ahluwalia[1], Charles Gibbons[2], Sophia Hashim[1], Sina Abdolrazaghi[3]

[1]UCLH, London, United Kingdom. [2]Chelsea and Westminster, London, United Kingdom. [3]West Hertfordshire NHS Trust, London, United Kingdom

Introduction

Ramp lesions are longitudinal tears of the posterior horn of the medial meniscus associated with meniscocapsular ligament injury and commonly occur with anterior cruciate ligament (ACL) tears. These lesions disrupt the meniscocapsular junction, contributing to tibiofemoral instability under rotational stress. If untreated, ramp lesions may compromise ACL reconstruction outcomes and accelerate joint degeneration. Despite their clinical importance, ramp lesions are frequently missed on magnetic resonance imaging (MRI), particularly when stable. This study evaluated the diagnostic accuracy of MRI in detecting ramp lesions.

Methodology

A retrospective review was conducted of patients who underwent MRI for suspected ACL tears between 2019 and 2021 at a London hospital. MRI reports were assessed for direct identification of ramp lesions and for secondary imaging features, including meniscocapsular separation, posteromedial tibial bone marrow edema, and fluid in the posteromedial capsule. Arthroscopic findings were used as the reference standard.

Results

Of 330 MRI scans reviewed, 104 demonstrated ACL rupture. After excluding 33 cases without arthroscopy, 71 cases were analyzed. MRI demonstrated a sensitivity of 56.3% and specificity of 88.5% for direct detection of ramp lesions. When secondary imaging features were included, sensitivity was 55.6%, specificity 59.6%, and the negative predictive value was 88.6%.

Conclusion

MRI has limited sensitivity for detecting ramp lesions. However, the absence of secondary imaging features demonstrates a high negative predictive value and may reliably exclude these lesions. Further prospective studies are required to improve diagnostic accuracy and optimize clinical outcomes.

Submission ID 114

TRAUMATIC KNEE DISLOCATION AND MULTI-LIGAMENT KNEE INJURY: EPIDEMIOLOGY INSIGHTS FROM A UK MAJOR TRAUMA CENTRE

Kais Al Suyyagh[1], Adam Sultan[1], Sabeen Baker[2], Jawad Sultan[1]

[1]Manchester NHS Foundation Trust, Manchester, United Kingdom. [2]University of Jordan, Amman, Jordan

Introduction

Knee dislocation (KD) with multi-ligament knee injury (MLKI) is a potentially limb-threatening injury requiring complex multidisciplinary management with significant morbidity. This study aims to characterise the demographics, injury patterns, mechanism, and associated injuries of patients presenting with traumatic KD and MLKI at a single UK Major Trauma Centre.

Methods

This retrospective cohort review included adults diagnosed with KD (Schenck II–V) between 2022–2025. ACL tears with MCL injuries not requiring MCL repair/reconstruction were considered KD-I, thereby excluded. Thirty-nine cases were included, one patient had bilateral injuries.

Results

MLKI occurred predominantly in males (61%) with a mean age of 37 years (20–62). The mean BMI was 32 (17.0-62.9), 26% having a BMI A35. Most patients led sedentary lifestyle or were recreationally active with (39%, 42%) respectively, 8% were competitive athletes. High-velocity/energy injuries (HVI) accounted for 61% of injuries, whilst ultra-low-velocity injuries (ULVI) accounted for 21%, predominantly affecting sedentary females (88%) with an average BMI of 48.

Schenck KD-II, KD-III, KD-IV, and KD-V comprised 26%, 33%, 15%, and 26% of cases respectively. Around half (49%) had nerve and/or vessel injuries, with 10% sustaining combined neurovascular injury. Surprisingly, NV injuries were more frequent with ULVI (67%) compared to HVI (42%) cohort. Of the 13 (33%) cases with vascular injuries, 9 (69%) required bypass grafting.

Conclusion

Schenck KDIII injuries were most frequent, with HVI mechanism predominating. ULVI mechanism in high-BMI patients, though less frequent, carried higher neurovascular risk. Early recognition and multidisciplinary approach are essential to optimise outcomes.

Submission ID 116

INTRA-ARTICULAR MORPHINE FOR PAIN CONTROL FOLLOWING ACL RECONSTRUCTION: A SYSTEMATIC REVIEW AND META-ANALYSIS

Arez Hassan[1], Preemal Patel[1], Ciaran McGarvey[1], Khalid Al-Hourani@nhs.net[1,2], Shehzaad Khan[1,2]

[1]Wexham and Heatherwood Knee Unit, Frimley Health NHS Foundation Trust, London, United Kingdom. [2]Falcon Sports Clinic, Windsor, United Kingdom

Background
Postoperative pain following anterior cruciate ligament (ACL) reconstruction can hinder early rehabilitation and functional recovery. Intra-articular (IA) morphine has been proposed as a method of providing prolonged analgesia while limiting systemic opioid-related adverse effects. The evidence to support its routine use remains unclear.

Methods
A systematic review of randomised controlled trials evaluating IA morphine following ACL reconstruction was performed in accordance with PRISMA guidelines. PubMed, Embase, and Web of Science were searched from database inception to 2025. Two reviewers independently screened studies for eligibility and extracted data using a standardised collection form. Primary outcome was postoperative pain measured using the visual analogue scale (VAS). Secondary outcomes included time to first analgesic request, postoperative opioid consumption, and complications. A random-effects meta-analysis was conducted where extractable data were available.

Results
Six randomised controlled trials involving approximately 240 patients were included. Two studies provided extractable 24-hour VAS data suitable for meta-analysis. Intra-articular morphine was associated with significantly lower 24-hour postoperative pain compared with control (standardised mean difference −0.95, 95% CI −1.64 to −0.26). All included studies demonstrated a consistent trend towards reduced pain scores, prolonged time to first analgesic request, and reduced systemic opioid consumption in the intra-articular morphine groups. No increase in opioid-related adverse effects was reported.

Conclusion
Intra-articular morphine provides effective postoperative analgesia following ACL reconstruction, particularly between 6 and 24 hours postoperatively, without increased complications. It represents a simple, low-risk adjunct within multimodal analgesic protocols. Further high-quality studies are required to establish optimal dosing.

Submission ID 117

IS THERE A GENETIC PREDISPOSITION TO PROSTHETIC JOINT INFECTION (PJI)?

David Langton[1], Britt Wilding[1], Rohan Bhalekar[1], Stephen Wells[1], Moreica Pabbruwe[2], Simon Tilley[3], Suraj Kohli[3], Raghavendra Sidaginamale[4], Alasdair Santini[5]

[1]ExplantLab, Newcastle Upon Tyne, United Kingdom. [2]Royal Perth Hospital, Perth, Australia. [3]University Hospital of Southampton, Southampton, United Kingdom. [4]University Hospital of North Tees, Stockton, United Kingdom. [5]Liverpool University Hospitals NHS FT, Liverpool, United Kingdom

Introduction
PJI is a potentially devastating complication of arthroplasty. We investigated whether a less diverse host immune repertoire – as measured by HLA allele homozygosities – may leave a patient at greater risk of the condition.

Methods
This study formed part of a prospective, multicentre investigation into the influence of genetics on arthroplasty outcomes. It is not limited to any type of joint, device or biomaterial. There are two patient groups in the study: patients who are at least five years post arthroplasty (and discharged) and patients who are undergoing revision of their arthroplasty. Blood samples were taken for next generation sequencing of HLA alleles. Explanted components were sonicated, with extracted fluid undergoing whole bacterial sequencing. Cox proportional hazards modelling was performed using number of HLA class I homozygosities, age and BMI as explanatory variables.

Results
A total of 870 patients were included. Of these, 271 were revision patients, with 34 of the revisions carried out for infection (3.9% overall incidence of infection). The mean (range) time to follow up was 9.7 (0.1-40) years. The incidence of infection in patients with no homozygosities was 3.1%, 5% in those with a single homozygosity, 9.1% in those with two and 10% in patients with three homozygosities. Cox modelling confirmed a dose effect ($p = 0.002$), with a hazard ratio of approximately two for each homozygosity.

Conclusion
Reduced HLA class I diversity appears to be associated with an increased risk of PJI. Around 20% of the European population carry at least one HLA homozygosity.

Submission ID 118

THE EFFECTS OF TOURNIQUET USE IN REVISION TOTAL KNEE ARTHROPLASTY

Ghiath Ismayl, Ammer Jamjoom, Ayobami Asaju, Ward Hamsho, Jeya Palan

Leeds Teaching Hospitals NHS Trust, Leeds, United Kingdom

Introduction
Despite extensive research on the effects of tourniquet use in primary total knee arthroplasty (TKA), limited evidence is available on its role in revision TKA. This study aims to assess the effects of tourniquet use in revision TKA.

Methods
This was a retrospective comparative study on all patients undergoing revision TKA from 2018 to 2024 at Leeds Teaching Hospitals. Revision cases for infection or trauma were excluded. Primary outcomes measured were perioperative blood loss (haemoglobin Hb drop) and transfusion rates. Secondary outcomes included length of stay, 30-day re-admission, postoperative complications and patient reported outcome measures using the Oxford Knee Score (OKS).

Results
Total of 175 patients were included, 134 (76.6%) in the tourniquet group and 41 (23.4%) in the no-tourniquet group. No significant differences were observed in the mean Hb drop between the tourniquet (21 g/dl) and no-tourniquet (22 g/dl) groups (p=0.69). No significant differences were noted in the perioperative blood transfusion rates but there was a trend towards a higher requirement in the no-tourniquet group versus tourniquet group (9.8% versus 2.2%, p=0.05). The no-tourniquet group had a shorter length of hospital stay (3 days versus 5 days, p=0.03). No significant differences were noted in the re-admission rates (p=0.45), complication rates (wound issues p=0.27, venous thromboembolism p=0.20, re-operation p=0.30, and mortality rates p=0.93), and OKS at 1 year (p=0.06) and 2 years (p=0.08).

Conclusion
Tourniquet use in revision TKA did not significantly reduce blood loss or transfusion requirements but appeared to increase the length of hospital stay.

Submission ID 120

WIRED FOR FAILURE? A COMPARATIVE STUDY OF TENSION BAND WIRING VERSUS HYBRID FIXATION IN PATELLA FRACTURES

Ali Al-kulabi, Mohamed Mansour, Kapilraj Ravendran, Asad Ali

East and North Hertfordshire NHS Trust, Stevenage, United Kingdom

Introduction
To compare return to theatre, clinical outcomes, and complication rates in patients with patella fractures treated with tension band wiring (TBW) versus suture and screw constructs (collectively termed hybrid fixation).

Methods
Operatively managed patella fracture cases between 2018 to 2025 were identified. Information on case characteristics, fixation method, return to theatre (primary outcome), and secondary outcomes such as non-union, mal-union, dysfunctional extensor mechanisms, and infection were extracted. Associations between fixation type and primary and secondary outcome were examined using multivariable logistic regression adjusting for age, sex, and days from injury to operation.

Results
83 patellar fixations were identified, with 26 TBW and 57 hybrid fixations (predominantly suture and screw, and suture only fixations). Mean time from injury to surgery was 3.2 days for TBW and 4.6 days for hybrid fixation. Fracture types 34C1.1 and 34C3.1 were most common, comprising 37% and 39% of cases, respectively. Return to theatre was significantly less likely following hybrid fixation when compared to TBW (OR 0.08, p=0.000131). Return to theatre in TBW was most commonly due to metalwork-related pain or prominence/puncture. Increasing age was the only variable independently associated with a reduced risk of return to theatre (OR 0.96, 95% CI 0.92–1.00; p=0.045). 35% of TBW patients reported a secondary outcome, as opposed to 19% of the hybrid group, however this was not statistically significant (OR 0.49, 95% CI 0.16 - 1.50, p=0.2).

Conclusion
Tension band fixation of patella fracture is associated with high reoperation rates across fracture types and patient characteristics.

Submission ID 121

DISTAL FEMORAL FRACTURES: DUAL CONSTRUCTS VS SINGLE CONSTRUCTS - AN ALGORITHM TO GUIDE PRACTICE

Katherine Nel, Katherine Alker, Daniel Smailes, Andrew Barrie, William Poole, Michael Kelly, Matilda Powell-Bowns

North Bristol Trust, Bristol, United Kingdom

Introduction

The optimal fixation strategy for distal femoral fractures (DFFs) remains controversial. Dual construct (DC) fixation has been proposed to facilitate early weight bearing and reduce reoperation rates. This study compared outcomes for patients with DFFs treated with DC fixation versus single construct (SC) fixation at a level one trauma centre.

Methodology

A retrospective cohort study reviewed 351 consecutive DFFs (AO/OTA 33 A–C) in patients aged ≥17 years treated between 2014 and 2025. Fixation included SC constructs (lateral locking plate, intramedullary nail; n=219) and DC constructs (nail–plate combination, dual plating; n=132). The primary outcome was reoperation for fixation failure or infection. Secondary outcomes included perioperative complications, postoperative weight-bearing status, length of stay, discharge destination, and mortality.

Results

The groups were comparable for age, sex, ASA grade, and fracture classification. Overall, 258 patients (73%) were female, with a mean age of 71 years and mean ASA of 2.7. Periprosthetic fractures were more common in the DC group (50.8% vs 39.0%, p=0.004). In the SC group, 64% were treated with intramedullary nailing and 34% with lateral locking plates, while in the DC group, 63% underwent nail–plate fixation and 37% dual plating. Reoperation rates were similar between groups (DC 8% vs SC 7%, p=0.67). No significant differences were observed in unrestricted weight bearing, discharge destination, or 12-month mortality.

Conclusion

Both SC and DC fixation provide favourable outcomes for DFFs when appropriately selected. DC fixation is safe and effective for more complex fractures, without increasing failure or mortality rates.

Submission ID 123

TROCHLEOPLASTY COMBINED WITH SECONDARY PATELLAR REALIGNMENT AND STABILISATION LEADS TO EXCELLENT PATIENT REPORTED OUTCOMES WITH NO RECURRENT DISLOCATIONS.

Louis Hainsworth, Katie Walmsley, Adam Nelson, Vipul Mandalia

Royal Devon University Healthcare NHS foundation Trust, Exeter, United Kingdom

Introduction

Recurrent patellar instability is a multifactorial condition, with trochlear dysplasia representing the principal anatomical contributor. While trochleoplasty restores trochlear concavity, failure to address additional pathological factors may result in persistent instability. A combined surgical approach incorporating patellar stabilisation and realignment procedures may be required. This study evaluates the outcomes of trochleoplasty combined with secondary patellar stabilisation and/or realignment.

Methods

A retrospective review was performed of 30 patients who underwent trochleoplasty combined with one or more adjunctive procedures—medial patellofemoral ligament reconstruction, modified Insall procedure, tibial tubercle osteotomy, or alignment correction—between 2021 and 2025. Clinical records, imaging, and patient-reported outcome measures (PROMs), including Knee injury and Osteoarthritis Outcome Score (KOOS), Kujala score, and Norwich Patellar Instability Score, were analysed. Mean follow-up was 28 months.

Results

The mean patient age was 19 years. All patients had Dejour type C or D dysplasia. The most common combined procedure was TTO with MPFL (15 cases). No post-operative patellar dislocations were observed. Stability outcomes were excellent, with a mean Norwich Patellar Instability Score of 3. PROMs were favourable, with mean Kujala score of 82.3 and KOOS subscale scores of 89.6 (pain), 94.6 (activities of daily living). Complications included stiffness requiring manipulation under anaesthesia in three cases and persistent anterior knee pain in three cases. There were no major complications.

Conclusion

Combined trochleoplasty with secondary patellar stabilisation and/or realignment provides excellent patient-reported outcomes, no recurrent dislocations, and a low complication rate at medium-term follow-up, supporting a personalised combined surgical approach

Submission ID 128

ORAL AND/OR INJECTABLE VENOUS THROMBOEMBOLISM(VTE) PROPHYLAXIS AFTER KNEE ARTHROSCOPY AND ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION: A SYSTEMATIC REVIEW AND META -ANALYSIS OF RANDOMISED CONTROLLED TRIALS

Anish Loharuka[1], Priyanshu Saha[2], Hasan Mohammad[3], Jaison Patel[2], Siddarth Raj[4,5]

[1]Queen Mary University of London, London, United Kingdom. [2]The Royal London Hospital, Barts Health NHS Trust, London, United Kingdom. [3]Centre for Bone and Joint Health, Blizard Institute, Queen Mary University of London,, London, United Kingdom. [4]Centre for Bone and Joint Health, Blizard Institute, Queen Mary University of London, London, United Kingdom. [5]Department of Trauma and Orthopaedic Surgery, Royal London Hospital, Barts Health NHS trust, London, United Kingdom

Background
Venous thromboembolism (VTE) after arthroscopic knee surgery, including anterior cruciate ligament reconstruction (ACLR), is an important but infrequent complication, and the optimal role of anticoagulants in prophylaxis remains uncertain.

Methods
PubMed, Embase, Web of Science and the Cochrane Library were searched until January 2026 for randomised control trials (RCTs) comparing different VTE prophylaxis strategies in adults undergoing simple arthroscopic knee procedures or ACLR. Outcomes included major VTE, all VTE, major bleeding and non-major bleeding events. Risk of bias was assessed with Cochrane RoB 2.0 and the certainty of evidence was assessed using the GRADE framework. Random-effects meta-analyses were performed with prespecified sensitivity analyses.

Results
Of 1,289 records, 10 trials met inclusion criteria. Pharmacological prophylaxis did not demonstrate a statistically significant reduction in major VTE with pooled risk ratios (RR) of 0.28 (95% CI 0.07-1.15) and 0.33 (95% CI 0.08-1.40) for all VTE. There were no differences between the groups for major bleeding events (RR 1.49; 95%CI 0.25-8.92), but non major bleeding events were common in the pharmacological intervention group (OR 1.46; 95% 1.11-1.92).

Conclusion
Routine pharmacological prophylaxis does not significantly reduce major VTE following knee arthroscopy, but it can increase the risk of non-major bleeding. Future research should aim to identify which patient subgroups derive the greatest benefits. Given these findings, further clinical and cost-effectiveness research via RCTs are required to help formulate guidelines for VTE prophylaxis after knee arthroscopic procedures, including ACLR.

Submission ID 129

IMAGE-BASED VS. IMAGE-FREE ROBOTIC KNEE SYSTEMS - A SYSTEMATIC REVIEW AND META-ANALYSIS OF CLINICAL AND RADIOLOGICAL OUTCOMES

Abu Z. Saeed[1], Ahmad Faraz[2], Peter S.E. Davies[1], Usman Ahmed[3], Nadim Aslam[3], Amit Meena[4], Darren de SA[5], Shahbaz S. Malik[3,6]

[1]Robert Jones and Agnes Hunt Orthopaedic Hospital, Oswestry, United Kingdom. [2]Betsi Cadwaladr University Health Board, Bangor, United Kingdom. [3]Worcestershire Acute Hospitals NHS Trust, Worcester, United Kingdom. [4]Shalby Multi-Specialty Hospital, Jaipur, India. [5]McMaster University, Hamilton, Canada. [6]Birmingham Knee School, Birmingham, United Kingdom

Robotic total knee replacement systems can either be image-based(IB) or image-free(IF), and each has a different pre-operative imaging requirement and workflow. The primary aim of this review is to compare the differences in post-operative radiographic alignment and implant position between IB and IF systems. The secondary aim is to compare patient-reported outcome measures(PROMs) and complications between IB and IF systems.

A systematic review and meta-analysis were conducted in accordance with PRISMA guidelines. Studies reporting on implant position, radiological alignment, clinical outcomes or complications between IB and IF robotic knee systems were included.

Five studies fulfilled the inclusion criteria. There was no significant difference in outlier rates between IB and IF systems for femoral coronal alignment 6.8% vs. 2.6% [OR 2.00, (95% CI 0.81 to 4.96)], tibial coronal alignment 3.4% vs. 2.1% [OR 1.49, (95% CI 0.57 to 3.89)], posterior tibial slope 23.5% vs. 4.4% [OR 2.90, (95% CI 0.11 to 73.49)], HKA 4.8% vs. 2.5% [OR 1.38, (95% CI 0.19 to 9.81)] between the two groups. There was no significant difference in complication rate between IB and IF groups, 7.6% vs. 3.0% [OR 2.53, (95% CI 0.86 to 7.42)]. No studies reported improved PROMs between IB and IF robotic TKR systems.

This meta-analysis did not find evidence of any improvement in radiological, clinical or PROMs outcomes in IB systems compared to IF systems. Further randomised controlled trials are required to assess the superiority of either system as the current evidence base is small with heterogenous measurement methodologies.

Submission ID 130

OUTCOMES OF ISOLATED MEDIAL MENISCUS INJURIES IN SKELETALLY IMMATURE PATIENTS: A SYSTEMATIC REVIEW AND META-ANALYSIS 10.7759/CUREUS.97609

Mohamed Elshial[1], Alaa Gamal[2], Awf Alshahwani[3]

[1]Hywel Dda University Health Board, Swansea, United Kingdom. [2]Alighpro Academy, cairo, Egypt. [3]University Hospital of Leicester, Leicester, United Kingdom

Isolated medial meniscus injuries in skeletally immature patients are rare but clinically significant, as preserving meniscal integrity is crucial for maintaining long-term knee health and preventing early degenerative changes. This systematic review and meta-analysis aimed to evaluate clinical and functional outcomes following surgical repair of isolated medial meniscus tears in skeletally immature patients. Following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 guidelines and International Prospective Register of Systematic Reviews (PROSPERO) registration (CRD420251050682), comprehensive searches were conducted in PubMed, Embase, Scopus, CENTRAL, and Google Scholar up to June 2025. Five observational studies involving 118 patients met the inclusion criteria. Quantitative synthesis of two studies demonstrated excellent postoperative outcomes, with pooled Lysholm and Tegner scores of approximately 90 and 7, respectively, indicating near-complete recovery of knee function and return to pre-injury activity levels. The pooled re-operation rate was low at about 10%. These findings highlight the success of arthroscopic meniscal repair in preserving knee function in skeletally immature patients and support meniscal preservation as the preferred treatment strategy in this population. Further high-quality prospective studies are warranted to standardise outcome reporting and assess long-term durability into adulthood.

Submission ID 131

THE SURVIVORSHIP AND CLINICAL OUTCOMES OF THE MAKO ROBOT-ASSISTED PARTIAL KNEE REPLACEMENT — A MULTI-SURGEON, SINGLE CENTER COHORT STUDY WITH A MINIMUM OF TWO YEARS OF FOLLOW-UP

Ahmed Hamada, Jonnathan Phillips

Royal Devon University Hospital Trust, Exeter, United Kingdom

Background
Unicompartmental knee arthroplasty (UKA) is a widely adopted management for unicompartmental knee osteoarthritis, offering faster recovery, fewer complications, and better functional results in comparison with total knee replacement.

Objectives
To assess the survivorship and clinical outcomes of MAKO Robot-Assisted Unicompartmental Knee Replacement.

Methods
The data for patient underwent MAKO Robot-assisted fixed bearing Stryker Triathlon Partial Knee Replacement by Exeter Knee Reconstruction Unit (EKRU) Surgeons since the adoption of the technology in 2017. The primary objective was to evaluate the survivorship, clinical and functional improvements and patient satisfaction. The study followed patients over a median monitoring duration of 4 years (range: 1–7 years).

Results
Revision surgery was required in 2.3% of cases (7 from 303), whereas 97.7% did not require any revision. The mean interval of monitoring was 4 years, ranging from 2 to 8 years. The mean Oxford Knee Score (OKS) was 42.9 ± 6.6 (range: 18–48), while the mean EQ-5D score was 0.86 ± 0.15 (range: 0.03–1). A high satisfaction rate was reported, with 95.1% of patients expressing satisfaction and only 4.9% reporting dissatisfaction.

Conclusion
The MAKO robot-assisted unicompartmental knee replacement demonstrated promising results in accuracy, function, and patient satisfaction, indicating potential benefits of robotic assistance in surgical precision.

Notes

Notes

ABSTRACTS BOOK

BASK 2026

14TH & 15TH APRIL
SEC GLASGOW

ABSTRACTS KINDLY SPONSORED BY

JOINT OPERATIONS

Arthrex

BRITISH ASSOCIATION FOR SURGERY OF THE KNEE

Accredited by

Royal College of Surgeons of England

CLOCKWORK MEDICAL