2017 Annual Spring Meeting – 28th & 29th March

The STCC, Southport

Stryker are pleased to support the 2017 BASK Annual Spring Meeting

Follow us on Twitter @baskonline #BASKAC
Single radius and delta keel
- Triathlon design elements promote initial stability for biologic fixation.1,2

Defined porous and solid zones
- Tritanium 3D printing enables complex designs to enhance tibial fixation1 and patella strength.3

SOMA-designed
- Size-specific peg design allows for purchase into denser regions of bone.4

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A surgeon must always rely on his or her own professional clinical judgment when deciding whether to use a particular product when treating a particular patient. Stryker does not dispense medical advice and recommends that surgeons be trained in the use of any particular product before using it in surgery. The information presented is intended to demonstrate the breadth of Stryker’s product offerings. A surgeon must always refer to the package insert, product label and/or instructions for use before using any of Stryker’s products. The products depicted are CE marked according to the Medical Device Directive 93/42/EEC. Products may not be available in all markets because product availability is subject to the regulatory and/or medical practices in individual markets. Please contact your sales representative if you have questions about the availability of products in your area.

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From the President

Welcome to Southport (not Stockport). Southport, more genteel than Blackpool and neighbour to the Royal Birkdale Golf Club, home of the 2017 Open. Southport Pier is 1112 metres long, the world’s second longest pleasure pier. Henry Seagrave set the World Land Speed Record on the beach in 1925 reaching a speed of 152.33mph in his 4 litre Sunbeam Tiger.

We are delighted that John Bartlett has been able to accept our invitation to present the Lorden Trickey Lecture. He will reflect on the evolution of knee surgery during his career, over the last 30 years. I’m sure that we have much to learn from his experiences.

Steve Bollen will enlighten us on the history of ACL reconstruction, a century on from Hey Groves’ case report on ACL reconstruction. Chris Ackroyd will talk to us about the history of the Victoria Cross and Harold Ackroyd VC, son of Southport.

Gerard Panting will advise us on our responsibilities to comply with changes in consenting, post Montgomery. Gerard and David MacDonald will update us on the development of the Private Healthcare Information Network (PHIN) and its relevance to us. David Johnson will attempt to help us decipher coding and how our hospitals can attract the correct tariff.

We all have our own perspective on the treatment of younger patients with osteoarthritis. We have scheduled two Instructional Course sessions, the first, to look at the developments in the treatment regimes and discuss the risks and benefits in 2017. The second, relates to Sports Knee topics and should stimulate discussion.

We hope that we have got the balance between free paper sessions, Instructional Courses and invited lectures correct. We look forward to your feedback so that we can continue to improve BASK Meetings. Delegates will be requested to complete an online survey following the meeting in order to obtain their CPD certificate.

We hope that you will enjoy the social and scientific programmes and make the meeting all it can be in every way possible.

Colin Esler and the BASK Executive
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**“SAVE –THE- DATE”**

**BASK – ANNUAL SPRING MEETING**

**20 – 21 MARCH 2018 – LEICESTER**
**Visit our Exhibitors!**

The following companies are exhibiting at the 2017 Annual Spring Meeting to showcase their products: *Please take the time to visit the stands*

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Please note: Filming, recording or photography during the two-day Meeting is Strictly Prohibited unless by prior agreement with the Executive Committee

This Meeting will be accredited with CME Points

BASK ANNUAL SPRING MEETING 2017
THE STCC, SOUTHPORT

TUESDAY 28TH MARCH

08.00am REGISTRATION & COFFEE – Waterfront Suite, Exhibition area

09.00am INTRODUCTION – Colin Esler, President & Tony Hui, Honorary Secretary – Floral Hall

Session I Arthroplasty
Moderators: Andrew Porteous & Richard Parkinson

09.10am Free Paper Session:-

0011 – HIP AND KNEE ARTHROPLASTY IN A TEMPORARY OPERATING THEATRE IS ASSOCIATED WITH A SIGNIFICANT INCREASE IN DEEP PERIPROSTHETIC INFECTION
B.V. Bloch, A. Shah, S. Snape, T. Boswell, P.J. James
Nottingham University Hospitals NHS Trust, Nottingham, UK

09.16

0019 – FEMORAL-TIBIAL COMPONENT SIZE “MISMATCH” IS ONE FACTOR IN ASEPTIC LOOSENING AFTER TKA. AN ANALYSIS OF 13,776 TKA’S
M.E. Berend1, H.D. Clarke4, J.B. Meding2, J.L. Carter1, K.E. Davis2
1Midwest Center for Joint Replacement, Indianapolis, Indiana, USA, 2Joint Replacement Surgeons of Indiana, Mooresville, Indiana, USA, 3Mayo Clinic, Phoenix, Arizona, USA

09.22

0050 – ACTIVITY LEVELS AND RETURN TO WORK FOLLOWING TOTAL KNEE REPLACEMENT IN PATIENTS UNDER 65 YEARS OF AGE
GS Turnbull1, CEH Scott1, D MacDonald2, FA Wade2, SJ Breusch2
1Golden Jubilee National Hospital, Glasgow, UK, 2Royal Infirmary of Edinburgh, Edinburgh, UK

09.28 Discussion

09.34

0008 – INFLAMMATORY CELL INDUCED CORROSION IN TOTAL KNEE ARTHROPLASTY: A RETRIEVAL STUDY
A. Cerquiglini1, H. Hothis4, A. Di Laura1, J. Henckel1, A. Eskelinen3, M.T. Hirschmann1, J. Skinner2, A. Hart1
1University College London, London, UK, 2Royal National Orthopedic Hospital, Stanmore, UK, 3Kantonsspital Baselland, Basel, Switzerland, 4Coxa Hospital, Tampere, Finland

09.40

0119 – WHAT EXACTLY IS A GOOD OUTCOME FOR TKR? AND WHAT PROPORTION OF PATIENTS EXPERIENCE ONE?
A Gao, D Beard, A Price
University of Oxford, Oxford, UK

09.46

0133 – ONE YEAR AFTER TOTAL KNEE REPLACEMENT, WHAT PROPORTION OF PATIENTS IMPROVES, DETERIORATES OR STAYS THE SAME FROM HERE ONWARDS?
A Gao, D Beard, A Price
University of Oxford, Oxford, UK

09.52

0055 – RELIABILITY AND REPRODUCIBILITY OF THE 6 NATIONS REVISION TKR CLASSIFICATION
L Al-Mouazzen1, J Murray, A Porteous
North Bristol NHS Trust, Bristol, UK

09.58

0075 – THE STRUCTURAL, PSYCHOLOGICAL, FUNCTIONAL AND PAIN SENSITIZATION CHARACTERISTICS OF PREOPERATIVE KNEE OSTEOARTHRITIS PATIENTS WITH EVIDENCE OF NEUROPATHIC PAIN. A PROSPECTIVE OBSERVATIONAL STUDY
T Kurien1, R Kerslake1, R.G. Pearson1, B.E. Scammell1
1Academic Division of Trauma and Orthopaedics, ARUK Pain Centre, The University of Nottingham. Queen’s Medical Centre, Nottingham, UK, 2Sir Peter Mansfield Imaging Centre, The University of Nottingham, Nottingham, UK

10.04 Discussion

10.15 COFFEE – (Waterfront Suite – Exhibition / Posters & E-Posters)

Session 2: The meniscus and ACL
Moderators: Sanjeev Anand / Adil Ajuied

10.40 Free Paper Session:-

0020 – A PILOT RANDOMISED CONTROLLED TRIAL COMPARING MENISCAL ALLOGRAFT TRANSPLANTATION TO PHYSIOTHERAPY
N.A. Smith1, N Parsons1, P Thompson1, A Metcalfe2, D Wright1, C Hutchinson2, M Costa3, T Spalding1
1University Hospitals Coventry and Warwickshire, Coventry, UK, 2University of Warwick, Coventry, UK, 3University of Oxford, Oxford, UK

(The abstracts relating to the Free Paper Sessions are stated on pages 11 to 14)
0076 – THE RAMP LESION – IS IT SAFE TO USE AN ALL INSIDE REPAIR TECHNIQUE?
G Heilpern¹, J Stephen², S Ball¹, A Williams¹
¹Fortius Clinic, London, UK, ²Imperial College, London, UK

0124 – MENISCUS ROOT REPAIR STRENGTH IS DEPENDENT UPON SUTURE MATERIAL AND LOCATION
James Robinson¹, Paul Jermin¹, Evelyn Frank², Ritchie Gill²
¹Avon Orthopaedic Centre, Bristol, UK, ²Centre for Orthopaedic Biomechanics, Bath, UK,
³International Knee and Joint Centre, Abu Dhabi, United Arab Emirates

Discussion

0070 – THE EFFECT OF ANTEROLATERAL COMPLEX SECTIONING AND A MACINTOSH TENODESIS ON PATELLOFEMORAL JOINT CONTACT PRESSURES AND KINEMATICS
E Inderhaug¹, J Stephen², A Amis¹, A Williams²
¹Imperial College London, London, UK, ²Fortius Clinic, London, UK

0071 – THE EFFECT OF KNEE FLEXION ANGLE DURING GRAFT FIXATION ON TIBIOFEMORAL JOINT KINEMATICS FOR ANTEROLATERAL PROCEDURE WHEN COMBINED WITH ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION
E Inderhaug¹, J Stephen², A Amis¹, A Williams²
¹Imperial College London, London, UK, ²Fortius Clinic, London, UK

0089 – ANTEROLATERAL LIGAMENT (ALL) WITH ANTERIOR CRUCIATE LIGAMENT (ACL) RECONSTRUCTION: RATIONALE, TECHNIQUE & EARLY RESULTS
Basingstoke & North Hampshire Hospital, Basingstoke, UK

Discussion

Colin Esler: Introducing

11.30 Guest Speaker – Christopher Ackroyd
Presentation: “The History of the Victoria Cross:- Harold Ackroyd VC and other Victoria Cross Heros”

12.10 Guest Speaker – Steve Bollen
Presentation: “The History of ACL Reconstruction – a tribute to Earnest Hey-Groves”

12.50 David Johnson
Presentation: “Coding for the knee surgeon in a nutshell”

13:10 LUNCH – (Waterfront Suite – Exhibition / Posters & E-Posters)

Moderator: Leela Biant / David Johnson

DEcision Making in Young OA Patients

14.10 Guest Speaker: Dr Fiona Watt (Oxford)
Presentation: Conservative management

14.30 Guest Speaker: Chris Wilson (Cardiff)
Presentation: Osteotomy

14.50 Guest Speaker: Nick London
Presentation: Unicompartment knee replacement

15.10 Colin Esler: Total Knee Replacement

15.30 TEA – (Waterfront Suite – Exhibition / Posters & E-Posters)

Richard Parkinson: Introducing

A View from Outwith the NHS

16.00 Guest Speaker: Gerard Panting
Presentation: Consenting Process Montgomery

16.40 Guest Speaker: David MacDonald
Presentation: PHIN

17.10-18.30 AGM – All members of BASK are invited to attend – Floral Hall (Main Lecturer Theatre)

19.30pm for 20.15pm – Annual Dinner, ’Ramada Plaza Hotel, Southport (Entrance by Ticket Only)

(The abstracts relating to the Free Paper Sessions are stated on pages 11 to 14)
**WEDNESDAY 29TH MARCH**

**Day-Two – BASK 2017 Annual Meeting – STCC, Southport**

**Welcome to Day 2**

08.00 am  
**COFFEE** – (Waterfront Suite – Exhibition / Posters & E-Posters)

08.30 am  
**Start of 2nd day’s Proceedings – Floral Hall (Main Lecture Theatre)**

**Session 3: Unicompartmental knee replacement and biomechanics**

**Moderators: Alex Dodds & Andrew Price**

08.30 am  
**Free Paper Session**:-

0016 – **DO UNICOMPARTMENTAL KNEE REPLACEMENTS ENABLE A SUPERIOR FUNCTIONAL PERFORMANCE? A SINGLE BLINDED, CONTROLLED GAIT ANALYSIS AT FAST WALKING SPEEDS AND STEEP SLOPES.**

A.V. Wiik, A Akhtar, M. Brevadt, A. Aqil, R.S. Strachan, D. Nathwani, J.P. Cobb

Imperial College, London, UK

08.36

0031 – **THE INTERACTION OF CASELOAD AND USAGE IN DETERMINING OUTCOMES OF UNICOMPARTMENTAL KNEE ARTHROPLASTY: A META-ANALYSIS**

TW Hamilton1, J Rizkalla1, L Kontochristos1, B Marks1, S Mellor2, CAF Dodd3, HG Pandit3, DW Murray4


08.42

0101 – **OUTCOMES OF CEMENTED MEDIAL MENISCAL-BEARING KNEE REPLACEMENT BY AGE**


Nuffield Department of Orthopaedics, Rheumatology and Musculoskeletal Science, University of Oxford, Oxford, UK

08.48

0025 – **THE CORRELATION BETWEEN PATIENT REPORTED OUTCOME MEASURES AND ADVANCED BIOMECHANICS IN KNEE OSTEOARTHRITIS**

G.F Tawy1, M Simons3, P.J Row3, L.C Biant1

1University of Strathclyde, Glasgow, UK, 2University of Edinburgh, Edinburgh, UK, 3NHS Lothian, Edinburgh, UK

08.54

0062 – **CORRELATION OF MUSCLE STRENGTH AND GAIT STABILITY IN PATIENTS WITH END STAGE OSTEOARTHRITIS**

M. R. Simons1, G. Tawy2, P. Role2, N. Gleeson3, L. C. Biant1

1University of Edinburgh, Edinburgh, Scotland, UK, 2University of Strathclyde, Glasgow, Scotland, UK, 3Queen Margaret University, Edinburgh, Scotland, UK, 4NHS Lothian, Edinburgh, Scotland, UK

09.00

**Discussion**

09.10

0060 – **CORRELATION BETWEEN VARUS DEFORMITY OF THE KNEE AND DYNAMIC BIOMECHANICAL LOADING IN PATIENTS WITH ISOLATED MEDIAL COMPARTMENT OSTEOARTHRITIS LISTED FOR HIGH TIBIAL OSTEOTOMY (HTO)**

G Whatling1, D.W Elson2, P Biggs3, A Metcalfe4, W Abdul4, C Wilson4, C Holt4

1The Arthritis Research UK Biomechanics and Bioengineering Centre, Cardiff University, Cardiff, UK, 2University Hospital of Wales, Cardiff, UK

09.16

0024 – **STABILITY AND ADVANCED KINEMATICS OF GAIT IN PATIENTS WITH KNEE OSTEOARTHRITIS**

G.F Tawy1, M Simons3, PJ Rowe1, LC Biant1

1University of Strathclyde, Glasgow, UK, 2University of Edinburgh, Edinburgh, UK, 3NHS Lothian, Edinburgh, UK

09.22

0105 – **IN-VIVO KINEMATICS FOR PATIENTS IMPLANTED WITH A CUSTOMIZED, PATIENT-SPECIFIC POSTERIOR STABILIZED TOTAL KNEE ARTHROPLASTY VS TRADITIONAL PATIENT SIZED OFF-THE-SHELF TKA DURING ACTIVITIES OF DAILY LIVING**

IM Zeller1, WB Kurtz2, MD Ta1, GM Dessinger1, A Sharma1, RD Komistek1

1University of Tennessee, Knoxville, Tennessee, USA, 2Tennessee Orthopedic Alliance, Nashville, Tennessee, USA

09.28

0056 – **THE EFFECT OF IMPLANT POSITION ON BONE STRAIN FOLLOWING LATERAL UNICOMPARTMENTAL KNEE REPLACEMENT: A BIOMECHANICAL MODEL USING DIGITAL IMAGE CORRELATION**

S Newman, AM Ali, J Cobb

The Musculoskeletal Laboratory, Imperial College London, London, UK

**ACL reconstruction**

09.34

0127 – **GRAFT COMPRESSION IN ACL RECONSTRUCTION**

BR Lord1, H Colagco2, CM Gupta3, AJ Wilson4, AA Amis5

1Imperial College London, London, UK, 2Basingstoke and North Hampshire Hospital, UK, 3Musculoskeletal Surgery Group, Imperial College Medical School, London, UK, 4St Georges Hospital, London UK

*(The abstracts relating to the Free Paper Sessions are stated on pages 14 to 20)*
09.40 0036 – A NOVEL DESIGN OF METAL INTERFERENCE SCREW CAN IMPROVE EASE OF INSERTION WHILE MAINTAINING FIXATION
K.K Athwal1, B Lord1, P Milner1, A Gutteridge2, A.A Amis1
1Imperial College London, London, UK, 2Innovate Orthopaedics Ltd, Huddersfield, UK

09.46 0126 – DOES ACL REPAIR WITH DYNAMIC INTRALIGAMENTARY STABILIZATION SHOW SIMILAR OBJECTIVE SHORT-TERM OUTCOMES TO THE ACL RECONSTRUCTION?
A. Ateschraag, M.-D. Ahrend, S. Débele, C. Ihle, U. Stöckle, S. Schröter
Department of Traumatology and Reconstructive Surgery, BG Traumacenter Tübingen, University of Tübingen, Tübingen, Germany

09.52 0129 – SHOULD THE ILIOTIBIAL BAND DEFECT BE CLOSED AFTER LATERAL TENODESIS?
BR Lord1, BM Devitt1, H EL-Daou1, JM Stephen1, A Williams5, JA Feller2, AA Amis1
1Imperial College, London, UK, 2Orthosport Victoria, Melbourne, Australia, 3The Fortius Clinic, London, UK

09.58 Discussion

10.10 COFFEE – (Waterfront Suite – Exhibition / Posters & E-Posters)

Session 4:
Moderators: Andrew Porteous & Caroline Hing

10.30 Short Poster Presentation Session:-

0005 – DIFFERENCES IN CLINICIAN VS. PATIENT RECORDING OF CO-MORBIDITIES IN PROMS: SMALL CHANGES BIG IMPACT
AP Singh, R Collins, JA Wimhurst
Norfolk and Norwich University Hospital, Norwich, UK

10.32 Discussion

0014 – BILATERAL SIMULTANEOUS (TWO-SURGEON) UNICOMPARTMENTAL KNEE ARTHROPLASTY: A SAFE AND EFFICIENT TECHNIQUE
J Sultan, A Winter, K Mason, N J London
Harrogate District Hospital, Harrogate, UK

10.35 Discussion

0113 – ESTIMATED LIFETIME REVISION RISK FOR MEDIAL MENISCAL-BEARING UNICOMPARTMENTAL KNEE REPLACEMENT
J.A. Kennedy, A. Judge, D.W. Murray
Nuffield Department of Orthopaedics, Rheumatology and Musculoskeletal Science, University of Oxford, Oxford, UK

10.38 Discussion

0040 – VIRTUAL KNEE ARTHROPLASTY CLINIC; 5 YEAR FOLLOW UP DATA IN A DISTRICT GENERAL HOSPITAL
R Fisher, F Khatun, S Reader, V Hamilton, M Porteous, A Dunn
West Suffolk Hospital, Bury St Edmunds, UK

10.41 Discussion

0095 – OPTIMAL GRAFT TENSION IN ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION – AN EXPERIMENTAL STUDY
RS Khakha, M Bansal, A Williams, A Davies, A Ajuied
Fortius Clinic, London, UK

10.44 Discussion

0116 – CORRELATION OF INTERCONDYLAR NOTCH TYPE, NOTCH WIDTH INDEX AND ‘α ANGLE’ WITH ANTERIOR CRUCIATE LIGAMENT INJURY IN FEMALES, USING MAGNETIC RESONANCE IMAGING
T. Bouras1, P. Fennema3, S. Burke2, H. Bosman3
1Homerton University Hospital, London, UK, 2Broomfield Hospital, Chelmsford, UK, 3AMR Advanced Medical Research, Männedorf, Switzerland

10.47 Discussion

0125 – THE ROLE OF FIBRES WITHIN THE TIBIAL ATTACHMENT OF THE ACL IN RESISTING TIBIAL DISPLACEMENTS
B R Lord1, H EL-Daou1, U Zdanowicz2, R Smigielski1, AA Amis1
1Imperial College London, UK, 2Carolina Medical Centre, Warsaw, Poland

10.50 Discussion

0128 – IMPROVING ACCURACY IN HIGH TIBIAL OSTEOTOMY: USE OF MAGNETIC NAIL DISTRACTION TECHNOLOGY
A Winter, M.J. Dawson
North Cumbria University Hospital, Carlisle / Cumbria, UK

10.53 Discussion

(The abstracts relating to the Free Paper Sessions are stated on pages 14 to 20)
0130 – PROMS & EPISODE LINKAGE IN UNICOMPARTIMENTAL KNEE REPLACEMENT – CODING CONSTERNATIONS
RM Middleton, N Bottomley, WFM Jackson, AJ Price

Discussion

0139 – BIOMECHANICAL TESTING AND COMPARISON OF NEW FIXED LOOP AND ADJUSTABLE LOOP CORTICAL SUSPENSORY FIXATION DEVICES IN ACL RECONSTRUCTION.
S Singh, S Ramos, K Czerbak, T Miles, P Schranz, V Mandalia
Royal Devon and Exeter Hospital, Exeter, UK, Bath University, Bath, UK

Discussion

REGISTRIES SESSION

10.54 10.56 10.57
11.00 11.25 11.45

Richard Parkinson: Introducing

12.05 12.45 13.30

Moderators: Tony Hui & Delary Kader

SPORTS KNEE SYMPOSIUM

13.50 14.10 14.30 14.50

Session 5: Miscellaneous

Moderators: David Johnson & Sanjeev Anand

15.30 15.36 15.42 15.48 15.54

Report from Travelling / Research Fellows

LUNCH – (Waterfront Suite – Exhibition / Posters & E-Posters)

Free Paper Session:

0106 – ANATOMICAL VARIATIONS IN THE DISTAL FEMUR? A CT DATA ANALYSIS OF 24,042 KNEES
J Beckmann, A.F. Steinert, W.B. Kurtz
Sportklinik Stuttgart GmbH, Stuttgart, Germany, Orthopädische Klinik König-Ludwig-Haus Würzburg, Würzburg, Germany, Tennessee Orthopaedic Alliance, Nashville, USA

0110 – MINIMUM 20-YEAR SURVIVORSHIP OF THE ST GEORG SLED MEDIAL UNICOMPARTIMENTAL KNEE REPLACEMENT
North Bristol NHS Trust, Bristol, UK, University of West of England, Bristol, UK

0018 – HIGHER TISSUE CONCENTRATIONS OF VANCOMYCIN ARE ACHIEVED WITH INTRAOSSEOUS VERSUS INTRAVENOUS ADMINISTRATION IN REVISION TKA
S.W. Young, H.D. Clarke, G.A. Moore, M. Zhang, M.J. Spangehl
Mayo Clinic, Phoenix, Arizona, USA, North Shore Hospital, Auckland, New Zealand, Canterbury

0143 – ANATOMY OF THE INFRAPATELLAR FAT PAD OF THE KNEE AND ITS DEFORMATION DURING KNEE MOTION
JM Stephen, R Sopher, S Ball, AA Amis, A Williams
The Biomechanics Group, Department of Mechanical Engineering, Imperial College London, UK, London, UK

0072 – A SINGLE STAGE ARTHROSCOPIC TREATMENT OF ARTICULAR CARTILAGE DEFECTS – AUTOLOGOUS COLLAGEN INDUCED CHONDROGENESIS (ACIC) -SHETTY-KIM TECHNIQUE – FIVE YEAR RESULTS
A A Shetty, S J Kim, V Shetty, K Alva, D Stelzeneder
Canterbury Christ Church University, Canterbury, Kent, UK, Catholic University, Seoul, Republic of Korea

(The abstracts relating to the Free Paper Sessions are stated on pages 14 to 20)
0044 – OUTCOME OF ARTHROSCOPIC AMIC FOR THE TREATMENT OF ARTICULAR CARTILAGE DEFECTS IN THE KNEE JOINT IS EQUIVALENT TO MINI-OPEN PROCEDURES
Justus Gille, Ralf Oheim, Jan Schagemann
University Hospital, Luebeck, Germany

16.12 Discussion

16.18 Presentation of Awards for 2017
Prizes awarded for the ‘Best 2017 Podium, Poster & E-Poster Presentations’.
Golf Trophy

16.25 Closing Remarks – President, Colin Esler

16.35 Close of 2017 BASK Annual Spring Meeting

(The abstracts relating to the Free Paper Sessions are stated on pages 14 to 20)
0011 – HIP AND KNEE ARTHROPLASTY IN A TEMPORARY OPERATING THEATRE IS ASSOCIATED WITH A SIGNIFICANT INCREASE IN DEEP PERIPROSTHETIC INFECTION
B.V. Bloch1, A. Shah, S. Snape, T. Boswell, P.J. James
Nottingham University Hospitals NHS Trust, Nottingham, UK

Aims: Infection following total hip or knee arthroplasty is a serious complication. We noted an increase in post-operative infection in cases carried out in a temporary operating theatre. We therefore compared lower limb arthroplasties performed in standard and temporary operating theatres and examined the deep periprosthetic infection rates.

Patients and Methods: A total of 1233 primary hip and knee arthroplasties were performed between August 2012 and June 2013. 44% were performed in temporary theatres. The two groups were matched for age, sex, BMI and ASA grade.

Results: The deep infection rate for standard operating theatres was 0/684 (0%); for temporary theatres it was 8/539 (1.5%); p=0.001.

Conclusion: Use of non-standard operating theatres for primary hip and knee arthroplasty was associated with an unacceptable increase in deep infection. We do not advocate the use of these theatres for primary joint arthroplasty.

0019 – FEMORAL-TIBIAL COMPONENT SIZE “MISMATCH” IS ONE FACTOR IN ASEPTIC LOOSENING AFTER TKA: AN ANALYSIS OF 13,776 TKA’S
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Introduction: The femoral and tibial components in any specific TKA system have a variety of size matching compatibilities. Registry data has indicated a higher failure rate with so called “mismatched” components for one knee system. The purpose of this study was to examine the impact of size mismatch in a large prospective database of two TKA designs.

Methods: Prospective data was collected on 13,776 TKAs of two designs. Mean follow-up was 7.2 yrs. Univariate and multivariate statistical analyses were conducted.

Results: “Matched sized TKAs” failed in 4.2% of knees compared to 1.5% in “unmatched TKAs” with implant design #1 (p=0.0001, OR 2.9); while “mismatch” TKAs failed in 3.7% of knees compared to 0.4% in “unmatched sized knees” with implant design #2 (p=0.002, OR 4.3). Multi-variate analysis showed failure was associated with age under 70 (OR 1.8), BMI over 35 (OR 1.6), pre-op deformity greater than 11 degrees (OR 2.5), implant poly thickness greater than 12 mm (OR 2.4), postop alignment less than 2.5 degrees of valgus (OR 2.4), and female gender (OR 1.7). Small femur on big tibia was associated with lower risk of revision for both implant designs versus size matched implants (Design #1, HR = 0.474, p=0.0007; Design #2, HR = 0.136, p=0.0002). Mode of failure was predominantly tibial loosening in both cohorts.

Discussion: TKA failure continues to be multifactorial; however, size mismatch with a small femur on a big tibia was one factor associated with lower revision rates versus size matched components with these two TKA designs.

0119 – THE ROLLING THERMOMETER’ MEASURES RETROSPECTIVELY AND PROSPECTIVELY THE DECREASE IN PAIN OF PATIENTS WITH KNEE REPLACEMENT: A PROSPECTIVE STUDY
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In the same population, different proportions of patients can appear to PASS and DETERIORATE, and describing good outcome should be developed.

Within the field of total knee replacement (TKR), there have been a number of studies focusing on either the short-term or long-term outcome following revision TKR, but the relationship between the two remains unclear. The aim of this study is to investigate this relationship by determining the proportion of patients who improves, deteriorates or stays the same between one-year and ten-year post-TKR. This study used data from the Knee Arthroplasty Trial (KAT, n=1507), during which participants’ Oxford Knee Score (OKS) were followed for up to ten years post-operatively. Two common cut-off criteria (shown below) were used to track the proportion of patients achieving a “good” outcome over time.

• Minimally Important Change: For good outcome, change pre- to post-operative OKS (ΔOKS) must reach the minimal important change score (MIC).

• Satisfaction Criteria: Good outcome defined by ΔOKS or 6-month post-op OKS value which reaches the patient acceptable symptom state (PASS — a score based on satisfaction).

For patients with a good outcome at one-year post-operation, in ten years, 75%-78% remain good and 22%-25% deteriorate significantly. For patients with a bad outcome at one-year post-operation, in ten years, 70% remain bad, 30% improve significantly. The majority of patients attain good outcome (in terms of self-reported pain and function) one year following TKR. However, our results show that 25%-30% of patients’ outcome change significantly from one-year onwards. This suggests that there is a high degree of variation in patients’ post-TKR outcome trajectory, and therefore regular, long-term monitoring is essential.

This study was to perform the first randomised controlled trial (RCT) comparing meniscal allograft transplantation and one in the physiotherapy groups.

Conclusions: Thirty-six participants entered the study; 21 were randomised and 15 chose their treatments. The mean improvement in patient reported outcomes at one year in the meniscal allograft transplantation and physiotherapy groups respectively were: 24.3 and 12.5 in the KOOS 4 composite score (p=0.22) in the Lysholm score. T2 MRI measurements were all lower in the meniscal allograft transplantation group at one year, but this was not statistically significant. There were five complications in the meniscal allograft transplantation and one in the physiotherapy groups.

Conclusions: In this first pilot RCT, a clinically meaningful and statistically significant improvement in the KOOS4 score favouring surgery was seen. MRI outcomes were encouraging, although not statistically significant. This study provides the best quality evidence to date of the symptomatic benefits of meniscal allograft transplantation.
0076 – THE RAMP LESION – IS IT SAFE TO USE AN ALL INSIDE REPAIR TECHNIQUE?
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1Fortius Clinic, London, UK, 2Centre for Orthopaedic Biomechanics, Bath, UK, 3International Knee and Joint Centre, Abu Dhabi, United Arab Emirates

Background: Identification and repair of tears at the meniscocapsular junction of the posterior horn of the medial meniscus (RAMP lesion) is important at the time of anterior cruciate ligament (ACL) reconstruction. Safe usage of an all inside repair technique has been questioned and use of an accessory postero-medial portal and a suture shuttle instead advocated.

Purpose: To determine the safety and efficacy of Ultra FastFix and FastFix 360 meniscal repair devices to repair postero-medial meniscocapsular separations.

Study Design: Cadaveric Laboratory Study

Methods: A RAMP lesion was created in 20 fresh-frozen cadaveric knees (mean age=63±15). Ten lesions were repaired using 4 Ultra FastFix and 10 using 4 FastFix 360. Knees were flexed and extended through full range 10 times and a maximal manual anterior drawer applied 10 times at 30° and 90°. Knees were then sectioned proximal to the menisci and the position of each anchor recorded.

Results: One ultra FastFix anchor was found positioned intraarticular – a failure rate of 1.25%. In the FastFix 360 group five anchors failed – a 6.25% failure rate.

Conclusions: This study confirms the safety and efficacy of an all inside repair technique for these difficult lesions. Ultra FastFix had the lower failure rate and we would advocate their use over FastFix 360.

0070 – THE EFFECT OF ANTEROLATERAL COMPLEX SECTIONING AND A MACINTOSH TENODESIS ON PATELLOFEMORAL JOINT CONTACT PRESSURES AND KINEMATICS
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1Imperial College London, London, UK, 2Fortius Clinic, London, UK

Background: It is not known whether anterolateral complex (ALC) injuries or interventions impact patellofemoral joint (PFJ) contact pressures and kinematics.

Methods: Eight fresh frozen cadaveric knees were placed in a customised testing rig, where the femur was fixed but the tibia could be moved freely. Individual quadriceps heads and the ITB were physiologically loaded with 205 N. PFJ contact pressures were measured using a calibrated sensor. Measurements were taken at 0°, 30°, 60° and 90°, and patellar kinematics recorded using optical tracking.

The ACL was left intact throughout testing to represent a ‘perfect’ ACL reconstruction. The intact knee was tested followed by the knee with ALC sectioned. Four tenodesis protocols were then tested in a randomised order: 20N and 80N graft tension each with the tibia held in its neutral intact alignment using a clamp and also with the tibia free to rotate.

Results: Patellar kinematics and PFJ contact pressures were not significantly altered following sectioning of the ALC (P>0.05). Similarly, they were not significantly different to the intact knee when the tenodesis procedure was performed with fixed tibial rotation combined with a 20N or 80N graft tension or by a free hanging tibia tensioned with 20N (All: P>0.05). However, grafts tensioned with 20N whilst the tibia was free hanging caused significant increases in lateral patellar tilt, and elevated lateral PFJ pressures (P<0.05).

Conclusions: Although injury to the ALC itself does not cause altered PFJ mechanisms or kinematics, the addition of an anterolateral tenodesis can cause adverse mechanics and kinematics if over-tensioned.

0124 – MENISCUS ROOT REPAIR STRENGTH IS DEPENDENT UPON SUTURE MATERIAL AND LOCATION
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Introduction: Meniscal root tears result in supra-physiological cartilage contact pressures similar to total meniscectomy. Meniscus root repair restores meniscal function but initial repair strength may be poor.

Hypothesis: Suture position in the root attachment effects root repair biomechanics. Use of 2mm tape vs suture improves yield load at ultimate failure.

Methods: The posterior medial meniscus root attachment (PMMA) was divided in 29 adult porcine knee joints. A trans-osseous tunnel root repair was performed with 4 FastFix 360 meniscal repair devices to repair posteromedial meniscocapsular separations.

Results: A number of the authors have also submitted E-Posters of their poster presentation, these are displayed as eposters on the screens within the exhibition area (Waterfront Suite). You can search and view individual E-Posters using the touch screens in the exhibition area.

0071 – THE EFFECT OF KNEE FLEXION ANGLE DURING GRAFT FIXATION ON TIBIOFEMORAL JOINT KINEMATICS FOR ANTEROLATERAL PROCEDURE WHEN COMBINED WITH ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION
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Background: Although there is an increasing interest in combining anterolateral procedures with ACL reconstruction, important aspects of these procedures such as the effect of graft fixation angle are unknown. The aim of the current study was to determine how this affected tibiofemoral joint (TFJ).

Methods: Twelve cadaveric knees were mounted in a test rig with TFJ kinematics recorded from 0° – 90° knee flexion using an Optical Tracking System. 90-N anterior-posterior tibial forces, 5-Nm internal tibial rotation torques, and combined 90-N anterior force and 5-Nm internal rotation torque were applied. Intact, ALC-deficient and anterolateral-deficient states were tested before a B-PT-B ACL reconstruction was performed. Thereafter Lemaire was performed in a randomised order with graft fixation at 0°, 30° and 60° of knee flexion with 20-N tension ANOVA and Bonferroni-adjusted t tests were applied.

Results: In the combined ACL and anterolateral deficient state, the isolated ACL reconstruction left residual laxity for anterior translation and internal rotation (Both: P<0.05). Anterior translation was restored for all combinations of ACL and anterolateral procedures (All: P>0.05). For internal rotation, the Lemaire tenodesis reduced laxity overall as compared to the combined ACL and ALC injured state (P<0.05) – such that it was not greater than the intact knee laxity regardless of knee flexion angle at graft fixation (P>0.05).

Conclusion: In combined ACL and anterolateral injury, isolated ACL reconstruction does not restore normal laxity. When combined with ACL reconstruction the Lemaire, regardless of the angle of knee flexion for graft fixation, is able to restore normal TFJ laxity.
Introduction: The ALL is increasingly recognised as an important extra-articular stabilising structure in the ACL-deficient knee. Traditionally many considered performing a lateral extra-articular procedure during ACL reconstruction to address rotational laxity. With arthroscopic advancements, such procedures are being done less frequently. However, failure to address extra-articular structures may lead to increases in ACL graft rupture.

Method: ALL reconstruction was undertaken in patients presenting with explosive pivot shift and in all revision ACL’s between November 2012 to August 2015. This therefore represents a cohort with a high risk of failure. The technique involves a minimally invasive approach to anchor the graft at its origin on the lateral femoral condyle and fixing it via a second incision midway between Gerdy's tubercle and the fibular head. All patients were evaluated pre and post operatively with standard subjective and objective scoring.

Results: 96 patients, (74 male, 22 female), mean age of 33 years (16-62), with mean follow-up of 33 months (14-47) underwent ALL reconstruction. This included 41 revision ACL reconstructions, and 8 as part of multiligament reconstructions. Hamstrings autograft was used for the ALL in 53 cases, FibreTape (Arthrex) alone in 34 cases, and allograft in 9 cases (all reinforced with FibreTape). Mean increase in KOOS at 1 year 19.8 points, Lysholm 25.7 points, Tegner activity scale 1.5 levels (all P<0.05). One (1%) ACL graft failure was identified during the study period.

Conclusions: Early results suggest ACL reconstruction failure can be reduced even in high risk surgical cases with concomitant reconstruction of the ALL.

BASK 2017 Podium Presentations
Wednesday 29th March

Session 3 Unicompartamental knee replacement and biomechanics
Moderators: Alex Dodds & Andrew Price

0016 – DO UNICOMPARTIMENTAL KNEE REPLACEMENTS ENABLE A SUPERIOR FUNCTIONAL PERFORMANCE? A SINGLE BLINDED, CONTROLLED GAIT ANALYSIS AT FAST WALKING SPEEDS AND STEEP SLOPES
A.V. Wiik, A Akhtar, M. Brevadt, A. Aqil, R.S. Strachan, D. Nathwani, J.P. Cobb
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Retrospective comparative studies have demonstrated superior gait in unicompartmental knee replacement (UKR) over total knee replacement (TKR) patients despite selection bias being a limitation to these claims. To objectively question these findings, a gait study of patients with both UKR and TKR was conducted. The null hypothesis was that patients with similar preoperative differing types (UKR & TKR) would demonstrate no functional gait advantage. Gait analysis was done on 32 subjects with an instrumented treadmill at different speeds and slopes. Two groups (knee replacements and control) of 16 each analysed. Knee replacement patients with one UKR and one TKR on each side were recruited. Patients were included if they had both a primary UKR and TKR in situ. Patients were excluded if they had any other lower limb prosthesis or disorder which could compromise their gait.

Both groups were matched demographically and knee replacement patients radiographically for knee disease severity. The mean time from knee replacement operation to gait assessment was 39 and 45 months for UKR and TKR respectively. The gait of the ground groups at increasing speed and slopes demonstrated more physiological loading (p<0.05) in the UKR implanted side. This small case-control study is the first to evaluate the gait of patients with different knee replacements on each side. It has demonstrated that the gait pattern of the UKR side resembled controls more than the TKR. This preliminary report confirms better function can be achieved with UKR for unicompartmental arthrosis.

0031 – THE INTERACTION OF CASELOAD AND USAGE IN DETERMINING OUTCOMES OF UNICOMPARTIMENTAL KNEE ARTHROPLASTY: A META-ANALYSIS
TW Hamilton1, J Rizkalla1, L Kontochristos1, B Marks1, S Mellon1, CAF Dodd1, DW Murray1

Background: Outcome following UKA is influenced by caseload (number per year) and usage (percentage primary knee arthroplasty that are UKA) however the interplay between the two has not been explored. This meta-analysis assesses the relative importance of these factors and investigates whether both criteria need to be satisfied to achieve optimum results.

Methods: MEDLINE (Ovid), Embase (Ovid) and the Web of Science (ISI) were searched to identify consecutive patient case series reporting the outcomes of the cemented Phase 3 Oxford medial UKA (Zimmer Biomet). The primary outcome was all cause revision per 100 observed component years (rp100ocy).

Results: Searches identified 46 studies, 12,520 knees, as meeting inclusion criteria. The all cause rp100ocy was 1.21 (95%CI 0.97 to 1.47) and 0.63 (95%CI 0.46 to 0.83) in series with a mean follow up of 10 years or greater. Aseptic loosening, lateral compartment disease progression, bearing dislocation, and unexplained pain represented the predominant failure mechanisms with revisions for patella-femoral joint disease and polyethylene wear exceeding rare (<0.1%). Both increased surgical caseload (p=0.02) and increased usage (p<0.001) were associated with a decreased failure rates. Whilst usage was independent of caseload (low caseload, high usage 0.85 rp100ocy (95%CI 0.65 to 1.08)), caseload was not independent of usage (high caseload, low usage 1.58rp100ocy (95%CI 0.57 to 3.05); p=0.004).

Conclusion: To achieve optimum results mobile-bearing UKA should be performed in a high proportion (>20%) of a surgeon’s practice. This effect appears to be independent of caseload meaning that optimum results can still be achieved by low volume surgeons.

0101 – OUTCOMES OF CEMENTED MEDIAL MENISCAL-BEARING KNEE REPLACEMENT BY AGE
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Intro: The effect of patient age on long-term outcomes following medial meniscal-bearing unicompartmental knee replacement (UKR) is unclear. UKR is safer than total knee replacement, with better functional outcomes reported. For patients younger than 55 years, 55 to 64, 65 to 74, and 75 or older at operation, the National Joint Registry (NJR) reports cumulative ten-year UKR revision rates of 18%, 12%, 10% and 7% respectively. This study aims to describe UKR outcomes by age group.

Methods: We studied a series of 1000 consecutive cemented medial UKR implants by two designer surgeons. Age at UKR was grouped into four (<55 (n=116), 55-64 (n=304), 65-74 (n=374), >75 (n=206)). Outcomes included the Oxford Knee Score (OKS), American Knee Society Score Objective (AKSSO), and Functional (AKSSF), and Kaplan-Meier implant survival. Results: Median follow up was 10.3 years (range five to 16). Younger patients had inferior functional scores preoperatively (p=0.15), but greater improvement at 10-years (p=0.005). From youngest to oldest, 10-year functional outcomes were: median OKS=44, 45, 42, 39 (p=0.01), AKSSO=92, 95, 94, 92 (p=0.05), and AKSSF=90, 90, 70, 65 (p=0.001). Ten-year UKR survival rates were 97.2%, 93.7%, 94.3%, and 93% (p=0.6).

Discussion: Functional outcomes were better in younger patients. Our data stands contrary to the increased risk of revision for younger UKR patients reported by the NJR. In appropriate patients, UKR has excellent long-term survival in the young, supporting use as a definitive implant. In the elderly, UKR may be the preferred implant in appropriately selected patients owing to safety and good function.

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0025 – THE CORRELATION BETWEEN PATIENT REPORTED OUTCOME MEASURES AND ADVANCED BIOMECHANICS IN KNEE OSTEOARTHRITIS

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Patient reported outcome measures (PROMs) are routinely used as the primary method of assessing patient pain and function in knee osteoarthritis (OA). However, information on kinematics, kinetics or true functionality of the knee cannot be gained through these subjective assessments alone. Alternative objective outcome measures include motion analysis. This study investigated the correlation between frequently used PROMs and advanced biomechanics in knee osteoarthritis patients. Fifty adults (25 males & 25 females) with end-stage knee OA completed Oxford Knee Score (OKS) and SF-12 PROMs then underwent functional assessment trials with a bespoke motion capture system. Maximum active knee range of motion, knee flexor and extensor strengths and walking speeds were objectively quantified and statistically analysed for correlations with the OKS and functional scores of the SF-12 questionnaires (α = 0.05). At a significance level of p < 0.05 no correlations (r < 0.4) were found between PROMs and functional assessment results. The strongest correlations were between the functional SF-12 scores and maximum flexor and extensor strengths (r = -0.142, p = 0.324 & r = -0.184, p = 0.201, respectively). Objective functional capacity assessments of patients with knee OA does not correlate with the OKS or functional scores of the SF-12. These PROMs may be unreliable as they rely on patients being able to recall the kinds of activities they can carry out, and to what extent. Functional PROMs scores can be used to supplement objective data recorded through functional assessments but are unreliable as a primary measure.

0060 – CORRELATION BETWEEN VARUS DEFORMITY OF THE KNEE AND DYNAMIC BIOMECHANICAL LOADING IN PATIENTS WITH ISOLATED MEDIAL COMPARTMENT OSTEOARTHRITIS LISTED FOR HIGH TIBIAL OSTEOTOMY (HTO)

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Background: Varus knees are corrected into valgus with HTO to redistribute mechanical forces and delay medial arthrosis progression. Knee adduction angular impulse (KAAI) and external knee abduction moment (EKAM) measured during gait analysis, predict load distribution across the tibial plateau and are suggested biomechanical markers for osteoarthritis. This study explores relationships between varus knee alignment and dynamic loading in patients with medial osteoarthritis, prior to HTO.

Methods: Gait was evaluated for 26 pre-operative HTO candidates (BMI (28.8 ± 4.2kgm²); age (50.4 ± 6.9 years); Oxford Knee Score 26.3 (± 8.9)) using 3D motion capture and Visual3D. Medial dynamic loading was quantified during stance phase with KAAI and the two peaks and trough of the EKAM waveform. Varus deformity was determined by the mechanical Tibio Femoral Angle (mTFA, range 1.9° to 18.7°) and Mikulicz point (range -5.3% to 42.5%) from long-leg radiographs. Statistical correlations were performed to test the hypothesis that increased deformity resulted in increased medial dynamic loading.

Results: Spearman’s rank correlation identified a positive relationship between mTFA and KAAI (r=0.619; p<0.001), peak 1 EKAM (r=0.544; p<0.01), peak 2 EKAM (r=0.669; p<0.001) and EKAM trough (r=0.688; p<0.001). Pearson’s correlation identified a negative relationship between Mikulicz point and KAAI (r=-0.627; p<0.001), peak 1 EKAM (r=-0.589; p<0.001), peak 2 EKAM (r=-0.699; p<0.001) and EKAM trough (r=-0.659; p<0.001).

Conclusion: Moderate to strong correlation occurs between varus deformity and dynamic loading, with strong statistical significance. Patients with greater varus deformity may therefore get greater benefit from the reduction in dynamic loading after HTO.
INTRODUCTION
The objective of this ongoing study was to compare in vivo kinematics of posterior stabilized (PS) total knee arthroplasty (TKA) subjects implanted with either a traditional, patient sized-off-the-shelf (OTS), TKA or a customized-individually-made (CIM) TKA replicating individual femur and tibia geometries.

METHODS: In vivo kinematics for 20 clinically successful patients, 5 CIM-PS-TKA, and 15 OTS-PS-TKA, were assessed using mobile fluoroscopy and a 2D–3D registration process during weight-bearing deep-knee-bend (DKB), level-ground gait and stepping up and down.

RESULTS: During DKB, CIM-PS patients experienced between 14.56mm and 20.87mm of lateral condyle posterior translation compared to an average of 4.70mm for the OTS subjects. The CIM-PS-TKAs also demonstrated between 5.53° and 19.92° of femoral external rotation compared to an average of 1.04° for the OTS-PS-TKAs. On average, CIM subjects experienced greater weight-bearing flexion with an average of 106.5° versus 94.2° for OTS-TKA designs.

DISCUSSION: During DKB, CIM-PS TKR subjects experienced greater magnitudes of lateral condyle rollback and axial rotation compared to OTS-PS sub jects leading to an improved approximation of normal kinematics. The magnitudes of these kinematics, especially for the OTS-PS TKAs, were attenuated compared to the normal joint. This was a recurrent trend across all activities.

SIGNIFICANCE: Subjects having a CIM-PS-TKA demonstrate kinematic patterns more closely approaching that of the normal knee. Additional subjects are being analyzed, however, early results show that the customized, patient specific nature of the CIM-PS-TKA design may provide a kinematic benefit to arthroplasty patients.

0056 – THE EFFECT OF IMPACT POSITION ON BONE STRAIN FOLLOWING LATERAL UNICOMPARTMENTAL KNEE REPLACEMENT: A BIOMECHANICAL MODEL USING DIGITAL IMAGE CORRELATION
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Background: Unicompartmental Knee Replacement (UKR) is a demanding procedure, with tibial component subsidence or pain from high tibial strain being a potential cause of revision. Whilst medial UKR has been extensively studied, the optimal position in terms of load transfer has not been documented for lateral UKR.

Materials and Methods: Sixteen composite tibiae were implanted with an Oxford Bone-Locked Lateral Partial Knee implant using cutting guides to define tibial slope and depth of resection. Four implant positions were assessed: standard (5° posterior slope), 10° posterior slope, 5° reversed tibial slope and 4 mm increased tibial resection. Using an electrodynamic axial-torsional materials testing machine (Instron 5565 materials testing machine, Instron Co., High Wycombe, Bucks, UK), a compressive load of 1.5kN was applied at 60 N/s at the meniscal bearing via a matching femoral component. Tibial strain beneath the implant was measured using a calibrated Digital Image Correlation (DIC) system.

Results: A 5° increase in tibial component posterior slope resulted in a 60% increase in Von Mises strain in the posterior tibia adjacent to the implant (p=0.027). The highest mean strains were generated in the anterior cortex in the excessive resection depth group, 2-3cm distal to the implant. Implants in a standard position delivered the strain onto the distal lateral cortex maximally.

Conclusions: Relatively small changes in implant position and orientation may significantly affect tibial cortical strain after lateral UKR. Avoidance of excessive posterior tibial slope, or excessive resection, may be advisable during this procedure.

ACL Reconstructon

0127 – GRAFT COMPRESSION IN ACL RECONSTRUCTION
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Purpose and Hypotheses: A common problem during ACL reconstruction is asymmetry of proximal-distal graft diameter leading to tunnel up sizing and potential graft-tunnel mismatch. Compression downsizing provides an ACL graft of uniform size, allowing easy passage into a smaller tunnel. The purpose of this study was to quantify the graft compression technique, effects on graft biomechanics, and changes in graft stability.

Methods: Sixty-eight peroneus longus (PL) Biobonc® treated allograft tendons were fashioned into either four- or single-strand configuration and the following assessed: changes in cross-sectional area following compression and soaking in Ringer’s solution at 37°C; cyclic strain (70-220 N) for 1000 cycles; ultimate failure load; stiffness; ultimate tensile strength; Young’s modulus; stability at the tunnel aperture in porcine femurs under cyclic loading.

Results: A mean decrease in CSA of 16.4% (P<0.001) under a stress of 471 kPa and 13.1% (P<0.001) under a stress of 447 kPa was observed for doubled and quadrupled grafts, respectively. Compressed grafts re-expanded by 19.4% over 12 hours compared to 1.5% for controls (P<0.004). No significant differences were observed between compressed and control grafts in the biomechanical properties and graft stability.

Conclusions: No detrimental biomechanical effects on allograft PL tendons were found. Compressed tendons significantly increased in size during in vitro joint simulation. No significant difference was observed in graft stability. Graft compression aids ease of graft passage, anatomic positioning within the attachment and preservation of bone stock during ACL reconstruction.

0036 – A NOVEL DESIGN OF METAL INTERFERENCE SCREW CAN IMPROVE EASE OF INSERTION WHILE MAINTAINING FIXATION
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A new titanium interference screw (Quick-Start, Innovate Orthopaedics) has been designed to engage into a bone tunnel more easily than conventional soft-tissue screws. The aim of this study was to compare the fixation strength and the loads on insertion of the Quick-Start (QS) screw against a conventional interference screw (RC, Smith & Nephew).

Methods: Sixty-eight peroneus longus (PL) Bioclense® treated allograft tendons were fashioned into either four- or single-strand configuration and the following assessed: changes in cross-sectional area following compression and soaking in Ringer’s solution at 37°C; cyclic strain (70-220 N) for 1000 cycles; ultimate failure load; stiffness; ultimate tensile strength; Young’s modulus; stability at the tunnel aperture in porcine femurs under cyclic loading.

Results: A mean decrease in CSA of 16.4% (P<0.001) under a stress of 471 kPa and 13.1% (P<0.001) under a stress of 447 kPa was observed for doubled and quadrupled grafts, respectively. Compressed grafts re-expanded by 19.4% over 12 hours compared to 1.5% for controls (P<0.004). No significant differences were observed between compressed and control grafts in the biomechanical properties and graft stability.

Conclusions: No detrimental biomechanical effects on allograft PL tendons were found. Compressed tendons significantly increased in size during in vitro joint simulation. No significant difference was observed in graft stability. Graft compression aids ease of graft passage, anatomic positioning within the attachment and preservation of bone stock during ACL reconstruction.

0126 – DOES ACL REPAIR WITH DYNAMIC INTRALIGAMENTARY STABILIZATION SHOW SIMILAR OBJECTIVE SHORT-TERM OUTCOMES TO THE ACL RECONSTRUCTION?
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Background: The ACL repair with dynamic intraligamentary stabilization (DIS) was introduced to treat acute ACL injuries. However, outcomes were not yet compared to ACL reconstruction (ACL-R). The aim of this prospective, non-randomized study was to compare the short-term outcomes between ACL-R and DIS with Ligamys® (Mathys, Switzerland) in sport-active patients.

Methods: DIS was performed in 85 patients with an acute femoral ACL ruptu.
tured and primary single-bundle ACL R in 30 patients. The objective Interna-
tional Knee Documentation Committee (IKDC)-score and the side-to-side an-
teroposterior knee translation were measured with the KT 1000 3, 6, and 12
months postoperatively.
Results: Knee stability was achieved by DIS with a mean of 0.5±2.5, 1.4±1.9
and 1.8±2.1 mm and by ACL-R with 1.0±1.6, 1.4±2.1 and 0.7±2.1 mm after 3,
6 and 12 months. No significant differences were found using the Wilcoxon-
test.
After 6 months, the IKDC was for DIS and ACL-R similar: A: 27% versus 16 %;
B: 55% versus 56%; C: 12% versus 16%; D: 7% and 12%. One year postopera-
tively, IKDC was for DIS and ACL-R an ‘A’ result in 49% and 33%, ‘B’ in 42%
and 40%, ‘C’ in 5% and 13% and ‘D’ in 5% versus 13%.
3 patients with DIS sustained a traumatic re-rupture compared to no re-rupt-
tures after ACL-R.
Conclusions: DIS of acute femoral ACL ruptures is an alternative to ACL-R.
Objective outcomes are equivalent for both techniques. However, the in-
crease of anteroposterior translation during the first year after DIS and the
occurrence of re-ruptures have to be followed up thoroughly.

0129 – SHOULD THE ILIOTIBIAL BAND DEFECT BE CLOSED AFTER LATERAL TENDOESIS?
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One of the concerns with lateral extra-articular tendoises (LEAT) procedures
in overconstraint of the lateral compartment; recent evidence has highlighted
the importance of the ilio-tibial tract (ITT) in controlling internal tibial rota-
tion.
The aim of this study was to evaluate the tensioning effect of closing the ITT
on lateral compartment rotation. A secondary aim was to compare knee kine-
matics following a proximally-based (Lemaire) and distally-based (Ellison)
LEAT.
Method: Twelve fresh frozen cadaveric knees were tested to evaluate the kine-
matics of an intact anterolateral capsule, a sectioned capsule, an Ellison LEAT
and a Lemaire LEAT with and without ITT closure. A 6-degrees of free-
dom robot with the addition of a novel pulley system to load the ITT (2N)
was used to assess knee stability. At different flexion angles, anterior-poste-
rior, internal-external, and internal rotational laxity in response to a simulated
pivot-shift were tested. Data were analysed using repeated-measures analy-
ses of variance and paired t-test.
Results: Translation of the oblique anterolateral fibers significantly increased
anterior draw and rotation during isolated displacement and a simulated
pivot-shift (P<0.05). No significant differences were seen between ‘defect open’
and ‘defect closed’ states after either tenodesis (P>0.05). The Ellison
procedure more closely restored the native kinematics of the intact knee fol-
lowing an anterolateral injury (P<0.05).
Conclusion: Tibial rotational laxity is independent of a persistent or closed
ITT defect following Ellison or Lemaire LEAT; surgical technique can be based
on other factors. These findings and support the use of these techniques in
the context of an anterolateral injury.

Session 4 SHORT POSTER PRESENTATIONS
Andrew Porteous & Caroline Hing

0005 – DIFFERENCES IN CLINICIAN VS. PATIENT RECORDING OF CO-
MORBIDITIES IN PROMS: SMALL CHANGES BIG IMPACT
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Introduction: The PROMs programme evaluates surgical outcomes based on
questionnaires before and after surgery. This paper aims to establish if there is
a difference in how patients and clinicians record comorbidities pre-oper-
atively. We hypothesise that small changes to the predicted score may have
a big impact for a hospital.
Methodology: Data was requested from the Health and Social Care Informa-
tion Centre (HSCIC) regarding patients who had undergone primary TKR at
our hospital in 2014. One hundred and ninety five patients were suitable for
analysis. The patient letters and pre admission documentation were re-
viewed.
Results: There were 189 additional co-morbidities identified. Of these, ninety-
five alter the predicted OKS score in 77 patients. There was a significant low-
ering in the average predicted OKS score from 33.7 ± 3.9 to 32.3 ±4.0 (p<0.02)
in these patients. When looking at case mix-adjustment, the original mean
adjustment was -0.83 ± 1.1. After adjusting for clinician reported co-mor-
bidities, there was a significant change in the mean to -1.40 ± 1.4 (p<0.0001).
After the relevant recalculations were redone for our Trust, the Adjusted Average Health gain went from 15.254 to 15.907.
Conclusions: Accurate co-morbidity recording impacts the adjusted average
health gain. It can move an outlying hospital back into the normal range. This
is important despite the limitation of the data, as this information is publicly
accessible. It may also be enough to move a Trust from an outlier into the
normal range and protect against loss of earnings as payment by results is
introduced.

0014 – BILATERAL SIMULTANEOUS (TWO-SURGEON) UNICOMPARTMENTAL KNEE ARTHROPLASTY: A SAFE AND EFFICIENT
TECHNIQUE
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Introduction: Bilateral simultaneous unicompartmental knee arthroplasty (UKA)
remains controversial due to concerns over higher perioperative compo-
lration rates. The majority of the literature is on bilateral UKA done ‘se-
quently’ by one surgeon under anaesthetic with a range of mortality.
for bilateral UKA performed ‘simultaneously’ by two surgeons (consultant and
fellow), using fixed-bearing spacer-block technique (no intramedullary instru-
mentation).
Methods: We report on 172 knees in 86 sequential patients. Patient and sur-
gical demographics, Oxford Knee Scores (0-48), complications and implant
survivorship were recorded. Results were compared with the departmental
data for unilateral UKA, and the published National Joint Registry (NJR) data.
Results: Over a 15-year period, 86 patients with a mean age of 62.9 (49-88)
underwent bilateral simultaneous UKA. The mean surgical time was 80 min-
utes (56-120); a 36% increase compared to unilateral surgery. The mean
length of stay was 3.8 days (2-6); a 39% increase compared to unilateral sur-
gery. Complication rates were extremely low, with no early deaths or deep
infections. One pulmonary embolus was reported and successfully treated.
The mean Oxford Knee Score was 44 (31-48). At a mean of 6.15 years (1-15),
implant survivorship was 95.3%. This is similar to the departmental results
for unilateral UKA, and compares favourably with published NJR results.
Conclusions: In our cohort, bilateral simultaneous fixed-bearing UKA was a
well-tolerated safe procedure with excellent functional outcomes and implant
survivorship. This two-surgeon technique provides a safe and efficient path-
way for managing patients with bilateral disease, with reduced cumulative
hospital stay and surgical time, and excellent training opportunity.

0113 – ESTIMATED LIFETIME REVISION RISK FOR MEDIAL MENISCAL-
BEARING UNICOMPARTMENTAL KNEE REPLACEMENT
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Background: Lifetime medial meniscal-bearing unicompartmental knee re-
placement (UKR) revision risk has not previously been estimated. Estimates
suggest that up to 50% of knee replacement patients would be UKR appro-
priate, thus an understanding of lifetime revision risk will help define the role
for UKR. This study aims to estimate lifetime UKR revision risk by age.
Methods: Five parametric survival models were fitted to survival data from
a cohort of 1000 cemented medial meniscal-bearing UKRs, with follow up to
16 years. Background central mortality rates were obtained from the Office
for National Statistics. These risks were applied via lifetable method to a the-
oretical patient cohort, and the percentage of the cohort revised prior to
death was calculated for patients of age 55, 65, 75 and 85 years at time of
surgery.
Results: Two models predicted increasing revision risk with time (Gompertz,
Weibull), two an initially increasing followed by decreasing risk (Log Logistic,
Log Normal), and the exponential model predicted constant risk. Lifetime risk
for males was estimated between 13-20%, 12-16%, 7-8% and 2% for ages 55,
65, 75 and 85 years respectively. For females, the estimates were 10-16%,
10-13%, 6% and 1-2% respectively.
Conclusions: The range of different risk estimates was small, suggesting the
predictions are reliable. Lifetime revision risk varies by age and sex. Given the
decreased risk of UKR surgery, compared to total knee replacement, and low

*The Poster Presentations are displayed on poster boards in the exhibition area (Waterfront suite) and the registration area (Promenade entrance)
A number of the authors have also submitted E-Posters of their poster presentation, these are displayed as posters on the screens within the exhibition area (Waterfront Suite)*. You can search and view individual E-Posters using the touch screens in the exhibition area.
Lifetime revision risks in the elderly, UKR may be the preferred treatment. For the young, the lifetime UKR revision risk may be acceptable.

0040 – VIRTUAL KNEE ARTHROPLASTY CLINIC; 5 YEAR FOLLOW UP DATA IN A DISTRICT GENERAL HOSPITAL
R Fisher, F Khutun, S Reader, V Hamilton, M Porteous, A Dunn
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Introduction: Follow up of elective knee arthroplasty patients has been advocated to identify those patients with asymptomatic loosening. However, there are financial and time implications associated with routine clinic follow ups; assessment through a virtual mean is an alternative.
Methods: In our institution ‘virtual follow up’ via a patient questionnaire (Oxford knee score) and x-ray is scheduled at 5 yearly intervals from 5 years post op. Both results are then assessed by an arthroplasty surgeon and patients who give cause for concern are recalled. Using a locally compiled database we identified all patients reviewed between 2011-2015 in this way. We reviewed the numbers recalled and the rationale prior to establishing their final outcome.
Results: 2240 primary total knee patients were contacted, 1870 (83%) completed the process. 56 were recalled for review; 6 x-ray changes, 6 x-ray changes and poor Oxford knee scores and 42 poor Oxford knee scores. 5/56 underwent revision: 2 total knees, 2 patella resurfacing and 1 patella button revision. 30 patients (54%) were discharged after a single clinical review and 18 patients (32%) were referred onto different subspecialties.
As a result of the virtual review process 1814 clinic appointments were avoided, equivalent to >300 hours of clinic time. No patient undergoing a knee revision in the period under review had a problem that was missed in virtual assessment.
Conclusions: A virtual arthroplasty clinic not only significantly reduces the number of patients attending regular follow up clinics without compromising patient safety but identifies patients who may need referral to other subspecialty pathways.

0095 – OPTIMAL GRAFT TENSION IN ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION – AN EXPERIMENTAL STUDY
RS Khakha, M Bansal, A Williams, A Davies, A Ajued
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Introduction: There is currently no consensus on the optimal tension required for a soft tissue graft in anterior cruciate ligament reconstruction (ACLR). Application of appropriate tension has traditionally been determined by the surgeon experience and preference as to the required tension.
Aims: To assess the degree of tension applied to a soft-tissue graft during ACLR by high volume soft tissue knee surgeons.
Methods: Prospective experimental cadaver study. 17 Consultant Orthopaedic Surgeons, each performing greater than 50 ACLRs per year were recruited. A fresh-frozen knee cadaver was prepared with pre-drilled femoral and tibial tunnels. A 4-strand graft was deployed attached to a tensiometer on the femoral cortex. Surgical technique and magnitude of tension were recorded.
Results: Four (23%) tensioned and fixed the graft in full extension, 11 (65%) in 30-degrees of flexion and 2 (12%) in 60-degrees of flexion. Six (35%) utilized instrumented-tension and 6 (35%) used an instrumented-twist. The mean tension achieved with an instrumented-tension was 115.2N, in line instrumented-traction 47.1N and freehand-tension 41.8N. The mean tension achieved with an instrumented-twist was significantly (p<0.05) greater than those achieved by freehand or instrumented-traction.
Conclusion: A virtual arthroplasty clinic not only significantly reduces the number of patients attending regular follow up clinics without compromising patient safety but identifies patients who may need referral to other subspecialty pathways.

0116 – CORRELATION OF INTERCONDYULAR NOTCH TYPE, NOTCH WIDTH INDEX AND ‘α’ ANGLE WITH ANTERIOR CRUCIATE LIGAMENT INJURY IN FEMALES, USING MAGNETIC RESONANCE IMAGING
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Purpose & Hypothesis: The principal purpose of this paper was to identify whether femoral notch morphology was different in females with ACL injury. Magnetic Resonance Imaging (MRI) was used to assess the femoral notch type, notch width index and ‘α’ angle in female patients and measure these differences.
Methods: This is a retrospective case control study of 58 female patients with ACL injury and 61 patients without ACL injury who underwent knee MRI between March 2014 and April 2016. The morphometric measurements by two independent observers, were analyzed with t-tests and a multivariable logistic regression analysis to estimate the strength of these specific femoral notch morphometric values as prognostic factors to ACL rupture.
Results: Stenotic notch femoral Type A was identified as a high risk factor to ACL injury (Odds Ratio [OR] = 2.78, p = 0.028). There was no significant difference between the two groups for the notch width index (OR 0.72; p = 0.489) and the ‘α’ angle (OR 1.02; p = 0.745).
Conclusions: This study showed that Type A stenotic femoral notch can be considered as a valuable predictive factor for ACL injury. Notch width index and ‘α’ angle are weak indicators in ACL injury prognosis. Ligament impingement may be inferred as an important mechanism in female ACL rupture.

0125 – THE ROLE OF FIBRES WITHIN THE TibIAL ATTACHMENT OF THE ACL IN RESISTING TIBIAL DISPLACEMENTS
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1Imperial College London, UK, 2Carolina Medical Centre, Warsaw, Poland
Recent anatomical studies have reported a ‘ribbon-like’ morphology of the ACL with dense anterior and medial attachments. The purpose of this study was to clarify the load bearing function of the fibres of the tibial ACL attachment in resisting tibial anterior and rotational displacements and to blindly compare these results with an independent anatomical assessment.
Methods: Twelve knees were tested using a 6 degrees of freedom robot. The kinematics of the intact knee was replayed after sequentially transecting one of 9 equal segments of the tibial attachment. The resultant decrease in force/torque reflected the contribution of those fibers to restraining laxity; force moments were calculated about the attachment to determine the ‘centre of effort’ (COE) and compared to a blinded anatomical assessment.
Results: The anterior and medial (AM) fibers offered significantly greater restraint of tibial translation and internal rotation at all angles during isolated and coupled displacements. AM fibers showed significantly more restraint of internal torque at 0° of flexion compared to the central, posterior and lateral gutter fibers. During the pivot-shift test, AM showed significantly greater restraint compared to the central and posterior fibers. An AM ‘C’-shaped ACL attachment was identified in all knees; this contained the COE in 95% and 92% of anterior and rotational displacements, respectively.
Conclusions: Central, posterior and lateral fibers of the ACL Tibial attachment had a minor role in the restraint of tibial displacements; the peripheral AM and anterior fibers were the most important. The COE distributions were consistent with a ‘C’-shaped ACL attachment.

0128 – IMPROVING ACCURACY IN HIGH TIBIAL OSTEOTOMY: USE OF MAGNETIC NAIL DISTRACTION TECHNOLOGY
A Winter, M.J. Dawson
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Introduction: Studies demonstrate greater surgical accuracy is associated with improved clinical outcome in high tibial osteotomy (HTO). Advances in pre-operative planning utilizing digital templating software have not however translated to comprehensive improvements in post-operative accuracy. The use of magnetic nail distraction technology in HTO permits post-operative adjustments to limb alignment which we hypothesise will improve accuracy.
Methods: HTO was performed in 10 consecutive patients using the Ellipse nail – an implant developed from magnetic nail long bone lengthening technology. After a latent period of up to 10 days a precise lengthening schedule was followed at home to target a pre-calculated medial cortical opening gap. Long leg radiographs at follow up visits permitted analysis of the mechanical axis and further refinement of the correction via compression or distraction

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Waterfront Suite'
You can search and view individual E-Posters using the touch screens in the exhibition area

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of the gap.

Results: All patients achieved a correction to within 6.1% of the intended Mikułicz point (range -6.1% to +3.1%). One patient lost correction after a proximal screw backed out. All other patients however had accuracy within 4% of the target Mikułicz point. All patients achieved bony consolidation within 7 months of surgery.

Conclusion: HTO using the magnetic distraction nail in our cohort demonstrated improved accuracy and earlier consolidation compared with published data from conventional plating techniques. Although further research is required, this technology may help attain the elusive goal of greater accuracy in osteotomy.

0130 – PROMS & EPISODE LINKAGE IN UNICOMPARTMENTAL KNEE REPLACEMENT – CODING CONSIDERATIONS

RM Middleton1, N Bottomley1, WFM Jackson1, AJ Price1

Introduction: The collection of Patient Reported Outcome Measures (PROMS) for knee replacement has been undertaken since 2009. Accurate analysis relies upon PROMS questionnaires being linked with relevant episodes. Episodes are identified using several variables, including procedure codes. Our centre’s high participation rate, yet low linkage rate, led us to question if all knee replacements were being captured.

Methods: Participation and linkage rates for 5 providers were reviewed from 2009 to 2016. We reviewed the coding of primary knee replacement (total knee replacement (TKR) and unicondylar knee replacement (UKR)) procedures in our centre and compared these with codes used by NHS Digital for episode linkage. The impact on the Oxford Knee Score (OKS) was investigated using 2012/13 data.

Results: The average linkage rate of our centre was 40.63% compared to 81.51% across the other centres for 2009-2016, despite a consistently high participation rate. The clinical coding of UKR cases at our institution did not result in valid definitions for linkage to PROMS data. TKR cases were appropriately coded. Compared to the published OKS gain of 15.292 in 2012/13, inclusion of the non-linked UKR cases increased our institution’s OKS gain to 16.244.

Discussion: The poor linkage rate for our institution results partly from exclusion of UKR episodes, due to clinical coding disparities. This had an impact on the calculated average health gain in OKS for 2012/13 data. We would recommend all providers review their clinical coding for UKR to ensure all appropriate episodes of knee replacement can be linked with PROMS data.

0139 – BIOMECHANICAL TESTING AND COMPARISON OF NEW FIXED LOOP AND ADJUSTABLE LOOP CORTICAL SUSPENSION FIXATION DEVICES IN ACL RECONSTRUCTION

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Aim: Biomechanical testing of some of the newly developed and untested for and adjustable loops available on the market today.

Methods: Five samples each of one fixed loop and three different adjustable loops were tested. All loops were set at the same loop length of 20 mm and were tested under incremental loads (10 – 500N) and extended cycles (500-5000 cycles) followed by load to failure protocol. Total displacement was recorded along with the ultimate load to failure. The mode of failure for each device was also examined.

Results: The fixed loop (G-Lok) lengthened least compared to the adjustable loops. The average lengthening of the loops were; G-Lok was 1.45mm, Rigid Loop Adjustable was 1.51 mm, Pro Cinch was 1.59 mm and finally the Ultra Blusion was 3.10 mm. The ultimate strength was satisfactory for all the devices tested and exceeded the forces experienced by ACL graft in early rehabilitation. Commonest failure mechanism was loop breaking at the button.

Conclusion: The fixed loop was the least prone to lengthening but two of the adjustable loops also lengthened less than 3 mm, the threshold for clinical relevance.

Clinical relevance: First study to test high loads (500N) with extended cycles (5000). Except Rigid Loop Adjustable, none of the other loops have been previously tested. The results of fixed loop and one of the adjustable loops (Rigid Loop Adjustable) comparable with published literature. One of the two new adjustable loops looks promising. Future studies should investigate the clinical implications of this biomechanical study.

Session 5 Miscellaneous

Moderators: David Johnson & Sanjeev Anand

0106 – ANATOMICAL VARIATIONS IN THE DISTAL FEMUR? A CT DATA ANALYSIS OF 24,042 KNEES

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Introduction: The objective of this study was to determine the variations in the distal femoral geometries by analyzing a large dataset of implant information for patients receiving a customized total knee replacement.

Methods: A retrospective review was performed on 24,042 datasets that were generated during the design phase for a customized TKR. Measurements recorded for the femur included: Overall antero-posterior (AP) and medio-lateral (ML) widths, widths of the lateral condyle, medial condyle and the trochlea, distal condylar offset between the lateral and medial condyles and the difference between the medial and lateral posterior condylar offset measured in the AP direction.

Results: Analysis of AP and ML data shows that patient geometry is variable. Approximately 1/3rd of patients receiving customized TKR would have resulted in sizing issues of +/- 3mm if they would have received a standard off-the-shelf implant. Analysis of the distal femur revealed that overall, 62% of knees exhibited distal offset greater than 1mm. Overall, 83% of femurs exhibited a greater than 2mm (corresponding to approximately 3 degrees of external rotation) of difference between the lateral and medial posterior condylar offset.

Conclusion: Analyses show that there is a high degree of variability in distal condylar offsets, AP and ML sizes as well as posterior asymmetry. Also, medial and lateral posterior condylar offsets are not equal and do not correlate to femoral size. This in turn could lead surgeons to perform soft tissue releases and impart femoral rotation to fit a fixed-geometry implant into a highly variable patient population.

0110 – MINIMUM 20-YEAR SURVIVORSHIP OF THE ST GEORGE SLED MEDIAL UNICOMPARTMENTAL KNEE REPLACEMENT

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Aim: To investigate the long-term outcome of a fixed-bearing unicompartmental replacement used to treat medial compartment osteoarthritis.

Method and material: The St George Sled unicompartmental replacement (UKA) is a fixed-bearing UKA with an all-poly tibial baseplate. Between 1st November 1974 and 23rd December 1994, 385 patients (479 knees) were implanted with this prosthesis in the medial compartment. Patients were scored pre-operatively and at regular intervals post-operatively with a validated outcome score. Minimum follow-up was twenty years (median 22 and range 20-35 years). 238 patients (297 knees), were female and 147 (182 knees) were male. At final follow-up 71 patients (87 knees) were still alive.

Results: 60 medial knees (12.5%) have been revised with an average time to revision of 9 years and 11 months (range 8 months – 27 years). The most common reason for revision was progression of OA, followed by loosening and polyethylene wear. The patients who were revised had an average age of 63.6 at their primary surgery (range 48 – 82 years). Survivorship for the medial Sled group was 80% at 20 years and 77% at 25 years. Outcome scores remained significantly improved at all time periods except 35 years.

Conclusions: To our knowledge this is the largest cohort of medial unicompartmental arthroplasty followed for a minimum of 20 years. The St George Sled fixed bearing UKA, used in the medial compartment, shows very good long-term survivorship of 80% at 20 years with sustained significant clinical improvement out to 30 years.
0018 – HIGHER TISSUE CONCENTRATIONS OF VANCOMYCIN ARE ACHIEVED WITH INTRAOSSEOUS VERSUS INTRAVENOUS ADMINISTRATION IN REVISION TKA

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Introduction: prophylactic vancomycin use is increasing prior to joint arthroplasty due to concerns about antibiotic resistance; however, it requires prolonged administration time, and can cause systemic toxicity. In primary TKA, low-dose vancomycin via intraosseous regional administration (IORA) achieves tissue concentrations 5-10 times higher than intravenous (IV) administration. This study was performed to compare tissue concentrations of vancomycin administered IV versus IORA in revision TKA, where presence of a tibial implant may compromise tibial IORA, and tourniquet deflation during surgery may lower tissue concentrations.

Methods: Twenty patients undergoing aseptic revision TKA were randomized to two groups. The Systemic group received 1g of IV vancomycin one-hour prior to surgery. The IORA group received 500mg vancomycin as a bolus injection into a tibial intraosseous cannula, below an inflated thigh tourniquet, immediately before incision. During surgery, the tourniquet was inflated until implant removal, deflated, then reinfated for cementation. Subcutaneous fat and bone samples were taken at defined intervals and tissue vancomycin concentrations were measured.

Results: Intraosseous injection was successful in all IORA cases. Mean concentrations of vancomycin in fat and bone samples, respectively, were: 4.1ug/mL in the IV group versus 115ug/mL in the IORA group (p<0.001); and 7.2ug/mL in the IV group vs 101ug/mL in the IORA group. Vancomycin concentrations in the final fat sample were 5.3 times higher in the IORA group despite tourniquet release (p<0.001).

Conclusion: IORA of vancomycin in revision TKA is reliable and results in tissue concentrations 10-20 times higher than systemic IV administration, despite using a lower dose, and releasing the tourniquet during surgery.

0072 – A SINGLE STAGE ARTHROSCOPIC TREATMENT OF ARTICULAR CARTILAGE DEFECTS – AUTOLOGOUS COLLAGEN INDUCED CHONDROGENESIS (ACIC) -SHETTY-KIM TECHNIQUE – FIVE YEAR RESULTS

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Introduction: We describe five results of a novel single stage arthroscopic technique for the treatment of articular cartilage defects of the knee. This involves micro-drilling and application of Atelo-collagen and fibrin gel scaffold.

Materials and Method: The preclinical study involved two groups of rabbits treated with micro-drilling, and micro-drilling with Atelo-collagen and fibrin gel. New cartilage were subjected to staining with H&E for tissue morphology, toluidine blue (collagen) and safranin O (GAG), immunohistochemistry with antibodies for collagen type I and II, and scanning and transmission electron microscopy to analyse the microstructural morphologies. The micro-drilling with Atelo-collagen, fibrin gel scored better than the micro-drilling alone. Patients (n=30) with symptomatic ICRS grade III/IV chondral defects (lesion size 2-8cm^2) were recruited for this prospective study. The surgical procedure involved micro-drilling and application of Atelo-collagen and fibrin gel under CO2 insufflation. Patients underwent morphological evaluation with MRI (T2*-mapping and d-GEMRIC scans). Clinical assessment was done with Lysholm, IKDC and KOOS scores. Radiological assessment was performed with MOCART score.

Results: At five years, Lysholm score was 74, compared to 49 pre operatively (p<0.05). KOOS (symptomatic) improved from 40 to 62 (p<0.05). IKDC (subjective) went to 78 from 40 (p<0.05). The mean T2* relaxation-times for the repair tissue and native cartilage were 26 and 29.9 respectively. Average MOCART score for all lesions was 70.

Conclusion: This technique shows encouraging clinical results at five year follow-up. The morphological MRI shows good cartilage defect filling and the biochemical MRI suggests hyaline like repair tissue.

0143 – ANATOMY OF THE INFRAPATELLAR FAT PAD OF THE KNEE AND ITS DEFORMATION DURING KNEE MOTION

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Background: the infrapatellar fat pad (IPF), is a common cause of knee pain and loss of extension / flexion. However, its anatomy and behaviour are not consistently defined.

Methods: 35 fresh frozen knees (mean age: 41y) were dissected and IPF attachments and volume recorded. Videos were taken looking inferiorly along the femoral shaft at the IPF during knee flexion. Magnetic resonance imaging of one knee at 10 flexion angles was performed, with the IPF and bones segmented.

Results: The IPF attaches to the inferior patellar pole, femoral intercondylar notch, anterior tibia, proximal patellar tendon, intermeniscal ligament and both menisci. In 30 specimens the IPF attached to the anterior ACL fibres via the ligamentum mucosum (LMuc). Proximal IPF extensions were identified projecting around the patella in all specimens and visible on MRI images (medially (n=35) mean length (ML)=56mm, laterally (n=29) ML=24mm). Mean IPF volume was 29ml.

The LMuc, attached near the base of the middle IPF lobe, acting as a ‘ tether’ to draw it superiorly during knee extension. The medial lobe consistently had a small pedicle extending from it superomedially between the base of the patella and medial trochlea. MRI scans demonstrated how the space between the anterior tibia and patellar tendon previously termed ‘the anterior interval’ narrowed during knee flexion displacing the IPF superiorly 2.5cm and posteriorly, conforming the IPF lobes to the trochlear surface.

Conclusions: Proximal IPF extensions are a novel description. The impressive motion of the IPF and its relationship to patellofemoral surfaces, patellar tendon, and anterior interval could have significant clinical implications.

0044 – OUTCOME OF ARTHROSCOPIC AMIC FOR THE TREATMENT OF ARTICULAR CARTILAGE DEFECTS IN THE KNEE JOINT IS EQUIVALENT TO MINI-OPEN PROCEDURES

Justus Gille, Ralf Oheim, Jan Schagemann
University Hospital, Luebeck, Germany

Purpose and Hypothesis: The AMIC technique is a safe and highly suitable to restore full thickness articular cartilage defects. It can be performed either mini-open or arthroscopically. It remains unsolved, however, if minimally invasive AMIC is superior to open procedures when it comes to clinical outcome, patient satisfaction, morbidity and complication rate. This is the first study on the AMIC technique to compare the mid-term outcome of two distinct surgical approaches being minimally invasive (arthroscopy) and open (mini-arthroscopy).

Methods: Overall n=85 patients with focal and contained grade III-IV articular cartilage defects in the knee joint were followed in a consecutive case series. 29 patients were treated arthroscopically (female 10, male 19; age: mean 36.4 years, range 16-70 years; BMI: mean 26.5, range 18.6-34.8; defect size: mean 3.1 cm^2, range 1.7-6.0 cm^2), and 56 patients via mini-arthrotomy (female 24, male 32; age: mean 34.1 years, range 14-53 years; BMI: mean 24.8, range 18.4-33.7; defect size: mean 3.5 cm^2, range 0.5-12.0 cm^2). The primary defect localization was the medial femoral condyle.

Results: AMIC led to a significant improvement of VAS, KOOS and Lysholm scoring for up to three years compared to pre-op. However, there were no significant differences between the two different surgical approaches.

Conclusions: Our results suggest that mini-open AMIC is equivalent to the arthroscopic procedure. Therefore, we would recommend to perform AMIC where indicated, but to reflect the personal skills profile when making a decision for an arthroscopic procedure.

1The Poster Presentations are displayed on poster boards in the exhibition area (Waterfront suite) and the registration area (Promenade entrance)

A number of the authors have also submitted E-Posters of their poster presentation, these are displayed as eposters on the screens within the exhibition area (Waterfront Suite). You can search and view individual E-Posters using the touch screens in the exhibition area.
British Association for Surgery of the Knee
ANNUAL GENERAL MEETING
Tuesday 28th March 2017 - Southport

Agenda

1. Apologies
2. Minutes of BASK AGM, Liverpool 2016 A. Hui
3. Presidents Report C. Esler
4. Research Committee A. Price
5. Education Report (including MS in Knee Surgery) A. Porteous
7. Treasurers Report L. Biant
8. ‘The Knee’ Report C. Hing
   a Elections to BASK Executive
   a Election of new members
10. Future Meetings
    a BOA Liverpool 2017
    b BASK Spring Meeting 2018, Leicester
11. Any other business
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**Applications for BASK Membership – AGM 28th March 2017**

**THE STCC, Southport**
**Poster Presentations 2017**

**0023 – HYALURONIC ACID-20 VISCOSUPPLEMENTATION IN THE TREATMENT OF SYMPTOMATIC OSTEONECROSIS OF THE KNEE: LONG-TERM FOLLOW-UP RESULTS AT 5 YEARS**

**Department of Trauma Orthopaedics, Alexandra Hospital, Worcester**

**Poster Authors**

Different long-term results of viscosupplementation for the treatment of osteonecrosis of the knee were reported. Although all studies included a small number of patients, they found a significant delay in the progression of the disease. This demonstrates the potential benefit of viscosupplementation in the management of osteonecrosis of the knee.

**0024 – ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION**

**Department of Orthopaedics, VU University Medical Center, Amsterdam, The Netherlands**

**Poster Authors**

The results of anterior cruciate ligament reconstruction were presented. The authors found that the technique used, as well as the patient's age and activity level, had a significant impact on the outcome. They concluded that early mobilization and a comprehensive rehabilitation program are crucial for achieving good results.

**0025 – UPPER TibIAL MRr VASCULAR MARKS AND KNEE OSTEONECROSIS**

**Department of Trauma Orthopaedics, Alexandra Hospital, Swindon, UK**

**Poster Authors**

This study demonstrated a correlation between the presence of upper tibial vascular marks and the development of osteonecrosis of the knee. The authors concluded that these marks could be used as a predictor of osteonecrosis and may help in the early diagnosis of the condition.

**0026 – DIFFERENCES IN LENGTH OF STAY FOR NHS PATIENTS FOLLOWING KNEE ARTHROPLASTY IN THE PRIVATE HEALTH SECTOR AND NATIONAL HEALTH SERVICE**

**Spine Care**

**Poster Authors**

The study found that patients treated in the private sector had a significantly shorter length of stay compared to those treated in the NHS. The authors suggested that this may be due to differences in patient selection and surgical techniques.

**0027 – OPTIMAL INTERFERENCE FOR CEMENTLESS UNCOMPARTMENTAL KNEE REPLACEMENT**

**Department of Orthopaedics, University of Oxford, Oxford, UK**

**Poster Authors**

The study found that a 2.5-mm interference fit resulted in the best clinical outcomes. The authors concluded that this interference fit is optimal for cementless unicompartmental knee replacement and can improve patient satisfaction and reduce revision rates.

**0028 – ANTERIOR-LATERAL LIGAMENT AUGMENTATION FOR PATIENTS WITH PERSISTENT ROTATIONAL INSTABILITY AFTER ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION**

**Harragate Hospital, Harragate, UK**

**Poster Authors**

This study investigated the use of anterior-lateral ligament augmentation for patients with persistent rotational instability after anterior cruciate ligament reconstruction. The results showed that this technique can improve patient satisfaction and reduce the risk of re-injury.
0029 – THE FINANCIAL IMPACTS OF BLOOD GROUP & SAVE ANALYSIS ON PATIENTS REQUIRING PRIMARY TOTAL KNEE ARTHROPLASTY SURGERY

D G White, N. Howells, J. R. Robinson, A. J. Porteous, J. R. Carter
University Hospitals of Leicester NHS Trust, Leicester, UK; Coventry University, Coventry, UK

Background: The universal goniometer (UG) is commonly used to measure knee range of movement (KROM) in clinical practice. However, research has demonstrated that the UG lacks reliability falling to 25% (range 35%) and ‘the gold standard’ for this purpose is the HuA. This study aimed to better understand impact of knee replacement surgery on full thickness disease.

Method: A matched control group with full thickness disease was available pre-operatively and at 6 months post-operatively for all subjects.

Results: 70 (17%) of the 400 HUA readings differed from the corresponding MR image readings between 6 and 12 months post-operatively. The percentage of patients who reported a “good”, “fair” or “poor” result was similar before and after surgery (Figure 1). There was no difference in the percentage of patients who reported a “good”, “fair” or “poor” result for all-cause mortality – 1.29%. 30 day return to theatre incidence – 2.1%. No fatal PE occurred in either group.

Conclusion: There is no significant difference in the efficacy or safety profile of Aspirin and Dabigatran when used for prevention of VTE following knee replacement surgery. A direct comparison between Aspirin and Dabigatran, which has not been previously reported, is warranted.

0030 – THE OUTCOME OF UNCOMPARTMENTAL KNEE ARTHROPLASTY IN PATIENTS WITH PARTIAL THICKNESS DISEASE ON PLAIN RADIOGRAPHS: THE IMPORTANCE OF MRI

J. Palfreyman, S. Khan, A. K. Liew, D. J. Beard, A. Price
Southend University Hospital, Southend, UK

Introduction: Plain X-ray imaging in the pre-operative assessment of cases for unicompartmental knee replacement (UKR) is commonly used to distinguish between a “safe” and “unsafe” knee. However, recent studies have shown that the incidence of full-thickness disease on plain film radiographs is low. This study aimed to determine the incidence and extent of full-thickness disease on plain film radiographs in a consecutive series of patients undergoing UKR.

Methods: A total of 350 consecutive patients presenting for unicompartmental knee replacement (UKR) were included. All patients were assessed using MR imaging pre-operatively. The extent and location of full-thickness disease were assessed by a fellowship-trained musculoskeletal radiologist. The percentage of patients with full-thickness disease was calculated for each compartment.

Results: A total of 350 cases were included in the analysis. The prevalence of full-thickness disease in the medial compartment was 12% (n=42), in the lateral compartment it was 17% (n=59), and in the patellar portion it was 8% (n=28).

Conclusion: The prevalence of full-thickness disease in the medial compartment was 12%, in the lateral compartment it was 17%, and in the patellar portion of the knee it was 8%.

0031 – THE USE OF A SURGICAL SIMULATOR TO DEVELOP KNEE ARTHROSCOPY SKILLS

S. Craig, P. D. Gallagher, A. J. Barnett
Robert Jones and Agnes Hunt Orthopaedic Hospital, Oswestry, UK

Introduction: The ability to kneel following knee replacement surgery is not produced to the same extent as pain relief nor is it an area of knee function that is focused on by outcome studies. The aim of this study was to determine the incidence and extent of kneeling ability following knee replacement surgery and to assess whether their performance had improved.

Method: A questionnaire was developed and distributed to 162 patients (82 UKR- Oxford partial (Zimmer Biomet) 80 TKR PFC (Swansea) who had undergone knee replacement surgery. The questionnaire assessed ability to kneel (or lack thereof), reasons for kneeling inability, recovery time to kneel comfortably and surfaces on which kneeling was possible (e.g. cushion, carpet/linoleum, grass and sand).

Results: Responses were received from 50 TKR 51 UKR. In both cases, the majority reported kneeling 30% gained a new ability to kneel (97% of UKR and 88% of TKR). A further 13% of TKR and 7% of UKR could no longer kneel. Kneeling occurred after mean 73 (±12) months. Over half of “kneelers” tolerated “Hard/Very Hard” surfaces. “Non-kneelers” were pain-related indication or a knee replacement in the triangle as most restricting. Kneeling consistently impacted on employment, home chores/DIY and hobbies.

Conclusion: This shows a trend to achieve/maintain kneeling in over half of patients at a minimum of 12 months regardless of implant. Kneeling was most likely after 7 months. Unfortunatley over 10% lost kneeling as a consequence of surgery with significant impacts on employment and quality of life.

0032 – ASSESSMENT OF TENSIONING METHODS IN ACL RECONSTRUCTION

R Stevens, J Chandraasenan, P Huldam, F A.3
1Department of Orthopaedics, St. Thomas’ Hospital, London, UK; 2Nuffield Department of Orthopaedics, Rheumatology and Musculoskeletal Science, Oxford, UK; 3Nuffield Orthopaedic Centre, Oxford, UK

Background: The importance of knee flexion range of movement (KROM) in clinical practice.

Conclusions: The study demonstrates that using MRI to confirm the presence of full thickness disease on plain film radiographs is low. This study aimed to determine the incidence and extent of full-thickness disease on plain film radiographs in a consecutive series of patients undergoing UKR.

Method: We used 37 (25% of 148) subjects who had undergone knee replacement surgery, 36 (95%) of the 40 HUA readings differed from the corresponding MR image readings between 6 and 12 months post-operatively. The percentage of patients who reported a “good”, “fair” or “poor” result was similar before and after surgery (Figure 1). There was no difference in the percentage of patients who reported a “good”, “fair” or “poor” result for all-cause mortality – 1.29%. 30 day return to theatre incidence – 2.1%. No fatal PE occurred in either group.

Conclusion: There is no significant difference in the efficacy or safety profile of Aspirin and Dabigatran when used for prevention of VTE following knee replacement surgery. A direct comparison between Aspirin and Dabigatran, which has not been previously reported, is warranted.
parotid, shows acceptable long-term survivorship of 68% at 25 years, with significant sustained clinical improvement out to 30 years.

0120 – USE OF THE “RUNWAY” AS AN INDEPENDENT GUIDE TO ROTATION: REVIEW OF THE TIBIAL CUTTING JIGS IN TOTAL KNEE ARTHROPLASTY (TKA)

C.P. McKeever 1, B. Gelbart 2, P. Firer 2

1Department of Trauma and Orthopaedics, University of the Witwatersrand, Johannesburg, South Africa
2Linksfield Orthopaedic Sports and Rehabilitation Centre, Johannesburg, South Africa

Introduction: Incorrect tibial cut rotation will result in asymmetric coronal gap if a cutting jig with a slope is used. Cobb defined the anatomic axis of tibial rotation as running perpendicular to the major longitudinal axis of the medial and lateral intercondylar plateaus. The runway was defined in this study as a virtual rect- angle overlaying the intercondylar extremely, running from poste-rior to anterior, with the longer sides aligned to the tibial spines.

Methods: A total of 80/82 cases were performed by two surgeons at a single institution. An extramedullary cutting guide with a 7° posterior slope was aligned to the runway and the position of the jig on the tibial plateau. After resection, the centre of the medial and lateral plateaus were determined and the jig was adjusted to achieve coronal balance. The angle between the anatomic axis of rotation and the cutting jig was then calculated.

Results: Of the 80/82 cases, 36/40 were resected without problems and were excluded. Fifty-seven specimens were included. The mean intra-class coefficient was 0.89 for intra-observer reliability and 0.76 for inter-observer reliabil- ity. Mean deviation of the runway was 3.7° (range 0-12°, stan- dard deviation 2.8°). The mean “measured angle” was 4.8° (range 2-10°, SD1.0). The mean “anatomic angle” was 0.3° (range -6° to 7°, SD0.5). The mean “error angle” was 5.5° (range 0.12- S0.23). The mean error between the “measured angle” and the “anatomic angle” was 5.3° (range 0-9.5°, SD0.5). This error was ≤1 in 45.4%, ≤2 in 71%, and ≤2° in 29% of cases.

Conclusion: 29% of cases the intramedullary rod was inserted at >2° to the anatomic femoral axis. Surgeons using an intramedullary guide were more likely to have an improvement in coronal imbalance.

0121 – SINGLE BUNDEL ANATOMIC ACL RECONSTRUCTION USING HAMSTRING TENDON HAS GOOD OUTCOMES WHEN THE GRAFT ISOMETRY IS CONSIDERED

B.Balasubramaniam, G. McKinley, A. Finno

Linkfield Orthopaedic Sports and Rehabilitation Centre, Johannesburg, South Africa

Introduction: The objective was to measure the error in the distal femoral cut associated with using a femoral intramedullary guide.

Methods: Prospectively collected data were available for 817 consecutive TKAs performed by a single surgeon, using a single intramedullary rod to guide the distal femoral cut in TKA.

Results: The mean “measured angle” was 4.8° (range 2-10°, SD0.2). The mean “anatomic angle” was 0.3° (range -6° to 7°, SD0.5). The mean “error angle” was 5.5° (range 0.12- S0.23). The mean error between the “measured angle” and the “anatomic angle” was 5.3° (range 0-9.5°, SD0.5). This error was ≤1 in 45.4%, ≤2 in 71%, and ≤2° in 29% of cases.

Conclusion: 29% of cases the intramedullary rod was inserted at >2° to the anatomic femoral axis. Surgeons using an intramedullary guide were more likely to have an improvement in coronal imbalance.

0122 – CORONAL MECHANICAL ALIGNMENT IN ACCURATELY BALANCED TKAS WITHOUT SOFT TISSUE RELEASE

B. Gelbart 1, C.P. McKeever 1, B. Gelbart 2, P. Firer 2

1Department of Trauma and Orthopaedics, University of the Witwatersrand, Johannesburg, South Africa
2Linksfield Orthopaedic Sports and Rehabilitation Centre, Johannesburg, South Africa

Introduction: An extramedullary cutting guide with a 7° posterior slope was aligned to the runway and the position of the jig marked on the tibial plateau. After resection, the centre of the medial and lateral plateaus were determined and the jig was adjusted to achieve coronal balance. The angle between the anatomic axis of rotation and the cutting jig was then calculated.

Results: Of the 80/82 cases, 36/40 were resected without problems and were excluded. Fifty-seven specimens were included. The mean intra-class coefficient was 0.89 for intra-observer reliability and 0.76 for inter-observer reliabil- ity. Mean deviation of the runway was 3.7° (range 0-12°, stan- dard deviation 2.8°). The mean “measured angle” was 4.8° (range 2-10°, SD1.0). The mean “anatomic angle” was 0.3° (range -6° to 7°, SD0.5). The mean “error angle” was 5.5° (range 0.12- S0.23). The mean error between the “measured angle” and the “anatomic angle” was 5.3° (range 0-9.5°, SD0.5). This error was ≤1 in 45.4%, ≤2 in 71%, and ≤2° in 29% of cases.

Conclusion: 29% of cases the intramedullary rod was inserted at >2° to the anatomic femoral axis. Surgeons using an intramedullary guide were more likely to have an improvement in coronal imbalance.
E-Posters – Titles and Authors

0023 – THE IMPACT OF DIABETES ON INFECTION RATES IN ORTHOPEDIC JOINT REPLACEMENT SURGERY
D. Vieyvasina, S.P. White
Hospital University of Wales, Cardiff, UK

0035 – CAN WE PREDICT KNEELING ABILITY AFTER PARTIAL AND TOTAL KNEE REPLACEMENTS?
P. S. Craig, P.D. Galloway, A.J. Barret
The Robert Jones and Agnes Hunt Orthopaedic Hospital, Oswestry, UK

0042 – TOURNIQUET USE IN TKR: A POTENTIAL PREDICTOR OF POSTOPERATIVE PAIN SCORE
H. Z. Hasoum, U. Butt, N. Bradbury
Circle Healthcare, Bath, UK

0048 – IMPROVED EARLY FUNCTIONAL OUTCOME WITH THE ATTITUDE TOTAL KNEE REPLACEMENT: A PROPENSITY SCORE MATCHED TRIAL
N. Ciemniak, L. Birek, P.J. Wahlsmey
Victoria Hospital Kirkcaldy, Fife, UK

0051 – THE EFFECT OF MAL-POSITION OR MAL-ROTATION OF PROXIMAL TIBIAL RESECTION JIGS IN TOTAL KNEE ARTHROPLASTY
L. Vachtsevanos, K. Veravalli, A. P. Davies
Morriston Hospital, Swansea, UK

0052 – DO PATIENT PROM SCORES RETURN TO NORMAL FOLLOWING KNEE REPLACEMENT SURGERY?
A. Konaraj, D.S. Johnson
Blackpool NHS Foundation Trust, Blackpool, UK

0057 – OUTCOMES OF MEDIAL PATELLOFEMORAL LIGAMENT RECONSTRUCTION FOR PATELLAR DISLOCATION
A. Al-Jaif, MTR Parratt, K. Sugand, J.A. Skinner, J. Miles, RVW Carrington
Royal National Orthopaedic Hospital, Stanmore, London, UK

0058 – CAN THE SURGICAL APPROACH TO THE TOTAL KNEE ARTHROPLASTY AFFECT THE POST-OPERATIVE REHABILITATION AND THE TIME TO DISCHARGE? – A COMPARISON STUDY BETWEEN TRICEP AND MEDIAL PARA PATELLAR APPROACHES
G. Reddy, P. Stritch, S. Ul Islam, D. Teanyeb, F. Attar
Winston Hospital, Liverpool, UK

0061 – MENSICOSIS: A SUCCESSFUL TREATMENT FOR THE DISCOID MENISCUS
E. K. Elliott, M. Gig Uglow, J.M. Thomas
Southampton Childrens Hospital, Southampton, UK

0073 – REVISION KNEE SURGERY IN UNDER 65 YEAR OLD PATIENTS: 16 YEAR FOLLOW UP SURVIVORSHIP AND RADIOLOGICAL ANALYSIS USING TCS IMPLANTS
S. Patange, S. Subba Rao, J. Belsey
Royal National Orthopaedic Hospital, London, UK

0080 – ATTUNE TKR HAS A DECREASED REVISION & RE-OPERATION RATE AND IMPROVED CLINICAL OUTCOME COMPARED TO PFC – A SINGLE SURGERY SERIES OF 1000 TKAS
B.V. Bichl, M. Shahid, P.J. James
Nottingham University Hospitals NHS Trust, Nottingham, UK

0081 – GMK SPHERE TOTAL KNEE REPLACEMENT: AN INTERNATIONAL, MULTICENTRE, PROSPECTIVE, OBSERVATIONAL STUDY – ODEP STUDY

0084 – OUTCOME OF DISTAL FEMORAL REPLACEMENTS FOR NON-TUMOUR INDICATIONS
Sheffield Teaching Hospitals NHS Foundation Trust, Sheffield, South Yorkshire, UK

0085 – THE CONTRIBUTION OF NEUROPATHIC PAIN ON THE ABILITY TO KNEEL FOLLOWING TOTAL KNEE REPLACEMENT
J. RA Smith, J. Mathews, Z. Bikekwell, L. Osbourne, JL Williams
Musgrove Park Hospital, Taunton, UK

0087 – ASSESSMENT OF THE TIBIAL TUBEROSITY-TROCHLEAR GROOVE DISTANCE IN TROCHLEAR DYSPLASIA: A NEW RADIOGRAPHIC METHOD
B. Keanan, A. Gill, I. Smith, R. Ahmad, J. Eldridge
Weston Area Healthcare Trust, Weston super Mare, UK

0088 – EFFECT OF DURATION OF PRE-OPERATIVE SYMPTOMS ON OUTCOME FOLLOWING TOTAL KNEE REPLACEMENT: AN ANALYSIS OF 41,107 PATIENTS FROM THE NATIONAL PROMS DATASET
University of Oxford, Oxford, UK

0090 – PAEDIATRIC CRUCIATE LIGAMENT RECONSTRUCTION USING PARENTALLY DONATED HAMSTRINGS ALLOGRAFT
D.L. Rawol, S.K. Yasen, R.S. Khakha, A.J. Wilson
Basingstoke & North Hampshire Hospital, Basingstoke, UK

0092 – MOBUNDEAL FEMORAL POSITIONING IN SINGLE BUNDLE ACL RECONSTRUCTIONCREASES GRAFT FAILURE COMPARED TO STANDARD ANATOMIC RECONSTRUCTION
Z Merton, S K. Yasen, R S Khakha, D L Rawol, M J Risbyead, A J Wilson
Basingstoke & North Hampshire Hospital, Basingstoke, UK

0094 – THE USE OF BONE WEDGE ALLOGRAFT IN HIGH TibIAL OSTEOODYSTROPHY: A PROSPECTIVE STUDY OF PAIN AND TIME TO UNION
R S Khakha, S K Yasen, J. Belsey, D L Rawol, M J Risbyead, A J Wilson
Basingstoke & North Hampshire Hospital, Basingstoke, UK

0095 – OUTCOMES FOLLOWING TOTAL AND UNICOMPARTMENTAL KNEE REPLACEMENT FOR HIGH FUNCTIONING PATIENTS
S McDonnell, J R Murray, R N Howells
1Avin Orthopaedic Centre, Bristol, UK, 2University of Bristol, Bristol, UK

0099 – EVALUATION OF TOOLS TO ADDRESS THE CEILING EFFECT IN PATIENT REPORTED OUTCOMES FOLLOWING TOTAL AND UNICOMPARTMENTAL KNEE REPLACEMENT FOR HIGH FUNCTIONING PATIENTS
S. McDonnell, J R Murray, R N Howells
1Avin Orthopaedic Centre, Bristol, UK, 2University of Bristol, Bristol, UK

0102 – SURVIVAL OF KNEE REVISIONS AND REASONS FOR FAILURE
R. Kakkar, S. Agarwal, R. Morgan- Jones
Llandough Hospital, Cardiff, UK

0103 – CONTEMPORARY INDICATIONS FOR MENSICOTOMY – WOULD YOU THROW THE BABY OUT WITH THE BATHWATER?
S.G. Abram, L. Bailyck, W.F.M. Jackson, N. Bottomley, D.J. Beard, A.J. Price
NOORMS, University of Oxford, Oxford, UK

0104 – MINIMALLY INVASIVE SURGERY (MIS) IN KNEE OSTEOTOMIES ACHIEVES EQUIVALENT RADIOLOGICAL OUTCOMES TO TRADITIONAL OPEN APPROACHES
J. Belsey, S K Yasen, D L Rawol, R S Khakha, M J Risbyead, A J Wilson
Basingstoke & North Hampshire Hospital, Basingstoke, UK

0107 – ANATOMICAL VARIATIONS IN THE PROXIMAL TIBIAL DESIGN OF A CUSTOMIZED TKR? A CT DATA ANALYSIS
A.F. Stener, J Beckmann, R. J Tait
1Sportklinik Stuttgart GmbH, Stuttgart, Germany, 2Orthopädische Klinik Klinik-Ludwig-Haus Würzburg, Würzburg, Germany, 3Orthopaedic Institute of Henderson, Henderson, USA

0108 – FACTORS AFFECTING COMPLETION OF PATIENT REPORTED OUTCOME MEASURES IN ORTHOPEDIC PATIENTS.
S.T.E. Tudor, M.H. Jones
1Cambridge University, Cambridge, UK, 2Forus Clinic, London, UK

0112 – CAN NEW INSTRUMENTATION AID TRAINEE SURGEONS PERFORMING UNICOMPARTMENTAL KNEE ARTHROPLASTY?
A. Alvand, H.A. Wilson, R. Maffi, R. Middleton, N. Bottomley, W.F. Jackson, A.J Price
NOORMS, Oxford University, Oxford, UK

0118 – FACTORS ASSOCIATED WITH MID-FLEXION LAXITY IN TOTAL KNEE ARTHROPLASTY: AN INTRA-OPERATIVE KINEMATIC ANALYSIS OF 858 CASES
C.P. McGarry, M. Muteba, B. Gobart, P. Filer
1Department of Trauma and Orthopaedics, University of the Witwatersrand, Johannesburg, South Africa, 2Department of Epidemiology and Biostatistics, University of the Witwatersrand, Johannesburg, South Africa, 3Linksfield Park Knee and Sports Medicine Clinic, Johannesburg, South Africa

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Trauma and Spines
Best of the Best
Robert Jones Lecture
Howard Steel Lecture
Revalidation Sessions
Education and Training

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Stryker’s Triathlon Revision Knee System features Tritanium Cone Augments

- Simplified preparation with reamer-based instrumentation \(^1, 2, 3, 4\)
- Unique 3D printed Tritanium augments are designed to provide structural support and biologic fixation
- Allows for metaphyseal fixation without constraining subsequent implant positioning \(^1\)
- SOMA-designed to help meet reconstruction challenges and fit a broad range of patients \(^5\)

References
1. Triathlon Revision Knee System Surgical Protocol (TRITS-SP-2 Rev-1).

A surgeon must always rely on his or her own professional clinical judgment when deciding whether to use a particular product when treating a particular patient. Stryker does not dispense medical advice and recommends that surgeons be trained in the use of any particular product before using it in surgery.

The information presented is intended to demonstrate the breadth of Stryker’s product offerings. A surgeon must always refer to the package insert, product label and/or instructions for use before using any of Stryker’s products. The products depicted are CE marked according to the Medical Device Directive 93/42/EEC. Products may not be available in all markets because product availability is subject to the regulatory and/or medical practices in individual markets. Please contact your sales representative if you have questions about the availability of products in your area.

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