

11<sup>th</sup> International Conference on  
**Arthroplasty**  
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**Scientific Tracks & Abstracts**  
**Day 1**



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# ARTHROPLASTY

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## Tranexamic acid use in lower limb arthroplasty: The Derriford experience

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Patients undergoing lower limb arthroplasty have increased risk of perioperative bleeding. Prevention of bleeding with an anti-fibrinolytic may be preferable to blood transfusion. Tranexamic Acid (TXA) inhibits fibrinolysis by competitively blocking plasminogen binding sites. We retrospectively sampled all patients who underwent primary Total Knee Replacement (TKR) and Total Hip Replacement (THR) for one month. We assessed whether patients were given TXA, amount of blood loss, rates of transfusion and length of stay. Departmental policy was implemented advising use of TXA for lower limb arthroplasty unless hypersensitive. Repeat retrospective sampling and analysis was performed. The initial study of 33 TKR and 17 THR showed mean patient age of 66 years with 60% female. Two THR patients received TXA, compared to 17 TKR patients. Change in hemoglobin levels pre to post-operatively were 3.06 g/L for the non-TXA group versus 2.29 g/L for the TXA group. Independent t-test was statistically significant,  $p=0.003$ . Two patients received blood transfusion; both did not receive TXA with blood loss over 3 g/L. Mean length of stay for the non-TXA group was 5.06 days compared to 3.74 days for the TXA group. Repeat analysis after policy implementation gave a study-set of 49. Mean patient age was 67 years with almost 60% males. Similar proportions of TKR and THR were noted to the initial study with 32 TKR and 17 THR. We saw dramatic improvement in use of TXA; 30 TKR and 13 THR patients in total. By extrapolating the improved use of TXA, this represents a total of 33.11 g/L blood loss saved cumulatively across the 43 patients who received TXA. The cumulative outcome of the 43 patients who received TXA had a shorter hospital stay by 56.76 days. This represents a benefit to patients and the hospital with decreased rates of blood loss, shorter length of stay with significant cost saving.

### Biography

Andrew Clarke is an NHS Orthopaedic Consultant at Institution of Plymouth Hospitals NHS Trust at UK. His are of interest are Wrist surgery, Elbow and Hand surgery.

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## Short term results of replacement arthroplasty in irreparable Mason type-III radial head fractures

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**Background & Aim:** The radial head is considered as the main stabilizer of the elbow especially when the medial and lateral ulnar collateral ligaments have been damaged. Radial Head Arthroplasty (RHA) is indicated for patients with unreconstructible radial head fractures. The present study was carried out to analyze the early clinical results after treatment of irreparable radial head fractures with radial head replacement.

**Methods:** 32 patients with Mason's type-III radial head fractures were treated with cemented Monoblock stainless steel radial head replacement during 2014-2016. The patients were followed up for a period ranging from minimum of 12 months to a maximum of 23 months, with average being 16 months. During each visit their functional outcome with any associated complications were noted and were graded with Mayo's Elbow Performance Score (MEPS).

**Results:** At the final follow up, 24 patients (75%) had excellent results, 6 (18.75%) good and two (6.25%) had fair results. Six (6) patients were associated with complications like pain, stiffness and valgus elbow instability. Variables like MEPS, pain and stiffness were found to have significant association with time interval between injury and surgery, with cases being operated earlier showing better results. Significant association was also seen between associated elbow injury and elbow instability. No case of radiocapitellar overstuffing was seen. However, one case was associated with lateral epicondylitis which is a relatively rare non-documented complication.

**Conclusion:** We conclude that radial head arthroplasty is a good treatment option for irreparable type-III radial head fractures with cases operated earlier showing better results. It restores elbow kinematics and stability with good functional outcome, provided care has been taken to avoid overstuffing of the joint. Early mobilization of elbow is important to restore elbow motion and function.

### Biography

Anish Agarwalla has completed his Post-graduation from Central Institute of Orthopedics, Safdarjung Hospital, New Delhi and is currently serving as a Senior Resident at the same place. He is highly interested in academics and research related works. He is the co-author of two books and interested in joint disorders.

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## Normative data of the hip disability and osteoarthritis outcome score, joint replacement in a healthy United States population

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**Background:** Patient Reported Outcome Measures (PROMs) play a vital role in the care we provide to our patients. To help understand the application of PROM in arthroplasty, normative and benchmark data to serve as a comparison to patients pre- and post-surgery would be extremely valuable. We collected normative data of the Hip Disability and Osteoarthritis Outcome Score (HOOS), joint replacement (JR) on a healthy population, greater than 17 years of age, in the United States devoid of hip injury and/or surgery.

**Methods:** This was a cross-sectional study, where hard copy surveys were administered to 1140 patients, being seen for an orthopedic issue unrelated to their hip and non-patient visitors in July 2018 at an outpatient orthopedic clinic in a suburban metropolitan city. Participants were eligible if they self-reported a medical history negative for hip replacement, current hip pain/disability or hip procedure (surgery or injection) within the past year. Mean, standard deviation, median and interquartile ranges on the HOOS, JR interval scores were calculated by sex, age decade, BMI, reason for visit, history of orthopedic procedure and past medical history.

**Results:** Four hundred twenty-five (425) men and 575 women were included in the final study cohort. Women aged between 70 to 79 years reported the lowest mean interval score (mean=88.8). Overall women scored lower as well (93.3 vs. 95.7,  $p=0.001$ ). There was not a statistical difference between the interval scores by tobacco consumption (93.5 vs. 94.4,  $p=0.49$ ) and between patient's vs. non-patient visitors (94.2 vs. 94.5,  $p=0.672$ ). Lower scores were observed in participants with a past non-hip orthopedic procedure (92.6 vs. 94.9,  $p=0.016$ ), past medical history of a chronic illness (92.5 vs. 95.9,  $p<0.001$ ) and participants classified as obese ( $BMI>30$ ) (91.7 vs. 95.2,  $p<0.001$ ). On regression analysis, there was a decrease of 0.3 and 0.1 in the interval score for each unit of BMI and age by year, respectively ( $p<0.001$ ).

**Conclusion:** This study provides normative reference values for the HOOS, JR in a United States population from a suburban metropolitan city greater than 17 years of age. These scores can facilitate physician-patient shared decision making to help patients understand expectations post-hip arthroplasty in respect to PROM.

### Biography

Avais Raja is a Post-Doctoral Research Fellow currently working at TRIA Research Institute. He is currently in transition to Orthopedic Surgery Residency.

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## Outcome of Triathlon total knee replacement: Minimum six-year follow-up

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The Triathlon Total Knee Replacement (TKR) was designed with a single Flexion-Extension Axis (FEA) to maintain ligament tension throughout range of motion, reduce mid-flexion instability and reduce contact stresses and sub-laminal wear. Our study assessed mid-term survivorship of the Triathlon TKR. Secondary outcomes of radiological loosening and clinical Oxford knee scores were assessed. We retrospectively analyzed 394 patients who received Triathlon TKR from January 2009 to October 2011. Mean patient age was 68 years. Indication for operation was predominantly osteoarthritis and mean follow-up was over seven years. Almost 95% of operations used articular surface mounted navigation for distal femoral and proximal tibial cuts. Implant survivorship was assessed via all cause revision rate and revision for aseptic loosening. Follow-up radiographs were assessed using 'The Knee Society Roentgenographic Evaluation System'. Oxford knee scores were obtained using virtual arthroplasty databases and telephone questionnaires. Results showed that 359 TKRs were cruciate retaining; the remaining 35 were posterior stabilized. Patella resurfacing occurred in 363 knees. All cause revision rate was 3.04% (12/394) with aseptic loosening in 0.76% (3/394). Radiological assessment showed that of the 382 non-revised TKR, 348 had no evidence of radiolucent lines. Of the 34 TKR with radiolucent lines, five showed radiolucency to all tibial component zones. Oxford knee scores showed an improvement in clinical outcome for patients post-operatively. In conclusion, to our knowledge this is the largest study with mid-term follow-up reporting on navigated Triathlon TKR and our results are comparable to other knee replacement designs in orthopedic literature.

### Biography

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## Uncemented hips: Current status

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Total Hip Replacement (THR) has been an established procedure for symptomatic end stage arthritis of hip to improve function and alleviate pain thereby improving the quality of life of millions of patients. Of the range of possible joint replacements, it is suggested that THR is a landmark surgery. Its success in the short-term as well as in the long-term has led to THR being performed in younger and more active patients. Survival of THR in the young and active patients was suboptimal for many years and management of this group continues to be a challenge. This paper provides an up to date review of relevant history of uncemented hips, key design features, mechanisms of fixation, current status, guidance to use and long-term results of uncemented hips. THRs have long-term survival rates of more than 90% for uncemented as well as cemented stems. Despite encouraging long-term fixation of the metallic shell, long-term survival of uncemented cups is frequently compromised by excessive liner wear and peri-acetabular osteolysis particularly in the young and active patients. Kearns et al. looked at the survival of femoral and acetabular components and noted that femoral stem survival was 99.3% (range, 98.4-100%), 98.9% (range, 97.7-100%) and 96.8% (92.5-100%) at 5, 10 and 15 years, respectively. Including all component designs acetabular survival was 98.7% (range, 97.4-100%), 84.6% (78.8-90.4%) and 52.5% (40.7-64.3%) at 5, 10 and 15 years, respectively and overall survival was 46.8% (33.5-58.1%) at 15 years. Uncemented THR is increasing globally as a good option for young and active patients needing hip replacement. It provides long lasting good to excellent results provided the indications are met.

## Biography

Juned Salam Ansari is a Senior Hip research Fellow who completed his graduation of Medicine from Maulana Azad Medical College, New Delhi and completed FRCS (Ortho & Trauma), London in 2014 while working in Singapore. He did his Fellowship in Hip and Knee Arthroplasty from Chapel Allerton Hospital, Leeds, UK.

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## Patient specific template shortens operative time in TKA

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**Background & Aim:** Since the introduction of computer-assisted Total Knee Arthroplasty (TKA), the literature has been focusing on comparing the efficacy of this technique to the conventional technique of TKA in terms of success rate, postoperative outcome and rehabilitation. This paper aimed to compare computer-assisted TKA using Patient-Specific Template (PST) to conventional TKA in terms of operative time.

**Methods:** Thirty (30) patients with different degrees of knee osteoarthritis and variable types of deformities were enrolled in this study. They underwent TKA surgery and were divided into two groups: Group-1 included 15 patients who underwent TKA using PST technique; and Group-2 included 15 patients who underwent TKA using conventional technique. Mean operative time for each group was documented.

**Results:** Mean operative time for PST and conventional groups was 113 min and 137 min, respectively; that is, PST was shorter by 24 min, which was statistically significant ( $P < 0.001$ ).

**Conclusion:** PST had an advantage over conventional instrumentation as it significantly reduced operative time.

### Biography

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**Scientific Tracks & Abstracts**  
**Day 2**





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## Potential role of patient reported outcome measures combined with radiological imaging in follow-up after elective joint replacement surgery

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Patient Reported Outcome Measures (PROMs) were introduced in orthopedic practice in UK, since 2009, the National Joint Registry emphasized its use by NHS trusts in order to improve quality of care. In this study we looked into the potential role of PROMs combined with radiological imaging in follow up after elective joint replacement surgery. 50 patients who underwent primary elective joint replacement surgery from Jan 2013 till Jun 2013 under care of senior author, were randomly identified, pen and paper Oxford hip and knee score questionnaires with radiological imaging request forms were sent by post, a covering letter explaining the rationale of study to patients in simple language was added, for the radiology request form patients were advised to go to their nearest hospital at their convenience, a business reply pre-paid envelope was included with the letter for returning the Oxford scoring questionnaires. 38 out of 50 patients responded to the postal request, giving a response rate of 76%, an overall improvement of 12% from the agreed standards for postal surveys with pre-paid envelopes. The X-rays were reviewed by the radiologist and senior author for any radiological evidence of aseptic loosening, none out of 38 X-rays which were reviewed, showed any evidence of aseptic loosening. Oxford hip or knee score for each individual patient was calculated using a 0-48 method. Response rate of 76% indicates that PROMs though not validated for follow-up, may have a potential role if combined with appropriate use of radiological imaging in medium to long term follow-up after elective joint replacement surgery, which might prove beneficial in reducing work load on routine arthroplasty follow-up clinics.

### Biography

Amjad Bhatti is a Consultant Orthopedic Surgeons provides a wide range of emergency and elective treatment to patients throughout North Wales. He is currently being an Orthopedic surgeon in the Department of Orthopedics working at Betsi Cadwaladr University Health Board, Glan Clwyd Hospital at United Kingdom.

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## Bioprospecting of marine resources for biopolymer production

**Sourish Bhattacharya**

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West coast of India can be considered as important area for collecting diverse marine microorganisms with biopolymer producing capacity. In this attempt, 200 marine isolates from west coast of India was obtained, out of which one strain CSMCRI's *Bacillus licheniformis* PL26 was found to be potential for producing  $\epsilon$ -polylysine and polyhydroxyalkanoate simultaneously in same fermentation medium. The PHA produced by *Bacillus licheniformis* was found to be Poly-3-Hydroxybutyrate (P3HB). Further, in order to improve the  $\epsilon$ -polylysine production, the carbon source was replaced with glucose which yielded 1.2 g L<sup>-1</sup>  $\epsilon$ -polylysine as oxygen transfer rate is very low in the medium containing crude glycerol. Further, an advanced modeling and optimization technique was applied to optimize medium parameters for enhanced  $\epsilon$ -polylysine production by marine bacterium *Bacillus licheniformis*. The critical nutrients including glucose, yeast extract, magnesium sulfate and ferrous sulfate were incorporated in Artificial Neural Networks (ANN) as input variables and  $\epsilon$ -polylysine as the output variable. The ANN topology of 4-10-1 was found to be optimum upon training the model with feed-forward back propagation algorithm and on application of the developed model to particle swarm optimization resulted in 3.56 $\pm$ 0.16 g L<sup>-1</sup> of  $\epsilon$ -polylysine under the following optimal conditions: Glucose 34 g L<sup>-1</sup>; Yeast extract 2.3 g L<sup>-1</sup>; Magnesium sulfate 0.44 g L<sup>-1</sup> and Ferrous sulfate 0.08 g L<sup>-1</sup>. Thus, this optimization technique could significantly improve  $\epsilon$ -polylysine by 196.7% as compared to un-optimized medium.

### Biography

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