



Fellowship report

Report by:	Ayman Gabr
Date of the fellowship:	16/04 – 12/05/2023
Visited institutions:	<p>1. University Clinic Brandenburg an der Havel, Germany Prof Roland Becker/ Dr Michael Salzmann</p> <p>2. Orthopaedic Clinic of Medical School Hannover, Germany Prof Henning Windhagen/ Dr Sufian Ahmad</p> <p>3. Kepler University Clinic Linz, Austria Dr Philipp Proier</p> <p>4. Unfallkrankenhaus Steiermark / Standort Graz, Austria Dr Antonio Klasan</p>

I would like to thank EFORT for selecting me for this prestigious travelling fellowship. The robotic fellowship, supported by Stryker, was a fantastic opportunity to visit four orthopaedic centres of excellence across Europe. All the travel logistics have been organised by the EFORT team allowing me to enjoy the experience and making the most out of my time during the fellowship.

Brandenburg 16/04/2023- 23/04/2023

The first stop was at the University Clinic Brandenburg visiting Prof Roland Becker. Prof Becker is the current president of the ESSKA, and he is the head of the orthopaedic department at Brandenburg clinic.

On my first day, I joined the trauma meeting early in the morning where all admissions from the weekend were discussed. The meeting was well attended by consultants, residents and other healthcare professionals. There was a radiologist going through the images as well which was interesting to watch.

I then joined the team in theatre. Although there were no Robotic cases that day, I had the chance to scrub in an ACL reconstruction, excision of heterotopic ossification following a total hip replacement and a conventional total knee arthroplasty in a patient with Nickel allergy.



REPORT

Robotic Travelling Fellowship 2023

www.efort.org



The following days I had the opportunity to scrub with Prof Becker in multiple MAKO robotic knee arthroplasty cases. We had a variety of cases including total knee replacement for varus and valgus knee as well as medial partial knee replacement. We had plenty of time to discuss different alignment philosophies for total knee replacement. Prof Becker prefers to build the knee balancing from the tibia, so he starts with a tibial cut first then use a tensioner in flexion and extension to guide further adjustments in order to achieve a balanced knee in flexion and extension. One of the interesting things I have seen is an automated hydraulic leg holder that is operated by a foot pedal allowing for easy intraoperative change in knee flexion and extension position. There was also a case of a rheumatoid arthritis patient who had patellar tendon rupture following total knee arthroplasty. It was a good opportunity to discuss with Dr Becker the reconstruction options in such cases.

In the evenings, I had dinner twice with Dr Becker in typical German cuisine. Aside from the authentic food, it was a great opportunity to share personal experiences inside and outside work with Prof Becker. I genuinely enjoyed the deep conversations with him about work, career and life in general. It was my pleasure to connect with such a wonderful and humble person who is a fantastic role model for orthopaedic surgeons.



On Saturday, I had some free time to visit Berlin where there were many fantastic historical sites to explore that kept me busy all day. The following day I got on the train to my next stop, Hannover.



Hannover 23-30/04/2023

I arrived in Hannover on Sunday where Dr Sufian Ahmed picked me up from the train station and we spent some time in the city centre. Dr Ahmed is specialised in the field of periacetabular osteotomy and hip preservation surgery. He has worked hard on establishing the hip preservation service at Hannover and he currently carry out nearly 150 periacetabular osteotomy procedures per year. I remember attending an international lecture for Dr Ahmed on high tibial osteotomy a few years ago and it was interesting to discuss with him how he shifted from knee surgery to hip preservation surgery.



The orthopaedic hospital in Hannover is an exclusive elective orthopaedic hospital. Although the hospital is attached to the university, it is completely separated from the trauma site. I attended the department meeting on Monday morning which was very well attended by over 40 doctors and other healthcare professionals. The meeting was chaired by Professor Windhagen who is the head of the department.

After the meeting, I went with the team to the operating theatre. There were 5 elective theatres running every day in addition to the day-case surgery theatre. I had the opportunity to alternate between theatres according to the cases. I joined in one MAKO total knee replacement which introduced me to the Prof Windhagen philosophy of kinematic alignment. I then joined Dr Ahmed for periacetabular osteotomy in a young patient as a day case which was very interesting.

The department has set up a scientific symposium at the end of the first day that was attended by all the doctors in the unit. Prof Windhagen's team presented their research on the results of Kinematic alignment followed by a talk from Prof Windhagen on Kinematic alignment and the unit's philosophy for balancing in knee arthroplasty. This was very interactive discussion where we debated the functional alignment versus kinematic and other alignment strategies in knee replacement.

I then presented our research from the University College London Hospital on hospital stay and discharge disposition following robotic knee arthroplasty compared to conventional knee arthroplasty. This initiated further discussion on the differences between the German and British healthcare systems. In contrast to the UK, the German healthcare system does not put a lot of emphasis on hospital length of stay postoperatively.

I realised that hospitals in Germany do not get paid for surgical cases unless the patients stay in hospital for a certain number of days postoperatively. Therefore, there is no urge for day case arthroplasty in Germany at the moment although I understand this might change in the near future.



During the rest of the week there were so many MAKO robotic partial and total knee replacement where Prof Windhagen demonstrated his alignment philosophy and how he balances the knee replacement starting with the femoral cut first.

There were other interesting cases such as loosening of hip resurfacing following posterior wall acetabulum fracture requiring revision surgery and fatigue failure of at the femoral neck-stem junction of a modular hip stem requiring revision surgery with cup-cage construct. There was also a case of double level osteotomy for the femur and tibia in a severe valgus deformity with patella instability. Another interesting case was dynamic MPFL reconstruction which I have not seen in any orthopaedic unit in the UK. It was very interesting to observe this surgery having read its technique and results that have been published last year by the Hannover group. I also assisted in a few periacetabular osteotomy with Dr Ahmed.

During the week, I had great time outside the hospital as well with the team organising dinner twice in elegant German restaurants. It was a great opportunity to get to know Prof Windhagen and Dr Ahmed on personal level as well as the rest of the team and I really had wonderful time with them.





Linz 30/04–07/05/2023

The third stop was at Linz in Austria. I chose to fly to Linz from Hannover which did take around 7 hours from door to door. With hindsight, I probably should have chosen to make the journey by train as it would have taken the same time but with the advantage of going through the beautiful scenery in Austria. Linz is the third largest city in Austria. I was welcomed to the orthopaedic unit at Linz University by Prof Gotterbarm who is the head of the department and also by Dr Phillip Proier. I attended the trauma meeting early in the morning and it was interesting to see the complex trauma cases that were presented in the meeting.



The hospital offers a mix of trauma and elective surgery. I then joined the team in theatre. I have scrubbed in so many MAKO total and partial knee replacements including primary complex total knee replacement and lateral partial knee replacement.

One of the most interesting surgeries that I got involved with during this fellowship was a MAKO robotic assisted total hip replacement through the anterior approach which was performed by Dr Proier. The surgery went swiftly, and it was very interesting for me to observe the instrumentation required as well as the hip joint registration process with MAKO through the anterior approach. It does also have the advantage of performing the procedure in a supine position with reliable assessment of leg-length discrepancy intraoperatively.

It was interesting to see that the department was very well staffed with doctors and nurses with very low nurses-to-patients ratio compared to the UK hospitals which was apparent in the less stressful atmosphere on the wards.



On Wednesday, Dr Proier took me for a tour around the city centre in Linz explaining some of the historical aspects of the city. We were then joined by the Stryker team for dinner at a very elegant Austrian restaurant.

At the end of the week, I headed off to Vienna to join the Linz orthopaedic team who was travelling to Vienna for the Austrian Orthopaedic Association meeting. I also had a lovely meal with the team hosted by Prof Gotterbarm at a famous restaurant in Vienna serving special Austrian steak which was truly special.



Graz 07-12/05/2023

The last stop was at Graz visiting Dr Antonio Klasan. The journey from Linz to Graz by train was fascinating with amazing mountain scenery all the way. I attended the trauma meeting at Graz on my first day followed by a few procedures on the trauma site including ACL reconstruction with hamstring autograft and ACL reconstruction with quadriceps tendon autograft.



The hospital in Graz is mainly a trauma site with some elective work but the main elective side is at Kalwang which is around one hour drive from Graz. The MAKO robot was at the elective hospital in Kalwang. Dr Klasan kindly gave me a lift between the two hospital sites. It was a great opportunity to have interesting conversations with Dr Klasan all the way back and forth between the two sites while watching beautiful mountain scenery on the way.

During my time at Kalwang, I scrubbed in so many MAKO total and partial knee replacement including lateral unicompartamental knee replacement. Dr Klasan uses uncemented total knee replacement implants which was very interesting to see. I have not used uncemented total knee replacement before, so it was a good learning opportunity for me. I had the opportunity to discuss with Dr Klasan his philosophy on knee balancing using the MAKO robotic arm assisted knee replacement. We also discussed the pros and cons of different alignment targets in knee replacement.

On the social side, we had dinner twice in local restaurants that were joined by the Stryker team which was a great opportunity to exchange ideas and insights on the future of robotic surgery in Austria.

Overall, the experience I gained during this Fellowship was invaluable and it was a platform for further clinical and academic collaborative work with these great people I have met on this fellowship. I believe I have made friends for life during those four weeks. Moreover, I have learnt new ideas and surgical tips that I would adopt in my future clinical practice. I would like to sincerely thank the EFORT and Stryker for this fantastic opportunity. Also, special thanks to Sabrina Marchal for her immense efforts and co-operation to organise all the logistics for my trips across four centres in Europe.

Permission for publication

I agree that my report may be published on the EFORT and EFORT Foundation website and used for promotional purposes on EFORT's social media channels.