REPORT

Robotic Travelling Fellowship 2022

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Fellowship report

Report by:	**Matthias Luger**
Date of the fellowship:	**20-02-2023 until 18-03-2023**
Visited institutions:	**Hannover (DE) | Orthopaedic Clinic of Medical School Hannover, Diakovere Annastift** **Brandenburg (DE) | University Clinic Brandenburg an der Havel** **Graz/Kalwang (AT) | AUVA UKH Styria (Steiermark)** **Linz (AT) | Kepler University Clinic Linz**

I was delighted when I received the acceptance letter for the EFORT Robotic Fellowship supported by Stryker. As I am focusing on hip and knee replacement surgery in my residency, I wanted to enlarge my knowledge on robotics in arthroplasty by applying to this fellowship. I myself performed a couple of MAKO cases under supervision at my home clinic in Linz, Austria. However, I was interested in visiting other centres to get new influences and define my workflow more precisely for the different indications for robotically assisted hip and knee arthroplasty.

The organisation of the fellowship and communication prior to the start was very good. The travel was planned by Sabrina Marchal of the EFORT very well. I travelled together with Max Thieme from the Department of Orthopedic Surgery, University Medical Center Regensburg. Max was a great travel companion for good clinical discussions as well as for leisure time. It was great to have a colleague like Max in order to travel together and have fun in learning new areas of arthroplasty surgery.

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The first week was spent in Hannover at the Diakovere Annastift, the Orthopaedic Clinic of the Medical School Hanover. I was very excited to be able to visit the department run by Prof. Henning Windhagen. The MAKO Robotic System is used there for a couple of years and the team of Prof. Windhagen has gathered a lot of experience in the area of robotically assisted joint replacement. We were welcomed very warmly and were directly included into the daily routine by Prof. Henning Windhagen and PD Sufian Ahmad as our hosts.
The week in Hanover was especially interesting as the team of Prof. Windhagen is conducting robotically assisted surgery for a long time and implemented the philosophy of kinematic alignment as well. The biggest learning for me in Hanover was the workflow, how to tackle the different varus and valgus alignments in knee arthroplasty. Prof. Windhagen himself was performing most of the robotic TKA cases and he took a lot of time, showing us the different strategies for kinematic alignment in a varus knee. Additionally, he also showed us his philosophy for valgus knees, in which he uses a more mechanical alignment with more strict boundaries. Also, the rest of the team was very supportive during the whole week. We could also scrub in and be part in a couple of cases. Additionally, we were also able to see a couple of hip replacements, that were conducted manually and with robotic assistance with the MAKO system. It was very interesting to see the differences in the workflow, when the robotic system is included. Also, outside the OR and the clinic the team in Hanover organized an entertaining week. The week was filled with interesting conversations. It was extremely interesting to talk and discuss arthroplasty and robotics with such a team of specialists. Therefore, I am really grateful for this week in Hanover as I was able to widen my horizons in that field.

The second week took place in Brandenburg at the department of orthopaedics and traumatology of the University Clinic Brandenburg an der Havel. The department is run by Prof. Roland Becker, who is currently president of the ESSKA board. We were welcomed by Prof. Becker and Dr. Mikhail Salzmann and immediately integrated in the daily routine of the department. The program was very interesting, as we were able to see another different workflow with the MAKO Robotic System. Prof. Becker always conducts a pre-cut on the tibia with the MAKO system and uses a ligament balancer in the same standardized manner. Additionally, we were able to see also some cases of medial unicompartimental replacement. The most

interesting clinical aspect was the way how Prof. Becker tackled the MAKO TKAs with his balancing method. I personally think that this concept could be another possibility to solve the balancing and implant positioning in MAKO TKA. Apart from arthroplasty and clinical cases, we had also some spare time to visit Potsdam and Berlin and the beautiful area of Brandenburg.

After two weeks in Germany, we travelled to Austria to continue the fellowship in Graz and Kalwang in Styria. Our host PD Antonio Klasan welcomed us in Graz very warmly and introduced us to the UKH Steiermark, which consists of two sites, one in Graz and one in Kalwang. The MAKO cases are done in Kalwang, which is roughly one hour north of Graz. PD Klasan leads the robotics in Kalwang and showed us a wide variety of different cases including unicompartimental replacements as well as TKAs. I was impressed by the very wide variety of different cases, that were done with the MAKO system. We were even able to see a bicompartimental case, in which a medial unicompartimental replacement was combined with a patellofemoral joint replacement. This case showed the possibilities of the MAKO system from my point of view, as this could be the future in knee arthroplasty. Outside of the OR, Antonio Klasan planned also a wide variety of different activities in Graz, which made the week entertaining.

The last week took place in Linz at the Kepler University Hospital. At first the last fellowship was kind of weird, as I work as a resident at the department of Orthopaedics and Traumalogy at the KUK Linz. However, I was able to see my colleague and host Dr. Philipp Proier as a very motivated host trying to show us a wide variety of cases. Also, my boss Prof. Tobias Gotterbarm spent a full day in the OR with us. I also myself performed a MAKO case during that week, which was very interesting as well, as I was able to utilize my new knowledge at home for the first MAKO case after this fellowship. The week in Linz was also packed with medial and lateral unicompartimental knee replacements as well as TKAs and also a case of a robotically assisted THA.

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In conclusion I was very delighted by the full programme of the EFORT Robotic Fellowship. I was able to learn a lot of new different areas of robotics in hip and knee arthroplasty. Additionally, this fellowship was a great possibility to get in contact with a lot of different people in the area of arthroplasty. I would like to the opportunity via this report to thank all the hosts in the different clinics again for this great fellowship. I can fully recommend this fellowship for arthroplasty surgeons who are interested to gather new knowledge in the field of robotics in hip and knee arthroplasty.