



Fellowship report

Report by:	Talal Al-Jabri
Date of the fellowship:	09-27 January 2023
Visited institutions:	University College London Hospital, Princess Grace Hospital & Glasgow Jubilee Hospital

Introduction:

The EFORT Robotic MAKO Fellowship presented a rare and privileged opportunity to gain multifaceted insights into cutting-edge robotic techniques in hip and knee arthroplasty. The fellowship encompassed experiences under the tutelage of Professor Fares Haddad at University College London (UCL) and Mr. Nick Ohly at the Golden Jubilee Hospital in Glasgow, Scotland. The convergence of practical surgical experience and academic engagement provided an enriching platform for professional development in computer-assisted/robotic arthroplasty.

Robotic Partial Knee Replacements at UCL

Under Professor Haddad, the fellowship focused on enhancing technical acumen in robotic partial knee replacements. This included exposure to total, lateral unicompartamental, medial unicompartamental, and patellofemoral knee replacements. The emphasis on the tracker positioning, checkpoints, and securing of tracker pins elucidated the necessity for accuracy and precision in robotic-assisted arthroplasty. The adoption of a consistent workflow was demonstrated as essential in minimizing errors and ensuring surgical efficiency.

Robotic Assisted Functionally Aligned Total Knee Replacements:

Further, Professor Haddad shared techniques for Robotic Assisted functionally aligned total knee replacements. Critical discussions regarding alignment strategies and functional alignment theory were prominent. Additionally, the deployment of VeraSense technology emphasized commitment



to the optimization of patient outcomes and demonstrated the precision capabilities of the MAKO system as well as acting as a further safety check regarding balancing the knee.

**Total Hip Replacements and Spinopelvic Relations:**

The fellowship extended into robotic total hip replacements with the Stryker MAKO robot. Professor Haddad provided valuable insights into spinopelvic relations and the importance of an enhanced technique workflow in improving the range of motion while preventing impingement. Understanding the complex interplay between spinopelvic mobility and component positioning is crucial, especially for patients with spinal pathology. Robotic-arm assistance in such cases is instrumental in personalized treatment plans that maximize range of motion and minimize instability.

Academic Exposure at UCL:

Academic enrichment was a notable element at UCL. This encompassed attending Professor Haddad's clinics, examining complex cases, and visiting the Institute of Sport, Exercise, and Health. The latter facilitated exposure to a state-of-the-art gait lab and its application in clinical studies. Moreover, training with the MAKO robot and software along with discussions regarding the future of robotics in hip and knee surgery provided substantial academic stimulus.

Experience at the Golden Jubilee Hospital

Upon travelling to Glasgow, Mr. Nick Ohly at the Golden Jubilee Hospital further expanded the knowledge base. Mr. Ohly shared experiences and outcomes regarding personalized alignment in knee arthroplasty from an extensive patient dataset. The significance of personalized approaches in optimizing patient outcomes was emphasized and he and his colleagues shared their tips and tricks for using the MAKO when performing partial knee replacements.

Mr. Kamal Deep supplemented the learning experience with insights into the use of the MAKO system for total hip replacements. Discussions focused on the role of this technology in improving implant stability and patient-reported outcomes.

Published Research and Exchange of Ideas:

An engaging exchange of ideas was facilitated throughout the fellowship, and especially at the Golden Jubilee Hospital. Published research by the hospital's surgical team was examined in-depth. This provided an appreciation of the current scientific landscape and the application of research findings to robotic hip and knee surgery. We had the opportunity to discuss a number of key historical milestones in computer-assisted orthopaedic/robotic surgery with Prof Picard who has been instrumental in the development of a number of systems and technologies.





Networking and Collaborations:

Social interaction and networking constituted an integral part of the fellowship. Dinner engagements hosted by Professor Haddad and Mr. Ohly were not only generous but also strategically essential in fostering professional dialogue and collaboration.



Conclusion:

The EFORT Robotic MAKO Fellowship represented an extraordinary amalgamation of surgical skill development, academic enrichment, and professional networking. Through the adept mentorship of Professor Haddad and Mr. Nick Ohly, I have significantly augmented my proficiencies and understanding in robotic hip and knee arthroplasty surgery, which I have been actively honing at my base hospital, the Royal National Orthopaedic Hospital in London, Stanmore. Skills of particular salience to my practice include optimising the utilization of the MAKO system to understand spinopelvic relationships and leveraging the MAKO system to enhance alignment. Moreover, I intend to incorporate specific elements of the diverse workflows I observed in both London and Scotland.

I am privileged to have been appointed to the Schulich Complex Adult Hip and Knee Reconstructive Programme in London, Ontario, Canada, where I am poised to apply the skills and knowledge acquired. My aspiration is to utilize these competencies to provide exemplary patient care. The fellowship has instilled in me invaluable insights into scrupulous surgical techniques, bespoke approaches, and the cardinal role of research in enhancing patient outcomes.

This fellowship epitomizes the collaborative and dynamic essence of our specialty, and it is with immense gratitude and honour that I reflect on having undertaken this pivotal experience.

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