

LI FELLÄNDER-TSAI

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SUMMARY

Professor Li Felländer-Tsai, President of EFORT and Chair at the Karolinska Institute, has developed a career defined by the integration of technological innovation and clinical precision. From early mentorship under surgical pioneers to her specialized care for professional dancers, her work emphasizes systematic methodology. As an expert in artificial intelligence and medical simulation, she addresses contemporary challenges in patient safety. This interview explores her trajectory from immunology to international leadership, highlighting her commitment to evolving global educational standards for surgeons.

Li Felländer-Tsai is the current EFORT president and works as Professor and chair of Orthopedics at Karolinska Institute in Sweden. She is also an expert in Artificial Intelligence and advanced medical simulation and training. Learn what she thinks about EFORT and the future role of this important political orthopaedic society. She talks about her personal career as orthopaedic surgeon and why she has specialised for professional dancers injuries and care.

You are the current President of EFORT. What means EFORT for you and your colleagues in Sweden?

For me EFORT represents all the challenges and opportunities that European O&T are facing. It represents cultural, linguistic and geopolitical aspects underpinning our daily practice, teaching and training in O&T. From a general Swedish perspective, I would think that EFORT stands for an arena where national and speciality societies can meet to discuss, develop and sharpen high quality and breakthrough science as well as educational aspects and patient care aspects of O&T. EFORT also offers great possibilities to keep up your skills in areas outside your subspecialization so that you can keep up high standards in the overall field of O&T.

What will be the main topics for the upcoming EFORT congress in Lisbon?

The main theme for the 23rd EFORT Congress in Lisbon is “Modern Patient Needs, Challenges and Solutions in Orthopaedics and Traumatology”. The highlights of the congress will include the expectations of new survivors, the impact of globalization and migration, new diagnostics, e.g. genetics, biomarkers and imaging techniques, new technology (implants and drugs), precision based medicine including genetics, megadata, machine learning and health registries. Other important topics that will be covered include medical ethics, surgical training and education. The effects of the Covid-19 pandemic and crisis and disaster on O&T as well as sustainability issues related to O&T practice will also be covered. Apart from this we have the traditional sessions such as the Comprehensive Review Course (CRC), The full day in total hip and knee replacements as well as excellent papers and clinical cases presented from all over the world. We also have several scientific rewards and the Best National Paper reward. I would especially like to mention our two honorary lectures. The Michael Freeman honorary lecture has the title "Disheartening Disparities: Inequitable Access to Trauma and Orthopaedic Care in Malawi" and will be presented by Dr Linda Chokotheo (Malawi). The Erwin Morscher Honorary Lecture has the title "The ultimate knee injury.

From sports venues to the operating theater!" will be presented by Professor Lars Engebretsen (Norway).

What are the current most challenges for EFORT as the leading political Orthopedic Society in Europe?

This is a very important question. Obviously, the implementation of the MDR is one of these important issues. Securing patient safety and innovation is clearly at center stage. Whether the system is ready and mature is under debate. EFORT is closely following the situation in the whole spectrum of O&T. We have launched a survey to investigate the situation across Europe, especially focusing on low volume implants. We are looking forward to the results. Another important issue is the back log of elective surgery as well as education and training following the Covid-19 pandemic which diverted much of our resources to Covid-care. We have also launched a survey to analyze this situation across Europe.

How is EFORT supporting the difficult situation of our colleagues in the Ukraine.?

The Ukrainian Association of Orthopaedic Surgeons & Traumatologists (UAOST) is a member of EFORT. As such, we have sent out a message and statement of support for Ukraine. We are in close contact with representatives of UAOST regarding their challenges and needs. On May 16 2022, EFORT had a special edition webinar with the title "Medical and Humanitarian Disaster: Orthopaedics&Trauma in Ukraine". We are now developing points of contact where needs can be communicated to both our national societies and industry partners in order to materialize support of both equipment, education and other means of resources in a systematic way.

How do you see the future of EFORT?

EFORT has an important function in European O&T. Enabling modern educational needs, being a voice for European affairs, securing safe clinical practice and facilitation the dissemination of research and innovation for the benefit of patients. EFORT has just launched an updated strategy building on these four pillars. We are constantly adapting and changing in order to meet the future needs and providing the best value for our member societies and partners. The EBOT exam is one of our fundamental and recurring activities securing good qualifications in both O&T. Our Scientific Journal EFORT Open Reviews (EOR) is one of our prime products and a rich source for updated knowledge. We also have educational webinars in both O&T and basic science. EFORT also offers industry webinars with important educational content.

When and why did you decide to be an Orthopedic surgeon?

This was an easy choice. It happened when I was recruited as a junior doctor by Professor Olle Svensson. Professor Svensson was inspiring, supportive, generous and a role model being a true virtuoso academic orthopaedic surgeon. It was an easy choice.

Where have you been trained?

I was trained in Stockholm, Sweden. I had the privilege to work with Professor Torsten Wredmark, a Swedish pioneer in arthroscopic surgery. His energy and focus were contagious and very empowering. Professor Wredmark introduced arthroscopy in local anaesthesia in Sweden and also pioneered the introduction of arthroscopically assisted cruciate ligament reconstruction together with ambulatory fast track same day surgery. When I started working in orthopaedics we did open cruciate ligament reconstructions followed by continuous passive motion and later application of a cast. The pioneering work by professor Wredmark represented a major

breakthrough at the time and change of clinical practice with faster rehabilitation. Professor Urban Lindgren was the chair of the Department when I first started. He had succeeded professor John Sevastik who had just retired. Professor Lindgren's guidance, high standards and vision together with his unwavering support has been of great importance for me. I wrote my thesis in the field of sports medicine. This included field work in elite orienteers and runners coupled with laboratory work in order to study anabolic and catabolic hormonal variations in relation to physical stress.

I was fortunate to have the national team physician in orienteering as my principal supervisor Christer Rolf (Johansson), Professor of Sports Medicine. The project was interdisciplinary and I also had the opportunity to spend time in the Laboratories of both the Departments of Clinical Chemistry and Obstetrics and Gynaecology.

Did you also had training abroad?

I performed a fellowship in Boston early in my career and I then had the privilege to work with Professor Lyle Micheli at Childrens Hospital. This was a great experience. Professor Micheli was truly benevolent and I had the opportunity to meet many other fellows from Canada, the US and Colombia. Professor Micheli was the attending physician for the Boston Ballet and I learned much about how to handle professional dancers. During my fellowship I had the opportunity to co-author a paper with Professor Micheli about the treatment of spondylolysis.

What is your subspecialization and why have you chosen this?

Sports Medicine and especially injuries to professional dancers. I have also worked many years as attending physician for the Cullberg Dance Company. But before I chose to narrow down on sports and dance medicine, I had serious considerations going into spinal surgery. I very much enjoyed working together with Dr Nikola Vucetic who was a great and inspiring mentor. His clinical skills were impressive and I also have great memories of never ending trauma shifts during long public holidays under his excellent guidance.

Karolinska Institute is a medical university and Swedens largest university for medical research. I am professor and chair of orthopaedics with a position as senior consultant at Karolinska University Hospital which is affiliated to Karolinska Institute. It has the largest medical education in Sweden with admissions twice a year. The Nobel Prize in Physiology or Medicine is awarded by the Nobel Assembly at Karolinska Institutet. So, in December every year Karolinska Institutet is immersed in Nobel activities with full focus on the breakthrough science accomplished by the laureates.

When and where did you start your scientific carrier?

It all started in the field of tumor immunology at the Department of Immunology at Karolinska Institute when I was a young medical student. I studied lymphokine activated killer cells and the association between the Major Histocompatibility Complex and cytotoxicity. This was at the time when Jerne, Köhler and Milstein were awarded the Nobel Prize for their theories of specificity and control of the immune system and the discovery of the principle for production of monoclonal antibodies. Immunology was very popular and as a medical student it was fascinating to listen to the Nobel lectures and start research.

Who were the most influential people for your carrier?

There are many. I mentioned a few earlier in this interview. But there are also many outside the field of medicine. Good and supportive people are of great importance and for me the continuous support by Dr Ingrid Ekenman has been extremely important. We share numerous experiences and great memories. Both from inside and outside of O&T.

You are an expert for Artificial Intelligence. Was does AI mean for you, how does it influence your daily practice and where will be the future?

This is a very important question which we could talk for hours about. Technology develops rapidly and regarding AI it represents a blind spot for many physicians in general. The more AI is used, the more it becomes a third party in the relation between the patient and the doctor. How do we secure good teamwork in such a new constellation? We must increase knowledge not only about the AI based applications but also scrutinize the black box problem, the importance of training datasets, the limitations regarding generalizability and the ethical aspects. AI needs a systematic framework. It's time for the young people to take over!

You are active in the Swedish Register. What has the Register changed in Sweden and what we can do still doing better?

I have previously been registrar of the Swedish Knee Ligament Injury Register. Registers with good coverage and completeness offer excellent research and quality monitoring possibilities. Sweden has many quality registers. The pioneering being the Hip and Knee Replacement registries. These registers have now merged showing the way forward where merging of registers is an important step in order to avoid redundant work. It is also important to discuss whether the register is an implant or diagnosis register and how to cover the whole spectrum.

You are the director of the Center for Advanced Medical Simulation and Training (CAMST) at Karolinska University. Can you tell us what it CAMST is doing and what it means for you?

CAMST is an advanced training center at Karolinska University Hospital where we use systematic simulation to train students, residents and staff. This is an important step towards increasing patient safety in high technology healthcare.

You are one of the rare female leaders in Orthopedics in Europe. What have you done different and why there are still too less female willing or able to take over a leading position?

In Sweden, about 20% of Orthopaedic specialists are female and the number is growing since the proportion among residents is even higher. So there are plenty of skilled and qualified female O&T surgeons in Sweden. More females are also coming into leadership positions in many parts of Europe. I don't think that I have done anything different.

Beside Orthopedics for which hobbies you still find time?

I try to spend time with my family. All the sporting and cultural activities with both fine and performing arts keep me busy and happy.

How do you balance your work-life balance?

Spending time with friends and my beloved family which I am extremely proud of.

Would you become an Orthopedic surgeon again?

I hope so. But it would of course depend on the circumstances and if there were opportunities.

What would you recommend a young resident to do to become a good orthopedic surgeon?

It will take some energy and hard work. So a good proportion of motivation will be needed. Apart from this good mentors, good colleagues, friends and family are important.