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MUSCULOSKELETAL SCIENCES

MSKSC

NEWSLETTER

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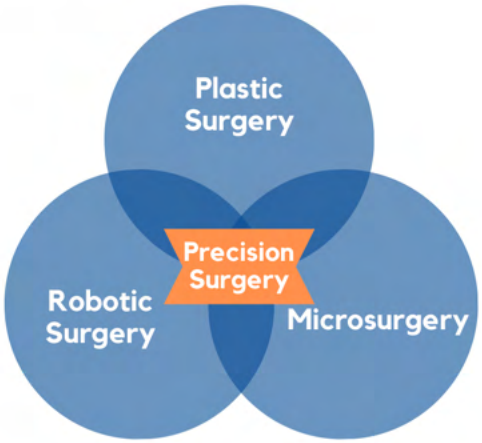
Pioneer of Robotic Plastic and Reconstructive Microsurgery & Surgeon Innovator:
Professor Jesse Selber's visit to SingHealth

Dr Savitha Ramachandran
KKH Plastic, Reconstructive & Aesthetic Surgery

Precision and an appreciation for aesthetics have long been at the foundation of plastic and reconstructive surgery. As we move into the era of precision medicine and now precision surgery, the development of robotic platforms endowed with capabilities to provide superhuman precision, represent a natural integration and evolution of the specialty.

Professor Jesse Selber first saw the potential of this marriage seemingly made in heaven, when he was a resident. He identified robotic microsurgery as the quintessential example of how superhuman precision of robotic platforms (tremor elimination and motion scaling) can be applied to benefit the specialty and patients. Since then, he has pioneered many innovative robotic applications in the field of plastic and reconstructive microsurgery.



In 2010, together with like-minded surgeons from various disciplines, Prof Selber founded the Robotic Assisted Microsurgical & Endoscopic Society (RAMSES) with the goal of providing a supportive and open environment for microsurgeons with an interest in robotic assisted microsurgery, to explore the possible applications of such technology and to innovate novel robotic applications in this field. RAMSES is now in its 12th year and has help defined the path of robotics in microsurgery. He is well-published, a major influencer in the field of robotic plastic and reconstructive microsurgery, as well as a source of invaluable insight and help to companies developing specialty-specific technology and instruments.

We were honoured to have Prof Selber as an invited guest speaker at the MSKSC ACP Grand Round on 15th August 2023 and at our innovation sharing session on 16th August 2023 to share his experience and thoughts on robotic plastic surgery as well as to inspire the next generation of surgeon innovators in SingHealth. His series of talks were well-received and has led to continued collaborations between MSK and international surgeons in the field.

Most recently, Prof Selber had accepted the position of Physician Executive, Surgery Service Line Chief and Professor of Plastic Surgery at Corewell Health East. In this role, he is responsible for all surgical activities within the Corewell system, including 8 hospitals, 11 surgical services, 3300 bed and 500 surgeons.

Interview with Prof Jesse Selber

Prof Jesse Selber
Corewell Health East, Plastic Surgery

Why did you become a plastic surgeon? What do you love most about this specialty?

Before going to medical school at the University of Rochester School of Medicine and Dentistry in New York, I majored in Studio Art and premed at Brown University. I have a love for art and the creativity it inspires within. Plastic surgery is a unique field in which art meets science. Plastic and reconstructive surgery also is about problem solving, each patient is different each defect is unique and allows me an opportunity to create novel solutions every time. It always challenges me and remains interesting despite being in the field for more than 20 years.

When did you first realise or see the potential of robotics in the field of plastic surgery?

I first saw the potential application of a robotic platform in reconstructive surgery when I was a resident at University of Pennsylvania, assisting head and neck reconstruction in 2005 with Professor Joseph Serletti. During that time, trans oral robotic surgery (TORS) was becoming more common, but reconstructive surgeons were hesitant to do reconstruction for these patients. I was lucky enough to be a resident at the University of Pennsylvania where Trans Oral Robotic Surgery was first developed.

Watching from a resident's perspective, I felt that it would be possible to use the robot to help reconstruction like flap insetting. With the support of the institution I was able to start working in an animal lab using the Davinci Robot on both dry and live animal models on intra oral surgery such as cleft palate repairs. By the time I was a chief resident, I was fortunate to be able to identify a mentor at MD Anderson and got seed funding to work on cadavers.

Over 6 months in the cadaver lab I developed techniques for latissimus dorsi and rectus flap harvest and did my first clinical case 3 weeks into becoming an attending.

What obstacles did you face when trying to develop or introduce robotics to plastic and reconstructive surgery? What made you continue to pursue this approach despite the obstacles?

I faced many obstacles, starting with:

1. Logistics
Getting training and support from intuitive for non FDA approved clinical procedures was very difficult, but I was able to find the solution through the support of my institution MD Anderson, which has a dedicated innovation committee that reviews new clinical procedures.

With approval from the innovation committee, surgeons like myself are able to perform new procedures without an IRB and navigate around FDA.

2. Public Opinion
One of the most challenging things to overcome is public opinion and the sentiment of people who are not comfortable with change or challenging the status quo. Since 2009, when I first started presenting my work, many people have questioned the indication and the cost of bringing robotic platforms to plastic and reconstructive surgery.

Despite these challenges, I continue to champion robotics because I simply believe in it – robotics and computers are going to dominate surgery at one point, its inevitable, and a matter of time.

What qualities do you think are required to be a successful surgeon innovator? Can these qualities be nurtured in our young medical students and doctors?

Important qualities in an innovator would be the ability to look at existing problems in new ways (at least that's my definition of an innovator). It is important to develop curiosity and be fearless about questioning the dominant paradigm. Fearlessness is an important quality to develop because people are going to shut down your ideas.

I believe these qualities can be nurtured – but not in a structured way. In order to inspire creativity and innovation, it is ideal to liberate our minds and be free to try new things. However, as surgeons, we cannot be conflicted, and the motivation to innovate has to be genuine and guided towards improving patient outcomes.

Cross training has been the most important when it comes to innovation. It is important to meet people from other specialities and get new ideas.

I believe in the 3 pillars of thought being philosophy, art and science. These are the core disciplines of the Renaissance ideal and in traditional medical education, we only nurture one of these. I would advocate a different professional pathway that cultivates all three of these. That will lead to a deeper understanding of the "why" in medicine, and the addition of artistry and a philosophical approace to problems will generate more innovation.

Dive Into Research with Dr Kenneth Wong!

Dr Kenneth Wong
KKH Orthopaedic Surgery,

Dr. Kenneth Wong is a Consultant at the KKH Department of Orthopaedic Surgery and SingHealth Duke-NUS Vascular Centre.

FINDING MY MOTIVATION

I would consider myself an accidental researcher. The main drive has always been to better patient care and outcomes. By advancing knowledge, we can better manage our patients and benefit the greater medical community. There came about the many questions which never always had an answer. Research to me is about sharing. A mentor once told me that one 'orthopaedic career' is not enough to experience, learn or discover everything. This is especially so in paediatrics where cases can be rare.

ASKING QUESTIONS

When I first joined the department in 2017, I realized that a large number of surgeries were done by minimally invasive means. This had the advantage of preserving biology and minimising morbidity. However, this also meant more fluoroscopy use. Children are more susceptible to the ill effects of cumulative radiation. The question of whether we were doing all we could to decrease the intraoperative radiation emission arose. The research project led to the DO RE MI I initiative – DOse REduction in MInimizing radiation – in children where the utility of the mini fluoroscopy was modified to replace the larger C-arm fluoroscopy for the majority of paediatric trauma. For cases where this was not technically possible, the single pulse now replaces the autopulse settings for the C-arm - DO RE MI II.

It is heartening to see that the initiatives are sustainable till today without affecting patient clinical and radiological outcomes. DO RE MI III is now in the works.

CHALLENGING THE STATUS QUO

Trying to cross pin paediatric phalangeal neck fractures in order to avoid the physis while maintaining fracture reduction and obtaining adequate fluoroscopic images is tedious and requires multiple attempts. Borrowing concepts from minimally invasive pedicle screw insertion, the 'lateral pinning' technique was developed. It adopts the principles of landmarking and tactile-feel using only the lateral x-ray projection for pin insertion. This method avoids breaching the physis and transfixing the joint. It also provides a more accurate way of inserting K-wires/pins using known anatomical and radiological landmarks. Ultimately, this avoids multiple passes which "honey-combs" the already small paediatric phalangeal head.

SEEKING HELP

Leveraging on technology, a computer algorithm to automate the Cobb's angle measurement was developed together with teams from SingHealth and Nanyang Technological University (NTU). This improves work efficiency and resource allocation by providing instant reading of our scoliosis plain radiographs. At the moment, we are working on building the product frontend. We are also collaborating with a team from the Singapore University of Technology and Design (SUTD) to enhance the current workflow for orthosis fabrication. This would incorporate shape-capturing capabilities and automating digital design processes which saves time and cost.

HAVING FUN!

Research is never dull. New discoveries are exciting and encouraging. Not all ideas may bear fruition but we always have fun along the way. We make new friends and colleagues. Ultimately research is rewarding especially for our patients.

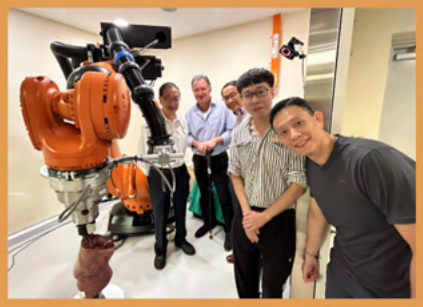
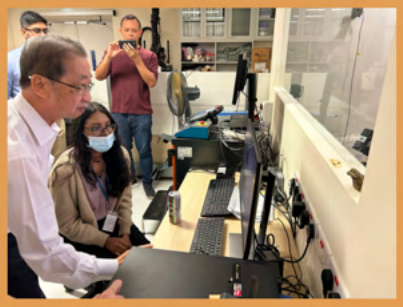
FINDING MENTORS AND MENTORING

SingHealth has a very nurturing research landscape. There is no lack of supportive and experienced mentors. I am grateful to have the privilege of learning from them and continuing to receive their guidance. Going forth, it would be great to see more platforms to match ideas with capabilities and eventually funding. This would certainly streamline research endeavours.

MSKSC ACP
BIOMECHANICS DAY

MSKSC ACP saw the official launch of its Robot Enhanced Biomechanics & Engineering Laboratory on Saturday, 25 November 2023 with Emeritus Consultant **Prof Tan Ser Kiat** from the SGH Department of Orthopaedic Surgery in attendance as Guest-of-Honour.

The event commenced with a demonstration of the ACP's latest technology, the KUKA robotic simulator, currently sited within the Procedural Skills Laboratory at Academia Basement 1. The arrival of the robotic simulator serves to augment and enhance the ACP's biomechanics core programme led by **A/Prof Denny Lie** and two of our very own research engineers, **A/Prof Andy Yew** and **Ms Pivatidevi Pareatumbee.**

Notable speakers were also invited to share their experiences and insights into the world of biomechanics. **Prof Ulrich Hansen**, Senior Lecturer in Biomechanics, engaged the audience with his talk on "State-of-the-Art Research in Imperial College London" while **Prof Chou Siaw Meng**, Associate Professor at the NTU School of Mechanics & Aerospace Engineering, shared about the longstanding collaboration between MSKSC ACP and NTU which has grown and strengthened over the years.



Partners from the NTU Rehabilitation Research Institute of Singapore (RRIS) were also there in support. **Dr Lau Jun Liang** and his team have been an integral help in the set-up and operationalisation of the robotic musculoskeletal simulator and will remain as key partners in the expansion of biomechanics research under the ACP.

The audience comprised interested residents and eager medical students from the NUS Yong Loo Lin, NTU Lee Kong Chian and Duke-NUS medical schools. The programme concluded with a discussion and engagement with these residents and medical students to find out more about their research interests and to explore opportunities in biomechanics under the ACP.



SGH PRE-ROBOTIC SURGERY CONGRESS EVENTS

In the lead up to the SGH Robotic Surgery 20th Anniversary Celebrations in October 2023, the Musculoskeletal Sciences ACP organised a publicity series of patient engagement events aimed at engaging the public on topics related to some of the plastic and orthopaedic conditions.

1. Public Forum: Minimally Invasive Reconstructive Surgery for Cancer Treatment (26th Aug 2023)

The public forum was a hybrid event held on Saturday, 26 August 2023 that saw 25 people physically in attendance at the Alice Lee Innovation Centre for Excellence (A.L.I.C.E) and close to 250 participants virtually via Zoom. Speakers **Dr Chew Khong Yik** and **Dr Savitha Ramachandran** from the SGH and KKH Departments of Plastic, Reconstructive & Aesthetic Surgery respectively shared highlights on improvements in patients' quality of life after extensive surgery to remove cancers. **A/Prof Emile Tan**, Head & Senior Consultant from the SGH Department of Colorectal Surgery was invited as moderator.

2. Public Webinar: The Next Frontier – Innovative Technologies in Orthopaedics (9th Sep 2023)

The second in the series of events was the orthopaedic Zoom webinar held on Saturday, 9 September 2023. Speakers **Dr Henry Soeharno, Dr Suraya Zainul Abidin** and **Dr Kizher Buhary** delved into the latest advances and technologies in the field of orthopaedic surgery including 3D printing and computer navigation. With **A/Prof Darren Tay,** Senior Consultant from the SGH Department of Orthopaedic Surgery as moderator, the webinar saw a very encouraging turn out of close to 400 participants with many engaging the speakers with questions via the Q&A function.

3. Public Webinar: Avoiding the Total Joint Replacement (23rd Sep 2023)

Rounding things off was a second orthopaedic webinar held on Saturday, 23rd September 2023 touching on the topic of degenerative joint diseases affecting the hip and knee. Speakers **A/Prof Darren Tay, Dr Benjamin Ang** and **Dr Soong Junwei** from the SGH Department of Orthopaedic Surgery shared with almost 800 Zoom participants on the latest advances in joint preservation surgeries and the different treatment options in managing osteoarthritis, ranging from conservative measures in lifestyle modification, intra-articular orthobiologics and minimally invasive procedures to corrective realignment surgeries.

Tune in to the SGH YouTube Channel to view the recordings of these forums!

SGH 20TH ANNIVERSARY ROBOTIC SURGERY CONGRESS

Singapore General Hospital commemorated a major milestone in robotics with the recent SGH Robotic Surgery 20th Anniversary Celebrations. Jointly organised by the Division of Surgery & Surgical Oncology (DSSO) and the Musculoskeletal Sciences (MSKSC), the 3 days multidisciplinary scientific conference and workshops were held from the 6th to 8th of October 2023 at the National Cancer Centre Singapore (NCCS) Building and The Academia Procedural Skills Laboratory.

Led by co-chairs **Prof Brian Goh**, Head & Senior Consultant, SGH & NCCS HPB & Transplant Surgery and **A/Prof Darren Tay**, Senior Consultant, SGH Orthopaedic Surgery, the main scientific forum centred on the key milestones of various sub-specialities as well as the latest evidence, technologies, and techniques in robotic surgery. SGH Chairman, Medical Board **A/Prof Ruban Poopalalingam** was there to grace the event as Guest-of-Honour.

Welcome party with GOH, A/Prof Ruban Poopalalingam

The event brought together local, regional, and international clinicians and medical practitioners with a keen interest in the field.

About 200 participants comprising nurses, medical staff, trainers, speakers, and sponsors attended the 3 days scientific forum and workshops. The meeting featured a diverse range of sub-specialty tracks including urology, colorectal surgery, obstetrics & gynaecology, upper gastrointestinal surgery, ENT - head & neck surgery, hepato-pancreato-biliary surgery, and orthopaedic surgery where the prominent specialists and clinicians share interactive sessions to equip the attendees with invaluable skills. They deep dived into the techniques, medical advancements, and other key developments in the dynamic field of robotic surgery.

The conference also played host to the RS3 Leadership Symposium and Townhall on Surgical Robotics in Singapore, an open forum for thought leaders from various public healthcare and private healthcare institutions to share their best practices, current challenges, and strategies to ensure access to robotic surgery in Singapore. One of the key objectives of the Leadership Roundtable was to lay the foundation for a workable strategy to build sustainability and international leadership in Singapore robotic surgery.

Nursing Robotic Education Workshop: Ergonomics & Safety, Care of Robotic Instruments held on the second day of the conference saw a strong turnout by nursing colleagues across the public and private healthcare institutions. Their enthusiasm for Robotic Nursing drives innovation and progress in healthcare. The active participation and professional interaction among the trainers and participants provided opportunities to foster knowledge and exchange skills for a fruitful workshop.

A dinner was held in the evening of 6th October to acknowledge and recognise the contributions of the faculty and sponsors in making the event a success. Speakers, clinicians, sponsors gathered at this dinner to enjoy networking and building relationships with like-minded peers and leading solution providers.

Several surgical workshops were also held concurrently at the Academia Procedural Skills Laboratory on day 2 and 3 of the conference, featuring workshops by the orthopaedic, colorectal, hepato-pancreato-biliary, obstetrics & gynaecology and upper gastrointestinal disciplines. These hands on sessions created opportunity for the trainees to improve their operative skills in performing robotic surgical procedures.

12th Congress of the World Society for Reconstructive Microsurgery (WSRM)

The 12th Congress of the World Society for Reconstructive Microsurgery (WSRM 2023) was successfully held on 17-19 August 2023 at Singapore, led by chairman **A/Prof Ong Yee Siang.** The theme for the meeting was "Artistry in Microsurgery", with an exciting Scientific Programme spanning 3 days consisting of instructional courses, plenary lectures, expert panel discussions and free paper sessions. There were also pre and post congress workshops including cadaver flap dissection and perforator ultrasonography.

Over 1300 international professionals from 70 countries participated in the congress and it was the biggest Plastic Surgery conference held in Singapore. World renowned clinicians such as **Prof Fu Chan Wei**, **Prof Isao Koshima** and **Prof Scott Levin** were in attendance.

For more information and photos from the congress, please visit **https://www.wsrm2023.com**

ASEAN Orthopaedic Association Inaugural Residents' Course 2023

A course for ASEAN residents given by ASEAN faculty

A/Prof Denny Lie
SGH Orthopaedic Surgery,

Inspired by Residents' courses in EFORT congresses, **A/Prof Denny Lie**, as president of the ASEAN Orthopaedic Association (AOA), proposed an AOA Residents' Course back in 2022. This year, the AOA meeting was hosted by the Royal College of Orthopaedic Surgeons of Thailand (RCOST) in Pattaya, Thailand from 20 - 22 October 2023.

The aims of the course were:

- To deliver a series of ICL-like comprehensive lectures on selected topics.
- To bring residents of the region together, in academic and social activities.

A/Prof Denny Lie worked closely with the Scientific Chair **A/Prof Chanarkan** and the RCOST President **Prof Thipachart** in developing this course, conducted on Saturday 21 Oct 2023. The 3 topics selected were Tumor, Spine and Trauma. It was a refreshing change, as the residents had to work together to discuss and come up with answers, and had to be courageous enough to discuss the cases with the moderators, who were experts in the field. It was initially daunting for many of them, but as **Prof Thipachart** claimed "The residents didn't realise they could learn this way!"

Course and Participation by SGH Faculty

The first session was on Musculoskeletal Tumour and we were proudly represented by **Dr Henry Soeharno**, who was moderator, lecturer and case presenter. He fully engaged the audience and evidently captured the attention of the local residents! The other speakers were from the local Thai faculty.

The second session on Spine was delivered by Indonesian and Thai lecturers and as the Singapore representative, **Dr Marcus Ling**. The session was well attended and saw many residents interactively answering questions.

The third session was on Trauma, and moderated by the team from Thailand and the Philippines.

SPORT & EXERCISE MEDICINE CENTRE NEWS

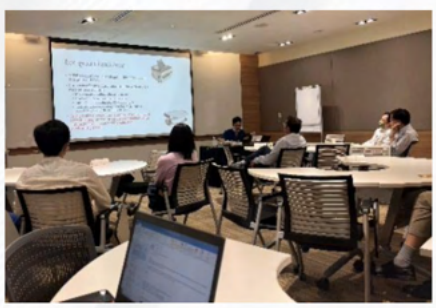
SingHealth Duke-NUS Sports & Exercise Medicine Conference

Organised by SingHealth Duke-NUS Sport and Exercise Medicine Centre (SDSC), the conference was successfully held on 25th March 2023. The conference brings together healthcare professionals from a wide range of disciplines to share knowledge and foster integration within the Sport and Exercise Medicine (SEM) fraternity, with the theme of "Enhancing Population Health through Sport and Exercise", which is in line with the longer-term goals of "Healthier SG" strategy and population health emphasis by the Ministry of Health (MOH). MOH, Senior Parliamentary Secretary **Ms Rahayu Mahzam** was there to grace the event as Guest-of-Honour.

SPINE SDDC NEWS

SD Spine Retreat 2023

Spine SDDC Retreat was held on 9th Feb 2023 to foster close sharing & work towards harmonisation across institutions.



SPINE SDDC NEWS

Workshops

Mazor x STEALTH Workshop (1 Apr 23)

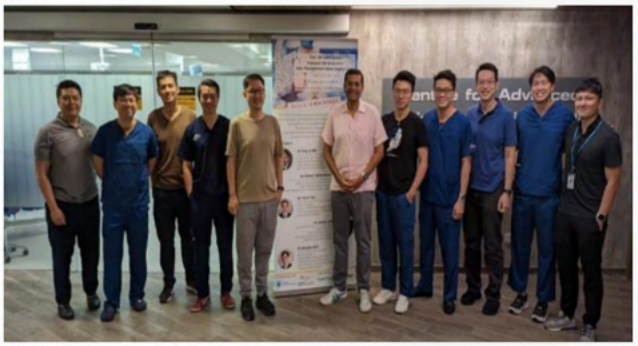
To establish CGH-NNI Integrated Spine Centre as the Centre of Excellence (COE) for MIS (Minimally Invasive Surgical) and robotic techniques.

Wetlab Hemostasis Spine Workshop (8 Jul 23)

To enable residents to be confident and proficient in managing bleeding, dural repair, peritoneal repair and lung repair. Anterior Lumbar, Thoracolumbar, posterior cervical, cranial approaches were included.

Cadaveric Workshop - Basic Thoracolumbar Spinal Surgery Course (1 Jul 23)

To train orthopaedic and neurosurgery senior residents to perform microdiscectomy, pedicle screws insertion, and transforaminal interbody fusion (TLIF).



SD Spine Annual Scientific Meeting

Spine SDDC Annual Scientific Meeting was held on 7th July 2023, with the theme of 'Spinal Cord Injury & Rehabilitation- Recent Advances'. There were 88 attendees, comprising healthcare professionals from orthopaedic surgery, neurosurgery, nursing, rehab, pain and allied health.

"As doctors, we couldn't wish for a better patient. She told us 'You tell me what to do and I will do it.' She motivated us to treat her more aggressively and she rebounded in less than a year" - **Dr Chew Khong Yik.**

DR. MEGAN LOY

BURN SURVIVOR TO A DOCTOR

Megan Loy was an 18-year-old who went on a holiday to Taiwan and ended up with 80% burns on her body after a fire accident at a festival in the waterpark on June 27, 2015. When **Prof Tan Bien Keem**, who was the Head of Department of SGH Plastic Surgery at the time, read about Megan in the newspaper, he quickly contacted his fellow plastic surgeon, **Dr Chew Khong Yik** who happened to be in Taiwan then for a burns conference. Prof Tan and Dr Chew made arrangements to bring Megan back to SGH's Burns Centre, the only specialised facility managing major burn injuries in Southeast Asia.

Megan had 9 skin grafts to treat her burns and was warded at SGH for 4 months. During her prolonged stay at the hospital, Megan got to experience the care that the doctors, nurses and other healthcare workers provided her which inspired her to become a doctor so that she could provide similar care for other patients. Megan followed all the recovery instructions by Prof Tan and Dr Chew, which expedited her recovery journey.

Dr Megan Loy in Operating Theatre during her medical training.

Megan with **Prof Tan Bien Keem** (Left), **Dr Chew Khong Yik** (Right) and SingHealth GCEO, **Prof Ivy Ng**

Meet Mr Kalai Vanen - The Para Powerlifter

Dr Tay Hui Wen
MOHH, Orthopaedic Surgery

Prof Andrew Tan
SGH Orthopaedic Surgery

The 64-year-old Paralympic powerlifter for team Singapore has been an inspiration to many, and is known to be a nurturing mentor to younger para-athletes under his wing. Standing at 183cm and weighing around 100kg, **Mr Kalai Vanen** is often seen with a smile plastered over his face, animatedly sharing his life experiences with others. At the gym, he is seen lifting incredulous weights with ease. However, he is no stranger to adversity. At the age of 22, what started as persistent left knee pain was subsequently revealed to be a giant cell tumour at his knee. Despite an arduous 7-year journey fighting the tumour, Mr Kalai eventually underwent an above knee amputation to rid his body of the pain and suffering from the disease.

In 2015, Mr Kalai was introduced to the sport of para-powerlifting. In spite of his late start to the sport, he fell in love with the sport, and his determination brought him to represent Singapore and medal at many international powerlifting platforms. However, Kalai was faced with yet another setback. Just 5 years into his para-powerlifting journey, he developed left shoulder pain, which resulted in deterioration in his sporting performance.

Keen to return to the competitive arena, Kalai underwent further evaluation at the Singapore General Hospital Orthopaedic Surgery clinic, which revealed degenerative osteoarthritis of his left shoulder.

Having shoulder osteoarthritis meant that his participation in powerlifting was limited by the mechanical pain and stiffness, which persisted despite physiotherapy and oral medication. Hence, Mr Kalai sought to explore the surgical options available.

After discussing the various treatment options, Mr Kalai underwent a left total shoulder arthroplasty in 2020 by **Prof Andrew Tan.** At just one-year post-surgery, he had returned to competing at international para-powerlifting platforms. Mr Kalai is currently three years post-surgery and has regained great function to his shoulder. He hopes to continue participating in future para-powerlifting events, and continues to be an inspiration to many generations of para-athletes and athletes.

LIMB SALVAGE MASTERCLASS – LEARNING FROM THE EXPERTS

SARCOMA

Orthopaedic oncology remains a niche in today's orthopaedic practice. Bone tumours or sarcomas are still extremely rare but devastating nonetheless for the patient, with many fearing loss of life, limb or function as a result of their disease. In the past, major sarcomas would have to be removed by grossly mutilating dissection and frequently, amputation of the affected limb.

However, over the past 50 years, limb salvage surgery has proven to be as effective as amputation for eradicating limb tumours. A multi-disciplinary approach to these 'beasts' in Orthopaedics have shown that it is possible to preserve form, function and quality of life without compromising survival. Coupled with advances in chemotherapy and radiotherapy regimens, we now see fewer amputations due to bone cancers, thus enabling our sarcoma patients to continue leading functional, fulfilling lives even after major surgery.

Whereas in the past, the surgical mantra used to be "the more radical the resection, the better the chance of cure." Today, we continue to push the boundaries and expand our indications for which limbs can and should be salvaged. We used to think that removing more tissue would equate to better survival outcomes for the patient but we now question "How much is enough, and what can we preserve without compromising the patient's survival?"

Due to the relative rarity of bone sarcomas compared to the bulk of our day-to-day Orthopaedic work, it can be difficult for our residents to gain exposure to limb salvage surgeries during the course of their training. A hemipelvectomy or major femoral resection can be something that a resident never encounters on their long journey to becoming an Orthopaedic Surgery and it is therefore wholly understandable that this entity of "Sarcoma Resection and Limb Salvage Surgery" may seem daunting to many.

"We were heartened to receive feedback from the residents that the workshop was 'eye-opening' and that it was 'nice to be able to learn about this in a relaxed environment, rather than from a book or whilst actually assisting during the surgery itself"

Dr Suraya Zainul Abidin
SGH Orthopaedic Surgery

Sarcoma surgery is not for the faint hearted, and the adage of "see one, do one, teach one" certainly does not hold here. These major resections are challenging. In most cases, the anatomy of the patient is altered due to the presence of a large deforming tumour. Major neurovascular structures are frequently in extremely close proximity – necessitating an intimate knowledge of the pre-operative imaging and structures at risk, as well as a clear surgical plan of what needs to be removed and what needs to be preserved – and how to get there safely.

SGH Orthopaedics, in close collaboration with our colleagues at The National Cancer Centre were proud to host the first Limb Salvage Cadaveric Workshop this year, as part of the inaugural SingHealth Sarcoma and Skin Symposium 2023. The workshop attracted participants ranging from junior residents to senior orthopaedic surgeons in private practice, both local and international.

We were honoured to have **Professor Peter Choong** (Hugh Devine Professor of Surgery, Head of the Department of Surgery at St. Vincent's Hospital, Melbourne and past president of the Australian Orthopaedic Association) as well as **A/Prof Tan Mann Hong** (Director of the Musculoskeletal Tumour Service at the Department of Orthopaedic Surgery, Singapore General Hospital) to helm this full day cadaveric course. Local faculty included orthopaedic oncology surgeons from SGH, **Asst. Prof Henry Soeharno** as well our sister clusters of NHG and NUH, **Asst. Prof Lester Chan** and **Dr Chan Chung Ming**.

COURSE PROGRAMME

The course programme included lectures on the principles of limb salvage and approaches to the more commonly performed oncological resections: Proximal humerus resection, proximal and distal femur resections, proximal tibial resections, as well as the different types of hemipelvectomy.

A live demonstration followed by hands-on cadaveric dissection enabled our participants to get up close with the anatomy of the different regions and practiced the approaches in tumour surgery, which vary from standard Orthopaedic techniques.

In addition, we were also delighted to be able to get some time with the more commonly used endoprosthetic replacements, brought in by our industry collaborators **Depuy (Johnson & Johnson)** and **Stryker**. Tumour endoprostheses (also called 'megaprostheses') are the largest of the metal implants which are used in Orthopaedic Surgery – something every orthopaedic surgeon gets excited about seeing and using!

We were heartened to receive feedback from the residents that the workshop was 'eye-opening' and that it was 'nice to be able to learn about this in a relaxed environment, rather than from a book or whilst actually assisting during the surgery itself'. International participants with some experience in limb salvage surgery enjoyed learning tips and tricks from our faculty and, of course we all made some new friends and new connections for future collaborations.

With the success of this cadaveric limb salvage workshop, we look forward to continuing the education of our orthopaedic colleagues in limb salvage surgery and thank all our esteemed faculty and participants for their support!

GLOBAL HEALTH

BURNS IN BANGLADESH

Burns cases have reached pandemic levels in Bangladesh, and its impact is further exacerbated by the lack of proper burn treatment protocols and overcrowded medical facilities. Burn treatment has thus been identified as an area of paramount national importance in Bangladesh.

Building on the Burn Specialist Training Program started in 2017, whereby SingHealth successfully trained 900 Bangladesh healthcare workers and established the National Skin Laboratory and Bank in SHNIBPS. **Prof Tan Bien Keem** and his team aim to further strengthen the capabilities of local healthcare professionals, by addressing the unique challenges and limitations faced in such a developing country.

As the regional leader in the field of burn, plastic and reconstructive surgery, SGH Skin Bank can guide SHNIBPS in operationalizing its skin bank, through a 1-year global health programme which involves multiple site visits to train key personnel and provide oversight.

TRAUMA CARE IN SRI LANKA

Trauma is the leading cause of death and disability globally, among those under 35 years of age. Low- and Middle- Income Countries (LMICs) have an especially high percentage of 'vulnerable road populations', which resulted in a 85% increase in road fatality rates in recent years. However, access to essential trauma care is often inadequate and unaffordable for those in LMICs, such as Sri Lanka.

To break down this cost barrier to quality trauma care, **A/Prof Denny Lie** and his team have partnered with Harvard Global Orthopaedics Collaborative (HGOC), a US medical academic association and SONA Global, an affiliated US non-profit organization, to develop two new technologies to this effect.

The first is a low-cost external fixation (AEFIX) clamp and the second, a negative wound pressure pump (VATARA2.0), both of which may be produced at 100X cost reduction in comparison to existing alternatives.

MSKSC CYCLISTS!

Representing the dynamic trio of Orthopaedic, Plastic and Hand Surgery Departments, our clinicians from the SGH Division of Musculoskeletal Sciences (MSKSC) donned our helmets, laced up our shoes and hopped onto our bikes at 5 AM on 28th October 2023, alongside SGH CEO, **Prof Kenneth Kwek** and SGH CMB, **A/Prof Ruban Poopalalingam** and participated in the SGH Beyond 200 fundraising cycling campaign.

Our destination and mission:

- Advancing Clinical Care: Raising awareness for pressing conditions that affect millions, like burns, carpal tunnel syndrome, osteoarthritis and many more.

- Reaching Breakthroughs in Research: Delving into the wonders of large joint biomechanics, exploring the miracles of cellular & tissue therapy, and driving the future of musculoskeletal sciences with medtech innovation.

- Sharpening Minds through Education: Broadening horizons for all professionals within the musculoskeletal sciences through innovative methods.

Pedal to Boost Advances in Musculoskeletal Sciences!

Congratulations!

Awards & Titling

A/Prof Agnes Tan for her promotion to Emeritus Consultant

A/Prof Reuben Soh for his promotion to Adjunct Associate Professor, NUS YLLSOM

A/Prof Benedict Tan for his promotion to Adjunct Associate Professor, Duke-NUS

A/Prof Dinesh Kumar for the Outstanding Clinician Award - GCEO Excellence Award

Prof Duncan McGrouther for being the Top 2% Most-cited Scientists 2023

Department Awards

NUS YLLSOM
Clinical Training Excellence Award

Singapore General Hospital
SingHealth

ORTHOPAEDIC SURGERY

NUS YLLSOM
Clinical Training Merit Award

KK Women's and Children's Hospital
SingHealth

ORTHOPAEDIC SURGERY

MSKSC Grand Rounds

FAAD Webinar

The third webinar in the MSKSC ACP Lunchtime webinar series led by **A/Prof Dinesh Kumar**, under the Faculty Affairs & Academic Development (FAAD) arm was hosted on 13th October 2023. In this webinar, our very own MSKSC clinicians shared about their journey from residents to specialists, the tips and tricks they had learnt along the way, for the future generation of residents.

Zoom immersive view for panel discussion - Scalpel to Success Webinar

Of Feet, Frames, and Fellowships

DR TAY KAE SIAN
SGH ORTHOPAEDIC SURGERY

Where did you go for your HMDP and why did you choose that location?

I went to 2 centres in the UK for my fellowship – the Royal National Orthopaedic Hospital (RNOH) at Stanmore, and the Hull Royal Infirmary.

My interests are in foot and ankle surgery and deformity correction. This encompasses a wide variety of surgery, including trauma, sports, and reconstruction surgeries. I believe that to be a good surgeon, one must have a wide armamentarium of surgical skills, or else risk falling into the trap of treating everything as a nail (when one only has a hammer).

To achieve this aim, I decided to train at RNOH Stanmore, which is a renowned tertiary referral centre for foot and ankle surgery and deformity correction. They perform complex surgeries including revision cases which sometimes have been operated several times before. This allowed me to participate in a wide range of surgical procedures and learn many skills.

I then went to Hull Royal Infirmary specifically to learn about deformity correction using the Ilizarov circular frame. I had previously encountered several cases of deformity which we had to refer to other institutions for correction as we did not have the expertise to use the circular frame at SGH. I felt that as the largest orthopaedic department in Singapore it was a shame that we lacked this capability and hence I felt it was important for me to learn this skill both as part of my training as a deformity surgeon, and also to provide this service within SGH.

I was very lucky with my frames fellowship. No one I knew had done a frame fellowship before, and I didn't really know where to start. So I went to Google and Pubmed and looked for prominent frame surgeons in the UK. I found **Prof Hemant Sharma**, who had a background in both F&A surgery and frames, and I thought he would be a good fit for me. I essentially cold-called him and his secretary, and he was kind enough to give me an interview, and I managed to land myself a spot there. It turned out to be a fantastic experience.

The RNOH OT nurses prepared a farewell potluck for the F&A fellows on our last OT session. Long hours in theatres meant we got to know one another quite well by the end of 6 months!

Tell us more about your HMDP experience.

I had a great fellowship experience. I was very fortunate to meet mentors who were not just leaders in their fields, but were also enthusiastic about teaching, and generous in sharing their skills and experience with me. The surgical training was superb, but it was only one part of the experience.

The entire experience of working in a different healthcare system was very eye-opening as well, from a systems perspective. I got to see firsthand how the NHS works, with its benefits and drawbacks. This was interesting and made me really appreciate how efficient and well-run the Singapore healthcare system is. At the same time, there were several things I felt we could learn from them as well.

At Hull Royal Infirmary, Bone Infection Multidisciplinary Team meeting involving the frame team, plastic surgeon, radiologist, and ID physician. This was a weekly meeting and it was clinical, academic and also an important social event.

"YOU MEAN YOU CHOOSE TO GO TO HULL?"

Besides the clinical aspect, I had opportunities for academic work, including writing research papers and presenting findings at conferences. This led to me being invited as faculty for some international conferences – I must admit I had a bit of imposter syndrome, sharing the stage with many other distinguished names!

I also forged lasting friendships with many other colleagues I met through the fellowship. These friendships form some of my most treasured memories during the year there.

Last but not least, it was a very special experience for my family and me to spend a year overseas, and experience a very different lifestyle. My wife and children enjoyed experiencing a place with four seasons, going to school in the UK, and this added to the magic of the fellowship year.

Is there any memorable moment during your fellowship?

"You mean you CHOOSE to go to Hull?"

I did the first 6 months of my fellowship in RNOH which was in London, and subsequently the next 6 months I had to move to Hull. I had never been to Hull, and all I knew about it was they had a football club which was in the English Premier League at some point.

When I told my bosses at RNOH I was going to Hull, and if they could give me some advice on the move, I had the same reaction from all of them – which was a mixture of surprise, confusion, and then sympathy. I soon realised that Hull was not quite on the top of the list of places you would visit in the UK. This was a recurring memorable scene whenever I told anyone from the UK that I would spend 6 months in Hull. I still do it whenever I meet someone from the UK, just to get their reaction.

Collaborations with SGH Patient Liaison Service (PLS)

Orthopaedic Mandarin Public Forum

An educational public forum organised by SGH Division of Musculoskeletal Sciences and SGH Patient Liaison Services (PLS) whereby SGH Orthopaedic surgeons, **A/Prof Jerry Chen, Dr Eric Liu** and **Dr Jiang Lei** shared more insights on the common medical conditions like osteoarthritis, meniscus tear, back pain and joint replacement as well as the treatment options available. The interactive public forum held physically at SingHealth Tower was a success and attracted over 40 participants who have largely benefitted from the session.

Orthopaedic Mandarin Public Webinar

Building on the successful public forum held on 21 Oct, a mandarin webinar was organised for members of the public, as they tuned in to the valuable sharing by SGH Orthopaedic surgeons, **A/Prof Jerry Chen, Dr Woo Yew Lok, Dr Eric Liu** and **Dr Jiang Lei** on various orthopaedic conditions and the surgical treatment available. The webinar gathered 299 interested participants who found it to be very insightful.

Mooncake Engagement Session

A get-together session jointly organised by SGH Division of Musculoskeletal Sciences and SGH Patient Liaison Services (PLS) between SGH Department of Orthopaedic Surgery with the AIA Insurance Partners and clients to foster working relationships as well as celebrate the Mid-Autumn Festival with delicious mooncakes and pastries.

DSSO x MSKSC

RESUS ROUND

9 Nov 2023

Faces Behind the Scenes

We are working as Admin Executives in the Department of Orthopaedic Surgery under Division of Musculoskeletal Sciences, SGH. The department is the oldest and most established orthopaedic unit in Singapore and has more than 40 specialists. Its mission involves providing high quality, patient-centric and value-based orthopaedic care to patients, achieving this through the pursuit of excellence in clinical care, research and education. Our job mainly involves supporting the HOD, Prof Andrew Tan, as well as the other specialists in daily administrative works and initiatives.

We work in a team of 11 wonderful administrators, and we strive to ensure efficient and effective operations of the department. Having each other around in the office has made our work lives a lot more vibrant and bearable, thus we hope to hold more social activities in the new year now that the pandemic is under control.

ORTHOPAEDIC
ORTHOPAEDIC
ORTHOPAEDIC

Dharshini

Ms. Dharshini D/O Letchumanan,
SGH Orthopaedic Surgery

It has been 11 wild years - started as an Associate Executive but felt the need to level up one year later, so I did a part-time hustle at Singapore University of Social Sciences, diving into biomedical engineering. Nailed it and managed to snag that Executive gig 4 years back.

When I am not hustling at work, you will find me chasing down delicious eats and exploring places with my crew. Balance is my life mantra, and of course, gotta get that travel fix!

Keep it real, folks. They say I have got a good heart, and I am all about that straightforward life. ✌

Lynn

Ms. Lynn Yap
SGH Orthopaedic Surgery

Typical millennial here who enjoys travelling, aesthetic cafes, taro milk tea and all things mochi. My weekends are usually spent hiking the few nature parks in SG, frolicking around JB or just simply lying in bed and scrolling social media. I live by a basic quote of "When life gives you lemon, make lemonade", thus I am an idealist who tries her best not to fret over anything and make the best out of every situation.

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MSK MINIONS

SGH Dinner & Dance 2023

Vivienne Chia
Newest Member

Luna Lovegood

Fairy Godmother

Scarlet Witch

Princess Peach

Hermion-ah

Ginny Weasley

Marauders Map

Gilderoy Lockhart

Time Turner

July - December Edition | 2023

A special thanks to Dr Ou Yang Youheng, SGH Orthopaedic Surgery for the cover photo.

Keeping up with MSKSC ACP

@msksc_acp

https://www.singhealthdukenus.com.sg/acp/musculoskeletalsciences