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Spine Program newsletter

Summer 2016 vol.1 no.2

MESSAGE from the CO-DIRECTORS

Dear spine community,

The all-too short but beautiful summer has passed by so quickly here in Toronto. In the interim, considerable activity has occurred in the University of Toronto Department of Surgery Spine Program! Much has happened since we sent our last newsletter in the spring, and we are delighted to share some of our ongoing academic activities as well as upcoming events. In this edition, we highlight our esteemed faculty member Dr Arjun Sahgal, and our senior resident surgeon scientist trainee Dr Christopher Witiw. We include some recent announcements and extend sincere congratulations to our surgeons and trainees on winning awards and assuming new appointments. We also take the opportunity to display some of our multi-centre national and international research studies that are being conducted by our principal investigators.

We are excited about our visiting Professor Claes Hultling MD PhD from Karolinska Institute- Stockholm, founder of Spinalis who will share with us his unprecedented narrative on his journey of career and passion as a C5 quadriplegic medical leader and advocate. In 1984 at the age of 31 and shortly prior to his current graduation from the medical school and his wedding to his wife Barbro, Dr Hultling sustained a cervical spinal cord injury in a diving accident. His injury has never impeded him from pursuing his career in pain medicine or from making a beautiful family with his wife and his son Emil who was probably the first child ever born back in the 90s to a family whose father has a complete cervical spinal cord injury. His disability has stirred his advocacy for spinal cord injured people, and stimulated his passion for sailing introducing and pioneering sailing at the Paralympics. Dr Hultling will be our visiting professor at the Tator-Turnbull spinal Cord Injury Symposium and at our U of T GTA Spine Rounds will exhibit a true and perhaps an inspiring example on the conversion of long-term disability into a life full of ABILITY.



SAVE the DATE

SpineFEST 2017

Host site: U of T Spine Program

Co-Chairs: Professor Michael Fehlings & Professor Albert Yee

Keynote Speaker: Professor Zoher Ghogawala MD, neurosurgeon - Burlington, Massachusetts

Talk: TBD

Time: Monday June 12 2017. Keynote address 8:00am-9:15am.

Full day Program 7:00am-4:00pm

Location: MaRS Center-Lower Concourse, 101 College Street Toronto ON

SpineFEST is an accredited group learning activity (6.5) as defined by the Maintenance of Certifications

Program of the Royal College of Physicians & Surgeons of Canada

Tator-Turnbull Spinal Cord Injury Symposium

Host site: U of T Spine Program/UHN- Toronto Western Hospital

Organized by: Professor Michael Fehlings

Keynote Speaker: Professor Claes Hultling MD PhD- Karolinska Institute-Stockholm

Keynote Address: New Front for Injured Backs

Time: Friday, November 18, 2016. Half day program @ 1pm- open to the public

Location: BMO Centre, 60 Leonard Ave. Krembil Discovery Tower



Surgery

UNIVERSITY OF TORONTO

Spine Program

On June 13 we had an excellent turnout in SpineFEST with a mix of faculty, spine orthopaedic surgeons, spine Neurosurgeons, scientists, nurses, clinical and basic sciences fellows, residents, post-graduate and graduate trainees. The participants rated excellence for the program's topics and speakers, oral presentations, e-posters and overall organizational performance. Synopsis of the day is provided in this edition with details about sessions, talks and award winners. We were privileged to hear from our visiting Professor and keynote speaker Dr Daniel Riew and facilitate a vibrant platform to exchange the knowledge on cervical spine injury disease and treatment. We also take pleasure for what Professor Riew had to say about our U of T Spine Program describing it as the "premier research and educational program for spine in the world".

We are enthusiastic about next year's SpineFEST as Dr Zohar Ghogawala, a world renowned spine neurosurgeon and scientists from the Lahey Clinic in Burlington, MA-USA, has agreed to be our keynote speaker. Don't forget to mark your calendar and join us at SpineFEST on Monday June 12, 2017 at MaRS building.

We also would like to share with you the academic and fun program we conducted for the Scoliosis Research Society Traveling Fellows who visited our Program and our affiliated hospitals Toronto Western Hospital and SickKids Hospital. The fellowship was co-hosted by our SRS members Drs Zeller, Lewis, and Fehlings.

Each year we celebrate the graduation of our clinical fellows. In this event we present the Program Diploma in recognition to their successful completion of their fellowship. Our alumni this year are: Drs Mark Kotter from the UK; Amit Keren from Israel (who continues his second year fellowship); Kevin Koo from ON-Canada; David Bellut from Switzerland; Mark Pahuta from ON-Canada, Kashinga Sichizia from Zambia; Safraz Mohammed from Trinidad & Tobago; Michael Dodds from Ireland; Mohammad Zarrabian from MB-Canada; and So Kato from Japan (who continues his third/research fellowship). We wish all success to our trainees and best of luck and opportunities for their life and future endeavors.

We also welcome our new fellows who have joined our Program and the affiliated teaching hospitals at Toronto Western Hospital, Sunnybrook Health Sciences Centre, St. Michael's Hospital, and hospital for Sick Children. Our new fellows this year are: Jean Christophe Murray from QC-Canada; Kyle Stampe from AB-Canada; Gary Rosenberg from MI-USA; Nizar Moayeri from The Netherlands; Shoichi Haimoto and So Kato from Japan; Anupreet Bassi from India; Mohammed Obeidat from Jordan; Amit Keren, Amit Sigal, and Dror from Israel; and Yi Yang from Australia.

Each year our Program offers courses, journal clubs, academic research meetings, hospital-based visiting professorships and special inter-professional academic rounds offering our faculty and trainees a unique platform for knowledge transfer and passion exchange. We would like to thank Associate Professor Stephen Lewis for his ongoing and excellent training as he chaired his 7th Annual Spine Surgical Skills course- a hands-on and lectures course for our citywide fellows. Drs. Fehlings and Yee co-chaired and continued with 2nd Annual Mini-FRCS Exam Prep course. The course was of a great benefit for our citywide orthopedic and neurosurgical senior residents who



Our invited keynote speaker Professor Claes Hultling on his vacation

MESSAGE from the CO-DIRECTORS con't

sit the Royal College examination this year. We also ran a new course for our citywide fellows and residents on traumatic Spinal Cord Injury management and classification. Our fellow Journal Club is being conducted four times a year with our clinical fellows' lead in organizing presentations and discussions featuring most recent key journal publications in selected spine topic area. Our upcoming journal club will discuss recent papers on cervical spine deformity. We thank our spine fellows Drs So Kato and Jean-Christopher Murray on taking the lead in organizing this session.

Drs Albert Yee and Peter Ferguson co-chaired the 2nd joint U of T and China MSK and Spine Symposium bringing together several visiting spine surgeons from China and U of T faculty and trainees to discuss MSK and Spine disease.

As you know this year we have the Cervical Spine Society coming to Toronto in Nov 31st to Dec 3rd. We encourage you to register and participate in such a high profile annual meeting. Also Join us on Nov 18th at the Tator-Turnbull SCI Symposium, which is open to the public, to meet and listen to Dr Hultling and his interesting keynote address "New Front for Injured Backs"

And last but not least we thank our faculty, council and committee members for their feedback on our strategic update meeting survey which will help driving our meeting in spring next year. We also thank Ms Nadia Jaber for her excellent efforts in putting together this newsletter and being instrumental in moving forward our collaborative agenda.

Best wishes,
Michael & Albert

8th Annual Academic Meeting - SpineFEST 2016

On June 12, 2016 the University of Toronto (U of T) Department of Surgery Spine Program celebrated its 8th annual SpineFEST™ meeting at MaRS building. SpineFEST™ is the key annual academic meeting for the U of T Spine Program. Bringing together clinicians and scientists around the city's university affiliated hospitals, this event aims to foster collaboration within the spine community locally and also serves as a venue to disseminate our activities to invited professors nationally and internationally.

Co-led by Dr Michael Fehlings (University Health Network-Toronto Western Hospital/ UHN-TWH) and Dr Albert Yee (Sunnybrook Health Sciences Centre/SBHC), we held thematic sessions on cervical myelopathy and cervical deformity, also on controversies and complexities in cervical spine diagnosis including related management. We enjoyed research presentations by many of our city-wide spine trainees. Moderated by Dr Fehlings, our keynote Tator-Hall Visiting Professorship Lecture was presented by Professor Daniel Riew, Professor of Orthopaedic Surgery, Co-Chief of Spine Division, and Director of Cervical Spine Surgery at Columbia Medical Center. Dr Riew provided a dynamic talk titled "The Post-operative Patient with Persistent or Recurrent Symptoms". He outlined some of the most common etiologies for failure of surgery including pseudarthrosis, inadequate decompression, poorly placed instrumentation, wrong-level surgery and non-cervical etiology. Dr Riew reviewed accurate methods to avoid this failure and outlined approaches to revision surgery. Our keynote speaker also led important discussions on how to communicate poor outcomes to patients after surgery.

Moderated by Dr Eric Massicotte (UHN-TWH), the morning session on cervical myelopathy and cervical deformity presented the latest updates from our speakers on the topic field. Dr Mohammed Shamji (UHN-TWH) discussed the impact on cervical deformity and myelopathy while Dr Fehlings engaged us in an important dialogue about "what's new & hot" in optimizing surgical outcomes for degenerative cervical myelopathy. Dr Stephen Lewis (UHN-TWH & Hospital for Sick Children/HSC) provided an overview on the evaluation and management of cervical deformity, followed by a review of novel assessment techniques defining degenerative cervical myelopathy provided by Dr Sukhvinder Kalsi-Ryan's (UHN-TWH).

The day continued with excellent presentations and discussions moderated by Dr Howard Ginsberg (St Michael's Hospital/SMH) on controversies and complexities in cervical spine diagnosis and management. Dr Henry Ahn (SMH) led off the session focusing on the role and timing of surgery for traumatic central cord syndrome. Dr Yee (SHSC) provided an evidence-based update on spine clearance in the trauma patient as well as process improvement initiatives from a Level I trauma centre perspective. Dr Michael Angel shared his experience as a neurologist as he spoke about pearls and pitfalls of cervical myelopathy diagnosis. Lindsay Tetreault (PhD, Postdoc, UHN-Krembil Research Institute/KRI) concluded the session with an interesting talk reviewing the current state of the literature and outlining important knowledge gaps in degenerative cervical myelopathy. In the academic session, our spine scientist surgeon trainees updated us on their work. Christopher Witiv (MD, PGY5 Neurosurgery) presented the rationale for surgical intervention and reviewed a health economic and patient-centered analysis on the value

Citywide Spine Fellow Journal Club

Host: U of T Spine Program

Organized by: Professor Michael Fehlings & Professor Albert Yee

Time: Oct 18 2016 @ 6pm (by invitation)

This event is an accredited group learning activity as defined by the Maintenance of Certification Program of the Royal College of Physicians and Surgeons of Canada

U of T- GTA Spine Rounds-Nov 2016

Host site: U of T Spine Program/Sunnybrook Health Sciences Centre

Organized by: Dr Joel Finkelstein- Sunnybrook Health Sciences Centre

Invited Speaker: Claes Hultling- Karolinska Institute-Stockholm

Talk: Gybe Your Way Through Life with A broken Neck

Time: Thursday Nov 17 2016 @ 6:45pm (by invitation)

This event is an accredited group learning activity as defined by the Maintenance of Certification Program of the Royal College of Physicians and Surgeons of Canada



Shaping the landscape of Spine Research and Education

of surgery for degenerative cervical myelopathy while Robert Ravinsky (MD, PGY5 Orthopaedic Surgery) talked about spine surgery fellowship education and the competence-based training education syllabus in Canada and beyond.

This year, we received around 40 abstract submissions spanning clinical and pre-clinical spine research. Winners of 1st place abstract, 2nd place abstract, and 3rd place abstract provided oral presentations on their research findings. In first place clinical research abstract Alex Laliberte (PhD candidate -Institute of Medical Sciences/IMS) presented his work titled Hypoxia-Related MicroRNAs are Biomarkers of Degenerative Cervical Myelopathy Severity. In first place basic science research abstract Spyridon Karadimas (MD, PhD candidate, UHN-KRI) talked about the Riluzole blocks perioperative ischemia-reperfusion injury and enhances postdecompression outcomes in cervical spondylotic myelopathy. In 2nd place clinical research abstract Daipayan Guha (MD, PGY4 Neurosurgery) presented his work titled Accuracy Validation in in the Cervical Spine of a Novel, Rapid, Optical Intraoperative Spinal Navigation System:

8th Annual Academic Meeting - SpineFEST 2016. con't

Initial Clinical Feasibility. In 2nd place basic science research abstract Pía Vidal (PhD, Postdoc, UHN-KRI) talked updated us about her work on early decompression attenuates Ischemia-Reperfusion-Injury mediated inflammation for Cervical Degenerative Myelopathy (DCM). In 3rd place clinical research abstract Allan Martin (MD, BAsC (EngSci), PGY4 Neurosurgery) presented his research titled Next-Generation MRI Identifies Tract-Specific Injury and Predicts Focal Neurological Deficits in Degenerative Cervical Myelopathy. Finally, in 3rd place basic science research abstract Stewart McLachlin (PhD, Postdoc, Sunnybrook Research Institute/ SRI) presented his work titled Virtual framework to evaluate osseous fixation pathways in the spine.

SpineFEST™ continued on green and ecofriendly session with 24 e-poster presentations. First Prize e-Poster Presentation was awarded to Lauren Hachem (MD Candidate, UHN-KRI) for her presentation entitled Glutamate increases in vitro survival and proliferation and attenuates oxidative stress-induced cell death in adult spinal cord-derived neural stem/progenitor cells via non-NMDA ionotropic glutamate receptors, and the Second Prize went to Ayelet Atkins (Postdoc, SRI) and Mikhail Burke (PhD candidate SRI) for their work titled Characterization of microdamage accumulation in meta-statically- involved vertebra.

SpineFEST™ ended with an enjoyable evening with the U of T-GTA Spine Rounds chaired by Dr Joel Finkelstein (SHSC) at the Park Hyatt Roof Salon. Dr Daniel Riew provided a talk arguing whether we are overspecialized in spine care. The evening continued with celebration of our city-wide spine fellows graduation. Our Program Co-Directors Drs Fehlings and Yee congratulated

our fellows on the completion of their 2015/16 fellowship year and presented their U of T Spine Program fellowship certificates and plaques.

The U of T Spine Program congratulated our citywide spine fellows (Drs Mohammad Zarrabian, So Kato, Safraz Mohammed, Markian Pahuta, Mark Kotter, Kevin Koo, Amit Keren, Kachinga Sichizya, Michael Dodds, and David Bellut) on a successful completion of their fellowship. On behalf of our citywide spine surgeons (Drs Michael Fehlings, Eric Massicotte, Raj Rampersaud, Mo Shamji, Stephen Lewis, Reinhard Zeller, Albert Yee, Joel Finkelstien, Michael Ford, Howard Ginsberg, and Henry Ahn) we extend best wishes to all fellows in their career and future endeavors.

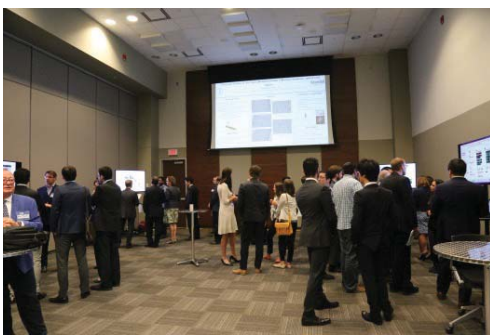
The U of T Spine Program would like to thank our participants for contributing towards the ongoing success of SpineFEST. We extend our appreciation to Professor Charles Tator, Professor Hamilton Hall, Professor Andres Lozano, Professor Peter Ferguson, and Professor James Rutka for their strong support of SpineFEST™ and the U of T Department of Surgery Spine Program over many years. The Program also extends gratitude to our educational event sponsors Medtronic, DePuy Synthes & Ethicon, Zimmer Biomet, and Stryker.

Nadia Jaber w/ input from Michael & Albert



U of T Spine Program Citywide Fellow Graduation June 13, 2016

Left to right surgeons and fellows: Drs Daniel Riew; Michael Fehlings; Mark Kotter; Amit Keren; Kevin Koo; Mo Shamji; David Bellut; Mark Pahuta Howard Ginsberg; Kachinga Sichizya; Safraz Mohammed; Michael Dodds; Mohammad Zarrabian; So Kato, Satoshi Nori; Stephen Lewis; and Albert Yee.



SpineFEST June 13, 2016

By row from top, left to right, one mention

1ST row: Michael Fehlings; James Rutka; Andre Lozano; Charles Tator; Hamilton Hall.

2nd row: Michael Fehlings; Albert Yee; Daniel Riew; Henry Ahn; Howard Ginsberg; Michael Angel.

3rd row: A record turnout; Hamilton Hall, Charles Tator, and Andres Lozano; Richard Gladstone (mic).

4th row: e-poster session, Michael Fehlings, Pía Vidal, Daipayan Guha, Albert Yee Eric Massicotte, Mo Shamji.

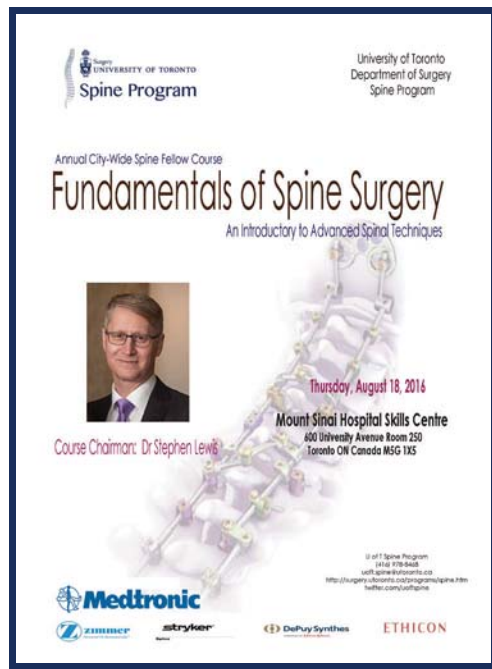
5th row: Lindsay Tetreault; Spyridon Karadimas (mic); Michael Fehlings; Robert Ravinsky; Christopher Witiw; Albert Yee.

Program EVENTS con't

Annual Fellow Surgical Skills Course, New Citywide Spine Fellow Welcome Dinner, and Research Update Meeting



U of T Spine Program citywide spine fellows and Dr Stephen Lewis at the cadaver lab



On Thursday August 18th our faculty Associate Professor Stephen Lewis (UHN-Toronto Western Hospital) conducted and chaired an outstanding Annual Fellow Surgical Skills Course marking year seven of excellence and commencing our 2016/17 academic spine fellowship year. In addition to lectures on Posterior and Interior Approaches and instrumentations, the course provided lengthy hands-on sessions in the cadaver lab training the fellows on posterior and anterior surgical skills and techniques. The course evaluation displayed high appreciation acknowledgement to Dr Lewis's outstanding teaching and expertise.

The course was preceded by our annual Welcome Dinner meeting on August 9th co-chaired by Drs Fehlings and Yee. The dinner came in conjunction with the Program's Citywide Research Update Meeting organized by Drs Carlo Ammendolia (Mount Sinai Hospital/MSH) and Karl Zabjek (UHN-Toronto Rehab Institute) providing our new fellows and senior residents an update about ongoing spine research projects. We're proud of our world-leading research programs and projects presented by our spine scientist and their clinical and basic sciences graduate and post-graduate trainees. Many thanks to our faculty who participated or have their trainees participated and made this meeting a great success: Drs Fehlings, Mark Erwin, Mohammed Shamji from the Krembil Research Institute-UHN; Dr Ammendolia from MSH; Dr Zabjek from UHN-TRI; Dr Molly Shoichet from Donnelly Centre for Cellular and Biomolecular Research; and Drs Yee, Cari Whyne, and Meaghan O'Reilly from the Sunnybrook Research Institute-Holland Musculoskeletal Research Program.



Left to right: Cari Whyne; Margarete Akens; Mark Erwin; and Robert

We welcome our new fellows how have joined our program form near and afar. Like each year, this year the U of T Spine Program draws a number of spine fellows who have come to join our program from across the globe:

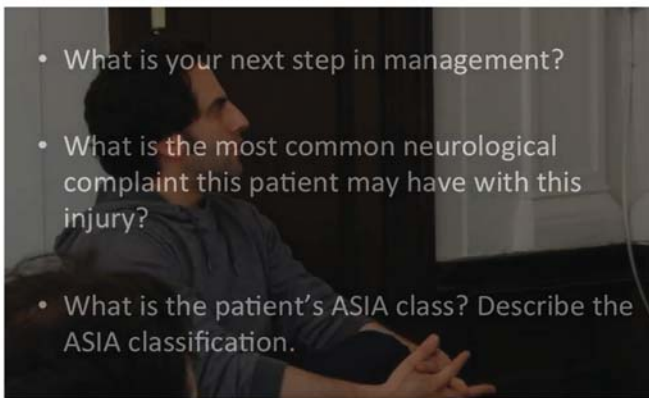
Jean Christophe Murray from QC-Canada; Kyle Stampe from AB-Canada; Gary Rosenberg from MI-USA; Nizar Moayeri from The Netherlands; Shoichi Haimoto and So Kato from Japan; Anupreet Bassi from India; Mohammed Obeidat from Jordan; Amit Keren, Amit Sigal, and Dror Ofir from Israel; and Yi Yang from Australia.

Program EVENTS con't

Royal College of Physicians and Surgeons of Canada (RCPSC) Mock Oral Prep Course

On March 29th Dr Fehlings and Dr Yee co-chaired our second joint city-wide Orthopaedics & Neurosurgery Royal College of Physician and Surgeon's of Canada (RCPSC) Mock Oral Prep Course for senior university resident trainees. In particular, we acknowledge the significant contributions to the success of this meeting by our city-wide spine fellows, led by Dr. Mark Pahuta, whose time in preparation of the cases as well as valuable practical tips were well received by the residents. The course this year covered topics of epidemiology, evidence-basis, treatment, and complications relevant to the RCPSC examination with cases on Cervical trauma, Thoracolumbar trauma, Cervical, thoracic and lumbar, degenerative disease, Spinal deformity, Intradural pathology, and Inflammatory disorders of the spine.

The course evaluation indicated that the residents were extremely happy with the fellows organization of the course, format, and cases. They found that the course was very helpful for their exam preparation, and they highly valued the Co-chairs' inputs and advice throughout the course.



Drs Yee and Fehlings and senior residents at RCPSC exam prep course

Traumatic Spinal Cord Injury Course

On Sep 24th The Program conducted a half-day course offering citywide fellows and senior residents a body of knowledge related to traumatic Spinal Cord Injury (SCI) management and classification of severity of disease. The course covered information related to disease and pathology; epidemiology, fracture classification and severity of injury classification. We thank Sukhvinder Kalsi-Ryan for coordinating this excellent course. Special thanks to our outstanding educators Drs Charles Tator, Julio Furlan, Jeff Wilson, and Kalsi-Ryan for their outstanding training.

Spine Program

Traumatic Spinal Cord Injury

C Tator; J Furlan; J Wilson; S Kalsi-Ryan

Course Coordinator: S Kalsi-Ryan

September 24, 2016
8:00am - 12:00pm

Honey and Barry Sherman
SCI Clinical Research Unit

Toronto Western Hospital
399 Bathurst St.
11 McCL 435, Rm 446
Toronto, Ontario
M5T 2S8

U of T Spine Program
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<http://surgery.utoronto.ca/programs/spine.htm> twitter
Handle: @uoftspine

Associate Professor Arjun Sahgal

Dr Arjun Sahgal BSc MD FRCPC, Associate Professor of Radiation Oncology and Surgery, is an international clinical and research leader in the field of high precision stereotactic radiation to the brain and spine for both metastases and primary tumors. After training at the University of Toronto in radiation oncology, he completed a radiosurgery fellowship at the University



of California San Francisco with Professor Dr David Larson. He has published over 200 peer reviewed papers including in high impact journals like the Journal of Clinical Oncology and Lancet Oncology, editor and writer of several books/book chapters on brain and bone metastases research, recipient of several distinguished visiting professorships, past-meeting chairman and board member of the International Stereotactic Radiosurgery Society (ISRS), and current steering committee member for the AOSpine Tumor Knowledge Forum. He is the principle investigator for a national Phase 2 randomized trial (SC-24) evaluating spine SBRT to conventional radiation. Currently, he serves as Deputy Chief of the Department of Radiation Oncology at the University of Toronto affiliated Sunnybrook Odette Cancer Centre. His current major projects involve directing the Sunnybrook Cancer Ablation Therapy program which involves the installation and integration of MR Brachytherapy, MR Linac and Gamma Knife ICON technology. His next phase of research and development is focused on integrating MR in radiation therapy and the application of MR Guided Focused Ultrasound Technology with radiation.

Selected Recent Peer-Reviewed Publications

Thibault I, Chang EL, Sheehan J, Ahluwalia MS, Guckenberger M, Sohn MJ, Ryu S, Foote M, Lo SS, Muacevic A, Soltys SG, Chao S, Gerszten P, Lis E, Yu E, Bilsky M, Fisher C, Schiff D, Fehlings MG, Ma L, Chang S, Chow E, Parelukar W, Vogelbaum M, **Sahgal A**. Challenges in Determining Response After Stereotactic Body Radiotherapy (SBRT) for Spinal Metastasis and a Review of Current Practices: A First Report from the SPIne Response Assessment in Neuro-Oncology (SPINO) Group. *Lancet Oncology*. 16(16):595-603, 2015.

Sahgal A, Atenafu E, Chao S, Al-Omair A, Boehling N, Balagamwala EH, Cunha M, Thibault I, Angelov L, Brown P, Suh J, Rhines L, Fehlings MG, Chang E. Vertebral compression fracture following spine stereotactic body radiotherapy (SBRT): A multi-institutional analysis with a focus on SBRT dose and the Spinal Instability Neoplastic Score (SINS). *J Clin Oncol*. 31(27):3426-3431, 2013.

Sahgal A, Weinberg V, Ma L, Chang E, Chao S, Muacevic A, Gorgulho A, Soltys S, Gerszten P.C., Ryu S, Angelov A, Gibbs I, Wong S, Larson DA. Probabilities of radiation myelopathy specific to stereotactic body radiotherapy to guide safe practice. *Int J of Radiat Oncol Biol Phys*. 85(2):341-347, 2013.

Christopher Witiw PGY 5



Christopher Witiw is a fifth year Neurosurgery Resident at the University of Toronto. Since joining the program, he has developed a strong interest in value based healthcare and patient centered outcomes research in spine surgery. In 2015, he received a Canadian Institutes of Health

Research Fellowship award and spent one year living in Chicago while obtaining a Master of Science degree in Health Economics at the University of Chicago. His thesis was co-supervised by Dr. Michael Fehlings from the University of Toronto and Dr. Fabrice Smieliauskas from The University of Chicago. The study focussed on the value of surgical intervention for degenerative cervical myelopathy and established a collaboration between the fields of spine surgery and health economics at the two academic centers. The manuscript from the study was recently distinguished with the North American Spine Society 2016 Outstanding Paper Award.

Christopher has published numerous other articles in peer-reviewed spine surgery journals and presented at multiple international neurosurgical conferences. His current research is focussed on the health economics of spinal surgery. Concurrently, his clinical interest is in minimally invasive spinal surgery. Upon completion of his residency training in 2018, Christopher plans to spend the following year at Rush University Medical Center in Chicago completing a fellowship in complex and minimally invasive spine surgery.

Selected Recent Peer-Reviewed Publications

Witiw CD, Fehlings MG. Degenerative cervical myelopathy. *CMAJ*. 2016 Aug 15. [Epub ahead of print]

Witiw CD, Mansouri A, Mathieu F, Nassiri F, Badhiwala JH, Fessler RG. Exploring the expectation-actuality discrepancy: a systematic review of the impact of preoperative expectations on satisfaction and patient reported outcomes in spinal surgery. *Neurosurg Rev*. 2016 Apr 7. [Epub ahead of print]

Witiw CD, Fehlings MG. Acute Spinal Cord Injury. *J Spinal Disord Tech*. 2015 Jul;28(6):202-10.

Announcements

Congratulations!



Jefferson Wilson MD PhD FRCSC

Our former spine surgeon scientist trainee Dr Jefferson Wilson is appointed as Assistant Professor at the Dept. of Neurosurgery with cross-appointment as Surgeon Scientist at St. Michael's Hospital with clinical focus on the full spectrum of spinal disorders. From a research perspective, he is primarily interested in topics related to the epidemiology and clinical epidemiology of spinal trauma and spinal cord injury.



Spyridon Karadimas MD PhD candidate

Our graduate student Spyridon Karadimas received the 2016 ASIA Apple Award for excellence in publishing in the spinal cord injury rehabilitation literature. The award is in recognition to Dr Karadimas' paper titled "Riluzole Blocks Perioperative Ischemia-reperfusion Injury and Enhances Postdecompression Outcomes in Cervical Spondylotic Myelopathy."



Mohammed Shamji MD PhD FRCSC

Assistant Professor Mo Shamji is announced as the Scientific Program Director for 2016 Lumbar Spine Research Society annual meeting. Dr Shamji also is the winner of the top poster, second place podium, and top podium awards at this year's Canadian Neuromodulation Society annual meeting.



Albert Yee MD MSc FRCSC

Professor Albert Yee is appointed, effective May 1, 2016, as the Chief, Holland Musculoskeletal Program, and Division Head of Orthopaedic Surgery at Sunnybrook Health Sciences Centre.



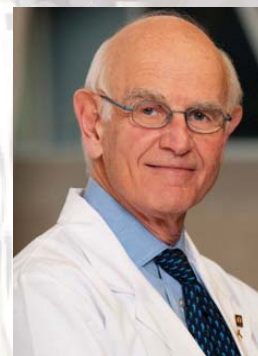
Michael Fehlings MD PhD FRCSC FACS

Professor Michael Fehlings received the Royal College's 2016 Mentor of the Year Award for Region 3 (Ontario and Nunavut). The award is in recognition of his significant impact on the career development of students, residents and Fellows. Dr Fehlings also received two Leaders Circle Recognition Awards for his efforts in bringing international association meetings and their colleagues to Toronto.



Stephen Lewis MD MSc FRCSC

Associate Professor Stephen Lewis received the Wightman-Berris Academy Individual Teaching Performance Awards in May this year. The Award recognizes Dr Lewis's outstanding resident teaching skills have been personally identified by his postgraduate trainees.



Charles Tator CM MD PhD FRCSC FACS

Professor Charles Tator received Wings for Life 2016 Lifetime Achievement Award for Spinal Cord Injury at the Wings for Life Scientific Meeting in Salzburg, Austria. Dr Albert Aguayo (Neurology, McGill University) was the co-recipient of this prestigious award.

Scoliosis Research Society (SRS) Traveling Fellows (Toronto- June 25-30, 2016)

The Scoliosis Research Society is one of the most highly regarded medical societies in spine surgery. SRS sponsors a prestigious visiting fellowship program for outstanding international spine surgeons. The visits are hosted on a rotating basis by various regions of the world. This year, North America hosted the visiting fellows. The U of T Spine Program and only other three North American spine centres: San Diego; New York City; and Philadelphia had the honor to hosting four international visiting surgeons through the SRS Visiting Fellowship Program.

Traveling from afar and arriving Toronto San Diego, their first host site, Professor Keith Luk from The University of Hong Kong, Assistant Professor Kota Watanabe from Keio University-Japan, Professor Bang-ping Qian from Nanjing University-China, and Associate Professor Brice Ilharreborde from Paris Diderot University – France who are well established surgeons and accomplished professionals in the field of spine to meet with our citywide surgeons and fellows and exchange knowledge and passion for spine care.

Our Program provided a well-structured program with clinical and research program infused with a personalized social and fun activities. The fellows arrived on Saturday June 25th and received a warm welcome from Dr Fehlings, joined by Dr Lewis, at Annona Restaurant. Dr Zeller toured the fellows on Sunday morning June 26th in Niagara Falls as they visited The Peller Estates Winery and learned about our demotic wine, tasting, and pairing. They travelled back to the city to indulge fine wine and French dine at Dr Zeller's house. The visiting fellows as well our SickKids spine fellow Dr Michael Dodds gave talks on Monday June 27th at SickKids' morning rounds followed by a tour at SickKids facilities and the biomechanical lab with Dr Karl Zabjek. Thereafter, they joined Dr Zeller's theater for a deformity case. In the evening, the fellows were taken to Dr

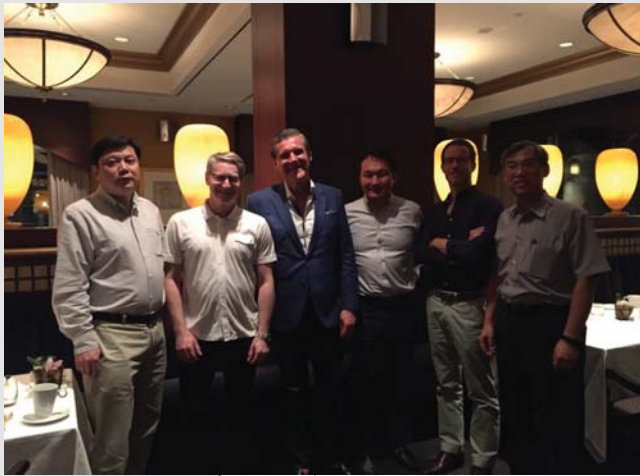
Dr Lewis' house where they were served a home-made dinner prepared by Chef/Surgeon Lewis and then they chilled out with a cool dip in the pool. On Tuesday June 28th, our visitors and our TWH spine fellows, Drs Mark Pahuta and So Kato, provided case presentations in the morning spine rounds followed by OR visitations with Dr Lewis. The day ended with a dinner meeting at the Faculty Club with further discussions and spine cases presentations as Drs Pahuta, Kato, Dodds, and Mohammad Zarrabian joined our visitors at the podium and presented interesting cases and studies on Scoliosis. Dr Fehlings, the Co-Director of the U of T Spine Program, also on behalf of the Co-Director Dr Albert Yee who was out of town, provided a synopsis about the Program. The meeting was well attended by our spine faculty, and citywide spine clinical and research fellows and residents.

On Wednesday June 29th our visitors had the chance to sleep in as they arrived the TWH late in the morning to join Drs Fehlings and Lewis in the OR for complex spine deformity cases. Dr Fehlings toured them at the Fehlings Lab and took them in the evening to the 360 restaurant where they enjoyed a delightful company and breathtaking views of downtown Toronto and Lake Ontario.

It was a great pleasure and a wonderful experience to have our SRS visiting fellows here in Toronto. The fellows departed on Thursday early morning June 30th reenergized for the next stop in New York.

Nadia Jaber





Saturday, June 25 at Annona Restaurant



Sunday, June 26 at Dr Zeller's Residence



Sunday, June 26 at Niagara Falls



Sunday, June 26 - The Peller Estates Winery and Restaurant- Niagara Falls



Monday, June 27 "Deformity & the Orchid" At Dr Zeller's office -SickKids



Scoliosis Research Society
Dedicated to the optimal care of patients with spinal deformity

Toronto-City of SPINE con't



Monday, June 27 Morning Rounds- SickKids



Monday, June 27 at Dr Lewis' residence



Tuesday, June 28 at the Faculty Club with Drs Fehlings, Lewis, Zeller, Spine Surgeons and faculty, city wide spine fellows and staff.



Spine Lounge



Wednesday, June 29 at The Krembil Neuroscience Centre



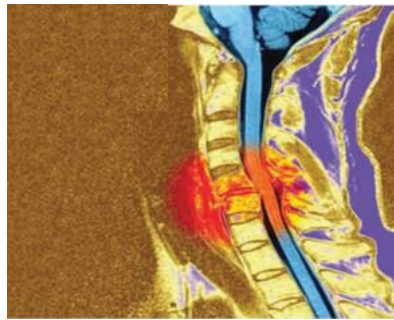
Wednesday, June 29 at The 360 Restaurant - The CN Tower

The Riluzole in Spinal Cord Injury Study

Currently recruiting

The Riluzole in Spinal Cord Injury Study (RISCIS) is principally sponsored by AOSpine North America with partnership and co-funding from: AOSpine International Spinal Cord Injury Knowledge Forum; North American Clinical Trials Network (NACTN); US Department of Defense (DOD); Ontario Neurotrauma Foundation; and Rick Hansen Institute (RHI). RISCIS is a worldwide multicentre trial launched to evaluate efficacy and safety of Riluzole in improving neurological motor outcomes of patients with acute spinal cord injury at 6 months post injury.

Under the U of T Spine Program umbrella, the trial is also launched and has been approved for data sharing agreement in three affiliated sites: Toronto Western Hospital (TWH); Sunnybrook Health Sciences Centre (SHSC); and St. Michael's



Hospital (SMH). Eligibility is Age 18 to 75 years, Acute (< 14 days old) spinal cord injury of traumatic origin, Spinal cord injury at the neurologic level from C4 to C8, ASIA Impairment Scale level A, B or C, and no other life-threatening injury.

Principal Investigators:

Michael Fehlings, UHN-Toronto Western Hospital. michael.fehlings@uhn.ca

Albert Yee, Sunnybrook Health Sciences Centre. Albert.Yee@sunnybrook.ca

Henry Ahn, St. Michael's Hospital. AhnH@smh.ca

Contact Research Coordinators:

TWH: Yuriy Petrenko. (416) 790-4535. Yuriy.Petrenko@uhn.ca

SHSC: Katrine Milner. (416) 505-7686. katrine.milner@sunnybrook.ca.

SMH: Kayee Tung. (416) 864-6060 Ext. 2713. TungK@smh.ca

For eligibility and inclusion criteria check
ClinicalTrials.gov Identifier: [NCT01597518](https://clinicaltrials.gov/ct2/show/study/NCT01597518)

Lumbar Spinal Stenosis Study



The trial has completed recruitment of 104 participants for this study. Follow-up assessments are 8 weeks, 3 months, 6 months, and 12 months with primary outcome in change in

walking capacity measured at 6 months. The trial falls under the umbrella of the U of T Spine Program.

Contact Investigator: Carlo Ammendolia, Mount Sinai Hospital. CAmmendolia@mtsinai.on.ca
Health Sciences Centre. Arjun-Sahgal@sunnybrook.ca

Update from the PI

We have preliminary follow up results for this randomized controlled trial comparing two to non-operative approaches to the management of neurogenic claudication. The first approach is a comprehensive approach that includes twice-weekly manual therapy sessions for 6 weeks with one-on-one instruction on home exercise and self-management strategies. The other approach is a self-directed approach where participants receive only one visit with instructions on exercise and self-management strategies. Both groups receive a manual and video on home exercise and self-management strategies as well as a pedometer. The mean age of our study population was 70 years of age and the baseline mean maximum walking distance was approximately 330 m.

At 8 weeks, improvement in walking distance amongst participants enrolled in the comprehensive program was approximately 500 m or half a kilometer compared 200 m in this self-directed group. About 85% and 83% of participants in the comprehensive group achieved at least a 30% or 50% improvement in walking distance at 8 weeks respectively compared to 61% and 57% in the self-directed group. These improvements were sustained at three months with a mean improvement in walking distance of approximately 485m in the comprehensive group with 88% of participants achieving at least 30% improvement and in walking distance from baseline. We are now analyzing our six months follow-up data. We will keep you updated.

Carlo Ammendolia

The Epidemiology, Process and Outcomes of Spine Oncology (EPOSO)

Currently recruiting

The main purpose of this study is to utilize a comprehensive, prospective clinical database to collect patient, diagnostic and treatment variables along with disease specific and generic health related quality of life (HRQOL) data on consecutively treated patients with metastatic spine tumors. The objectives are to determine the validity and reliability of the Spine Cancer Outcomes Questionnaire (SCOQ) for use in the assessment of spine tumor outcomes, to determine if the Spine Instability Neoplastic Score (SINS) Classification is a valid tool for predicting the stability of spine in metastatic spine disease, and to determine the efficacy of surgery versus radiotherapy for the treatment of impending instability secondary to metastatic disease of the spine.



This is an international Multi-Centre Trial spanning centres in Hungary, The USA, and Canada including our affiliated hospitals SBHSC, and UHN-TWH.

Sponsored by: AOSpine International

Principal Investigators:

Arjun Sahgal, Odette Cancer Centre-Sunnybrook Health Sciences Centre.

Arjun.Sahgal@sunnybrook.ca

Michael Fehlings, UHN-Toronto Western Hospital

michael.fehlings@uhn.ca

[For eligibility and inclusion criteria check](#)

[ClinicalTrials.gov Identifier: NCT01825161](#)

Feasibility Study Comparing Stereotactic Body Radiotherapy vs Conventional Palliative RT in Spinal Metastases

Currently recruiting

This research is being done because while there is some evidence suggesting that SBRT may improve treatment for patients with spine metastases, more research is needed to determine if it is better than CRT. Before a big study is done, a smaller study (called a "feasibility study") is required to make sure that patients and physicians are willing to participate in a study comparing the two kinds of radiotherapy treatments, and to verify how the radiation therapy is given in different centres across Canada.

This is a Multi-Centre Trial across Canada including our affiliated hospitals at Sunnybrook.ca - Odette Cancer Centre, and UHN- Princess Margaret Hospital

Sponsored by: NCIC Clinical Trials Group

[For eligibility and inclusion criteria check](#)

[ClinicalTrials.gov Identifier: NCT02512965](#)

Primary Spine Tumors Study

Brought up under the U of T Spine Program umbrella this randomized trial is in its final stage for approval. The synopsis suggested inclusion of patients with painful vertebral metastases who are not eligible for surgery and randomization between conventional radiations to stereotactic radiation. The trial will launch with multiple sites on board from Montreal and Toronto (SBK and PMH) with a recruitment of 54 patients.

Contact Investigator: Arjun Sahgal Sunnybrook Health Sciences Centre. Arjun.Sahgal@sunnybrook.ca

Update:

30 out of 54 patients have been recruited across Canada

Program CLINICAL TRIAL con't

Cervical Spondylotic Myelopathy Surgical Trial

Currently recruiting

The purpose of the study is to determine the optimal surgical approach (ventral vs dorsal) for patients with multi-level cervical spondylotic myelopathy (CSM). There are no established guidelines for the management of patients with CSM, which represents the most common cause of spinal cord injury and dysfunction in the US and in the world.



This study aims to test the hypothesis that ventral surgery is associated with superior Short Form-36 physical component Score (SF-36 PCS) outcome at one year follow-up compared to dorsal approaches and that both ventral and dorsal surgery improve symptoms of spinal cord dysfunction measured using the modified Japanese Orthopedic Association Score (mJOA). A secondary hypothesis is that health resource utilization for ventral surgery, dorsal fusion, and laminoplasty surgery are different. A third hypothesis is that cervical sagittal balance post-operatively is a significant predictor of SF-36 PCS outcome.

ase of the spine.

This is an international Multi-Centre Trial spanning centres in the USA and Canada including our affiliated hospitals the UHN-TWH.

Sponsored by: Lahey Clinic, and Patient-Centered Outcomes Research Institute

Principal Investigators:
 Michael Fehlings, UHN-Toronto Western Hospital
 michael.fehlings@uhn.ca
 Zoher Ghogawala, Lahey Clinic, Inc. Zoher.ghogawala@lahey.org

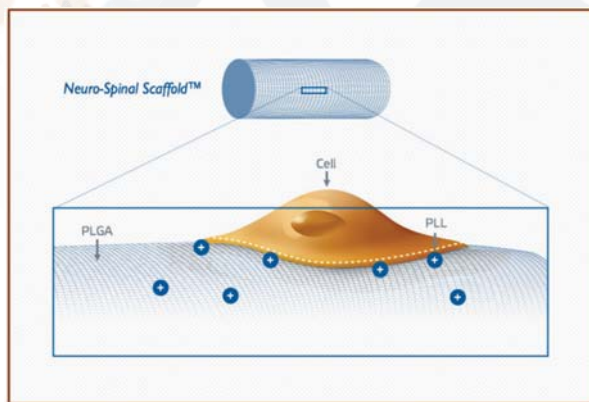
Contact: Yuriy Petrenko, 416-603-5285 . yuriy.petrenko@uhn.ca

For eligibility and inclusion criteria check
 ClinicalTrials.gov Identifier: NCT02076113

The INSPIRE Study: Probable Benefit of the Neuro-Spinal Scaffold for Treatment of AIS A Thoracic Acute Spinal Cord Injury

Currently recruiting

The purpose of this study is to evaluate whether the Scaffold is safe and demonstrates probable benefit for the treatment of complete T2-T12/L1 spinal cord injury . This is a Humanitarian Device Exemption (HDE) Probable Benefit Study to demonstrate safety and probable benefit in support of future studies



and an HDE application with subsequent approval.

This is an international Multi-Centre Trial spanning centres in the USA and Canada including our affiliated hospitals the UHN-TWH.

This is an international Multi-Centre Trial spanning 20 centres in the USA. The UHN- Toronto Western Hospital (UHN-TWH) is the first centre in Canada joined this study in July 2016 with Dr Fehlings named as the site 's principal investigator.

Sponsored by: InVivo Therapeutics

For eligibility and inclusion criteria check
 ClinicalTrials.gov Identifier: NCT02138110



For eligibility and inclusion criteria check
 ClinicalTrials.gov Identifier: NCT02076113

TRANSLATION
 Of new knowledge
 into clinical practice

U of T -China MSK and Spine Symposium

The 2nd joint U of T and China MSK and Spine Symposium was held on Oct 3 and 4, 2016 with several China-wide key MSK and spine surgeons: Professors Shengji Yu; Qiang Zhang; Yong Chen; Wang Jian; Jian-min Li; Jingnan Shen; and Weifeng LIU visiting Toronto from Beijing, Shanghai, and Gangzhou. The Symposium was a joint effort from the U of T and the SHSC co-hosted by Professor Peter Ferguson (Chair, U of T Orthopaedic Surgery Division) who organized the Oct 3rd morning session, which took place in the Cooper Centre-MSH, with several presentations on sarcoma surgery. Professor Albert Yee (Chair, Sunnybrook Orthopaedic Surgery Division) organized the faculty dinner meeting, on the same day at the Hart House, with several talks from the visiting surgeons, faculty, and trainees. In this meeting Professor Shengji YU provided keynote address titled "Radiofrequency ablation combined with percutaneous vertebroplasty for the treatment of spinal metastases" and Dr Edward Chow (Senior Scientist-Sunnybrook Research Institute) chaired a session with presentations from faculty and trainees providing an updated on bone and spine metastasis.

In support of this important knowledge exchange the U of T spine Program took pleasure in co-sponsoring this meeting. Professor Fehlings provided greetings on behalf of the U of T in his capacity as Chair- U of T surgery Research, and Co-Director U of T spine.



The 44th CSRS Annual Meeting coming to Toronto

The Cervical Spine Research Society Instructional Course and the Annual meeting will take place this year in Toronto, November 30, Dec 1-3, at the Weston Harbour Hotel and for the first time outside the home country- the USA.

Under the lead of the local Host Dr Fehlings the U of T Spine Program takes a great pleasure in supporting and contributing to the organizational and hosting efforts of the CSRS team. Spine faculty, surgeons, scientists, clinical and research trainees, and industry are encouraged to join this academic and highly-rated world class programs.

The Instructional Course and the Annual meeting are They are guaranteed to be interactive and energetic with plenty of time set aside for spirited discussion, which is the hallmark of CSRS programs.



Visiting Professors - U of T -China MSK and Spine Symposium

Special Inter-Professional Academic Rounds

In collaboration with the Department of Radiation Oncology-Sunnybrook Health Sciences Centre The U of T Spine Program was delighted to support and organize a Special Dinner meeting on Monday May 9 at the University Club of Toronto, to welcome and introduce Professor Mark H. Bilsky MD from Weill Medical College of Cornell University, New York, a visiting professor for Sunnybrook 2016 Veronique Benk Visiting Professorship hosted by our Radiation Oncologist and associate professor Arjun Sahgal. Dr Bilsky is a neurosurgeon, Vice Chairman for Clinical Affairs, Department of Neurosurgery, and Director, Multi-disciplinary Spine Tumor Program. In this meeting Dr Bilsky updated our spinal community about separation surgery titled "Separation Surgery and Stereotactic Radiosurgery: Why less is more Shifting Paradigms in the Treatment of Metastatic Spine Disease"



Visiting Professors -Mark H. Bilsky MD

Program AT-LARGE con't

The 44th CSRS Annual Meeting coming to Toronto . con't

The one-day Instructional Course (ICL) on Wednesday, November 30th will include sessions that are case-based and patient focused. A faculty of experts will present on their experiences and approaches to various cervical spine problems while also providing evidence for clinical decision-making. Topics will include cervical trauma, tumor, myelopathy and radiculopathy.

The annual meeting, Thursday, Friday, and Saturday- December 1st thru 3rd , promotes a multidisciplinary exchange of ideas about cervical spine injury and disease. On Thursday, the program will include a diverse spectrum of cervical topics designed to enhance competency to meet rapidly changing clinical and investigative needs. Thought leaders in the field of spine care will be on hand to debate, discuss and defend cutting edge concepts that will provide the strategies and skills necessary for professional development and most importantly improved outcomes and patient care. Topics will ranges from myelopathy and cervical disc arthroplasty, to biologics and biomaterials in cervical spine surgery. CSRS members will serve as workshop faculty. End the day at the evening reception for continued discussion and informal networking. Dinner is on your own at one of the many local restaurants. Friday program consists of a full day of cme programming including best papers, research updates, and panel discussions. The schedule also includes the popular featured podium highlight poster presentations designed to be fast paced, bulleted information sessions. Topics could include new approaches to clinical decision making, novel technologies or recent developments in translational research.

For further details and registration instructions visit the CSRS website at www.csrs.org

Michael Fehlings, 2016 CSRS Local Host

Neurotrauma2018 Symposium coming to Toronto

Toronto is the host city for the 3rd Joint Symposium of the International and National Neurotrauma Societies and AANS/CNS Section on Neurotrauma and Critical Care. The symposium will be a wonderful occasion for exchanging science, preclinical and clinical lessons, and sharing visions for the future of neurotrauma research and care.

This symposium has served as the premier forum for the exchange of ideas and information related to traumatic brain injury (TBI) and spinal cord injury (SCI) with a strong focus of the meeting to integrate clinical, translational, and basic science neurotrauma-related information. The format of the symposium will consist of informative discovery, translational, and clinical sessions and workshops, as well as programs for students and early career investigators. Plenary sessions, workshops, and poster sessions are being planned to focus on topics of current research and practice issues.

A public lecture, patient perspective presentations, and networking opportunities will round out the program.

The meeting will be co-hosted by the International & National Neurotrauma Society and the AANS/CNS Joint Section on Neurotrauma and Critical Care. This combination of expertise allows for presentations that integrate state-of-the-art clinical, translational and basic science information on the consequences of damage to the nervous system.

This is an exciting time in neurotrauma research and care and we hope to see you in Toronto for the Neurotrauma2018 Symposium.

Michael Fehlings, NeuroTrauma2018 Local Host



NeuroTrauma2018
The 3rd Joint Symposium of the International and National Neurotrauma Societies and AANS/CNS Section on Neurotrauma and Critical Care
AUGUST 11-16, 2018
TORONTO, CANADA

SAVE THE DATES

	Opens	Deadline
Abstract Submission	January 15, 2018	April 15, 2018
Early Bird Registration	January 15, 2018	May 20, 2018
Regular Registration	May 21, 2018	June 30, 2018
Late Registration	July 1, 2018	August 16, 2018

www.neurotrauma2018.com   [#neurotrauma2018](https://twitter.com/neurotrauma2018)

Additional ANNOUNCEMENT



17th Annual Scientific Conference of the Canadian Spine Society

Wednesday, February 22 –
Saturday, February 25, 2017

Le Westin, Montreal
270 Saint-Antoine West
Montreal Quebec H2Y 0A3 Canada

Save the Date!

CALL FOR ABSTRACTS

Abstract submissions will be accepted between: **October 1 – 31, 2016**

Abstracts are to be submitted online using the CSS' online abstract system. The submission link will be live on October 1st, 2016; the link will be located on the homepage of the CSS website at www.spinecanada.ca.

ABSTRACTS: Abstracts are invited pertaining to all disorders of the spine and spinal cord. Completed projects should not have been previously published. Work in progress is encouraged. Preliminary information on clinical trials, prospective reviews and retrospective analyses are all acceptable.

NOTE: All presentations will be in English. Presenters are expected to register for the conference and are responsible for all expenses involved with attending the Conference.

DEADLINE FOR ABSTRACT SUBMISSIONS: October 31, 2016

Combined Canadian Spinal Cord & Ontario Spinal Cord Injury Research Network Meeting

May 12th to 14th 2017
Toronto Marriot Down Town Eaton Centre
525 Bay St Toronto, ON M5G 2L2

Contact: Anoushka Singh at asingh@uhnresearch.ca

Acknowledgment

The University of Toronto Spine Program acknowledges the strong support from the University of Toronto Department of Surgery, Division of Orthopaedic Surgery, and Division of Neurosurgery. The Program also acknowledges the continued support from our Industry Partners: Medtronic, DePuy Synthes; Ethicon; Stryker; and Zimmer Biomet.

Donations to the University of Toronto Spine Program support educational events, clinical and preclinical research and trainees. The funds also support ongoing programmatic collaborative initiatives set forth to advance spine care and research in Canada and worldwide.

Contact:

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uoft.spine@utoronto.ca
(416)978 8468



<http://surgery.utoronto.ca/programs/spine.htm>

