Welcome to SpineFEST 2016

Monday June 13th
MaRS Building, Lower Concourse
101 College St. Toronto Ontario

Accreditation:
Royal College of Physicians and Surgeons of Canada – Section 1:
This event is an Accredited Group Learning Activity (Section 1) as defined by the Maintenance of Certification Program of the Royal College of Physicians and Surgeons of Canada, approved by Continuing Professional Development, Faculty of Medicine, University of Toronto up to a maximum of (6.5 hours)
UHN-Toronto Western Hospital
W Mark Erwin PhD DC
Michael G. Fehlings MD PhD FRCSC FACS FCAHS FRSC
Stephen Lewis MD MSc FRCS
Eric Massicotte, MD MSc FRCSC
Y Raja Rampersaud MD FRCSC
Sukhvinder Kalsi-Ryan PT PhD
Mohammed F. Shamji MD PhD FRCSC
Anoushka Singh RN PhD
Alexander Velumian PhD

UHN-Toronto Rehabilitation Institute
Karl Zabjek BSc MSc PhD

UHN-Techna
Margarete Akens Dr med vet PhD

Sunnybrook Health Sciences Centre
Leo da Costa MD
Joel Finkelstein MD MSc FRCS(C)
Mahmood Fazl MD FRCSC
Michael H. Ford MD FRCSC
Barry W. Malcolm MD FRCSC MBA
Meaghan O’Reilly PhD
Farhad Pirouzmand MD MSc FRCSC
Arjun Sahgal BSc MD FRCPC
Cari Whyne PhD
Albert Yee MD MSc FRCSC

Hospital for Sick Children
James Drake BSE MB BCh MSc FRCSC
Reinhard Zeller MD FRCSC

St. Michael’s Hospital
Henry Ahn MD PhD
Howard Ginsberg MD PhD FRCSC

Mount Sinai Hospital
Carlo Ammendolia DC PhD CCRF
Rita Kandel MD FRCPC

University of Toronto
Cindi M Morshead BSc PhD
Molly S Shoichet PhD FRSC

The University of Toronto
Department of Surgery
Spine Program
is a combined neurosurgery and orthopaedic surgery program integrated across citywide clinical and research programs at the affiliated teaching hospitals: University Health Network (UHN), Sunnybrook Health Sciences Centre (SHSC), Hospital for Sick Children (HSC), St. Michael’s Hospital (SMH), and Mount Sinai Hospital (MSH)
Colleagues

This year the University of Toronto Department of Surgery Spine Program celebrates its 8th annual SpineFEST meeting. It has been a productive academic year as our program continues to foster important city-wide collaborations within the university as well as participate and/or lead on several key regional, national, and international initiatives. Earlier this spring, we inaugurated the first edition of our program newsletter that provides the opportunity for us to highlight and recognize the ongoing accomplishments of our city-wide faculty and trainees.

As a program, we benefit from the ongoing strong support of our University Department of Surgery, and Divisions of Neurosurgery and Orthopaedics. We value the clinical, research and education expertise of our city-wide faculty and trainees in support of our important Program Council, Research and Education Committee activities. Key spine community and industry collaborators have helped nurture growth in our academic program.

**It has been an enjoyable and collaborative 2015/16 Visiting Professorship Series:**

a. Division of Neurosurgery Botterel Symposium, Toronto Western Hospital-University Health Network (TWH-UHN) hosting, with Dr. Shekar Kurpad from the Medical College of Wisconsin.

b. Neurosciences Collaborative Program Distin-
guished Lectureship, TWH-UHN hosting, with Profes-
sor Jack Feldman from UCLA featuring neural
networks involved in respiration.

c. Sunnybrook Health Sciences Centre, Odette
Cancer Centre, Radiation Oncology invited profes-
sor, hosted Dr. Mark Bilsky from Memorial Sloan
Kettering Cancer Center Radiation Oncology
invited professor, hosted Dr. Mark Bilsky from Memo-
rial Sloan Kettering Cancer Center who discussed
the importance of separation surgery in Stereotac-
tic Radiosurgery for the treatment of of Metastatic
Spine Disease.

d. Professor Yu Liang from Jiao Tong University,
hosted by Dr Henry Ahn, St. Michael’s Hospital
(SMH). Dr Liang provided key perspectives of surgical
techniques and research in minimally invasive
MIS-TLIF for the treatment of spondylolisthesis.

e. Professor Stefan Parent from the University of
Montreal, hosted by Dr. Reinhard Zeller, Hospital for
Sick Children (HSC), engaged us with discussions about predictive models of progression in adoles-
cent idiopathic scoliosis considering 3D spine
parameters.

f. Dr. John Kostuik from John Hopkins-Baltimore,
hosted by Dr Michael Fehlings (TWH). Dr. Kostuik
captivated our attention with a fascinating talk about the history of spine deformity from ancient India to today.

g. Tator –Turnbull Spinal Cord Injury Symposium,
TWH-UHN hosting, was highlighted with a tremen-
dous turnout to the keynote address about Spinal
Cord Injury-induced Immune Deficiency Syndrome
provided by our distinguished invited speaker
Professor Jan Schwab from Ohio State University,
Columbus. It was a memorable celebration of Barbara Turnbull’s legacy in advancing spine
research and care.
In education and teaching, we have had an active year which continues to focus on excellence in fellowship and resident education. We held 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. At the fellowship level, selective rotation/observership opportunities have been offered to incoming fellows over the last couple of years, with some fellows choosing to pursue this added educational offering. Our fellowship education working group is now planning a pilot fellowship project that leverages work conducted by members of our program (through the Canadian Spine Society) with a recent publication on competence objectives for fellowship training in Canada. This opportunity builds upon competencies that may be acquired during a general first fellowship year, followed by a second year catered to advanced/focused competencies. Our city-wide program has an established fellows surgical case-log program that is based upon our national training competencies. Our city-wide clinical fellows have also taken on important leadership roles in organizing and hosting journal clubs throughout the year (the aging spine, metastatic spine disease). Special thanks to Dr. Stephen Lewis for organizing an exceptional fellows surgical skills course, complemented by our semi-annual research update meetings organized by Drs. Carlo Ammendolia and Karl Zabjek.

From a clinical research perspective, the Program continues to serve as an academic hub to foster collaborative efforts in facilitating clinical trials and data sharing agreement between the hospitals (UHN-TWH, SHSC, and SMH). Among of which, the Riluzole in Spinal Cord Injury Study (RISICS) which is principally sponsored by AOSpine North America. RISCIS is a worldwide multi-centre trial launched to evaluate efficacy and safety of Riluzole in improving neurological motor outcomes of patients with acute spinal cord injury. The Primary Spine Tumor Study, which has been initiated under the leadership of Dr. Arjun Sahgal, has also been brought under the umbrella of the Program as a randomized multi-centre trial and to be launched in Montreal and Toronto at SHSC and Princess Margaret Hospital. This will be a pivotal trial directly comparing conventional versus stereotactic radiation therapy in spine oncology. The Lumbar Spinal Stenosis Study, led by Dr. Carlo Ammendolia at MSH has been successful in completing recruitment and progression towards outcomes. This research is complemented by efforts to translate knowledge in developing clinical practice guidelines for spinal cord injury and cervical myelopathy.

In patient care advocacy and global efforts, the Program has made an impact on several levels. Drs. Fehlings and Raj Rampersaud have been actively involved with provincial initiatives to enhance access to care and service delivery for patients with acute and chronic spine conditions. Drs. Yee and Fehlings are working with AO Spine North America to more broadly disseminate knowledge gained from our national competence based training education efforts. In similar perspective, the Program co-hosted an international meeting with AO Spine North America, AO Spine International, Rick Hansen Institute, and Cervical Spine Research Society to identify and develop guidelines for Acute Spinal Cord Injury (ASCI) and Cervical Spondylotic Myelopathy (CSM). This comes
This comes as an initiative to enhance quality of care by establishing clinical protocols for management of patients with ASCI, and aid clinicians in evidence-based decision making based on recommendations for important and controversial areas of ASCI management. Interestingly, our “Time is Spine” concept, in which Dr Fehlings stresses early surgical decompression improves outcomes from spinal cord injuries, has been highlighted by the Spine Summit and Spine Universe, supported as AOSpine guidelines, and is being considered for teaching as AO principle. We partnered with the Rick Hansen Institute (RHI) in their strategic planning meeting on Oct 24, 2015 to explore area of collaboration on registries and SCI research. The Program, in collaboration with the UHN-TWH, was rated top-host site for last year’s Cervical Spine Research Society travelling fellows for the hospitality, and the excellent academic, research, and clinical program. We have also been selected as a host site for the Scoliosis Research Society (SRS) Traveling Fellows 2016 visiting Toronto end of this month. With Dr Fehlings’ lead, we are excited about taking part in hosting the Cervical Spine Research Society (CSRS) Annual Meeting and the instructional course on Nov 30th, and Dec 1st -3rd this year. The CSRS has collected over 500 abstracts this year the largest collection has been for this event. We have also been successful in our bidding to bringing in AOGlobal Spine Congress to Toronto in 2019. This event enables opportunities to leverage our global advocacy and outreach.

In closing, thank you for all your support over the years. We are privileged to benefit from the diverse and specialized expertise of our program members. We are excited about updating our Strategic Plan later this year and look forward to continuing to work together to shape the landscape of spine academia at the University and beyond. Many thanks to Ms. Nadia Jaber, our program coordinator that has been instrumental in moving forward our collaborative agenda.

Join us in welcoming our SpineFEST Keynote Speaker Professor Daniel Riew MD from New York. Dr Riew is a Professor of Orthopaedic Surgery, Co-Chief of Spine Division, and Director of Cervical Spine Surgery at Columbia Medical Center. His practice is exclusively limited to the operative treatment of the cervical spine, a rarity among spine surgeons. He is an engaging speaker and we all look forward to his wealth of expertise in the management of patients with complex cervical disorders.

Sincerely,

Michael & Albert
7:00  Continental Breakfast & Registration  
7:30  INTRODUCTION  
   Opening Remarks  
   Professor Michael Fehlings & Professor Albert Yee  
   Co-Directors, University of Toronto Department of Surgery Spine Program  
   Greetings from the University of Toronto  
   Professor James Rutka  
   RS McLaughlin Professor, Chair Department of Surgery  
   Professor Andres Lozano  
   Dan Family Chair in Neurosurgery  
7:45  Welcome Remarks  
   Dr Charles Tator & Dr Hamilton Hall  
   THE TATOR-HALL VISITING PROFESSOR LECTURE  
8:00  Introduction of Visiting Professor: Dr Daniel Riew  
   Dr Michael Fehlings  
8:15  Keynote Address  
   THE POST-OPERATIVE PATIENT WITH PERSISTENT OR RECURRENT SYMPTOMS  
   Visiting Lecturer: Professor Daniel Riew from Columbia University Medical Center – New York  
9:00  Discussion – Moderator: Dr Michael Fehlings  
9:15  Coffee Break  
9:30  SESSION I: CERVICAL MYELOPATHY AND CERVICAL DEFORMITY  
9:30  CERVICAL DEFORMITY AND MYELOPATHY: WHAT IS THE IMPACT?  
   Dr Mohammed Shamji  
9:45  OPTIMIZING OUTCOMES IN SURGERY FOR DEGENERATIVE CERVICAL MYELOPATHY: WHAT IS NEW? WHAT IS HOT?  
   Dr Michael Fehlings  
10:00  EVALUATION AND MANAGEMENT OF CERVICAL DEFORMITY  
   Dr Stephen Lewis  
10:15  Dr Sukhvinder Kalsi-Ryan  
10:30  Discussion – Moderator: Dr Eric Massicotte
SESSION I Cont’t

10:45  E-Poster Presentations & Judging

12:15  Lunch & E-Poster Viewing

SESSION II: CONTROVERSIES AND COMPLEXITIES IN CERVICAL SPINE DIAGNOSIS AND MANAGEMENT

1:00  ROLE AND TIMING OF SURGERY FOR TRAUMATIC CENTRAL CORD SYNDROME
Dr Henry Ahn

1:15  SPINE CLEARANCE IN THE TRAUMA PATIENT: A LEVEL I TRAUMA CENTRE EXPERIENCE
Dr Albert Yee

1:30  PEARLS AND PITFALLS OF CERVICAL MYELOPATHY: THE EXPERIENCE OF A FRUSTRATED NEUROLOGIST
Dr Michael Angel

1:45  DEGENERATIVE CERVICAL MYELOPATHY: CURRENT STATE OF THE LITERATURE AND IMPORTANT KNOWLEDGE GAPS
Lindsay Tetreault PhD

2:00  Discussion – Moderator: Dr Howard Ginsberg

SESSION III: RESEARCH TRAINEE PRESENTATIONS

Invited Presentations

2:15  A HEALTH ECONOMIC AND PATIENT-CENTERED ANALYSIS ON THE VALUE OF SURGERY FOR DEGENERATIVE CERVICAL MYELOPATHY: STRONG SUPPORT FOR SURGICAL INTERVENTION
Christopher Witiw MD MSc

2:30  SPINE SURGERY FELLOWSHIP EDUCATION - COMPETENCE BASED TRAINING IN CANADA AND BEYOND
Robert Ravinsky MD CM

Abstract-Oral Presentations

1st place Abstract (Tie)

2:45  HYPOXIA-RELATED MICRORNAS ARE BIOMARKERS OF DEGENERATIVE CERVICAL MYELOPATHY SEVERITY
Alex M Laliberte MSc

2:52  RILUZOLE BLOCKS PERIOPERATIVE ISCHEMIA-REPERFUSION INJURY AND ENHANCES POSTDECOMPRESSION OUTCOMES IN CERVICAL SPONDYLOTIC MYELOPATHY
Spyridon Karadimas MD
SESSION III Cont’d

2nd Place Abstract (Tie)

2:59 ACCURACY VALIDATION IN THE CERVICAL SPINE OF A NOVEL, RAPID, OPTICAL INTRAOPERATIVE SPINAL NAVIGATION SYSTEM: INITIAL CLINICAL FEASIBILITY
Daipayan Guha MD

3:06 EARLY DECOMPRESSION ATTENUATES ISCHEMIA-REPERFUSION-INJURY MEDIATED INFLAMMATION FOR CERVICAL DEGENERATIVE MYELOPATHY (DCM)
Pia M Vidal PhD

3rd Place Abstract (Tie)

3:13 NEXT-GENERATION MRI IDENTIFIES TRACT-SPECIFIC INJURY AND PREDICTS FOCAL NEUROLOGICAL DEFICITS IN DEGENERATIVE CERVICAL MYELOPATHY
Allan Martin BASc (EngSci) MD

3:19 VIRTUAL FRAMEWORK TO EVALUATE OSSEOUS FIXATION PATHWAYS IN THE SPINE
Stewart McLachlin PhD

3:26 Discussion – Moderator: Dr Albert Yee

3:41 Award Presentations and Closing Remarks
Dr Michael Fehlings & Dr Albert Yee
Dr Daniel Riew is world renowned for cervical spine surgery, and his practice is exclusively limited to the operative treatment of the cervical spine, a rarity among spine surgeons. In his practice at Washington University Orthopedics, he performed between 250 and 300 cervical spine operations each year, ranging from minimally invasive microsurgical outpatient procedures, to the most complex “chin-on-chest” or “ear-on-shoulder” deformities. He has a particular interest in cervical artificial disc replacements and other motion-sparing procedures such as laminoplasties. Dr Riew graduated from Harvard College and then received his MD from Case Western Reserve University Medical School, and completed residencies in Internal Medicine at New York Hospital-Cornell Medical Center and in Orthopaedic Surgery at George Washington University Medical Center. He went on to complete a fellowship in Orthopedic Spine Surgery under the training of world-renowned cervical spine surgeon, Dr. Henry Bohlman. Dr Riew has been consistently recognized in the lists of America’s Top Doctors, and Best Doctors in America since 2001. He served as the President of the Cervical Spine Research Society (CSRS), which is the most well-respected society for the treatment of the cervical spine. Dr Riew is currently the Chair of the International Board for AOspine. Dr Riew has been a Visiting Professor, Key, or Named Lecturer over 110 times in 20 countries. He has published over 220 peer-reviewed papers, and over 70 chapters and other manuscripts.

2015  Professor Wilco Peul, Leiden University Medical Centre
2014  Professor Kenneth Cheung, University of Hong Kong
2013  Professor Alexander Richard Vaccaro, Thomas Jefferson University - PA
2012  Professor Jean Dubousset, The University of Paris
2011  Professor Jens Chapman, University of Washington
2010  Professor Edward Benzel, Cleveland Clinic
2009  Professor Jeffrey Wang, University of California-Los Angeles
Dr Charles Tator is a Professor in the Department of Surgery, at the University of Toronto, and a neurosurgeon at the Toronto Western Hospital. He is the former Chair of Neurosurgery at the University of Toronto. He started the first Acute Spinal Cord Injury Unit in Canada in 1974, and has reported on the epidemiology, prevention and treatment of spinal cord injury. He has undertaken seminal translational and clinical research in spinal cord injury. In 1992, he founded ThinkFirst, Canada, a national brain and spinal cord injury foundation whose mission is to reduce the incidence of catastrophic injuries in Canada. In 2008, the University of Toronto Press published his book “Catastrophic Injuries in Sports and Recreation, Causes and Prevention—a Canadian Study.” He has held two research chairs at the University of Toronto, the Dan Family Chair in Neurosurgery and the Campeau Family-Charles Tator Chair in Brain and Spinal Cord Research. In 2000, he received the Order of Canada, and in 2009 he was inducted into the Canadian Medical Hall of Fame.

Dr Hamilton Hall is a Professor in the Department of Surgery at the University of Toronto (U of T), and on the active orthopaedic staff at the Sunnybrook Health Sciences Centre. In 1974 Dr Hall founded the Canadian Back Institute (CBI Health Group), now the largest rehabilitation company in Canada. Dr Hall continues to serve as its Medical Director. He is co-founder of the Canadian Spine Society and is presently the Society’s Executive Director. Dr Hall is a member of the North American Spine Society, the Canadian Orthopaedic Association and the International Society for the Study of the Lumbar Spine. He has served on the editorial boards of Spine, The Spine Journal and The BackLetter. Honours include the Laurie Chute Award for the best undergraduate clinical lecturer at the U of T and the Henry Farfan Award from the North American Spine Society for outstanding contributions to the field of spine care. Dr Hall’s concept of a syndrome approach to mechanical back pain is an essential component of the provincial initiatives to educate primary care providers in British Columbia, Alberta, Saskatchewan, Ontario, New Brunswick and Nova Scotia. His system is the basis of undergraduate teaching about back pain in the Faculties of Medicine at the U of T and McMaster University. In addition to over 130 published articles and book chapters and over 1200 invited presentations, many as Visiting Professor at universities in North America, Europe and Asia, Dr Hall is the author of the best-selling Back Doctor series of books for the lay public.
Christopher Witiw MD is currently a fourth year Neurosurgery Resident at the University of Toronto. He has a strong interest in value-based care and patient centered outcomes research in spine surgery. He received a Canadian Institutes of Health Research Fellowship award in 2015 and spent the past year in Chicago obtaining a graduate degree in Health Economics at the University of Chicago. He has published numerous articles in peer-reviewed neurosurgical journals and presented at multiple international neurological conferences. His current research is focused on the health economics of spinal surgery and the accuracy of administrate data coding for adverse events.

Robert Ravinsky MDCM, MPH is a resident in Orthopaedic Surgery at the University of Toronto, entering into his final year in July. He was born in Montreal, Quebec, and completed a Bachelor of Science in Physiology, as well as his medical degree at McGill University. He additionally completed a Master of Public Health at Harvard University with a concentration in Quantitative Methods. His research interests involve outcomes and cost-effectiveness of spinal interventions. After graduation, he plans to pursue fellowship training in Spine Surgery at the Toronto Western Hospital. He would like to thank Dr. Albert Yee and U of T Spine for the opportunity to speak at this year’s SpineFEST, as well as his wife, Meredith, for her support over the last few years.
Alex Laliberte is a PhD student at the University of Toronto’s Institute of Medical Sciences. His graduate research is mainly focused on identifying the role of hypoxia in the development of degenerative cervical myelopathy. To address this question, Alex has adopted a translational approach, using a combination of clinical data, animal models and genetic tools to identify potential hypoxia biomarkers and determine their specific role in disease progression. Alex also holds an M.Sc degree from the University of Western Ontario in Molecular Genetics and hopes to continue working in medical research after graduation.

Spyridon (Spyros) Karadimas MD obtained his MD at the University of Athens, School of Medicine. Currently, he is completing his PhD in the Institute of Medical Science at University of Toronto under the supervision of Dr. Michael Fehlings. With the support of international funding sources such as the Alexander S. Onassis Distinguished scholarship and the Cervical Spine Research Society (CSRS) fellowship, Spyros has pioneered and characterized a novel microsurgical model of progressive cervical spinal cord injury (SCI) mimicking cervical spondylotic myelopathy (CSM) in rodents. Using this model, Spyros has discovered a previously unrecognized biological injury associated with surgical decompression in CSM and has developed a novel treatment strategy. Recently, Spyros with Dr. Satkunendararajah discovered a novel neural pathway essential for appropriate locomotion. This work involving electrophysiology, genetic and viral techniques to mark, manipulate, and monitor this new neural pathway is in collaboration with prestigious laboratories across the globe. Spyros has been the recipient of a number of international distinctions, including the Apple award from the American Spinal Injury Association (ASIA) for excellence in publishing in SCI and awards from CSRS, North America Spine Society and AOSpine North America. After completing his doctoral research, Spyros aspires to maintain an active research agenda during postgraduate medical training in neurosurgery.
Daipayan Guha MD is a PGY-4 resident in Neurosurgery at the University of Toronto. He is currently enrolled in the Surgeon Scientist Program, undertaking an MSc in biophotonics and bioengineering at Sunnybrook Health Sciences Centre, under the supervision of Drs. Victor Yang and Albert Yee. His clinical and research interests focus on image-guided and minimally-invasive spinal surgery. Daipayan enjoys badminton, squash, alpine skiing, running and road cycling.

Pía Vidal obtained her Bioengineering degree at the University of Concepcion in Chile. Her passion for Neuroscience, with special focus on spinal cord and brain research took her to complete her PhD at the University of Hasselt in Belgium. Her research there focused on the role of modulators of the immune response in a rodent model of thoracic spinal cord injury to improve functional outcome post-injury. Currently, she is a post-doctoral fellow at Dr. Fehlings’s research team, studying the contribution of the immune response in ischemia-reperfusion injury following surgical decompression in a rodent model of Degenerative Cervical Myelopathy. This research aims to develop novel complementary treatments to the surgery that can be translated to patients. Her work has received numerous awards at national and international meetings.
Allan Martin BASc (EngSci) MD is a PGY4 Neurosurgery Resident currently enrolled in the Institute of Medical Science PhD program under Dr. Michael Fehlings. His research focus is in microstructural spinal cord MRI techniques to quantify tissue injury, but Allan is also involved in several other clinical research projects including a pilot study of deep brain stimulation (DBS) to improve locomotion in patients with chronic spinal cord injury. He originally trained in Engineering Science and worked for IBM Canada for almost 10 years, achieving 9 patents as inventor. Allan spends most of his free time with his wife Kirsten and 3 children, Zia (8), Scarlett (6), and Leo (3), but also enjoys running, skiing, snowboarding, sailing, playing music (bass, drums), and home improvement.

Stewart McLachlin, PhD, PEng is a postdoctoral fellow in the Dr. Cari Whyne's Orthopaedic Biomechanics Laboratory at Sunnybrook Research Institute in Toronto, Ontario, Canada. He completed his doctorate at Western University in Mechanical & Materials Engineering with a specialization in Musculoskeletal Health Research. His research interests are focused on orthopaedic spine and trauma biomechanics with an emphasis on interdisciplinary collaborations to solve clinical problems. Dr. McLachlin has co-authored publications in JBJS, Spine, The Spine Journal, and the Journal of Orthopaedic Research. He was also recently awarded a Mitacs Elevate fellowship to work in collaboration with Synaptive Medical to investigate novel intraoperative image-guidance solutions for complex spine surgeries.
Anick Nater, Lindsay Tetreault, Branko Kopjar, Paul Arnold, Mark Dekutoski Joel Finkelstein, Charles Fisher, John France, Zia Gokaslan, Laurence Rhines Paul Rose, James Schuster, Alexander Vaccaro, Michael Fehlings

Predictive factors for survival in surgical series of symptomatic metastatic epidural spinal cord compression: A prospective North American multi-centre study in 142 patients

Anna Badner, James Hong

Characterization of the splenic inflammatory response in relation to mesenchymal stromal cell-mediated immunomodulation following traumatic spinal cord injury

Mirriam Mikhail and Michael Fehlings

Evidence for the development of an autoantibody response in experimental cervical spinal cord injury.

Antigona Ulndreaj BSc Apostolou Tzekou PhD

MRI Analysis of the Combined AOSpine North America and International Studies: The Prevalence and Spectrum of Pathologies in a Global Cohort of Patients with Degenerative Cervical Myelopathy

Emina E. Torlakovic MD, PhD

Characterization of microdamage accumulation in metastatically-involved vertebra

Michael G. Fehlings MD, PhD

Ayelet Atkins, Mikhail Burke, Margarete Akens, Cari M. Whyne

Time to diagnosis in cervical degenerative myelopathy: findings from an online patient survey

Aria Nouri MD MSc, Allan Martin MD

Benjamin M. Davies, Sukhvinder Kalsi-Ryan, Peter J.A. Hutchinson, Mark R. N. Kotter
Chio, JC, Wang, j, Liu, y, Ulndreaj, a Fehlings, MG

Immunomodulatory Effects of Intravenous Immunoglobulin G on Neuroinflammation after Cervical Spinal Cord Injury

Christopher D. Witiw, Clifford Lin, Kala Sundararajan, Raja Rampersaud

Screening for Adverse Events in Spinal Surgery: A Comparison of ICD-10 Coded Discharge Abstract Data with Dedicated Prospective Collection


Level-specific optimization of therapeutic interventions in spinal cord injury – a new paradigm.

Joe H Chang, Arnjeet Sangha, Derek Hyde, Hany Soliman, Sten Myrehaug, Young Lee, Renee Korol Arjun Sahgal

The Impact on Positional Accuracy of Treating Multiple Vertebral Metastases Versus Single Vertebral Metastases with Stereotactic Body radiotherapy

K. Chatoor, JP Santerre, RA Kandel

Investigating the Use of Passaged Cells for Nucleus Pulposus Generation

Laureen D. Hachem, Andrea J. Mothe, Charles H. Tator

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

Mark RN Kotter, Lindsay Tetreault, Paul Arnold, Branko Kopiar Michal G Fehlings

Is laminectomy and fusion superior to laminectomy only in patients suffering from degenerative cervical myelopathy (DCM)?
The therapeutic impact of human induced pluripotent stem cell-derived neural precursor cells in cervical spinal cord injury

Risk factors and clinical outcomes of dysphagia after anterior cervical surgery in patients with degenerative cervical myelopathy: Results from the AOSpine International and North America Studies

Predicting Surgical Outcome Based on Features of Cervical Ossification of Posterior Longitudinal Ligament: A Systematic Review of 2,318 Studies

Preoperative Predictive Factors of Survival, Neurological, Functional, and Health Related Quality of Life Outcomes in Surgically Treated Patients with Metastatic Epidural Spinal Cord Compression: A Systematic Literature Review

Key Preoperative Clinical Factors Predicting Outcome in Surgically Treated Metastatic Epidural Spinal Cord Compression Patients: Results from a Survey of 438 AOSpine International Members

Combinatory Treatment with Hepatocyte Growth Factor and Neural Progenitor Cells Reduces Astrogliosis and Pro-Inflammatory Microglial Activation in vitro
Comparisons of anterior and posterior surgery for cervical spondylotic myelopathy – A propensity score matched analysis using AOSpine CSM International database

So Kato, Aria Nouri, Lindsay Tetreault
Michael Fehlings

Sacral Osteotomy to Decrease Pelvic Incidence in Patients with Sagittal Malalignment in the Setting of Normal Lumbar Lordosis

So Kato, Stephen Lewis, Sam Keshen

Guidelines for the Management of Patients with Degenerative Cervical Myelopathy


Is Preoperative Duration of Symptoms a Significant Predictor of Functional Status and Quality of Life Outcomes in Patients Undergoing Surgery for the Treatment of Degenerative Cervical Myelopathy?

The University of Toronto Spine Program gratefully acknowledges the continued support of the U of T Department of Surgery, Division of Orthopaedic Surgery, and Division of Neurosurgery.

The Program also thanks Medtronic, DePuy Synthes & Ethicon, Stryker, and Zimmer Biomet for their continued support.

Donations to the University of Toronto Spine Program support educational events, research, clinical fellowship, and ongoing programmatic initiatives and efforts towards advances of spine care in Canada and worldwide.

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Dr Mohammed Shamji
CERVICAL DEFORMITY AND MYELOPATHY: WHAT IS THE IMPACT?

Dr Michael Fehlings
OPTIMIZING OUTCOMES IN SURGERY FOR DEGENERATIVE CERVICAL MYELOPATHY—WHAT IS NEW? WHAT IS HOT?

Dr Stephen Lewis
EVALUATION AND MANAGEMENT OF CERVICAL DEFORMITY

Dr Sukhvinder Kalsi-Ryan
DEFINING DEGENERATIVE CERVICAL MYELOPATHY THROUGH NOVEL ASSESSMENT TECHNIQUES

Dr Henry Ahn
ROLE AND TIMING OF SURGERY FOR TRAUMATIC CENTRAL CORD SYNDROME

Dr Albert Yee
SPINE CLEARANCE IN THE TRAUMA PATIENT: A LEVEL I TRAUMA CENTRE EXPERIENCE

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PEARLS AND PITFALLS OF CERVICAL MYELOPATHY: THE EXPERIENCE OF A FRUSTRATED NEUROLOGIST

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A HEALTH ECONOMIC AND PATIENT-CENTERED ANALYSIS ON THE VALUE OF SURGERY FOR DEGENERATIVE CERVICAL MYELOPATHY: STRONG SUPPORT FOR SURGICAL INTERVENTION