



The 4th **ISCOS AND ASIA**
JOINT SCIENTIFIC MEETING

14th - 16th May 2015, Montreal, Canada

Final Programme

ISCOS 2015

www.iscosasia2015.org



Fairmont, The Queen Elizabeth Hotel
Montreal



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Welcome



It is with great pleasure that we welcome you to the joint meeting of ISCoS and ASIA in Montreal. In the past the joint meetings have been amongst the best of our annual scientific gatherings. They fit perfectly in the ISCoS policy of spreading widely data of research and clinical practice in order to help improve spinal cord lesion care worldwide. There have been impressive improvements in this care but still so much can be done and needs to be done. So let us join forces and do our utmost best for spinal cord lesioned individuals worldwide. They need us and we need them to make care human, focused, respectful

and ethically sound. The program of the meeting is impressive and many thanks are due to our scientific/meetings committee, the authors that sent an overwhelming number of submissions and the industry sponsors.

Nice to meet you all once more

Kind Regards

Jean Jacques Wyndaele

ISCoS President



ASIA ANTICIPATES ANOTHER SUCCESSFUL PARTNERSHIP WITH ISCoS IN 2015



ASIA will meet with its international partner, ISCoS, for the fourth time in the great city of Montreal in May of 2015. Past combined meetings (Vancouver in 2002, Boston in 2006, Washington, D.C. in 2011) have been among the most successful in ASIA's 40 year history of presenting an Annual Scientific Meeting. The international dimension that ISCoS brings to these meetings enriches not



only the scientific program, but also encourages interaction among the attendees that is of great value to all. The city of Montreal is an ideal location for the 2015 meeting. It is easily accessible from many American cities, has a hospitable European flavor and cosmopolitan atmosphere that add a significant dimension to the meeting experience, and with the local hosts (SensoriMotor Rehabilitation Research Team) actively involved in planning the meeting, insures considerable local expertise that will affect both the scientific and social programming. ASIA is thrilled to be a part of this exciting venture, and welcomes all attendees to take full advantage of everything the meeting has to offer. Enjoy Montreal!

Michael H. Haak, M.D.

President, ASIA

Mary Jane Mulcahey, Ph.D.

President-Elect, ASIA

Welcome



It is a pleasure and an honor to host the next ISCoS/ASIA meeting in Montreal from May 14-16, 2015. The SensoriMotor Rehabilitation Research Team is your local host organization. The group is a multidisciplinary team of basic and clinical scientists working on spinal cord injury and stroke with 30 researchers affiliated to all major universities in Montreal and Quebec. This joint meeting



of ASIA and ISCoS promises a stimulating scientific program and an opportunity to enjoy the role of Montreal in Science, Culture and History. Scientifically, Montreal has been associated with significant advances in neuroscience, such as the mapping of the sensorimotor cortices as the well-known homunculi by Dr Wilder Penfield at the Montreal Neurological Institute and Dr Herbert Jasper (McGill University and Université de Montréal), as well as the pioneering work of Dr Gustave Gingras in spinal cord rehabilitation medicine at the Université de Montréal. Culturally, Montreal hosts everyone in both French and English, as well being home to many other nationalities. Everyone can find their favourite quarter of the city to enjoy regional cuisine and culture. Montreal is bursting with cultural events, as well as gastronomy for every level of sophistication and budget. With the input of our trainees, we have created a list for students and fellows (or folks with youthful appetites and ears) of places to visit for food, drink and music. Historically, Montreal has played a key role in the settlement of Canada. Jacques Cartier explored present-day Newfoundland and Quebec as early as 1534 and made three voyages to Quebec, staying for a couple of years each time. Samuel de Champlain permanently founded Quebec City in 1608, after establishing Acadia in 1605 and established a post at Montreal in 1611. Paul de Chomedey, sieur de Maisonneuve founded Montreal in 1642. You can enjoy historic Montreal via many different walking or cycle paths. There are a multitude of art galleries and museums such as Pointe-à-Callières (Montreal Museum of Archaeology and History) being a most unique way to experience the city's 400-year history.

Bienvenue à Montréal!

Serge Rossignol
Montreal

John Steeves
Vancouver

Acknowledgements

The Organising Committee gratefully acknowledges support from our industry supporters

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Booth 8



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Website: www.medtronic.com

Booth 18 and 19



Medtronic

At Medtronic, we're committed to Innovating for Life by pushing the boundaries of medical technology and changing the way the world treats chronic disease. Visit the Medtronic booth to learn more about our targeted drug delivery therapy that may help your patients with severe spasticity due to spinal cord injury.

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Booth 12 and 13



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Meeting Information

Dates

The 54th Annual Scientific Meeting of the International Spinal Cord Society and 4th ISCoS/ASIA joint scientific meeting will take place from Thursday 14th May to Saturday 16th May 2015.

Venue

The Fairmont Queen Elizabeth
900 Boulevard René-Lévesque Ouest
Montréal, QC Canada
Tel: +1 514 861 3511
Fax: +1 514 954 2256
Email: queenelizabeth.hotel@fairmont.com
Web: www.fairmont.com/queen-elizabeth-montreal/

Registration & Meeting Secretariat

Registration and the Meeting Secretariat are located on the mezzanine level of the Hotel.

The Congress will be open during the following hours:

Wednesday 13th May	16:00 - 19:00 For registrations
Thursday 14th May	06:30 - 18:00
Friday 15th May	06:30 - 18:00
Saturday 16th May	06:30 - 15:00

Abstract Book

Abstracts will be available in PDF format on the ISCoS-ASIA website www.iscosasia2015.org and through the Congress App. There is no printed abstract book. The full programme will be distributed with the Congress bag and will be available on the Congress App.

Accreditation

This activity has been planned and implemented in accordance with the accreditation requirements and policies of

the Accreditation Council for Continuing Medical Education (ACCME) through the joint providership of the American Academy of Orthopaedic Surgeons and the American Spinal Injury Association.

The American Academy of Orthopaedic Surgeons is accredited by the ACCME to provide continuing medical education for physicians.

The American Academy of Orthopaedic Surgeons designates this live activity for a maximum of 15.25 **AMA PRA Category 1 Credits™**. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Badges

Please wear your registration badge at all times.

All participants are required to wear identification badges when attending sessions, social events and when entering the exhibition. If you lose your badge, please go to the registration desk where a new badge will be made for you.

Car Parking

The following parking areas owned and operated by VINCI Park:

Valet Parking (250 Spaces)

Entrance on North side of Belmont Street or on Cathcart Street:

\$29 per night, taxes extra, departure prior to 16:00

In and out privileges

Self-Parking

Entrance on South side of Belmont Street

Fees must be paid at the parking pay stations.

Certificates of Attendance

A Certificate of Attendance will be emailed to all registered delegates after the Meeting.

Cloakroom & Left Luggage Facilities

Cloakroom and Left Luggage services will be available during the Congress.

Moderators & Speakers

Please ensure that you are available in your presentation room at least ten minutes before the start of the session. It is recommended that all Speakers visit the Speakers' Ready Room to confirm audio visual requirements and upload your presentation, at least 2 hours prior to the start of the session. The Speakers' Ready Room is located in Room Chaudiere, on the congress and exhibition level.

The Speakers' Ready Room will be open during the following hours :

Wednesday 13th May	16:00 - 19:00
Thursday 14th May	07:00 - 18:00
Friday 15th May	07:00 - 17:00
Saturday 16th May	07:00 - 14:00

City Information

In your delegate bags you will receive a city map and guide.

Credit Cards

Commonly accepted credit cards in hotels, restaurants and stores are American Express, Visa, MasterCard and Diners Club. All major credit cards are accepted for registration.

Electricity

Canada's electrical supply and electrical outlets (sockets, wall plugs) are the same as those found in the United States. The electrical supply is 110 Volts and 60 Hertz (cycles per second).

Exhibition Opening Hours

An exhibition of related products, services and technologies is being held in conjunction with the Meeting. The exhibition is located on the congress level.

A full list of exhibitors can be found on Page 109.

The exhibition opening hours are as follows:

Thursday 14th May	10:00 - 20:30
Friday 15th May	10:00 - 17:00
Saturday 16th May	10:00 - 15:00

The Welcome Reception will be held in the Exhibition / Poster Area on Thursday 14th May, following the Opening Ceremony.

Insurance Policy

The organisers cannot be responsible for medical, travel or personal claims. Participants are strongly advised to take out an insurance policy covering three areas: health and accident, loss of luggage and cancellation (travel and registration).

Internet Facilities

Complimentary WiFi is available throughout the venue.

Language

English is the official language of the meeting.

Lunches and Refreshments

Tea, coffee and lunch will be served to all registered participants in the Exhibition / Poster Area during the official breaks.

Mail/Messages/Medical Assistance/ Lost & Found

Please go to the Registration Desk located on the mezzanine level for any assistance.

Meeting Bags

Kindly sponsored by



Rick Hansen Institute
Institut Rick Hansen

Mobile Phones

It should be noted that mobile phones may be used for connections to the Congress App, social media posting, website etc. but **must be switched to silent when delegates are in session halls**. The twitter hash tag is #ISCoS2015.

Mobile Application

ISCoS 2015 will have a mobile device application enabling you to access general, scientific programme, exhibition and other useful information relating to the congress. The Mobile App name is ISCoS 2015 and will be available to download from May 6th 2015 onto your personal mobile device via the Apple iStore, Android Store or Windows Store.

Posters

Posters will be displayed in the Exhibition/ Poster Area from 14th to 16th May.

Presenting authors are requested to stand by their posters as per the allocated times below.

Session 1. For Poster Viewing Thursday 14th May from 10:35 to 11:35 and from 15:10 to 16:10.

Posters should be mounted on your designated board by 09.00 on Thursday 14th May. Please remove the poster at the end of the day at 17:45. If your poster has not been collected after this time, it will be removed.

Session 2. For Poster Viewing Friday 15th May from 10:25 to 11:35 and from 15:10 to 16:15.

Posters should be mounted on your designated board by 08.00 on Friday 15th May. Please remove the poster at the end of the day at 17:45. If your poster has not been collected after this time, it will be removed.

Session 3. For Poster Viewing Saturday 16th May from 10:30 to 11:30 and from 12:25 to 13:25.

Posters should be mounted on your designated board by 08.00 on Saturday 16th May. Please remove the poster at the end of the day at 15:00. If your poster has not been collected after this time, it will be removed.

All poster presenters should please ensure that they mount their poster by the correct poster number on the correct day. Poster presenters should refer to the instructions which were sent by email for their board number. Delegates are encouraged to view the posters during the official tea/coffee and lunch breaks.

Poster sessions are kindly sponsored by



Daiichi-Sankyo

Programme Changes

The organisers cannot assume responsibility for any change in the programme due to unforeseen or external circumstances.



Social Programme

Thursday 14th May

18:00 - 20:30 Kick off reception with ISCoS and ASIA oral/poster awards, ISCoS Society Medal Award, ASIA Lifetime Achievement Award, poster viewing, artistic performances (dancing, singing) by members of the SCI community. Welcome Cocktail.

Dress code: Business Casual.

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Friday 15th May

Gala Dinner in the Grand Salon. The 3 course meal will be followed by dancing and entertainment with the band "Fastlane".

Dress code: Cocktail dresses and suits.

Gala Dinner supported by RHI



Rick Hansen Institute
Institut Rick Hansen



Geisinger Health System would like to recognize and thank Michael Haak, MD on his service as President of the American Spinal Injury Association



Michael Haak, MD

Orthopaedic Spine Surgeon
Geisinger Health System

Geisinger Health System serves more than 2.6 million residents in central and northeastern Pennsylvania and is recognized for its innovative delivery of health care, including the use of the electronic health record and care models such as ProvenHealth Navigator® and ProvenCare®. The physician-led system is comprised of more than 21,000 employees, an 1,100-member multispecialty group practice, eight hospital campuses, two research centers and a 467,000-member health plan.

The Geisinger Orthopaedic Institute offers a comprehensive spine program for children and adults, including a computer assisted navigation system to treat scoliosis, a nationally ranked orthopaedic residency program, and a dynamic orthopaedic research program. For more information, visit geisinger.org/ortho and follow us on Twitter @GeisingerOrtho and @GeisingerHealth.

THE CENTENNIAL CELEBRATION

GEISINGER 100

Prescribe a lasting change that may bring patients from “I wish” to...

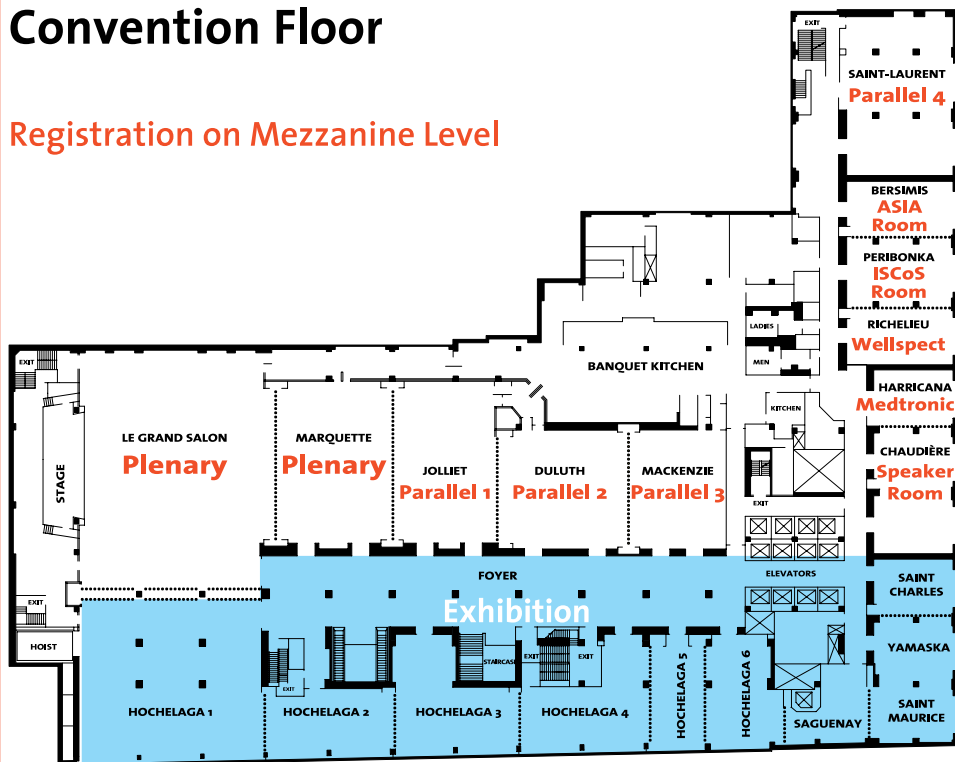


With consistent and precise dosing that may provide long-term relief of severe spasticity, Medtronic ITB TherapySM may be the catalyst for lasting personal achievements.

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Convention Floor

Registration on Mezzanine Level



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Gregory Nemunaitis, MD

NEILSEN AWARD OF ASIA

Anne Bryden, OTR/L

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Industry Sponsored Sessions



13:15 - 14:15

Joliet Room

Back to Work: Success Stories and Challenging Cases in the US, Shepherd Center Experience

Chairman: John Lin, M.D., Internal Medicine, Spinal Cord Medicine, Physical Medicine and Rehabilitation. Director of Academic Programs, Shepherd Center, Atlanta, Georgia, USA. Assistant Professor, Emory University School of Medicine. Assistant Professor, Department of Medicine, Medical College of Georgia, Augusta, Georgia, USA.

Speakers: Anna Elmers, M.D., J.D., Brain injury and spinal cord injury physiatrist, Shepherd Center, Atlanta, Georgia, USA. Assistant Professor, Emory University School of Medicine.

Angela Beninga, M.D., Director of Outpatient Services, Shepherd Center, Atlanta, Georgia, USA. Assistant Professor, Emory University School of Medicine.

Lunch will be served outside the conference room at 13.00.

Topic description:

Return to work after spinal cord injury has historically been the last frontier of the complete rehabilitation. While many factors facilitate return to work, many others contribute to persistence of unemployment. Studies have demonstrated higher functional ability, pre-injury educational level, resource availability and vocational rehabilitation as factors leading to successful reintegration back to the work force. Others have demonstrated that medical complications, lack of optimized medical care, logistical considerations for transportation and caregiver schedules can all present barriers beyond the physical ones. In spite of the Americans with Disabilities Act's attempt to minimize architectural barriers for employment reintegration, perceived work place attitudes have been the psychological barriers beyond the reach of legislation.

During this session, vocational reintegration trends in the United States will be discussed followed by identification of challenging cases at Shepherd Center.

Finally, successful reintegration case series will be presented.

* No CME credits are given for this event.



Coloplast

07:00 - 08:00

Joliet Room

Facts and Myths of Bowel Management

06:30 - 07:00 Light breakfast

07:00 - 07:05 Welcome from the Chair
Steven Kirshblum

07:05 - 07:35 Is it possible to optimise patient-reported outcome for bowel symptoms following spinal injury?
Anton Emmanuel

07:35 - 07:55 Colonic dysfunction in SCI: Rationale and best practice for transanal irrigation
Gabriele Bazzocchi

07:55 - 08:00 Concluding remarks
Steven Kirshblum

* No CME credits are given for this event.



Medtronic

12:30 - 13:30

Joliet Room

The Importance of Patient Selection and Dosing Strategies with Intrathecal Baclofen Therapy (ITB)

Best Practices

Michael Yochelson, MD, MBA (MedStar National Rehabilitation Network, Washington, DC)

Carlotte Kiekens, MD, PRM (University Hospital, Leuven, Belgium)

My Life with ITB Therapy - A Patient's Perspective

* No CME credits are given for this event.

Industry Sponsored Sessions

Saturday 16th May 2015



Rick Hansen Institute
Institut Rick Hansen



ISCRR

Institute for Safety,
Compensation and
Recovery Research

A joint initiative of WorkSafe Victoria, the TAC and Monash University



Ontario Neurotrauma Foundation
Fondation ontarienne de neurotraumatologie

07:00 - 08:00

Duluth Room

International Collaborations Building a Framework for International Research in SCI

Rick Hansen Institute
Institute for Safety, Compensation and Recovery Research
Ontario Neurotrauma Foundation

Continental Breakfast served from 06:45

1. Welcome and Presenter Introductions
Verna Smith
2. Outcomes of a Survey of SCI Researchers
Vanessa Noonan
3. Outcomes of a Survey of SCI Consumers
Kim Anderson-Erisman
4. Draft Roadmap
Vanessa Noonan
5. Facilitated Discussions on Platforms and Areas of Focus
Verna Smith, Kent Bassett-Spiers and Phalgun Joshi
6. Conclusion and Next Steps

* No CME credits are given for this event.

Facts & myths of bowel management

Are we actually solving one of
the biggest problems for
neurogenic patients?

Join our Coloplast symposium on Friday morning

15 May 2015, 07:00-08:00, room 'Jolliet'


Programme

- | | |
|-------------|--|
| 06:30-07:00 | Light breakfast |
| 07:00-07:05 | Welcome from the Chair / Steven Kirshblum |
| 07:05-07:35 | Is it possible to optimise patient-reported outcome for bowel symptoms following spinal injury? / Anton Emmanuel |
| 07:35-07:55 | Colonic dysfunction in SCI: Rationale and best practice for trans anal irrigation / Gabriele Bazzocchi |
| 07:55-08:00 | Concluding remarks / Steven Kirshblum |



Please visit us at our booth in the exhibition area to learn more.



Programme at a Glance

Time	Le Grand Salon	Jolliet	Duluth	Mackenzie	Gatineau
7:00 - 8:00		ASIA Mentor/Mentee Breakfast			
8:00 - 8:10	Opening Address with remarks from ISCOs and ASIA Presidents				
8:10 - 8:55	Sell Lecture The future of neural prosthetics in SCI <i>Michael Boninger</i>				
9:00 - 10:30	Workshop 1 - 3068091 Novel Non-Invasive Methods for the Clinical Assessment of Body Composition and Associated Endocrine-Metabolic Disease Risk after SCI - Craven, Pelletier, Miyatani, Moore, Lynch, Szeto	Workshop 2 - 3068045 Using the Spinal Cord Injury Quality of Life (SCI-QoL) Item Banks to Detect Change in Research and Clinical Practice - Tulskey, Kisala, Heinemann, Jette, Tate, Charlifue	Workshop 3 - 3064731 Practical Solutions for Respiratory Care in SCI - O'Connell, Plashkes, Foote, Lemay	Award Papers	Workshop 4 - 3068054 Upper Extremity Reconstruction Options in SCI - Mackinnon, Fox, Davidge, Novak, Peljovich, Keith
10:35 - 11:35		Poster Viewing with Refreshments - Exhibition Hall			
11:40 - 13:10	Community Living Papers	Workshop 5 - 3064777 The use of Quality of Life Measures in Spinal Cord Injury Clinical Trials - Tate, Charlifue, Post, Tulskey, Jette, Heinemann, Anderson	Workshop 6 - 3069160 Balance Control and Falls after Spinal Cord Injury: Clinical and Laboratory Perspectives - Nadeau, Barthelemy, Duclos, Lemay, Roy	Free Papers	Workshop 7 - 3064499 Pediatric Neuromuscular Recovery Scale: Content Development, Reliability, and Application - Behrman, Mulcahey, Trimble
13:15 - 14:15		Lunch in the Exhibition Hall - ASIA Committee Meetings			
13:15 - 14:15		Wellspect sponsored Symposium  Non CME Event	PT Meeting	Nurses Meeting	
14:20 - 15:05	ISCOs Lecture The evolution of nerve transfers and their potential after spinal cord injury <i>Susan Mackinnon</i>				
15:10 - 16:10		Poster Viewing with Refreshments - Exhibition Hall			
16:15 - 17:45	Workshop 8 - 3026760 The National Institute for Neurological Disorders and Stroke (NINDS) Common Data Elements (CDEs) for Spinal Cord Injury - Development and Future Use - Biering-Sorensen, Odenkirchen, Jakeman, Noonan, Tansey, Flanders, Mulcahey, Vogel	Workshop 9 - 3069777 Annual ASIA International Standards and Education Committee Updates - Waring, Read, Kirshblum, Reeves, Jones	Exercise and Activity Papers	Ambulation Papers	Workshop 10 - 3067762 The Transition from Pediatric to Adult Care: Key Elements and Challenges - Zebracki, Taylor, Kelly, Russell, Augutis
18:00 - 20:30	Kick off Reception with ISCOs and ASIA Oral/Poster Awards - ISCOs Society Medal Award - ASIA Lifetime Achievement Award - Poster Viewing - Song and Dance, Food and Wine				

Programme at a Glance - Thursday 14th May 2015

Time	Le Grand Salon	Jolliet	Duluth	Mackenzie	Gatineau
7:00 - 7:55		Coloplast Breakfast sponsored Symposium  Non CME Event	ASIA Committee Meetings		
8:00 - 8:45	Guttmann Lecture Axonal regeneration in the adult mammalian CNS - A retrospective <i>Albert Aguayo</i>				
8:50 - 10:20	Free Papers	Workshop 11 - 3061830 SCI: How Can Concepts Developed In Animal Models Be Translated To Those Living With Spinal Cord Injury? Stil, Rossignol, Cowley	Workshop 12 - 3066819 Pain Interference on Motor Recovery, Participation, and Quality of Life Following Spinal Cord Injury - Mercier, Noreau, Bouyer, Roosink	Workshop 13 - 3068799 Primary Prevention of Spinal Cord Injury: Prevention is Cure: Global Challenges - Local Solutions - Klaas, Chhabra	Upper Extremity Papers
10:25 - 11:35		Poster Viewing with Refreshments - Exhibition Hall			
11:40 - 12:25	Rick Hansen Institute Lecture Understanding motor function after spinal cord injury: involvement of a defined spinal microcircuit <i>Robert Brownstone</i>				
12:30 - 13:30		Lunch with Exhibitors			
12:30 - 13:30		Medtronic sponsored Symposium  Non CME Event		Data Sets Meeting (by invitation only)	
13:35 - 15:05	Workshop 14 - 3067757 "Til Death Do Us Part": Parallel Declines in Cerebral and Cardiac Function due to Autonomic Dysfunction after Spinal Cord Injury - Krassioukov, Phillips, West, Zheng, Martin Ginis	Clinical Trials and Clinical Practice Guideline Papers	Workshop 15 - 3067925 Emerging Concepts in the Pathology and Clinical Management of Degenerative Conditions to the Spine Causing Spinal Cord Dysfunction - Kalsi-Ryan, Fehlings, New, Scivoletto, Cohen-Adad	Workshop 16 - 3063546 Engaging Spinal Cord Injury (SCI) Consumers Across the Research and Clinical Care Spectrum - Anderson-Erismann, Jeji, Tomkinson, Bourke, Athanasopoulos, Elliott, Gaskins	Surgery/Imaging Papers
15:10 - 16:15		Poster Viewing with Refreshments - Exhibition Hall			
16:20 - 18:00					ISCoS AGM
18:00		End of Program for the Day			
19:00		Gala Dinner (Grand Salon)			

Programme at a Glance - Friday 15th May 2015

Time	Le Grand Salon	Joliet	Duluth	Mackenzie	Gatineau
7:00 - 8:00		ASIA Membership Meeting and Breakfast	RHI Breakfast Rick Hansen Institute Institut Rick Hansen Non CME Event		
8:05 - 8:50	ISRT Lecture Visualizing spinal Cord Damage with MRI <i>Julien Cohen-Adad, Claudia Gandini Wheeler-Kingshott</i>				
8:55 - 10:25	Measurement Papers	Urological Papers	Regeneration Papers	Participation /Outcomes Papers	Free Papers
10:30 - 11:30	Poster Viewing with Refreshments - Exhibition Hall				
11:35 - 12:20	ASIA Lecture Neuroscience at the nexus of the lab and clinic: Using stimulation and practice to drive adaptive neural plasticity <i>Edelle Field-Fote</i>				
12:25 - 13:25	Lunch with Exhibitors - ASIA Committee Meetings				
13:30 - 15:00	Workshop 17 - 3068496 Quantitative MRI Techniques and their Applications to Spinal Cord Injury - Cohen-Adad, Wheeler-Kingshott, Guttman, Fehlings	Workshop 18 - 3068762 Developing Novel Task-Specific Approaches to Optimize Mobility after Spinal Cord Injury - Bouyer, Gagnon, Aissaoui, Duclos, Popovic	Workshop 19 - 3064831 Symposium on Incontinence and Sexuality - Courtois, Elliott, Nigro, Emmanuel	Workshop 20 - 3068446 Immune responses to Traumatic Spinal Cord Injury: Data from Predclinical and Clinical Studies - Bloom, Kwon, Schwab, Bethea	Workshop 21 - 3061839 Epidemiology, Outcomes and Practical Principles in the Rehabilitation of People with Spinal Cord Damage due to Tumor - New, Scivoletto, Stubblefield, Marshall
15:00	End of Program				

Programme at a Glance - Saturday 16th May 2015

CME Accreditation

Disclosure Information

- 1 Royalties from pharmaceutical, biomaterial or orthopaedic products
- 2 Speakers Bureau/paid presentations
- 3a-3b Paid consultant or employee
- 3c Unpaid consultant
- 4 Stock or Stock Options
- 5 Research or institutional support from publishers
- 6 Other financial or material support
- 7 royalties, financial/material support from any medical and/or orthopaedic publishers
- N No conflicts to disclose

Full Name Disclosure Information

Sell Lecture: N

Workshop 1: N

Workshop 2: N

Workshop 3: N

Award Papers: Michael Kennelly. 3B: consultant/advisor to Allergan, Inc., AMS, Boston Scientific, Dignify Therapeutics, and Hollister; 5: study investigator for Allergan, Inc., AMS, Coloplast, Contura, Hollister, Novabay, and Watson

Workshop 4: N

Community Living Papers: N

Workshop 5: N

Workshop 6: N

Free Papers: Bryan Kwon. 1: Acorda Therapeutics - Hunter Peckham. 1/3A&B&C/4/5/6: Synapse Biomedical

Workshop 7: Andrea Behrman. 7: Oxford University Press

ISCoS Lecture: N

Workshop 8: Biering-Sørensen Fin. 3C: BioArctic NeuroScience

Workshop 9: N

Exercise and Activity Papers: N

Ambulation Papers: N

CME Accreditation

Workshop 10: N

Guttmann Lecture: N

Free Papers: N

Workshop 11: N

Workshop 12: N

Workshop 13: N

Upper Extremity Papers: Milos Popovich. 1/2/3B/4: MyndTec Inc; 3a: Ottobock - Kalsi-Ryan, Sukhvinder. 1/4: GRASSP - Kevin Kilgore. 4: Neuros Medical, Inc; 5: GlaxoSmithKline

RHI Lecture: N

Workshop 14: N

Clinical Trials and Clinical Practice Guidelines Papers: N

Workshop 15: Kalsi-Ryan, Sukhvinder. 7: GRASSP, Neural Outcomes Consulting Inc.

Workshop 16: N

Surgery/Imaging Papers: N

ISRT Lecture: N

Measurements Papers: Kristen Walden. 5: Rick Hansen Institut

Urological Papers: Lesley Marson. 3B/4: Dignify Therapeutics

Regeneration papers. Michael Fehlings. 1: Depuy Spine; 3b: Bioaxone; 5: AOSpine North America; 6: Depuy Spine - Fellowship Support - James Guest 3B: Bioaxone Life Sciences and In Vivo Therapeutics Edward Wirth; 4: Asterias Biotherapeutics

Participation/Outcomes Papers: N

Free Papers: N

ASIA Lecture: N

Workshop 17: N

Workshop 18: N

Workshop 19: N

Workshop 20: Ona Bloom. 3C: Chromocell

Workshop 21: N



Scientific Programme

07:00 - 08:00	ASIA Mentor/ Mentee Meeting	Jolliet
08:00 - 08:10	Opening Address with remarks from ISCoS and ASIA Presidents	Le Grand Salon
08:10 - 08:55	Sell Lecture The Future of Neural Prosthetics in SCI <u>Michael Boninger</u> , USA <i>Introduced by Michael Haak</i>	Le Grand Salon
09:00 - 10:30	Workshop 1 <i>Moderator: Suzanne Groah</i>	Le Grand Salon
09:00	Learning Objectives: 1) To introduce and provide a working clinical definition for sarcopenic obesity, osteoporosis, multimorbidity and endocrine-metabolic disease <u>B Catharine Craven</u> 2) To provide a succinct review of non-invasive methods for assessing endocrine-metabolic disease risk a. Population Specific Assessment of Clinical Fracture Risk in Adults with Spinal Cord Injury <u>Chelsea Pelletier</u> b. Associations between Abnormal Arterial Stiffness and Cardiometabolic Disease Risk in Chronic SCI <u>Masae Miyatani</u> c. The Role of 24 hour Heart Rate and Blood Pressure Monitoring in the Management of Dysautonomia <u>Maggie Szeto</u> d. Whole Body DXA for the Assessment of Visceral Adipose Tissue and Sarcopenic Obesity in Chronic SCI <u>Chelsea Pelletier</u> e. Muscle Density as a Measure of Skeletal Muscle Fat Content after SCI <u>Cameron Moore</u> 3) To discuss the application of these novel methods in routine clinical assessment of endocrine-metabolic risk using two case examples <u>B Catharine Craven</u> 4) Discussion	

09:00 - 10:30

Workshop 2

Jolliet

Moderator: Marcel Post

09:00

Using The Spinal Cord Injury Quality Of Life (SCI-QOL) Item Banks To Detect Change In Research And Clinical Practice

Introduction: David S. Tulsky, USA

Change in Physical Functioning: Criterion Validity and responsiveness to change for the Basic, Wheelchair Mobility, Ambulation, and Self Care/Fine Motor Item Banks

Pam Kisala, USA

Measuring Performance with the SCI-FI AT: The physical functioning item banks allow measurement of an individuals' "capacity" to perform activities without the use of adaptive equipment as well as new item banks to measure performance using their individual equipment and AT ("performance based")

Alan Jette, USA

Change in Medical Issues: Criterion Validity and responsiveness to change for the Bowel and Bladder Management Item Banks

Denise Tate, USA

Change in Social Functioning: Criterion Validity and responsiveness to change for the Social Participation Item Banks

Allen Heinemann, USA

Change in Emotional Functioning: Criterion Validity, Linking with criteria measures, and responsiveness to change for the Emotional Functioning Item Banks

David Tulsky, USA

Discussant: Susan Charlifue, USA

Discussion

09:00 - 10:30

Workshop 3

Duluth

Moderator: Mary Jo Elmo

09:00

Practical Solutions For Respiratory Care In Spinal Cord Injury

Introduction and review of current practice

Review of evidence-based guidelines

Review of non-invasive ventilation strategies

Demonstration of respiratory assessment and management techniques

Discussion of application across the continuum of care (with questions from audience)

Closing remarks

09:00 - 10:30

Award Papers

Mackenzie

Moderators: John Steeves, John Lavelle

09:00

Clinically Relevant Improvements In Diabetes Risk And Fitness Attributes Accompany Therapeutic Lifestyle Intervention In Chronic Spinal Cord Injury
Gregory Bigford, USA

09:15

Comparison Of Bacterial Strains Of Infected Pressure Ulcers In Spinal Cord-Injured Patients From Community And Health Care Associated Infection
Moh'd Rami Alahmar, Jordan

09:30

Sustained Efficacy And Safety Of Repeat OnabotulinumtoxinA Treatment In Spinal Cord Injury Patients With Neurogenic Detrusor Overactivity
Michael Kennelly, USA

09:45

Spinal Cord Toolbox: Automated Software For Processing Quantitative MRI Data Of The Spinal Cord
Benjamin De Leener, Canada

10:00 Lipofilling (fat grafting) In The Prevention Of Ischial Tuberosity Pressure Ulcers
Jean Gabriel Previnaire, France

10:15 Human Central Nervous System Stem Cell Intramedullary Transplantation In Thoracic Spinal Cord Injury: Findings Of The Phase I/II Study
Armin Curt, Switzerland

09:00 - 10:30 **Workshop 4** **Gatineau**
Moderator: Sukvinder Kalsi-Ryan

09:00 Upper Extremity Reconstruction Options In Spinal Cord Injury

Tendon transfers
Allan Peljovich, USA

Nerve transfers
Ida Fox, USA

Outcomes assessment
Christine Novak, Canada

Pediatric perspective
Kristen Davidge, Canada

Historical perspectives and challenging cases
Susan E. Mackinnon, USA and Michael Keith, USA

10:35 - 11:35 **Poster Viewing 1 with Refreshments** **Exhibition Hall**

11:40 - 13:10 **Community Living Papers** **Le Grand Salon**
Moderators: Erin Kelly, Paul Kennedy

11:40 Pain Medication Misuse Among Participants With Spinal Cord Injury
Lee Saunders, USA

11:55 Secondary Conditions And Complications From Spinal Cord Damage In A Sample Of People With Traumatic And Non-traumatic SCI Living In The Community
Peter New, Australia

- 12:10 Use Of Transformational Leadership Behaviours Among Spinal Cord Injury Peer Mentors
Robert Shaw, Canada
-
- 12:25 Neuropathic Pain Is Not Associated With Functional Reorganization In S1 After Spinal Cord Injury
Catherine R. Jutzeler, Switzerland
-
- 12:40 Successful Integration Of People Living With Spinal Cord Injury (SCI)
Niels Balle, Denmark
-
- 12:55 ADL Dependency In Persons With A Long-term Traumatic Spinal Cord Injury In The Netherlands
Rutger Osterthun, The Netherlands
-
- 11:40 - 13:10 **Workshop 5** Jolliet
Moderator: Gordana Savic
- 11:40 The Use Of Quality Of Life Measures in Spinal Cord Injury Clinical Trials
-
- The importance of quality of life outcomes in clinical trials
Denise G Tate, USA
-
- The Use of Common Data Elements (CDEs) and Measures
Susan Charlifue, USA
-
- Domain Specific Quality of Life Measures
Marcel Post, The Netherlands
-
- SCI-QOL and SCI-FI: potential applications in clinical trials
David Tulskey, USA , Alan Jette, USA
-
- Discussion: Questions and Answers
Kimberly D Anderson, USA
-
- Summary Comments
Allen Heinemann, USA
-

11:40 - 13:10

Workshop 6

Duluth

Moderator: Greg Nemunaitis

11:40

Balance Control And Falls After Spinal Cord Injury: Clinical And Laboratory Perspectives

Falls are caused by the complex interaction of many factors including one's physical and mental health, the nature of the activities performed and the conditions under which one engages in activity. After Spinal Cord Injury (SCI), the ability to control standing and dynamic balance is compromised and risk of falls is increased. Novel knowledge gained from clinical and laboratory studies allows better assessment and training of balance in individuals with SCI, which could reduce the risk of falls. After reviewing the statistics on falls after SCI, this workshop will present clinical and laboratory perspectives on the challenge of improving balance after SCI. Aspects covered will include the psychometric properties of balance assessment (e.g. Berg Balance Scale, Balance Master, BESTest) for individuals with incomplete SCI, and the relationship with walking evaluations as well as between various clinical assessments. Then, using electrophysiological techniques, the role of spinal and supraspinal structures, such as the vestibulospinal tract, and its correlation with clinical measures of impaired balance in persons with SCI will be presented. Based on biomechanical evaluations, results on balance in standing (multi-directional reaching) and various locomotor tasks will be presented to better understand balance at a behavioral level. Factors such as the sensorimotor impairments, the importance of vision and the difficulty in moving the center of pressure after incomplete SCI and during level or inclined-surface walking will reveal important findings such as the role of a lower gait velocity in maintaining balance. At the end of the session, attendees will be more familiar with postural control during functional tasks after incomplete "SCI"

11:40 - 13:10

Free Papers

Mackenzie

Moderators: Stacy Elliott, Andrei Krassioukov

11:40

Clinical Approach To Sexual Dysfunction In Women With Spinal Cord Injury
Frédérique Courtois, Canada

11:55

Development And Commercialization Of The Networked Neuroprosthesis: Is The Future The Implantable Intranet Over An Exoskeleton?
Hunter Peckham, USA

12:10 Pro(x)thèse - An Interactive Installation That Enables The Exploration Of Sexuality, Disability And Self Image
Geoffrey Edwards, Canada

12:25 Structural And Inflammatory Biomarkers In Cerebrospinal Fluid Predict Neurologic Outcome After Human Spinal Cord Injury
Brian Kwon, Canada

12:40 Rat Unilateral Cervical Spinal Cord Injury (ucSCI) Effects On Immature Myeloid Cell Populations And Splenic T-cell Function
Michael Beattie, USA

11:40 - 13:10 **Workshop 7** **Gatineau**
Moderator: Lawrence Vogel

11:40 **Pediatric Neuromuscular Recovery Scale: Content Development, Reliability And Application**

Background:

Acknowledgements

Review of current pediatric instruments and gaps

Rationale for measuring neurorecovery in children age 1-12 yrs

Challenges and needs in measuring neurorecovery in pediatrics

Development of Pediatric NRS: content validity

Mary Jane Mulcahey, USA

Introduction to the Pediatric NRS

Description of items and video demonstration (typically developing children)

Item scoring and derivation of Overall Phase Score

Inter-rater reliability testing

Andrea L. Behrman, USA

Practical application

Demonstration of the Peds NRS via video cases of children post-SCI

Audience participation in scoring video examples

Shelley A. Trimble, USA

13:15 - 14:15 **Lunch** **Exhibition Hall**

13:15 - 14:15

Wellspect sponsored Symposium

Non CME Event

Wellspect
HEALTHCARE

Jolliet

13:15-14:15

PT Meeting

Duluth

13:15-14:15

Nurses Meeting

Mackenzie

14:20 - 15:05

ISCos Lecture

The evolution of nerve transfers and their potential after spinal cord injury

Susan Mackinnon, Canada

Introduced by John Steeves

Le Grand Salon

15:10 - 16:10

Poster Viewing 1 with Refreshments

Exhibition Hall

16:15 - 17:45

Workshop 8

Moderator: Susan Charlifue

Le Grand Salon

16:15

The National Institute For Neurological Disorders And Stroke (NINDS) Common Data Elements (CDEs) For Spinal Cord Injury - Development And Future Use

Chair: Fin Biering-Sørensen

Introduction to the NINDS CDE project
Joanne Odenkirchen

Results and recommendations of the SCI Working Groups
Lyn Jakeman

Concepts, challenges, solutions and gaps:
Developing CDEs for SCI Research
Vanessa Noonan

Electrodiagnostics CDEs
Keith Tansey

Imaging SCI CDEs
Adam Flanders

Status of development of Pediatric SCI CDEs

Mary Jane Mulcahey and Lawrence Vogel

Collaborations and future work

Fin Biering-Sørensen

16:15 - 17:45

Workshop 9

Jolliet

Moderator: John Ditunno

16:15

Annual ASIA International Standards And Education Committee Updates

ISNCSCI Changes (Not Determinable (ND) designation, proposed C4/C5 and T12/L1 classification algorithm)

Steve Kirshblum, USA

ISNCSCI Areas being reviewed/discussed

(Non SCI sensory/motor loss documentation, more detailed directions for anorectal examination)

William Waring, USA

Upcoming ISNCSCI topics - (Tetraplegia/Paraplegia definition, creating a screening ISNCSCI)

Steve Kirshblum, William Waring and Audience, USA

Overview of ASIA Learning Center

Mary Schmidt Read and Ron Reeves, USA

Upcoming changes for the International Spinal Cord Injury Standards Training eLearning Programs

Linda Jones and Mary Schmidt Read, USA

Proposed new ASIA Learning Center Programs (Pressure Ulcers)

Mary Schmidt Read, USA

Suggestions for new Learning Center Programs

(SCI Pain and Wheelchairs)

Panel and Audience, USA

16:15 - 17:45

Exercise and Activity Papers

Duluth

Moderators: Claes Hultling, Amiram Catz

16:15

A Behavior Intervention Focusing On An Active Lifestyle Is Effective In Persons With Recent SCI: A Randomized Controlled Trial
Carla F.J. Nooijen, The Netherlands

16:30

Energy Consumption In Non-exercise Physical Activity After Spinal Cord Injury
Tobias Holmlund, Swedenolm, Sweden

16:45

Substrate Utilization During And After Exercise In Persons With Chronic Paraplegia
Mark Nash, USA

17:00

Maximal Ventilation Limits Increased Aerobic Capacity With Hybrid Functional Electrical Stimulation Exercise Training In High Spinal Cord Injury
Saeed Alzahr, USA

17:15

Comparison Between H- And Posterior Root Motor Reflexes In The Triceps Surae During Stepping After Incomplete Spinal Cord Injury
Brad Farrell, USA

17:30

Assessing Different Methods Of Determining Anaerobic Threshold In Individuals With Motor-Complete Spinal Cord Injury
Jason Au, Canada

16:15 - 17:45

Ambulation Papers

Mackenzie

Moderators: Isa McClure, Giorgio Scivoletto

16:15

Watch Your Step - From Instrumented Gait Analysis To Real-time Feedback Therapy
Rüdiger Rupp, Germany

16:30

Does Transparent 3-dimensional Body Weight Support Change Gait Kinematics In A Healthy Young Cohort?
Christopher Schmidt Easthope, Switzerland

16:45

Distances Covered At 2, 4 And 6 Minutes During The 6-min Walk Test In Individuals With Spinal Cord Injury
Audrey Roy, Canada

17:00 Clinical Assessments To Accurately Quantify Walking Function
In Spinal Cord Injury
Marc Bolliger, Switzerland

17:15 Identifying Training Strategies For Progressing Exoskeleton
Users Towards Everyday Functional Ambulation
Kathleen Scanlan, USA

17:30 Lower-limb Exoskeletons For Individuals With Chronic Spinal
Cord Injury: Findings From A Feasibility Study
Ian Benson, UK

16:15 - 17:45 **Workshop 10** **Gatineau**
Moderator: William Donovan

16:15 The Transition From Pediatric To Adult Care:
Key Elements And Challenges

Introduction/ overview of transition in pediatric SCI,
including stages of development
Kathy Zebracki, USA

Self-management and decision-making, including how
responsibilities and family members' roles change over time
Heather Taylor, USA

Participation and quality of life
Erin Kelly, USA

Parent/ caregiver outcomes
Heather Russell, USA

Adult outcomes of pediatric SCI
Marika Augutis, Sweden

Case presentations and discussion

18:00 - 20:30 **Opening Ceremony** **Le Grand Salon**
and Welcome Cocktail **and Exhibition Area**

07:00 - 07:55

Coloplast Breakfast sponsored Symposium

Non CME Event

Jolliet



Coloplast

08:00 - 08:45

Guttmann Lecture

Le Grand Salon

Axonal regeneration In the adult mammalian CNS

- A retrospective

Albert J. Aguayo

Introduced by Jean Jacques Wyndaele

08:50 - 10:20

Free Papers

Le Grand Salon

Moderators: Martin McClelland, Michael Haak

08:50

Diagnostic And Therapeutic Regimen And In-hospital Outcomes Following Single-dose Radiation Therapy In The Treatment Of HO Following Acute SCI

Citak Mustafa, Germany

09:05

Does The Acute Neutrophil Lymphocyte Ratio Predict Severity Of Spinal Cord Injury (SCI)?

Jillian Clark, Australia

09:20

"Challenges In The Application Of The Non-Traumatic SCI Basic Dataset To A Large Single Institution Population"

Marianne Luetmer, USA

09:35

A Clinically Relevant Rodent Contusion Model To Investigate Cardiovascular Dysfunction Following Spinal Cord Injury

Jordan W. Squair, Canada

09:50

Cerebral Blood Flow Velocities And Memory In Hypotensive Individuals With Spinal Cord Injury

Jill Wecht, USA

10:05

Non-invasive In Vivo Histology Of The Human Spinal Cord Using Diffusion And Myelin Mapping With MRI

Tanguy Duval, Canada

08:50 - 10:20

Workshop 11

Jolliet

Moderator: Dan Lammertse

**“How Can Concepts Developed In Animal Models
Be Translated To Those Living With Spinal Cord Injury?”**

Workshop introduction
Aurélie Stil, Canada

Studies of SCI in zebrafish: repair mechanisms
Aurélie Stil, Canada

Studies of SCI in rats: activating propriospinal relays
within the spinal cord for recovery of locomotor function
Kristine Cowley, Canada

Studies of SCI in cats: recovery of locomotor function
Serge Rossignol, Canada

08:50 - 10:20

Workshop 12

Duluth

Moderator: Pradeep Thumbikat

08:50

**Pain Interference On Motor Recovery, Participation
And Quality Of Life Following Spinal Cord Injury**

Pain, Participation and Quality of Life:
Perspectives from the Canadian SCI Community Survey
Luc Noreau, Canada

A longitudinal study of pain and pain modulation in patients with
spinal cord injury during intensive rehabilitation
Catherine Mercier, Canada

Impact of pain and nociception on locomotor learning
- evidence from animal and human models
Laurent Bouyer, Canada

Virtual reality pain and motor recovery after SCI:
can we kill two birds with one stone?
Meyke Roosink, Canada

08:50 - 10:20

Workshop 13

Moderator: Sergio Aito

Mackenzie

08:50

Primary Prevention Of Spinal Cord Injury: Prevention Is Cure:
Global Challenges - Local Solutions

Prevention Intro

ASIA: Sara J Klaas - ISCoS: Kamil Yazicioglu

Cost of Managing SCI and Burden on Individual vs Society in USA

ASIA: Yuying Chen

Cost of Managing SCI and Burden on Individual vs Society in other
Developed countries

ISCoS: Douglas Brown

Cost of Managing SCI and Burden on Individual vs Society in Less and
Least Developed Countries

ASIA/ISCoS: Herndon Murray

Demonstration of Successful Prevention Programs

ASIA: Geoff Fernie - ISCoS: Bonne Lee

Successful Prevention Programs:

Cost Benefit Analysis in USA and other developed countries

ASIA: Geoff Fernie - ISCoS: Shinsuke Katoh

Challenges in Evaluating Cost-benefit Analysis of Prevention
Programs in Less Developed and Least Developed Countries

ISCoS: Sergio Aito

Panel Discussion: Economics of SCI

Panelists: Jean Jacques Wyndaele et al

Moderators: Harvinder Chhabra & Sara J Klaas

08:50 - 10:20

Upper Extremity Papers

Moderators: Mary Jane Mulcahey, Diana Sigrid-Nix

Gatineau

08:50

Impact Of Botulinumtoxin A On The Function Of The Upper Limb:
An Outcome Analysis

Ines Bersch, Switzerland

09:05	Investigation Of Relationships Between Components Of The Graded Redefined Assessment Of Strength, Sensibility And Prehension Using Machine Learning <u>Jose Zariffa</u> , Canada	
09:20	Neurological Recovery Of The Upper Limb After Traumatic Cervical Spinal Cord Injury (SCI): Novel Findings To Inform Benchmarks For Clinical Trials <u>Sukhvinder Kalsi-Ryan</u> , Canada	
09:35	Outcomes In The Supinator Nerve To Posterior Interosseous Nerve Transfer For The Restoration Of Finger And Thumb Extension In Tetraplegia <u>Natasha van Zyl</u> , Australia	
09:50	A Fully-implanted Neuroprosthesis For Controlling Arm And Trunk In Cervical SCI <u>Kevin Kilgore</u> , USA	
10:05	Functional Electrical Stimulation Therapy For Improving Voluntary Upper Limb Function In Individuals With Chronic Incomplete SCI <u>Milos Popovic</u> , Canada	
10:25 - 11:35	Poster Viewing 2 with Refreshments	Exhibition Hall
11:40 - 12:25	Rick Hansen Institute Lecture Understanding motor function after spinal cord injury: involvement of a defined spinal microcircuit <u>Robert Brownstone</u> <i>Introduced by Rick Hansen</i>	Le Grand Salon
12:30 - 13:30	Lunch	Exhibition Hall
12:30 - 13:30	Medtronic sponsored Symposium Non CME Event  Medtronic	Jolliet
12:30 - 13:30	International SCI Data Sets Meeting By Invitation Only	Mackenzie

13:35 - 15:05

Workshop 14

Le Grand Salon

Moderator: Fin Biering-Sorensen

13:35

'Til Death Do Us Part': Parallel Declines In Cerebral And Cardiac Function Due To Autonomic Dysfunction After Spinal Cord Injury

Understanding the known and unknown regarding the role of AD in cardiovascular end-organ adaptation
A. Krassioukov, Canada

A comprehensive assessment of brain function stemming from rodent experiments using colorectal distension as a model of AD
A. Phillips, Canada

A characterization of cardiac adaptations resulting from exposure to colorectal distension in rodents
C. West, Canada

The results of a human observational study evaluating the relationship between AD severity and an array of cognitive functions in those with SCI
A Zheng, Canada

Results of a knowledge translation initiative to enhance knowledge and use of autonomic dysreflexia clinical practice guidelines among Canadian paramedics
K. Martin Ginis, Canada

Interactive discussion

13:35 - 15:05

Clinical Trials and Clinical Practice Guideline Papers **Jolliet**

Moderators: B. Catherine Craven, Serge Rossignol

13:35

Auricular Acupuncture For Spinal Cord Injury Related Neuropathic Pain: A Pilot Controlled Clinical Trial
Peter Gorman, USA

13:50

How Well Do Randomised Controlled Trials Of Physical Interventions For People With Spinal Cord Injury Adhere To The CONSORT Guidelines?
Lisa Harvey, Australia

14:05	Intrathecal Administration Of Recombinant Human Hepatocyte Growth Factor For Acute Spinal Cord Injury: Road From Bench To Clinical Trial <u>Kazuya Kitamura</u> , Japan	
14:20	Relationship Between Clinical Practice Guidelines For Wheelchair Transfers And Biceps Tendon Health In People With Spinal Cord Injury <u>Nathan Hogaboom</u> , USA	
14:35	The Inter-rater Reliability Of The ISNCSCI Anorectal Examination <u>William Waring</u> , USA	
14:50	Feasibility And Acceptability Of Incorporating Indirect Calorimetry Into Standard Care Of Spinal Cord Injuries <u>Amy Nevin</u> , Australia	
13:35 - 15:05	Workshop 15 <i>Moderator:</i> Shinsuke Katoh	Duluth
13:35	Emerging Concepts In The Pathology And Clinical Management Of Degenerative Conditions Of The Spine Causing Spinal Cord Dysfunction	
	Introduction - The shift in SCI, from traumatic to non-traumatic <u>M.G. Fehlings</u> , Canada	
	Emerging Concepts in the pathobiology of Degenerative Spinal Cord Dysfunction <u>M.G. Fehlings</u> , Canada	
	Epidemiology and clinical presentation and non-traumatic classification of NTSCI (Incidence and Prevalance) <u>P. New</u> , Australia	
	Clinical Implications, Outcomes and Rehabilitation Pathways <u>G. Scivoletto</u> , USA	
	Understanding disease severity through Novel surrogate measurement approaches in NTSCI <u>S. Kalsi-Ryan</u> , Canada	
	Advanced Techniques in Imaging specific to degenerative myelopathy <u>J. Cohen-Adad</u> , Canada	

Panel Discussion regarding the clinical relevance and impact of NTSCI on the field of SCI, how it can be managed and what we need to learn
All Speakers

13:35 - 15:05

Workshop 16

Mackenzie

Moderator: Lance Goetz

13:35

Engaging Spinal Cord Injury (SCI) Consumers Across The Research And Clinical Care Spectrum

Best Practices in Consumer Engagement: Engaging Consumers in Improving Care

Peter Athanasopoulos, Canada

Consumer Engagement in Research Funding and Healthcare Education

Tara Jeji, Canada

Consumer Engagement in Research Design Consultation

John Bourke, Australia

Consumer Engagement in Dissemination

Joe Gaskins, USA

13:35 - 15:05

Surgery/Imaging Papers

Gatineau

Moderator: Naveen Kumar

13:35

Expansion Duroplasty Improves Intraspinal Pressure And Spinal Cord Perfusion Pressure In Patients With Traumatic Spinal Cord Injury

Marios Papadopoulos, UK

13:50

Surgical Management For Penetrating Spinal Gunshot Injuries: Is It Over-utilized?

Kenneth Nwosu, USA

14:05

Throw In The Tape, Skip The Skinfolds And Doubt The DEXA. Assessing Measures Of Muscle Atrophy Using MRI As Criterion.

Maya Panisset, Australia

14:20

Bone Mineral Density Assessed By QCT, But Not DXA, Discriminates SCI Patients With Prevalent Fragility Fractures

W. Brent Edwards, Canada

14:35	Assessment Of Myelin In Spinal Cord: Histological Validation Of A New Magnetic Resonance Imaging Technique <u>Cornelia Laule</u> , Canada	
14:50	CT Based Occipital Condyle Morphometry In Indian Population To Assess Feasibility Of Condylar Screws For Occipito-cervical Fusion <u>Sahil Batra</u> , India	
15:10 - 16:15	Poster Viewing 2 with Refreshments	Exhibition Hall
16:20 - 18:00	ISCoS AGM	Gatineau

07:00 - 08:00 **ASIA Membership Meeting & Breakfast** Jolliet

08:00 - 08:10 **RHI Breakfast** Duluth
Non CME Event



Rick Hansen Institute
Institut Rick Hansen

08:05 - 08:50 **ISRT lecture** Le Grand Salon
Visualizing Spinal Cord Damage with MRI
Julien Cohen-Adad, Claudia Gandini Wheeler-Kingshott
Introduced by Serge Rossignol

08:55 - 10:25 **Measurement Papers** Le Grand Salon
Moderators: Peter New, Armin Curt

08:55 Pressure Ulcer Risk During Inpatient Spinal Cord Injury Rehabilitation:
Using Rasch To Determine The Measurement Properties Of The
SCIPUS
Marie-Therese Laramee, Canada

09:10 Predicting Pressure Ulcer Risk During Inpatient SCI Rehabilitation:
Comparison Of The FIM Motor Scale, SCIPUS And Braden Risk
Assessment Tools
Heather Flett, Canada

09:25 Development Of A Computerized Algorithm For International
Standards For Neurological Classification Of Spinal Cord Injury
(ISNCSCI)
William Waring, USA

09:55 Prognostic Validity Of The Trunk Control Test For Individuals With
Spinal Cord Injury
Kievka Almaguer-Benavides, México

09:55 Development Of The Manual Wheelchair Performance Measure
(MWPM)
Jennifer Dunn, New Zealand

08:55 - 10:25

Urological Papers

Jolliet

Moderator: Jean Jacques Wyndaele

08:55

Actinobaculum In The Urine Of People With Spinal Cord Injury: A Lion In Sheep Agar?
Suzanne Groah, USA

09:10

Independent Bladder And Bowel Care For Individuals With Tetraplegia Using Innovative Adaptive Devices
Casper Van Koppenhagen, The Netherlands

09:25

Bladder Behaviour During Pregnancy In Spinal Cord Injured Women: A Multicentric Survey
Elena Andretta, Italy

09:40

Urinary Tract Microbes And The Catheterised Patient: A Longitudinal Study Using Next Generation Sequencing
Laetitia Bossa, Australia

09:55

DTI-100 Increases Voiding Efficiency After Acute Spinal Cord Injury (SCI) In A Preclinical Rat Model Of Urinary Retention
Lesley Marson, USA

10:10

Autonomic Dysreflexia And Repeatability Of Cardiovascular Changes During Same Session Repeat Urodynamic Investigation In Women With Suprasacral SCI
Matthias Walter, Switzerland

08:55 - 10:25

Regeneration Papers

Duluth

Moderator: Brian Kwon

08:55

Functional Outcome Is Dependent On The Quality Of Volitional Motor Control In The Sub-acute Stage Of Recovery Following Spinal Cord Injury
W Barry Mckay, USA

09:10

C1/2 Intrathecal Delivery Of Mesenchymal Stem Cells For High Cervical SCI
James Guest, USA

09:25

Phase 1 Clinical Assessment Of Human Embryonic Stem Cell-Derived Oligodendrocyte Progenitor Cells (AST-OPC1) In Patients With Subacute Thoracic SCI
Edward Wirth, USA

- 09:40 Study Of Safety And Efficacy MED Therapy For Chronic And Complete SCI Patients
Gustavo Antonio Moviglia, Argentina
-
- 09:55 Efficacy & Safety Of Riluzole In Acute Spinal Cord Injury (SCI). Rationale & Design Of AOSpine Phase III Multicenter Double Blinded Randomized Trial
Michael Fehlings, Canada
-
- 10:10 Neural Stem Cells Promote Multimodal Recovery In A Severe Bilateral Model Of Cervical Spinal Cord Injury Through Myelination And Not Direct Synaptic
Jared Wilcox, Canada

08:55 - 10:25 Participation / Outcomes Papers

Mackenzie

Moderator: Julia Greve

- 08:55 Examining The Effects Of Passive Standing And Intermittent Whole Body Vibration On Serum Sclerostin Levels After Chronic Spinal Cord Injury
B. Catharine Craven, Canada
-
- 09:10 Participation Trajectories Of Youth With And Without SCI, Aged 4 To 21
Mary Jane Mulcahey, USA
-
- 09:25 Virtual Reality Game-Based Technology To Improve Sitting Balance In Paraplegics
Shefali Walia, India
-
- 09:40 Exercise Participation Levels In People With Paralysis Due To Spinal Cord Dysfunction
Abdullah Alghamdi, Canada

08:55 - 10:25 Free Papers

Gatineau

Moderator: Ali Jamous

- 08:55 A Review Of Vascular Spinal Cord Injury Functional Outcomes 1995-2010
Scott Schubert, USA
-
- 09:10 Progressive Cervical Spinal Cord Compression Injury (CSM) Maintains Adequate Ventilation Via Compensatory Modifications Of The Spinal Respiratory in Circuitry
Kajana Satkunendrarajah, Canada
-

09:25	Spinal Cord Injury Propagates The Susceptibility For Bacterial Infection In A Lesion Height Dependent Manner -- Evidence For An 'Immune Paralysis' <u>Jan Schwab, USA</u>	
10:30 - 11:30	Poster Viewing 3 with Refreshments	Exhibition Hall
11:35 - 12:20	ASIA Lecture Neuroscience at the nexus of the lab and clinic: Using stimulation and practice to drive adaptive neural plasticity <u>Edelle Field-Fote</u> <i>Introduced by Susan Charlifue</i>	Le Grand Salon
12:25 - 13:25	Lunch and Poster Viewing 3	Exhibition Hall
13:30 - 15:00	Workshop 17 <i>Moderator: Anthony DiMarco</i>	Le Grand Salon
13:30	Quantitative MRI Techniques And Their Applications To Spinal Cord Injury Diffusion, Spectroscopy, MTR, Functional MRI <u>Claudia Wheeler-Kingshott</u> Acquisition and image processing methods <u>Julien Cohen-Adad</u> Application to MS <u>Charles Guttman</u> Application to SCI <u>Michael Fehlings</u>	
13:30 - 15:00	Workshop 18 <i>Moderator: Mike Boninger</i>	Jolliet
13:30	Developing Novel Task-specific Approaches To Optimize Mobility After Spinal Cord Injury Resistive robotic gait training to improve ankle dorsiflexion during walking <u>L. Bouyer, Canada</u>	

Multi-muscle vibration to provide augmented feedback during walking
C. Duclos, Canada

Haptics and wheeling
D. Gagnon/R. Aissaoui, Canada

Use of multichannel FES therapy for improving voluntary walking function
M.R. Popovic, Canada

13:30 - 15:00

Workshop 19

Duluth

Moderator: Denise Tate

13:30

Symposium On Incontinence And Sexuality

Sexuality following SCI: a Multidisciplinary Framework of Sexual Health
Stacy Elliott, Canada

Bladder function: Neurophysiology and Neurogenic Bladders
Mark Nigro, Canada

Bowel function: from Practical Neurophysiology to Subtypes of Neurogenic Bowel Dysfunction
Anton Emmanuel, Canada

Incontinence and sexuality: precipitating factors, patients' concerns, treatment approaches, and prevention strategies
Frédérique Courtois, Canada

13:30 - 15:00

Workshop 20

Mackenzie

13:30

Immune Responses To Traumatic Spinal Cord Injury: Data From Preclinical And Clinical Studies

Spinal Cord Injury-induced Immunodepression Syndrome (SCI-IDS) - Experimental

Evidence & Clinical Relevance
Jan Schwab, USA

SCI-induced deficits in anti-viral immunity

John Bethea, USA

Inflammatory Biomarkers and the Prediction of Injury Severity and Outcome

Brian Kwon, Canada

Immune Dysregulation in Acute and Chronic Spinal Cord Injury

Ona Bloom, USA

13:30 - 15:00

Workshop 21

Gatineau

Moderator: Michael DeVivo

13:30

Epidemiology, Outcomes And Practical Principles In The Rehabilitation Of People With Spinal Cord Damage Due To Tumor

Epidemiology, clinical features and outcomes for patients with spinal cord damage due to tumor

Giorgio Scivoletto, Italy

Practical considerations for spinal rehabilitation units when managing people with spinal cord damage due to tumor

Peter New, Australia

Complications of spinal cord tumors and tumor treatments, and their management

Michael Stubblefield, USA

Panel Discussion
involving all speakers



Keynote Speakers

Keynote Speakers

The Sir Ludwig Guttmann Lecture

Axonal Regeneration In The Adult Mammalian Cns - A Retrospective

The Sir Ludwig Guttmann Lecture was established by the International Medical Society of Paraplegia, now the International Spinal Cord Society, to recognize the pioneering work and lifelong contribution of Sir Ludwig Guttmann, the originator of modern multidisciplinary spinal cord care.

Albert J. Aguayo



Albert J. Aguayo received his M.D. in 1959 from the University of Cordoba, Argentina and trained in clinical neurology and research at the University of Toronto, McGill University and the United Kingdom. Aguayo's main scientific interest is the study of the mammalian central nervous system's capacity for regeneration and repair. He is Emeritus Professor and the former Director of the Centre for Research in Neuroscience at McGill University. He has authored more than 150 scientific publications and has received 4 honorary degrees from Sweden, Argentina and Canada. His awards include the Gairdner International Prize, the

Wakeman (USA), Helmerich (USA), Ameritex (USA), Ipsen (France), Leo Parizeau (Canada), Cotzias (USA), Wilder-Penfield (Prix du Québec), the Alcon Research Institute Award for Vision Research (USA), the Killam Prize (Canada), the Christopher Reeve Medal (USA), The Queen Elizabeth (ER) Golden Jubilee Medal (Canada), the J.E. Purkinje Honorary Medal for Merit from the Academy of Science of the Czech Republic, and the Canadian Medical Association's F.N.G. Starr Achievement Award. He is also an Honorary Member of the Board of Director of Neuroscience Canada and the Rick Hansen Foundation. He is a Fellow of the Royal Society of Canada, the Institute of Medicine of the National Academy of Sciences (USA), and an Officer of the Order of Canada. In 2007, the FRSQ/INMHA created the "Albert J. Aguayo International Fellowship in Neurosciences" to support the training in Quebec of students from developing countries. In 2010, McGill University inaugurated the "Albert J. Aguayo Annual Lecture in Neuroscience". In 2010 he was awarded the McGill Medal for Exceptional Academic Achievement, was elected to the Canadian Medical Hall of Fame and named also "One of the Ten Most Influential Hispanic-Canadians". His past administrative responsibilities include the Presidency of the Society for Neuroscience (USA), the Canadian Neurological Society and the Canadian Association of Neuroscientists. He has also served as Scientific Director of the Canadian Network of Centres of Excellence in Neuroscience, Chairman of the Council of Scientists of the Human Frontier Science Program (Strasbourg), and been a member of a number of scientific advisory and review boards, including the Medical Research Council of Canada, the Howard Hughes Medical Institute (USA), the American Paraplegic Association, the Rick Hansen Legacy Fund (Canada), the Grass Foundation (USA), the Max-Planck Institute at Martinsried, Germany (Chair), the Friedrich Miescher Institute in Basel, Switzerland (Chair), the Riken Institute's Frontier Research Program (Japan), the

Institutos Científicos Milenio (Chile), the Ipsen Foundation (France), the Leloir Institute for Medical Research in Argentina (Chair), the American Neurosurgical Association Research & Education Foundation (USA), the Winn Prize Committee (USA), the Montreal Neurological Institute's Scientific Advisory Committee, the Canada Council for the Arts and was also a Director of the Neuroscience Canada Foundation. Dr. Aguayo served as Secretary General of the International Brain Research Organization (IBRO) from 2000 to 2005 and was President of this organization from 2005 to 2007. Currently, he serves on advisory boards of the Christopher and Donna Reeve Paralysis Foundation (USA), the IBRO committee for the Rita Levi-Montalcini Fellowships for African Young Women Neuroscientists, the Pew Charitable Trusts (USA), the External Advisory Board of the Methodist Hospital Research Institute in Houston (SA), and the Executive Committee of the Dana Alliance for Brain Initiatives (USA). He is also the Director of the Canada-IBRO International School of Neuroscience and a member of the "Brain@McGill International Collaboration Program".

Sell Lectureship

The future of neural prosthetics in SCI

The G. Heiner Sell Lectureship was inaugurated in 1982, following the untimely death of Dr. Sell the previous year. At that time, Dr. Sell was President-Elect of ASIA, and the association wanted to memorialize him by presenting this named lecture as the keynote of its annual scientific meeting.

Michael L. Boninger



Dr. Michael Boninger is a Professor and UPMC Endowed Chair in the Department of Physical Medicine & Rehabilitation at the University of Pittsburgh, School of Medicine and Director of the UPMC Rehabilitation Institute. He is a physician researcher for the United States Department of Veterans Affairs (VA). Dr. Boninger has an extensive publication record of over 200 papers in the areas of spinal cord injury and technology. The technologies Dr. Boninger has investigated vary from brain computer interfaces to wheelchairs. His central focus is on enabling increased function and participation for individuals with disabilities through development and application of assistive, rehabilitative and regenerative technologies. Dr. Boninger also has extensive experience and publications related to training researchers. His students have won over 50 national awards. Dr. Boninger holds 4 United States patents and has received numerous honors, including being inducted into the Institute of Medicine of the National Academy of Science in 2013.

Rick Hansen Institute Lecture

Understanding motor function after spinal cord injury: Involvement of a defined spinal microcircuit

Robert Brownstone



Dr. Rob Brownstone (, MD, PhD, FRCSC, FCAHS) holds the Canada Research Chair (Tier 1) in Spinal Cord Circuits, is a Professor of Surgery (Neurosurgery) and Medical Neuroscience at Dalhousie University, and is a Fellow of the Canadian Academy of Health Sciences. Rob Brownstone completed most of his training at the University of Manitoba, beginning with a B.Sc. in computer science, followed by MD and PhD degrees. He then pursued post-doctoral training in neurophysiology in Copenhagen, Denmark, before returning to the University of Manitoba for residency training in neurosurgery. He accepted a faculty position there,

where he practiced for five years as a neurosurgeon-scientist before re-locating to Dalhousie University in 2000. As a functional neurosurgeon, he focuses on quality of life neurosurgery, treating patients with Parkinson's disease and other movement disorders, intractable pain syndromes, and epilepsy. Work in his laboratory focuses on neural circuits controlling movement. Specifically, he studies how the brain activates spinal cord neuronal circuits to produce movement, how these spinal cord circuits are configured to produce appropriate motor coordination, and how circuits between the spinal cord and muscles ensure appropriate limb movement. His research is currently supported by three grants from the Canadian Institutes of Health Research, as well as grants from the Canadian Foundation for Innovation and Nova Scotia Research and Innovation Trust. He is frequently an invited speaker to international meetings, and sits on a variety of national and international neuroscience research committees and boards.

ISRT Lecture

Visualizing spinal Cord Damage with MRI

Julien Cohen-Adad



Dr. Cohen-Adad completed his PhD in 2008 at the University of Montreal and pursued with a 3-year postdoctoral fellowship at the MGH Martinos Center at Harvard University. He is now assistant professor at Polytechnique Montreal, director of the Neuroimaging Research Laboratory at Polytechnique (NeuroPoly) and associate director of the Neuroimaging Functional Unit at University of Montreal. Dr. Cohen-Adad has a background in MR physics and software development. His research focuses on the development of multi-parametric MRI techniques for quantifying microstructure in the brain and spinal cord. These developments include MRI coils, acquisition at ultra-high field (7 tesla), quantitative techniques (diffusion imaging, magnetization transfer, functional MRI) and image processing software (multimodal registration, segmentation, motion correction). His lab has created the first comprehensive image processing software dedicated to the spinal cord (<http://sourceforge.net/projects/spinalcordtoolbox/>, 1000+ downloads). In collaboration with several international hospitals, he has been translating these advanced MRI techniques for studying patients with spinal cord injury and multiple sclerosis. He has published over 55 articles, edited the first book on quantitative MRI of the spinal cord (Elsevier) and has organized several workshops at international conferences (OHBM, ISMRM).

Claudia Gandini Wheeler-Kingshott



Claudia Gandini Wheeler-Kingshott is Reader of MR Physics at UCL Institute of Neurology (UCL IoN, UK), Deputy of the Division of Neuroradiology and Neurophysics at the UCL IoN (UK), Chair of the technical scientific committee of the RM3T Research Centre at the Mondino Institute (Italy), Past-Chair of the ISMRM Diffusion Study Group. Claudia Graduated in Solid State Physics at the University of Pavia in 1994. She moved to the UK where she achieved her PhD in MR Physics at the University of Surrey (UK) and at the beginning of 1999 she joined the NMR Research Unit (UCL IoN) to develop quantitative MR techniques for investigating Multiple Sclerosis. Here, she soon developed the ZOOM technique for diffusion imaging of the spinal cord, now recognised as a key step change in spinal cord imaging. Claudia is now leading the NMR Research Unit MR Physics group and has established national and international collaborations always with the aim of promoting the development of quantitative imaging biomarkers of the brain and spinal cord (and optic nerve) and promoting their translation to the clinics. Claudia's group works on several aspects of imaging, including microstructural techniques, functional MRI, spectroscopy and sodium imaging. She has published over 100 peer reviewed papers, has co-edited the first book on Quantitative MRI of the Spinal Cord (Elsevier) with Julien Cohen-Adad (Montreal, Canada) and sits on a number of national and international committees.

ASIA lecture

Neuroscience at the Nexus of the Lab and Clinic:

Using Stimulation and Practice to Drive Adaptive Neural Plasticity

Edelle Field-Fote



Edelle [Edee] Field-Fote, PT, PhD, FAPTA is the Director of Spinal Cord Injury Research and the Hulse Laboratory at the Shepherd Center. She also holds the title of Voluntary Professor in the Departments of Neurological Surgery and Physical Therapy at the University of Miami Miller School of Medicine. She obtained her BS in Physical Therapy and her MS in Epidemiology & Industrial Engineering from the University of Miami. She received her PhD in Movement Science from Washington University in St. Louis, where her doctoral studies investigated spinal cord control of movement in an animal model of spinal cord injury. She completed post-doctoral training at The Miami Project to Cure Paralysis and then directed the Neuromotor Rehabilitation Research Laboratory at University of Miami from 2000 - 2014. The efforts of her laboratory are directed at investigating the role of rehabilitation in fostering activity-driven neuroplasticity and developing advanced rehabilitation strategies to improve function in people with spinal cord injury. She uses combined interventions to promote adaptive neural reorganization. Dr. Field-Fote is a Catherine Worthingham Fellow of the American Physical Therapy Association, and a Trustee of the Foundation for Physical Therapy. Her work has been funded by National Institutes of Health (NIH) since 1997, and she has served as chair of the NIH Musculoskeletal and Rehabilitation Sciences Study Section. She is the editor/author of the textbook *Spinal Cord Injury Rehabilitation* (FA Davis Publishers, 2009), and her studies have been published in an array of peer-reviewed journals.

ISCoS Lecture

The evolution of nerve transfers and their potential after spinal cord injury

Susan Mackinnon



Dr. Mackinnon (, M.D., F.R.C.S.(C.), F.A.C.S) graduated with a M.D. degree at Queen's University in Kingston, Ontario. She trained in general surgery at the same institution and completed her plastic surgery training at the University of Toronto. She then completed additional training in peripheral nerve research at the University of Toronto and a fellowship in hand surgery at the Raymond Curtis Hand Center in Baltimore. Dr. Mackinnon joined the surgical staff at the University of Toronto in 1982. In 1988 she was awarded the Medal Prize in Surgery from the Royal College of Physicians and Surgeons for her work on nerve regeneration.

In 1991 Dr. Mackinnon joined the Department of Surgery at the Washington University School of Medicine. Her research work in St. Louis has been funded through the National Institute of Health since 1993 and has investigated nerve allotransplantation and nerve regeneration. This work has resulted in new strategies to reconstruct nerve injuries. She has been Chief of Plastic Surgery since 1996. She has published a classic textbook on Neurosurgery, 454 peer reviewed publications and 154 Book Chapters. Dr. Mackinnon is Past President of the American Society for Peripheral Nerve, American Association of Hand Surgery, American Association of Plastic Surgery, and Plastic Surgery Research Council and is a member of the Institute of Medicine. She is the recipient of the Jacobson Innovation Award from the American College of Surgeons for 2013 for her pioneering work on nerve transfers. <http://ottawacitizen.com/news/local-news/the-rewiring-of-tim-raglin>



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The Craig H. Neilsen Foundation's mission is to improve the quality of life for those living with spinal cord injury and to support scientific exploration for effective therapies and treatments leading to a cure.



Please visit our website at chnfoundation.org
for more information