



ISCOS

The International Spinal Cord Society celebrates its 50th anniversary in 2011

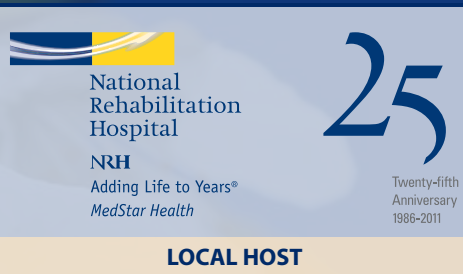


# 2011 INTERNATIONAL CONFERENCE

## Spinal Cord Medicine and Rehabilitation

June 4 - 8, 2011

GRAND HYATT WASHINGTON HOTEL  
WASHINGTON, D.C., USA



**Featuring: The State of the Science in SCI Rehabilitation: Informing a New Research Agenda**

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ISCOS



The International Spinal  
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Publisher of  
*Topics in Spinal Cord Injury Rehabilitation*,  
an official journal of ASIA.

*The* Board of Directors, Executive Staff, Committee Chairs, and the entire membership of the American Spinal Injury Association salute our valued partner, the International Spinal Cord Society, on the memorable occasion of the 50th Anniversary of its founding.



*We* are thrilled that this important historical milestone will be celebrated at our 2011 combined scientific meetings, and we anticipate many future years of achievements as partners in the field of spinal cord medicine and rehabilitation.



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### ***Congratulations to the Program Planning Committee for a job well done!***

#### **ISCoS Scientific Committee**

Dr. Susan Charlifue  
 Dr. Sergio Aito  
 Prof. Fin Biering-Sorensen  
 A/Prof. Douglas J. Brown  
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 Cheryl Vines, M.S.

# Important Meeting Information

Admission to all sessions of the meeting will require the registrant or guest to wear a **name badge**. This badge is available with other materials for the meeting at the Registration Desk. No admission will be permitted without this badge.

1. Grand Hyatt Washington is a **smoke free hotel**. Please do not smoke anywhere in the hotel.
2. **CME Credits:** Category I AMA credits will be awarded to all US physician participants. All certificates will be given in exchange for completed meeting evaluation forms on Wednesday June 8th, the concluding day of the meeting.
3. **Disclosure:** All authors were queried to determine the existence of a relationship with a corporate entity, federal agency, private grantor, or institution from which they have received something of value, or with which they have a relationship. Records are on file in the ASIA office that reflect the responses. ASIA does not view the existence of these interests as necessarily implying bias or decreasing the value of these presentations.
4. **FDA Statement:** Some drugs or medical devices presented at this meeting have not been cleared by the FDA, or have been cleared by the FDA for specific purposes only. The FDA has stated that it is the responsibility of the physician to determine the FDA clearance status of each drug or medical device he or she wishes to use in clinical practice. ASIA policy provides the "off label" uses of a drug or medical device may be described in ASIA CME activities so long as the "off label" use of the drug or medical device is also specifically disclosed. Any drug or medical device is being used "off label" if the described use is not set forth on the product's approved label.
5. **Photographs:** Random photographs will be taken throughout the meeting for use on the ASIA website or in published materials. If you choose not to have your picture used, please notify the registration desk.

## MEETING OBJECTIVES

The meeting will provide participants with scientific papers, posters, invited lectures, symposia, and Instructional Courses that present the results of current research on the evaluation and treatment of individuals with spinal cord injuries. It is the objective of the educational program that all presentations be on important emerging topics in the field, presented clearly and objectively. The Program Committee selected the annual program based on attendee evaluations of previous programs, suggestions solicited from members, and the committee's knowledge of the latest developments in the field.

The program is designed for physicians, psychologists, researchers, nurses, therapists, counselors, case managers, administrators and others who work in or have interest in rehabilitation medicine with special emphasis on spinal cord injury research and care delivery, in order that they may:

- Learn the results of new research
- Learn the results of clinical advances
- Learn how to expand the care provided in spinal cord medicine practice
- Learn about and participate in the activities of the Association
- Learn about the educational resources of the Association
- Update basic knowledge and skills
- Exchange ideas with experts and peers in spinal cord research and care
- Strengthen professional relationships

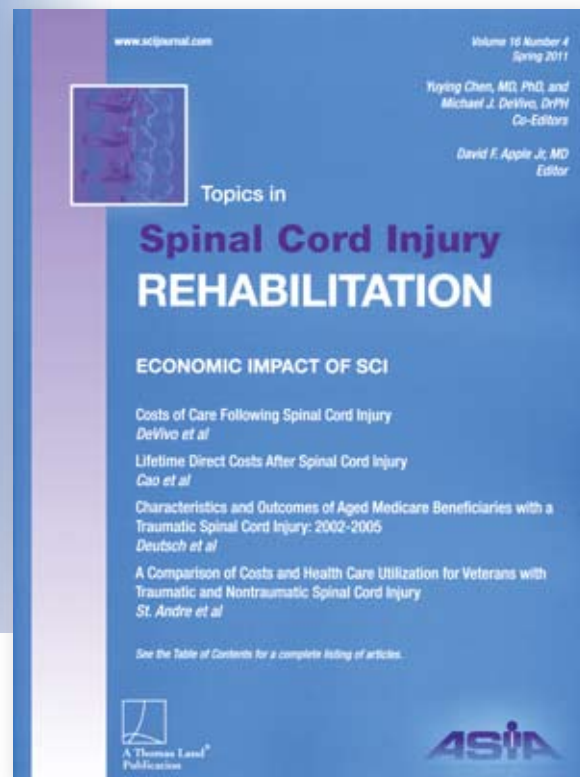
## CME ACCREDITATION STATEMENT

This activity has been planned and implemented in accordance with the Essential Areas and policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint sponsorship 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 sponsor continuing medical education for physicians.

The American Academy of Orthopaedic Surgeons designates this educational activity for a maximum of 23 AMA PRA Category 1 Credits™. Physicians should only claim credit commensurate with the extent of their participation in the activity.

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TIME	Saturday, June 4, 2011	TIME
1:00 to 1:15 P.M.	Introduction to Course - Presenter: Jim Harrop/Alex Vaccaro	2:45 to 3:00 P.M.
1:15 to 1:30 P.M.	<b>Acute interventions/Neuroprotection</b> <b>Spinal Cord Injury Guidelines</b> Presenter: Prasad 1. Discuss members and initiatives for consortium. 2. Discuss general outline and methodology of evidence based approach. 3. Review guidelines and options for acute treatment of SCI patients.	<b>Hypothermia</b> Presenter: Bobby Kalantar 1. Discuss the pathophysiology of hypothermia for treatment of neuronal injuries. 2. Discuss beneficial results of hypothermia and current FDA status. 3. Discuss potential adverse reactions. 4. Describe current status of therapy in terms of basic science and clinical trials. <b>BREAK</b>
1:30 to 1:45 P.M.	<b>ICU Care and Role of Blood Pressure Management</b> Presenter: Radcliff 1. Discuss the anatomy and pathophysiology of acute SCI. 2. Overview of initial hospital assessment and care of traumatic SCI patient. 3. Review evidence and role of blood pressure management in acute SCI patient. 4. Discuss beneficial strategies in the ICU in terms of survival and reducing morbidities.	<b>Cell Based Therapies</b> <b>Neuralstem</b> Presenter: Karl Johe 1. Discuss the pathophysiology of stem cells for treatment of neuronal injuries. 2. Discuss beneficial results of stem cells and current FDA status. 3. Discuss potential adverse reactions. 4. Describe current status of therapy in terms of basic science and clinical trials. <b>Proneuron</b> Presenter: Dan Lammertse 1. Discuss present FDA status. 2. Discuss clinical outcomes of study. 3. Discuss potential adverse reactions.
1:45 to 2:00 P.M.	<b>Timing of Surgical Intervention</b> Presenter: Jeff Rhin 1. Discuss the basic science work on effect of acute decompression after traumatic SCI. 2. Describe the protocol and implementation of the current surgical treatment of acute SCI study. 3. Discuss present results from the STASCIS trial.	<b>Geron</b> Presenter: Linda Jones 1. Discuss the basic science work on effect of stem cell therapy for neurologic recovery after traumatic SCI. 2. Discuss beneficial results of stem cell intervention and present FDA status. 3. Discuss potential adverse reactions. 4. Describe present status of therapy in terms of basic science and clinical trials.
2:00 to 2:15 P.M.	<b>Discussion and Questions</b> <b>BREAK</b>	<b>University of Miami Experience with Schwann Cells</b> Presenter: James Guest 1. Discuss the present neurosurgery care at Miami. 2. Review limitations of current treatment algorithms. 3. Review potential newer tools and strategies to improve neurologic function. <b>BREAK</b>
2:15 to 2:30 P.M.	<b>Pharmacology/Neuroregeneration</b> <b>BA-210 / Anti-rho</b> Presenter: Dan Scubbia 1. Discuss the pathophysiology of Cethrin for treatment of neuronal injuries 2. Discuss beneficial results of drug intervention and current FDA status. 3. Discuss potential adverse reactions. 4. Describe current status of therapy in terms of basic science and clinical trials.	<b>ASIA &amp; Progressive Hemorrhagic Injury in ASIA A &amp; B patients</b> Presenter: Aarabi 1. Discuss the Hemorrhage and SCI. 2. Discuss interventions to limit. 3. Discuss using MRI to assess injury severity. <b>Assessment of SCI with MRI</b> Presenter: S. Kurpad 1. Discuss the present imaging for SCI. 2. Discuss newer modalities – Diffusion tractography. 3. Discuss using MRI to assess injury severity and prognosis.
2:30 to 2:45 P.M.	<b>Riluzole</b> Presenter: Jefferson Wilson 1. Discuss the pathophysiology of Riluzole for treatment of neuronal injuries. 2. Discuss beneficial results of drug intervention and present FDA status. 3. Discuss potential adverse reactions. 4. Describe current status of therapy in terms of basic science and clinical trials.	<b>Case Conference</b> <b>Discussion and Questions - Concluding remarks.</b>
		4:00 to 4:15 P.M.
		4:15 to 4:30 P.M.
		4:30 to 4:45 P.M.
		4:45 to 5:00 P.M.
		5:00 to 5:15 P.M.



# State of the Science

Sunday, June 5, 2011

*Please see State of the Science Schedule.*

National Rehabilitation Hospital Reception	
5:30 P.M. to 9:30 P.M.	<b>Welcome Reception</b> (all attendees) at National Rehabilitation Hospital (NHR). <i>Transportation to and from Reception provided from 5:30 PM to 10:00 PM. All buses are wheelchair accessible. Buses depart from 11th Street side of Grand Hyatt Hotel.</i>

8	TIME	Monday, June 6, 2011			Franklin, Lafayette, Farragut
7:00 A.M. to 8:00 A.M.		Independence Foyer			Cyber Cafe & Electronic Posters
		Independence A			7:00 A.M. to 1:00 P.M.
8:00 A.M. to 10:00 A.M.		<b>Joint Opening Session</b> 1) Opening Welcome Remarks - given by <b>Prof. Fin Biering-Sørensen</b> , President, ISCoS and <b>Michael Kennelly, M.D.</b> , President, ASIA. 2) ISCoS 50TH Anniversary - given by <b>Prof. Fin Biering-Sørensen</b> , President, ISCoS. 3) Guttman Lecture - Clinical Trials in Spinal Cord Injury: Lessons Learned on the Path to Translation, given by <b>Daniel P. Lammertse, M.D.</b> 4) ASIA Lifetime Achievement Award - <b>Charles H. Tator, C.M., M.D., Ph.D., FRCS, FACS</b> , 2011 Recipient. Presented by ASIA Past-President <b>John F. Ditunno, Jr., M.D.</b> 5) Sell Lecture - Value-based Health Care and Innovation in SCI Health Management, given by <b>Gerben DeJong, Ph.D., FACRM</b> .			
		Independence Foyer			
10:00 A.M. to 10:30 A.M.		Refreshment Break - Independence Foyer			
		Independence A	Independence B, C, D, E	Independence F, G, H, I	
10:30 A.M. to 12:00 P.M.		<b>Course I</b> <b>Clinical Trial Outcome Measures for Acute/Sub-acute Cervical AIS-A SCI.</b> <b>Course Chair:</b> <b>John Steeves, Ph.D.</b> <i>Course Details on Page 20.</i>	<b>Paper Session I - Neurourology Part 1</b> <b>MODERATOR:</b> Brigitte Perrouin Verbe, Ph.D. <b>Presenter: Monga</b> 1) Clinical trial to Investigate the Efficacy of Acute Sacral Neurostimulation Using a Novel Transdermal Amplitude-modulated Signal (TAMS) in Subjects with Neurogenic Detrusor Overactivity. <b>Presenter: McDonagh</b> 2) Is Renal Tract Ultrasound Alone Effective for Detecting Calculi? <b>Presenter: Singh</b> 3) Botulinum-A Toxin in the Management of Detrusor Hyperreflexia in Spinal Cord Injured Patients: An Indian Experience.	<b>Paper Session 2 - Respiratory</b> <b>MODERATOR:</b> William Donovan, M.D. <b>Presenter: Dyson-Hudson</b> 7) Prevention of Long-Term Respiratory Complications of Spinal Cord Injury. <b>Presenter: Wadsworth</b> 8) Abdominal Binder Effect on Respiratory, Voice and Haemodynamic Outcomes after a Tetraplegic Spinal Cord Injury. <b>Presenter: Mueller</b> 9) Prediction Models for Lung Function of Individuals with Motor Complete SCI.	<b>Presenter: DiMarco</b> 10) Effects of Spinal Cord Stimulation (SCS) Via Wire Electrodes on Expiratory Muscle Activation. <b>Presenter: Onders</b> 11) Intramuscular Diaphragm Pacing for Respiratory Support in Tetraplegics: Current Worldwide Status in 2010. <b>Presenter: Silva</b> 12) Life Expectancy After Ventilation in a Spinal Injuries Centre.
12:00 P.M. to 1:00 P.M.		Lunch sponsored by Coloplast. Due to limited capacity please collect your lunch ticket for the symposium from the Coloplast stand before 11:30 Monday morning. Unreserved seats will be available on a first come basis (Independence B, C, D, E) all others lunch on your own.			

TIME	Independence A	Independence B, C, D, E	Independence F, G, H, I	McPherson, Franklin, Renwick, Lafayette, Farragut, Bulfinch, Latrobe, & Cherry Blossom
1:00 P.M. to 2:30 P.M.	<p><u>Paper Session 3 - Translational Research Part 1</u></p> <p><b>MODERATOR:</b> Andrew Blight, Ph.D.</p> <p><b>Presenter: Wirth</b> 13) Update on a Phase I Safety Trial of Human Embryonic Stem Cell-Derived Oligodendrocyte Progenitor Cells (GRNOPCI) in Subjects with Neurologically Complete, Subacute SCI.</p> <p><b>Presenter: Floyd</b> 14) The Effect of Nicotine on Functional Recovery and Neuropathic Pain After SCI.</p> <p><b>Presenter: Kramer</b> 15) Patterns of Sensory Preservation and Recovery after Cervical Complete SCI.</p> <p><b>Presenter: Dunham</b> 18) Effect of Sulfasalazine on Neuropathic Pain Following Spinal Cord Injury.</p>	<p><u>Paper Session 4 - Neurourology Part 2</u></p> <p><b>MODERATOR:</b> Michael Kennelly, M.D.</p> <p><b>Presenter: Harvey</b> 19) Training Unsupported Sitting in People with Recently-acquired Paraplegia: A Randomized Controlled Trial.</p> <p><b>Presenter: Sabre</b> 20) High Incidence of Traumatic SCI in Estonia from 1997-2007.</p> <p><b>Presenter: Cremascoli</b> 21) Prediction Models Relationship Between Vesico-Ureteral Reflux and Glomerular Filtration Rate in Adults with SCI.</p> <p><b>Presenter: Skoog</b> 22) Changes in Intrathecal Baclofen Dosage During Long Term Treatment in Patients with Spasticity due to SCIs.</p> <p><b>Presenter: Seager</b> 23) Electroejaculation for the Treatment of Anejaculation in Neurologically Impaired Males: 15 Years' Experience.</p> <p><b>Presenter: Edokpolo</b> 24) Intermittent Catheterization and Recurrent Urinary Tract Infection in SCI.</p>	<p><u>Course 2</u></p> <p><b>I:00 P.M. to 2:30 P.M.</b></p> <p>Multidisciplinary Approach to Dysphagia and Respiratory Care in Individuals with Spinal Cord Injury.</p> <p><b>Course Chair:</b> <b>Kazuko Shem, M.D.</b></p> <p><i>Course Details on Page 21.</i></p>	<p><b>State of the Science Discussion Groups</b></p> <p><b>I:00 P.M. to 4:30 P.M.</b></p> <p><i>Open only to State of the Science Registrants</i></p> <p><i>Please refer to the State of Science Schedule</i></p>
2:30 P.M. to 4:00 P.M.	<p><b>Independence A</b></p>	<p><b>Independence B, C, D, E</b></p>	<p><b>Independence F, G, H, I</b></p>	<p><b>Independence F, G, H, I</b></p>
2:30 P.M. to 4:00 P.M.	<p><u>Paper Session 5 - Translational Research Part 2</u></p> <p><b>MODERATOR:</b> Keith Tansey, M.D., Ph.D.</p> <p><b>Presenter: Smith</b> 25) Pulsed Radiofrequency Denervation at the Lumbar Dorsal Roots Reduces Below-Level Neuropathic Pain in a Rat Model of Spinal Cord Injury.</p> <p><b>Presenter: Joseph</b> 26) Implications of Human Distal Sciatic Nerve Fascicular Anatomy for Ankle Control with Nerve Cuff Electrodes.</p> <p><b>Presenter: Kwon</b> 27) Development of a Porcine Model of Spinal Cord Injury.</p> <p><b>Presenter: Huang</b> 28) Phenotypical Difference of Circulating Monocytes in Spinal Cord Injury (SCI) Patients.</p>	<p><u>Paper Session 6 - Spine</u></p> <p><b>MODERATOR:</b> Herndon Murray, M.D.</p> <p><b>Presenter: Furlan</b> 29) An Ontario-based Cost-utility Analysis on the Palliative Care of Patients with Metastatic Spinal Cord Cancer: The Standard of Care versus Direct Decompressive Surgical Resection followed by Radiotherapy.</p> <p><b>Presenter: Fürstenberg</b> 30) Neurological Outcome After Fast-Track Surgery (&lt; 48h) in Spinal Cord Compression Caused by Vertebral Metastases.</p> <p><b>Presenter: Street</b> 31) Incidence and Impact of Acute Adverse Events in Patients with Traumatic SCI.</p> <p><b>Presenter: Aono</b> 32) Short-Segment Pedicle Instrumentation by Indirect Reduction Without Vertebroplasty for Thoracolumbar Burst Fractures.</p> <p><b>Presenter: Furlan</b> 33 ) Factors Associated with Outcomes of Patients who Develop Non-traumatic Spinal Cord Injury due to Spinal Hemorrhage during Thromboprophylaxis Treatment.</p> <p><b>Presenter: Mashhadi Nezhad</b> 34) Clinical Results of Surgical Management in Type II Odontoid Fracture.</p>	<p><u>Course 3</u></p> <p><b>2:30 P.M. to 4:00 P.M.</b></p> <p><b>Interaction of pelvic organs after spinal cord lesion: consequences for bladder and bowel management</b></p> <p><b>Course Chair:</b> <b>Prof. Jean Jacques Wyndaele</b></p> <p><i>Course Details on Page 22.</i></p>	
	Free evening.			
	<p><b>ISCoS AGM</b></p> <p><b>4:30 P.M. to 6:30 P.M.</b></p> <p><b>Independence A</b></p>	<p><b>ASIA BOARD MEETING</b></p> <p><b>6:30 P.M. to 10:00 P.M.</b></p> <p><b>Marriott Hotel Boardroom</b></p>	<p><b>SCOPE RECEPTION</b></p> <p><b>5:30 P.M. to 7:00 P.M.</b></p> <p><b>Wilson Room - By invitation only</b></p>	

TIME	Tuesday, June 7, 2011				Franklin, Lafayette, Farragut
7:00 A.M. to 8:30 A.M.	Constitution A		Independence Foyer		Cyber Cafe & Electronic Posters
	ASIA Membership Meeting		Continental Breakfast		
	Independence A				
8:30 A.M. to 10:30 A.M.	<b>Joint Plenary Session</b> - "The State of the Science in Spinal Cord Injury Rehabilitation: Informing a New Research Agenda" was held on Sunday, June 5, 2011. Small discussion groups consisting of a subset of the attendees met on Monday afternoon, June 6, 2011. That evening, track chairs and others assembled the notes from the discussion groups, and combined that information with the content from Sunday. This morning, in a plenary session for all attendees of the "International Conference on Spinal Cord Medicine and Rehabilitation," the summary recommendations from the State of the Science will be presented.				
10:30 A.M. to 11:00 A.M.	Refreshment Break - Independence Foyer				
	Independence A	Independence B, C, D, E			Independence F, G, H, I
11:00 A.M. to 12:30 P.M.	<u>Course 4</u> <b>Using the Spinal Cord Injury Common Data Elements: A Workshop.</b> <b>Course Chair:</b> <b>Fin Biering-Sørensen, M.D.</b> <i>Course Details on Page 23.</i>	<u>Paper Session 7 - Awards Posters</u> <b>MODERATOR:</b> Isa McClure, MAPT <b>Presenter: Beauregard</b> 35) Community Needs of People Living with Spinal Cord Injury and their Families. <b>Presenter: Cowan</b> 36) Perceived Exercise Barriers and Odds of Exercise Participation among Persons with SCI Living in High Income Households. <b>Presenter: Eriks-Hoogland</b> 37) Acromio-clavicular Joint Arthrosis in Persons with Spinal Cord Injury and with Shoulder Pain Compared to Able-Bodied Persons with Shoulder Pain. <b>Presenter: Stacey</b> 38) Genetic Polymorphisms may Influence the Development and Healing of Sitting Acquired Pressure Ulcers Following SCI.			<u>Paper Session 8 - Pediatrics Part 1</u> <b>MODERATOR:</b> Cathi Dugger, P.T. <b>Presenter: Krisa</b> 47) Agreement of Repeated Motor and Sensory Scores at Individual Myotomes and Dermatomes in Young Persons with Incomplete Spinal Cord Injury. <b>Presenter: Patt</b> 48) Prevalence of Risk Factors for Metabolic Syndrome Among Youth with Spinal Cord Injury. <b>Presenter: Kelly</b> 49) Outcomes of Traumatic and Non-Traumatic Spinal Cord Injury in Children. <b>Presenter: Johnston</b> 50) Effects of Cycling on Bone and Muscle in Pediatric SCI. <b>Presenter: Klaas</b> 51) Change in Socio-Economic Status related to Psychosocial Factors among Youth with SCI.
12:30 P.M. to 1:30 P.M.	Lunch sponsored by Hollister, Inc. in Independence F, G, H, I (by invitation only, all others lunch on your own). ASIA Call to Action: Be a SCI Champion. A lunch symposium designed to educate ASIA members on opportunities to expand Medicare coverage for the Spinal Cord Injury community. This coverage aims to improve quality of life and give better access to product choice. Attendees will hear from Dr. Michael Kennelly, President of ASIA, and a keynote speaker from the U.S. House of Representatives on how they can raise their voices today as SCI Champions.				



TIME	Independence A	Independence B, C, D, E	Independence F, G, H, I
1:30 P.M. to 3:00 P.M.	<p><u>Course 5</u></p> <p><b>Functional Electrical Stimulation in SCI: From Theory to Practice.</b></p> <p><b>Course Chair:</b> <b>Rebecca Martin, OTR/L, OTD</b> <i>Course Details on Page 24.</i></p>	<p><u>Prevention Program</u></p> <p><b>Motor Vehicle Crashes and Spinal Cord Injury – The Road Ahead</b></p> <p><b>Co-moderated by Professor Douglas Brown and Michael Haak, M.D., FACS</b></p> <p>The focus of the ISCoS-ASIA Prevention symposium is spinal cord injury and road traffic crashes. National and international experts will present injury demographics, mechanical and engineering aspects of prevention, legislative and regulatory initiatives in the US, and international programs aimed at preventing these tragic injuries.</p>	<p><u>Paper Session 9 - Pediatrics Part 2</u></p> <p><b>MODERATOR:</b> Ms. Ebba Bergstrom</p> <p><b>Presenter: Wong</b> 52) Prevalence of Malnutrition in Paediatric Patients Admitted to Uk Spinal Injury Centre – A Pilot Result.</p> <p><b>Presenter: Patt</b> 53) Prevalence of Vitamin D Deficiency in Youth with Spinal Cord Injury.</p> <p><b>Presenter: Mulcahey</b> 54) Diffusion Tensor Imaging of the Pediatric Spinal Cord: Preliminary Evaluation.</p> <p><b>Presenter: Dugger</b> 55) “NO OBSTACLES”: A Return to School Program for SCI Adolescents.</p> <p><b>Presenter: Bourque</b> 56) Functional Recovery in Adolescent Males with Incomplete SCI Following Intensive Activity Based Restorative Therapy.</p> <p><b>Presenter: Zebracki</b> 57) Use of Attendant Care in Individuals with Pediatric-Onset Tetraplegia.</p>
3:00 P.M. to 3:30 P.M.	Refreshment Break - Independence Foyer	Independence B, C, D, E	Independence F, G, H, I
3:30 P.M. to 5:00 P.M.	<p><u>Course 6</u></p> <p><b>Activity-based Therapies in Spinal Cord Injury: Clinical Focus and Empirical Evidence in Three Independent Programs.</b></p> <p><b>Course Chair:</b> <b>Michael Jones, Ph.D.</b> <i>Course Details on Page 25.</i></p>	<p><u>Paper Session 10 - Rehabilitation and Assistive Technology Part 1</u></p> <p><b>MODERATOR:</b> Ruth Marshall, M.D.</p> <p><b>Presenter: Nash</b> 58) Evidence Favoring Daily Exercise for Enhanced Fasting and Postprandial Glucose and Lipid Homeostasis in Paraplegia.</p> <p><b>Presenter: Whiteneck</b> 59) Inpatient and Post-Discharge Rehabilitation Services Provided in the First Year after SCI: Findings from the SCI Rehab Study.</p> <p><b>Presenter: Wu</b> 60) Multifactorial Tissue Health Assessment of At-Risk Users and Effects of Weight Shifting with a Dynamic Cushion.</p> <p><b>Presenter: Heutink</b> 61) The CONECSTrial: A Randomized Controlled Trial of a Multidisciplinary Cognitive Behavioral Program for Coping with Chronic Neuropathic SCI Pain.</p> <p><b>Presenter: Nemeth</b> 62) A Comparison of Relative Performance of Various Skin Protective Wheelchair Seat Cushions in Real Life Use.</p> <p><b>Presenter: Rupp</b> 63) Feasibility And Efficacy of a Robotic, Home-Based Locomotion Therapy – Results of a Baseline Study with Chronic, Incomplete SC Injured Subjects.</p>	<p><u>Course 7</u></p> <p><b>Surgical Restoration of Arm and Hand Function in People with Tetraplegia.</b></p> <p><b>Course Chair:</b> <b>Michael W. Keith M.D.</b> <i>Course Details on Page 26.</i></p>
5:00 P.M. to 7:00 P.M.	Cocktail Reception hosted by Asubio Pharmaceuticals, Inc - Wilson Room (by invitation only).		
7:00 P.M. to 11:00 P.M.	Dinner Dance - Independence A		

12	TIME	Wednesday, June 8, 2011				Franklin, Lafayette, Farragut			
7:00 A.M. to 8:00 A.M.		Independence Foyer				Cyber Cafe & Electronic Posters 7:00 A.M. to 4:30 P.M.			
		Continental Breakfast							
		Independence A							
8:00 A.M. to 10:00 A.M.		<p><b>Joint Plenary Session</b></p> <p><b>Awards Papers Presentation</b> MODERATOR: Suzanne Groah, M.D. <b>Presenter: Kennelly</b> 64) Clinical and Urodynamic Outcomes with Intradetrusor Injections of Onabotulinum-toxinA in Patients with Neurogenic Detrusor Overactivity Related to SCI.</p> <p><b>ISRT Lecture</b> - Functional Regeneration into and Beyond the Glial Scar. <b>Prof. Jerry Silver</b></p> <p><b>Awards Presentation:</b> Best Papers/Posters, Apple Award, Schmidt/Sell Research Grant presented by <b>Suzanne Groah, M.D.</b>, Research and Awards Committee Chair.</p> <p><b>Introduction to ISCoS 2012 in London.</b></p>				<p><b>Presenter: Benito</b> 66) Motor and Gait Improvement in Incomplete Spinal Cord Injury with High Frequency Repetitive Transcranial Magnetic Stimulation.</p> <p><b>Presenter: Krause</b> 67) Do Risk Factors for Mortality after SCI Parallel those from the General USA Population?</p>	<p><b>Presenter: Richardson</b> 65) Effects of Nicotine on Spinal Cord Injury Related Pain: A Randomized, Double-Blind, Placebo-Controlled Crossover Trial.</p>	<p><b>Presenter: Kwon</b> 68) Expectations of Risk, Benefit, and Preclinical Scientific Rigor in Experimental Treatments for SCI: A Survey of SCI Individuals.</p> <p><b>Presenter: Mueller</b> 69) Comparison of Respiratory Muscle Training Methods in Individuals with Motor Complete Tetraplegia.</p>	<p><b>McPherson</b></p> <p>TSCIR Breakfast 7:00 A.M. to 8:00 A.M. (By invitation only)</p>
10:00 A.M. to 10:30 A.M.		Refreshment Break - Independence Foyer							
		Independence A	Independence B, C, D, E			Independence F, G, H, I			
10:30 A.M. to 12:00 P.M.		<p><u>Course 8</u></p> <p><b>Patient Perspectives on Pain.</b></p> <p><b>Course Chair: Cecilia Norrbrink, RPT, Ph.D.</b> <i>Course Details on Page 27.</i></p>	<p><u>Paper Session 11 - Rehabilitation and Assistive Technology Part 2</u></p> <p>MODERATOR: Lisa Harvey, P.T. <b>Presenter: Saunders</b> 70) A Longitudinal Study of Depression after SCI. <b>Presenter: Velstra</b> 71) The European GRASSP Responsiveness Study: Advanced Insights in the Recovery of Patients with cervical SCI. <b>Presenter: Stevens</b> 72) Impact of Underwater Treadmill Training on Functional Mobility in Adults with Incomplete SCI's.</p> <p><b>Presenter: Giordano</b> 73) Driving for Happiness: Modified Vehicles and Health-Related Quality of Life after SCI. <b>Presenter: Carty</b> 74) Alterations in Body Composition and Spasticity Following Neuromuscular Electrical Stimulation Training in Spinal Cord Injury. <b>Presenter: Ljungberg</b> 75) Disparities in Wheelchair Type, Wheelchair Skill Level, and Community Participation by Payer Source.</p>			<p><u>Paper Session 12 - Survival / Life Expectancy</u></p> <p>MODERATOR: J. Scott Richards, Ph.D., ABPP <b>Presenter: DeVivo</b> 76) Causes of Death Following Spinal Cord Injury. <b>Presenter: Chen</b> 77) Bladder Cancer after Spinal Cord Injury: Mortality Risk and Risk Factors. <b>Presenter: DeVivo</b> 78) Gains in Life Expectancy after SCI by Preventing Individual Causes of Death.</p> <p><b>Presenter: Krause</b> 79) Health, Secondary Conditions, and Life Expectancy after Spinal Cord Injury. <b>Presenter: Noonan</b> 80) Building a Health Progression Model to Evaluate Long-term Outcomes for People with Traumatic SCI. <b>Presenter: Middleton</b> 81) Survival and Life Expectancy after Spinal Cord Injury: A Fifty-Year Study.</p>			
12:00 P.M. to 1:00 P.M.		Networking session for SCI physical therapists. Open to all SCI physical therapists - McPherson Room (all others lunch on your own).							

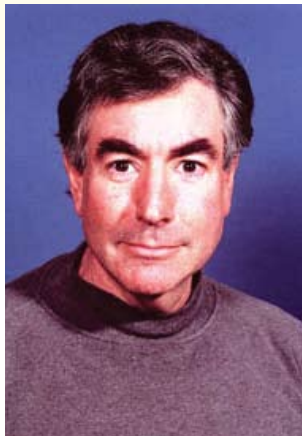
TIME	Independence A	Independence B, C, D, E	Independence F, G, H, I
1:00 P.M. to 2:30 P.M.	<p><u>Course 9</u></p> <p><b>Secondary Complications in Spinal Cord Injury Across the Continuum: Predicting the Impact and Optimizing Management Strategies.</b></p> <p><b>Course Chair:</b> <b>Marcel F. Dvorak, M.D.</b></p> <p><i>Course Details on Page 28.</i></p>	<p><u>Paper Session 13 - Rehabilitation and Assistive Technology Part 3</u></p> <p><b>MODERATOR:</b> Greg Nemunaitis, M.D.</p> <p><b>Presenter: Smith</b> 82) Electromyographic Characteristics and Muscle Involvement Patterns of Phasic Spasms in Patients with SCI: Background Study to Determine Applicability of Implantable High-Frequency Nerve Blockade for Spasm Control.</p> <p><b>Presenter: Lee</b> 83) Effect of 6 Weeks Aerobic Exercise using the Motor Driven Rowing Machine in Persons with SCI.</p> <p><b>Presenter: Gorman</b> 84) Robotic Treadmill Training Improves Peak Exercise Capacity in Chronic Motor Incomplete SCI: A Pilot Controlled Clinical Trial.</p> <p><b>Presenter: Carty</b> 85) Neuromuscular Electrical Stimulation for Aerobic Training in Spinal Cord Injury.</p> <p><b>Presenter: Nooijen</b> 86) A more Active Lifestyle is Associated with a Better Physical Fitness and a Reduced Risk of Cardiovascular Disease in Persons with a Recent SCI.</p> <p><b>Presenter: Tzen</b> 87) Effects of Sensation and Autonomic Function on Reactive Hyperemia Following Pressure with and without Cooling in People with SCI.</p>	<p><u>Paper Session 14 - Free Papers Part 1</u></p> <p><b>MODERATOR:</b> Gordana Savic, M.D.</p> <p><b>Presenter: Chen</b> 88) A Comparison of Medicare Patients in the SCI Model System Database and National Medicare Databases.</p> <p><b>Presenter: Bergström</b> 89) Outcomes of Lower Limb Fractures After Spinal Cord Injury.</p> <p><b>Presenter: Johanson</b> 90) Upper Limb Motor Control after Tendon Transfer in Tetraplegia.</p> <p><b>Presenter: Hitzig</b> 91) The Role of Post-Traumatic Stress Disorder Symptoms in Spinal Cord Injury-Related Chronic Pain.</p> <p><b>Presenter: Flett</b> 92) Ultraviolet-C Irradiation (UVC) Improves Wound Healing in persons with Spinal Cord Injury (SCI).</p> <p><b>Presenter: Marti</b> 93) To Work or Not to Work, Labour Market Participation (LMP) of Persons with SCI Living in Switzerland.</p>
2:30 P.M. to 3:00 P.M.	<p>Refreshment Break - Independence Foyer</p>	<p><b>Independence B, C, D, E</b></p> <p><u>Course 10</u></p> <p><b>Psychosocial Outcomes among Youth with Spinal Cord Injury and their Primary Caregivers.</b></p> <p><b>Course Chair:</b> <b>Lawrence C. Vogel, M.D.</b></p> <p><i>Course Details on Page 29.</i></p>	<p><b>Independence F, G, H, I</b></p> <p><u>Paper Session 16 - Free Papers</u></p> <p><b>MODERATOR:</b> Susan Charlifue, Ph.D.</p> <p><b>Presenter: Anderson</b> 100) United States (US) Multi-Center Study to Assess the Validity and Reliability of the Spinal Cord Independence Measure (SCIM III).</p> <p><b>Presenter: Kalsi-Ryan</b> 101) Graded Redefined Assessment of Sensibility Strength and Prehension (GRASP): Psychometric Development of an Upper Limb Impairment Measure for Individuals with Traumatic Tetraplegia.</p> <p><b>Presenter: Oleson</b> 102) SCI Classification: Comparison of Human and Computer Algorithm for ASIA Impairment Scale Grades.</p> <p><b>Presenter: Bolliger</b> 103) Confusion in Conversion.</p> <p><b>Presenter: Mulcahey</b> 104) Evaluation of Item Banks of Daily Routines and Participation for Patient Reported Outcomes Following Spinal Cord Injury Using Computer Adaptive Testing Platforms.</p> <p><b>Presenter: Dantas</b> 105) Evaluation of Functional Recovery in a Spinal Cord Injured (SCI) Population, Using the Spinal Cord Independence Measure III (SCIM III).</p>
3:00 P.M. to 4:30 P.M.	<p><u>Paper Session 15 - Autonomic Systems</u></p> <p><b>MODERATOR:</b> Andrei Krassioukov, M.D., Ph.D.</p> <p><b>Presenter: Jan</b> 94) Relationship Between Heart Rate Variability and Sacral Skin Perfusion in People with Spinal Cord Injury.</p> <p><b>Presenter: Krassioukov</b> 95) Autonomic Dysreflexia Following Spinal Cord Injury – Translating Knowledge into Best Practice for Health Care Practitioners.</p> <p><b>Presenter: le Nobel</b> 96) Autonomic Dysfunctions in Individuals with Acute Spinal Cord Injury: Experience Using the International Autonomic Standards Form.</p>	<p><b>Independence A</b></p> <p><u>Paper Session 15 - Autonomic Systems</u></p> <p><b>MODERATOR:</b> Andrei Krassioukov, M.D., Ph.D.</p> <p><b>Presenter: Catz</b> 97) A Model of Cardiovascular Regulation by Thoracic Spinal Cord Centers.</p> <p><b>Presenter: Previnaiere</b> 98) Assessment of Severity of Autonomic Lesion in Complete Spinal Cord Injury Patients.</p> <p><b>Presenter: Middleton</b> 99) Autonomic Dysreflexia - A Spinal Network and Health System Challenge.</p>	<p><b>Independence F, G, H, I</b></p> <p><u>Paper Session 16 - Free Papers</u></p> <p><b>MODERATOR:</b> Susan Charlifue, Ph.D.</p> <p><b>Presenter: Anderson</b> 100) United States (US) Multi-Center Study to Assess the Validity and Reliability of the Spinal Cord Independence Measure (SCIM III).</p> <p><b>Presenter: Kalsi-Ryan</b> 101) Graded Redefined Assessment of Sensibility Strength and Prehension (GRASP): Psychometric Development of an Upper Limb Impairment Measure for Individuals with Traumatic Tetraplegia.</p> <p><b>Presenter: Oleson</b> 102) SCI Classification: Comparison of Human and Computer Algorithm for ASIA Impairment Scale Grades.</p> <p><b>Presenter: Bolliger</b> 103) Confusion in Conversion.</p> <p><b>Presenter: Mulcahey</b> 104) Evaluation of Item Banks of Daily Routines and Participation for Patient Reported Outcomes Following Spinal Cord Injury Using Computer Adaptive Testing Platforms.</p> <p><b>Presenter: Dantas</b> 105) Evaluation of Functional Recovery in a Spinal Cord Injured (SCI) Population, Using the Spinal Cord Independence Measure III (SCIM III).</p>

# Functional Regeneration into and Beyond the Glial Scar

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## Jerry Silver, Ph.D. to Present 2011 ISRT Lecture

The ISRT Lecture, a staple at every meeting of the International Spinal Cord Society (ISCoS) will be given this year by Jerry Silver, Ph.D. Dr. Silver received his Ph.D. from the Case Western Reserve University in 1974, and was the recipient of the Herbert S. Steuer Memorial Award for Meritorious Original Research in Anatomy. He did post-doctoral work at Harvard University in the Department of Neurosciences at The Children's Hospital and in the Neuropathology Department at Harvard Medical School. He is currently Professor in the Department of Neurosciences at the Case Western Reserve University School of Medicine and adjunct Professor in the Department of Neurosurgery at the Cleveland Clinic Foundation.



In 2003, Dr. Silver was awarded the Ameritex Prize for significant accomplishments toward a cure for paralysis. Also that year, he was honored with the Christopher Reeve-Joan Irvine Research Medal for critical contributions that may lead to the promotion of repair of the damaged spinal cord. In 2004, Dr. Silver received the Jacob Javits Neuroscience Investigator Award for his longstanding grant entitled "Factors affecting regeneration through the glial scar." Dr. Silver received the Erica Nader Award from the American Spinal Injury Association (ASIA) in 2008 for breakthrough research in the field of spinal cord injury. This year, he was honored to become a fellow of the American Association for the Advancement of Science.

Dr. Silver has served on a number of editorial boards. He regularly reviews articles for over 35 high impact journals and reviews grants for 18 national and international organizations. He has served on a variety of NIH study sections since 1982, and has been appointed as a regular member of the Scientific Advisory Council of the Christopher Reeve Foundation and of the Scientific Board of the International Spinal Research Trust (ISRT) which sponsors this annual lecture.



# Spinal Cord

The Official Journal of the International Spinal Cord Society



ISCO<sup>S</sup>

The International Spinal Cord Society is celebrating its 50th anniversary

The international voice of the spinal cord



*Spinal Cord*, the official journal of the International Spinal Cord Society (ISCO<sup>S</sup>), deals with all aspects of spinal anatomy, physiology and lesions (injury and disease). *Spinal Cord* is a multi-disciplinary forum for basic science, clinical and applied studies, psychology and epidemiology of spinal injury and disease from around the world, and is essential reading for everyone involved in the research and management of these conditions.

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ISCO<sup>S</sup>

nature publishing group The logo for nature publishing group, consisting of the letters "npg" in a white, lowercase, sans-serif font inside a white circle.

## AWARDS ELIGIBLE

### Presenter: Beauregard

1) Community Needs of People Living with Spinal Cord Injury and Their Families.

### Presenter: Cowan

2) Perceived Exercise Barriers and Odds of Exercise Participation Among Persons with SCI Living in High Income Households.

### Presenter: Eriks-Hoogland

3) Acromio-Clavicular Joint Arthrosis in Persons with Spinal Cord Injury and with Shoulder Pain Compared to Able-Bodied Persons with Shoulder Pain.

### Presenter: Stacey

4) Genetic Polymorphisms may Influence the Development and Healing of Sitting Acquired Pressure Ulcers Following Spinal Cord Injury.

### Presenter: Waring

5) Lab Abnormalities with Late Stage Pressure Ulcers: Are They Really Significant?

### Presenter: Wong

6) How Nutritional Risk is Assessed and Managed in Patients with Spinal Cord Injuries (SCI) - Result From a UK Multi Centre Study.

### Presenter: Kennedy

7) Planning and Structuring Spinal Cord Injury Rehabilitation: The Needs Assessment Checklist (NAC).

### Presenter: Oyster

8) Wheelchair Skill Performance of Manual Wheelchair Users with Spinal Cord Injury.

### Presenter: Nagy

9) Pushrim Kinetics During Advanced Wheelchair Skills in Manual Wheelchair Users with Spinal Cord Injury.

### Presenter: Abel

10) Therapeutic Anti-Nogo-A Antibodies in Acute Spinal Cord Injury: Safety and Pharmacokinetic Data from an Ongoing First-in-Human Trial.

### Presenter: Bryce

11) Proposed International Classification of Pain after Spinal Cord Injury: Preliminary Validation Data.

### Presenter: Lopez de Heredia

12) MRI of Pressure Sores in Spinal Cord Injured Patients.

## AUTONOMIC SYSTEM

### Presenter: Costa

13) Preliminary Results with New Botulinum Toxin A (BoNTA) in Refractory Detrusor overactivity in SCI Patients.

## NEUROUROLOGY

### Presenter: Wang

14) What is Wrong with the Assessment of Spasticity, the Method Itself or the Way the Method is Used or the Results are Interpreted?

### Presenter: Burki

15) Significance of Upper Tract Abnormalities Identified on Ultrasound During Follow Up of Neurogenic Bladder Patients.

### Presenter: Burki

16) Suprapubic Catheter Insertion in Spinal Cord Injured Patients – Our 1 Year Experience.

### Presenter: Lynch

17) Neurological Complications of Aging with Chronic SCI.

### Presenter: Kosaka

18) Anatomical Analysis of Cervical Posterior Fusion (Roy-Camille Lateral Mass Screw) with Enhanced Cervical CT Scan.

### Presenter: Yoo

19) Categorization of Pain Complaints from Spinal Cord Injury Patients According to Bryce-Ragnarsson Pain Taxonomy.

### Presenter: Solonchuk

20) Alterations in Electromyography Parameters During the Late Stage of Traumatic Spinal Cord Injury.

### Presenter: Lin

21) Bladder Recovery and Nerve Regeneration in Complete Spinal Cord Transected Rats Treated with a Peripheral Nerve Graft, Acidic Fibroblast Growth Factor, and Chondroitinase ABC.

## PEDIATRICS AND ADOLESCENTS

### Presenter: Pegrum

22) An Objective Case Controlled Study: Does Cervical Muscle Adaptation in Male Rugby Players Aged 13-18 Occur when Compared to Age Matched Controls?

### Presenter: Hartley

23) YIPES: Youth Injury Prevention Education at Shepherd.

### Presenter: Chlan

24) The Effect of Age at Injury on Outcomes in Adults with Pediatric-Onset SCI.

### Presenter: Jackson

25) Exploring Parental Ethnotheories in the Development of Resilience in Children.

## REHABILITATION AND ASSISTIVE TECHNOLOGY

### Presenter: Garrett

26) Clinical Application of the Wheelchair Skills Program: Objective Testing and Training Methods.

### Presenter: Hastings

27) Interaction of Posture and Function: A Case Report.

### Presenter: Hastings

28) The Differences in Self-Esteem, Function, and Participation Between Adults With Low Motor Tetraplegia Who Use Power or Manual Wheelchairs.

### Presenter: Hastings

29) Length of Inpatient Rehabilitation Stay following a C6-C7 SCI and the Effects on Wellness, Function, and Community Participation.

### Presenter: Scivoletto

30) Walking Index for Spinal Cord Injury (WISCI) Reliability in Patients with Acute Spinal Cord Injury (SCI).

### Presenter: Collinger

31) Attitude towards Brain-Computer Interface Technology among Veterans with Spinal Cord Injury.

### Presenter: Barthélemy

32) Functional Implications of Corticospinal Tract Impairment After Spinal Cord Injury.

### Presenter: Atluri

33) Effects of Backrest Elevation of Transport Stretcher/Gurney on Sacral Interface Pressure.

### Presenter: Gorman

34) Robotic Treadmill Training does not Improve Timed Measures of Ambulatory Function in Chronic Motor Incomplete SCI: A Pilot Controlled Clinical Trial.

### Presenter: Tamburella

35) Short and Long-Term Effects of Kinesiotaping on Spasticity, Balance and Walking in Chronic Incomplete Spinal Cord Injury Subjects.

# POSTERS

## Presenter: Liu

36) The Effects of Functional Electrical Stimulation Cycling Exercise on Neurogenic Bowel in Patients with Spinal Cord Injury.

## Presenter: Dechter

37) Nocturnal Home Turning Schedule for Pressure Relief among Persons with SCI.

## Presenter: Somers

38) Compensation and Restoration in the Rehabilitation of Walking after Spinal Cord Injury: A Review of the Evidence.

## Presenter: Graham

39) The Use of Leisure Time Technology by Patients Hospitalized for SCI.

## Presenter: Bersch

40) The Importance of the Intensity and the Number of Sessions per Week of Functional Electrical Stimulation (FES) in Patients with Post Traumatic Spinal Cord Injury (SCI).

## Presenter: Jaramillo

41) Multi-center Survey of Rehabilitation Protocols After Tendon Transfer to Restore Pinch in Tetraplegia.

## Presenter: Hitzig

42) The Benefits of a SCRP Therapeutic Recreation Cottage Program on Psychological Well-Being in Persons with Spinal Cord Injury.

## Presenter: McClure

43) Comparison of Pressure in Commercially Available Seat Cushions in Fulltime Wheelchair Users with Spinal Cord Injury.

## Presenter: Hartley

44) Improving Quality of Life Through Treatment and Community Reintegration for Individuals with High Tetraplegia; Shepherd Center High Tetra Program.

## Presenter: Joo

45) Contractile Response to Acetylcholine of Colonic Muscle is Related to the Change of Muscarinic Receptor in Spinal Cord Injured Rat.

## Presenter: Nash

46) An Aspirin Pro-Drug Rapidly Improves Fasting and Postprandial Glycemia and Lipemia in Persons with Chronic Tetraplegia: Preliminary Findings.

## Presenter: Triolo

47) Efficacy of Multicontact Spiral Nerve Cuff Electrodes for Standing with an Implanted Neuroprosthesis.

## Presenter: Arora

48) Rehabilitation Outcomes in Traumatic Cervical Spinal Cord Injury in Elderly People.

## Presenter: Zanca

49) Group Physical Therapy Utilization in Inpatient Rehabilitation for Acute Spinal Cord Injury.

## Presenter: Craven

50) Impact of Secondary Health Conditions on Functional Abilities in Persons with Spinal Cord Injury.

## Presenter: Wolfe

51) Unfractionated Heparin vs Low Molecular Weight Heparin as Prophylaxis Against Venous Thromboembolism post SCI: A Meta-Analysis.

## Presenter: Berliner

52) Robotic Training of Forearm and Wrist Movements After Spinal Cord Injury.

## Presenter: Backus

53) Neural and Functional Outcomes after Lower Extremity And Walking Activity-Based Interventions for Persons with Spinal Cord Injury: A Research Synthesis.

## Presenter: Backus

54) Health-Related Outcomes after Lower Extremity And Walking Activity-Based Interventions for Persons with Spinal Cord Injury: A Research Synthesis.

## Presenter: Backus

55) Spasticity Management in Persons with Spinal Cord Injury: A Research Synthesis.

## Presenter: Goihl

56) Series of Case Studies on a Locomotor Training Program: Function, Quality of Life and Participation Outcomes in Individuals with Spinal Cord Dysfunction.

## Presenter: Hong

57) How do VA Clinicians Prescribe and Perceive Power-Assist Wheelchairs?

## Presenter: Gorgey

58) Effects of Neuromuscular Electrical Stimulation Resistance Training on Ectopic Adipose Tissue and Insulin Growth Factors-I Profile in Men with SCI.

## RESPIRATORY MANAGEMENT

## Presenter: Karlsson

59) Increasing Incidence of Ventilator Dependent Patients Requires Reorganisation of SCI Care.

## SPINE

## Presenter: Enishi

60) Significant Fracture-Dislocation of the Thoracic or Lumbar Spine Without Neurologic Deficit: A Report of Two Cases.

## Presenter: Matsuoka

61) Anterior Cervical Discectomy and Fusion with Titanium Cage for Cervical Spinal Disease.

## Presenter: Ishikawa

62) Reliability of Daily Step Activity Monitoring in Adults with Incomplete Spinal Cord Injury.

## Presenter: Wallace

63) Use of High Voltage Electrical Stimulation for Healing of Recalcitrant Pressure Ulcers in Patients with Spinal Cord Injury.

## Presenter: Chaw

64) Panspinal Epidural Abscess without Fever: An Unusual Case Due To Streptococcus Intermedius.

## Presenter: Nakao

65) Distal embolic brain infarction due to recanalization of asymptomatic vertebral artery occlusion resulting from cervical spine injury. Case report.

## SURVIVAL/ LIFE EXPECTANCY

## Presenter: Furlan

66) The Incidence and Prevalence of Traumatic Spinal Cord Injury in the World.

## Presenter: Kalke

67) Demographic Changes and trends in the Spinal Cord Injury Centre in Ulm / Germany.

## Presenter: Lakra

68) A Comparative Study Assessing the Impact of Social Counseling on Quality of Life among Males and Females with Spinal Cord Injuries.

## Presenter: Onder

69) Incidence of Acute Hepatitis B in Patients with Spinal Cord Injury.

## TRANSLATIONAL RESEARCH

## Presenter: Guilcher

70) Application of the Andersen's Health Care Utilization Framework to Secondary Complications of SCI: A Scoping Review.

(Continued next page)



# POSTERS

## TRANSLATIONAL RESEARCH (Continued)

### Presenter: Thompson

71) Operant Up-conditioning of the Tibialis Anterior Motor Evoked Potential in People with Incomplete Spinal Cord Injury.

### Presenter: Pomerantz

72) Operant Down-conditioning of the Soleus H-reflex in People with Incomplete Spinal Cord Injury.

### Presenter: Swaine

73) A Novel Ultrasound Protocol for Measuring Soft Tissues and Detecting Deep Tissue Injury in the Buttocks.

### Presenter: Hitzig

74) The Spinal Cord Injury Participation and Quality of Life (Par-QoL) Web-Based Tool-Kit.

### Presenter: Soril

75) Modeling the Provision of Care for Patients with Traumatic SCI in British Columbia.

### Presenter: Fingas

76) Classifying Neurological Impairment and Spinal Column Injuries: Does Administrative Coding Accurately Represent Clinical Diagnoses?

### Presenter: Rasheed

77) Improving Spinal Cord Injury Services in Canada through Accreditation.

### Presenter: Rasheed

78) Providing Incentives to Primary Care Physicians for Increasing Their Knowledge in SCI.

### Presenter: Ljungberg

79) Barriers for Newly Injured Individuals with SCI Returning to the Community.

### Presenter: Hsieh

80) Rehabilitation Outcomes in People with Spinal Cord Disease.

### Presenter: Dvorak

81) Estimating the Incidence and Prevalence of Spinal Cord Injury in Canada.

### Presenter: Craven

82) Fragments 1.0: Initiating Changes in Sublesional Osteoporosis Management through a Case Based Tool Developed from "Best Evidence" and Practice.

### Presenter: Hsieh

83) Best Practice Implementation: Physical Therapy Outcome Measures in SCI.

## FREE PAPERS

### Presenter: Babamohamadi

84) Coping Strategies Used By People With Spinal Cord Injury: A Qualitative Study.

### Presenter: Rathore

85) Suicide bombing as an Unusual Cause of Spinal Cord Injury: A descriptive Case series from Pakistan.

### Presenter: Murphy

86) Reasons for Job Loss Following Return to Work Post Traumatic Spinal Cord Injury.

### Presenter: van Koppenhagen

87) Physical Capacity After Spinal Cord Injury in a Follow Up Cohort Study 5 Years After Discharge and the Effects of Loss to Follow Up.

### Presenter: Kennedy

88) The Adapss a New Measure of Cognitive Appraisals Following Acquired Spinal Cord Injury.

### Presenter: Wong

89) A Three-Stage Evaluation of the Spinal Nutrition Screening Tool (SNST) in Patients with Spinal Cord Injuries (SCI) - Result From a UK Multi Centre Study.

### Presenter: Dalal

90) Prevalence of Dyslipidemia After Spinal Cord Injury.

### Presenter: Banovac

91) Prevalence of Hypertension After Spinal Cord Injury.

### Presenter: Banovac

92) Is Diabetes Mellitus More Common After Spinal Cord Injury?

### Presenter: Perret

93) Development of Exercise Performance after First Rehabilitation in Subjects with Spinal Cord Injury.

### Presenter: Alexander

94) Ampyra in Acute AIS B SCI without Preservation of Pinprick.

### Presenter: Scivoletto

95) Neoplastic Myelopathies And Traumatic Spinal Cord Lesions: Comparison Of Functional And Neurologic Outcome.

### Presenter: Scivoletto

96) Recovery Following Ischemic Myelopathies And Traumatic Spinal Cord Lesions.

### Presenter: Farnan-Kennedy

97) A Subspecialty Nursing Certification in Spinal Cord Injury: An Idea Whose Time has Come?

### Presenter: de Groot

98) Prospective Analysis of Lipid Profiles in People with Spinal Cord Injury from 1 Year to 5 Years After Discharge of Inpatient Rehabilitation.

### Presenter: Gururaj

99) Comparison of Sagittal Alignment, Balance of Spine and Pelvis Between Indian and European Population – A Pioneer Study.

### Presenter: Raghav

100) Efficacy of Peer Counseling in Facilitating Life Long Adjustment of People With SCI in South-East Asian Countries.

### Presenter: Rauch

101) A Case Report on the Application of the ICF (International Classification of Functioning, Disability and Health) in Rehabilitation Management in Spinal Cord Injury.

### Presenter: Franke

102) Development of Arm Hand Skilled Performance Up to 5 Years After Inpatient Rehabilitation in Persons with a Cervical Spinal Cord Injury.

### Presenter: New

103) Admission Delays for Patients Referred to a Spinal Rehabilitation Unit.

### Presenter: New

104) International Comparison of Non-traumatic SCI Rehabilitation: Survey of Services and Organisation of Care.

### Presenter: Angel

105) Getting on with Life Following a Spinal Cord Injury: Regaining Meaning Through Six Phases.

### Presenter: Forchheimer

106) Explaining the Dynamics of Pain Interference in Spinal Cord Injury.

### Presenter: Furlan

107) A Validation Study of the National Trauma Registry as a Canadian Spine Trauma Database.

### Presenter: Rutberg

108) The Role of the Spinal Cord Neurologist in the Reconstructive Handsurgery Team.

### Presenter: Bazzocchi

109) Intestinal Transit Study is an Essential Supplement for Defining Severity of Bowel Dysfunction in Patients with SCI: Correlation with Clinical Score.

### Presenter: Tate

110) Neurological Level of Injury as a Factor in Depression and the Use of Anti-depressants Among SCI-D Inpatients.



# POSTERS

**Presenter: von Groote**

111) International Perspectives on Spinal Cord Injury (IPSCI).

**Presenter: Eriks-Hoogland**

112) Measuring Body Structures and Body Functions from the ICF Perspective: Considerations for Biomedical Parameters in Spinal Cord Injury (SCI) Research.

**Presenter: Oleson**

113) Late Complications of Intrathecal Baclofen Pump Management.

**Presenter: Rauch**

114) Physical Activity in Persons with Spinal Cord Injury - What Makes the Difference?

**Presenter: Post**

115) SwiSCI: Design of an ICF-based Spinal Cord Injury Research Program in Switzerland.

**Presenter: Brinkhof**

116) SCI Characteristics and Outcomes of First Rehabilitation: First Evidence from the Swiss Spinal Cord Injury Cohort Study (SwiSCI).

**Presenter: Eelmae**

117) Epidemiology of Traumatic Spinal Cord Injury in Haapsalu Neurological Rehabilitation Centre from 2008-2010.

**Presenter: van Leeuwen**

118) Structural Relationships Between Personal Factors, Functioning and Subjective Quality of Life.

**Presenter: Brurok**

119) Arm Cycling combined with Lower Extremity Vascular Occlusion Enhance VO<sub>2</sub> Peak in Persons with High Level SCI.

**Presenter: Erhan**

120) Ultrasonographic Evaluation of Elbow Joint And Triceps Tendon Among Paraplegic Patients; A Preliminary Controlled Study.

**Presenter: Tørhaug**

121) Arm Cycling Combined with Passive Leg Cycling enhance VO<sub>2</sub> Peak in Persons with Spinal Cord Injury Above the 6th Thoracic Vertebra.

**Presenter: Rauch**

122) Rehabilitation Needs in Persons with Spinal Cord Injury in Post-Earthquake Haiti.

**Presenter: Meagher**

123) Indications and Trends in use of CT of the Renal Tract in Spinal Cord Injured Patients.

**Presenter: Lopez de Heredia**

124) Long-term Effect of MRI on Sacral Anterior Root Stimulators: The Stoke Mandeville experience.

**Presenter: Savas**

125) Neuropathic Pain in Patients with Spinal Cord Injury.

**Presenter: Hagen**

126) Health-Related Quality of Life Among Patients with Traumatic Spinal Cord Injuries.

**Presenter: Aito**

127) Incidence of Preventable Complications in Late SCI: A Worldwide Survey.

**Presenter: Lin**

128) Physical Therapy Workforce in the United States: Forecasting Nationwide Shortages.

**Presenter: Lin**

129) Occupational Therapy Workforce in the United States: Forecasting Nationwide Shortages.

**Presenter: Latt**

130) Analysis of New Spinal Cord Injury Admissions over a 10 year Period in a UK centre.

**Presenter: Swaine**

131) Ultrasonic Detection of Suspected Deep Tissue Injury – The Jury is Still Out About its Clinical Relevance.

**Presenter: Sarhan**

132) Complications Following SCI During the Acute Phase.

**Presenter: Tow**

133) Rehabilitation Outcomes of Robotic Assisted Locomotor Training in Spinal Cord Injured Individuals.

**Presenter: Hussain**

134) Extensive Dermatitis Artefacta in a Longstanding T4 Paraplegic Below the Level of Lesion.

**Presenter: Rupp**

135) Advanced Opportunities of Computer Implementations of the International Standards for Neurological Classification of Spinal Cord Injury.

**Presenter: Thumbikat**

136) Pressure Ulcers in the Immediate Post Injury Period.

**Presenter: Werhagen**

137) Causes of Traumatic Spinal Cord Injuries: Evidence from the Past 30 Years in the Area of Florence.

**Presenter: Radhakrishna**

138) Direct Cost of Care in Individuals Sustaining Spinal Cord Injuries from Motor Vehicle Collisions in the Province of Quebec.

**Presenter: Craven**

139) Secondary Health Conditions and Health Preference in Spinal Cord Injury.

**Presenter: Murray**

140) Ten Things You Might Not Know about SCIs Worldwide.

**Presenter: Noonan**

141) Bladder Dysfunction in Patients with Thoraco-lumbar Spinal Cord Injuries: A Long Term Follow-up Study.

**Presenter: Hosier**

142) Cardiometabolic Risk Profiles in Pre- Versus Postmenopausal Women with Spinal Cord Injury.

**Presenter: Guihan**

143) Colonoscopy is Safe for Veterans with Spinal Cord Injury or Disorder.

**Presenter: Walden**

144) Rick Hansen Spinal Cord Injury Registry (RHSCIR): A Canadian Initiative.

**Presenter: Delparte**

145) Comprehensive, Multimodal, Integrated Approach to Patient and Family Education following Spinal Cord Injury (SCI).

**Presenter: Craven**

146) Impairment and Rehabilitation Outcomes of Ontarians with Traumatic and Non-Traumatic SCI.

**Presenter: Wolfe**

147) Spinal Cord Injury Knowledge Mobilization Network.

**Presenter: Islam**

148) Pressure Ulcer: Current Status and Preventing Health Behaviour Utilised by Community Residing People with Spinal Cord Lesion (SCL) in Bangladesh.

**Presenter: Hasan**

149) Muscle Oxygenation Trend during FES-Assisted Cycling in Spinal Cord Injured Individuals.

**Presenter: Yeo**

150) Is The Progressive Necrosis Which Occurs in the Contused Spinal Cord Reversible?

# COURSES

## Instructional Course - I

### **Clinical Trial Outcome Measures for Acute/Sub-acute Cervical AIS-A SCI**

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**Date:** Monday, June 6, 2011

**Time:** 10:30 A.M. - 12:00 P.M.

**Room:** Independence A

#### **Educational Objectives:**

1. Update meeting participants about recent advances in clinical trial outcome measures (neurological and functional activities).
2. Discuss the strengths and limitations of these outcome measures.
3. Examine the merits of each outcome category to identify biological activity of a therapeutic and/or a clinically meaningful (i.e. functional) benefit.
4. Identify future goals and/or developments necessary for the assessment of clinical endpoints.

#### **Synopsis:**

Effective treatment after cervical SCI is imperative as so many activities of daily living are dependent on the functional recovery of arm and hand capacity. Here we focus on defining and comparing primary and secondary neurological and functional endpoints that might be used during acute or sub-acute Phase 2 clinical trials involving subjects with cervical sensorimotor complete SCI (ASIA Impairment Scale, AIS-A). For the purposes of this course, the trial would be examining the effects of a pharmaceutical drug, small molecule or cell

transplant on spinal tissue. Thus, neurological recovery is the intended consequence, which is most directly measured by assessing neurological impairment (e.g. motor aspects of ISNCSCI).

The challenge for clinical science is to measure improvement as precisely as possible (e.g. neurological impairment), but to define a clinically meaningful response in the context of functional improvement (impact on activity limitations).

#### **Course Chair:**

John Steeves, Ph.D., UBC, Vancouver, BC, Canada.

#### **Faculty:**

Kimberly Anderson, Ph.D., U. Miami, Miami, FL, USA.

Andrew Blight, Ph.D., Acorda Therapeutics Inc., Hawthorne, NY, USA.

Linda Jones, P.T., Geron Corp., Menlo Park, CA, USA.

Daniel Lammertse, M.D., Craig Hospital, Denver, CO, USA.

Sukhvinder Kalsi-Ryan, M.Sc., U. Toronto, Toronto, ON, Canada.

John (Kip) Kramer, Ph.D. (candidate), UBC, Vancouver, BC, Canada.

#### **Funding Source:** None.

This course represents the ongoing work of SCOPE (Spinal Cord Outcomes Partnership Endeavor).



# COURSES

## Instructional Course - 2

### **Multidisciplinary Approach to Dysphagia and Respiratory Care in Individuals with Spinal Cord Injury**

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**Date:** Monday, June 6, 2011

**Time:** 1:00 P.M. to 2:30 P.M.

**Room:** Independence F, G, H, I

#### **Educational Objectives:**

1. Best practices for clinical management of dysphagia in individuals with spinal cord injury including incidences, identification of risk factors, and medical complications will be reviewed.
2. Best practices for evaluation and monitoring of dysphagia in individuals with spinal cord injury including bedside swallow evaluation and videofluoroscopy swallow study will be discussed.
3. Respiratory monitoring and secretion management in SCI are vital prerequisites for the management of dysphagia –strategies employed to optimize pulmonary hygiene will be discussed.

#### **Synopsis:**

Dysphagia is known to occur in a significant number of individuals with spinal cord injury (SCI) presenting in acute care and inpatient rehabilitation.



It is estimated that 17% of individuals with SCI have dysphagia at admission to inpatient rehabilitation.

Our current prospective study has found dysphagia in 40% of individuals with tetraplegia who have been injured less than one month. Tracheostomy, nasogastric tube, and age have been

found to be significant risk factors.

The detrimental consequences of swallowing dysfunction in SCI include transient hypoxemia, chemical pneumonitis, mechanical obstruction, atelectasis, bronchospasm, and pneumonia. Thus, early and accurate diagnosis of swallowing dysfunction is felt to be imperative to reduce the risk of developing life-threatening complications.

This presentation will review the incidence of dysphagia, to discuss the use of bedside swallow evaluation (BSE) and videofluoroscopy swallow study (VFSS) to diagnose dysphagia, and to identify associated risk factors for and management of dysphagia in individuals with SCI. A speech pathologist will describe BSE as a screening tool as reliable as the VFSS for individuals with SCI. The role

of respiratory therapists in the care of individuals with SCI who have dysphagia also needs to be recognized.

Improved secretion management and respiratory stabilization enable the individuals with dysphagia to be evaluated sooner and safely by a speech pathologist. A respiratory therapy clinician will describe interventions / aggressive respiratory management such as using assist cough machine and high tidal volume ventilation, and a speech pathologist will describe the use of Passy Muir Valve for swallowing and vocalization.

#### **Course Chair:**

Kazuko Shem, M.D., Associate Chief, Department of Physical Medicine & Rehabilitation, Santa Clara Valley Medical Center, San Jose, CA, USA.

#### **Faculty:**

Kathleen Castillo, M.A., CCC-SLP, BRS-S. Speech Pathologist, Department of Physical Medicine and Rehabilitation, Santa Clara Valley Medical Center, San Jose, CA, USA.

Craig Ivie, RCP-NPS. Director, Respiratory Care, Santa Clara Valley Medical Center, San Jose, CA, USA.

#### **Funding Source:**

NIDRR Field Initiated Grant #H133G080165.

# COURSES

## Instructional Course - 3

### **Interaction of Pelvic Organs After Spinal Cord Lesion: Consequences for Bladder and Bowel Management**

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**Date:** Monday, June 6, 2011

**Time:** 2:30 P.M. - 4:00 P.M.

**Room:** Independence F, G, H, I

#### **Educational Objectives:**

1. Learn about the physiology and pathophysiology of interaction between bladder and bowel.
2. Learn how bladder management, as after spinal cord injury, can influence bowel function.
3. Learn how bowel management can influence bladder function.
4. Learn how bladder and bowel function influence sexuality.

#### **Synopsis:**

There is increasing evidence that urinary bladder and bowel have close neurophysiologic interactions. When the function becomes disturbed, as after spinal cord lesion, the interaction has consequences on the urinary and

bowel management. During this course it will be explained how, in our actual knowledge, such interaction needs to be dealt with. The influence of bladder and bowel function on sexuality will be discussed.

#### **Course Chair:**

Prof. Jean Jacques Wyndaele, University Hospital Antwerp, Edegem, Belgium.

#### **Faculty:**

Marcallee Sipski Alexander, M.D., Reno, NV, USA.

Inder Perakash, M.D., Palo Alto, CA, USA.

Michel Wyndaele, M.D., University Antwerp, Edegem, Belgium.

**Funding Source:** None.





# COURSES

## Instructional Course - 4

### Using the Spinal Cord Injury Common Data Elements: A Workshop

**Date:** Tuesday, June 7, 2011

**Time:** 11:00 A.M. to 12:30 P.M.

**Room:** Independence A



#### **Educational Objectives:**

1. Understand how consistent variable names and a common database structure are developed for the data elements in the International Spinal Cord Injury (SCI) Data Sets.
2. Learn how database structures can benefit collection and sharing of clinical data sets from trials and other clinical research studies.
3. Gain familiarity with the range of datasets developed and under development for SCI and learn to implement their use in both clinical practice and clinical research.

#### **Synopsis:**

**Objective:** To offer a workshop that describes the development of consistent variable names and a common database structure for the elements in the International SCI Data Sets.

**Setting:** NINDS, NIH, the CDE Project and The Executive Committee of the International SCI Standards and Data Sets committees (ECSCI).

**Methods:** The NINDS CDE Team creates variable names for each data element in the various International SCI Data Sets. ECSCI members review these in an iterative process to make variable names logical and consistent across data sets. Following this process, the working group for the particular data set reviews the variable

names, and further revisions and adjustments are considered. In addition, a database structure for each data set was developed allowing data to be stored in a uniform way, thus promoting data sharing across different studies.

**Results:** The International SCI Data Sets variable names and database specifications will be available through the websites of the International Spinal Cord Society (ISCoS) ([www.iscos.org.uk](http://www.iscos.org.uk)), the American Spinal Injury Association (ASIA) ([www.asia-spinalinjury.org](http://www.asia-spinalinjury.org)), and the NINDS CDE Project website ([www.CommonDataElements.ninds.nih.gov](http://www.CommonDataElements.ninds.nih.gov)).

#### **Course Chair:**

Fin Biering-Sørensen, M.D., D.M.Sc.

#### **Faculty:**

Fin Biering-Sørensen, M.D., DMSc – Clinic for Spinal Cord Injuries, NeuroScience Centre, Rigshospitalet, University of Copenhagen, Copenhagen, Denmark.

Susan Charlifue, Ph.D. – Craig Hospital, Englewood, CO, USA.

Michael J. DeVivo, DrPH – Department of Physical Medicine and Rehabilitation, University of Alabama at Birmingham, Birmingham, AL, USA.

Stacie T. Grinnon, M.Sc. – KAI Research, Inc. (An Altarum Company), Rockville, MD, USA.

Naomi Kleitman, Ph.D. – National Institutes of Health/National Institute of Neurological Disorders and Stroke (NIH/NINDS), Bethesda, MD, USA.

Yun Lu, Ph.D. – KAI Research, Inc. (An Altarum Company), Rockville, MD, USA.

#### **Funding Source:**

The Common Data Element Project is funded by the National Institute of Neurological Disorders and Stroke, National Institutes of Health (Contract #N01-NS-7-2372).

# COURSES

## Instructional Course - 5

### Functional Electrical Stimulation in SCI: From Theory to Practice

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**Date:** Tuesday, June 7, 2011

**Time:** 1:30 P.M. to 3:00 P.M.

**Room:** Independence A

#### **Educational Objectives:**

1. Identify appropriate candidates for FES usage, based on reviewed indications, precautions, and contraindications.
2. Establish achievable and pertinent functional outcomes utilizing FES.
3. Become familiar with physiologic basis of FES usage and how to alter treatment parameters to gain a desired response.

#### **Synopsis:**

This course will outline steps to practical application of functional electrical stimulation (FES) within Activity-Based Restorative Therapy (ABRT). Drawing from current evidence, the panelists will discuss specific applications of FES intended to help restore function lost to spinal cord injury and associated neurologic disease. The medical and therapeutic indications, precautions and contraindications will be reviewed to help

participants with appropriate patient selection, treatment planning, and assessment. Panelists will discuss the physiological implications of FES and how to alter parameters, including dosing and timing, for a desired response. Approaches to improve cortical representation and motor learning, as well as transitioning emerging movement into functional tasks will be discussed.

#### **Course Chair:**

Rebecca Martin, OTR/L, OTD, Manager of Clinical Education and Training, International Center for Spinal Cord Injury at Kennedy Krieger, Baltimore, MD, USA.

#### **Faculty:**

Kimberly Obst, OTR/L, Senior Occupational Therapist, International Center for Spinal Cord Injury at Kennedy Krieger, Baltimore, MD, USA.

Brooke Bamford, P.T., D.P.T., Physical Therapist, International Center for Spinal Cord Injury at Kennedy Krieger, Baltimore, MD, USA.

Cristina Sadowsky, M.D., Medical Director, International Center for Spinal Cord Injury at Kennedy Krieger, Assistant Professor, Johns Hopkins University School of Medicine, Baltimore, MD, USA.

John W. McDonald, M.D., Ph.D., Director, International Center for Spinal Cord Injury at Kennedy Krieger, Associate Professor, Johns Hopkins University School of Medicine, Baltimore, MD, USA.

**Funding Source:** None.



# COURSES

## Instructional Course - 6

### **Activity-based Therapies in Spinal Cord Injury: Clinical Focus and Empirical Evidence in Three Independent Programs**

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**Date:** Tuesday, June 7, 2011

**Time:** 3:30 P.M. - 5:00 P.M.

**Room:** Independence A



#### **Educational Objectives:**

1. Describe the theoretical basis and treatment modalities used in activity-based therapy programs.
2. Describe and contrast the approaches used in three different activity-based therapy programs.
3. Present findings of initial empirical studies examining the efficacy of activity-based therapy in promoting neuromotor recovery after SCI.
4. Discuss the cost-effectiveness of activity-based therapy and guidelines for determining which individuals are likely to benefit from therapy.

#### **Synopsis:**

Activity-based therapy refers to “interventions that target activation of the neuromuscular system below the level of the lesion, with the goal of retraining the nervous system to recover a specific motor task” (Behrman & Harkema, 2007). Intense physical activity has been shown to improve physiological function and health outcomes in individuals with chronic (> one year post-injury) spinal cord injury. The effects of intense activity on recovery of neurological functioning, however, have not been fully investigated nor verified. This symposium will examine the potential impact of “activity-based therapies” in promoting neurological recovery. The symposium will address the following topics concerning activity-based therapy in SCI: • Clinical approaches used – a comparison and contrast of four activity-based

therapy programs; • Empirical evidence, including preliminary results from a RCT, supporting efficacy of activity-based therapy in promoting neurological recovery and improving overall health, fitness, and quality of life; • Discussion of issues related to longterm viability of activity based therapy, including cost-effectiveness of therapy, and success of efforts to maintain gains achieved from therapy. The symposium will consist of several planned talks addressing these topics, followed by a panel discussion to promote audience participation. The interactive panel discussion will focus on identifying next steps needed (future research) to validate the effects and cost-effectiveness of activity-based therapy in recovery after SCI.

#### **Course Chair:**

Michael Jones, Ph.D., Vice President, Research and Technology, Shepherd Center, Atlanta, GA.

#### **Faculty:**

Candy Tefertiller, P.T., Director of Physical Therapy, Craig Hospital, Englewood, CO.

Eric Harness, CSCS, CSRS III, Director of Research and Development, Project Walk Spinal Cord Injury Recovery Program, Carlsbad, CA.

Paula Denison, P.T., OMPT Administrative Director, Center for Spinal Cord Injury Recovery, Rehabilitation Institute of Michigan, Detroit, MI.

#### **Funding Source:**

“Evaluating the Effects of Activity-Based Therapy for Individuals with Chronic Spinal Cord Injury”, Field-Initiated Grant Award Number H113G080031, US Department of Education, National Institute on Disability and Rehabilitation Research.

# COURSES

## Instructional Course - 7

### **Surgical Restoration of Arm and Hand Function in People with Tetraplegia**

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**Date:** Tuesday, June 7, 2011

**Time:** 3:30 P.M. to 5:00 P.M.

**Room:** Independence F, G, H, I

#### **Educational Objectives:**

1. Identify appropriate surgical procedures for restoring arm and hand function in people with tetraplegia.
2. Recognize the importance of characterizing paralysis by differentiating between upper motor and lower motor neuron damage.
3. Identify appropriate outcome measures to determine the effects of UE reconstructive surgery within the domains of the International Classification of Functioning, Disability and Health.
4. Be able to evaluate and recommend appropriate interventions for improving arm and hand function in people at all levels of tetraplegia.

#### **Synopsis:**

Improved hand and arm function is the most sought after outcome for people living with a cervical spinal cord injury. Surgical techniques have been established to increase upper extremity function for tetraplegics, focusing on restoring elbow extension, wrist movement, and hand opening and closing. Additionally, more innovative treatments that have been developed (implanted neuroprostheses and nerve transfers) provide more options for improving function and quality of life. This course will identify appropriate use criteria for upper extremity reconstruction in this complex population. We will review the process for determining the best intervention plan to reanimate arm and hand function at key stages of recovery: acute care, rehabilitation and beyond.

Participants will learn the process of determining the best interventions, including discussion of current classification systems for tetraplegia and

how they facilitate treatment planning. Education of appropriate surgical procedures and instruction in important prognostication techniques will ensue.

This course places a special emphasis on the tetraplegic shoulder including patterns of paralysis for each level of injury based on range of motion and strength data collected from 101 extremities. The complicating secondary effects of spinal cord injury, such as spasticity and contractures, which often prevent restoration of function will be reviewed. Novel methods for remediation will be presented.

Throughout the course, participants will be exposed to the interdisciplinary team required for a successful upper extremity program for people with tetraplegia. The evaluation of functional outcomes according to the World Health Organization's International Classification of Functioning, Disability and Health will be explored.

#### **Course Chair:**

Michael W. Keith M.D., Professor of Orthopaedics, Case Western Reserve University, MetroHealth Medical Center, Cleveland, Ohio, USA.

#### **Faculty:**

Harry A. Hoen M.D., Orthopaedic Hand Surgeon, MetroHealth Medical Center, Cleveland, Ohio, USA.

Kevin L. Kilgore Ph.D., Clinical Research Director, MetroHealth Medical Center, Case Western Reserve University, Cleveland, Ohio, USA.

Anne Bryden OTR/L, Clinical Rehabilitation Specialist, Case Western Reserve University Cleveland, Ohio, USA.

#### **Funding Source:**

FDA Orphan Products grant FD-R-002389.

NIH-NINDS (R01-NS-29549).

The Rehabilitation Research and Development Service of the Department of Veterans Affairs (A3707R).



## Instructional Course - 8

### **Patient Perspectives on Pain**

---

**Date:** Wednesday, June 8, 2011

**Time:** 10:30 A.M. to 12:00 P.M.

**Room:** Independence A



#### **Educational Objectives:**

1. To learn about treatment for spinal cord injury neuropathic pain.
2. To explore the impact of pain, complementary treatments, coping strategies, beliefs and expectations from the patient's perspective.
3. To reflect and discuss the gap between treatment recommendations and patient expectations.

#### **Synopsis:**

Nociceptive and neuropathic pain (NP) are common consequences following spinal cord injury (SCI).

Approximately 40-50% of those suffering an SCI will develop NP. Studies report that NP often is considered to be the major problem following SCI, and significantly impacts sleep, work, quality of life, and is associated with depression and anxiety.

Current treatment recommendations on SCI-NP primarily focus on pharmacological strategies suggesting the use of anti-convulsant and anti-depressant drugs, followed by tramadol and opioid medication, but these are unfortunately only partly successful in relieving pain.

Qualitative studies report that individuals with SCI and pain seek alternatives to medication due to limited efficacy, unwanted side-effects and perceived risk of dependency. They spend time and money searching for

additional treatments. Many have learned, on their own, how to cope with their pain with heat in various forms, relaxation, massage, stretching, distractions and physical activity. Clinicians will benefit from hearing the patient's voice.

Studies reveal that many individuals with SCI are dissatisfied with their pain management, with the information given to them about their pain, and want to know more about causes and management of pain. They express a desire to improve their communication with their physicians and alternative sources for getting information about their pain.

The discrepancy between treatment algorithms and patient expectations is large. What can we do to bridge the gap?

#### **Course Chair:**

Cecilia Norrbrink, RPT, Ph.D., Karolinska Institute, Dept of Clinical Sciences, Stockholm, Sweden.

#### **Faculty:**

Judith Hunter, B.Sc. P.T., M.Sc., Ph.D., Assistant Professor, Department of Physical Therapy, University of Alberta and University of Toronto, Canada.

Jacqueline A. Ellis, R.N., Ph.D., School of Nursing, University of Ottawa, Ontario, Canada.

Monika Löfgren, R.P.T., Ph.D., Karolinska Institute, Dept of Clinical Sciences, Stockholm, Sweden.

#### **Funding Source:** None.

#### **References:**

- Henwood P and Ellis JA. Chronic neuropathic pain in spinal cord injury: The patient's perspective. *Pain Res manage* 2004; 9:39-45.
- Henwood P, Ellis J, Logan J, Dubouloz C-J, D'Eon J. Acceptance of Chronic Neuropathic Pain in Spinal Cord Injured Persons: A Qualitative Approach. *Pain Management Nursing* 2010.
- Löfgren M and Norrbrink C. Neuropathic pain following spinal cord injury; coping strategies, beliefs and expectations. Manuscript in preparation.
- Norman C, Bender JL, Macdonald J, Dunn M, Dunne S, Siu B, Hit zig SL, Jadad AR, Hunter J. Questions that individuals with spinal cord injury have regarding their chronic pain: A qualitative study. *Disabil Rehabil.* 2010;32:114-24.
- Norrbrink Budh C and Lundeberg T. Non-pharmacological pain-relieving therapies in individuals with spinal cord injury; a patient perspective. *Complement Ther Med*, 2004;12:189-97.

# COURSES

## Instructional Course - 9

### **Secondary Complications in SCI Across the Continuum: Predicting the Impact and Optimizing Management Strategies**

**Date:** Wednesday, June 8, 2011

**Time:** 1:00 P.M. - 2:30 P.M.

**Room:** Independence A



#### **Educational Objectives:**

1. To describe how operations research methods can be utilized to examine clinical questions spanning the continuum for persons with traumatic SCI.
2. To demonstrate the impact of secondary complications (e.g. pressure ulcers, neuropathic pain, urinary tract infections, pneumonia, delirium) on system outcomes (e.g. length of stay) and patient outcomes (e.g. health utilities).
3. To demonstrate how management strategies for secondary complications can be targeted and optimally focused using the results of the computer simulation model.

#### **Synopsis:**

Secondary complications following SCI have a tremendous impact on a patient's quality of life and healthcare costs. There are many complications that result from either the injury itself (e.g. neuropathic pain) or from the care provided (e.g. pressure ulcers). A patient's journey through the health care system is influenced by clinical and system processes, which are integrated across the entire continuum beginning with the time of injury and continuing over a patient's lifetime. Research

has examined secondary conditions from the perspective of one or two phases but few studies have spanned the entire continuum.

This symposium will demonstrate how operations research methodology can be used to examine the impact of secondary complications on the health care system and patient outcomes and then directly compare various management strategies.

#### **Overview:**

This interactive symposium will focus on the novel concept of applying operations research methods to examine the impact of secondary complications in persons with traumatic SCI starting from the time of injury, during acute care and rehabilitation and throughout life. Approaches to predicting the impact of secondary complications will be presented based on results from a computer simulation model developed to describe processes of care and outcomes in persons with traumatic SCI.

#### **Course Chair:**

Marcel F. Dvorak, M.D. FRCSC, Professor and Head of the Division of Spine, Department of Orthopaedics, University of British Columbia.

#### **Faculty:**

Michael Fehlings, Ph.D., FRCSC, FACS, Professor, Department of Surgery, Institute of Medical Sciences, University of Toronto.

Anthony Burns, M.D., M.Sc., Associate Professor, Division of Physiatry, Department of Physical Medicine, University of Toronto.

Derek Atkins, Ph.D., Professor, Operations and Logistics Division, Sauder School of Business, University of British Columbia.

Vanessa Noonan, Ph.D., P.T., Director of Research, Rick Hansen Institute.

#### **Funding Source:**

The ACT project is funded by the Rick Hansen Institute, Health Canada and the provinces of British Columbia and Ontario.

# COURSES

## Instructional Course - 10

### **Psychosocial Outcomes Among Youth with Spinal Cord Injury and Their Primary Caregivers**

---

**Date:** Wednesday, June 8, 2011

**Time:** 3:00 P.M. - 4:30 P.M.

**Room:** Independence B, C, D, E

#### **Educational Objectives:**

1. To define psychosocial health for youth with spinal cord injury (SCI).
2. To present data related to the psychosocial health of a group of youth with SCI and their primary caregivers.
3. To discuss how to best measure psychosocial outcomes over time among youth with disabilities.

#### **Synopsis:**

The purpose of this course is to describe psychosocial health among youth with spinal cord injury (SCI). Specifically, data will be presented



from a prospective study of 420 youth with SCI ages 1-18, and 380 of their primary caregivers (primarily mothers). In addition, activity data will be presented from a study developing a computerized adaptive testing platform with 226 youth with SCI ages 8-21. Youth from both studies were receiving care at one of three pediatric specialty centers within one hospital system in the United

States. The course will begin with an overview of pediatrics and psychosocial health (Vogel). Course faculty will then present six constructs

critical to psychosocial health among youth with SCI, including activity (Mulcahey), participation (Klaas), quality of life (Garma), coping (Russell), anxiety (Anderson), and depression (Anderson). In addition, as an integral part of the pediatric world, there will be a presentation of caregiver outcomes and how these relate to outcomes of youth (Kelly). All presentations will demonstrate patterns of psychosocial health among youth with SCI by highlighting subgroup differences and examining relationships between outcomes and key demographic and injury-related factors. Further, when available comparisons will be made with published normative data. The course will conclude with a discussion of how to foster psychosocial health among youth with SCI, and how to best measure psychosocial health among youth with disabilities. The measurement discussion will focus on both the mode of measurement (i.e., paper- or computer-based), and the challenge of tracking outcomes over time across various age groups.

#### **Course Chair:**

Lawrence C. Vogel, M.D. Chief of Pediatrics, Shriners Hospitals for Children - Chicago, Chicago, IL.

#### **Faculty:**

Erin H. Kelly, Ph.D., Research Specialist, Shriners Hospitals for Children-Chicago, Chicago, IL.

Sara J. Klaas, M.S.W., Director, Spinal Cord Injury Service, Shriners Hospitals for Children-Chicago, Chicago, IL.

Heather F. Russell, Ph.D., Psychologist, Shriners Hospitals for Children-Philadelphia, Philadelphia, PA.

Caroline J. Anderson, Ph.D. Scientific Staff, Shriners Hospitals for Children-Chicago, Chicago, IL.

Mary Jane Mulcahey, Ph.D., Director of Rehabilitation and Clinical Research, Shriners Hospitals for Children-Philadelphia, Philadelphia, PA.

**Funding Source:** Shriners Hospitals for Children.



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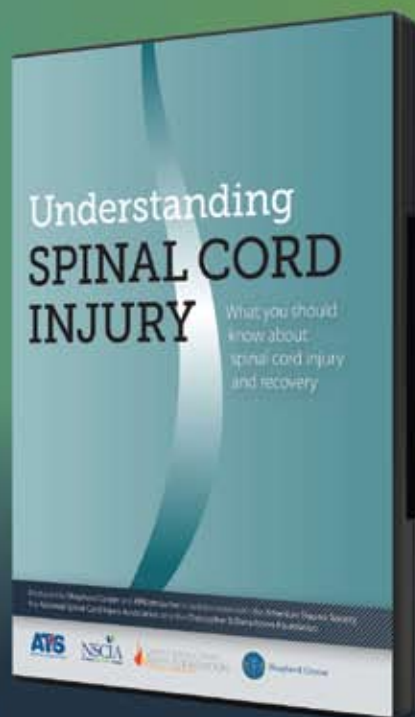
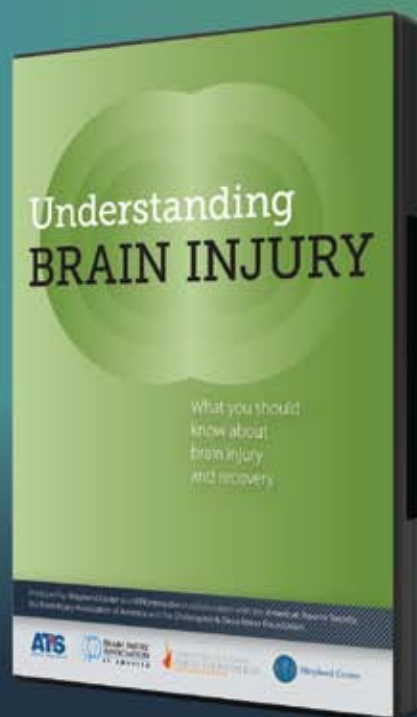
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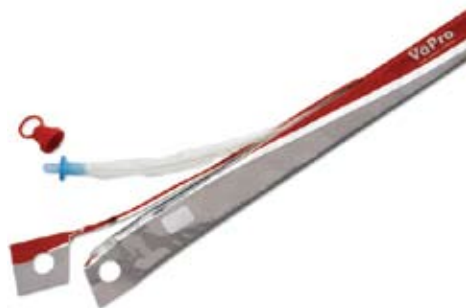
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Urine Collection Systems

# interdependence 2012

Hold the Date  
May 15 - 18, 2012



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#### Advancing SCI Research

- Acute SCI interventions
- Chronic SCI interventions
- Regenerative neuroscience
- Registry, data management and clinical trials
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## Hold the Date

May 15 – 18, Vancouver, British Columbia, Canada

An international conference and exposition with a focus on creating accessible communities and furthering spinal cord injury research for a cure.

[www.interdependence2012.com](http://www.interdependence2012.com)

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**Michael Kennelly, MD** *Director, Urology Department, Carolinas Rehabilitation;  
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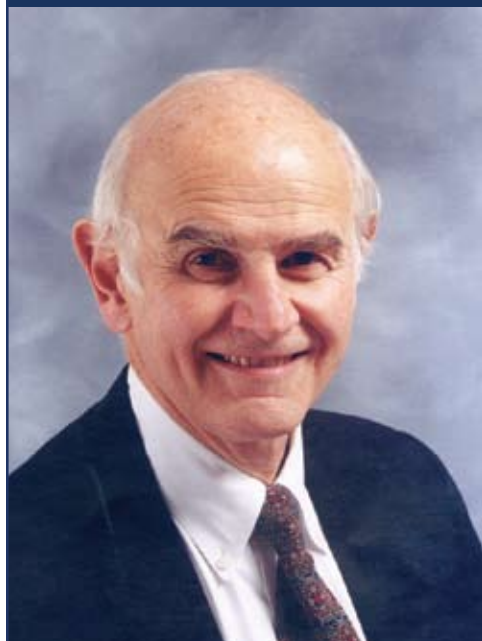
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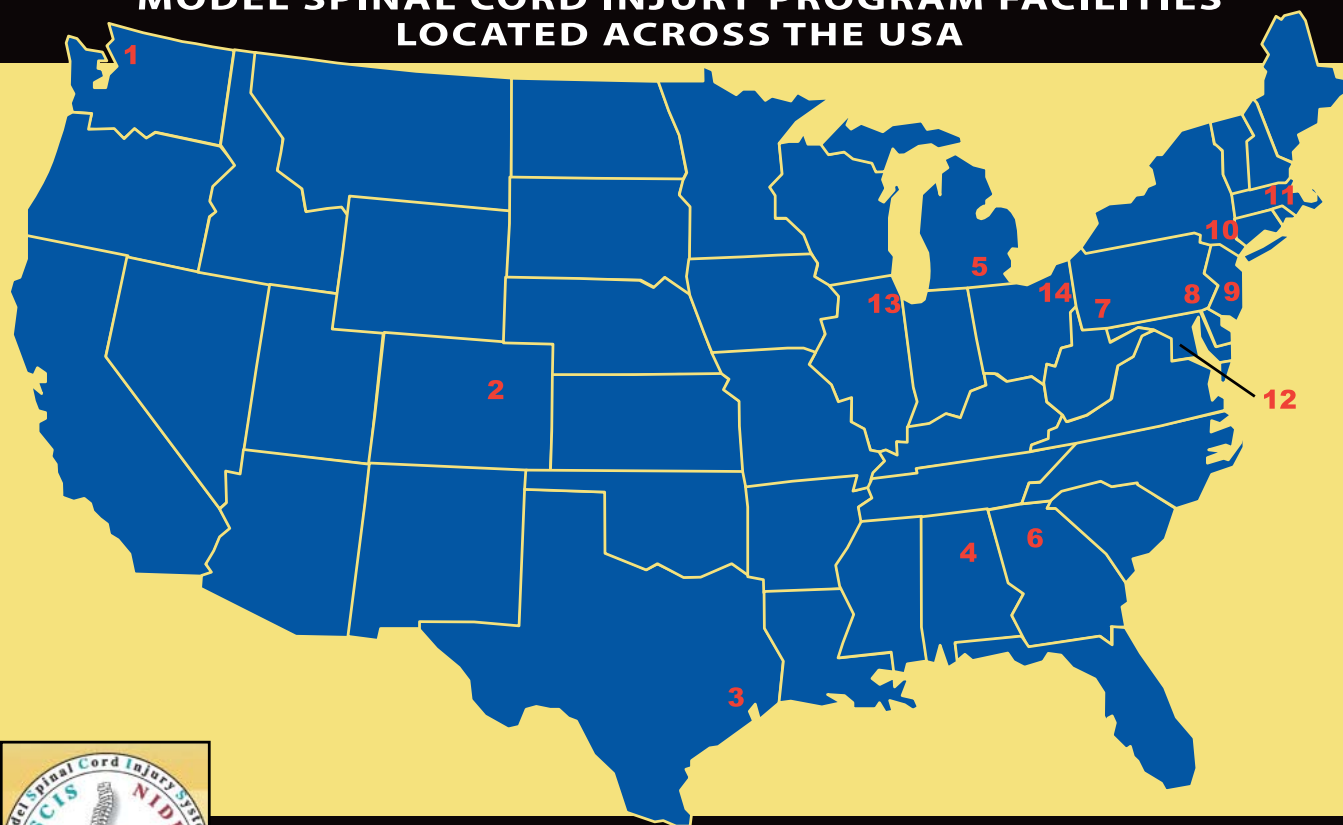
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### The National Institute on Disability and Rehabilitation Research (NIDRR)

sponsored SCI Model System (SCIMS) is a 14 facility network across the United States. The program which funds the research and demonstration projects in this system, under the U.S. Department of Education, has been in effect since 1971. The current grant cycle is 2006-2011.

- |   |   |   |
|---|---|---|
| <p><b>(1)</b><br/>Northwest Regional SCI Care System<br/>University of Washington<br/>Harborview Medical Center<br/>Seattle, Washington<br/><a href="http://depts.washington.edu/rehab/sci/">http://depts.washington.edu/rehab/sci/</a></p> <p><b>(2)</b><br/>Rocky Mountain Regional SCI System<br/>Craig Hospital<br/>Englewood, Colorado<br/><a href="http://www.craighospital.org">www.craighospital.org</a></p> <p><b>(3)</b><br/>Texas Regional SCI System<br/>The Institute for Rehab. and Research at Memorial Hermann<br/>Houston, Texas<br/><a href="http://www.tirr.org">www.tirr.org</a></p> <p><b>(4)</b><br/>UAB Regional SCI Systems<br/>Univ. of Alabama in Birmingham<br/>Birmingham, Alabama<br/><a href="http://www.spinalcord.uab.edu">www.spinalcord.uab.edu</a></p> <p><b>(5)</b><br/>University of Michigan<br/>Model SCI Care System<br/>Ann Arbor, Michigan<br/><a href="http://www.med.umich.edu/pmr/modelsci/">www.med.umich.edu/pmr/modelsci/</a></p> | <p><b>(6)</b><br/>Southeast Regional SCI Care System<br/>Shepherd Center<br/>Atlanta, Georgia<br/><a href="http://www.shepherd.org">www.shepherd.org</a></p> <p><b>(7)</b><br/>University of Pittsburgh<br/>Pittsburgh, PA<br/><a href="http://www.herlpitt.org">www.herlpitt.org</a></p> <p><b>(8)</b><br/>Regional SCI System of Delaware Valley<br/>Thomas Jefferson University Hospital<br/>Philadelphia, Pennsylvania<br/><a href="http://www.jeffersonhospital.org/rehab/index.html">www.jeffersonhospital.org/rehab/index.html</a></p> <p><b>(9)</b><br/>Northern New Jersey SCI System<br/>Kessler Institute for Rehabilitation<br/>West Orange, New Jersey<br/><a href="http://www.kmrrec.org/NNJSCIS">www.kmrrec.org/NNJSCIS</a></p> <p><b>(10)</b><br/>Mt. Sinai SCI Model System<br/>Department of Rehabilitation Medicine<br/>The Mount Sinai Medical Center<br/>New York, New York<br/><a href="http://www.mssm.edu/rehab/spinal/">www.mssm.edu/rehab/spinal/</a></p> | <p><b>(11)</b><br/>New England Regional SCI System<br/>Boston Medical Center<br/>Boston, Massachusetts<br/><a href="http://www.bmc.org/rehab">www.bmc.org/rehab</a></p> <p><b>(12)</b><br/>National Rehabilitation Hospital<br/>Washington, DC<br/><a href="http://www.nrrehab.org">www.nrrehab.org</a></p> <p><b>(13)</b><br/>Midwest Regional SCI Care System<br/>Northwestern Memorial Hospital<br/>Rehab. Institute of Chicago<br/>Northwestern University<br/>Chicago, Illinois<br/><a href="http://www.ric.org">www.ric.org</a></p> <p><b>(14)</b><br/>MetroHealth Spinal Injury Cord Services<br/>MetroHealth Center for Rehabilitation<br/>Cleveland, Ohio<br/><a href="http://www.metrohealth.org">www.metrohealth.org</a></p> |
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