

# Spinal Cord Injury SIG

Winter 2014



## Letter from the Chair

Welcome to our Winter 2014 Newsletter!



**KJ Hutchinson**  
SCI SIG Chair

If you are making a lot of health-related resolutions for the New Year, consider using currently available technology to help you on your way. You can sign up for 'google-alerts' to remind you a few times a wk of what your weight loss goals may be or when your favorite exercise class is being offered. The Polar Loop Activity Tracker "Move 24/7" is a small wrist brace you wear and tracks your activity, literally 24 hours a day. It keeps track of the speeds you move and computes your running/walking/stationary and recumbent sleeping time! If you are a data-driven exerciser, this gadget may be just for you! You can see results on your computer or download an app to send it to your phone. Or sign up for a new exercise class with a friend. We know that social activities tend to increase adherence to exercise. Not only can we do these activities ourselves, but we also need to pass along these same recommendations to our patients before discharge. Furthermore, work-related resolutions can improve your quality of life, as well! Consider some additional positive changes you can make to improve your job satisfaction and even impact your PT career. You can do something relatively simple like start *regularly* reading our journal (JNPT.org) or organize a journal club where you work. The Neurology Section's Practice Committee has empowered each of the SIGs to provide great articles, with full explanations, for clinician's to use to facilitate the journal club process. See <http://www.neuropt.org/professional-resources/journal-club> for currently posted article summaries. This link will get you well on your way to running a journal club at your own facility. You could also consider participating on our SCI SIG. We currently have nominating committee and chair positions opening in June 2014. Be part of a passionate group of professionals interested in improving the lives and care for those with SCI. For more information, please see page 7 or you can email or anyone on our SCI SIG committee at any time.

For anyone lucky enough to be going to CSM

this year (Feb 3-6<sup>th</sup>, 2014, Las Vegas, NV), we have a great line up of presenters awaiting you. This newsletter has been formatted so that you can see the SCI-related programming for CSM 2014 at-a-glance. So don't forget to pack this newsletter before you go! Some highlights for SCI education include a presentation by **Twala Maresh, PT, DPT, NCS, ATP**; **Laura Cohen, PT, PhD, ATP/SMS**; and **Allison Fracchia, PT, ATP/SMS** on assistive technology considerations for promoting successful aging in a person with SCI (see page 5 for details). And **Andrea Behrman, PT, PhD** has assembled a team of presenters to share what they has learned about locomotor training, using body weight support and a treadmill, for persons with SCI. We are sincerely grateful to all our presenters for lending their time and talents for the benefit of our members!

In our most recent newsletters (Spring and Fall of 2013), we have been very fortunate to learn about state-of-the-art bowel and bladder care for persons with SCI. In our current newsletter we focus on sexual function after SCI (reproductive health will be a topic for our Spring newsletter). Our Nominating Committee Chair, **Lauren McCollough, DPT** has met with the experts and has an exciting newsletter prepared for you. Turn to page 2 for more details.

That is all for now. I hope you all have a very happy and healthy 2014!

Until next time.....

Karen J. Hutchinson  
SCI SIG Chair

### SCI SIG Officers:

- Karen J. Hutchinson, Chair
- Meghan Joyce, Vice Chair
- Marcie Kern, Secretary
- Lauren McCollough, Chair Nominating Com.
- Twala Maresh, Nominating Com.
- Erin Culverhouse, Nominating Com.

### Inside this issue:

Letter from the Chair	1
Male Sexual Function post SCI	2-3
Clinician's Corner: FAQ about sex after SCI	4
Sexual function Resources	4
Combined Sections Pull Out for SCI related Programming	5-7
CSM SCI Related: Tuesday	5-6
CSM SCI Related: Wednesday	6
CSM SCI Related: Thursday	7



**Paralyzed Veterans  
of America**

The Paralyzed Veterans of America is looking for physical therapists to review submitted proposals for research grants. If you are interested, please contact Maureen Simonson at [MaureenS@pva.org](mailto:MaureenS@pva.org)

## Male Sexual Function after Spinal Cord Injury

Lauren McCollough, DPT

Information gathered from *Spinal Cord Medicine: Principles and Practice*, full citation found on page 3.

After a spinal cord injury, no matter the etiology of the injury, it is a unique life changing event for both the person affected and everyone in their life. There are so many changes about them physically, mentally, and in daily activities. Medicine and rehabilitation for education, independence, and community integration have a very long way, however there is important topic that is still considered taboo and is therefore very often under-communicated, under-educated and under-treated... Sexual function. In this newsletter we hope to provide some basic information and resources to allow you to start the conversation with your patients or feel more comfortable and knowledgeable in answering the important and sensitive questions your patients might have. Education and treatment often falls to the PT (positioning), OT (adaptive devices) or RN (medical education) so it is our responsibility to be educated and open for our patients on this subject.

Approximately 75% of people with SCI are male so this article will focus on male sexual function after SCI, and the next newsletter will continue with female sexual function and fertility. So, first let's review some basic anatomy and physiology with a focus on pathways and spinal levels for able-bodied male sexual function. There are many components from both central and peripheral nervous systems, as well as, supra-spinal and spinal pathways interacting for sexual function to occur.

Male erection is primarily a vascular event with changes to basal smooth muscle tone, blood flow, vascular occlusion, and resulting pressure increases. There are two neurogenic pathways for arousal and erection: Psychogenic (mentally induced) and Reflexogenic (mediated solely by reflex arc in spinal cord). The psychogenic pathway begins with any afferent sensory stimuli which could be considered pleasurable (including but not limited to genitalia), which travels up the spinothalamic tracts to the brain. Descending pathways from the brain then control the thoracolumbar sympathetic (T10-L2) outflow, and sacral outflow (S2-S4) which both contribute to psychogenic erections. Reflexogenic erections are mediated by a reflex arc in the sacral cord, with afferent pathways (touch, rub, deep pressure, and visceroreceptive stimuli) and efferent pathways via preganglionic axons to the pelvic plexus. It is important to keep in mind that simply obtaining an erection does not always lead to sexual function for pleasure or reproduction. Many men have difficulty sustaining an erection, and this difficulty increases after spinal cord injury.

Ejaculation is regulated through T10-S4 segments and is under supraspinal control, although it can be triggered by these segments if supraspinal control is lost. Ejaculation is separated into two stages: seminal emission and propulsive ejaculation or expulsion. Seminal emission is when sperm is transported from the storage site and smooth muscle peristalsis is initiated, and contraction of seminal vesicles and prostate begin, this process is mediated by T10-L2. This first stage of ejaculation is still related to subjective arousal (if supraspinal pathways are intact) and is under some voluntary control if all supraspinal pathways are intact. Sympathetic input causes closure of the bladder neck via L1-L2 as well as the external sphincter. This creates an increase in pressure, protects retrograde propulsion to the

bladder, and at this point ejaculation is inevitable and not voluntarily mediated. In stage two, propulsive ejaculation, S2-S4 is responsible for spasmodic contractions resulting in propulsion. Orgasmic sensations usually accompany this phase. Normal ejaculation requires close coordination of sympathetic, parasympathetic, and somatic components as well as efferent pathways driving motor outputs generated in the thoracolumbar and lumbosacral nuclei. There is thought to be an ejaculation generator found in the lumbosacral cord, which coordinates emission and expulsion phases.



Orgasm typically occurs in conjunction with ejaculation, but they are separate neurophysiologic events and do not have to occur at the same time nor does have to occur for the other to. Orgasm is not well defined for fully understood so self report is mostly used in this area, as there can be orgasm with or without genital stimulation, and with or without cortical or psychogenic input. It is thought to be a reflex response of the sacral autonomic and somatic nervous system that can be facilitated or inhibited by cerebral input.

**Sex, Continued page 3**

***Congratulations to SueAnn Sisto, PT MS, PhD, our former SCI SIG Vice Chair; who is the newly elected president of ACRM.***

***Way to go, SueAnn!***



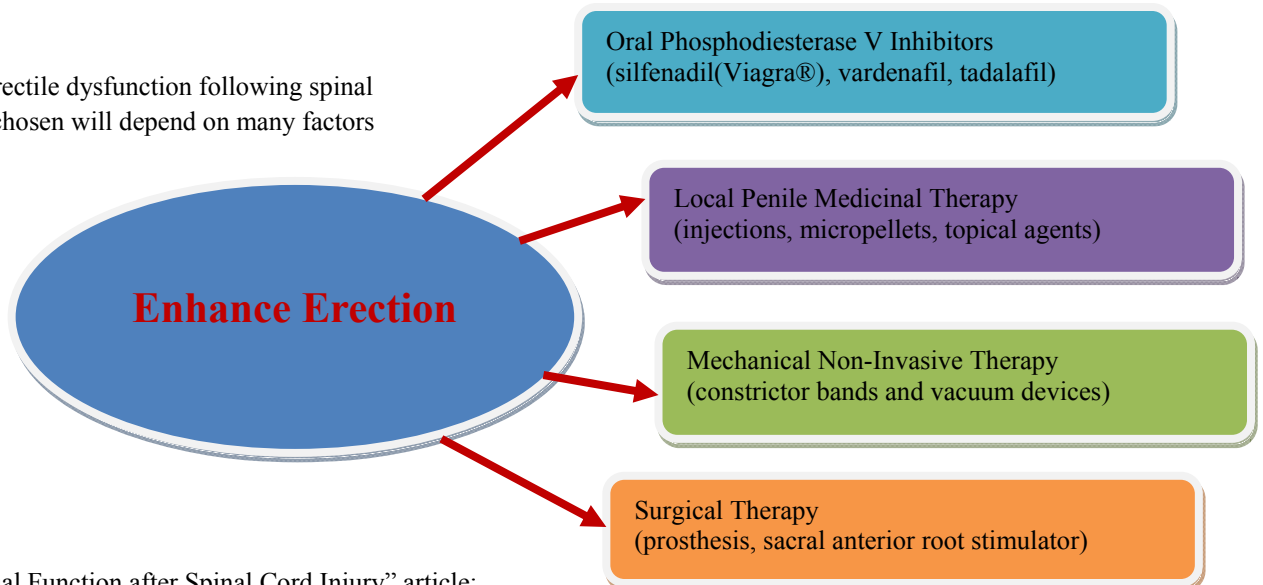
**Dr. SueAnn Sisto**

## Male Sexual Function after Spinal Cord Injury , Continued

What does this mean for men after SCI? In general those with incomplete injuries and upper motor neuron injuries have better prognosis for erectile function than those with complete or lower motor neuron injuries. One’s ability to have arousal, erection, ejaculation and orgasm are variable depending on level and severity of injury (see Table 1 below) and are especially variable in those with incomplete injuries, as all sensory and motor function is with these injuries. It is also important to keep in mind that factors other than neurological (the SCI) can contribute to sexual dysfunction after SCI (depression, use of antispasmodics, diabetes, bowel and bladder control, spasticity, positioning, cardiovascular capabilities).

Level and Severity	Arousal/Erection	Ejaculation
Complete above T6	Reflexogenic preserved or even enhanced	Potential for complete ejaculation due to intact T10-S4 cord. Least likely to ejaculate through private sexual practice
Complete T6 -T10	Variable, but pin prick sensation at T11-L2 is related to preserved psychogenic Injury to cord between the two pathways leads to unreliable erection due to synergism pathway interrupted	
Conus Terminalis	May have spared psychogenic if some thoracolumbar fibers intact	Loss of seminal emission if thoracolumbar chain disrupted Retrograde expulsion if L1-L2 damage
Sacral Damage	Abolished reflexogenic but intact psychogenic due to thoracolumbar pathway intact	Failure of propulsitile ejaculation if parasympathetic or somatic pathways disrupted
Incomplete UMN	Spared descending spinal pathways which may maintain some coordination of the various systems	Possibility for variable control or abnormal ejaculation
Incomplete LMN		Most likely to ejaculate due to thoracolumbar and sacral pathways having partial sparing

Therapeutic options for erectile dysfunction following spinal cord injury. The method chosen will depend on many factors including, patient comfort, partner comfort, physician bias, patient dexterity, and reason for treatment (unable to attain, versus unable to maintain erection). There are four methods of treatment as shown in the figure at right. ■



Reference for “Male Sexual Function after Spinal Cord Injury” article:  
 Elliott, Stacy, MD. "Sexual Dysfunction and Fertility in Men with Spinal Cord Injury." *Spinal Cord Medicine: Principles and Practice*. Lin, Vernon W., and Christopher M. Bono: Demos Medical Publishing, 2010. 409-28.

Figures created for this article by Lauren McCollough, PT.

## Clinician's Corner: Frequently Asked Questions about sex after SCI

Liza Crizwell, OTR

Senior OT at TIRR/Memorial Hermann for 12 years, provides sexual education to SCI population. Liza has provided the top questions she gets from patients about sex, and how she would answer those questions.



### “Does the opposite sex still find me sexy/attractive if I am in a wheelchair?”

— My answer: "Sex appeal comes from within. How you feel about yourself translates to your physical appearance. If you feel good about yourself, it increases your self confidence therefore it is easier to interact with the opposite sex. The more independent you become with activities of daily living, the more you become sure of your self. The more knowledgeable you are with your disability, the easier to answer questions thrown to you by the opposite sex especially with the issue of sexuality".

### “How could I maintain my erection during intercourse?”

— My response: " There are several methods/options to help attain and/or maintain erection. Consult your healthcare provider ( MD who specializes on erectile dysfunction, usually urologist) MD can prescribe the right medication (oral or via penile injection). You could also use different devices such as penile ring, penile vacuum pump and penile vibrator. Do not forget to involve your sexual partner. Female partner can perform "stuffing method" (performing Kegel Exercise while penis is inside the vagina) to stimulate the penis and help maintain erection."

## More Resources for you and your Patients!

Please be aware that many of these materials contain explicit educational material and should be viewed in full prior to providing to a patient.

Video interviews and information about Dr. Elliott's research  
<http://icord.org/researchers/dr-stacy-elliott/>

Video documentary about people with disability and their sexual experiences  
<http://thelasttaboodocumentary.com/>

<http://www.facingdisability.com/spinal-cord-injury-videos/social-life-and-sex/what-about-sex-and-dating>

Sexual Health Rehabilitation at BCIT now open!  
For more information or to register,  
Check out the BCIT website:  
<http://www.bcit.ca/health/industry/sexualrehab.shtml>

SCI sex education manual created with OTs  
[http://www.dhrn.ca/files/sexualhealthmanual\\_lowres\\_2010\\_0208.pdf](http://www.dhrn.ca/files/sexualhealthmanual_lowres_2010_0208.pdf)



### Call for Abstracts

2014 Annual Conference of the  
Academy of Spinal Cord Injury Professionals  
St. Louis, Missouri – Hyatt Regency at the Arch  
August 31- September 3, 2014  
Submission website now open!  
Online submission only: <https://www.firmems.com/ascip/>  
Abstract Submission Deadline: February 10, 2014



## SCI Specific Programming at CSM 2014

There are some great educational, platform, and poster presentations that are SCI specific or can be used in your SCI population treatment. Be sure to check these out while you're enjoying all the programming and Las Vegas!

**Tuesday February 4th**

### Educational Sessions:

[\(NE-1A-1742\) Anne Shumway-Cook Lecture---My Wonderful Neurorehabilitation Journey: Where I've Been and Where We Could Go](#)

Neurology 8:00 a.m. to 10:00 a.m.

*This lecture will provide an exercise into the inquiry and discovery processes involved in one person's pursuit of understanding observations regarding rehabilitation to improve movement and posture in poststroke survivors and older adults. The lecture is designed to motivate clinicians and researchers to aggressively and persistently seek answers to clinical questions while also showing how the discoveries from one set of observations led to the formulation of new questions. Collectively, the aggregate of answers results in an opinion that the person stalking the acquisition of knowledge has made a contribution. The experiences offered by Dr Wolf should reflect the very character that defines Anne Shumway-Cook.\**

[\(NE-1A-6758\) Assistive Technology to Promote Optimal Aging for People With Spinal Cord Injuries](#)

Neurology 8:00 a.m. to 10:00 a.m.

*Assistive technology can level the playing field for individuals with mobility impairments by enabling maximal function and independence. This course will address challenges that a person with spinal cord injury may face post rehabilitation and as a result of aging with a disability. When complications from overuse injuries and pain arise, physical therapists are often faced with initiating conversations with individuals to identify alternative solutions and approaches to accomplishing daily activities while preserving function and independence. This course will discuss considerations, trade-offs, and the decision-making process regarding mobility equipment, home and environmental modifications, and transportation recommendations. Documentation requirements and funding resources will be explored. Time will be allotted for audience participation and discussion of case examples.\**

*\* Descriptions pulled from CSM programming guide*

### Platform presentations:

NEUROLOGY SECTION MODERATED PLATFORM SESSION I: GAIT AND BALANCE 8:00 a.m.–10:00 a.m. (Veronese-2403)

**Body-Weight Supported Treadmill Training Is No Better Than Overground Gait Training During Intensive Mobility Training For Individuals With Chronic Stroke, A Randomized Control Trial**

**Speaker: Stacy Fritz, PT, PhD 8:45 a.m. – 9:00 a.m.**

**Locomotor Requirements for Bipedal Locomotion: A Delphi Survey**  
**Speaker: Lois Hedman, PT, DScPT, MS 9:15 a.m. – 9:30 a.m.**



Annual Scientific Meeting Sept. 2-4  
MECC, Maastricht, The Netherlands

**Call for Abstracts** for the following themes  
Orthotics (including FES) □ Ageing  
Physical capacity □ Sexuality □ Consumer  
Rights □ Free Papers

Submission Deadline: Feb 3 2014  
<http://www.iscosmeetings.org>



## Tuesday continued

### Poster Presentations

1016 **Underwater Treadmill Training for Cardiovascular Endurance in a Patient with Incomplete Paraplegia: A Case Report** *Tisdale L, Miller GT* Tisdale L Tuesday, Feb 4 1:00 pm □ 3:00 pm

1070 **Rehabilitation of an Aging Adult with Peripheral Neuropathy and Underlying Central Nervous System Pathology Using Body Weight Supported Treadmill Training** *Hartley GW, Bulman MA, Jackson JV, Nunez SY, Nzeribe G, Joseph S* Bulman MA Tuesday, Feb 4 1:00 pm □ 3:00 pm

1171 **Test-Retest Reliability of Upper Extremity Peak Muscle Force using Hand Held Dynamometry in men with Spinal Cord Injury** *La Fountaine MF, Rene B, Yoon JC* Rene B Tuesday, Feb 4 1:00 pm □ 3:00 pm

## Wednesday February 5th

### Platform Presentations

[\(NE-2B-1940\) Neurology Platform Presentations 2: Motor Learning and Cognition](#)

Neurology Platform 11:00 a.m. to 1:00 p.m.

No description listed for platform presentations.

Section on Research Moderated Platform Session

11:00 a.m.—11:08 a.m. Moderator: Justin Beebe, PT, PhD

**Tele-Rehabilitation Combined with A Home Exercise Program for Manual Wheelchair Users: Its Effect on Pain, Function, and Strength of the Shoulder** 12:13 p.m. - 12:26 p.m. Speaker: Meegan Van Straaten, PT, MSPH

### Section Meeting

[\(2631\) Myelin Melter and Neurology Section Business Meeting: Leading the Way in Neurologic Physical Therapy](#)

Neurology Section Meeting 7:00 p.m. to 10:00 p.m. In Venetian G

#### ASIA 2014 Annual Scientific Meeting



Dates: May 14-17, 2014  
San Antonio, Texas  
[Marriott Rivercenter](#)

Registration opens in January of 2014  
<http://www.asia-spinalinjury.org/annmtg/2014info.php>

#### NEXT Conference & Exposition

June 11-14, 2014 | Charlotte, North Carolina



June 11-14, 2014  
Charlotte Convention Center  
<http://www.apta.org/NEXT/>



Registration Open Now!



## Thursday February 6th

### Educational Sessions

[\(NE-3B-5723\) SCI SIG: Locomotor training: Evaluation of a Standardized SCI program](#) **Neurology 11:00a.m. to 1:00p.m.**

*Locomotor training (LT) is a task-specific therapy to promote recovery of sitting, standing, and walking and physiological functions after neurologic injury. For 7 years, 6 rehabilitation centers have provided a standardized outpatient LT program for people with spinal cord injury (SCI) through the Christopher and Dana Reeve Foundation Neuro-Recovery Network (NRN). Treatment efficacy is robustly evaluated across function, health, and quality of life. NRN integrates the expertise of scientists, physicians, physical and occupational therapists, and administrators. This session will highlight recent publications of comprehensive program evaluation for LT that guide patient selection, outcomes use, and clinical decision making. Case videos will demonstrate application of LT principles to optimize recovery across 3 environments: retraining on the treadmill, assessment of skills over ground, and community integration. Presenters will discuss assistive devices, appropriate assessments, and strength-related prediction of outcomes. Such evidence results from a multicenter approach of standardized program implementation and evaluation that more rapidly informs clinical practice. Strategies and options for practical integration of LT into inpatient and outpatient comprehensive rehabilitation programs will be introduced.\**

*\* Description pulled from CSM programming guide*

### Poster Presentations

**3071 Overground locomotor training to restore walking in an individual with acute incomplete spinal cord injury** *D'Alessandro AM, Spiegel PM, Fox EJ* D'Alessandro AM Thursday, Feb 6 1:00 pm □ 3:00 pm

**3072 A Bioinspired Self-Powered Walking System to Facilitate Walking for People with Severe Disabilities** *Glaister B, Schoen J, Kawahara C, Pacanowsky A, Zachar M, Byl N* Glaister B Thursday, Feb 6 1:00 pm □ 3:00 pm

**3073 Assessing life-space after spinal cord injury: test-retest reliability and influencing factors** *Lanzino D, Sander E, Mansch B, Jones A, Gill M, Hollman JH* Lanzino D Thursday, Feb 6 1:00 pm □ 3:00 pm

**3074 Therapeutic Integration of Golf for Exercise Rehabilitation in Someone with an Incomplete Spinal Cord Injury** *Moriello G, Cole R, Ryan B, Schuck A, Swift SR* Moriello G Thursday, Feb 6 1:00 pm □ 3:00 pm

**3075 Backward walking to improve balance and mobility in a person with a chronic spinal cord injury** *Foster HE, DeMark L, Spiegel PM, Rose DK, Fox EJ* Foster HE Thursday, Feb 6 1:00 pm □ 3:00 pm

**3076 Somatosensory Stimulation in Combination with Locomotor Training in Spastic Upper Extremity after SCI** *Schrivier HT, Basso D, Lebens Fetherolf* Schrivier HT Thursday, Feb 6 1:00 pm □ 3:00 pm

**3077 Altered reflex contributions to increased muscle activation during eccentric contractions in individuals with incomplete spinal cord injury** *Kim HE, Thompson CK, Hornby T* Kim HE Thursday, Feb 6 1:00 pm □ 3:00 pm

### The SCI SIG wants YOU!!

We are still accepting nominations for the following positions; **Chair** and **Nominating Committee**. The positions will be voted upon in the 2014 elections. In order to fill out the nomination forms, you must be logged in as a member. Then go to "Members", "Nomination Forms" on the far right drop down menu. You can use this link: <http://www.neuropt.org/members/nomination-forms> but again you have to be logged in before it will work (otherwise it will just say error). A new form must be filled out each time you are nominated.

Becoming involved with our SIG is a wonderful way to keep current with what is happening around the country in the area of spinal cord management as well as conversing with therapists providing spinal cord injury treatment and research. If you have questions about any of the positions please contact a member of the SCI SIG nominating committee, and we would be happy to answer your questions.

**Contact [Lauren\\_Mccollough@shepherd.org](mailto:Lauren_Mccollough@shepherd.org) with any questions!!**