

spinal cord injury

UPDATE

Department of Rehabilitation Medicine

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Depression after SCI: *Myths and Facts*

Depression is a loaded word and sometimes seems taboo or embarrassing to talk about. Maybe the stigma of depression has to do with myths and misconceptions we have about this condition. Perhaps if we dispel some of the myths and focus on facts we can do a better job of dealing with this condition in people with SCI.

Myth 1: “Of course I am depressed! Wouldn’t you be?”

A common belief is that after SCI everyone gets depressed. Some call this the hopelessness myth. The thinking goes something like this, “If I can’t walk I can never be happy again, therefore, I am depressed.” Part of this myth has to do with the definition of the word depression. We are not talking about the intense feelings of shock, loss and sadness that often come in waves during the first few days and weeks after SCI. Those feelings are common and normal. We are talking about persistent sad mood or loss of interest in life, as well as changes in sleep and appetite, poor energy, difficulty concentrating or making decisions, worthlessness or guilt, being restless or

slowed down or having recurrent thoughts of death or suicide. When these symptoms last more than a couple of weeks we call this “major depression.”

Fact:

Only about 22% of people with SCI have major depression. One study found that during inpatient rehabilitation, 20% of people with SCI were persistently depressed, 18% were depressed for a week and then recovered and 62% were never depressed at all. While major depression is more common after SCI than in the general population (which has a 4-7% rate of depression), most people with SCI *do not* become depressed. But for those who do, it is a very real and serious problem.

Myth 2: Only psychological weaklings become depressed.

Fact:

Famous people that no one would describe as weak have been affected by major depression. These include football stars Terry Bradshaw and Ricky Wil-

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Speak and your words appear on the screen! Control your computer by voice! Speech recognition software can change your life

Speech recognition software has been an integral part of my day-to-day life, productivity, independence and sense of self-worth ever since an accident left me quadriplegic with significantly impaired upper extremity function almost six years ago. This software has been around for many years but still has not fully “caught on” with the general public. As a tool for the disabled community, however, it can be invaluable.

Speech recognition programs allow you to speak your thoughts and have your words immediately transcribed onto the computer screen. But they are much more than simple dictation programs. You can perform all computer operations using your voice instead of the keyboard or mouse.

You don’t need special hardware; any current computer, desktop or laptop, can run speech recognition. The manufacturer recommends 1 GB RAM (2 GB for Windows 7 32-bit and 4 GB. For 64-bit) and 2.4 GHz (1.6 GHz dual core) processor speed. The program even comes with its own headset microphone, but for best performance you’ll probably want to upgrade.

There are a few speech recognition software programs on the market, but Dragon NaturallySpeaking is the most functional and the one that I use. Dragon is an exceptionally useful tool for individuals who have impaired hand function or anyone who finds composing text via keyboard to be difficult, tiring, painful, or inefficient. It can also help individuals with certain learning

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Depression after SCI

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liams, Mike Wallace of “60 Minutes” fame, musician John Lennon and actress Ashley Judd. We know that people who become depressed have different genetic backgrounds, brain chemicals, hormones and brain structure than people who do not. Whether someone becomes depressed is the result of the genes they are born with, life experiences they have and their activities, **not** weakness of character.

Myth 3: Depression is a necessary part of adjusting to SCI and “If you aren’t depressed, you are in denial.”

Some people think that adjusting to SCI is supposed to follow a certain pattern similar to Elizabeth Kubler-Ross’s stages of grief. In this way of thinking, depression follows denial and is a step toward healthy adjustment.

Fact:

This idea is particularly off-base when it comes to SCI. People with SCI do not typically go through these stages, or if they do, certainly not in a specific order. Becoming depressed is not a sign that someone is adjusting well; rather, it is a sign of problems that need to be addressed. People who are depressed stay in the hospital longer, make less progress toward independence, are less active and have more health problems. A big problem with thinking that depression is a normal part of grief is that this belief can keep people from getting the help they need.

Myth 4: Depression will go away on its own and does not need to be treated.

“I don’t want more meds.” “I’m not depressed.” “I am fighting it.” “I’ll be ok.” These are common responses when we talk to people with SCI who are depressed. Physicians are torn between providing necessary treatment for their patient and respecting the person’s right to refuse help.

Fact:

Leaving people alone and hoping depression will go away does not work very well. When someone is depressed for more than two weeks, they tend to

remain depressed for months to years. One reason depression persists is that few people receive treatment. A recent study showed that less than one-third of people with SCI who become depressed receive antidepressant medications, and only about 10% receive any counseling. We don’t know how much of this under-treatment is because doctors don’t offer it versus people with SCI not wanting it.

Myth 5: Antidepressants and counseling don’t work or can make things worse.

Recent news stories have claimed that antidepressants are no better than a placebo (an inactive sugar pill) or even cause people to commit suicide. These concerns can prevent people from seeking treatment.

Fact:

Research shows that sometimes placebos can work as well as antidepressants when the depression is mild and short-lived. However, in people with moderate to severe depression, antidepressants work better than placebos. These studies have been done in the general population, however, not in the SCI population. We are currently doing the first-ever study to determine how effective antidepressants are in individuals with SCI (see Participate in Research, on right).

What about antidepressants and suicide? First of all, depression is the main cause of suicide, and being treated for depression is the best way to reduce suicide risk. In rare cases, taking an antidepressant is associated with increased thoughts of suicide and suicide attempts. This occurs in people younger than 25 years old and tends to happen in the first 1-2 months after starting an antidepressant. Therefore, it is essential that people who begin antidepressants be monitored closely by their physician during the first 1-2 months.

Counseling is also an effective treatment for major depression—but not just any counseling. One of the most helpful counseling approaches is called cognitive-behavioral therapy (CBT). A few studies have shown that CBT can help improve depression in people with SCI, but more research is needed.

What to do if you have symptoms of major depression now.

Talk with your health care provider about effective treatment choices.

Antidepressants work by making your own brain chemistry more efficient. It can take a few weeks to feel a lot better. Side-effects tend to be mild and often subside over time. Your physician may need to increase the dose over time. If you have serious suicidal thoughts, contact your health care provider, your local crisis clinic or 911 right away. Some people need to be switched to a different antidepressant due to side effects or little benefit, so don’t be surprised by that. Most people need to stay on the antidepressant for 4-9 months to prevent relapse. Never stop taking an antidepressant abruptly. Work with your health care provider to taper off slowly.

Modern **counseling** is more like having a coach who can help you sharpen your coping skills and improve your strengths rather than the old stereotype of simply talking about the past. In CBT the counselor helps the person: build enjoyable and meaningful activities back into their life; notice the links between how we think and how we feel; and solve the daily problems that weigh the person down.

— Charles Bombardier, PhD
 UW Rehabilitation Psychologist
 Director, Northwest Regional Spinal Cord Injury System

Participate in Research: Two Studies of Depression and SCI

The Project to Improve Symptoms and Mood after Spinal Cord Injury (PRISMS) is the first federally funded clinical trial of an antidepressant for people with traumatic spinal cord injury (SCI) and depression. If you have an SCI, are 18-64 years old, feel down, depressed or hopeless, or have little interest or pleasure in doing things, are not taking venlafaxine XR and live within 100 miles of Seattle, WA, Birmingham, AL, Chicago,

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Speech Recognition Software

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Joe Meyer has quadriplegia and limited hand function. He uses voice recognition software for all his computer operations and activities.

disabilities, such as dyslexia or dysgraphia, or those wanting to increase their productivity, since most people can speak three times faster than they can type.

You can use your voice to:

- Work easily throughout the Windows operating system and Microsoft Office suite.
- Create, format, and print documents in Microsoft Word.
- Use Outlook to send e-mails and maintain a calendar and contact list.
- Configure computer and program settings.
- Perform PC maintenance and troubleshoot problems.
- Set up, configure, and maintain a home wireless network.
- Take care of all your financial management tasks, including downloading credit card and banking transactions from the Internet, paying bills and maintaining budgets.
- Shop online and purchase gifts and all variety of essentials.
- Use the Internet for research, e-mails, and social media interaction.
- Use Internet mapping programs such as Google Maps, Google Earth, MapQuest, etc.

In short, with Dragon, practically anything that is typically done by physical manipulation of a mouse and keyboard can be done instead by voice. Hands-free computing means just that, the only physical task required is pressing the power button. After that, *all* computer operation is accomplished by voice, even turning off the computer at the end of the day. And what's more, you can switch between using Dragon, the keyboard, and the mouse at any time.

Photo credit: Bothell Reporter

As an experienced user, I am able to do things using Dragon more quickly than someone physically manipulating a keyboard and mouse. Just like many computer utilities, there is a learning curve, and you'll probably get up to speed faster if you are already a competent computer user. But I am so satisfied with the program that I enthusiastically advocate its use to anyone who can benefit from it, including the computer novice.

On Thanksgiving weekend, 2004, as an avid off-road motorcycle racer, I crashed during a race and sustained a spinal cord injury resulting in incomplete C4 level quadriplegia. My introduction to Dragon NaturallySpeaking began while I was still on the rehabilitation wing of Harborview Medical Center in Seattle. As soon as I was into a wheelchair and able to access the computer lab, the speech pathologist began teaching me Dragon.

Almost immediately I was back in communication with fellow off-road motorcycle enthusiasts via the online forums I frequented before my accident. It was a wonderful feeling to be reconnected, have that sense of community and thank everyone for their amazing support.

Today I work at the Northshore Health & Wellness Center in Bothell, Washington, where I train others in Dragon NaturallySpeaking speech recognition. We provide introductory and advanced classes and can train you at the Center, at your location, or even via a remote computer connection.

Perhaps you've heard about speech recognition technology but have been doubtful about its value or ease of use. To show you firsthand how user-friendly speech recognition has become, Northshore Health & Wellness Center is offering demonstrations of the program either at the center or your location.

Dragon 10.1 is the current version and it comes in three different editions: Standard, Preferred and Professional. Standard retails for \$100 but can be found for as little as \$32; Preferred retails for \$200 but can be found for \$130-\$150; and Professional for \$900. The Washington State Division of Vocational Rehabilitation provided me with the Professional Edition as part of my employment plan. Other resources include the Washington Assistive Technology Act Program (WATAP) at 800-214-8731 and the Washington Access Fund (WATF) at 877-428-5116.

A lower cost alternative is Windows Speech Recognition, included as part of the Windows Vista and Windows 7 operating systems. Although not quite as powerful as Dragon, Windows Speech Recognition can also allow you to do almost hands-free computing.

For Macintosh users there is Macspeech Dictate, which will hopefully soon equal the performance of Dragon as it was recently purchased by Nuance, the manufacturers of Dragon.

If you have more questions or are interested in trying out Dragon or any of the other speech recognition programs, please contact me or Gary Ancelet at the Northshore Health & Wellness Center, 425-286-103, or e-mail me at joektm520@msn.com.

—Joe Meyer

forum report

The SCI Forum is an evening presentation and discussion series on topics of interest to persons with spinal cord injury and their family members, friends, caregivers and health care providers, held monthly at the University of Washington Medical Center. To learn about upcoming SCI Forums, read reports of past forums, or view forum videos, consult our Web site at <http://sci.washington.edu/info/forums>. Contact Cynthia Salzman (email: csalzman@uw.edu; phone: 206-685-3999) if you wish to be added to the SCI Forum mailing list.

Aging with a Spinal Cord Injury Part 2: Social and Psychological Factors

By Ivan Molton, PhD, Rehabilitation Psychologist and Assistant Professor, UW Department of Rehabilitation Medicine. Presented at the SCI Forum on June 9, 2009, at the UW Medical Center.

Geropsychology is the field of aging and psychological health. When clinicians and researchers talk about older adults, they group them into stages according to the psychological challenges typical of those ages.

- **Middle-age (45–60)** is a time when people struggle with work productivity. This is a period of facing challenges on every front: raising kids, sustaining marriage, maintaining career and achieving financial stability. It also may include caretaking of elderly parents. This is a really stressful period and is associated with more depression than much older adulthood.

- **Young old (60–70)** is often the time of empty nest syndrome, retirement (which research tells us is harder on men), financial pressures and some chronic health conditions.

- **Middle old (70–80)**: The demographic shifts because men are dying off, and women have longer life expectancy. This leads to a lot of bereavement. For those left behind there is a more serious threat of mortality, decline in physical functioning and threat of cognitive decline, such as dementia and Alzheimer's.

- **Oldest old (80 and over)**: Social isolation can be a big problem; your peers are dying, and your independence may be seriously limited due to mobility impairments, health issues and inability to drive or get about. Cognitive decline is pretty universal at this age. Even if you don't have dementia, your memory and concentration are not what they used to be. You are probably dealing with some chronic health problems, and your own mortality may feel uncomfortably close.

Depression

Given the problems and decline associated with aging, we might expect

older adults to be more depressed than younger people. The research suggests otherwise, however: only between 1% and 3% of people over age 65 meet the criteria for major depression, compared to about 8% of the general population.



Most older adults—including those with SCI—are not depressed. One major study found that psychological adjustment actually improved over time in people aging with SCI.



In the nondisabled population, significant depression peaks during adolescence and the early 20s, with another slight spike around middle age. But older adults, those over 65, report better psychological adjustment than any other age group. This also is true for people with physical disabilities like SCI: most older adults are not depressed.

Aging with SCI generally means more physical limitations and requires more

caregiving generally, greater use of adaptive technologies, equipment changes (as from a manual to a power wheelchair), and learning new skills such as new transfer techniques and positioning. In spite of this, older adults with SCI do not tend to become more depressed.

A major study of aging with SCI done by Krause & Broderick (2005) demonstrated that psychological adjustment actually improved over time in people aging with SCI. So even though the older adults with SCI reported more physical limitations, fewer weekly visitors and less satisfaction with health, their emotional well-being was as high or higher than younger people with SCI. Why? Here are some theories:

- Older adults in general make better use of certain coping strategies for managing pain and disability than do younger people.
- Older adults with SCI have developed coping skills from a long experience with disability.
- Older adults appear to have more “acceptance” of disability. This does not mean they give up on making things better, but they develop more realistic expectations.

The biggest predictors of quality-of-life among older adults are the things we would expect: family and friends, activities you enjoy, and feeling productive.

Other factors that impact psychological health for people aging with SCI:

- Age at injury. Acquiring a disability at an early age—16, 18, 20—is actually associated with a pretty good adjustment to disability over the lifespan. Likewise, acquiring a disability later

in life—65 or 70— is associated with pretty good adjustment. The toughest time to get hit with a disability seems to be around age 40, when you have a firm identity as a nondisabled person and you are struggling with raising kids, financial stressors, career peak, etc.

- Number of years since injury. This seems to be a proxy for coping experiences, so the longer you have the injury, typically the better your psychological adaptation is to the injury, up to about 30 years. After that, psychological adaptation reaches a plateau.

What are the biggest psychological problems for older adults with SCI?

- As physical independence decreases, one's social support network is also aging. This is the biggest issue that older people with SCI report to us: my body is becoming more challenging and harder to manage, but at the same time my friends who used to be able to give me a hand are getting older and declining.
- Unless one is very lucky, finances tend to get tighter in later adulthood. These are basically the same problems as for older adults without SCI, but the implications are more severe, as when one has to make a shift from using one's friends as a network of support to having to pay professional caregivers to be the network of support. That's a tricky psychological transition for a lot of people.

When we ask older people with SCI to describe their concerns, here's what they talk about:

- Uncertainty about the future, primarily physical and medical uncertainty, including concern about one's doctor

getting older and having to transfer one's care to someone new.

- Uncertainty about the degree of physical decline and how fast it's going to happen.
- Uncertainty about the cost associated with the physical decline.



The biggest predictors of quality-of-life among older adults with SCI are family and friends, activities you enjoy, and feeling productive.



- Fear of losing one's independence. This is really a very big source of anxiety for older adults in general. Whereas most of the older population says "I'm really scared I'll get dementia and lose my independence," the older SCI population says "I worry my symptoms will become worse and I won't be functionally independent."
- Pain and fatigue are two symptoms that often increase in older adults with SCI, which can lead to depression and anxiety.
- Social isolation and loneliness. This isn't as big a factor as people think. According to surveys, most older adults are not socially isolated and

desperate for conversation. Nevertheless, older adults with SCI are at greater risk for social isolation as they become less able to get out of the house and their friends become sicker and older and can't visit as much.

Tips for staying psychologically healthy as you age with SCI:

- **Stay socially connected.** This can be very challenging, and it requires effort, especially as one's peer network is aging, dying or moving away.
- **Stay physically active.** This is a big predictor of depression. The level of activity will of course depend on individual abilities and limitations.
- **Getting out into the community** is an important way to increase well-being.
- **Stay engaged in pleasurable activities.** Put these activities into your schedule so you don't stop doing the things you like as you age.
- **Know when and whom to ask for help.** This can be a very difficult thing for people to do and in general, but it is important to figure out who can give you emotional support, who can give you tangible support, and how you can ask in a way that makes you still feel empowered.

Read the full report and watch the video of "Aging with a Spinal Cord Injury" online at http://sci.washington.edu/info/forums/reports/aging_6.09.asp.

New SCI Forum videos and reports recently added to our website:

- Intrathecal Baclofen Therapy for Management of Spasticity: http://sci.washington.edu/info/forums/reports/intrathecal_baclofen.asp
- Communication in Dating & Relationships after Spinal Cord Injury: <http://sci.washington.edu/info/forums/reports/communication.asp>
- Growing into Adulthood with a Spinal Cord Injury: <http://sci.washington.edu/info/forums/reports/childrens.asp>

literature review

The articles previewed below were selected from a recent screening of the National Library of Medicine database for articles on spinal cord injury. In the judgment of the editors, they include potentially useful information on the diagnosis or management of spinal cord injury. You may obtain copies of the complete articles through your local medical library or from UW Health Sciences Library Document Delivery Service (call 206-543-3436 for fee schedule).

BONE DENSITY

■ The effects of whole body vibration on bone mineral density for a person with a spinal cord injury: a case study.

Bone mineral density (BMD) loss is a medical concern for individuals with SCI. Whole body vibration (WBV) has been reported to improve BMD for postmenopausal women and suggested for SCI. In this case study, the subject received three progressive phases (standing only, partial standing, and combined stand with vibration), each lasting 10 weeks. Significant improvements in BMD were reported at the trunk and spine for the phase combining standing and vibration. Increases in leg lean tissue mass and reduction in total body fat were noted in all three phases. Davis R, Sanborn C, Nichols D, et al. *Adapt Phys Activ Q*. 2010 Jan;27(1):60-72.

■ Effects of functional electrical stimulation cycling exercise on bone mineral density loss in the early stages of spinal cord injury.

Twenty-four individuals with spinal cord injury (26-52 days after SCI) were divided into functional electrical stimulation cycling exercises (FESCE) or control groups. FESCE was applied for 3 months and then stopped for 3 months. Bone mineral density (BMD) in the femoral neck and distal femur was measured using dual energy X-ray absorptiometry before training, immediately after the initial 3 months of training, and 3 months later. The FESCE group lost significantly less BMD than the control group during the initial 3 months, but there was no significant difference in the subsequent 3 months. In conclusion, FESCE in the early stages of SCI can partly ease BMD loss in the distal femur. However, bone loss cannot be stopped completely, and the beneficial effect on bone loss faded once FESCE was discontinued.

Lai CH, Chang WH, Chan WP, et al. *J Rehabil Med*. 2010 Feb;42(2):150-4.

BOWEL

■ Review of the efficacy and safety of transanal irrigation for neurogenic bowel dysfunction.

Transanal irrigation (TAI) of the colon promotes the evacuation of feces by introducing water into the colon and rectum through a catheter inserted into the anus. In persons with neurogenic bowel dysfunction (NBD), regular and controlled evacuation in this manner aims at preventing both constipation and fecal incontinence (accidents). This author reviewed the current evidence for the efficacy and safety of TAI in patients with NBD due to SCI and other diagnoses. In SCI, TAI was found to be more effective than conservative bowel management in reducing NBD symptoms such as constipation and fecal incontinence and improving quality of life. Furthermore, success is maintained in the long term and the overall safety profile of TAI is good, with few, and rare, adverse effects.

Emmanuel A.

Spinal Cord. 2010 Feb 9. [Epub ahead of print]

CARDIOVASCULAR HEALTH

■ Cardiovascular disease risk factors in persons with paraplegia: the Stockholm spinal cord injury study.

A total of 135 Swedish individuals aged 18-79 years with chronic (greater than one year) post-traumatic paraplegia participated in this study of factors that increase the risk for cardiovascular disease. Dyslipidemia (abnormal levels of blood fats), hypertension (high blood pressure), and being overweight were highly prevalent in this population. Hypertension was more common in low-level paraplegia, and prevalence of impaired fasting glucose was lower than previously reported after paraplegia. A

high percentage of persons being prescribed drug treatment for dyslipidemia and hypertension did not achieve recommended targets for cardiovascular disease risk reduction.

Wahman K, Nash MS, Westgren N, et al. *J Rehabil Med*. 2010 Mar;42(3):272-8.

■ Robotic treadmill training improves cardiovascular function in spinal cord injury patients.

This study investigated the effects of body weight supported treadmill training (BWSTT) assisted with a robotic driven gait orthosis (DGO) on: 1) left ventricular (LV) systo-diastolic function; 2) coronary flow reserve (CFR); 3) endothelial function in patients with lost sensorimotor function due to neurologic lesions. Fourteen adults (10 males) with motor incomplete SCI (2 to 10 years post-injury) due to trauma or spondylotic diseases underwent standard echocardiographic examination, non invasive assessment of CFR by dipyridamole stress echo and determination of plasma asymmetric dimethylarginine levels before and after 6 weeks of BWSTT. There was significant improvement in all parameters, demonstrating for the first time that BWSTT improves not only the sensorimotor function but also cardiovascular function in patients with incomplete SCI.

Turiel M, Sitia S, Cicala S, et al.

Int J Cardiol. 2010 Mar 8. [Epub ahead of print]

■ Exercise intensity during wheelchair rugby training.

The purpose of this study was to determine the ability of individuals with a cervical SCI to achieve and sustain a cardiorespiratory training intensity during wheelchair rugby. Nine wheelchair rugby players completed a continuous peak exercise test on a SciFit Pro 1 arm ergometer with stage increases each minute to determine peak heart rate and power output. Approximately one week later, heart rate was recorded at regular intervals during three regularly scheduled rugby training sessions. The percent of time spent at or above 70% heart rate reserve varied across participants and conditions. Continuous pushing resulted in participants spending greater than 73% of time on average above the target heart rate. Scrimmage training was highly variable with a range of 0% to 98% of time above the target. Results indicate that wheelchair rugby training enables some participants to reach a training intensity associated with improved cardiorespiratory fitness, and that the type (or kind) of training activity dictates the extent to which individuals sustain such a threshold.

Barfield JP, Malone LA, Arbo C, Jung AP.

J Sports Sci. 2010 Feb 2:1-10. [Epub ahead of print]

OBESITY & DIABETES

■ Association between obesity and diabetes mellitus in veterans with spinal cord injuries and disorders.

Clinical data was extracted from the medical records of 1,938 male veterans with spinal cord injuries and disorders (SCI/D) to examine the association between body mass index (BMI) and diabetes. The prevalence of diabetes was computed using three different BMI classification systems: World Health Organization; National Heart Lung Blood Institute (NHLBI); and a 10% reduction in the NHLBI categories to adjust for changes in muscle mass and body fat following SCI/D. BMI of 25 kg/m and above was associated with significantly higher rates of diabetes in this population, and this risk was especially pronounced at BMI of 27.5 kg/m and above. These findings do not support the need to create specific BMI definitions of overweight for purposes of determining risk for diabetes.

Rajan S, McNeely MJ, Hammond M, et al.

Am J Phys Med Rehabil. 2010 May;89(5):353-61.

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PRESSURE ULCERS**■ Qualitative study of principles pertaining to lifestyle and pressure ulcer risk in adults with spinal cord injury.**

Twenty adults with spinal injury and a history of pressure ulcers participated in qualitative in-depth interviews. Eight interrelated daily lifestyle principles that explain pressure ulcer development were identified: perpetual danger; change/disruption of routine; decay of prevention behaviors; lifestyle risk ratio; individualization; simultaneous presence of prevention awareness and motivation; lifestyle trade-off; and access to needed care, services and supports. These principles underscore previous quantitative findings, but also lead to new understandings of how risk unfolds in everyday life situations. They can be used to drive future research or to guide innovative lifestyle-focused intervention approaches. Short-term preventive interventions at critical junctures throughout a person's life should be considered.

Jackson J, Carlson M, Rubayi S, et al.
Disabil Rehabil. 2010;32(7):567-78.

PSYCHOSOCIAL ADJUSTMENT**■ The impact of assuming the primary caregiver role following traumatic spinal cord injury: An interpretative phenomenological analysis of the spouse's experience.**

Individual in-depth interviews were conducted with 11 participants (10 females, 1 male) who were both the spouse and primary caregiver of an individual with a SCI. Three themes emerged: 'The emotional impact of SCI'; 'Post-injury shift in relationship dynamics' and 'Impact of caregiving on identity'. Participants reported an almost instantaneous sense of loss, emptiness and grief during the injured person's rehabilitative period and feelings of anxiety in anticipation of their return to the family home. A distinct change in role from spouse and lover to care provider was reported and this ultimately contributed to relationship change and a loss of former identity.

Dickson A, O'Brien G, Ward R, et al.

Psychol Health. 2009 Nov 27;1-20. [Epub ahead of print]

■ Girls with spinal cord injury: social and job-related participation and psychosocial outcomes.

Ninety-seven girls (aged 7-17 years) who had sustained SCI at least 1 year prior to interview completed participation, depression and quality of life surveys. A broader context of social participation and a higher frequency of job-related participation were related to lower depression and higher quality of life. Participation in social and job-related activities should be a focus of rehabilitation for girls, because the skills gained from this involvement may help build resilience against future obstacles to socialization and employment.

Gorzowski JA, Kelly EH, Klaas SJ, Vogel LC.

Rehabil Psychol. 2010 Feb;55(1):58-67.

SPASTICITY**■ Immediate effect of transcutaneous electrical nerve stimulation on spasticity in patients with spinal cord injury.**

Eighteen subjects with spinal cord injury and symptoms of spasticity in lower limbs were randomly assigned to receive either 60 minutes of active transcutaneous electrical nerve stimulation (TENS) or 60 minutes of placebo non-electrically stimulated TENS over the common peroneal nerve. Composite Spasticity Score was used to assess the spasticity level of ankle plantar flexors immediately before and after TENS application. Significant reductions were shown in Composite Spasticity Score by 29.5%, resistance to full-range passive ankle dorsiflexion by 31.0% and ankle clonus by 29.6% in the TENS group but these reductions were not found in the placebo TENS group. This study showed that a single session of TENS could immediately reduce spasticity.

Chung BP, Cheng BK.

Clin Rehabil. 2010 Feb 15. [Epub ahead of print]

UROLOGY**■ Efficacy of combined oral-intravesical oxybutynin hydrochloride treatment for patients with overactive detrusors and indwelling urethral catheters.**

Twenty-five patients who were treated with oral oxybutynin hydrochloride (OH) for overactive detrusor (bladder), but who did not respond to treatment and were using indwelling urethral catheters, were given intravesical (within the bladder) OH without changing oral treatment. Pre- and post-treatment bladder capacities were compared in urodynamic studies. Positive clinical results were achieved, but a significant number of patients discontinued this treatment because of infection and difficulty in performing the procedure. Clinicians should provide education and support to eliminate these problems. The development of single-use standard sterile OH preparations for intravesical applications may increase the efficacy of the method.

Ersoz M, Yildiz N, Akyuz M, Koseoglu F.

Rehabil Nurs. 2010 Mar-Apr;35(2):80-6.

WOMEN WITH SCI**■ Long-term outcome of tension-free vaginal tape for treating stress incontinence in women with neuropathic bladders.**

Twelve women (mean age 53.3 years) with neuropathic bladder dysfunction and stress urinary incontinence (SUI) were treated with tension-free vaginal tape (TVT) surgery. After 10 years, three were lost to follow-up; seven of the remaining nine patients were completely dry, and two improved and were satisfied with using one or two pads/day. In women with neuropathic bladder dysfunction and SUI due to spinal cord pathology, insertion of TVT can be a desirable treatment with very good long-term outcomes.

Abdul-Rahman A, Attar KH, Hamid R, Shah PJ

BJU Int. 2010 Feb 3. [Epub ahead of print]

■ Menopause characteristics and subjective symptoms in women with and without spinal cord injury.

Sixty-two women with SCI (C6-T12; 3 years or more postinjury) and 66 women without SCI completed self-report surveys 4 times over a 4-year period. All participants had intact ovaries, were not using hormone therapy, and were between the ages of 45 and 60. Age at final menstrual period did not differ between groups. Women with SCI had significantly less bother of vasomotor symptoms (hot flashes) and significantly greater bother of overall somatic symptoms, bladder infections and diminished sexual arousal than women without SCI. Larger studies are needed to examine menopause outcomes with respect to level of injury and completeness of injury.

Kalpakjian CZ, Quint EH, Bushnik T, et al.

Arch Phys Med Rehabil. 2010 Apr;91(4):562-9.

AUTOMOBILE CRASHES**■ Cost of spinal cord injuries caused by rollover automobile crashes.**

The authors used crash data from the 1993-2006 National Automotive Sampling System Crashworthiness Data System to calculate the risk of SCI per rollover crash by belted/unbelted status and roof intrusion magnitude. Direct costs of SCI based on neurological level and completeness of SCI were calculated using data from the National SCI Statistical Center. Findings indicate that there would be a direct cost saving for treatment of SCI in the USA of over \$97 million annually if maximum roof intrusion in rollover crashes were limited to 8-15 cm for belted occupants, resulting from a prevention of 134 cases of SCI annually. Cost savings in this study only consider direct costs attributable to SCI in survivors of automobile crashes. Costs of fatalities (872 per year) and other injuries that could potentially be prevented, such as brain injury, are not included. These estimates do not consider the indirect costs of SCI estimated at about 58% of the direct cost.

Burns SP, Kaufman RP, Mack CD, Bulger E.

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CONTINUED FROM PAGE 2

IL, Ann Arbor, MI or Dallas, TX you may qualify for this trial. Study participants will be paid up to \$300 for taking part in this study.

The University of Washington and National Institute for Disability and Rehabilitation Research are conducting a study that looks at how community participation and community connectedness may affect one's mood. To qualify you must have had a traumatic (motor vehicle accident, fall, etc.) spinal cord injury, be between 18-64 years old, and live within 100 miles of Seattle, WA. This phone survey will take between 15-25 minutes and you will be compensated \$10 for your time.

For more information about either of these studies, please contact Christian Buhagiar at: Local: 206-897-4731; Toll Free: 866-577-8067.

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