



Life-long care plan for individuals with spinal cord injuries must involve exercise

People with spinal cord injury (SCI) are living longer, more productive lives, which is a testament to improvements in rehabilitation. The focus of SCI research has evolved from acute medical management and rehabilitation to the complications that often accompany aging with a SCI.

Studies show that many individuals experience a decline in their quality of life (QOL) as a result of complications that arise as part of aging. Researchers have also found a correlation between declining QOL and a decline in

“A primary tool in preserving function and QOL in a wheelchair user’s life is exercise.”

function, which has transformed the rehabilitation professional’s philosophy of care for these individuals.

You may have heard phrases such as, “no pain, no gain” and “use it or lose it” in therapy gyms in years past. These phrases have now been replaced with “don’t abuse it or you’ll lose it,” which focuses on preserving the integrity of the musculoskeletal system to meet the

demands of the lifestyle of a wheelchair user despite the inevitable aging process.

One key consideration in this education is preservation of the shoulder joint. Shoulder pain is a primary complaint of up to 71 percent of individuals with SCI (Mulroy, 2004) and the pain is related to a lower QOL in this population (Gutierrez, 2007). Acute and chronic shoulder pain leads to greater difficulty and compliance with completing pressure relief, thereby increasing the risk of acquiring costly pressure ulcers.

Shoulder pain may also be a root cause of decline in overall physical activity, which often results in additional serious conditions associated with aging with a SCI, such as cardiovascular disease (CVD).

CVD is a leading cause of death in people with SCI over age 60 or those younger who have been injured 30-plus years (Nash 2007). The rehabilitation team and other healthcare professionals involved in life-long wellness for these individuals must look at the demands on the shoulder joint and how it affects their life roles and overall quality of life (Mulroy 2004).

A primary tool in preserving function and QOL in a wheelchair



Patient Cameron Lindow spins around Madonna’s campus on a Quickie Handcycle to increase her upper body strength.

user’s life is exercise. A specific exercise protocol of strengthening and stretching the shoulder has shown to yield less shoulder pain. The protocol begins during rehabilitation where shoulder pain may initially be identified as early onset of shoulder pain has been found to be a predictor of shoulder pain in the future (Van Drongelen 2006).

There is also hope for individuals with SCI who were injured 10-20 years ago. Studies show that fitness can be acquired in a reasonable amount of time regardless of an individual’s

continued on reverse



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beginning fitness status. Therapists in outpatient clinics should encourage individuals with paraplegia to begin an exercise regimen, even if they are deconditioned and have a high risk of cardiovascular disease, shoulder pain and/or decline in function, because their bodies can still respond to exercise.

In a study by Nash et al in 2007, following a 16-week circuit resistance training program, improvements in strength, endurance and anaerobic power were made and shoulder pain was reduced. Not only were the physical benefits obvious to the participants but the program also reduced their risk for lipid related CVD.

A study by Hicks, Marin et. al. in



Madonna's Adaptive Sports and Recreation Program offers a variety of activities that promote health and wellness to persons with physical disabilities.

2003 showed a nine month exercise program completed twice weekly can increase QOL due to the affect of exercise on improving pain and symptoms of depression.

Exercise is being shown to counteract the loss of control felt by many people with SCI, which has a significant impact on QOL. Exercise programs which are specially designed

to meet the needs of wheelchair users help them achieve something even more valuable than strength, it provides a sense of achievement in physical functioning (Hicks, Martin et al 2003).

This research points out the importance of intermittent follow-up care for persons with SCI by clinicians who have specialized training in SCI rehabilitation. Madonna Rehabilitation Hospital is one of only two organizations in the region to be accredited as a Spinal Cord System of Care by CARE, the Rehabilitation Accreditation Commission. As such, SCI rehabilitation does not end when the patient is discharged from the rehabilitation hospital. Rather, individuals are encouraged and assisted with developing life care plans that include intermittent, brief episodes of care through the SCI Clinic, or for specialized outpatient services. Attention to general health maintenance is a vital piece of life care planning that begins as an inpatient and continues through outpatient and follow-up care.

One such example is the adaptive training class at Madonna Proactive, a health and wellness facility. It is a class designed for people with physical limitations who are unsure about what they can or should be doing for exercise. The goal of the class is to set an individual up on a program and empower them with the education necessary to follow through independently in a life-long plan for exercise. For those individuals who resist a regular exercise routine, participation in sports activities may produce similar results. "Specifically, in SCI it (exercise) has been shown to decrease medical complications,

increase life expectancy and improve both quality of life and social interaction." (O'Neill and Maguire 2004). Madonna's Adaptive Sports and Recreation Program offers regular opportunities for persons with disabilities to participate in a variety of sports, such as wheelchair basketball, tennis, quad rugby, power soccer and even sled ice hockey.

Research shows that inclusion of regular exercise, addressing shoulder function, as well as general cardiovascular fitness, results in higher QOL as people with SCI age. Therefore, high quality rehabilitation providers address this as part of their programming.

References

- Groah, S., S. Stiens, et al. (2002). "Spinal Cord Injury Medicine. 5. Preserving Wellness and Independence of the Aging Patient with Spinal Cord Injury: A Primary Care Approach for the Rehabilitation Medicine Specialist." *Arch Phys Med Rehabil* 83 (1):82-89.
- Gutierrez, D., L. Thompson et al. (2007). "The Relationship of Shoulder pain Intensity to Quality of Life, Physical Activity, and Community Participation in Persons with Paraplegia." *J Spinal Cord Med*. 30 (3):251-255.
- Hicks, A., K. Martin et al. (2003). "Long-term exercise training in persons with spinal cord injury: effects on strength, arm ergometry performance and psychological well-being." *Spinal Cord* 41:34-43.
- Mulroy, S. S. Farrokhi et al. (2004). "Effects of spinal cord injury level on the activity of shoulder muscles during wheelchair propulsion." *Arch Phys Med Rehabil* 86 (6): 925-934.
- Nash, M. I. van de Ven et al. (2007) "Effects of Circuit Resistance Training on Fitness Attributes and Upper-Extremity Pain in Middle-Aged Men with Paraplegia." *Arch Phys Med Rehabil* 88 (1):70-75.
- O'Neill, S., S. Maguire (2004) "Patient perception of the impact of sporting activity on rehabilitation in a spinal cord injuries unit." *Spinal Cord* 42:627-630.
- Van Drongelen, S., S. De Groot et al. (2006) "Upper extremity musculoskeletal pain during and after rehabilitation in wheelchair-using persons with a spinal cord injury." *Spinal Cord* 44:152-159.

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