

Research In Focus: A Weekly Digest of New Research from the NIDILRR Community

Getting out and getting active may be key to breathing easier after spinal cord injury

A spinal cord injury (SCI) occurs when the spinal cord is damaged, often from an accident or trauma. SCI can lead to a number of health challenges. Dyspnea, or frequent shortness of breath, is one challenge that can lower quality of life. According to some past studies, being physically active after a SCI may help prevent dyspnea and improve quality of life. In a recent NIDILRR-funded study, researchers looked at the connections between physical activity, dyspnea, and quality of life in people with SCI. Specifically, they wanted to see if people with SCI who were more physically active were less likely to have dyspnea and were more satisfied with life.

The study was directed by investigators from the [Spaulding-Harvard Spinal Cord Injury Model System Center](#) and the [Veterans Affairs \(VA\) Boston Healthcare System](#). Researchers at Spinal Cord Injury Model System centers in Massachusetts, [Kentucky](#), [California](#), and [Pennsylvania](#), and at the VA surveyed 347 adults with SCI. All respondents had had a SCI for at least a year. Most used a manual wheelchair to get around, and some were able to walk with or without a cane or walker. The respondents answered questions about their physical activity habits, dyspnea symptoms, and quality of life. For questions about physical activity habits, the respondents reported any regular exercise they engaged in during a typical week; whether or not they participated in organized sports; and how many hours they spent away from home over the past three days. Regarding dyspnea symptoms, the respondents indicated whether or not they became breathless or had to pause to catch their breath while moving quickly, traveling uphill, or traveling more than 100 yards. Finally, for questions related to quality of life, the respondents rated their overall satisfaction with life, rating their agreement with statements such as “I am satisfied with my life” and “The conditions of my life are excellent.”

The researchers found that many of the respondents engaged in planned exercise with more than 61% of respondents who were able to walk and more than 72%

of those who used manual wheelchairs reporting some physical activity in an average week. These activities included engaging in planned exercise beyond physical therapy or stretching. The respondents reported their participation in a wide variety of organized and individual sports, from solo activities like swimming and bodybuilding, to team sports such as basketball and sled hockey. When the researchers looked at the connection between activity, dyspnea, and satisfaction with life, they found that:

- Planned exercise was associated with less dyspnea symptoms. Respondents who engaged in planned exercise as part of their weekly or daily routine were 43% less likely to have dyspnea than those who did not engage in regular exercise. This was true whether or not they participated in organized sports.
- Sports participation was associated with higher life satisfaction. Respondents who played an organized sport had life satisfaction scores about 12% higher than those who did not play a sport. Respondents who engaged in planned exercise also had slightly higher life satisfaction than those who did not exercise on a regular basis.
- Spending time away from home was associated with higher life satisfaction. Respondents who spent the most time away from home (more than 23 hours totaled over 3 days) had life satisfaction scores about 20% higher than those who spent the least amount of time away from home (less than 7 hours totaled over 3 days).

The authors noted that starting or continuing an exercise program may help people with SCI to experience less frequent shortness of breath. Exercise may also benefit people with SCI who have chronic lung disease such as asthma or chronic obstructive pulmonary disease (COPD). Furthermore, sports participation can benefit overall quality of life for people with SCI by offering opportunities for improved physical

fitness and social involvement. Providers may wish to encourage their patients with SCI to explore accessible sports, such as wheelchair basketball or hand cycling.

This study included a high percentage of respondents with SCI who play sports, and participate in exercise programs so results may be different from the general SCI population. Future research may be useful to explore how an active lifestyle helps reduce breathing problems and improve quality of life for people with SCI.

[To Learn More](#)

If you are looking for an inclusive fitness opportunity, the NIDILRR-funded Rehabilitation Engineering Research Center on Interactive Exercise Technologies and Exercise Physiology for Persons with Disabilities (RecTech) has two great resources:

The Activity Inclusion Mapping System (AIMS) is a searchable database of inclusive fitness opportunities. You can search by location or add your own:

<http://aims.rectech.org/reports>

AIM-FREE helps people with disabilities and fitness facility operators measure the accessibility of a facility and its equipment. Learn more about the tool and how to order it: <http://www.rectech.org/products/aimfree/>

The Inclusive Fitness Coalition focuses on policy development, research, and outreach to promote fitness for all people with and without disabilities. Resources include a certification program for fitness trainers: <http://www.incfit.org>

The National Center on Health, Physical Activity, and Disability has a wealth of resources for people with disabilities who wish to incorporate physical activity in their lives: <http://www.nchpad.org>

[To Learn More About This Study](#)

Garshick, E., Mulroy, S., Graves, D.E., Greenwald, K., Horton, J.A., and Morse, L.R. (2016) [Active lifestyle is associated with reduced dyspnea and greater life satisfaction in spinal cord injury](#). Archives of Physical Medicine and Rehabilitation. This article is available from the NARIC collection under Accession Number J73962.

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