
Abstract: Article reviews research on ways to automate locomotor training through the use of robotics. Robotic devices that have been developed to automate partial body weight support treadmill training include the Mechanized Gait Trainer, the Lokomat, and the AutoAmbulator. Clinical studies involving these systems, the benefits of robotic devices that assist only as needed during motor training, and directions for future research are discussed.


Abstract: Study documents the employment discrimination experiences of Americans with SCI using data from the Equal Employment Opportunity Commission (EEOC). It presents an analysis of the allegations of employment discrimination brought under Title I of the Americans with Disabilities Act (ADA) filed by people with SCI compared to allegations filed by individuals with other physical, neurological, or sensory disabilities. Researchers examined demographic characteristics of the charging parties, characteristics of respondents, the nature of the allegations, and the outcomes of the allegations. Analyses revealed that people with SCI were more likely to experience discrimination involving hiring, promotion, and reinstatement and were less likely to encounter discrimination related to discharge, reasonable accommodation, harassment, discipline, and intimidation. Allegations of discrimination against people with SCI occurred more often in the services and public administration industries, more often among small employers, and more often among employers located in the South. EEOC findings of “no cause,” in which full investigation fails to support the alleged violation, are significantly less common among people with SCI compared to charging parties with general disabilities.


Abstract: The prevalence of visceral pain and quality of life (QOL) were compared in people with SCI at 5, 10, and 15 years after injury. The rates of visceral pain increased at each measurement: 10 percent at year 5, 22 percent at year 10, and 32 percent at year 15. There was no significant relationship between visceral pain and QOL at any of the time measurements. However, at 10 years after injury, people who had reported visceral pain at any time reported a significantly lower QOL than those without visceral pain.


Abstract: Article focuses on a conceptual framework for addressing barriers that people with spinal cord injuries and other disabilities face when attempting to participate in community living. The framework identifies four key areas that are pivotal in facilitating participation in exercise and recreation: (1) access, (2) participation, (3) adherence, and (4) health and function. The significance of each of these elements is discussed in terms how it guides the research and development practices of the Rehabilitation Engineering Research Center on Recreational Technologies and Exercise Physiology for People with Disabilities.


Abstract: Consumer-oriented fact sheet provides consumer information on weight management after SCI. Offers advice on proper nutrition; behavior and lifestyle changes related to planning meals, shopping for food, cooking, eating out, self-improvement, stress reduction, and goal setting; participation in physical activities; and maintaining long-term success.


Abstract: Fact sheet provides general information on SCI peer mentors. Peer mentors share thoughts and experiences about SCI, help people with SCI cope with their injury, help prevent medical complications, and help find ways to live a healthy, active lifestyle. Tips are presented for ways to develop or maintain a positive, beneficial peer mentoring relationship.


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The 2006 Model Spinal Cord Injury Systems will be announced by NIDRR shortly. This issue focuses on Field Initiated Projects, RRTCs and RERCs, and Disability and Rehabilitation Research Projects and their research efforts in SCI.

NIDRR Grantees on the Cutting Edge

Collaboration of Upper Limb Pain in Spinal Cord Injury University of Pittsburgh (H133A011107) led by Michael L. Boninger, MD. Theresa San Agustin, MD, Project Officer.

Abstract: This collaborative studies project provides an opportunity to gain further insight into the cause and prevention of upper limb repetitive strain injuries in SCI. For the approximately 200,000 individuals with SCI, upper limb pain and injury is very common; some studies find prevalence rates above 70 percent. Prolonged wheelchair use and transfers have long been thought to cause these repetitive strain injuries. The consequences of upper limb pain are so significant that some researchers have suggested that damage to the upper arm may be functionally and economically equivalent to a spinal cord injury of higher neurological level.

Find out more at: www.berplh.org

Lifetime Outcomes and Needs: Refining the Understanding of Aging with Spinal Cord Injury Craig Hospital (H133A011108) led by Daniel P. Lammertse, MD; Susan B. Charlifue, PhD; Phillip Beatty, Project Officer.

Abstract: This project explores the incidence and prevalence of several health and psychosocial conditions that accompany aging many years with SCI. Also studied in this comprehensive, longitudinal, multicenter effort are the services available to individuals with SCI as they attempt to address these conditions throughout their lives. The study expands the longitudinal database, addressing emerging issues of aging with SCI in greater detail, and expands efforts to share findings with a variety of constituents. The eight areas of focus include: (1) secondary conditions from 5 to 25 years post-injury, (2) new analytic techniques with longitudinal datasets, (3) chronic pain, (4) access to and satisfaction with health services, (5) personal assistance services, (6) spirituality and its effects on health outcomes and quality of life, (7) the role of perceived stress and self-reported problems on the presence or absence of secondary conditions and in relation to one’s overall well-being, and (8) trends in quality of life and health.

Find out more at: www.craighospital.org

Rehabilitation Research and Training Center on Spinal Cord Injury: Promoting Health and Preventing Complications through Exercise National Rehabilitation Hospital/MedStar Research Institute (H133B031114) led by Suzanne L. Groah, MD. Thomas Corfman, Project Officer.

Abstract: This project systematically and comprehensively addresses the role and impact of physical activity in the prevention of secondary conditions in people with SCI. Initially, the project establishes critical, yet-undefined physiological responses to exercise in SCI and comprehensively examines cardiovascular disease risk in individuals with SCI.

Please note: These abstracts have been modified. Full, unedited abstracts, as well as any available REHABDATA citations, are available at naric.com.
The Cochrane Library

A quick search for
'spinal cord injury'
at The Cochrane Library found 13
Cochrane Reviews, 9 Other Reviews, 583 Clinical Trials, 6 Methods Studies, 8 Technology Assessments, and 38 Economic Evaluations. These include reviews by NDNR projects. Visit thecochranelibrary.org for more information

Where Can I Find More?
A quick keyword search is all you need to connect to a wealth of disability and rehabilitation research. NARIC’s databases hold more than 75,000 resources. Visit www.naric.com/research to search for literature, current and past research projects, and organizations and agencies in the US and abroad.

A Longitudinal Study of Risk for Hospitalization, Pressure Ulcers, and Subsequent Injuries After Spinal Cord Injury Medical University of South Carolina (H133G050165) led by James S. Krause, PhD, Joyce Y. Caldwell, Project Officer. Abstract: The overall risk of SCI increases the risk of developing a number of secondary conditions that may adversely impact an individual’s life and even result in early mortality. The purpose of this project is to perform a longitudinal study to identify protective and risk factors associated with the onset of multiple types of adverse health events among a large sample of individuals with SCI. In 1997–8, prospective data was collected on 1,391 participants who included a substantial number of women and racial/ethnic minorities. Risk and protective predictors were selected based on a general empirical risk model. Predictor variables were first measured over a 10-month period in 1997–1998, including: (a) biographical status, (b) injury status, (c) psychological status, (d) environmental factors, and (e) health behaviors. Several health outcomes were also used. During this follow-up study, the project administers several new predictor measures along with multiple outcome measures, several of which were also administered during the previous study. These measures focus on adverse health events including hospitalizations, onset of pressure ulcers, subsequent injuries, and the onset of probable major depression. The project includes structural equation modeling to develop risk models for each outcome.

Current Literature - Selections from REHABDATA

Chen, Y., DeVivo, M. (2005) Pressure ulcer prevalence in people with spinal cord injury: Age-period-duration effects. Archives of Physical Medicine and Rehabilitation, 86(6), 1208-1213. NARIC Accession Number: J49028. Project Number: H133A011201. Abstract: A longitudinal study examined the effects of age, period, and duration of injury on the prevalence of pressure ulcers in people with SCI. Participants were injured between 1986 and 1995 and followed up thereafter on a yearly basis through 2002. The prevalence rate of pressure ulcers was calculated for each annual visit, stratified by calendar year of examination and age at examination. Analysis showed a significant trend toward increasing pressure ulcer prevalence in the more recent years, which were not explained by aging, years since injury, or demographic and clinical factors. The risk of pressure ulcers appeared to be higher in the first 15 years after injury. In fact, in the last study year, pressure ulcers were more common among subjects who were elderly, African American, single, less educated, unemployed, with complete injuries, and a history of pressure ulcers, rehospitalization, nursing home stay, and other medical conditions. Injury cause and level had no significant effect.

Krause, J., Broderick, L. (2005) A 25-year longitudinal study of the natural course of aging after spinal cord injury. Spinal Cord, 43(6), 349-356. NARIC Accession Number: J49177. Project Number: H133G010009; H133G70111. Abstract: Study examined the natural course of aging over a 25-year period among people with SCI. The Life Satisfaction Questionnaire was used to identify changes in education, employment, activities, medical treatments, adjustment, and life satisfaction. Analyses revealed that adjustment scores, satisfaction with employment, satisfaction with finances, years of education, and employment indicators significantly improved over time. However, satisfaction with sex life, satisfaction with health, and the number of weekly visitors significantly decreased. The number of non-routine medical visits and days hospitalized within two years prior to the study significantly increased.