

Spinal Cord Injury Research at Kessler

Listed below are a number of spinal cord injury (SCI)-related research studies taking place at Kessler Foundation and Kessler Institute. The list is ever-changing as new projects begin and others reach their conclusion. To find out more about research opportunities, contact us at sciresearch@kesslerfoundation.org.

TITLE	DESCRIPTION
Collaboration on Mobility Training (COMIT): Training Programs to Improve Outcomes for Individuals with Spinal Cord Injury (Recruiting)	The purpose of this research is to determine the effect of different training programs on outcomes in persons with SCI. We are interested to see which programs have the greatest impact.
Northern New Jersey Spinal Cord Injury System (Recruiting)	The purpose of the NNJSCIS is to collect and submit acute, rehabilitation and follow-up data on SCI patients who received care in the system following injury. This information is submitted to the National Spinal Cord Injury Statistical Center, located at the University of Alabama at Birmingham, where it is combined with that of the other model systems to provide detailed SCI research material and statistics.
Restoring Lost Functions after Spinal Cord Injury: Combination Therapy with Dalfampridine and Locomotor Training for Persons with Chronic, Motor Incomplete Spinal Cord Injury (Recruiting)	The purpose of the study is to determine the efficacy, safety, and tolerability of combination therapy with dalfampridine and locomotor training (LT) in persons with chronic, motor incomplete SCI.
Equity and Quality in Assistive Technology (EQUATe) (Recruiting)	The goal of this SCI Model System collaborative module is to investigate the equity and quality of assistive technology (AT) provision and outcomes for individuals with SCI.
Predicting Neurological Recovery after Traumatic Spinal Cord Injury (Recruiting)	The purpose of this inpatient/ outpatient study is to collect neurological data on patients with traumatic SCI in order to: (1) contribute to knowledge on usual recovery; and (2) evaluate alternative examination elements and classification schema in order to improve reliability and predictive validity.
Systematic Assessment of Caregiving Skill Performance by Individuals with Tetraplegia and their Caregivers (Recruiting)	This study will develop an assessment tool for use in inpatient rehabilitation to evaluate competence in self-direction of care and caregiving skills of persons with tetraplegia and their caregivers. The tool will aid the process of preparing persons with tetraplegia and their caregivers for a successful transition to home.
Improving Functioning in People with Chronic Pain Post-SCI Through Virtual Classroom Education (Recruiting)	This study will examine and compare the feasibility and potential benefits of two web-based education programs designed for people with chronic pain post-SCI.

<p>Measurement of Autonomic Cardiovascular Integrity in Persons with SCI (Recruiting)</p>	<p>The purpose of this study is to: (1) Characterize the individual level and completeness of autonomic impairment in persons with SCI with varying classifications of motor/sensory impairment and SCI injury severity; (2) Develop a simple battery of tests which can be easily used by doctors and researchers to determine the degree of autonomic nervous system impairment to the heart in persons with SCI.</p>
<p>An Open Label Safety and Efficacy Trial of Fenofibrate in Persons with SCI (Recruiting)</p>	<p>The purpose of this study is to determine how effective 4 months of daily treatment with a drug called fenofibrate is on improving the amount of lipids in your blood. In particular, this drug has been shown to reduce the amount of triglycerides and other “bad” cholesterol, while also improving the number of “good” cholesterol in your blood.</p>
<p>Thermal Comfort and its Effects on Routine Daily Activities in Persons with SCI (Recruiting)</p>	<p>Persons with SCI will report feeling significantly colder during the cooler months of the year compared to able-bodied control subjects. Differences in reported comfort will be related to level of injury (LOI) and completeness of injury such that persons with higher and complete SCI will feel colder than persons with lower and incomplete SCI. After a cervical SCI, the motor, sensory, and autonomic deficits cause, among other detriments, a blunted ability to maintain a constant core temperature. Additionally, because sensation is impaired to varying extents in persons with tetraplegia, often by the time they are aware of feeling uncomfortably cold, core temperature may have already drifted toward hypothermic levels.</p>
<p>Blood Pressure, Cerebral Blood Flow and Cognition in SCI (Recruiting)</p>	<p>Most cases of chronic low blood pressure (hypotension) in people with SCI are believed to be asymptomatic; however, they may actually have adverse outcomes in cognitive function and quality of life. The purpose of this study is to examine the interaction between midodrine (a drug used to elevate blood pressure) and cardiovascular and cognitive function in chronic asymptomatic individuals with SCI.</p>
<p>Coronary Artery Calcification Score and Risk Factors for Coronary Artery Disease in Persons with SCI (Recruiting)</p>	<p>Coronary heart disease (CHD) is a leading cause of death in persons with SCI, occurring at younger ages than in the able-bodied population. CHD is often associated with a series of “conventional” risk factors (i.e., clinically accepted risk factors for CHD), such high serum concentrations of low-density lipoprotein (LDL), low serum concentrations of high-density lipoprotein (HDL), diabetes mellitus (DM), smoking history, and family history. However, there is research to suggest that there are other or “emerging” risk factors (i.e., still being validated as having a relationship to CHD), such as coronary artery calcification (CAC) scores that may increase ones risk as well. The goal of this study is to assess the conventional and/or emerging risk factors with coronary artery disease to identify the prevalence of risk factors for CHD; To investigate the presence and severity of coronary artery calcification (CAC scores determined by special CT scans) compared to historic controls from a national database of able bodied persons matched for age, gender, ethnicity, and conventional risk factors for CAD; To identify if subjects with high CAC scores (compared to low) have a greater prevalence of conventional and/or emerging risk factors for CAD.</p>
<p>The Efficacy of Denosumab to Reduce Osteoporosis after Acute SCI (Recruiting)</p>	<p>Bone loss after acute SCI is sudden, progressive, and dramatic. Denosumab (Amgen Inc.) is a relative new drug that has proven effective in treating osteoporosis in postmenopausal women. The purpose of this study is to test the efficacy of denosumab in preventing bone loss in persons with acute SCI.</p>
<p>Insulin Resistance and Microvascular Blood Flow in SCI (Recruiting)</p>	<p>The purpose of the study is to measure how insulin controls the flow of blood in the skin of people with SCI. For persons with SCI, the insulin-control of blood flow will be studied above and below the level of SCI (the level where motor function and sensation stop).</p>

<p>Effects of Vitamin D Deficiency and its Replacement on Pulmonary and Endocrine Function in Persons with SCI (Recruiting)</p>	<p>Vitamin D deficiency is prevalent in individuals with SCI. Recent studies have linked vitamin D with the prevention and/or treatment of a wide range of diseases, including chronic lung diseases. The purpose of this study is to determine the effect of vitamin D on pulmonary and endocrine function in persons with SCI.</p>
<p>SCI Veterans: Disability Benefits, Outcomes, and Healthcare Utilization Patterns (Recruiting)</p>	<p>This study will compare the impact on Veterans with SCI who receive VA service-connected disability compensation benefits to SCI Veterans who do not have these additional financial resources (also known as non-service connected Veterans) on their: health status, functional outcomes, quality of life, family and household, and choice of rehabilitation or medical facilities (i.e., VA Center or civilian center).</p>
<p>Return to School (Recruiting)</p>	<p>This study will assess long-term educational outcomes for children in New Jersey who experience a disruption in schooling due to inpatient hospitalization using New Jersey Department of Education data.</p>
<p>Non-ambulatory SCI Walk Using a Robotic Exoskeleton: Effect on Bone and Muscle (Recruiting)</p>	<p>The overall aim of this pilot study is to assess if 5 hours per week for 20 weeks of exoskeleton-assisted walking over ground for persons with chronic SCI will positively affect the musculoskeletal system. These changes would significantly improve quality of life.</p>
<p>Exoskeleton and Spinal Cord Stimulation for SCI (Recruiting)</p>	<p>The overall aim of this project is to assess the effect of combining transcutaneous lumbosacral stimulation during exoskeleton assisted walking compared to exoskeleton assisted walking alone without stimulation on walking recovery. Each group of individuals with sub-acute and chronic sensory and motor spinal cord injury will receive 3 hours per week for approximately 28 weeks of exoskeleton-assisted walking. We also will evaluate the changes in spatial temporal characteristics, kinematics and muscle activation, and quality of spinal cord fiber tract connectivity by high-resolution imaging as a result of the intensive training.</p>
<p>Study of Robotic Powered Exoskeletons for Ambulation in Individuals with Spinal cord Injury (Recruiting)</p>	<p>The aim of this study is to determine if the exoskeleton - Ekso^(Ekso Bionics) device combined with functional electrical stimulation to the legs is a feasible option to improve the ability to walk over ground for individuals who have a spinal cord injury.</p>
<p>Assessing Spinal Cord Structure Changes Using Diffusion Tensor Imaging in Patients With Incomplete Traumatic Spinal Cord Injury (Recruiting)</p>	<p>This project proposes to use a special MRI technology to assess nerve fiber structural changes in the spinal cord in newly injured individuals with incomplete spinal cord injury.</p>
<p>Quality of Life in SCI: The Next Generation of Instruments (Study open for follow-up only)</p>	<p>The goal of this inpatient/outpatient project is to better understand factors that affect the quality of life for adults with SCI by testing new computer-adaptive questionnaires that reflect issues related to medical complications and everyday functioning.</p>
<p>Quality of Life for SCI Clinical Trials: Development of the SCI-QOL (Study open for follow-up only)</p>	<p>The goals of this inpatient/ outpatient project are to (1) better understand factors that affect the quality of life for adults with SCI, (2) to create a database of questions that reflect issues important to patients' quality of life, and (3) to develop a scale (or set of scales) to measure quality of life (QOL) in future research including SCI clinical trials.</p>

<p>Pressure Relief Behaviors and Weight-Shifting Activities in Persons with SCI (Study open for follow-up only)</p>	<p>Pressure ulcers (PrU) are one of the most common and costly secondary medical complications following SCI. In order to minimize the risk of developing a PrU, wheelchair users with SCI are routinely taught to perform pressure reliefs designed to shift body weight off the buttocks whenever they are sitting. However, pressure relief behavior is not always associated with PrU occurrence. For example, every day activities such as reaching and moving while in a wheelchair may also redistribute pressure off PrU risk sites. The purpose of this study is determine whether dedicated pressure reliefs and other weight-shift activities have a protective influence on skin and to assess the relationship between bouts of wheelchair movement and the amount of weight shift activities.</p>
<p>Community Effects on Long-Term Rehabilitation Outcomes in Spinal Cord Injury (Study open for data analysis only)</p>	<p>Often times health outcomes differ greatly from place to place and the physical, social, and economic differences in geographic areas are associated with the experience of disability among persons with chronic impairments. The purpose of this project is to investigate the role that differences in community and neighborhood characteristics may play in health and disability among persons with SCI. This project links SCI outcomes data from the Spinal Cord Injury Model Systems database with community-level geographic data derived from Geographic Information Systems (GIS) data, Census data, and other national surveys. To date this project has demonstrated that differences social participation, employment, and general well-being may be associated with differences in community infrastructure, greenspace, and economic advantage.</p>
<p>The Development of a Blood Pressure Subdomain for the SCI-QOL (Study open for data analysis only)</p>	<p>The purpose of this research study is to develop a set of questions that will help understand the effects of blood pressure problems on the overall health and quality of life in the SCI population. Many issues caused by blood pressure problems cannot be seen when the doctor takes blood pressure. This survey will help medical staff find out how these issues affect daily life of those who have a SCI.</p>
<p>Education Interventions for Self-Management of Pain Post-SCI: A Pilot Study (Study open for data analysis only)</p>	<p>The purpose of this research study is to determine how well two different kinds of education programs reduce the extent to which chronic pain interferes with daily life and well-being.</p>
<p>The Role of the Built Environment in Quality of Life for Adults with Spinal Cord Injury (Study open for data analysis only)</p>	<p>For persons with SCI, the physical features of communities where people live may be particularly important to quality of life (QOL). A lack of amenities—known as the built environment—in the local area may further restrict the activity of persons with SCI outside the home. This study investigates the relationship between the built environment and QOL after SCI using community data and survey information collected for the SCI-QOL study. The results of this project will be used to inform clinicians seeking to guide persons with SCI to successful and independent living in the community and disability advocates working to improve accessibility and social integration for persons with disabilities.</p>
<p>Mapping the Disability Belt (Study open for data analysis only)</p>	<p>This study maps the occurrence of disability reported on national surveys (i.e., American Community Survey, Social Security Disability, Behavioral Risk Factor Surveillance Survey) and examines differences in the distribution of disability in the United States.</p>
<p>Explaining Functioning Disparities Associated with Quality of Life in SCI (Study open for data analysis only)</p>	<p>The primary goal of SCI rehabilitation is to restore optimal functioning. Engagement in functional activities is paramount to the maintenance of independence and quality of life after a traumatic SCI. Despite advances in rehabilitation medicine that have improved the mortality and morbidity rates among individuals living with SCI, disparities in outcomes based on race/ethnicity</p>

	and socioeconomic status persist. The goal of the current study is to examine potential mechanisms explaining the relationship between functional outcomes and quality of life among racially/ethnically diverse groups living with SCI.
Acute and Chronic Effects of an Anticholinergic Agent or a Long-Acting β_2 Agonist on Levels of Exhaled Nitric Oxide and Pulmonary Function in Persons with Tetraplegia (Study open for data analysis only)	SCI can affect pulmonary function (lungs and breathing) in many ways. Individuals with cervical-level SCI (called “quadriplegia” or “tetraplegia”) can also have the same breathing difficulties commonly seen in people with asthma. Tiotropium and salmeterol are examples of medications called “anticholinergic agents” and “long-acting β_2 agonist agents”, respectively, and are FDA approved medications to treat chronic obstructive pulmonary disease and asthma in the general population, but have not been specifically approved for use in people with SCI. The purpose of this study is to determine the effects of tiotropium and salmeterol on overall breathing ability and other aspects of pulmonary function in people with cervical-level SCI.
Indego® Exoskeleton; Assessing Mobility for Persons with Spinal Cord Injury (SCI) (Study open for data analysis only)	The purpose of this project is to evaluate if the Indego® robotic device is both safe and effective at allowing persons with SCI who are non-ambulatory or poorly ambulatory to stand up and walk under a variety of conditions; indoor surfaces, outdoor surfaces, elevators, managing doorways, different seat heights and extended distances.
Impact of Age on Cardiovascular, Cerebrovascular & Cognitive Health in SCI (Study open for data analysis only)	Research suggests that the naturally occurring increase in autonomic dysregulation as the general population ages may contribute to cognitive decline. This is an observational study intended to measure the relationship between cardiovascular, cerebrovascular, and cognitive function in the SCI population compared to age-matched non-SCI and older non-SCI healthy controls. The purpose is to determine how the SCI population ages both physiologically and cognitively compared to the general population.
Acetylcholinesterase inhibition: A novel approach in the treatment of Orthostatic Hypotension in SCI (Recently Completed)	Following SCI, blood pressure control is compromised, the degree of which relates to the level and completeness of the SCI. The purpose of this research study is to determine the effect of a medicine (pyridostigmine) on blood pressure in people with SCI when lying flat and when raised head-up on a tilt table. This study is being done to see if the study drug can help people with SCI who have low blood pressure or who experience a drop in blood pressure when they sit up.
The Acute and Chronic Effects of Inhaled Steroids on Pulmonary Function in persons with SCI (Recently Completed)	SCI can affect pulmonary function (lungs and breathing) in many ways. Individuals with cervical-level SCI (called “quadriplegia” or “tetraplegia”) can also have the same breathing difficulties commonly seen in people with asthma. Inhaled steroids are a common treatment used in people with asthma. The purpose of this study is to determine the effects of inhaled steroids on overall breathing ability and other aspects of pulmonary function in people with cervical-level SCI.