Congressionally Directed Medical Research Programs

CDMRP

Department of Defense

https://cdmrp.army.mil

Spinal Cord Injury Research Program

Spinal cord injury impacts U.S. Service members, veterans and the American public: From 2001 to 2009 there were 5,928 new spinal cord injuries reported in the military, and the rate of injury was nearly eight times that of the U.S. general population. Currently, the U.S. Department of Veteran Affairs reports over 70,000 Veterans with a spinal cord injury/disease (SCI). SCI is a devastating disorder and SCI in the military is more likely to occur in younger individuals who may experience higher energy injuries. In addition, SCI in the deployed military is increasingly likely to occur in areas where immediate access to neurosurgical and trauma care may be delayed. In the U.S. population, an estimated 17,700 new cases of SCI occur each year, and 288,000 persons are living with an SCI. Costs for care range from $70,000 to $1,000,000 per year, depending on severity of injury.

VISION

Advance the treatment and management of spinal cord injury and ameliorate its consequences relevant to injured Service members

MISSION

To fund research and encourage multidisciplinary collaborations for the development and translation of more effective strategies to improve the health and well-being of Service members, Veterans, and other individuals with spinal cord injury

PROGRAM HISTORY

The Department of Defense Spinal Cord Injury Research Program (SCIRP) was established in fiscal year 2009 (FY09) to support research and treatment into repairing/regenerating damaged spinal cords (SCs) and improving rehabilitative therapies to enhance the care of individuals with SCI. With appropriations of $247.85 million (M) between FY09 and FY18, the SCIRP is now a leading funder of SCI research in the United States. The FY19 appropriation is $30M. The SCIRP has developed a high-impact research program focusing on translational and clinical science. This research addresses problems affecting Service members, Veterans, and members of the American public with SCI across the three areas of acute SCI care, rehabilitation, and health and quality of life. To date, the SCIRP has funded 219 awards, supporting research that has generated 252 peer-reviewed publications, 16 patents (applied for or issued), and 42 clinical trials that are either completed or in progress.

THE SCIRP MOVES RESEARCH FROM THE BENCH TO THE BEDSIDE

The SCIRP supports research from discovery through clinical trials, with an emphasis on translating promising science to improvements in the lives of individuals with SCI. The program supports 47 completed or ongoing clinical trials and clinical trial development awards, including the following:

- Randomized trial of early hemodynamic management of patients following acute SCI
- Nerve transfers and electrical stimulation for improved hand function following cervical SCI
- Acute intermittent hypoxia to improve walking after SCI
- Neural stimulation to improve bladder function after SCI
- Immersive virtual walking as a treatment of neuropathic pain in SCI

"There's a lot of positive energy and a great deal of commitment within the scientific community to find a cure for SCI."

James Howard,
U.S. Army (Ret'd),
SCIRP Peer Review Panel member

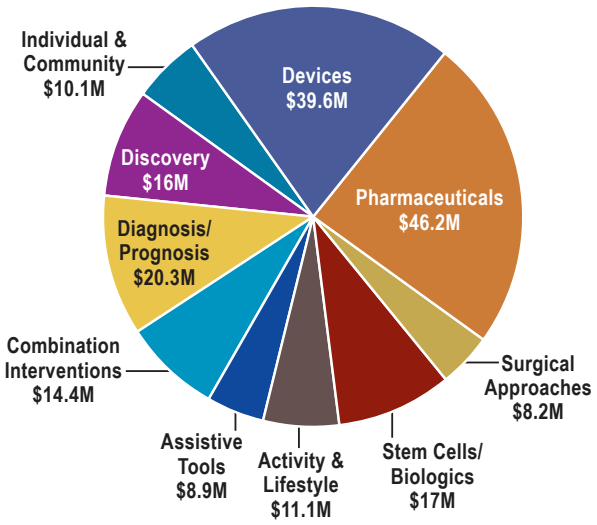
"It's a privilege to represent the perspective of men and women with SCI while exploring various realms of scientific research."

Sherman Gillums,
former U.S. Marine,
SCIRP Peer Review Panel member

THE SCIRP PORTFOLIO: ADDRESSING SPINAL CORD INJURY USING MULTIPLE APPROACHES

SCI is a serious and complex neurotrauma issue within the military Services and for the American public. An SCI results in the impairment or loss of functions controlled by the spinal cord below the injury. In addition to loss of movement and sensation, SCI can result in loss of bladder, bowel, and sexual function, as well as severe neuropathic pain and increased rates of depression. SCIRP is the leading U.S. funder of research into management of the acute injury and a major funder across the spectrum of SCI research supporting a range of approaches[1], including the following:

- Development of device and pharmaceutical interventions
- Rehabilitation approaches
- Surgery
- Exercise
- Biologics (including stem cells)
- Improved diagnostics
- Discovery
- Reintegration into the community



[1] Supported research FY09-FY17

HIGH-IMPACT RESEARCH SUPPORTED BY THE SCIRP

ADVANCES IN CARE OF ACUTE SCI

- Funding a knowledge network of acute SCI management in humans to analyze clinical treatment and outcomes
- Supporting development of a device for real-time measurement of SC hemodynamics to guide clinical care of acute SCI
- Large animal studies that are in progress to understand causal relations between intensive care management and neurologic outcomes after SCI

ADVANCES IN REHABILITATION

- Preclinical animal studies for in-progress or future clinical trials of stem cell therapy in SCI
- Research exploring the impact of exoskeleton training on functional recovery and health

ADVANCES IN HEALTH AND QUALITY OF LIFE

- Research understanding how neuropathic pain develops in SCI, its impact on individuals and their families, and alternatives to opioids for pain management
- Development of electrical stimulation approaches to manage bladder dysfunction
- Studies on how to assist family caregivers of Veterans with SCI

Point of Contact: CDMRP Public Affairs, 301-619-9783
usarmy.detrick.medcom-cdmrp.mbx.cdmrp-public-affairs@mail.mil

04/2019