



background

The injuries of Operations Enduring and Iraqi Freedom (OEF/OIF) are shaped by the widespread use of improvised explosive devices (IEDs). IEDs increase the likelihood that active-duty Service members will be exposed to incidents such as blasts that can cause traumatic brain injuries and other debilitating injuries. Current war casualties are driving changes in health care needs and, therefore, changes in research and development.

The U.S. Army Medical Research and Materiel Command's establishment of the Clinical and Rehabilitative Medicine Research Program (CRMRP) will enable active planning and coordination of an area of military research that has grown in importance during the current conflicts. The CRMRP focuses on definitive and rehabilitative care innovations required to reset our wounded warriors in terms of duty, performance, and quality of life.

The CRMRP has 4 primary focus areas:

- Regenerative Medicine
- **Neuromusculoskeletal Injury Rehabilitation**
- Sensory System Traumatic Injury Restoration and Rehabilitation
- Pain Management

what & why

Neuromusculoskeletal (NMS) injuries are a leading problem for military Service members with 1.6 million injury-related medical encounters per year. NMS Injury Rehabilitation research focuses on finding solutions for improved treatment of orthopedic injuries, amputee care, burns and contractures, and spinal cord injury.

Statistical research findings demonstrate the need to prioritize medical research in this area:

- According to the Army Office of the Surgeon General, since 2001 there have been more than 1650 amputations in OIF, OEF, and unaffiliated conflicts—half of these injuries were caused by IEDs
- Significant burns make up 5.3% of combat casualties in OIF/OEF; burn rehabilitation is intensive with 0.5-1 day per percentage surface area burned of inpatient rehabilitation, and 6-12 months at 3-5 days per week of outpatient rehabilitation, garment fitting, and training (Cancio, 2009)
- Extremity injuries account for 52% of wounds from OIF/OEF (Belmont et al., 2012)
- Spine injuries increased from 1% of all injuries in Korea and Vietnam to 7.4% in OIF/OEF
- Of the more than 250,000 Americans with serious spinal cord injuries and disorders, about 42,000 are Veterans (VA, 2009)

FOCUS ON:

neuro- musculo- skeletal injury rehabilitation

CLINICAL AND REHABILITATIVE MEDICINE
RESEARCH PROGRAM

CRMRP



top priorities

Scientific steering committees were formed to identify and prioritize current and future research needs. Capability gaps were analyzed, and rankings were assigned to various problem areas. Results helped the CRMRP to establish program direction, priorities, and funding strategies.

In the area of NMS Injury Rehabilitation, specific capabilities in need of supporting research include:

- Limited capability to assess and facilitate the optimal restoration of physical and psychosocial reintegration following severe extremity trauma
- Limitations in the functional utility of assistive devices related to the human-device interface
- Limited ability to predict, identify and reduce secondary health effects that develop after primary NMS injury
- Limited understanding of the optimal treatment strategies and sequence of progression throughout the rehabilitation process following severe extremity trauma
- Inadequate measures for standardized assessment of relevant activity performance and participation

work in progress

Examples of research efforts in the Neuromusculoskeletal Injury Rehabilitation portfolio include:

- Advanced Restoration Therapies in Spinal Cord Injury
- Advanced Surface Technologies for Medical/Prosthetic Development
- Development of a C-Leg Version with Optimized Functionality for use in Extreme Situations
- Early Diagnosis and Intervention Strategies for Post-Traumatic Heterotopic Ossification in Severely Injured Extremities
- Military Amputee Intramural Research Program
- Rehabilitation of the Upper Extremity using a Robotic Arm Exoskeleton

funding opportunities

Researchers are needed to investigate new ideas and develop new products to help diagnose and treat our wounded Warfighters and improve treatment outcomes and quality of life. Funding opportunities and program announcements can be found through the federal government's single-entry portal www.grants.gov. Full proposals requesting funding from the CRMRP should be submitted via this site.

Registration: www.grants.gov

Questions: support@grants.gov

contact info

For more information about the CRMRP, or for questions related to program announcements, proposal format, or required documentation, please send inquiries to crmpr@amedd.army.mil, or contact the CRMRP office at 301-619-8932.

Please mail inquires to:

**U.S. Army Medical Research and Materiel Command
Clinical and Rehabilitative Medicine Research Program**
ATTN: MCMR-RTR
504 Scott Street • Fort Detrick, MD 21702-5012

<https://crmpr.amedd.army.mil>



CRMRP