

## VA Research Highlight

# Exoskeletal-Assisted Walking and Mobility Program (Active Protocols)



This Marine Corps Veteran with incomplete motor tetraplegia is able to stand and walk with the aid of the Ekso GT powered exoskeleton.

James J. Peters VA Medical Center, Bronx, New York

### Why this research is important:

Paralysis from traumatic spinal cord injury (SCI) results in an abrupt reduction in the level of daily physical activity. Those with more severe SCI lose the ability to stand and walk, becoming dependent on a wheelchair for mobility. As a result of this sudden and near permanent immobilization, body composition, general metabolism, cardiovascular function, autonomic integrity, and bowel function are but a few of the body systems that are adversely affected. Paralysis from SCI also affects quality of life due to reduced ability to participate in the work force and reduced mobility for community integration.

Powered exoskeletons are a technology that became available in 2011 for research and in 2014 the first device was approved by the FDA market indication. These devices offer an upright form of mobility by providing an external framework for support and computer-controlled motorized hip and knee joints to assist with overground ambulation.

### Summary:

In pilot studies conducted at the James J. Peters VA Medical Center, Bronx, NY, improvements in mental-emotional health, physical health, and body composition were demonstrated by providing the participants the ability to walk for 4 to 6 hours per week over the course of three to five months.

### How the research will improve Veterans' lives:

Knowledge about the effects of overground walking with an exoskeleton on medical-, health-, and quality-of-life-related outcomes will help to broaden the use of this technology in our Veteran population with SCI.



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