When U.S. Marine Sgt. Oscar Canon’s platoon was hit by a rocket-propelled grenade in Iraq, he suffered multiple injuries, including extensive tissue loss in his thigh. Despite being told he would never walk again, Canon was determined not to quit. Surgeons transplanted abdominal muscles to his leg. After rehabilitation at the National Rehabilitation Hospital (NRH), Canon is back on his feet, serving as a special forces instructor.

“The only thing I ever wanted was to be a Marine,” he says.

The National Rehabilitation Hospital treats veterans and civilians who are disabled due to traumatic brain and spinal cord injuries, stroke, arthritis, amputation, multiple sclerosis, post-polio syndrome, and other neurological and orthopedic conditions. Although not a government facility, NRH is proud to count the U.S. Department of Defense among its many research partners. Together, NRH physicians, therapists and engineers are developing cutting-edge technologies to help more disabled individuals enjoy the greatest possible quality of life.

Consider the work being done by Joseph Hider, Ph.D., director of the Center for Applied Biomechanics and Rehabilitation Research at NRH. This nationally recognized rehabilitation expert is heading up a multi-center clinical trial investigating the benefits of robotic-assisted training in sub-acute stroke patients. He is also developing a treadmill system to improve walking skills of lower-leg amputees. This innovative system aggressively expands on earlier work with the Lokomat®, a highly advanced robotic treadmill training system that has shown to be beneficial to those with neurological and orthopedic impairments.

NRH research efforts remain on the leading edge with resources directed at prevention as well as treatment. For example, NRH is developing a new kind of sensor to fit inside soldiers’ helmets, to gauge the force of a bomb blast instantly.

“Many brain injuries that we’re seeing in Iraq and Afghanistan are a result of blast concussion, not shrapnel,” explains Dr. Edward Healton, NRH Medical Director and Director of the NRH Christoph Ruesch Research Center. “Often, the symptoms aren’t immediately obvious. This sensor can indicate at a glance whether a blast was of a high enough level to check for brain trauma.”

Many NRH researchers and other employees are themselves disabled and, therefore, have a unique understanding of patients’ needs. NRH President and CEO Ed Eckenhoff, a paraplegic, was appointed by President Bush in 2007 to the Commission on Care for America’s Returning Wounded Warriors.

Each year, NRH treats 2,200 inpatients and provides 350,000 outpatient visits. Patient care is of the highest priority, even long after discharge. NRH provides a team of rehabilitation engineers who perform home and workplace evaluations and assist with prescribing assistive technology devices to help disabled clients go about their daily routines more easily.

“When you look at the aging of our population and when you consider the number of orthopedic conditions, projected strokes and other neurological incidents, the work we are doing is critical,” Eckenhoff says. “Restoring people to the highest level of function after a significant injury or illness should be the goal for everyone.”

For more information, call 202.877.1000 or visit www.nrhrehab.org.