

AT THE FOREFRONT



For Soldiers who have lost a limb, the support and care they receive is crucial to a successful recovery. The U.S. Army health care team, in partnership with other areas of the military and prestigious research entities, is working hard to develop innovative prosthetics and deliver better outcomes across a variety of limb replacement scenarios. Thanks to major advances in prosthetics, disabled veterans have greater potential for mobility and recovery, with many Soldiers even able to return to active duty with artificial limbs. Research and practical applications in this area are also benefiting the private sector.

EXCEPTIONAL ADVANCES IN PROSTHETICS

At various Army hospitals, including Walter Reed National Military Medical Center and Brooke Army Medical Center, wounded Soldiers receive expert care from the U.S. Army health care team. They also benefit from the innovative research and resources that are devoted to advancing the knowledge and practical development of new prosthetic devices.

Fully functional prosthetic arm - The Defense Advanced Research Projects Agency and the Department of Veterans Affairs are working with DEKA Research and Development Corporation to develop a robotic arm that will restore functionality for individuals with upper extremity amputations. The DEKA arm has 10 degrees of movement, including fingers, wrist, elbow and shoulder, and also enables better grip, greater control and improvements in functionality and usability.

Prosthetic knee with microprocessor - The Defense Department contracted with a prosthetics company to design a "military grade" microprocessor-controlled prosthetic knee to give wounded warriors with above-the-knee amputations the chance to return to active duty. This prosthetic knee creates greater stability, mobility and versatility, allowing Soldiers to rapidly switch from walking to running without changing settings. The next generation is currently in design.

Modular limb with neural control - Funded by the Defense Department, the Modular Prosthetic Limb offers 26 degrees of freedom and near human-like dexterity. Developed by a leading university in conjunction with 30 other organizations, it allows wearers to shovel snow, throw a ball, put on a sock and even play the trumpet. Recent developments include neural integration, using small surgically implanted wireless devices that allow the user to directly control the arm with his or her thoughts, just like a real arm.

ARMY MEDICINE IS LEADING THE WAY IN PROSTHETICS.

Prosthetic leg for Afghan IED victims - Combined Task Force Spartan Soldiers developed a prototype prosthetic leg for victims of improvised explosive devices and land mines in Afghanistan. "We came up with a way to make prosthetic limbs from local resources and in a way that was easily reproduced," said Maj. Brian Egloff, brigade surgeon. The next step is to train Afghan doctors to make their own prosthetics and instruct victims on the use of the leg.

Additional advances - Researchers have made great strides developing braces for patients with functional limb loss, including better generation of power and shock absorption. Another goal is to create a fully functioning - in terms of both motor and sensory abilities - upper limb that responds to direct neural control within the next decade.

THE INNOVATION CONTINUES

U.S. Army physicians with an interest in limb replacement can play a key role in the advancement of prosthetics research. This opportunity allows them to not only provide essential assistance to our nation's warriors, but also to develop as health care professionals in a supportive and highly resourced environment.

The Army's work in advanced prosthetics is one example of the numerous innovations you'll find as part of our team. Across many different disciplines, we're leading the way - while offering physicians opportunities to explore specific areas that interest them and grow their careers.

**TO REQUEST
MORE INFORMATION
ABOUT A CAREER
ON OUR INNOVATIVE
HEALTH CARE TEAM,
CLICK HERE. >>**

