Orthotics and Prosthetics

EACE Research Efforts in Evaluation of Orthotic Technologies

Researchers at EACE examined the Intrepid Dynamic Exoskeletal Orthosis (IDEO), a novel, customizable, AFO developed at the Center for the Intrepid (CFI) and designed to support and protect an extensive array of lower extremity (LE) limb traumas. EACE researchers tested the IDEO at three different stiffness levels to determine whether a given stiffness could normalize gait mechanics (e.g., joint angles, moments, and powers) to the levels seen in non-injured control subjects. The study found that patients readily adapted to different dynamic AFO stiffnesses and demonstrated few biomechanical differences among conditions during walking. None of the stiffness conditions normalized gait to control levels. The IDEO is now being fitted at all three DoD Advanced Rehabilitation Centers. In FY14, VA clinicians were also trained in the techniques necessary to provide the IDEO. This enhanced availability of the IDEO is providing new options for Service Members and Veterans with severe LE trauma by increasing access to and minimizing wait times for orthoses, and by reducing the need for medical travel. Evaluation of orthotic technologies are critical to the expedited validation and acceptance of innovative technologies and rehabilitation programs available to Service Members, and their increased availability will aid in returning greater numbers of Wounded Warriors to duty.