

Residential treatment for homeless female veterans with psychiatric and substance use disorders: Effect on 1-year clinical outcomes

Ilan Harpaz-Rotem, PhD, et al.

Limited evidence shows that time-limited residential treatment benefits homeless people with mental illness. The Department of Veterans Affairs has implemented 11 specialty programs for homeless female veterans. This study presents data comparing 1-year clinical outcomes in a group of homeless female veterans who did and did not receive at least 30 days of residential treatment. We found that women who benefited from a residential treatment program had better outcomes on employment, social support, housing status, and psychiatric symptoms. They also had significantly increased use of drugs and alcohol. This study suggests that residential treatment may improve mental health outcomes in homeless women.

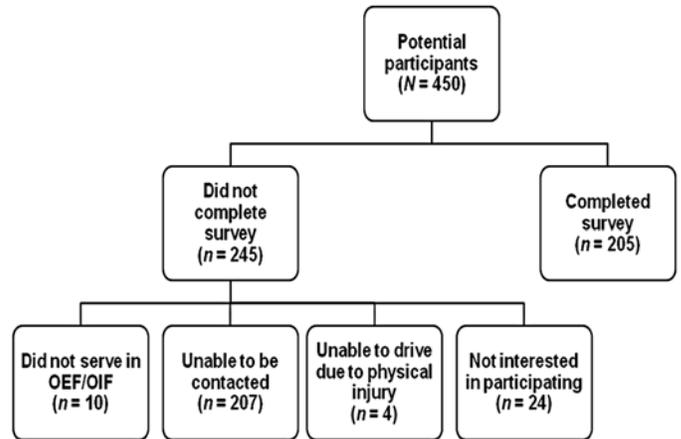
Physical activity in postdeployment Operation Iraqi Freedom/Operation Enduring Freedom veterans using Department of Veterans Affairs services

Lorraine R. Buis, PhD, et al.

While during Active Duty, veterans typically engaged in high levels of physical activity. These levels may decrease dramatically postdeployment, increasing veterans' risks of developing chronic diseases. This research demonstrates that postdeployment Operation Iraqi Freedom/Operation Enduring Freedom veterans using the VA recognize the benefits of regular physical activity, yet many report barriers caused by health problems and/or chronic pain. Furthermore, participants reported engaging in fewer types of physical activity postdeployment than during Active Duty. This research may be of interest to individuals who can help develop strategies, particularly ones that address overcoming barriers, to facilitate physical activity among postdeployment veterans.

Prevalence and characteristics of driving difficulties in Operation Iraqi Freedom/Operation Enduring Freedom combat returnees

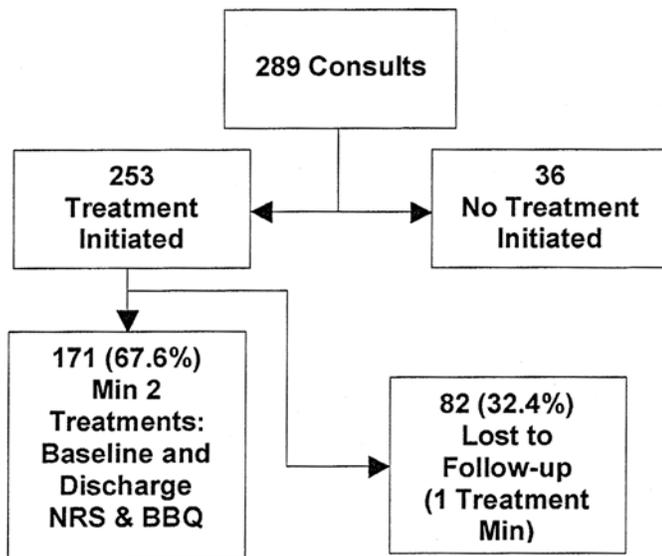
Henry L. Lew, MD, PhD, et al.



Veterans who have served in the Operation Iraqi Freedom/Operation Enduring Freedom (OIF/OEF) conflict are at increased risk of motor vehicle fatality after returning from deployment. In the current study, OIF/OEF veterans were surveyed and asked about how their postdeployment driving abilities compared to predeployment driving abilities. A large majority of respondents indicated that they had experienced more driving difficulties after deployment than they had prior to deployment. The most common change noted was an increase in anger or impatience while driving. Veterans with posttraumatic stress disorder (PTSD) (both with and without traumatic brain injury) reported experiencing more postdeployment driving difficulties than did those without PTSD.

Retrospective case series of clinical outcomes associated with chiropractic management for veterans with low back pain

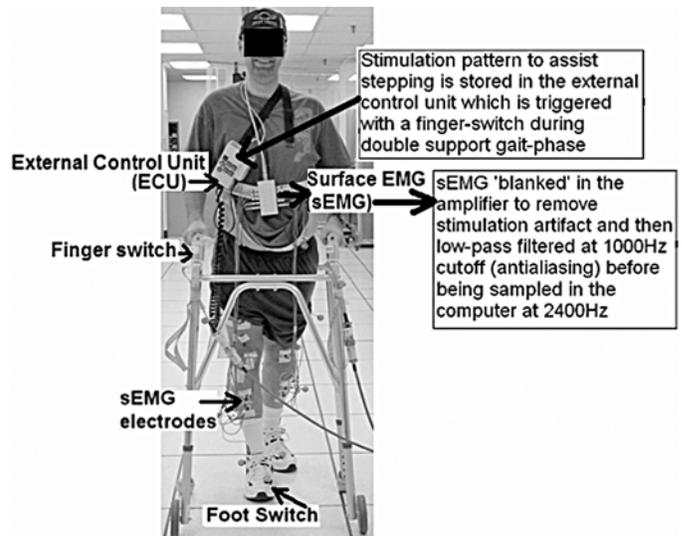
Andrew S. Dunn, DC, MS, MEd, et al.



Musculoskeletal complaints, most notably low back pain (LBP), are prevalent among veterans. This cross-sectional analysis of 171 veterans with a chief complaint of LBP looked to identify whether clinical outcomes (Numeric Rating Scale and Back Bournemouth Questionnaire) were both statistically and clinically significant. We found 37.4% improvement from baseline for the Numeric Rating Scale and 34.6% improvement from baseline for the Back Bournemouth Questionnaire. Additional research is warranted into chiropractic management of LBP among veterans with a shift toward prospective study design. Chiropractic clinical outcomes were both statistically significant and clinically meaningful for this sample of veterans presenting with LBP.

An objective method for selecting command sources for myoelectrically triggered lower-limb neuroprostheses

Anirban Dutta, PhD, et al.



We evaluated the ability to determine the intent to step during level overground walking using surface electromyogram (EMG) from both nondisabled volunteers and individuals with incomplete spinal cord injury. Our goal was to specify a process for selecting muscles for a new command and control interface that can be implemented with only two channels of implanted EMG-recording electrodes with the use of functional electrical stimulation (FES). We found that discriminability index is a good metric to evaluate the potential of controlling FES-assisted ambulation. Our results showed that the command sources can be selected objectively from surface EMG before a fully implantable EMG-triggered FES system for walking is implemented.

Residual limb volume change: Systematic review of measurement and management

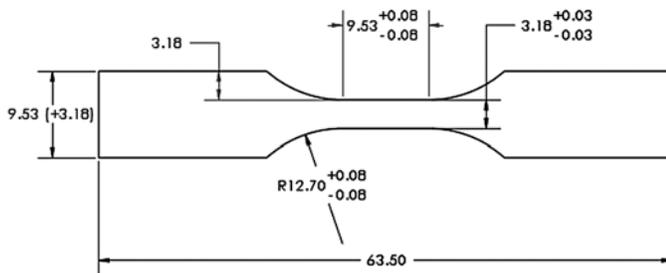
Joan E. Sanders, PhD; Stefania Fatone, PhD

Persons with lower-limb amputation experience changes in the volume of their residual limb that can affect the fit of the prosthetic socket as well as the strategies prescribed to accommodate these changes. The purpose of this literature review was to assess what we know about measurement and management of residual limb volume change in persons with lower-limb amputation. We identified 162 articles, with 52 selected for review

based on inclusion criteria. While we can draw some insights from the available research about residual limb volume measurement and management, further research is required. However, we can say with a moderate level of confidence that in persons with transtibial amputation, generalized postoperative residual limb edema decreases over time, with rate of reduction slowing over time; time to first fitting of transtibial prosthesis is variable based on measurements of residual limb volume; and rigid and semirigid dressings control postoperative residual limb edema better than soft elastic bandages.

Tensile strength and impact resistance properties of materials used in prosthetic check sockets, copolymer sockets, and definitive laminated sockets

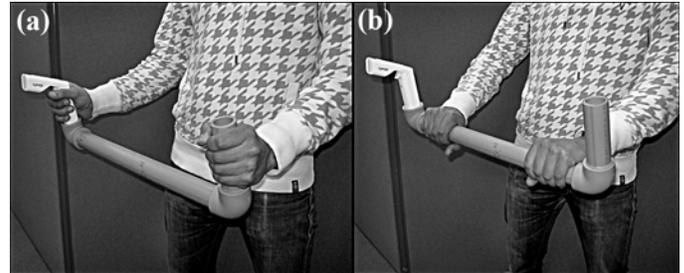
Maria J. Gerschutz, PhD, et al.



The number of servicemembers and civilians with amputations is increasing because of international conflicts and national health care concerns. Prosthetic sockets are the basic connection between people with amputations and their prostheses. However, the understanding of the materials used to make prosthetic sockets is limited, especially once fabrication alters these materials. This study examines the strength of the materials used for diagnostic and definitive sockets. The material properties measured will help inform the selection of materials and fabrication practices. Our study intends to improve material understanding and socket quality and provide a basis for the evaluation of future technologies.

Bilateral upper-limb rehabilitation after stroke using a movement-based game controller

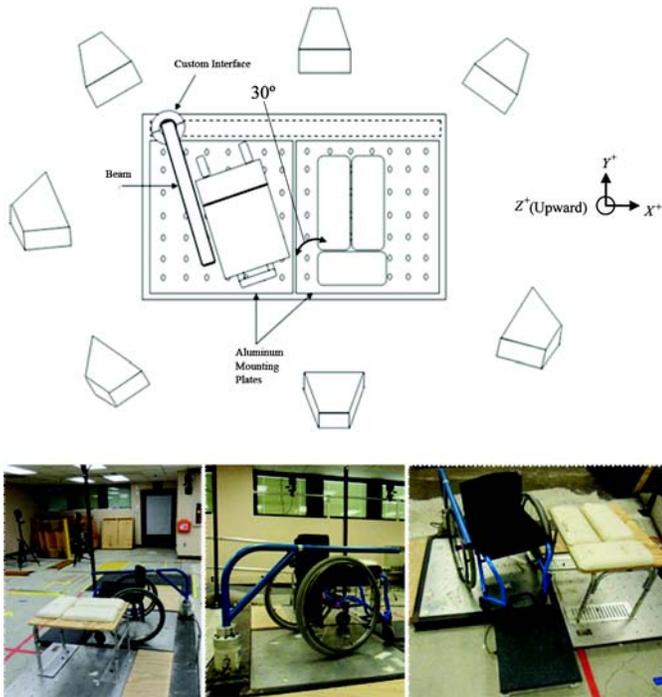
Juha M. Hijmans, PhD, et al.



The aim of this study was to determine the effectiveness of exercises using a movement-based game controller incorporated into a handlebar on arm functioning in people more than 1 year poststroke. Fourteen participants received the intervention, which consisted of playing computer games with the CyWee Z, a movement-based game controller similar to the Nintendo Wii remote, that was incorporated into a handlebar, making bilateral exercises possible. The unaffected side supported and assisted the affected side. The intervention comprised 8 to 10 sessions of 45 to 60 minutes over a period of 2.5 weeks. It can be concluded from this pilot study that upper-limb motor performance of adults with chronic stroke improves with repetitive, game-assisted, self-supported bilateral exercises.

Development of custom measurement system for biomechanical evaluation of independent wheelchair transfers

Alicia M. Koontz, PhD, RET, et al.

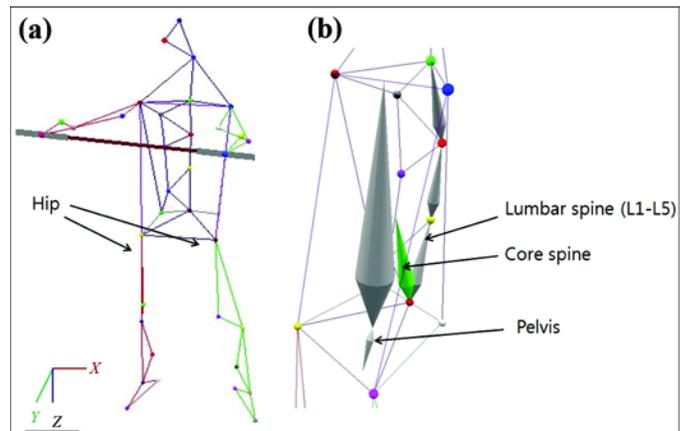


This study (1) describes a new custom measurement system designed to investigate the biomechanics of sitting-pivot wheelchair transfers and (2) assesses the reliability of selected biomechanical variables. We examined the reliability of these measures between five consecutive transfer trials for 5 subjects with spinal cord injury and 12 unimpaired subjects while they performed a self-selected sitting pivot transfer from a wheelchair to a level bench. A majority of the biomechanical variables demonstrated moderate to excellent reliability ($r > 0.6$). The transfer measurement system produced reliable and valid biomechanical data for future studies of sitting-pivot wheelchair transfers. A minimum of five transfer trials

are recommended to obtain a stable measure of transfer technique for future studies. Quantifying the mechanical demands of different types of wheelchair transfers will provide insight into the risk factors associated with the development of upper-limb pain and injury.

Kinematic analysis of symmetric axial trunk rotation on dominant hip

Paul S. Sung, PhD, DHSc, PT; Yoon Hyuk Kim, PhD



Axial rotation of the trunk has been reported as a major risk factor for low back dysfunction. However, a lack of biomechanical investigation exists that explains how twisting is accomplished with simultaneous asymmetric handling between the hip and the lumbar spine. We used a three-dimensional motion analysis to measure movements of the lumbar spine and bilateral hips. Decreased axial trunk range of motion might result in stiffened passive structures of the dominant hip joint. The function of the lumbar spine and hip joint might be altered based on the stiffened dominant side of the hip joint.