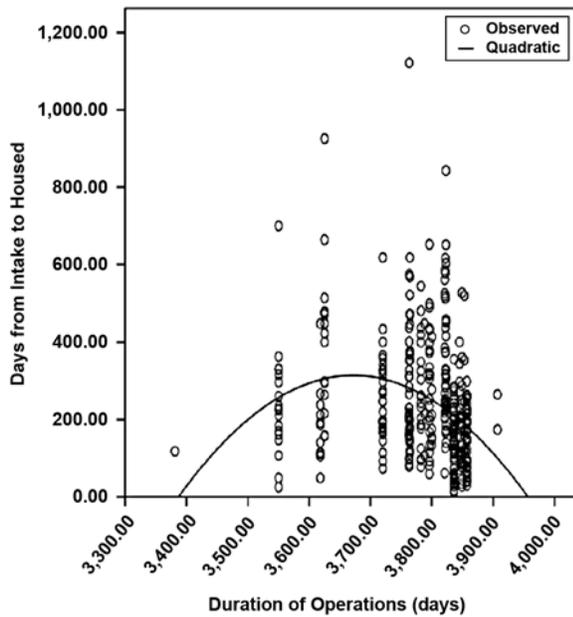


Factors related to rapidity of housing placement in Housing and Urban Development-Department of Veterans Affairs Supportive Housing program of 1990s

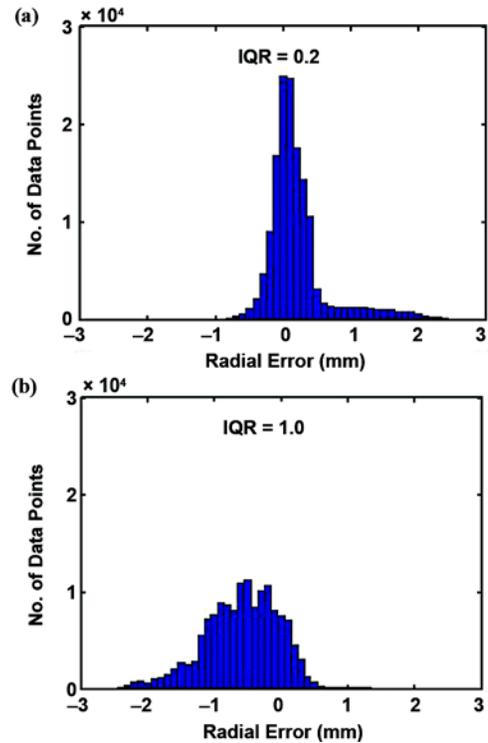
Jack Tsai, PhD, et al.



The Housing and Urban Development-Department of Veterans Affairs Supportive Housing (HUD-VASH) program is the largest supported housing program for veterans in the United States and is the flagship of Department of Veterans Affairs (VA) homeless services. The HUD-VASH program is expanding at an unprecedented rate, with Congress providing \$150 million to the program in just the last 2 years. Our study examines the efficiency during the earlier years of the program in referring, admitting, and housing homeless veterans and identifying factors that hinder the process. Our study will benefit the many homeless veterans expected to be served by the program and provide guidance for continued development of the program. Veterans admitted to HUD-VASH seek rapid placement into permanent housing, yet it was found to be a relatively slow process in the 1990s. Studying what factors do or do not slow down the process can lead to more efficient and higher quality care in more recent HUD-VASH programs. Additionally, the results will guide the VA in quality assurance, improvement, and future planning of supported housing programs.

Assessment technique for computer-aided manufactured sockets

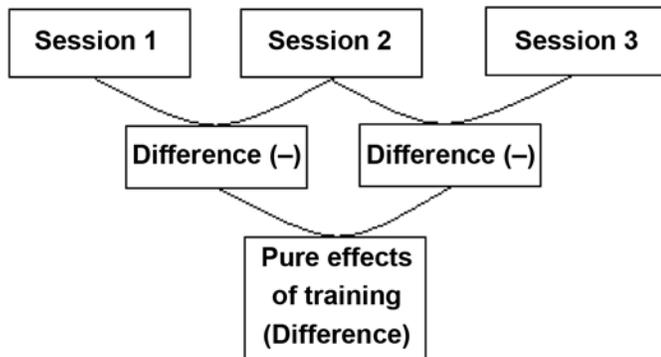
Joan E. Sanders, PhD; Michael R. Severance, MSE



This article describes an assessment technique for treatment clinics or fabrication facilities to test the quality of their computer-fabricated prosthetic sockets. The evaluation technique may prove to be a useful tool for the prosthetics community and industry to identify problems and limitations in computer-aided manufactured sockets and provide insight into appropriate refinements. The assessment technique is described, and an example test case is presented.

Dynamic stability training improves standing balance control in neuropathic patients with type 2 diabetes

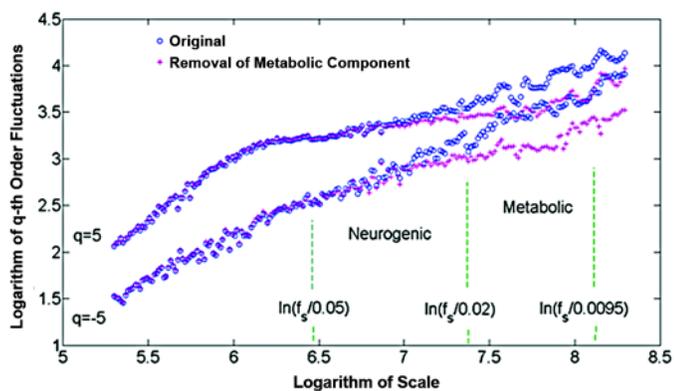
Hoda Salsabili, MS, et al.



Patients with diabetic neuropathy (DN) are at an increased risk of falling. Effective balance and stability trainings should focus on proprioception to help patients with DN to reduce the incidence of falling injuries. Bio-dex balance exercises introduced in this study will be useful in rehabilitation clinics and will help physical therapists improve postural control of patients with DN. Also, patients with DN can practice such balance exercises on unstable tilt-platforms modified for their homes.

Using multifractal detrended fluctuation analysis to assess sacral skin blood flow oscillations in people with spinal cord injury

Fuyuan Liao, PhD; Yih-Kuen Jan, PT, PhD

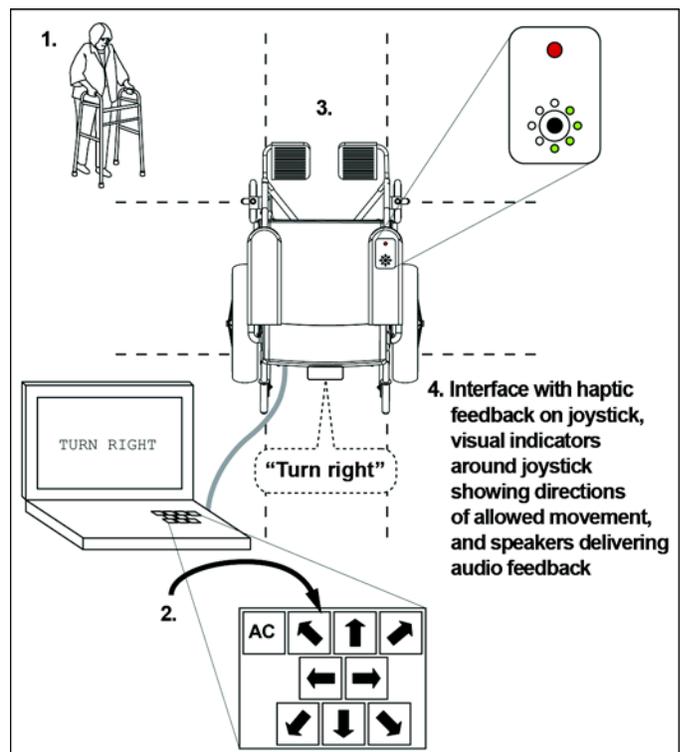


We used a nonlinear computational analysis (called “multifractal detrended fluctuation analysis”) to measure the change in complexity of sacral skin blood flow in people with complete and incomplete spinal cord injury (SCI). Changes in skin blood flow have shown promise for assess-

ing the risk for pressure ulcers. Our results showed that people with SCI had a smaller maximal vasodilatory response than nondisabled control subjects. This impairment was related to decreased complexity in the metabolic and neurogenic controls of skin blood flow oscillations. Our findings demonstrated a new instrument for measuring blood flow under stress conditions that might help assess the risk for pressure ulcers.

Usability testing of multimodal feedback interface and simulated collision-avoidance power wheelchair for long-term-care home residents with cognitive impairments

Rosalie H. Wang, PhD, BSc (OT), et al.



Power wheelchair users may benefit from new devices to improve independence and safety. Features like collision-avoidance and steering assistance are relevant for people with physical and cognitive disabilities related to conditions linked to aging, accident, or injury. We developed a simulated collision-avoidance power wheelchair with a joystick interface with audio, visual, and tactile feedback to guide movement away from nearby obstacles. We tested the device with older adults with cognitive impairments in long-term-care homes. Users supported the new

features and added guidance. The device was easy to use and assisted users to reach indoor mobility goals.

User evaluation of three wheelchair securement systems in large accessible transit vehicles

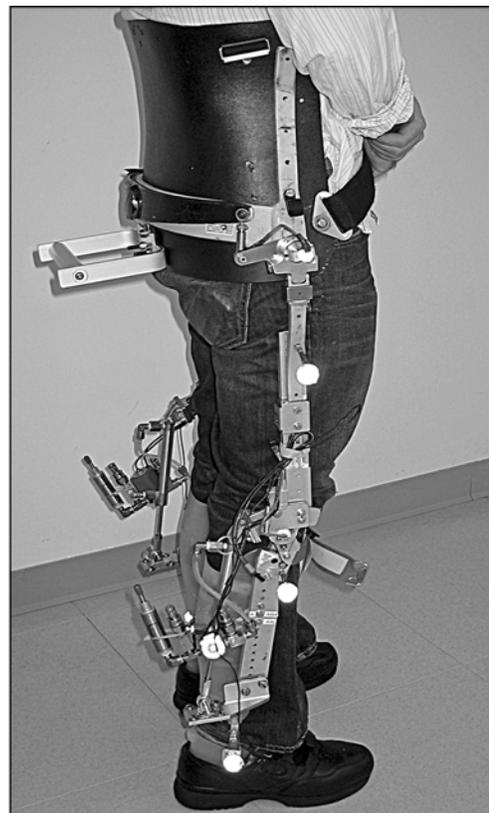
Linda van Roosmalen, PhD, et al.



An evaluation was conducted on ease of use, comfort, security, and independent use of three types of wheelchair securement systems in a large accessible transit vehicle. Twenty wheelchair and scooter users were surveyed after taking a 15-minute city bus ride. Participants responded positively to an automated docking and a rear-facing wheelchair passenger station securement system, which were quicker and easier to use and allowed more independent use than a 4-point tie-down system. Results indicate a need for improved securement systems for forward-facing use that do not require wheelchair modifications and can be easily and independently used by wheelchair and scooter users.

Stance control knee mechanism for lower-limb support in hybrid neuroprosthesis

Curtis S. To, PhD, et al.



Our objective was to advance the technologies for restoring walking abilities to veterans paralyzed by spinal cord injury. We developed a device that supports the knee against collapse during standing and walking and that works together with activation of the user's own paralyzed muscles by functional neuromuscular stimulation. This knee mechanism was designed to support the user without the need for muscle stimulation, thus reducing muscle activity and delaying tiredness. The results show that it is possible to use the knee mechanism in a hybrid neuroprosthesis, a system combining bracing with functional neuromuscular stimulation for walking in paraplegia.

Development of surgical protocol for implantation of tracheal prostheses in sheep

Agnès Dupret-Bories, MD, et al.



Research is necessary to improve the situation of laryngectomees. Therefore, our team is interested in a new project called “artificial larynx.” The aim of this project is to develop a totally implantable artificial larynx for laryngectomees. This artificial larynx can be divided in two main parts: (1) a valve system that could make it possible to switch between breathing and speaking, and (2) a prosthesis, made of porous titanium, that will be a connector to fix the artificial larynx to the extremity of upper trachea. The philosophy of the project is to first develop the separate parts. In this article we focus on the integration of the tracheal prosthesis through a long-term study on sheep.

Determinants of Department of Veterans Affairs hearing aid brand dispensing by individual audiologists

Earl E. Johnson, AuD, PhD

This study assessed the perceptions of Department of Veterans Affairs audiologists regarding the hearing aid

brands on a U.S. Government Federal purchasing contract. Associations were sought between perceptions and preferences when audiologists choose to dispense a hearing aid brand to veterans. Study results indicate that audiologists have an overall perception of hearing aid brands that is largely unrelated to the pricing of a brand on the purchasing contract. The overall perception is closely associated with hearing aid brand dispensing for the vast majority of audiologists. Improved understanding of how audiologists choose to dispense an individually preferred hearing aid brand is one benefit of this study.

Elliptical exercise improves fatigue ratings and quality of life in patients with multiple sclerosis

Jessie M. Huisinga, PhD, et al.

The Department of Veterans Affairs (VA) is committed to serving the healthcare needs of approximately 28,000 veterans with multiple sclerosis (MS). To provide the best possible therapies to veterans with MS, the VA has the opportunity to help evaluate new rehabilitation options for MS patients. The physical activity intervention, elliptical exercise, presented in this article allows for a new and effective treatment option for MS patients in improving reported fatigue symptoms and quality of life reports. Importantly, the physical activity evaluated in this study may be employed in a variety of settings since elliptical trainers are widely available.