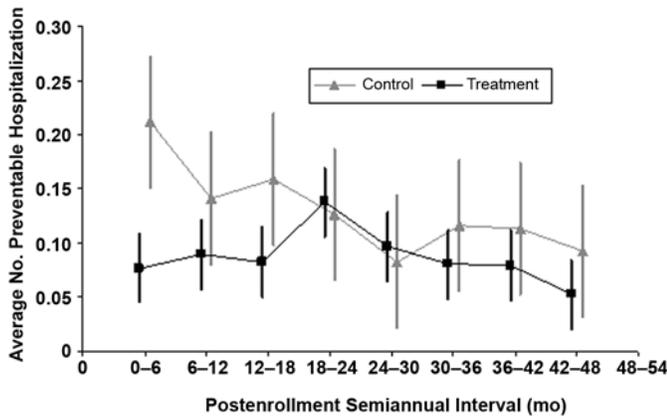


**Long-term effect of home telehealth services on preventable hospitalization use**

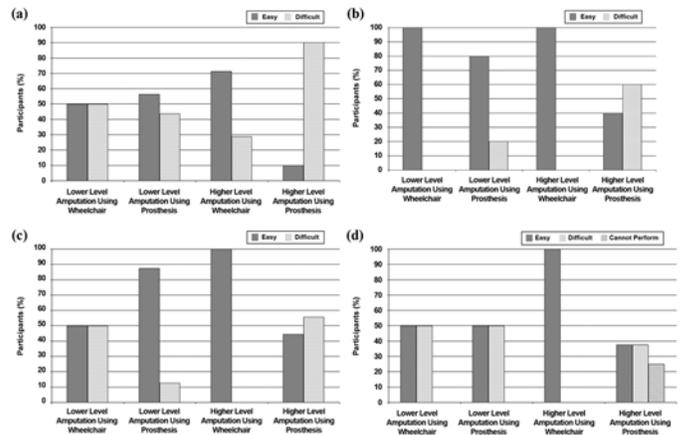
Huanguang Jia, PhD, MPH, et al.



A large body of literature has found that hospitalizations for ambulatory care-sensitive conditions (ACSCs) would be prevented if timely and appropriate ambulatory care were accessible to patients. Home telehealth can be one mechanism to improve patients’ accessibility. Several reports showed that telehealth programs had a short-term effect on inpatient and outpatient utilization reduction; however, little is understood about the long-term effect of telehealth programs on hospitalization for ACSCs. In this study, we assessed the longitudinal effect (all patients were followed for 4 years) of a Department of Veterans Affairs (VA) patient-centered Care Coordination Home Telehealth (CCHT) program on preventable hospitalization use by veterans with diabetes mellitus at four VA medical centers. We found that CCHT enrollees were less likely than their nonenrollee counterparts to be admitted for a preventable hospitalization during the initial 18 months of follow-up, and this difference diminished during the rest of the 4-year period. These findings are some of the first that have systematically examined the extent to which home telehealth programs have a long-term effect on preventable hospitalization use.

**Prosthesis and wheelchair use in veterans with lower-limb amputation**

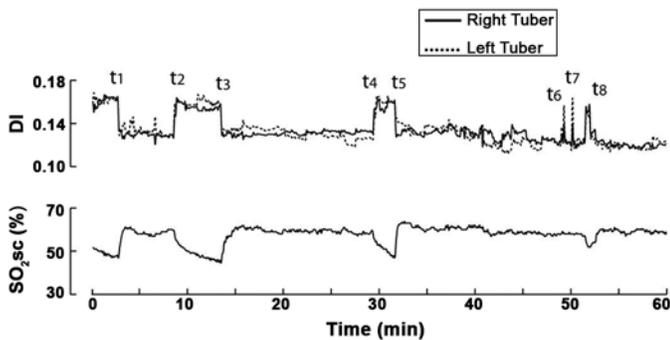
Amol M. Karmarkar, PhD, et al.



Operation Iraqi Freedom and Operation Enduring Freedom have dictated the course of prosthetic rehabilitation, though the long-term impact on veterans is unknown. We asked 42 veterans attending veteran-affiliated sporting events to identify factors that influenced their choice of a prosthesis versus a wheelchair for daily mobility. Lower-limb amputation level was the most significant factor predicting mobility device choice. Veterans who had high-level amputations and used prostheses reported more difficulty walking on ramps, getting in and out of cars and buses, shopping, and participating in sports. The interaction between mobility device use and changing veteran needs could suggest viable alternatives and more successful prosthetic rehabilitation for veterans with lower-limb amputation.

### Analysis of healthy sitting behavior: Interface pressure distribution and subcutaneous tissue oxygenation

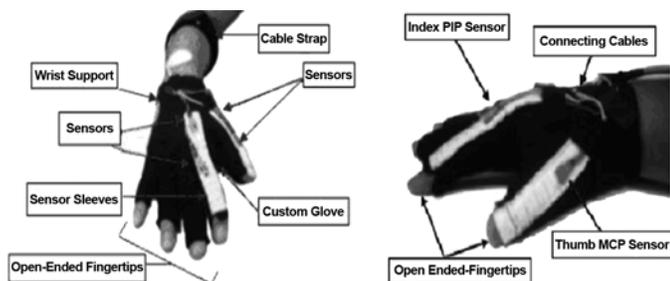
Jasper Reenalda, MSc, et al.



Pressure ulcers are a large problem for wheelchair users with limited trunk stability and motor function because they sit in their wheelchairs for prolonged periods without moving. Nondisabled subjects do not develop pressure ulcers during prolonged sitting because they continuously vary their sitting posture. We analyzed the sitting behavior of 25 nondisabled subjects and found that they moved about 8 times an hour. The results of this study can be used as a reference for dynamic seating devices aimed at preventing pressure ulcers in wheelchair users. Changing sitting posture at least every 8 minutes is also recommended for wheelchair users.

### Design and validation of low-cost assistive glove for hand assessment and therapy during activity of daily living-focused robotic stroke therapy

Dominic E. Nathan, MS, et al.

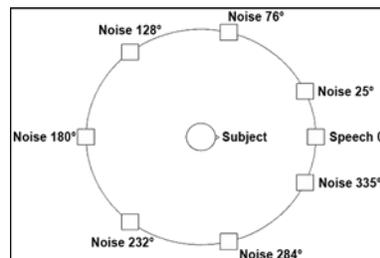


The Veterans Health Administration estimates that 15,000 veterans are hospitalized for stroke each year. The

need for effective stroke rehabilitation increases as veterans age. Robotic therapy is promising, but integrating the hand and improving real-life relevance of these robotic therapy devices is still needed. This article details the design, development, and validation of a grasp-assistive glove for stroke rehabilitation. The glove is a low-cost measurement device that captures hand opening during real-life activities and an assistive device that facilitates hand opening and closing. Results indicate that the glove accurately measures in vivo hand opening and closing during functional tasks.

### Real-world benefit from directional microphone hearing aids

David Gnewikow, PhD, et al.

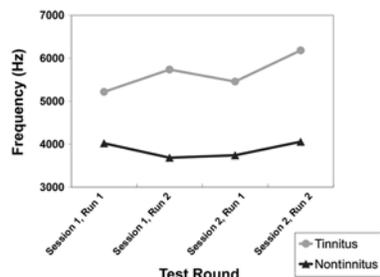


This study investigated the benefit of hearing aids that amplify more sounds from the front of the patient than from the back (directional hearing aids). We examined 94 veterans with

hearing loss in a variety of ways, including benefit surveys; testing in background noise; and satisfaction, benefit, and preference questionnaires. Our results indicated that individuals with hearing loss, regardless of the degree of their losses, understood speech better in difficult background noise situations with directional microphone hearing aids than with standard, nondirectional aids. However, no clinically significant differences were found in terms of satisfaction, benefit, and preference.

### Auditory test result characteristics of subjects with and without tinnitus

James A. Henry, PhD, et al.

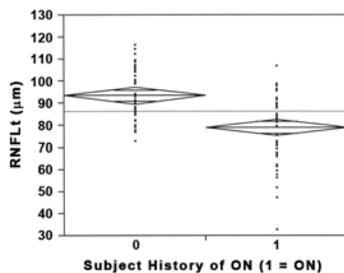


Tinnitus (“ringing in the ears”) has many causes, including noise exposure, head and neck injuries, and certain drug treatments. Currently, no test exists to determine the true existence of tinnitus. It is essential to have a test that can authenticate legitimate claims of tinnitus

for medical, insurance, research, and litigation purposes. This study evaluated a computer-automated method of tinnitus measurement to determine its potential use as a test to diagnose the presence of tinnitus. Test results were compared between people with tinnitus versus those without tinnitus. These groups responded differently, thus supporting the need to continue developing this technique.

### **Thickness of retinal nerve fiber layer correlates with disease duration in parallel with corticospinal tract dysfunction in untreated multiple sclerosis**

Rebecca I. Spain, MD, et al.



In multiple sclerosis (MS), repeated attacks of inflammation lead to permanent nervous system damage and disability. One goal of MS therapy is to prevent neuron loss, or neurodegeneration, both during and between clinical attacks.

We asked whether neurodegeneration could be detected in the retinal nerve layer of the eye. Using a scanning laser technique (optical coherence tomography [OCT]), we found that the nerve layer was thinner in patients with MS

with greater disease duration. The results indicate that OCT is a useful technique for measuring neurodegeneration and may be used in assessing the neuroprotective effects of current and emerging MS therapies. This article is useful to healthcare providers, patients, and families who are interested in how to evaluate these therapies.

### **Multivariate models of determinants of health-related quality of life in severe chronic obstructive pulmonary disease**

Marilyn L. Moy, MD, MSc, et al.

Persons with severe chronic obstructive pulmonary disease (COPD) and similar levels of lung function, exercise capacity, and dyspnea have a wide range of health-related quality of life (HRQL). We show that although lung function, exercise capacity, and dyspnea significantly correlate with HRQL, their effects are reduced when other psychosocial and clinical variables are considered. Prior participation in pulmonary rehabilitation and supplemental oxygen use are associated with better HRQL. Self-perception of being disabled, depression, oral corticosteroid use, and daytime sleepiness are associated with worse HRQL. To optimize HRQL in severe COPD, doctors should pay attention to a number of clinical and physiological factors.

