

## **JRRD At A Glance Podcast Episode 29**

**Listen to the JRRD At a Glance Podcast Episode 29: Opportunities in rehabilitation research, functional electrical stimulation, blast-related ear injuries, and more from JRRD Volume 50, Number 6, 2013.**

**[Johanna Gribble]:** This is episode 29 of the JRRD podcast for issue 50-6, produced by the Journal of Rehabilitation Research and Development (JRRD) and the U.S. Department of Veterans Affairs. Today we're discussing topics ranging from posttraumatic stress disorder to cognitive performance that have a direct effect on Veterans and the rehabilitation care and support they may receive. Hello, I'm Johanna Gribble.

**[Ken Frager]:** And I'm Ken Frager. You can find more information about the topics we are discussing today, along with detailed Power Point presentations on most of these topics, online at the Table of Contents page for issue 50-6 at [www.rehab.research.va.gov](http://www.rehab.research.va.gov).

**[Johanna Gribble]:** Lower-limb orthotics have been discussed in JRRD quite often over our 50 years of publication. In this issue, as we continue the JRRD Then and Now reflective commentary series, Jaap Van Netten and Klass Postema look back on this topic to see what has changed. Isidore Zamosky addressed the topic first in JRRD's second issue in 1964, but according to our authors, while there have been many improvements in the process and the technology for developing and fitting lower-limb orthotics, there remain no international guidelines.

**[Ken Frager]:** We hope you have been enjoying our "Then & Now" contributions and we would really appreciate your feedback. This issue of JRRD also includes a guest editorial that looks at the range of

opportunities available in rehabilitation research. The topic was initiated through a task group brought together by the Department of Veterans Affairs Office of Research and Development. This broad group shed some light on some areas of opportunity that might not have been regularly considered.

**[Johanna Gribble]:** An increase in use of animals in various assistive, therapeutic, and emotional support roles has contributed to an uncoordinated expansion of labels used to distinguish these animals. In their study, “A revised taxonomy of assistance animals,” Lindsay Parenti and her partners propose a concise system for classifying these valuable service partners.

**[Ken Frager]:** In a Delphi study, “Development of a mild traumatic brain injury-specific vision screening protocol,” researchers led by Gregory L. Goodrich evaluated a screening tool that is intended to improve eye care services for servicemembers and veterans experiencing residual visual effects resulting from mild traumatic brain injury, or TBI. Research has shown that these dysfunctions often occur in servicemembers returning from Iraq and Afghanistan with a TBI either because of blast events or other trauma.

**[Johanna Gribble]:** A qualitative analysis of a system used by veterans to manage emotional symptoms related to experiencing a traumatic event seems to show that these practices can help to relax and calm veterans and to help them let go of negative feelings and think more clearly. Jill Bormann and colleagues published their findings in “Responses to Mantram Repetition Program from Veterans with posttraumatic stress disorder.”

**[Ken Frager]:** In stroke rehabilitation, the therapist may work on residual movements. To promote motor relearning, Rune Thorsen and colleagues devised a system in which the electric activity from the affected muscles controls stimulation of the same or synergic muscles, thus boosting residual movements in weaker muscles. While the results of this unique system don't demonstrate significant improvements in hand function, the researchers believe this method may play an important role in future stroke rehabilitation. The findings from their randomized controlled pilot study are included in "Myoelectrically driven functional electrical stimulation may increase motor recovery of upper limb in post stroke subjects."

**[Johanna Gribble]:** Cognitive complaints are some of the most frequent and significant contributors to social and occupational dysfunction in people with chronic fatigue syndrome. In their article "Association between cognitive performance, physical fitness, and physical activity level in women with chronic fatigue syndrome," Kelly Ickmans and colleagues examined the relationship between cognitive performance, physical activity level, and physical fitness in 31 women with chronic fatigue syndrome and found that physical fitness, not physical activity level, is associated with cognitive performance. The authors suggest that further study is needed to determine whether increasing physical activity level, and therefore changes in physical fitness, could improve cognitive function in patients with chronic fatigue syndrome.

**[Ken Frager]:** Another study that looked at physical activity levels, this time by Julien Maitre and colleagues, found that regular practice of physical and/or sport activities positively affects the ability to maintain balance, whatever an individual's age. In their article, "Chronic physical activity preserves efficiency of proprioception in postural control in older women," the authors suggest that older individuals should regularly practice physical activity because it preserves postural control efficiency.

**[Johanna Gribble]:** A patient's functional ability following hospital discharge may be influenced by in-hospital rehabilitation and discharge destination. However, very little is known about postdischarge rehabilitation. Fase Badriah and colleagues studied 835 inpatients who went through rehabilitation at a hospital in Japan and found that those who were influenced by an interaction between in-hospital rehabilitation and a discharge destination had improved outcomes. These findings, and recommendations from the authors, are included in "Interaction effects between rehabilitation and discharge destination on inpatients' functional abilities."

**[Ken Frager]:** The ability to move from a sitting to standing position is an important step for helping an ambulatory adult regain independence. The article "Comparison of seat, waist, and arm sit-to-stand assistance modalities in elderly population" provides metrics for the development of new sit-to-stand devices and will help clinicians better understand the biomechanics of assisted sit-to-stand and develop recommendations for assistance selection.

**[Johanna Gribble]:** Adding and removing liquid from socket bladders is a means for people with limb loss to accommodate residual-limb volume change. Research subjects with transtibial amputation used their regular prosthetic socket fitted with liquid-filled bladders on the inside socket surface. In their study, "How does adding and removing liquid from socket bladders affect residual limb fluid volume," Joan Sanders and her research partners suggest that care should be taken when implementing adjustable socket technologies in people with limb amputation because reducing socket volume may accentuate residual-limb fluid volume loss.

**[Ken Frager]:** The article “How “healthy” is circuit resistance training following paraplegia? Kinematic analysis associated with shoulder mechanical impingement risk,” by Linda Riek et al., compares shoulder motion and exposure (time spent in certain positions) during circuit resistance training exercises in order to determine whether the exercises place the shoulder at risk. The authors note that prevention of shoulder pain and maintenance of shoulder health is critical to functional independence following paraplegia, so these exercises should not contribute to the development of shoulder pain.

**[Johanna Gribble]:** In their study, “The effect of timing electrical stimulation to robotic-assisted stepping on neuromuscular activity and associated kinematics,” Askari and others investigated the effects of timing functional electrical stimulation precisely to robot-controlled treadmill movements to help train the injured spinal cord to resume control over locomotion. This was an important first step in the development of a therapy that rehabilitates walking after spinal cord injury.

**[Ken Frager]:** Finally, blast-related ear injuries are a concern during deployment because they can compromise situational awareness. In their article “Blast-related ear injuries among U.S. military personnel,” Amber L. Dougherty and her partners studied the effect of hearing protection and examined hearing loss and tinnitus following blast-related ear injuries. Their findings could help servicemembers who are at-risk for blast exposure.

**[Johanna Gribble]:** Today’s discussion focused on articles in JRRD volume 50, issue 6. These articles and many others can be read online at [www.rehab.research.va.gov/jrrd](http://www.rehab.research.va.gov/jrrd). Just a reminder that the *JRRD At a Glance* section is available online in English, Spanish, and Traditional and Simplified Chinese! You can submit your comments on this podcast or request articles for us to highlight at [vhajrrdinfo@va.gov](mailto:vhajrrdinfo@va.gov).

**[Ken Frager]:** Our thanks to JRRD's David Bartlinski for his audio engineering, recording, and editing to make this podcast possible. We would also like to thank all of our listeners for your support. We'd love to hear from you. For JRRD, thanks for listening. Don't forget to "Get Social" with JRRD by "friending" us on Facebook at JRRDJournal and following us on Twitter at JRRDEditor.