

## **JRRD At A Glance Podcast Episode 44**

**Listen to the JRRD At a Glance Podcast Episode 44: Lower-limb amputation, wheelchair cushions, return to duty after amputation, and more from JRRD Volume 52, Number 1, 2015**

This is episode 44 of the Journal of Rehabilitation Research and Development (JRRD) podcast for volume 52, issue 1, produced by JRRD and the U.S. Department of Veterans Affairs. Hello, I'm Johanna Gribble. More information about the topics we are discussing today is available online at the Table of Contents page for issue 52-1 at [www.rehab.research.va.gov/JRRD](http://www.rehab.research.va.gov/JRRD).

The field of rehabilitation and prosthetics research lost a champion recently with the passing of Dr. Dudley Childress. In a special retrospective, several of Dr. Childress's peers and students reflect on his life while also crediting him with many contributions to and ongoing influence on rehabilitation engineering. Dr. Childress touched many lives during his career and will leave a lasting mark on Veterans' lives for years to come.

Despite significant improvements in care and rehabilitation, return to duty and daily life for combat-injured Veterans present significant challenges. Those with posttraumatic stress disorder, loss of major nerve function, and arthritis were found to be the most disabling conditions aside from amputation. This topic is at the center of much of the research included in this issue, with articles related to proper movement and prosthetic fit for people with amputations, along with obstacles and challenges. For female Veterans in particular, the area of chronic fatigue and rehabilitation methods to restore strength and energy were studied. The authors who studied chronic fatigue found that influencing the quality, rather than the quantity, of movement could be useful in rehabilitation from this condition.

Also featured in this issue are topics related to the use of technology to overcome challenges. Using electrical stimulation to support deep breathing in patients with spinal cord injuries has been studied as a means for respiratory management. In addition, the properties of wheelchair cushions influence the cushion's comfort and ability to protect users from excessive forces during everyday activities such as riding over rough ground or bumping down curbs. Finally, Veterans with upper-limb amputation may use either a body-powered prosthesis or a myoelectric prosthesis. But when users can choose between modes, they performed better on a standardized outcome test. For people with lower-limb amputation, powered ankle-foot prostheses provide power that can improve the quality of walking in a straight path. However, their ankle joint allows only the up-down motion of the foot, rather than the complete movement of a healthy ankle. Finally, research related to injuries and conditions that lead to loss of muscle control, for example, spinal cord injuries and stroke, is also featured. Providing people who have experienced stroke with an intervention that specifically targets existing neuromuscular impairments, thereby facilitating recovery of walking, is an important goal for improving quality of life. A better understanding of the mechanics in each of these instances can help manufacturers, users, and clinicians make more informed choices for achieving improved comfort and usability.

Today's discussion focused on articles in JRRD volume 52, issue 1. These articles and many others can be read online at [www.rehab.research.va.gov/jrrd](http://www.rehab.research.va.gov/jrrd). 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). You also can find JRRD by "following" us on Facebook at JRRDJournal or on Twitter at JRRDEditor.

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.