



Archives of Physical Medicine and Rehabilitation

Editors' Selections From This Issue: Volume 96 / Number 4 / April 2015

AUTHOR PODCAST/ TOPICAL FOCUS

In this month's author podcast, Joy Hammel, PhD, OTR/L, discusses her article (*Environmental Barriers and Supports to Everyday Participation: A Qualitative Insider Perspective From People With Disabilities*) and the Topical Focus (*Measurement of Environmental Barriers and Facilitators*) leading this month's issue (articles begin on page 569). The Hammel article is 1 of 5 authored by Magasi, Hammel, Heinemann, Garcia, Tulsy, and colleagues. The podcast, and our collection of author podcasts, is available at http://www.archives-pmr.org/content/podcast_collection.

INFORMATION/ EDUCATION

Driving is the topic for 2 I/E pages this month (Akinwuntan and Devos, page 767 and Novack and Lopez, page 769). I/E pages are designed to provide consumer-friendly information on topics relevant to rehabilitation medicine. All published I/E pages are available free of charge at <http://www.archives-pmr.org/content/infoeducation>.

ACRM SUPPLEMENTS

Archives has published 2 ACRM sponsored supplements in 2015. In March *The Fifth International Brain-Computer Interface Meeting Presents Clinical and Translational Developments in Brain-Computer Interface Research*, organized by guest editors Janis J. Daly and Jane E. Huggins includes 11 articles. And, in April, *Noninvasive Brain Stimulation in Neurorehabilitation*, a collection of 9 articles organized by guest editors Stephen J. Page and Ela Plow.

TOPICAL FOCUS: Measurement of Environmental Barriers and Facilitators

This special section explores the relationship between environment and participation for individuals with disabilities such as stroke, traumatic brain injury, and spinal cord injury. An article by Magasi et al examines the use of the World Health Organization's International Classification of Functioning, Disability and Health as a theoretical base for instrument development. An article by Hammel et al describes environmental factors influencing participation of people with disabilities. Heinemann et al describe methods used in operationalizing environmental factors as well as the results of a research project to develop measures of environmental factors that affect participation. Garcia et al describe the development of new self-report measures of social attitudes that act as environmental facilitators or barriers to community participation. Finally, an article by Tulsy et al describes the development of a 28-item bank measuring economic aspects of quality of life. ■ FULL ARTICLES BEGIN AT PAGE 569

Treatment of Detrusor External Sphincter Dyssynergia Using Ultrasound-Guided Trocar Catheter Transurethral Botulinum Toxin A Injection in Men With Spinal Cord Injury

Yang and colleagues evaluated the effects of transrectal, ultrasound-guided botulinum toxin A (BTX-A) injection into the external urethral sphincter as a treatment for detrusor external sphincter dyssynergia in men with spinal cord injury (SCI). Fifteen individuals with suprasacral SCI with confirmed detrusor external sphincter dyssynergia received a single dose of 100U BTX-A injected into the external urethral sphincter via transrectal ultrasound-guided trocar catheter urethral injection. The overall success rate of this intervention was 75.2%; the authors observed a significant decrease in static urethral pressure as well as detrusor leak point pressure, but not in detrusor pressure. The postvoid residuals were significantly decreased in the fourth week after treatment. The authors conclude that this treatment is effective and that it offers a practical and valuable alternative to the cystoscopy-guided method and clean intermittent catheterization in patients who cannot perform self-catheterization. ■ SEE THE FULL ARTICLE AT PAGE 614

Pressure Changes Under the Ischial Tuberosities During Gluteal Neuromuscular Stimulation in Spinal Cord Injury: A Comparison of Sacral Nerve Root Stimulation With Surface Functional Electrical Stimulation

In this pilot interventional study, Liu and Ferguson-Pell compared the magnitude of interface pressure changes during gluteus maximus contraction by stimulating sacral nerve roots with surface electrical stimulations in patients with spinal cord injury (SCI). Eighteen adults with suprasacral complete SCI received sacral nerve root stimulation (SNRS) via a functional magnetic stimulator (FMS), a sacral anterior root stimulator (SARS) implant, or surface functional electrical stimulation (FES). The authors also compared the percentage of peak pressure reduction in 4 participants who completed both the FMS and FES studies. The authors conclude that both SNRS and surface FES can induce sufficient gluteus maximus contraction and significantly reduce ischial pressure. However, SNRS via an SARS implant may offer several benefits including convenience and an ability to build up the muscle mass and improve tissue viability. Future research should examine the long-term effects of SNRS on tissue viability in SCI. ■ SEE THE FULL ARTICLE AT PAGE 620

Pilot Study: Evaluation of the Effect of Functional Electrical Stimulation Cycling on Muscle Metabolism in Nonambulatory People With Multiple Sclerosis

Reynolds and colleagues investigated the changes in muscle oxygen consumption ($\dot{m}\dot{V}O_2$) using near-infrared spectroscopy (NIRS) after 4 weeks of training with functional electrical stimulation (FES) cycling in nonambulatory people with multiple sclerosis (MS). Twenty-eight people with moderate to severe MS cycled for 30 minutes per session, 3d/wk for 4 weeks. Six bouts of 15-second electrical stimulation increasing from 2 to 7Hz were used for muscle activation. The authors found that 4 weeks of FES cycling training improved muscle oxidative metabolism, with an average increase in $\dot{m}\dot{V}O_2$ of 47% across frequencies with a main effect of training. The authors conclude that FES cycling should be considered as therapy for improving muscle health in people with moderate to severe MS who are nonambulatory. ■ SEE THE FULL ARTICLE AT PAGE 627