

The Road Ahead for Rehabilitation Robotics  
Single-Topic Issue

**JRRD**  
Journal of Rehabilitation Research & Development

Volume 48, Number 4, 2011

---

**CONTENTS**

- iii Masthead
- vii Guest Editorial:  
The road ahead for rehabilitation robotics  
*Joseph Hidler, PhD; Peter S. Lum, PhD*
- xi *JRRD* at a Glance

---

**Scientific/Technical Articles**

---

- 287 ZeroG: Overground gait and balance training system  
*Joseph Hidler, PhD; David Brennan, MBE; Iian Black, MBE; Diane Nichols, PT; Kathy Brady, MSPT; Tobias Nef, PhD*
- 299 Retraining of interjoint arm coordination after stroke using robot-assisted time-independent functional training  
*Elizabeth B. Brokaw, MS; Theresa Murray, BS; Tobias Nef, PhD; Peter S. Lum, PhD*
- 317 Variable structure pantograph mechanism with spring suspension system for comprehensive upper-limb haptic movement training  
*Joel C. Perry, PhD; Jakob Oblak; Je H. Jung, PhD; Imre Cikajlo, PhD; Jan F. Veneman, PhD; Nika Goljar, MD, PhD; Nataša Bizovičar, MD; Zlatko Matjačić PhD; Thierry Keller, PhD*
- 335 Potential of robots as next-generation technology for clinical assessment of neurological disorders and upper-limb therapy  
*Stephen H. Scott, PhD; Sean P. Dukelow, MD, PhD*
- 355 Upper-limb robot-assisted therapy in rehabilitation of acute stroke patients: Focused review and results of new randomized controlled trial  
*Stefano Masiero, MD; Mario Armani, MD; Giulio Rosati, PhD*
- 367 Psychological state estimation from physiological recordings during robot-assisted gait rehabilitation  
*Alexander Koenig, MSc; Ximena Omlin, MSc; Lukas Zimmerli, MSc; Mark Sapa, MD; Carmen Krewer, MSc; Marc Bolliger, PhD; Friedemann Müller, MD, MSc; Robert Riener, PhD*
- 387 Efficacy of rehabilitation robotics for walking training in neurological disorders: A review  
*Candace Tefertiller, PT, DPT, ATP, NCS; Beth Pharo, PT; Nicholas Evans, MHSc; Patricia Winchester, PT, PhD*
- 417 Short-term ankle motor performance with ankle robotics training in chronic hemiparetic stroke  
*Anindo Roy, PhD; Larry W. Forrester, PhD; Richard F. Macko, MD*

- 431** Pilot study to test effectiveness of video game on reaching performance in stroke  
*Ana Maria Acosta, PhD; Hendrik A. Dewald; Jules P. A. Dewald, PT, PhD*
- 445** Robot-assisted upper-limb therapy in acute rehabilitation setting following stroke: Department of Veterans Affairs multisite clinical trial  
*Charles G. Burgar, MD; Peter S. Lum, PhD; A. M. Erika Scremin, MD; Susan L. Garber, MA, OTR; H. F. Machiel Van der Loos, PhD; Deborah Kenney, MS, OTR; Peggy Shor, OTR*
- 459** A portable powered ankle-foot orthosis for rehabilitation  
*K. Alex Shorter, PhD; Géza F. Kogler, PhD, CO; Eric Loth, PhD; William K. Durfee, PhD; Elizabeth T. Hsiao-Wecksler, PhD*
- 473** Quantitative evaluations of ankle spasticity and stiffness in neurological disorders using manual spasticity evaluator  
*Qiyu Peng, PhD; Hyung-Soon Park, PhD; Parag Shah, MD; Nicole Wilson, PhD; Yupeng Ren, MS; Yi-Ning Wu, PhD; Jie Liu, BS; Deborah J. Gaebler-Spira, MD; Li-Qun Zhang, PhD*
- 483** Effect of robot-assisted versus conventional body-weight-supported treadmill training on quality of life for people with multiple sclerosis  
*Lauren M. Wier, MPH; Mary S. Hatcher, MD; Elizabeth W. Triche, PhD; Albert C. Lo, MD, PhD*