Bionik InMotion Publications List

**Stroke**

Carolin I Dohle, Avrielle Rykman, Johanna Chang and Bruce T Volpe “Pilot study of a robotic protocol to treat shoulder subluxation in patients with chronic stroke.” journal of neuroengineering and rehabilitation august 5 2013


**Upper-extremity**


Hogan, N., et al., “Arm Movement Control is both Continuous and Discrete,”

Krebs, H.I., et al., “Quantization of Continuous and Arm Movements in Humans with Brain Injury,”

IEEE-Transactions on Rehabilitation Engineering, 6:1:75-87; (1998)


**Lower-Extremities**


Neurorehabilitation and Neural Repair, Vol 25, No 4, May (2011)


**Cerebral Palsy**


Krebs, HI, et al., “Robot-assisted task-specific training in cerebral palsy,”
Developmental Medicine and Child Neurology, 51 (Suppl. 4)

**Children**

Spinal Cord Injury

Improvement in Strength and Function
A pilot study of two patients with incomplete spinal injuries, level C4-6, that had occurred greater than two years ago, was conducted at Burke Rehabilitation Hospital. Patients received treatment on the InMotion ARM™ robot for 18 sessions over 6 weeks with one arm followed by 18 sessions over 6 weeks with the other arm. Patients showed changes greater than 10% in Fugl-Meyer Scores and 20% in the Motor Power Scales. The study also showed that while one arm was treated, both arms showed comparable improvement.


Multiple Sclerosis (MS)

A pilot study of two MS patients at the West Haven VA Medical Center has shown that treatment with the InMotion AnkleBot twice a week for twelve total sessions resulted in significant improvement in torque production at the ankle and movement accuracy. Although the training did not include gait activities the researchers noted carry over improvement in gait function when measured through six-minute walk tests.


Parkinsons


Book Chapters

Dietz, Volker; Nef, Tobias; Rymer, William Zev (Eds.)2012, “Neurorehabilitation Technology” Chapter 8 Forging Mens et Manus: The MIT Experience in Upper Extremity Robotic Therapy

Stein, J., et al., “Technological Aids for Motor Recovery,” Chapter 19 in
Krebs, H.I., Hogan, N., "Robotic Rehabilitation Therapy," Editor, Metin Akay, Wyley Encyclopedia of Biomedical Engineering, 2006


