

### **Originalarbeiten**

Adamovich S, August K, Merians A, Tunik E. A virtual reality-based system integrated with fmri to study neural mechanisms of action observation-execution: A proof of concept study. *Restorative Neurology and Neuroscience*, vol. 27, no. 3, pp. 209-223, (2009).

Alexander M, Anderson K, Biering-Sorensen F, Blight A, Brannon R, Bryce T, Creasey G, Curt A, Ditunno J, Donovan W, Ellaway P, Finnerup N, Graves D, Ann Haynes B, Heinemann A, Johnston M, Katz A, Kalpakjian C, Kleitman N, Krassioukov A, Krogh K, Lammertse D, Magasi S, Mulcahey MJ, Schurch B, Sherwood A, Steeves J, Stiens S, Van Hedel HJ, Whiteneck G. Outcome Measures in Spinal Cord Injury: Recent Assessments and Recommendations for Future Directions. *Spinal Cord* 2009; 1-10.

Alexander MS, Biering-Sorensen F, Bodner D, Brackett NL, Cardenas D, Charlifue S, Creasey G, Dietz V, Ditunno J, Donovan W, Elliott SL, Estores I, Graves DE, Green B, Gousse A, Jackson AB, Kennelly M, Karlsson AK, Krassioukov A, Krogh K, Linsenmeyer T, Marino R, Mathias CJ, Perkash I, Sheel AW, Schilero G, Schurch B, Sonksen J, Stiens S, Wecht J, Wuermser LA, Wyndaele JJ. International standards to document remaining autonomic function after spinal cord injury. *Spinal Cord*. 2009 Jan;47(1):36-43.

Banz R, Bolliger M, Müller S, Santelli C, Riener R. A method of estimating the degree of active participation during stepping in a driven gait orthosis based on actuator force profile matching. *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, vol. 17, no. 1, pp. 15-22, (2009).

Beck S, Schubert M, Richardson SP, Hallett M. Surround inhibition depends on the force exerted and is abnormal in focal hand dystonia. *J Appl Physiol*. 2009 Nov;107(5):1513-8.

Beck S, Shamim EA, Richardson SP, Schubert M, Hallett M. Inter-hemispheric inhibition is impaired in mirror dystonia. *Eur J Neurosci*. 2009 Apr;29(8):1634-40.

Blickenstorfer A, Kleiser R, Keller T, Keisker B, Meyer M, Riener R, Kollias S. Cortical and subcortical correlates of functional electrical stimulation of wrist extensor and flexor muscles revealed by fMRI. *Hum Brain Mapping*, vol. 30, no. 3, pp. 963-975, (2009).

Blight A, Curt A, Ditunno JF, Dobkin B, Ellaway P, Fawcett J, Fehlings M, Grossman RG, Lammertse DP, Privat A, Steeves J, Tuszynski M, Kalichman M, Guest JD. Position statement on the sale of unproven cellular therapies in spinal cord injury (Letter to the editor). *Spinal Cord* 2009, 47: 713-4.

Dietz V, Grillner S, Trepp A, Hubli M, Bolliger M. Changes in spinal reflex and locomotor activity after a complete spinal cord injury: a common mechanism? *Brain*, vol. 132, no. 8, pp. 2196-2205, (2009).

Dietz V, Michel J. Human bipeds use quadrupedal coordination during locomotion. *Ann N Y Acad Sci*. 2009 May;1164:97-103.

Fawcett JW, Curt A. Damage control in the nervous system: rehabilitation in a plastic environment. *Nat Med* 2009; 15: 745-6.

Hari AR, Wydenkeller S, Dokladal P, Halder P. Enhanced recovery of human spinothalamic function is associated with central neuropathic pain after SCI. *Exp Neurol*. 2009 Apr;216(2):428-30.

Jakob W, Wirz M, van Hedel HJ, Dietz V. Difficulty of elderly SCI subjects to translate motor recovery -"body function"- into activity of daily living. *J Neurotrauma* 2009; 26: 2037-2044.

Kokotilo K, Eng J, Curt A. Reorganization and Preservation of Motor Control of the Brain in Spinal Cord Injury: A Systematic Review. *J Neurotrauma* 2009; 26: 2113-26.

Kramer J, Dvorak M, Curt A. Thoracic Disc Herniation in a patient with tethered cord, and lumbar syringo- and diastematomyelia: MRI and neurophysiological findings. *Spine* 2009; 34: 484-7.

- Kramer J, Steeves J, Curt A. Sensory Segmental Assessments following Spinal Cord Injury: Significance for Care and Clinical Trials. *J Topics SCI Rehab* 2009; 14: 23-33.
- Kramer JK, Taylor P, Steeves JD, Curt A. Dermatomal Somatosensory Evoked Potentials and Electrical Perception Thresholds During Recovery From Cervical Spinal Cord Injury. *Neurorehabil Neural Repair*. 2009 Oct 19 [Epub ahead of print].
- Kwon B, Curt A, Belanger LM, Bernardo A, Chan D, Markez J, Gorelik A, Slobogan G, Umedaly, Giffin M, Street J, Boyd M, Paquette S, Fisher C, Dvorak M. Intrathecal Pressure Monitoring and Cerebrospinal Fluid Drainage in Acute Spinal Cord Injury – A Prospective Randomized Trial. *J Neurosurg (Spine)* 2009; 10: 181-193.
- Laurens J, Awai L, Bockisch CJ, Hegemann S, van Hedel HJ, Dietz V, Straumann D. Visual contribution to postural stability: interaction between target fixation or tracking and static or dynamic large-field stimulus. *Gait Posture* 2009, in press.
- Mangold S, Schuster C, Keller T, Zimmermann-Schlatter A, Ettl T. Motor training of upper extremity with functional electrical stimulation in early stroke rehabilitation. *Neurorehabil Neural Repair*. 2009 Feb;23(2):184-90.
- Mangold S. Fallbeispiel: FES. *Physiopraxis* 2009, vol. 7, no. 3, pp. 34-36.
- Mangold S. Funktionelle Elektrostimulation an der unteren Extremität. *Physiopraxis* 2009, vol. 7, no. 1, pp. 30-33.
- Mehnert U, Boy S, Schmid M, Reitz A, von Hessling A, Hodler J, Schurch B. A morphological evaluation of botulinum neurotoxin A injections into the detrusor muscle using magnetic resonance imaging. *World J Urol*. 2009 Jun; 27(3):397-403.
- Mehnert U, Boy S, Widmer-Simitovic S, Reitz A, Schurch B. The facilitatory effect of duloxetine combined with pelvic floor muscle training on the excitability of urethral sphincter motor neurons. *Int Urogynecol J Pelvic Floor Dysfunct*. 2009 Jun;20(6):659-66.
- Mehnert U, Reitz A, Youssef SA, Schurch B. Proof of principle: The effect of antimuscarinics on bladder filling sensations in healthy subjects-A placebo controlled double blind investigation using 4 and 8 mg tolterodine extended release. *Neurourol Urodyn*. 2009 Jul 27 [Epub ahead of print].
- Mehnert U, Schurch B. [Botulinum toxin in nonneurogenic bladder dysfunction]. *Urologe A*. 2009 Mar;48(3):233-44.
- Michel J, Benninger D, Dietz V, van Hedel HJ. Obstacle stepping in patients with Parkinson's disease: Complexity does influence performance. *J Neurol*. 2009; 256(3): 457-63.
- Michels L, Mehnert U, Boy S, Schurch B, Kollias S. The somatosensory representation of the human clitoris: an fMRI study. *Neuroimage*. 2010 Jan 1;49(1):177-84. Epub 2009 Jul 23.
- Nef T, Guidali M, Riener R. ARMin III - Arm therapy exoskeleton with ergonomic shoulder actuation. *Applied Journal of Bionics and Biomechanics*, vol. 6, no. 2, pp. 127-142, (2009).
- Nef T, Quinter G, Müller R, Riener R. Effects of Arm Training with the Robotic Device ARMin I in Chronic Stroke: Three Single Cases. *Neurodegenerative Dis*, Epub ahead of print, (2009).
- Oess NP, Weisse B, Nelson BJ, Magnetoelastic strain sensor for optimized assessment of bone fracture fixation. *IEEE Sensors Journal*, vol.9, no.8, August 2009.
- Petersen JA, Schubert M, Dietz V. The occurrence of the Babinski sign in complete spinal cord injury. *J Neurol*. 2010 Jan;257(1):38-43. Epub 2009 Aug 25.
- Riener R, Leypold K, Brunschweiler A, Schaub A, Bleul U, Wolf P. Quantification of friction force reduction induced by obstetric gels *Medical & Biological Engineering & Computing*, vol. 47, no. 6, pp. 617-623, (2009).
- Rudhe C, van Hedel HJ. Upper extremity function in persons with tetraplegia: Relationships between strength, capacity and the Spinal Cord Independence Measure. *Neurorehabil Neural Repair* 2009; 23(5): 413-21.
- Spieß MR, Mueller RM, Rupp R, Schuld Ch, the EM-SCI Study group, van Hedel HJ. Conversion in ASIA impairment during the first year after traumatic spinal cord injury. *J Neurotrauma* 2009; 26: 2027-2036.

Staubli P, Nef T, Klamroth-Marganska V, Riener R. Effects of intensive arm training with the rehabilitation robot ARMin II in chronic stroke patients: four single cases. *Journal of NeuroEngineering and Rehabilitation*, vol. 6, no. 1, pp. 46, (2009).

Sukhvinder KR, Curt A, Fehlings M, Verrier M. Assessment of the Hand in Tetraplegia using the GRASSP: Impairment versus Function. *J Topics SCI Rehab* 2009; 14: 34-46.

Vallery H, van Asseldonk E, Buss M, van der Kooij H. Reference Trajectory Generation for Rehabilitation Robots: Complementary Limb Motion Estimation. *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, vol. 17, no. 1, pp. 23-30, (2009).

Van Hedel HJ, Dietz V, the EM-SCI Study Group. Walking during daily life can be validly and responsively assessed in subjects with a spinal cord injury. *Neurorehabil Neural Repair* 2009; 23: 117-24.

Wirz M, Müller R, Bastiaenen C. Falls in persons with spinal cord injury: validity and reliability of the Berg Balance Scale. *Neurorehabil Neural Repair*. 2010 Jan; 24(1):70-7. Epub 2009 Aug 12.

Wirz M, Zörner B, Rupp R, Dietz V. Outcome after incomplete spinal cord injury: central cord versus Brown-Sequard syndrome. *Spinal Cord*. 2009 Nov 10 [Epub ahead of print].

Wolf P, List R, Ukelo T, Maiwald C, Stacoff A. Day-to-day consistency of lower extremity kinematics during walking and running. *Journal of Applied Biomechanics*, vol. 25, no. 4, pp. 369-376, (2009).

Wydenkeller S, Maurizio S, Dietz V, Halder P. Neuropathic pain in spinal cord injury: significance of clinical and electrophysiological measures. *Eur J Neurosci*. 2009 Jul; 30(1):91-9.

Zempleni MZ, Michels L, Mehnert U, Schurch B, Kollias S. Cortical substrate of bladder control in SCI and the effect of peripheral pudendal stimulation. *Neuroimage*. 2010 Feb 15;49(4):2983-94. Epub 2009 Oct 28.

## **Kongressbeiträge (Proceedings)**

Duschau-Wicke A, Brunsch T, Felsenstein S, Riener R. Iterative learning support for robot-aided gait rehabilitation. *Proc. AUTOMED Fortschritt-Berichte VDI*, Berlin (2009).

Duschau-Wicke A, Brunsch T, Felsenstein S, Vallery H, Riener R. Patient-Cooperative Control: Adapting Robotic Interventions to Individual Human Capabilities. *Proceedings World Congress of Medical Physics and Biomedical Engineering 2009 (WC 2009)*, Munich (2009).

Duschau-Wicke A, Felsenstein S, Riener R. Adaptive body weight support controls human activity during robot-aided gait training. *Conference Proceedings IEEE 11th International Conference on Rehabilitation Robotics (ICORR 2009)*, Kyoto (2009).

Guidali M, Büchel M, Klamroth V, Nef T, Riener R. Trajectory planning in ADL tasks for an exoskeletal arm rehabilitation robot. *Conference Proceedings of European Conference on Technically Assisted Rehabilitation (TAR)*, Berlin (2009).

Guidali M, Duschau-Wicke A, Büchel M, Brunschweiler A, Nef T, Riener R. Path control a strategy for patient-cooperative arm rehabilitation. *Proc. AUTOMED Fortschritt-Berichte VDI*, Berlin (2009).

Guidali M, Schmiedeskamp M, Klamroth V, Riener R. Assessment and training of synergies with an arm rehabilitation robot. *Conference Proceedings IEEE 11th International Conference on Rehabilitation Robotics (ICORR 2009)*, Kyoto (2009).

Hollnagel C, Yu N, Blickenstorfer A, Wolf O, Dietz V, Kollias S, Riener R. A Magnetic Resonance compatible Stepper (MARCOS) for fMRI Investigation of Gait, *ISMRM*, Honolulu, Hawaii (2009).

Hollnagel C, Yu N, Wolf P, Dietz V, Kollias S, Riener R. Layout for a Magnetic Resonance Compatible Stepper (MARCOS) for fMRI Investigation of Gait. *Conference Proceedings of European Conference on Technically Assisted Rehabilitation (TAR)*, Berlin (2009).

Koenig A, Binder C, von Zitzewitz J, Omlin X, Bolliger M, Riener R. Voluntary gait speed adaptation for robot-assisted treadmill training. *Conference Proceedings IEEE 11th International Conference on Rehabilitation Robotics (ICORR 2009)*, Kyoto (2009).

Koenig A, Bolliger M, Omlin X, Wieser M, Riener R. Controlling physiology during robot automated treadmill training. *Conference Proceedings of European Conference on Technically Assisted Rehabilitation (TAR)*, Berlin (2009).

Koenig A, Somaini L, Pulfer M, Holenstein T, Omlin X, Wieser M, Riener R. Model-Based Heart Rate Prediction during Lokomat Walking. Conf. Proc. IEEE EMBC 2009, Minneapolis, Minnesota (2009).

Koritnik T, Koenig A, Bajd T, Riener R, Munih M. Haptic training of lower extremities. Conference Proceedings IEEE 11th International Conference on Rehabilitation Robotics (ICORR 2009), Kyoto (2009).

Munih M, Riener R, Colombo G, Dietz V, Lünenburger L, Müller F, Slater M, Mihelj M. Multimodal immersive motion rehabilitation of upper and lower extremities by exploiting biocooperation principles. Conference Proceedings IEEE 11th International Conference on Rehabilitation Robotics (ICORR 2009), Kyoto (2009).

Rauter G, Sikic M, Riener R, Wolf P. Optimised Camera Setup to Minimise Measurement Error a Priori. XXII Congress of the International Society of Biomechanics, Cape Town (2009).

Rauter G, Brunschweiler A, Wellner M, von Zitzewitz J, Riener R, Wolf P. Rowing novices can only partly profit from acoustic and visual display of a reference movement of an oar blade. Progress in Motor Control, Marseille 2009.

Riener R, Duschau-Wicke A, König A, Bolliger M, Wieser M, Vallery H. The Human in the loop: biomechanical and psycho-physiological subject integration in robot-aided neurorehabilitation. Conference Proceedings of European Conference on Technically Assisted Rehabilitation (TAR), Berlin (2009).

Riener R, Koenig A, Bolliger M, Wieser M, Duschau-Wicke A, Vallery H. Bio-cooperative robotics: controlling mechanical, physiological and mental patient states. Conference Proceedings IEEE 11th International Conference on Rehabilitation Robotics (ICORR 2009), Kyoto (2009).

Vallery H, Burgkart R, Mitternacht J, Riener R. Complementary Limb Motion Estimation for the Control of Active Knee Prostheses. Conference Proceedings of European Conference on Technically Assisted Rehabilitation (TAR), Berlin (2009).

Vallery H, Duschau-Wicke A, Riener R. Generalized elasticities improve patient-cooperative control of rehabilitation robots. Conference Proceedings IEEE 11th International Conference on Rehabilitation Robotics (ICORR 2009), Kyoto (2009).

Vallery H, Duschau-Wicke A, Riener R. Optimized passive dynamics improve transparency of haptic devices. Proc. of IEEE International Conference on Robotics and Automation (ICRA), Kobe (2009).

Vallery H, Neumaier M, Buss M. Anti-Causal Identification of Hammerstein Models. European Control Conference (ECC), Budapest (2009).

Wellner M, Sigrist R, v. Zitzewitz J, Wolf P, Riener R. Virtual Audience and Rowing - A Pilot Study. Proc. AUTOMED Fortschritt-Berichte VDI, Berlin (2009).

Wellner M, Sigrist R, von Zitzewitz J, Wolf P, Riener R. Effects of Audience Pressure on Rowing Performance. Proc. AUTOMED Fortschritt-Berichte VDI, Berlin (2009).

Wieser M, Fischer C, Brescianini T, Omlin X, Keller E, Riener R. Cardiovascular modeling and control via posture and motion, Proc. AUTOMED Fortschritt-Berichte VDI, Berlin (2009).

Wolf P, Brunschweiler A, Rauter G, Sigrist R, Wellner M, v. Zitzewitz J, Riener R. Multi-modal motion synthesis lab: a setup for basic and applied research in sport. Virtual Reality International Conference VRIC 09, Laval (2009).

Yu N, Estevez N, Blickenstorfer A, Hollnagel C, Kollias S, Riener R. A pilot fMRI study with an fMRI-compatible robotic interface. Conference Proceedings of European Conference on Technically Assisted Rehabilitation (TAR), Berlin (2009).

Yu N, Hollnagel C, Wolf P, Murr W, Blickenstorfer A, Kollias S, Riener R. Tracking and analysis of human head motion during guided fMRI motor tasks. Conference Proceedings IEEE 11th International Conference on Rehabilitation Robotics (ICORR 2009), Kyoto (2009).

Von Zitzewitz J, Rauter G, Steiner R, Brunschweiler A, Riener R. A versatile wire robot concept as a haptic interface for sport simulation. Proceedings of the 2009 IEEE International Conference on Robotics and Automation (ICRA), Kobe (2009).

**Buchbeiträge**

Burns AS, Marino RJ, Kramer J, Flett H, Flanders A, Curt A. Predicting Outcome in Spinal Cord Injury. In: Spinal Cord Medicine, 2nd edition. Kirshblum S, DeLisa JA, eds. Philadelphia, Lippincott, Williams and Wilkens (2009).