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EDUCATION

B.S./M.S.	Movement Science	Vrije Universiteit, Amsterdam, the Netherlands	1984
Ph.D.	Kinesiology	University of Illinois at Urbana-Champaign	1990
Post-Doctoral	Movement Science	Fellow Royal Dutch Academy of Arts & Sciences	'90-'93

RESEARCH INTERESTS AND EXPERTISE

KEY WORDS: Motor Control; Dynamical systems; Ecological Approach to Perception and Action; Posture; Locomotion; Movement Disorders; Human Factors

RESEARCH FOCUS:

- Coordination and control of human movement based on nonlinear and complex systems
- Stability and adaptability in human movement
- The role of variability in healthy and disordered movements
- Perception-action coupling with application to movement disorders and human factors

RESEARCH AND PROFESSIONAL EXPERIENCE

- Professor; Department of Kinesiology, University of Massachusetts, Amherst, Massachusetts, USA; 2009-present
- Associate Professor; Department of Kinesiology, University of Massachusetts, Amherst, Massachusetts, USA; 2001-2009
- Member; Neuroscience and Behavior Program, University of Massachusetts; 2003-present

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- Assistant Professor; Department of Exercise Science, University of Massachusetts, Amherst, Massachusetts, USA; 1995-2001
- Research Fellow; Dutch Organization for Scientific Research, Academic Hospital, Vrije Universiteit, Amsterdam, the Netherlands; 1993-1995
- Research Fellow; Royal Dutch Academy of the Arts and Sciences; Faculty of Human Movement Sciences, Vrije Universiteit (VU) Amsterdam, the Netherlands; 1990-1993
- Research Associate; Department of Kinesiology, University of Illinois, USA; 1988-1990
- Research Assistant; Department of Kinesiology, University of Illinois, USA; 1985-1988
- Research Assistant; Department of Human Movement Science, VU; 1984
- Research Assistant; Department of Psychology, VU; 1983
- Research Assistant; Department of Human Movement Science, VU; 1981-1982

HONORS AND AWARDS

- Fellow, National Academy of Kinesiology; 2011-present
- Mentor of the Year Award, Compact Institute Compact for Faculty Diversity's annual Institute on Teaching and Mentoring, Arlington, VA October 2015.
- Team-based Learning Fellow, University of Massachusetts, Amherst; 2011-2012
- Fellowship Royal Dutch Academy of the Arts and Sciences, 1990
- Early Career Distinguished Scholar Award: North American Society for the Psychology of Sport and Physical Activity; 1996
- Teaching and Learning in the Diverse Classroom Fellowship. Center for Teaching, University of Massachusetts, Amherst; 1999-2000
- Laura J. Huelster Scholarship award, Department of Kinesiology, University of Illinois; 1988
- Phi Kappa Phi, University of Illinois, 1988
- Dissertation Grant Support, University of Illinois; 1987
- Cum Laude, BS/MS degree; Vrije Universiteit, Amsterdam; 1984

RESEARCH GRANTS

- Department of Defense, Congressionally Directed Medical Research Program on Multiple Sclerosis. Grant #W81XWH-16-1-0351. *The MS Neuromotor Test: a Non-Ambulatory Measure of Sensorimotor Function to Identify and Track Progressive MS*. PI: Van Emmerik; Kent, Ionete Co-PI's. Dates: September 1, 2016 – August 31, 2019. Total Costs: \$833,886.00
- National Multiple Sclerosis Society (NMSS) Pilot Research Grant PP-2126. R.E.A. Van Emmerik, S.L. Jones (co-PI's). *Improving Cutaneous Sensation and Balance Control in People with Multiple Sclerosis*. Dates: October 1, 2013 – March 31, 2015. Total Costs: \$43,993.00.

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- Natick Soldier Research Development and Engineering Center (NSRDEC). PI R.E.A. Van Emmerik. *End-effector load and soldier performance during marksmanship tasks*. Dates: 9/1/2013-12/31/2015. \$232,627
- Naval Health Research Center (NHRC). PI R.E.A. Van Emmerik. *Effects of armor and load on action-perception coupling*. Dates 9/1/2012-12/31/2013. \$1,035,802.
- National Multiple Sclerosis Society (NMSS) #RG-3974A2/1. PI R.E.A. Van Emmerik. Co-PI: Dr. J. Kent-Braun. *Dynamic balance control and fatigue in Multiple Sclerosis*. Dates: 10/1/2007-9/31/2011. \$474,269.
- National Institutes of Health Ruth L. Kirschstein National Research Service Award for Individual Pre-doctoral Fellows. Awarding Institute: National Institute for Biomedical Imaging and BioEngineering (NIBIB). Award Number: 1F31EB005073-01A2. Duration: May 2007 – May 2009. PI: CJ Hasson. Sponsors: Caldwell GE, Van Emmerik REA, and Kent-Braun J. Score = 124, Percentile = 4.0
- National Institutes of Health (NIH) #1 R03 AG026281-01. Principal investigator: G.E. Caldwell. Co-I: R.E.A. Van Emmerik, J. Buonacorsi. *Muscular properties and balance control in older subjects*. R03. Total costs: \$151,534. Duration: July 2006 – June 2008. Direct costs: \$ 100,000.
- School of Public Health and Health Sciences, University of Massachusetts at Amherst, Pilot Research Grant. Principal investigator: Shelley Velleman, Co-investigators Richard Van Emmerik, Mary Andrianopoulos. *Kinematic differentiation of dysarthria vs. apraxia*. Dates: 9/1/05-8/31/06. Total award: \$10,000.
- National Institutes of Health (NINDS) # 1F31NS050930-01. Ruth L. Kirschstein National Research Service Award (NRSA). PI: J. Haddad, Sponsor: R.E.A. Van Emmerik. *Developmental integration of posture and manual control*. Dates: 9/1/04-8/31/06. \$53,565.
- National Science Foundation (NSF) # BCS-0341767. PI: R.E.A. Van Emmerik. Co-investigators: J. Hamill, P. Freedson, W.A. McDermott. *Coordination dynamics of the human locomotor and respiratory systems*. Dates: 9/1/04-8/31/08. Total amount awarded: \$307,182.
- National Multiple Sclerosis Society (NMSS) # PP-0934. PI R.E.A. Van Emmerik. Co-investigator: Dr. J. Kent-Braun. *Postural Stability and Fatigue in Multiple Sclerosis*. 7/1/2003-6/30/2004. \$44,000.
- Exponent Failure Analysis, Inc. PI: R.E.A. Van Emmerik. *The Influence of Locomotion on Speech Production and Recognition*. Subcontract. Dates: 9/1/200-1/1/2001. Total amount awarded: \$31,204.
- NIH – NINDS. Principal Investigator: G.E. Riccio. Co-investigators: R.E.A. Van Emmerik, P.V. McDonald. Topic: *Evaluation of Tremor for Neurological Diagnosis*. Dates: 3/15/2000-9/14/2000. Total amount awarded: \$100,000.
- NIH – NIAAA. Principal Investigator: Erwin van Wegen. Co-investigators: G.E. Riccio, P.V. McDonald, R.E.A. Van Emmerik. Topic: *Vestibular pattern recognition for postural stability*. Dates: 1999-2000. Total amount awarded: \$99,984.
- Whitaker Foundation Bioengineering Grant. Principal Investigator R.E.A. Van Emmerik, Co-investigators: L. Li, J. Collins, R. Krotkov. Topic: *Age-related changes in upperbody coordination in human locomotion*. Dates: 2000-2003. Total amount awarded: \$209,804.

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- National Aeronautics and Space Administration (NASA) grant. Principal Investigator: R.E.A. Van Emmerik. Co-investigator: Brian Peters. Topic: *The coordination of trunk, head and eye movements during visually goal-directed walking*. Dates of project: 9/1/98 – 8/31/2001. Total amount awarded: \$66,000.
- National Aeronautics and Space Administration (NASA) research grant, KRUG life Sciences, \$9,600, summer visiting Scholar NASA Johnson space center, 1996.
- National Aeronautics and Space Administration (NASA) research grant, KRUG life Sciences, \$9,000. 1996-1997.
- Faculty Research Grant University of Massachusetts, \$5,000. 1995-1996.
- Research grant NWO (Netherlands Organization for Scientific Research), Dutch federal government grant (equivalent to NSF/NIH). Principal Investigators: R.E.A. Van Emmerik & R.C. Wagenaar. *Dynamics of pathological gait in Parkinson's disease*. Three year grant, 1993-1996. Total amount awarded: \$250,000.
- Royal Dutch Academy of the Arts and Sciences. Principal Investigator: R.E.A. Van Emmerik. *Dynamics of Movement Disorders*. Three year grant, 1990-1993. Total amount awarded: \$150,000.

PROFESSIONAL MEMBERSHIP

- National Academy of Kinesiology
- International Society for Ecological Psychology
- North American Society for the Psychology of Sport and Physical Activity
- Fellow Royal Dutch Academy of Arts and Sciences
- International Society for Motor Control

PUBLICATIONS: REFEREED JOURNAL ARTICLES

1. Lim, J., Palmer, C.J., Busa, M.A., Amado, A.C., Rosado, L.D., Ducharme, S.W., Simon, D. & **Van Emmerik, R.E.A.** (2016): Additional helmet and pack loading reduce situational awareness during the establishment of marksmanship posture. *Ergonomics*, DOI: 10.1080/00140139.2016.1222001
2. Fuller J.T., Amado A.C, **Van Emmerik, R.E.A.**, Hamill J., Thewlis D., Tsiros M.D., Buckley J.D. (2016). The effect of footwear and footfall pattern on running stride interval long-range correlations and distributional variability. *Gait and Posture* 44, 137-144.
3. Busa, M.B., Ducharme, S.W. & **Van Emmerik, R.E.A.** (2016). Nonlinear techniques reveal adaptive and maladaptive postural control dynamics in persons with Multiple Sclerosis. *Journal of Multiple Sclerosis*, 3(2), 1000177. <http://dx.doi.org/10.4172/2376-0389.1000177>

4. Busa, M.B., Lim, J., Van Emmerik, R.E.A., & Hamill, J. (2016). Head and Tibial Acceleration as a Function of Stride Frequency and Visual Feedback during Running. PLOS ONE | DOI:10.1371/journal.pone.0157297
5. Amado, A.C., C. Palmer, C.J., Hamill, J., & **Van Emmerik, R.E.A.** (2016). Coupling of Postural and Manual tasks in Expert Performers. *Human Movement Science* 46, 251-260.
6. Chung, L.H., Angelo, J., **Van Emmerik, R.E.A.**, & Kent, J.A. (2016). Energy cost of walking, symptomatic fatigue and perceived exertion in persons with multiple sclerosis. *Gait and Posture*, 48, 215-219.
7. **Van Emmerik, R.E.A.**, Ducharme, S., Amado, A.C. & Hamill J. (2016). Comparing dynamical systems concepts and techniques for biomechanical analysis. *Journal of Sport and Health Science*, 5, 3-13.
8. Busa, M.B. & **Van Emmerik, R.E.A.** (2016). Multiscale Entropy: a tool for understanding the complexity of postural control. *Journal of Sport and Health Science*, 5, 44-51.
9. Busa, M.B., Jones, S.L., Hamill, J. & **Van Emmerik, R.E.A.** (2016). Multiscale Entropy Identifies Differences in Complexity in Postural Control in Women with Multiple Sclerosis. *Gait & Posture*, 45, 7-11.
10. Williams, G.K.R., Irwin, G., Kerwin, D.G., Hamill, J., **Van Emmerik, R.E.A.**, and Newell, K.M. (2016). Coordination as a function of skill level in the gymnastics longswing. *Journal of Sports Sciences*, 34(5), 429-439. DOI: 10.1080/02640414.2015.1057209
11. Lim, J. Amado, A., Sheehan, L., **Van Emmerik, R.E.A.** (2015). Dual task interference during walking: The effects of texting on situational awareness and gait stability. *Gait and Posture*, 42, 466-471. DOI: <http://dx.doi.org/10.1016/j.gaitpost.2015.07.060>
12. Remelius, J.G. & **Van Emmerik, R.E.A.** (2015). Time-to-Contact Analysis of Gait Stability in the Swing Phase of Walking in People With Multiple Sclerosis. *Motor Control*, 19, 281-311. DOI: <http://dx.doi.org/10.1123/mc.2013-0106>
13. Rodrigues, P., Chang, R., TenBroek, T., **Van Emmerik, R.E.A.**, & Hamill, J. (2015). Evaluating the coupling between foot pronation and tibial internal rotation continuously using vector coding. *Journal of applied biomechanics*, 31(2), 88-94.
14. Seay, J., **Van Emmerik, R.E.A.**, & Hamill, J. (2014). Trunk bend and twist coordination is affected by low back pain status during running. *European Journal of Sport Science*, 14(6), 563-568. DOI: 10.1080/17461391.2013.866167.
15. Remelius, J.G., Hamill, J. & **Van Emmerik, R.E.A.** (2014). Prospective dynamic balance control during the swing phase of walking: Stability boundaries and time-to-contact analysis. *Human Movement Science*, 36, 227-245
16. Chang, R., Rodrigues, P.A., **Van Emmerik, R.E.A.**, Hamill, J. (2014). Multi-segment foot kinematics and ground reaction forces during gait of individuals with plantar fasciitis. *Journal of Biomechanics*, 47, 2571-2577.
17. Hasson, C.J., **Van Emmerik, R.E.A.**, Caldwell, G.E. (2014). Balance Decrements are Associated With Age-Related Muscle Property Changes. *Journal of Applied Biomechanics*, 30, 555-562.
18. Rodrigues, P., TenBroek, T., **Van Emmerik, R.E.A.**, & Hamill, J. (2014). Evaluating runners

- with and without anterior knee pain using the time to contact the ankle joint complex range of motion boundary. *Gait and Posture*, 39, 48-53.
19. Palmer, C.J., Bigelow, C., & **Van Emmerik, R.E.A.** (2013). Defining soldier equipment trade space: load effects on combat marksmanship and perception–action coupling. *Ergonomics*, 56(11), 1708-1721.
 20. Haddad, J. M., Claxton, L. J., Melzer, D., Hamill, J., & **Van Emmerik, R. E. A.** (2013). Developmental changes in postural stability during the performance of a precision manual task. *Journal of Motor Learning and Development*, 1, 12-19.
 21. Preatoni, E., Hamill, J., Harrison, A.J., **Van Emmerik, R.E.A.**, Wilson, C., & Rodano, R. (2013). Movement variability and skills monitoring in sports. *Sports Biomechanics*, 12(2), 69-92.
 22. **Van Emmerik, R.E.A.**, Jones, S.L., Busa, M.A., & Baird, J.L. (2013). A systems perspective on postural and gait stability: Implications for physical activity in aging and disease. *Kinesiology Review*, 2, 17-28.
 23. Hamill, J., Palmer, C.P., & **Van Emmerik, R.E.A.** (2012). Coordinative variability and overuse injury. *Sports Medicine, Arthroscopy, Rehabilitation, Therapy & Technology*, 4, 45 (1-9).
 24. Remelius, J.G., Jones, S.L., House, J.D., Busa, M.A., Averill, J.L., Sugumaran, K., Kent-Braun, J.A., & **Van Emmerik, R.E.A.** (2012). Gait impairments in persons with Multiple Sclerosis across preferred and fixed walking speeds. *Archives of Physical Medicine and Rehabilitation*, 93, 1637-1642.
 25. Palmer, C.J., **Van Emmerik, R.E.A.**, & Hamill, J. (2012). Ecological gait dynamics: stability, variability and optimal design. *Footwear Science*, 4(2), 167-182.
 26. Palmer, C.J., Riccio, G.E., & **Van Emmerik, R.E.A.** (2012). Orienting under load: Intrinsic dynamics and postural affordances for visual perception. *Ecological Psychology*, 24(2), 95-121.
 27. Haddad, J.M., Claxton, L.J., Keen, R., Berthier, N.E., Riccio, G.E., Hamill, J., & **Van Emmerik, R.E.A.** (2012). Development of the coordination between posture and manual control. *Journal of Experimental Child Psychology*, 111, 286-298.
 28. Johnson, M.B., Hamill, J., & **Van Emmerik, R.E.A.** (2012). Effect of Head Orientation on Postural Control during Upright Stance and Forward Lean. *Motor Control*, 16, 81-93.
 29. O'Halloran, J., Hamill, J., McDermott, W.J., Remelius, J.G., & **Van Emmerik, R.E.A.** (2012). Locomotor-respiratory coupling patterns and oxygen consumption during walking above and below preferred stride frequency. *European Journal of Applied Physiology*, 112, 929-940.
 30. Johnson, M.B., & **Van Emmerik, R.E.A.** (2011). Is head-on-trunk extension a proprioceptive mediator of postural control and sit-to-stand movement characteristics? *Journal of Motor Behavior*, 43, 491-498.
 31. Gruber, A.H., Busa, M., Gorton, G.E. III, **Van Emmerik, R.E.A.**, Masso, P.D., & Hamill, J. (2011). Time-to-Contact and multiscale entropy identify differences in postural control in adolescent idiopathic scoliosis. *Gait & Posture*, 34, 13-18.

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32. Seay, J., **Van Emmerik, R.E.A.**, & Hamill, J. (2011). Differences between pelvis-trunk coordination in runners with and without low back pain. *Spine*, 36, 1070-1079.
33. Seay, J., **Van Emmerik, R.E.A.**, & Hamill, J. (2011). Low back pain status affects pelvis-trunk coordination and variability during walking and running. *Clinical Biomechanics*, 26, 572-578.
34. MacLean, C., **Van Emmerik, R.E.A.**, Hamill J. (2010). Influence of a custom foot orthotic intervention on lower extremity intra-limb coupling during a 30-minute run. *Journal of Applied Biomechanics*, 26, 390-399.
35. **Van Emmerik, R.E.A.**, Remelius, J.G., Johnson, M.B., Chung, L.H., & Kent-Braun, J.A. (2010). Postural Control in women with multiple sclerosis: Effects of fatigue and vision during quiet stance and postural perturbations. *Gait & Posture*, 32, 608-614.
36. Miller, R.H., Chang, R., Baird, J.L., **Van Emmerik, R.E.A.**, & Hamill, J. (2010). Variability in kinematic coupling assessed by vector coding and continuous relative phase. *Journal of Biomechanics*, 43, 2554-2560.
37. Johnson, M.B., Cacciato, T.W., Hamill, J., & **Van Emmerik, R.E.A.** (2010). Multisegmental torso coordination during the transition from sitting to standing. *Clinical Biomechanics*, 25, 199-205.
38. Haddad, J.H., **Van Emmerik, R.E.A.**, Wheat, J.S., Hamill, J., & Snapp-Childs, S. (2010). Relative phase coordination analysis in the assessment of dynamic gait symmetry. *Journal of Applied Biomechanics*, 26, 109-113.
39. Miller, R.H., Caldwell, G.E., **Van Emmerik, R.E.A.**, Umberger, B.R. & Hamill, J. (2009). Ground reaction forces and lower extremity kinematics when running with suppressed arm swing. *Journal of Biomechanical Engineering*, 131(12), 124502-6.
40. Baird, J. & **Van Emmerik, R.E.A.** (2009). Young and older adults use different strategies to perform a standing turning task. *Clinical Biomechanics*, 24, 826-832.
41. Hasson, C.J., Caldwell, G.E., & **Van Emmerik, R.E.A.** (2009). Scaling of plantarflexor muscle activity and postural control time-to-contact in response to upper-body perturbations in young and older adults. *Experimental Brain Research*, 196(3), 413-427.
42. Chang, R., **Van Emmerik, R.E.A.**, & Hamill, J. (2008). Quantifying rearfoot-forefoot coordination in human walking. *Journal of Biomechanics*, 41, 3101-3105
43. Haddad, J.H., **Van Emmerik, R.E.A.**, & Hamill, J. (2008). Recurrence Quantification Analysis and Developmental changes in Postural Control. *Experimental Brain Research*. 190(4): 431-41.
44. Chung, L.H., Remelius, J.G., **Van Emmerik, R.E.A.**, & Kent-Braun, J. (2008). Multiple Sclerosis: Leg power asymmetry and postural control. *Medicine and Science in Sports and Exercise*, 40(10): 1717-24
45. Engsberg, J.R., **Van Emmerik, R.E.A.**, Ross, S.A., Collins, D.R. Use of Relative phase as a measure of motor control at the ankle in persons with Cerebral Palsy. *Journal of Applied Biomechanics*, 24, 382-390.
46. Hasson, C.J., **Van Emmerik, R.E.A.**, Caldwell, G.E. (2008). Predicting dynamic postural instability using center of mass time-to-contact information. *Journal of Biomechanics*,

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- 41, 2121-2129.
47. Remelius, J., Hamill, J., Kent-Braun, J., & **Van Emmerik, R.E.A.** (2008). Gait Initiation in Multiple Sclerosis. *Motor Control*, 12(2), 93-108.
 48. Wilson C., Simpson S., **Van Emmerik R.E.A.**, Hamill J. (2008). Coordination variability and skill development in expert triple jumpers. *Sports Biomechanics*, 7(1), 2-9.
 49. Hasson, C.J., Caldwell, G.E., & **Van Emmerik, R.E.A.** (2008). Changes in muscle and joint coordination in learning to direct forces. *Human Movement Science*, 27, 590-609.
 50. Hasson, C.J., **Van Emmerik, R.E.A.**, Caldwell, G.E., Haddad, J.M., Gagnon, J.L., & Hamill, J. (2008). Influence of embedding parameters and noise in center of pressure recurrence quantification analysis, *Gait & Posture*, 27, 416-422.
 51. Le Masurier, G.C., Bauman, A.E., Corbin, C.B., Konopack, J.F., Umstattd, M.R., **Van Emmerik, R.E.A.** (2008). Assessing walking behaviors in selected subpopulations. *Medicine and Science in Sports and Exercise*, 40(7), supplement 1, S594-S602.
 52. Haddad, J.M., Gagnon, J.L., Hasson, C.J., **Van Emmerik, R.E.A.**, & Hamill, J. (2006). Evaluation of time-to-contact measures for assessing postural stability. *Journal of Applied Biomechanics*, 22(2), 155-161.
 53. Seay, J., Haddad, J.M., **Van Emmerik, R.E.A.**, & Hamill, J. (2006). Coordination variability in the gait transition region: Effects of varying speed intervals. *Motor Control*, 10(2), 178-196.
 54. Rosenstein, M.R., Barto, A., & **Van Emmerik, R.E.A.** (2006). Learning at the level of synergies for a robot weight lifter. *Robotics and Autonomous Systems*, 54(8), 706-717.
 55. Peters, B.T., **Van Emmerik, R.E.A.** & Bloomberg, J.J. (2006). Stride cycle influences on goal directed head movements made during walking. *Gait and Posture*, 24(1), 70-76.
 56. Haddad, J.H., **Van Emmerik, R.E.A.**, Whittlesey, & Hamill, J. (2006). Interlimb and intralimb coordination in human walking in response to a unilaterally applied leg load. *Gait and Posture*, 23(4), 429-434.
 57. **Van Emmerik, R.E.A.**, McDermott, W.H., Haddad, J., Van Wegen, E.E.H. (2005). Age-related changes in upperbody coordination to walking speed in human locomotion. *Gait and Posture*, 22, 233-239.
 58. **Van Emmerik, R.E.A.**, Hamill, J., & McDermott, W.M. (2005). Variability and coordinative function in human Gait. *Quest*, 57, 102-123.
 59. Pollard, C.D., Heiderscheit, B.C., **Van Emmerik, R.E.A.**, Hamill, J. (2005). Gender differences in lower extremity coupling variability during an unanticipated cutting maneuver. *Journal of Applied Biomechanics*, 21, 143-152.
 60. **Van Emmerik, R.E.A.**, Rosenstein, M.T., McDermott, W.J., & Hamill, J. (2004). A nonlinear dynamics approach to human movement. *Journal of Applied Biomechanics*, 20, 396-420.
 61. Peters, B.T., Haddad, J.M., Heiderscheit, B.C., **Van Emmerik, R.E.A.**, & Hamill, J. (2003). Limitations in the use and interpretation of continuous relative phase. *Journal of Biomechanics*, 36, 271-274.
 62. McDermott, W.J. **Van Emmerik, R.E.A.**, & Hamill, J. & (2003). Running training and

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adaptive strategies of locomotor-respiratory coordination. *European Journal of Applied Physiology*, 89, 435-444.

63. **Van Emmerik, R.E.A.** & Van Wegen (2002). On the functional aspects of variability in postural control. *Exercise and Sport Sciences Reviews*, 30(4), 177-183.
64. Van Wegen, **Van Emmerik, R.E.A.** & Riccio, G.E. (2002). Postural orientation: Age-related changes in variability and time-to-boundary. *Human Movement Science*, 21, 61-84.
65. Heidersheit, B.C., Hamill, J. & **Van Emmerik, R.E.A.** (2002). Variability of stride characteristics and joint coordination among individuals with unilateral patellofemoral pain. *Journal of Applied Biomechanics*, 18, 110-121.
66. Winogrodzka, A., Wagenaar, R.C., Bergmans, P., Vellinga, A., Booij, J., Van Royen, E.A., **Van Emmerik, R.E.A.**, Stoof, J.C., & Wolters, E.Ch. (2001). Rigidity affects the resting tremor in Parkinson's disease. *Movement Disorders*, 16, 1033-1040.
67. Riccio, G.E., **Van Emmerik, R.E.A.** & Peters, B.T. (2001). Movement dynamics and the environment to be perceived. *Behavioral and Brain Sciences*, 24, 237-238.
68. Van Wegen, E.E.H., **Van Emmerik, R.E.A.**, Wagenaar, R.C. & Ellis, T. (2001). Stability boundaries and lateral postural control in Parkinson's disease. *Motor Control*, 3, 254-269.
69. **Van Emmerik, R.E.A.** & Van Wegen, E.H.H. (2000). On variability and stability in human movement. *Journal of Applied Biomechanics*, 16, 394-406.
70. Whittlesey, S.N., Hamill, J. & **Van Emmerik, R.E.A.** (2000). The swing phase of human walking is not a passive movement. *Motor Control*, 4, 273-292.
71. Wagenaar, R.C. & **Van Emmerik, R.E.A.** (2000). Resonance frequencies of arms and legs identify different walking patterns. *Journal of Biomechanics*, 33, 853-861
72. **Van Emmerik, R.E.A.**, Wagenaar, R.C., Winogrodzka, A., & Wolters, E.Ch. (1999). Axial rigidity in Parkinson's disease. *Archives of Physical Medicine and Rehabilitation*, 80, 186-191.
73. **Van Emmerik, R.E.A.**, Wagenaar, R.C. & Van Wegen, E.H.H. (1998). Interlimb coupling patterns in human locomotion: Are we bipeds or quadrupeds? *Annals of New York Academy of Sciences*, 860, 539-542.
74. Heidersheit, B.C., Hamill, J. & **Van Emmerik, R.E.A.** (1999). Q-angle influences on the variability of lower extremity coordination during running. *Medicine and Science in Sport and Exercise*, 31(3), 1313-1319
75. Hamill, J., **Van Emmerik, R.E.A.**, Heidersheit, B.C., & Li, L. (1999). A Dynamical systems approach to lower extremity running injuries. *Clinical Biomechanics*, 14, 297-308.
76. Perez, R., Bosman, M., Wagenaar, R.C., & **Van Emmerik, R.E.A.** (1998). Effects of auditory rhythms on Parkinsonian gait. *Nederlands tijdschrift voor Fysiotherapie*, 108(36), 62-69
77. Ronnqvist, L. Hopkins, B., **Van Emmerik, R.E.A.** & de Groot, L. (1999). Lateral biases in head turning and the Moro response in the human newborn: Are they both vestibular in origin? *Developmental Psychobiology*, 339-349

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78. Li, L. Van Den Bogert, C., Caldwell, G.E., **Van Emmerik, R.E.A.**, & Hamill, J. (1999). Coordination patterns of walking and running at similar speeds and stride frequency. *Human Movement Science*, 18, 67-85.
79. Vereijken, B., **Van Emmerik, R.E.A.**, Bongaardt, R., Beek, W.J., & Newell, K.M. (1997). Changing coordinative structures with skill learning. *Human Movement Science*, 16, 823-844.
80. **Van Emmerik, R.E.A.** & Wagenaar, R.C. (1997). On optimality and movement disorders: A dynamical systems perspective. *Behavioral and Brain Sciences*, 19, 1,90.
81. **Van Emmerik, R.E.A.** & Wagenaar, R.C. (1996). Dynamics of movement coordination and tremor in Parkinson's disease. *Human Movement Science*, 15, 203-235.
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85. **Van Emmerik, R.E.A.** & Wagenaar, R.C. (1995). The functional role of movement variability: Implications for learning and relearning processes. *Corpus, Psyche et Societas*, 2, 57-70.
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88. **Van Emmerik, R. E. A.**, Sprague, R. L., & Newell, K. M. (1993). Arm tremor and tardive dyskinesia. *American Journal on Mental Retardation*, 98, 74-83.
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91. Newell, K.M., **Van Emmerik, R.E.A.**, Lee, D. & Sprague, R.L. (1994). On postural stability and variability. *Gait and Posture*, 4, 225-230.
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97. **Van Emmerik, R.E.A.** & Newell, K.M. (1990). The effects of task constraints on intralimb and pen kinematics in a drawing task. *Acta Psychologica*, 73, 171-190.
98. **Van Emmerik, R.E.A.**, Brinker, B.P.L.M. den, Vereijken, B. & Whiting, H.T.A. (1989). Preferred tempo in the learning of a gross-motor cyclical action. *Quarterly Journal of Experimental Psychology: Human Experimental Psychology*, 41, 251-262.
99. Newell, K.M. & **Van Emmerik, R.E.A.** (1989). The acquisition of coordination: Preliminary analysis of learning to write. *Human Movement Science*, 8, 17-32.
100. Newell, K.M., **Van Emmerik, R.E.A.**, & McDonald, P.V. (1989). Biomechanical constraints and action theory. *Human Movement Science*, 8, 403-409.
101. Newell, K.M., **Van Emmerik, R.E.A.**, & McDonald, P.V. (1989). On simple movements and complex theories (and vice-versa). *Behavioral and Brain Sciences*, 12, 229-230.
102. McDonald, P.V., **Van Emmerik, R.E.A.**, & Newell, K.M. (1989). The effects of practice on limb kinematics in a throwing task. *Journal of Motor Behavior*, 21, 245-264.
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PUBLICATIONS: REFEREED BOOK CHAPTERS

1. **Van Emmerik, R.E.A.**, Jones, S.L., Busa, M.A., Remelius, J.G., & Averill, J.L. (2014). Enhancing Postural Stability and Adaptability in Multiple Sclerosis. In: M. Levin (Ed.), *Progress in Motor Control, Advances in Experimental Medicine and Biology 826*, DOI 10.1007/978-1-4939-1338-1-15; New York NY: Springer.
2. **Van Emmerik, R.E.A.**, Miller, R.H., & Hamill, J. (2014). Dynamical systems methods for the analysis of movement coordination. In Robertson, G. et al. (Eds.), *Research Methods in Biomechanics* (2nd edition). Human Kinetics, Champaign, Ill, USA.
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4. **Van Emmerik, R.E.A.** (2007). Functional Role of Movement Variability in Movement Coordination and Disability (pp. 25-52). In: W.E. Davis and G.D. Broadhead (Eds.), *Ecological Task Analysis and Movement*. Champaign. Ill: Human Kinetics.

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5. Hamill, J., Haddad, J.M., Heiderscheit, B.C., **Van Emmerik, R.E.A.**, Li, L. (2006). Clinical Relevance of Variability in Coordination (pp. 153-165). In: K. Davids, S.J. Bennett, & K.M. Newell (Eds.), *Movement System Variability*. Champaign, Ill: Human Kinetics.
6. Caldwell, G.E., **Van Emmerik, R.E.A.**, & Hamill, J. Movement proficiency (2000). In: W.A. Sparrow (Ed.), *Energy expenditure and the learning and control of movement*. (pp. 66-95) Champaign, Ill: Human Kinetics.
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9. Davis, W.E., & **Van Emmerik, R.E.A.** (1995). An ecological task analysis approach for understanding motor development in mental retardation: Research questions and strategies. In A. Vermeer and W.E. Davis (Eds.), *Physical and motor development in persons with mental retardation*. Medicine and Sport Science Series (pp. 33-67). Basel: Karger.
10. **Van Emmerik, R.E.A.**, Wagenaar, R.C., & Goede, C. de (1995). De effecten van fysiotherapie bij de ziekte van Parkinson. In J.B. den Dekker, G. Aufdemkampe, I. van Ham, G.M. van Meerwijk, & P. Vaes (Eds.), *Jaarboek voor Fysiotherapie en kinesitherapie 1995*. Houten/Zaventem: Bohn Stafleu Van Loghum, p. 148-175 (in Dutch; title: "The effects of physical therapy in Parkinson's Disease").
11. Wagenaar, R.C. & **Van Emmerik, R.E.A.** (1995). Relearning dynamics after stroke. In J. Van der Kamp, J.P. Van Zandwijk, A.J. Dallmeijer, J. Vaal, & C. Leemrijse (Eds.), *Movement Disorders*. Proceedings of the first Symposium of the Research Institute for fundamental and Clinical Human Movement Sciences. Enschede, The Netherlands: Copyprint 2000.
12. **Van Emmerik, R.E.A.** & Wagenaar, R.C. (1994). Dynamics of self-organization in human locomotion. In K. Wakai & S-j Chen (Eds.), *Annual Report Hokaido University, 16*.
13. Wagenaar, R.C., & **Van Emmerik, R.E.A.** (1994). Oefentherapie vanuit een dynamisch perspectief. In J.B. den Dekker, G. Aufdemkampe, I. van Ham, G.M. van Meerwijk, & P. Vaes (Eds.), *Jaarboek voor Fysiotherapie en kinesitherapie 1994* (pp. 369-393). Houten/Zaventem: Bohn Stafleu Van Loghum (in Dutch; Title "Physical Therapy from a dynamical systems perspective").
14. **Van Emmerik, R.E.A.**, Wagenaar, R.C. & Wolters, E.Ch. (1993). Dynamics of movement coordination in Parkinson's disease. In E.Ch. Wolters & P. Scheltens (Eds.), *Mental dysfunction in Parkinson's disease* (pp. 69-91). Dordrecht, The Netherlands: ICG Printing.
15. Newell, K.M., **Van Emmerik, R.E.A.**, & Sprague, R.L. (1993). Stereotypy and variability. In K.M. Newell & D.M. Corcos (Eds.), *Variability and motor control*. (pp. 475-496) Champaign, IL, USA: Human Kinetics.

16. Wagenaar, R.C., & **Van Emmerik, R.E.A.** (1993). Dynamische analyse van coordinatiestoornissen tijdens het gaan. In J.B. den Dekker, G. Aufdemkampe, I. van Ham, G.M. van Meerwijk, & P. Vaes (Eds.), *Jaarboek voor Fysiotherapie en kinesitherapie 1993* (p184-201). Houten/Zaventem: Bohn Stafleu Van Loghum (in Dutch; Title: "A dynamical Systems approach to coordination deficits during gait").
17. **Van Emmerik, R.E.A.** & Newell, K.M. (1989). The relationship between penpoint and joint kinematics in handwriting and drawing. In R. Plamondon, C.Y. Suen, & M.L. Simner (Eds.), *Computer and human recognition of handwriting*. Singapore: World Scientific Publishers.
18. Newell, K.M., Kugler, P.N., **Van Emmerik, R.E.A.**, & McDonald, P.V. (1989). Search strategies and the acquisition of coordination. In S.A. Wallace (Ed.), *Perspectives on the Coordination of Movement*. (pp. 85-122) Amsterdam: North-Holland.
19. Newell, K.M. & **Van Emmerik, R.E.A.** (1991). Are Gesell's developmental principles general principles for the acquisition of coordination? In J.E. Clarke and J. H. Humphrey (Eds.), *Advances in Motor Development* (Vol. 3). AMS Press.
20. **Van Emmerik, R.E.A.** & Newell, K.M. (1987). Topological characteristics of coordination. In J. Warm, R. Huston & L. Mark (eds.), *Human factors and ergonomics: Recent research*. Berlin/New York: Springer Verlag.

PUBLICATIONS: BOOK CHAPTERS FROM CONFERENCE PROCEEDINGS

1. Busa, M.A., Palmer, C.J., van Emmerik, R.E.A. (2015). Quantifying Survivability. An Ecological Analysis of Soldier Performance. In: J. Weast-Knapp, M. Malone & D. Abney (Eds.), *Studies in Perception & Action XIII*. Taylor & Francis Group, LLC
2. Hamill, J., Haddad, J.M., & **Van Emmerik, R.E.A.** (2005, August). Using Coordination Measures to Assess Movement. In Q. Wang (Ed.), *Proceedings of the 23rd International Symposium on Biomechanics on Sport*, Beijing, China, August 22-27 (pp. 33-38).
3. Fidler, A. Haddad, J.M. Gagnon, J., **Van Emmerik, R.E.A.**, & Hamill, J. (2005, August). Postural Control Strategies in Dancers and non-Dancers. In Q. Wang (Ed.), *Proceedings of the 23rd International Symposium on Biomechanics on Sport*, Beijing, China, August 22-27 (pp. 642-645).
4. Haddad, J., **Van Emmerik, R.E.A.**, Van Wegen, E.E.H. & Hamill, J. (2001). Adaptability of interlimb coordination in human walking. In: G. Burton & R.C. Schmidt (Eds.), *Studies in Perception and Action VI*. (p. 149-152). Mahaw, New Jersey: Erlbaum.
5. Peters, B.T., **Van Emmerik, R.E.A.**, & Riccio (2001). Evidence of phasic modulation on eye control during walking. In: G. Burton & R.C. Schmidt (Eds.), *Studies in Perception and Action VI*. (p. 61-64). Mahaw, New Jersey: Erlbaum.
6. Van Wegen, E.E.H., **Van Emmerik, R.E.A.**, & Riccio (2001). Active postural sway and the detection of stability boundaries. In: G. Burton & R.C. Schmidt (Eds.), *Studies in Perception and Action VI*. (p. 177-180). Mahaw, New Jersey: Erlbaum.

7. Van Wegen, E.E.H., McDermott, W.H., & **Van Emmerik, R.E.A.** (1999). Age differences in high frequency variability during quiet stance. In M.A. Grealy & J.A. Thompson (Eds.), *Studies in Perception and Action V* (pp. 321-325). New Jersey: Lawrence Erlbaum.
8. McDermott, W.H., **Van Emmerik, R.E.A.**, & Hamill, J. (1999). Coordination between locomotion and breathing rhythms. In M.A. Grealy & J.A. Thompson (Eds.), *Studies in Perception and Action V* (pp. 326-329). New Jersey: Lawrence Erlbaum.
9. **Van Emmerik, R.E.A.**, Wagenaar, R.C. & Van Wegen, E.H.H. (1998). Interlimb coupling patterns in human locomotion: Are we bipeds or quadrupeds? (pp. 539-542). In: O. Kiehn, R.M. Harris-Warrick, L.M. Jordan, H. Hultborn, & N. Kudo (Eds.), *Neuronal Mechanisms for generating Locomotor Activity*. Annals of the New York Academy of Sciences, 860.
10. **Van Emmerik, R.E.A.**, Van Wegen, E.E.H., & Wagenaar, R.C. (1997). Interlimb frequency coupling patterns during locomotion. In: M.A. Schmuckler & J.M. Kennedy (Eds.), *Studies in Perception and Action IV*. Mahwah, NJ: Erlbaum.
11. **Van Emmerik, R.E.A.** & Wagenaar, R.C. (1995). Tremor and symmetry properties in bimanual coordination in Parkinson's disease. In B.G. Bardy, R.J. Bootsma, & Y. Guiard (Eds.), *Proceedings from the VIIth International conference on Perception and Action*. Lawrence Erlbaum.
12. **Van Emmerik, R.E.A.** & Wagenaar, R.C. (1994). Relative phase dynamics in healthy and pathological gait. In K. Taguchi, M. Igarashi, & S. Mori (Eds.). *Posture and gait: Vestibular and neural front*. Amsterdam: Elsevier, p. 341-344.
13. **Van Emmerik, R.E.A.**, & Wagenaar, R.C. (1992). Qualitative changes in the walking mode of healthy and neurologically impaired individuals. In Woollacott, M. & Horak, F.B. (Eds.), *Posture and gait: Control mechanisms*. Portland, Oregon: Oregon University Press.
14. **Van Emmerik, R. E. A.**, Sprague, R. L., & Newell, K. M. (1992). Assessment of postural dynamics in tardive dyskinesia and developmental disability: Sway profile orientation and stereotypy. In Woollacott, M. & Horak, F.B. (Eds.), *Posture and gait: Control mechanisms*. Portland, Oregon: university of Oregon Press.
15. Newell, K.M., **Van Emmerik, R.E.A.**, & Sprague, R.L. (1992). On postural stability and variability. In Woollacott, M. & Horak, F.B. (Eds.), *Posture and gait: Control mechanisms*, Portland, May.
16. Wagenaar, R.C., & **Van Emmerik, R.E.A.**, & Beek, W.J. (1992). The dynamics of human gait: Townsend revisited. In Woollacott, M. & Horak, F.B. (Eds.), *Posture and gait: Control mechanisms*. Portland, Oregon: University of Oregon Press.
17. **Van Emmerik, R.E.A.**, & Wagenaar, R.C. (1991). The coordination of human walking: qualitative changes in healthy and neurologically disabled individuals. In P.J. Beek, R.J. Bootsma, & P.C.W. van Wieringen (Eds.), *Studies in perception and action* (pp. 355-358). Amsterdam, Rodopi Press.
18. Vereijken, B., **Van Emmerik, R.E.A.**, & Beek, W.J. (1991). Learning a complex rhythmical movement: Changing perceptual-motor workspaces. In P.J. Beek, R.J. Bootsma, & P.C.W.

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van Wieringen (Eds.), *Studies in perception and action* (pp. 349-354). Amsterdam, Rodopi Press.

19. **Van Emmerik, R.E.A.** & Rutter, B.G. (1987). Phase transitions and dimensional analysis in movement pattern formation: Effects of task constraints and systems' design. In *Proceedings of Interface 87* (pp. 29-35). Rochester, New York.

INVITED LECTURES AND TALKS

1. **Van Emmerik, R.E.A.** (2015). Dynamical Systems: Concepts and Analysis Techniques for Movement Coordination. Invited presentation Winterschool of Biomechanics, State University of Santa Catarina, Brazil, August 22-23.
2. **Van Emmerik, R.E.A.** (2015). The role of Movement variability in Health and Disease. Invited presentation Winterschool of Biomechanics, State University of Santa Catarina, Brazil, August 22-23.
3. **Van Emmerik, R.E.A.** (2015). Bernstein's Degrees of Freedom Problem. Invited presentation Winterschool of Biomechanics, State University of Santa Catarina, Brazil, August 22-23.
4. **Van Emmerik, R.E.A.**, Jones, S.L., Busa, M.A., Remelius, J.G. and Averill, J.G. (2013). Enhancing postural stability and adaptability in multiple sclerosis. Symposium on motor control and recovery from injury; Progress in Motor Control IX, Montreal, Canada; July 13-16.
5. **Van Emmerik, R.E.A.**, Palmer, C.P., Busa, M.A. & Hamill, J. (2013). Nonlinear dynamics: Review of metrics and their relation to movement adaptability. Symposium: Nonlinear dynamics and motor control: Where have we been, where are we now and where are we going. Annual meeting of the North American Society for the Psychology of Sport and Physical Activity, New Orleans, Louisiana, June 13-15.
6. **Van Emmerik, R.E.A.**, Haddad, J.M., & Palmer, C.P. (2013). A nested systems perspective on postural and manual control. Indiana University, Department of Psychology, April 5th.
7. **Van Emmerik, R.E.A.** (2013). Department of Kinesiology and Human Health 2013 Charles C. Cowell Lecture. The role of movement variability in health and disease. April 3rd.
8. **Van Emmerik, R.E.A.** (2012). Postural time to contact: Concepts and applications to life span development and movement disability. Seventh Geraldine Pellicchia Memorial lecture, Center for the Ecological study of Perception and Action, University of Connecticut, Storrs.
9. **Van Emmerik, R.E.A.** (2012). The role of movement variability in health and disease. Department of Kinesiology Colloquium Series, April 2012.
10. **Van Emmerik, R.E.A.** (2011). Clinical relevance of time to contact methods in assessing dynamic balance control. Lecture series of the Center for Clinical Movement Disorders, University of Minnesota, September 2011.

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11. **Van Emmerik, R.E.A.** (2011). Postural control in multiple sclerosis: Stability and complexity analyses. Annual meeting of the North American Society for the Psychology of Sport and Physical Activity (NASPSPA). *Journal of Sport and Exercise Psychology*, 33 (Supplement), 22-23.
12. **Van Emmerik, R.E.A.** (2010). Dynamics of movement coordination and perception during locomotion in older adults and individuals with neurological disorders. *Progress in Rehabilitation Research*. American College of Rehabilitation Medicine (ACRM) and American Society for Neural Rehabilitation (ASNR) Joint Education Conference, Montreal, Canada.
13. **Van Emmerik, R.E.A.** (2010). To step or not to step: time-to-contact, stability boundaries and the control of posture and locomotion. *Perception and Action Workshop*, University of Connecticut.
14. Hamill, J., Gruber, A., Miller, R. & **Van Emmerik, R.E.A.** (2010). Does changing footfall patterns alter running performance? Invited presentation, 6th World Congress of Biomechanics, Singapore, August 2010.
15. **Van Emmerik, R.E.A.**, Miller, R. & Hamill, J. (2009). Dynamical systems Approach to Movement Coordination. *Proceedings of the 27th International Conference on Biomechanics in Sports*, Limerick, Ireland, August 2009.
16. **Van Emmerik, R.E.A.** (2008). Motor Control and Dynamical Systems. Lecture series, June 23-28, National Taiwan Sports University, Taiwan.
17. **Van Emmerik, R.E.A.** & Haddad, J.M. (2008). Variability and Coordination in Movement Disorders. Tutorial lecture at the 55th Annual meeting of the American College of Sports Medicine, Indianapolis, IN, May 28-31. *Medicine & Science in Sports and Exercise*, 40(5), supplement, 240.
18. TenBroek, T.M., **Van Emmerik, R.E.A.**, Hasson, C.J., & Hamill, J. (2007). Lyapunov exponent estimation for human gait acceleration signals. XXlth Congress of the International Society of Biomechanics, Taipei, Taiwan. *Journal of Biomechanics*, 40, S210.
19. **Van Emmerik, R.E.A.** (2007). Introduction to dynamical systems. 12th Annual Gait & Clinical Movement Analysis Society Meeting, Springfield, Massachusetts, April 11.
20. Hamill, J., **Van Emmerik, R.E.A.**, McDermott, W.M. (2007). Clinical Applications of Dynamical Systems Theory. 12th Annual Gait & Clinical Movement Analysis Society Meeting, Springfield, Massachusetts, April 11.
21. **Van Emmerik, REA.** (2006) Coordination Dynamics of Posture and Gait: Translational Implications for Rehabilitation Practice. Joint meeting of the American Congress of Rehabilitation Medicine (ACRM) and the American Society of Neurorehabilitation (ASNR), Boston, Massachusetts, September 27-October 1.
22. **Van Emmerik, R.E.A.**, Hamill, J., & McDermott, W.J. (2007). Clinical Applications of Dynamical Systems Theory. Invited symposium, 12th *Annual Gait and Clinical Movement Analysis Society* (GCMAS) meeting, April 11-14, Springfield, Massachusetts.

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23. **Van Emmerik, R.E.A.** & Wagenaar, R.C. (2006). Coordination dynamics of Posture and Gait: Translational Implications for Rehabilitation Practice. Paper presented at the joint meeting of the American Congress of Rehabilitation medicine and the American Society of Neurorehabilitation, Boston, Massachusetts, September 27 – October 1.
24. Hamill, J., Haddad, J. M., & **Van Emmerik, R.E.A.** (2006). Overuse injuries in running: Do complex analyses help our understanding? In: Proceedings of the XXIVth International Symposium on Biomechanics in Sports Congress, University of Salzburg, Austria (pp. 27-32).
25. Hamill, J., Haddad, J. **Van Emmerik, R.E.A.** Coordination and Human Movement. Mid-West Graduate Student Conference on Biomechanics, Milwaukee, WI, March 2006.
26. Hamill, J., Haddad, J.M., & **Van Emmerik, R.E.A.** (2005, August). Using Coordination Measures to Assess Movement. In Q. Wang (Ed.), Proceedings of the 23rd International Symposium on Biomechanics on Sport, Beijing, China, August 22-27 (pp. 33-38).
27. **Van Emmerik, R.E.A.** (2005). Variability and coordinative function in movement disorders. Invited lecture, 2005 Michael J. Ellis Distinguished Lecture on Disability Science and Practice, College of Applied Life Studies, University of Illinois at Urbana-Champaign. April 25-27.
28. **Van Emmerik, R.E.A.** (2005). Dynamic stability, variability and energetics of human gait: Coupling of locomotion and respiration. Invited lecture, Perceiving and Acting workshop, Department of Psychology and Center for the Ecological Study of Perception and Action, University of Connecticut, Storrs, April 15.
29. **Van Emmerik, R.E.A.** (2005). Variability in motor control: Coupling dynamics of the locomotor and respiratory systems. Invited lecture, department of Exercise Science, Syracuse University. March 30-April 2.
30. **Van Emmerik, R.E.A.** (2004). Stability and adaptability of gait control: implications for mobility and daily living. Invited lecture, American Academy for Kinesiology and Physical Education, Chicago, Illinois, September 2004.
31. **Van Emmerik, R.E.A.** (2004). On the functional role of variability in posture and locomotion. Keynote lecture, American College of Sports Medicine, Indianapolis, June 4 2004.
32. McDermott, W.M., **Van Emmerik, R.E.A.**, & Hamill, J. (2004). Postural stability and the dynamics of locomotor-respiratory coordination. *Medicine & Science in Sports and Exercise*, 36(5), 1612, S235.
33. Whittlesey, S., **Van Emmerik, R.E.A.**, Caldwell, G., Nasca, P., & Hamill, J. (2004). Interaction of balance control and manual task demands. *Medicine & Science in Sports and Exercise*, 36(5), 1613, S235.
34. **Van Emmerik, R.E.A.** Coordination dynamics of the upper body during locomotion. Human Movement Science Department, Vrije Universiteit, the Netherlands, September, 2002.

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35. Haddad, J.M., **Van Emmerik, R.E.A.**, Hamill, J. The adaptability of interlimb coordination in human walking. Paper presented at Korean National University for Physical Education (KNUPE), Seoul, South Korea, October 2002.
36. **Van Emmerik, R.E.A.** Coordination dynamics of the locomotor-respiratory systems. Human Movement Science Department, Vrije Universiteit, the Netherlands, December 2002.
37. Haddad, J.M., Peters, B.T., **Van Emmerik, R.E.A.**, & Hamill, J. Continuous Relative Phase as a measure of Coordination: Application issues. In Proceedings of the Meeting of the International Society of Biomechanics, New Zealand, July 2003.
38. **Van Emmerik, R.E.A.** (2002). Age-related changes in upper-body coordination in human locomotion. *Whitaker Biomedical Engineering Research Conference*, (p. 64). La Jolla, California, August 8-11, 2002.
39. **Van Emmerik, R.E.A.** (2001). Age-related changes in upper-body coordination in human locomotion. *Whitaker Biomedical Engineering Research Conference*, (p. 152). La Jolla, California, August 9-12, 2001.
40. **Van Emmerik, R.E.A.** (2001). Movement Variability and Stability: Implications for Learning and Relearning. *Invited guest lecture Department of Computer Science, University of Massachusetts, Amherst, August 2001.*
41. **Van Emmerik, R.E.A.** (2000). On variability and Stability in Human Movement. Paper presented at American College of Sports Medicine Symposium on: Variability and Stability: A Dynamical Systems Perspective. *Medicine and Science in Sport and Exercise*, 32(5 supplement), S77.
42. **Van Emmerik, R.E.A.** (2000). An ecological perspective on the control of posture and locomotion. *Invited guest lecture Sargent College of Allied Health Sciences, Boston University.*
43. **Van Emmerik, R.E.A.** (2000). A dynamical systems approach to Parkinson's disease. *Invited guest lecture, Department of Kinesiology, Louisiana State University.*
44. **Van Emmerik, R.E.A.** (1999). A dynamical systems approach to Parkinson's disease. *Paper presented in educational symposium, "Dynamics of movement disorders: Implications for evaluation and treatment. Scientific Conference of the American Physical Therapy Association, June, Washington D.C.*
45. **Van Emmerik, R.E.A.** (1999). Identification of axial rigidity during locomotion in Parkinson's disease. *Paper presented at symposium on "Dynamics of Movement Disorders", Annual meeting of the North American Society for Psychology of Sport and Physical Activity, Clearwater Beach, Florida, June. Abstract published in Journal of Sport and Exercise Psychology, 21, S7.*
46. **Van Emmerik, R.E.A.** (1998). A dynamical systems approach to movement learning and relearning. Paper presented to department of Physical Education, *Seoul National University, Seoul, South Korea, August.*

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47. **Van Emmerik, R.E.A.** (1998). A dynamical systems approach to postural stability in motor control. In: *Proceedings of the 1998 Seoul International Sport Science Congress*, pp. 511-533.
48. **Van Emmerik, R.E.A.**, Wade, M.G., Hopkins, B., & Davis, W.E. (1998). Effects of visual field perturbations on whole body sway in Down syndrome. *Proceedings of the first Biennial Scientific Conference on Down Syndrome*, Vancouver, Canada, April.
49. Li, L., **Van Emmerik, R.E.A.**, Caldwell, G.E., & Hamill, J. (1997). Walking and running in the gait transition region: Comparison of coordination patterns. Paper presented at the *1997 spring meeting of the International Society for Ecological Psychology (ISEP)*, Amherst, MA, March 29.
50. **Van Emmerik, R.E.A.** (1997). Interlimb coupling dynamics in human walking: Are we bipeds or quadrupeds? Paper presented at the *Annual Meeting of the North American Society for the Psychology of Sport and Physical Activity (NASPSA)*, Denver, Colorado May 28-31. Published in: *Journal of Sport and Exercise Psychology*, 19, supplement, S3.
51. **Van Emmerik, R.E.A.** (1995). Dynamics of pathological gait Department of Psychology, *paper presented at the workshop on Perception and Action*, University of Connecticut, Storrs, November 13.
52. **Van Emmerik, R.E.A.** (1995). Nonlinear dynamical analysis of posture and gait. *Department of Psychology guest lecture*, Trinity College, Hartford, Connecticut, October 25.
53. **Van Emmerik, R.E.A.** (1995). The functional role of movement variability: Implications for learning and relearning processes. *Paper presented at the Sports Science Symposium*, University of Oslo, Norway, 22-24 November.
54. **Van Emmerik, R.E.A.**, & Wagenaar, R.C., & Wolters, E.Ch. (1993). The dynamics of movement coordination in Parkinson's disease. *Paper presented at the European Congress on Mental Dysfunction in Parkinson's disease*, Amsterdam, Vrije Universiteit, October 20-23.

CONFERENCE PRESENTATIONS, PUBLISHED ABSTRACTS, PROCEEDINGS

1. Lim, J. I., Amado, A., Sheehan, L., & Van Emmerik, R.E.A. (2015). Dual task interference during walking: The effects of texting on situational awareness and gait stability. North American Society for the Psychology of Sport and Physical Activity, Portland, OR, USA. Abstract published in: *Journal of Sport and Exercise Psychology*, 37, S49.
2. Lim, J. I., Busa, M., Amado, A., Rosado, L., Simon, D., Ducharme, S., Palmer, C., & Van Emmerik, R.E.A. (2015). Effects of load configuration on movement coordination and visual information pick-up in expert marksmanship performance. North American Society for the Psychology of Sport and Physical Activity, Portland, OR, USA. Abstract published in: *Journal of Sport and Exercise Psychology*, 37, S49.

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3. Ducharme, S., Lim, J., Simon D., Palmer, C.J., Busa, M.A., Amado, A., Rosado, L., Van Emmerik, R.E.A. (2015). Loading the head reduces head-pitch attenuation of center of mass oscillations during walking and running gait in soldiers. North American Society for the Psychology of Sport and Physical Activity, Portland, OR, USA. Published in: *Journal Sport and Exercise Psychology*, 2015, 37, S36.
4. Rosado, L., Busa, M., Lim, J. I., Simon, D., Van Emmerik, R.E.A., & Palmer, C.J. (2014). The effects of soldier equipment load on head position and visual discrimination timing. SACNAS National Conference, Los Angeles, CA, USA, October.
5. Busa, M.A., Palmer, C.J., van Emmerik, R.E.A. (2015) Quantifying Survivability. An Ecological Analysis of Soldier Performance. Poster presented at the 18th International Conference on Perception and Action. Minneapolis, MN, USA, July 14-18.
6. Amado, A., Busa, M.A, Van Emmerik, R.E.A. (2015). Task dependency of the complexity of postural center of pressure patterns. Poster presented at the 10th Progress in Motor Control meeting, Budapest, Hungary, July 22-25.
7. Liddy, J.J., Jones, S.L, Busa, M.A., & Van Emmerik, R.E.A. (2015). Effects of Prolonged Walking at Preferred Speed in Individuals with Multiple Sclerosis. Poster presented at the 39th meeting of the American Society of Biomechanics 2015, Columbus, OH, August 5-8.
8. Ducharme, S., Palmer, C.J., Rosado, L.D., Busa, M.A., Lim, J., Simon, D., Amado, A., Van Emmerik, R.E.A. (2014). Greater loading in warfighters exhibits slower target identification and reduced segmental coordinative coupling during a dynamic marksmanship task. 3rd International Congress on Soldiers Physical Performance. Boston, MA. August 17-19.
9. Busa, M. A., Jones, S.L., & Van Emmerik, R. E.A. (2014). Multiscale Entropy Identifies Postural Control Changes in Persons with Multiple Sclerosis. 5th Annual UMass Clinical and Translational Science Research Retreat, University of Massachusetts Medical School, Worcester, MA, May 20.
10. Busa, M.A., Jones, S.L. & Van Emmerik, R.E.A. (2014). Concurrent Reduction in Plantar Cutaneous Sensation and Complexity of Postural Control in People with Multiple Sclerosis. International Society of Posture and Gait Research, Vancouver, BC, Canada.
11. Amado, A. Postural Instabilities and the Maintenance of Bi-Manual Rhythmic Movements. Presented at New England Sequencing and Timing meeting, Amherst, MA, February, 22 2014.
12. Jones, S.L., Remelius, J., Sugumaran, K., Busa, M.A., Van Emmerik, R. (2014) Cutaneous sensory function and plantar foot pressures during walking in people with Multiple Sclerosis. International Society of Posture and Gait Research, Vancouver, BC, Canada.
13. Ducharme, S.W., Rosado, L., Palmer, C.J., & Van Emmerik, R.E.A. Cross correlation analysis of segmental and end-effector coupling in warfighters as a function of load. Poster presentation at the 2014 Life Sciences Graduate Research Symposium, University of Massachusetts, Amherst, MA.

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14. Ducharme, S., Palmer, C.J., Rosado, L.D., Busa, M.A., Lim, J., Simon, D., Amado, A., Van Emmerik, R.E.A. (2014) Symmetrically Loaded Warfighters Exhibit Greater Segmental Adaptability in a Dynamic Marksmanship Task. World Congress of Biomechanics. Boston, MA.
15. B.C. Muir, S. Rietdyk, J. M. Haddad, R.E.A. Van Emmerik. Age-Related Changes in Foot Placement Variability when Approaching and Stepping Over an Obstacle. Seventh World Congress of Biomechanics, Boston, July 7-11, 2014.
16. Tosto, B; Averill, J; Jones, S; Van Emmerik, R. (2014). Will everyday use of an Ankle-Foot Orthosis affect balance in an individual with Multiple Sclerosis after a three-week Tai Chi intervention? Fourth Annual Life Sciences Graduate Research Symposium, UMass Amherst; April 8.
17. Afum, C; Averill, J; Jones, S; Van Emmerik, R. (2014). Will a Three-Week Tai Chi Intervention Increase Function and Ankle, Knee, and Hip Joint Ranges of Motion during Preferred Speed Walking in Individuals with Multiple Sclerosis? Fourth Annual Life Sciences Graduate Research Symposium, UMass Amherst; April 8.
18. Van Emmerik, REA. (2014). Improving Balance and Mobility in People with Multiple Sclerosis. In symposium on Advanced Computational and Technological Approaches to Mitigating Mobility Dysfunction in People with Multiple Sclerosis, University of Massachusetts Center for Clinical & Translational Science 5th Annual Research Retreat, May 20.
19. Jones, S.L. & Van Emmerik, R.E.A. (2014). Annual Meeting of the New England Chapter of the American College of Sports Medicine (Symposium), Multiple Sclerosis: a multifactorial disease that benefits from a multidisciplinary approach, Providence, RI. April 29th.
20. Amado, A., Palmer, C.P, & Van Emmerik, R.E.A. (2013). Postural task constraints and bimanual rhythmic coordination. Poster presented at the 3rd Annual Life Sciences Graduate Research Symposium, Amherst, MA, November 22nd.
21. Busa, M. A., Jones, S.L., & Van Emmerik, R. E.A (2013). Multiscale Entropy Identifies Postural Control Changes in Persons with Multiple Sclerosis. Paper presented at UMass Life Sciences Graduate Research Symposium, Amherst, MA, November 22nd.
22. Van Emmerik, REA, Jones, SL, & Averill J. (2013). Balance and Walking Impairments in People with Multiple Sclerosis. University of Massachusetts Medical School Continuing Medical Education (CME) program: Promoting Neurologic & Functional Recovery in MS & Living Well with Multiple Sclerosis, Worcester, MA; September 27-28.
23. Averill J, Jones S, Van Emmerik R. (2013). Effect of a three-week tai chi intervention on postural stability and function in individuals with multiple sclerosis. Third Annual Life Sciences Graduate Research Symposium, UMass Amherst; November 2013
24. Rodrigues, P., TenBroek, T., Van Emmerik, R.E.A., & Hamill, J. (2013) Evaluating runners with and without anterior knee pain using the time to contact the ankle joint complex range of motion boundary. Paper presented at the 37th Annual meeting of the American Society of Biomechanics, Omaha, Nebraska, September 4-7.

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25. Baird, J.L., Umberger, B.R., Hamill, J. & Van Emmerik, R.E.A. (2013). Angular Momentum and Thorax-Pelvis Coordination in Walking Paper presented at the 37th Annual meeting of the American Society of Biomechanics, Omaha, Nebraska, September 4-7.
26. Rosado, L.D., Busa, M.A., Lim, J., Simon, D., Van Emmerik, R.E.A., & Palmer, C.J. (2013). The effects of soldier load on action perception and posture dependent target engagement timing. Poster presented at Progress in Motor Control IX, Montreal, Canada; July 13-16.
27. Jones, S.L., & Van Emmerik, R.E.A. (2013). Postural Stability is reduced in people with multiple sclerosis due to walking-imposed fatigue. Poster presented at Progress in Motor Control IX, Montreal, Canada; July 13-16.
28. Averill, J., Chaput, M., Jones, S.L., & Van Emmerik, R.E.A. (2013). Effect of a Three-week Tai Chi intervention on dynamic postural stability in individuals with multiple sclerosis. Poster presented at Progress in Motor Control IX, Montreal, Canada; July 13-16.
29. Chaput, M., Averill, J., Jones, S.L., & Van Emmerik, R.E.A. (2013). Effect of a three week Tai Chi intervention on postural stability in people with multiple sclerosis. 19th University of Massachusetts Undergraduate Research Conference, Amherst; April 26.
30. Pagoulatos, S., Jones, S.L., & Van Emmerik, R.E.A. (2013). Effects of fatigue on standing postural control in people with multiple sclerosis. 19th University of Massachusetts Undergraduate Research Conference, Amherst; April 26.
31. Liddy, J., Jones, S., Busa, M., Sugumaran, K., Averill, J., & Van Emmerik, R.E.A. (2012). Dynamic stability and gait adaptations to prolonged walking in persons with multiple sclerosis. 2012. 18th University of Massachusetts Undergraduate Research Conference, Amherst; April 27.
32. Van Emmerik, R.E.A. (2011). Postural control in multiple sclerosis: Stability and complexity analyses. *Journal of Sport and Exercise Psychology*, 33, Supplement, Human Kinetics, 2011, Pages 22-23. North American Society for the Psychology of Sport and Physical Activity, Burlington, Vermont; June 9th.
33. Johnson, M.B., & Van Emmerik, R.E.A. (2010). The impact of head orientation on multisegmental torso coordination during the transition from sitting to Human Factors and Ergonomics, San Francisco, California, September 27th.
34. House, J., Jones, S., Remelius, J., Busa, M., Kent-Braun, J., Van Emmerik, R.E.A. (2010). Adaptations in Lower-Extremity Ranges of Motion to Gait Speed in People With Multiple Sclerosis. *Archives of Physical Medicine and Rehabilitation*, 91(10), Page 48. Progress in Rehabilitation Research; 2010 ACRM- ASNR joint educational Conference, Montreal, October 20th.
35. Busa, M.A., Umberger, B.R., Hamill, J., & Van Emmerik, R.E.A. (2011). Multiscale entropy identifies complexity changes in postural control in Multiple Sclerosis. International Society of Biomechanics meeting, Brussels, Belgium.

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36. Hasson, C.J., Van Emmerik, R.E.A., & Caldwell, G.E. (2010). A musculoskeletal model of postural control: simulated aging and muscle mechanical properties. Annual meeting of the American Society of Biomechanics, Providence, RI, August 18.
37. Gruber, A., Miller, R. Russell, E., Van Emmerik, R.E.A., & Hamill, J. (2010). Differences in joint kinematics and ground reaction forces between preferred and fixed running speeds. *Medicine and Science in Sport and Exercise*, 42(5), Williams & Wilkins. Page 269. American College of Sports Medicine Annual Meeting, Baltimore, MD, June 1.
38. Gruber, A., Miller, R., Van Emmerik, R.E.A., & Hamill, J. (2010). Does running speed alter lower extremity coordination? 6th World Congress of Biomechanics, Singapore, August 1.
39. Gruber, A., Busa, M., Gorton, G., Van Emmerik, R.E.A., Masso, P., & Hamill, J. (2010). Time-to-contact identifies differences in postural control in adolescent idiopathic scoliosis. Annual meeting of the American Society of Biomechanics, Providence, RI, August 18.
40. Busa, M., Jones, S., Remelius, J., House, J., Sugumaran, K., Eve, J. & Van Emmerik, R.E.A. (2010). Changes in gait kinematics at preferred walking speed in people with multiple sclerosis. Annual meeting of the American Society of Biomechanics, Providence, RI, August 18.
41. Busa, M., Gruber, A., Gorton, G., Masso, P Hamill, J., & Van Emmerik, R.E.A. (2010). Multiscale Entropy Identifies Complexity Changes in Postural Control of Adolescent Idiopathic Scoliosis. Annual meeting of the American Society of Biomechanics, Providence, RI, August 18.
42. O'Halloran, J., Remelius, J.G., Van Emmerik, R.E.A., & Hamill, J. (2010). Discrete frequency adjustment of walking above and below preferred stride frequency causes an increase in the metabolic cost of movement. Annual meeting of the American Society of Biomechanics, Providence, RI, August 18..
43. Johnson, M.B., & Van Emmerik, R.E.A. (2010). The impact of head orientation on multi-segmental torso coordination during the transition from sitting to standing. *Human Factors and Ergonomics*, San Francisco, September 27.
44. House, J.D., Jones, S.L., Remelius, J.G., Van Emmerik, R.E.A., Kent-Braun, J.A. (2009). Adaptations in Stride Parameters to Gait Speed in People with Multiple Sclerosis. Consortium of Multiple Sclerosis Centers Annual Conference, *International Journal of MS Care*, 36-37, Supplement, S60.
45. Russell, E.M., Gruber, A.H., Van Emmerik, R.E.A., & Hamill, J. (2009). Lower Extremity Coordination in Obese Women. 2009 Annual Meeting of the American Society of Biomechanics, State College, PA, August 26.
46. Remelius, J.G., Jones, S.L., House, J.D., & Van Emmerik, R.E.A. (2009). The influence of walking speed on the spatio-temporal parameters of gait in people with Multiple Sclerosis . 19th International Conference on Posture and Gait Research, Bologna, Italy, June 21.

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47. Hasson, C.J., Van Emmerik, R.E.A., & Caldwell, G.E. (2009). Structural Changes in Muscle Activity Patterns While Learning to Direct Pedal Forces. *Journal of Sport & Exercise Psychology*, 31 (Supplement): S67. North American Society for the Psychology of Sport and Physical Activity Annual Conference, Austin, Austin, Texas, June 11.
48. Rosado, L., Hasson, C.J., Van Emmerik, R.E.A., & Caldwell, G.E. (2008). Age Related Changes in Postural Muscle Responses With Increasing Perturbations to the Upper Back (#448). North American Congress on Biomechanics, Ann Arbor Michigan, August 5-9.
49. Baird, J. & Van Emmerik, R.E.A. (2008). Postural Control During a Standing Turning Task in Young and Older Adults (#524). North American Congress on Biomechanics, Ann Arbor Michigan, August 5-9.
50. Haddad, J.M., Snapp-Childs, W., Van Emmerik, R.E.A., & Davidson, M. Can Thinking be Hazardous to Your Balance? The Effects of Cognition on Postural Stability in Older Adults (#389). 2008 North American Congress on Biomechanics, Ann Arbor Michigan, August 5-9.
51. Miller, R.H., Caldwell, G.E., Van Emmerik, R.E.A., Hamill, J. & Umberger, B.R. (2008). Does Restraining Arm Motion Alter Ground Reaction Forces During Running? (#256). North American Congress on Biomechanics, Ann Arbor Michigan, August 5-9.
52. Seay, J., Van Emmerik, R.E.A., & Hamill, J. (2008). Trunk Bend and Twist Coordination in Runners With Low Back Pain (#274). North American Congress on Biomechanics, Ann Arbor Michigan, August 5-9.
53. Russell, E., Gorton, G., Masso, P., Van Emmerik, R.E.A., & Hamill, J. (2008). Coordination Pattern in Children With Spastic Diplegia: Pre-Operative and 1 and 5-Years Post-Operative (#399). North American Congress on Biomechanics, Ann Arbor Michigan, August 5-9.
54. Gariépy, C., Hasson, C.J., Van Emmerik, R.E.A., & Caldwell, G.E. (2008). Age-related Decrease in Degrees of Freedom in Postural Control During Quiet Stance. The European Society of Biomechanics 16th Congress, Lucerne, Switzerland, July 6-9.
55. Hasson, C.J., Van Emmerik, R.E.A., & Caldwell, G.E. (2008). Age related adaptability of postural control as assessed by recurrence quantification analysis. *North American Society for the Psychology of Sport and Physical Activity Annual Conference*, Niagara Falls, Ontario, June 5-7. *Journal of Sport & Exercise Psychology*, 30, supplement, S87.
56. Hasson, C.J., Caldwell, G.E., Van Emmerik, R.E.A. (2008). Using time-to-contact to predict stepping behavior after postural perturbations in older adults. *North American Society for the Psychology of Sport and Physical Activity Annual Conference*, Niagara Falls, Ontario, June 5-7. *Journal of Sport & Exercise Psychology*, 30, supplement, S88.
57. Hamill, J., & Van Emmerik, R.E.A. (2007). Functional Variability and Lower Extremity Injury. 10th Annual International Conference on Foot Biomechanics and Orthotic Therapy. San Diego, CA, November 16.

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58. Chang, R., Van Emmerik, R.E.A., Hamill, J. (2007). Coordination of the Rear foot and Forefoot During Walking. 10th Annual International Conference on Foot Biomechanics and Orthotic Therapy. San Diego, CA, November 18.
59. Wilson, C., Simpson, S., Van Emmerik, R.E.A., & Hamill, J. (2007). Changes in coordination variability with skill development in expert performers. Proceedings of the XXV International Symposium on Biomechanics in Sports pp. 269-272, Ouro Preto, Brazil.
60. Hasson, C.J., Gariépy, C., Caldwell, G.E., Van Emmerik R.E.A., and McDermott, W.J. (2007). Critical time-to-contact after postural perturbations. *The American Society of Biomechanics 31st Meeting*, Stanford, California, August 22-25.
61. Baird, J.L., & Van Emmerik, R.E.A. (2007). Segment contributions to a standing turn in young and old adults under different task constraints. WO-2, p42, International Society of Posture and Gait Research (ISPGR), Burlington, Vermont, July 14-18.
62. Johnson, M.B., Cacciatore, T., Van Emmerik, R.E.A. (2007). Inter-segmental motion of the torso during the transition from sitting to standing. WP-28, p167, International Society of Posture and Gait Research (ISPGR), Burlington, Vermont, July 14-18.
63. Remelius, J.G, Chung, L., Johnson, M.B., Smith, B., Baquis, G., & Van Emmerik, R.E.A. (2007). Postural control in multiple sclerosis during reach and lean perturbations. TP-58, p144, International Society of Posture and Gait Research (ISPGR), Burlington, Vermont, July 14-18.
64. Peters, B.T., Brady, R., Van Emmerik, R.E.A., & Bloomberg, J.J. (2007). Visual Acuity during Treadmill Walking. Paper presented at the VXIIIth meeting of the International Society of Postural and Gait Research, Burlington, Vermont, July 14-18.
65. Haddad, J.M., Van Emmerik, R.E.A., Wheat, J., & Hamill, J. (2007). Developmental Changes in the dynamical Structure of Postural Sway during a Precision Fitting Task. XXIth Congress of International Society of Biomechanics, Taipei, Taiwan. July 1. *Journal of Biomechanics*, 40, S247, Elsevier.
66. Chang, R., Van Emmerik, R.E.A., & Hamill, J. (2007). Coordination of the rearfoot and forefoot during walking. XXIth Congress of International Society of Biomechanics, Taipei, Taiwan. July 1. *Journal of Biomechanics*, 40, S179, Elsevier.
67. Seay, J., Van Emmerik, R.E.A., & Hamill, J. (2007). Axial rotation and coordination of the pelvis and trunk in runners with and without low back pain. XXIth Congress of International Society of Biomechanics, Taipei, Taiwan. July 1. *Journal of Biomechanics*, 40, S378, Elsevier.
68. TenBroek, T.M., Van Emmerik, R.E.A., Hasson, C.J., & Hamill, J. (2007). Lyapunov exponent estimation for human gait acceleration signals. XXIth Congress of International Society of Biomechanics, Taipei, Taiwan. July 1. *Journal of Biomechanics*, 40, S210, Elsevier.
69. McDermott W.J., Van Emmerik, R.E.A., Hamill, J. (2007). The Integration of Respiration and Postural Control During Locomotion. In proceedings of the 12th Annual Gait and Clinical Movement Analysis Society (GCMAS) meeting, April 11-14, Springfield, Massachusetts.

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70. Remelius, J., McDermott, W.J., Hamill, J., & Van Emmerik, R.E.A. (2007). The Influence of an External Constraint on Breathing Frequency During Walking. In proceedings of the 12th Annual Gait and Clinical Movement Analysis Society (GCMAS) meeting, April 11-14, Springfield, Massachusetts.
71. Van Emmerik, R.E.A., McDermott, W.J., Remelius, J.G., & Hamill, J. (2007). Movement variability of the upper body and metabolic cost during walking at different stride frequencies. North American Society for the Psychology of Sport and Physical Activity Conference, San Diego California. *Journal of Sport and Exercise Psychology*, 29, S138.
72. Haddad, J. M., Hasson, C.J., Gagnon, J., Van Emmerik, R.E.A., & Hamill, J. (2007). The use of time-to-contact measures in assessing postural stability. World Congress of Biomechanics, Munich, Germany. *Journal of Biomechanics* (p. 557).
73. C.J. Hasson, G.E. Caldwell, R.E.A. Van Emmerik, and C. Gariépy (2007). Postural Corrections in Response to Increasing Upper-Body Perturbations. *Motor Control*, 11 (supplement), S165.
74. C.J. Hasson, R.E.A. Van Emmerik, G.E. Caldwell, W.J. McDermott, and J. Hamill (2007). Recurrence Quantification Analysis of Upright Stance with Postural and Respiratory Challenges. *Motor Control*, 11 (supplement), S155.
75. Hasson C.J., Van Emmerik R.E.A., and Caldwell G.E. (2006). Changes in mono- and bi-articular muscle activity patterns after learning to direct pedal forces. The American Society of Biomechanics 30th Meeting, Blacksburg, Virginia, September 6-9.
76. Hasson C.J., Van Emmerik R.E.A., and Caldwell G.E. (2006). Changes in pedal and joint kinetics after learning to direct pedal forces. The American Society of Biomechanics 30th Meeting, Blacksburg, Virginia, September 6-9.
77. Hamill, J., Haddad, J.M., & Van Emmerik, R.E.A. (2006). Overuse injuries in running: Do complex analyses help our understanding? In: Proceedings of the XXIVth International Symposium on Biomechanics in Sports Congress, University of Salzburg, Austria (pp. 27-32).
78. McDermott, W.M., Remelius, J.G., Van Emmerik, R.E.A., & Hamill, J. (2006). Locomotor-respiratory coordination dynamics and metabolic cost during walking at different stride frequencies. World Congress of Biomechanics, Munich, Germany. *Journal of Biomechanics*, 39, S106.
79. Remelius, J., Van Emmerik, R.E.A., & Hamill, J. (2006). Coordination and gait initiation in multiple sclerosis. World Congress of Biomechanics, Munich, Germany. *Journal of Biomechanics*, 39, S91.
80. McDermott, W.J., Remelius, J.G., Van Emmerik, R.E.A., & Hamill, J. (2006). Stride frequency and locomotor-respiratory coordination dynamics during walking. North American Society for the Psychology of Sport and Physical Activity Conference, Denver, Colorado. *Journal of Sport and Exercise Psychology*, 28, S130.
81. Haddad, J. M., Hasson, C.J., Gagnon, J., Van Emmerik, R.E.A., & Hamill, J. (2006). The use of time-to-contact measures in assessing postural stability. World Congress of Biomechanics, Munich, Germany. *Journal of Biomechanics* (p. 557).

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82. Hasson C.J., Van Emmerik R.E.A., and Caldwell G.E. (2006). Changes in force directing ability after training to direct pedal forces. In: Proceedings of the 14th Biennial Conference for the Canadian Society for Biomechanics. University of Waterloo, Ontario, August 16-19 (p. 83).
83. Remelius, J.G., Van Emmerik R.E.A. & Hamill, J. (2006). Patterns of gait initiation in multiple sclerosis. In: Proceedings of the 14th Biennial Conference for the Canadian Society for Biomechanics. University of Waterloo, Ontario, August 16-19 (p. 14).
84. Baird, J.L., & Van Emmerik R.E.A. (2006). Performance of a standing turning task in young and older individuals. In: Proceedings of the 14th Biennial Conference for the Canadian Society for Biomechanics. University of Waterloo, Ontario, August 16-19 (p. 7).
85. Hamill, J., Haddad, J.M., Van Emmerik, R.E.A. (2006). Coordination and Human Movement. Mid-West Graduate Student Conference on Biomechanics, Milwaukee, WI, March.
86. Johnson, M., Remelius, J. & Van Emmerik, R.E.A. (2005). Postural Asymmetries and Center of Pressure Variability during Standing. Paper presented at the 5th Meeting on Progress in Motor Control, The Pennsylvania State University, August 17-20.
87. Baird, J.L., & Van Emmerik, R.E.A. (2005). ROM and COP During a Standing Turning Task in Young and Old Adults. Paper presented at the 5th Meeting on Progress in Motor Control, The Pennsylvania State University, August 17-20.
88. McDermott, W.M., Van Emmerik, R.E.A., & Hamill, J. (2005). Stride Frequency Influences on Coordination Dynamics and Energetics of the Locomotor-Respiratory System. Paper presented at the 5th Meeting on Progress in Motor Control, The Pennsylvania State University, August 17-20.
89. McDermott, W.M., Van Emmerik, R.E.A., & Hamill, J. (2005). Mechanical Constraints do not Change the Strength of Locomotor-Respiratory Coordination during Running. Paper presented at the 20th Congress of the International Society of Biomechanics and the 29th Annual Meeting of the American Society of Biomechanics, Cleveland, Ohio, July 31-August 5.
90. Hasson, C.J, Gagnon, J.L., Van Emmerik, R.E.A., & Caldwell, G.E. (2005). A Musculo-Skeletal Model of Postural Control at the Ankle. Paper presented at the 20th Congress of the International Society of Biomechanics and the 29th Annual Meeting of the American Society of Biomechanics, Cleveland, Ohio, July 31-August 5.
91. Remelius, J.G., Chung, L.H., Johnson, M.B., Smith, B., Baquis, G., Kent-Braun, J.A., & Van Emmerik, R.E.A. (2005). Postural Control in Women with Multiple Sclerosis. Paper presented at the 52nd Annual Meeting of the American College of Sports Medicine, Nashville, Tennessee, June 1-4.
92. Remelius, J.G., Chung, L.H., Johnson, M.B., Smith, B., Baquis, G., Kent-Braun, J.A., & Van Emmerik, R.E.A. (2005). Postural Control in Women with Multiple Sclerosis. Poster presented at the Annual School of Public Health and Health Sciences Research Day, March 31.

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93. Seay, J., Haddad, J.M., Van Emmerik, R.E.A., & Hamill, J. (2005). Coordination Variability in the Gait Transition Region: Effects of Speed Intervals. Poster presented at the Annual School of Public Health and Health Sciences Research Day, March 31.
94. MacLean, C.L., Van Emmerik, R.E.A., & Hamill, J. (2004). Influence of a custom foot orthotic intervention on intra-limb coordination variability during running. In: Proceedings of the 13th Biennial Conference of the Canadian Society for Biomechanics, Halifax, Nova Scotia.
95. Seay, J., Haddad, J.M., Van Emmerik, R.E.A., & Hamill, J. (2004). Coordination variability in the gait transition region: Effects of varying speed intervals. In: Proceedings of the 13th Biennial Conference of the Canadian Society for Biomechanics, Halifax, Nova Scotia.
96. Haddad, J.M., Seay, J., Van Emmerik, R.E.A., & Hamill, J. (2004). Symmetry in between limb coordination during gait transitions. In: Proceedings of the 13th Biennial Conference of the Canadian Society for Biomechanics, Halifax, Nova Scotia.
97. Hasson, C.J., Merrell, R.E., Van Emmerik, R.E.A., & Caldwell, G.E. (2004). Changes in mono- and biarticular muscle activation patterns while learning to direct pedal forces. In: Proceedings of the 13th Biennial Conference of the Canadian Society for Biomechanics, Halifax, Nova Scotia.
98. Johnson, M., Remelius, J.G., Van Emmerik, R.E.A., & Hamill, J. (2004). Postural asymmetries during quiet and unconstrained standing. In: Proceedings of the 13th Biennial Conference of the Canadian Society for Biomechanics, Halifax, Nova Scotia.
99. Haddad, J.M., Peters, B.T., Van Emmerik, R.E.A., & Hamill, J. (2003). Continuous Relative Phase as a measure of Coordination: Application issues. In Proceedings of the Meeting of the International Society of Biomechanics, New Zealand, July.
100. Van Emmerik, R.E.A., McDermott, W.J., & Haddad, J.M. (2003). Life Span Changes in Locomotion Variability and Dynamic Stability. In: Proceedings of the Fourth International Conference on Progress in Motor Control, Caen, France, August.
101. McDermott, W.J., & Van Emmerik, R.E.A. (2003). Characterizing Coordination Patterns of the Locomotory-Respiratory System. In: Proceedings of the Fourth International Conference on Progress in Motor Control, Caen, France, August.
102. Haddad, J.M., Van Emmerik, R.E.A., & Hamill, J. (2002). The adaptability of interlimb coordination in human walking. *Paper presented at Korean National University for Physical Education (KNUPE), Seoul, South Korea, October.*
103. Van Emmerik, R.E.A. (2002). Age-related changes in upper-body coordination in human locomotion. *Whitaker Biomedical Engineering Research Conference, (p. 64).* La Jolla, California, August 8-11.
104. Baird, J.L., McDermott, W.J., Van Wegen, E.E.H., & Van Emmerik, R.E.A. (2002). Age-related changes in upper-body range of motion during locomotion. Published in: Proceedings of the Combined Sections meeting of the American Physical Therapy meeting, Boston, February.

105. Baird, J.L., McDermott, W.J., Van Wegen, E.E.H., & Van Emmerik, R.E.A. (2002). Age-related changes in trunk and pelvis coordination during locomotion. Published in: Proceedings of the Seventh Annual Meeting of the Gait and Clinical Movement Analysis Society, Tennessee, p. 114.
106. Van Emmerik, R.E.A., McDermott, W.M., Haddad, J. Van Wegen, E.E.H., & Baird, J. (2002). Age-Related changes in Upper Body Adaptation to Walking Speed during Locomotion. *Journal of Sport & Exercise Psychology*, 24, S128.
107. Haddad, J.M., Peters, B.T., Heidersheit, B., Van Emmerik, R.E.A., & Hamill, J. (2002). Issues in the Interpretation of Continuous Relative Phase. World Congress of Biomechanics, Calgary, August.
108. Van Wegen, E.E.H., Van Emmerik, R.E.A., & Riccio, G.E. (2001). Active postural sway and the detection of stability boundaries. Paper presented at the 11th International conference on Perception and Action, University of Connecticut, Storrs, June 24-29.
109. Haddad, J.M., Van Emmerik, R.E.A., Van Wegen, E.E.H. & Hamill, J. (2001). Adaptability of interlimb coordination in human walking. Paper presented at the 11th International conference on Perception and Action, University of Connecticut, Storrs, June 24-29.
110. Peters, B.T., Van Emmerik, R.E.A., & Riccio, G.E. (2001). Evidence of phasic modulation on eye control during walking. Paper presented at the 11th International conference on Perception and Action, University of Connecticut, Storrs, June 24-29.
111. Haddad, J.M., Van Emmerik, R.E.A., & Van Wegen, E.E.H. & (2001). Interlimb asymmetries and postural orientation during locomotion. Paper presented at the Conference on Progress in Motor control III, Montreal, Canada, August 15-18.
112. Van Wegen, E.E.H., & Van Emmerik, R.E.A. (2001). Age effects on the stability of perception-action coupling during active postural sway. Paper presented at the Conference on Progress in Motor control III, Montreal, Canada, August 15-18.
113. McDermott, W.J., Chu, J.J., Hamill, J., Caldwell, G.E., & Van Emmerik, R.E.A. (2001). The influence of step-related mechanical constraints on the coordination between locomotory and breathing rhythms. Paper presented at the Conference for the International Society of Biomechanics, Zurich, Switzerland, July.
114. Peters, B.T., Van Emmerik, R.E.A., & Bloomberg, J.J. (2000). The effects of gait cycle events on head movements made to acquire visual targets in the horizontal periphery. Paper presented at the Society for Neuroscience Annual meeting, November 4-9. Abstract in: Soc. Neuroscience abstracts 26(1): 495.
115. Haddad, J.M., Van Emmerik, R.E.A., Hamill, J., & Whittlesey, S. (2000). Variability in interlimb and intralimb coordination during locomotion with increasing asymmetries. *Journal of Sport and Exercise Psychology*, 22, s47.
116. Li, L., & Van Emmerik, R.E.A. (2000). Variability landscape at the gait transition speeds. *Journal of Sport and Exercise Psychology*, 22, s70.
117. Haddad, J.M, Van Emmerik, R.E.A., Hamill, J. & Whittlesey, S.N. (2000). Coordination changes under lower leg asymmetries: Effects of leg load position. Paper presented at *the Canadian Society of Biomechanics*. August.

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118. Van Wegen, E.E.H., Van Emmerik, R.E.A., & Riccio, G.E. (2000). Age related changes in variability and time-to-contact. In: *Proceedings of the XIth Congress of the Canadian Society of Biomechanics*, Montreal, August.
119. Rumford, R., Patten, C., Van Emmerik, R.E.A., McGill, K. & Kamen, G. (2000). Motor Unit Discharge Variability in Hemiparetic versus Control Subjects. Poster presented at the National Conference for Undergraduate Students, Boston, Massachusetts, April.
120. Van Wegen, E.E.H., & Van Emmerik, R.E.A. (1999). Postural instability in older individuals. Poster presented at *the Second Annual Graduate Student Poster Session Day, School of Public Health and Health Sciences*, University of Massachusetts, Amherst, April.
121. Van Wegen, E.E.H., McDermott, W.M., & Van Emmerik, R.E.A. (1999). Analysis of higher frequency components in center of pressure shear forces reveals age related differences in postural control. Paper presented at *AAHPERD*, Boston, Massachusetts, April.
122. Van Wegen, E.E.H., McDermott, W.M., & Van Emmerik, R.E.A. (1999). Age differences in high frequency variability during quiet stance. In *Proceedings of the Tenth International Conference on Perception and Action*, Edinburgh, Scotland, August.
123. Van Wegen, E.E.H., van Emmerik, R.E.A., Li, L. , & Haddad, J.M. (1999). Interlimb and intralimb coordination in the gait transition region for walking and running. *Gait & Posture*, 7 (2), 171-172 (abstract).
124. Whittlesey, S. Van Wegen, E.E.H., Peters, B. Van Emmerik, R.E.A., Riccio, G.E., & McDonald, P.V. (1999). Postural control while manipulating objects. Paper presented at the *Second Annual Poster Session Day, School of Public Health and Health Sciences*, University of Massachusetts, Amherst, April.
125. Gustafson, K.M., Van Wegen, E.E.H., & Van Emmerik, R.E.A. (1999). Postural stability: one step closer to understanding falls in the elderly. Paper presented at the *National Conference for Undergraduate Students*, Boston, Massachusetts, April.
126. Haddad, J.M., Van Emmerik, R.E.A., Hamill, J. & Whittlesey, S. (1999). *Stability in human walking: Effects of load placement and magnitude*. Paper presented at *The Second Annual Poster Session Day, School of Public Health and Health Sciences*, University of Massachusetts, Amherst, April.
127. Haddad, J.M., Heiderscheit, B.C., Peters, B.T., Van Emmerik, R.E.A., & Hamill, J. (1999). Normalization methods to calculate relative phase. Paper presented at *the 17th International Society of Biomechanics*, Calgary, Canada, August, p. 761.
128. Peters, B.T., Van Emmerik, R.E.A., & Hamill, J. (1999). Dual force plate posturography and foot pressure profiles identify unilateral control contributions and anatomical stability boundaries. Paper presented at *The Second Meeting on Bernstein's Traditions in Motor Control*. Penn State University, August.
129. McDermott, W.M., Van Emmerik, R.E.A, & Hamill, J. (1999). Coordination between locomotion and breathing rhythms. In *Proceedings of the Tenth International Conference on Perception and Action*, Edinburgh, Scotland, August.

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130. McDermott, W.M., O'Connor, K.M., Van Emmerik, R.E.A, & Hamill, J. (1999). Locomotor-respiratory coupling at different stride frequencies". Paper presented at the 17th International Society of Biomechanics, Calgary, Canada, August, p. 760.
131. Van Emmerik, R.E.A., Wade, M.G., Hopkins, B., & Davis, W.E. (1998). Effects of visual field perturbations on whole body sway in Down syndrome. *Down Syndrome Quarterly*, 3,19.
132. Heiderscheit, B.C., Hamill, J. & Van Emmerik, R.E.A. (1998). The importance of intersegmental coordination variability during running. *Proceedings of the Third North American Congress on Biomechanics*, University of Waterloo, Waterloo, Canada, August, pp. 319-320.
133. Whittlesey, S., Ward, T., Van Emmerik, R.E.A., & Hamill, J. (1998). Roles of leg inertial properties in human walking. *Proceedings of the Third North American Congress on Biomechanics*, University of Waterloo, Waterloo, Canada, August, pp. 87-88.
134. Van Wegen, E.E.H., Van Emmerik, R.E.A., Li, L., & Haddad, J.M. (1998). Arm coordination dynamics in the gait transition region. *Medicine and Science in Sports and Exercise*, 30(5).
135. Li, L., Van Emmerik, R.E.A., Van Wegen, E.E.H, Haddad, J.M., & Caldwell, G.E. (1998). Comparison of lower extremity coordination in the gait transition region, In: proceedings of the 1998 annual meeting of ACSM (June, 3-June 6, 1998, Orlando, Florida, USA), *Medicine and Science in Sport and Exercise* (May, 1998 supplement), p. s336.
136. Li, L., R.E.A. van Emmerik, Van Wegen, E.E.H., J. Haddad, J.M., & Caldwell, G.E. (1998). Variability assessment in walking and running within the gait transition region, In proceedings of the 3rd Annual Gait and Clinical Movement Analysis (April, 15-18, 1998, San Diego, California, USA), *Gait and Posture* 7, p. 172.
137. Van Wegen, E.E.H., Van Emmerik, R.E.A., Li, L., & Haddad, J.M. (1998). Inter-limb and Intra-limb Coordination in the Gait Transition Region for Walking and Running, In proceedings of the 3rd Annual Gait and Clinical Movement Analysis (April, 15-18, 1998, San Diego, California, USA), *Gait and Posture* 7, p.171.
138. Heiderscheit, B.C., Hamill, J., & Van Emmerik, R.E.A. (1998). Coordination differences between lower extremity segments of individuals with and without patellofemoral pain. *American College of Sports Medicine*, Orlando, FL, June.
139. Heiderscheit, B.C., Hamill, J., & Van Emmerik, R.E.A. (1998). Influence of Q-angle on lower extremity segment interactions during running. *North American Society of Gait and Clinical Movement Analysis*, San Diego, CA, April.
140. Van Emmerik, R.E.A., Van Wegen, E.E.H., & Wagenaar, R.C. (1997). Interlimb frequency coupling patterns during locomotion. Paper presented in *symposium on dynamics of movement disorders at the 1997 International Conference on Perception and Action (ICPA)*, Toronto, Canada, July 20-25.
141. Wagenaar, R.C., & Van Emmerik, R.E.A. (1997). The role of discovery learning and behavioral information in relearning dynamics. Paper presented in *symposium on*

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- dynamics of movement disorders at the 1997 International Conference on Perception and Action (ICPA), Toronto, Canada, July 20-25.*
142. Van Emmerik, R.E.A., & Wagenaar, R.C. (1997). A dynamical systems perspective on rigidity and tremor in Parkinson's disease. Paper presented in *symposium on dynamics of movement disorders at the 1997 International Conference on Perception and Action (ICPA), Toronto, Canada, July 20-25.*
 143. Van Wegen, E.E.H., & Van Emmerik, R.E.A. (1997). Exploring age-related postural variability dynamics during quiet stance. Paper presented at the *1997 spring meeting of the International Society for Ecological Psychology (ISEP), Amherst, MA, March 29.*
 144. Van Emmerik, R.E.A., & Wagenaar, R.C. (1996). A dynamical systems analysis of axial rigidity and tremor in Parkinson's disease. Paper presented at the *1996 meeting of the American College of Sports Medicine, New England Chapter, Boxborough, Massachusetts, November 7.*
 145. Van Emmerik, R.E.A., & Wagenaar, R.C. (1996). Movement Coordination and the degrees of freedom problem in Parkinson's disease. *Paper presented at the International conference on Bernstein's Traditions in motor control, Penn State University, August 23-25.*
 146. Davis, W.E., Savelsbergh, G., Van Emmerik, R.E.A., & Sing, M. (1996). Affect in movement performance in children. *Journal of Sport and Exercise Psychology, 18* supplement, S25, abstracts from the *1996 conference of the North American Society for the Psychology of Sport and Physical Activity, June 6-9, Ontario, Canada.*
 147. Van Emmerik, R.E.A., & Wagenaar, R.C. (1996). Dynamics of movement coordination and tremor during gait in Parkinson's disease. *Paper presented at the 1996 North American meeting of the International Society for Ecological Psychology, Trinity College, Hartford, CT.*
 148. De Goede, C., Van Emmerik, R.E.A., & Wagenaar, R.C. (1994). Effects of group-physical therapy on the coordination of gait in Parkinson's disease. *Abstract Dutch 1994 Physical Therapy meeting, The Hague, The Netherlands. pp. 47-48.*
 149. Van 't Hull, A.J., Chadwick-Straver, R., Wagenaar, R.C., & Van Emmerik, R.E.A. (1994). Effects of diaphragmatic breathing in patient with chronic obstructive lung disease: Coordination and efficiency of breathing movements. *Paper presented at the Dutch 1994 Physical Therapy meeting, The Hague, The Netherlands.*
 150. Kwakkel, G., Wagenaar, R.C., & Van Emmerik, R.E.A. (1994). Pathological coordination patterns during gait in stroke patients. *Paper presented at the Dutch 1994 Physical Therapy meeting, The Hague, The Netherlands.*
 151. Van 't Hoof, H.J.A., Koelman, T., Wagenaar, R.C., & Van Emmerik, R.E.A. (1994). Coordination of the lower extremities during gait: reliability and validity of treadmill walking. *Paper presented at the Dutch 1994 Physical Therapy meeting, The Hague, The Netherlands.*

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152. Van Emmerik, R.E.A., & Wagenaar, R.C. (1994). Dynamics of healthy and pathological gait. *Paper presented at the Dutch 1994 Physical Therapy meeting*, The Hague, The Netherlands.
153. Van Emmerik, R.E.A., & Wagenaar, R.C. (1994). Relative phase dynamics in healthy and pathological gait. *Paper presented at the XIIIth International Symposium on Posture and Gait: Vestibular and Neural front*, Matsumoto, Japan, 3-7 October.
154. Wagenaar, R.C., & Van Emmerik, R.E.A. (1994). Pendular equilibrium states in human walking. *Paper presented at the 2nd World Congress of Biomechanics*, Amsterdam, The Netherlands, 10-15 July.
155. Van Emmerik, R.E.A., & Wagenaar, R.C. (1994). Relative phase dynamics in human walking. *Paper presented at the 2nd World Congress of Biomechanics*, Amsterdam, The Netherlands, 10-15 July.
156. Van Emmerik, R.E.A., & Wagenaar, R.C., & Wolters, E.Ch. (1994). Dynamics of movement coordination in Parkinson's disease. *Paper presented at the 3rd International Congress of Behavioral Medicine*, Amsterdam, The Netherlands, 6-9 July.
157. Van Emmerik, R.E.A. (1993). Een dynamische analyse van coordinatieveranderingen in het gaan van Parkinson-patienten. *Paper presented at the Annual Congress of the Dutch Physical Therapy Foundation*, The Hague, The Netherlands, 12-13 November.
158. Van Emmerik, R.E.A., & Wagenaar, R.C., & Wolters, E.Ch. (1993). The dynamics of movement coordination in Parkinson's disease. *Paper presented at the European Congress on Mental Dysfunction in Parkinson's disease*, Amsterdam, Vrije Universiteit, Oktober 20-23.
159. Wagenaar, R.C., & Van Emmerik, R.E.A. (1993). On the frequency and phase relations between upper and lower extremities in bipedal locomotion: From (s)walking to walking. *Paper presented at the Seventh International Conference on Event Perception and Action*, Vancouver, British Columbia, Canada, August 8-14.
160. Van Emmerik, R.E.A., Wagenaar, R.C., Housheer, A, & Melchers, J.M. (1993). On the nature of coordination changes in human bipedal locomotion: From (s)walking to walking. *Paper presented at the Seventh International Conference on Event Perception and Action*, Vancouver, British Columbia, Canada, August 8-14.
161. Wagenaar, R.C., & Van Emmerik, R.E.A. (1993). Dynamic models of human walking in health and disease. *Paper presented at movement disorders symposium, Seventh International Conference on Event Perception and Action*, Vancouver, British Columbia, Canada, August 8-14.
162. Van Emmerik, R.E.A., Newell, K.M., & Sprague, R.L. (1993). The structure of postural dynamics in tardive dyskinesia. *Paper presented at movement disorders symposium, Seventh International Conference on Event Perception and Action*, Vancouver, British Columbia, Canada, August 8-14.
163. Sprague, R.L., Newell, K.M., Korach, M.S., & Van Emmerik, R.E.A. (1992). Development of abnormal movements in mentally handicapped people. *Paper presented at 1992 IASSMD meeting*, Australia, August.

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164. Sprague, R.L., Newell, K.M., Korach, M.S., & Van Emmerik, R.E.A. (1992). Correlation of rating scales and physical movements in tardive dyskinesia. *Paper presented at 1992 meeting of the American Psychological Society, San Diego, California, June.*
165. Wagenaar, R.C., & Van Emmerik, R.E.A., & Beek, W.J. (1992). The dynamics of human gait: Townsend revisited. *Paper presented at the XIth international symposium on posture and gait: Control mechanisms, Portland, May 23-27, 1992.*
166. Van Emmerik, R.E.A., Newell, K.M., & Sprague, R.L. (1992). On postural stability and variability. *Paper presented at the XIth international symposium on posture and gait: Control mechanisms, Portland, May 23-27.*
167. Emmerik, R. E. A. van, Sprague, R. L., & Newell, K. M. (1992). Assessment of postural dynamics in tar-dive dyskinesia and developmental disability: Sway profile orientation and stereotypy. *Paper presented at the XIth international symposium on posture and gait: Control mechanisms, Portland, May 23-27, 1992.*
168. Van Emmerik, R.E.A., & Wagenaar, R.C. (1992). Qualitative changes in the walking mode of healthy and neurologically impaired individuals. *Paper presented at the XIth International symposium on posture and gait: Control mechanisms, Portland, May 23-27.*
169. Sprague, R.L., Van Emmerik, R.E.A., & Newell, K.M. (1992). Dual and opposing effects of neuroleptic medication on arm tremor in the developmentally disabled. *Paper presented at the 25th Annual Conference on Research and Theory in Mental Retardation and Developmental Disabilities, Gatlinburg, Tennessee, March.*
170. Newell, K.M., Ko, Y., Van Emmerik, R.E.A., & Sprague, R.L. (1992). The effects of neuroleptic medication on postural stability in the developmentally disabled. *Paper presented at the 25th Annual Conference on Research and Theory in Mental Retardation and Developmental Disabilities, Gatlinburg, Tennessee, March.*
171. Wagenaar, R.C., Van Emmerik, R.E.A., & Beek, W.J. (1991). A dynamical analysis of Pathological Gait. *Paper presented at the Sixth International Conference on Event Perception and Action, Amsterdam, The Netherlands, August 25-30, 1991.*
172. Van Emmerik, R.E.A., & Wagenaar, R.C. (1991). The coordination of human walking: qualitative changes in healthy and neurologically disabled individuals. *Paper presented at the Sixth International Conference on Event Perception and Action, Amsterdam, The Netherlands, August 25-30.*
173. Vereijken, B., Van Emmerik, R.E.A., & Beek, W.J. (1991). Learning a complex rhythmical movement: Changing perceptual-motor workspaces. *Paper presented at the Sixth International Conference on Event Perception and Action, Amsterdam, The Netherlands, August 25-30.*
174. Van Emmerik, R.E.A. (1991). Multijoint stiffness and coupling dynamics in the acquisition of coordination. *Paper presented at the meeting of the North American Society for the Psychology of Sport and Physical Activity, Asilomar, California, USA, June 13-16.*
175. Newell, K.M, Sprague, R.L., & Van Emmerik, R.E.A. (1991). Balance and accelerometer dynamic measures as indices of tardive dyskinesia. *Paper presented at the meeting of*

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- the New Clinical Drug Evaluation Unit of the National Institutes of Mental Health, Key Biscayne, Florida, USA, May 28-31.*
176. Van Emmerik, R.E.A., Sprague, R.L., & Newell, K.M. (1989). Kinematic analysis of stereotypic facial movements in tardive dyskinesia. *Paper presented at the Annual Meeting of the Society for Neuroscience, Phoenix, Arizona.*
 177. McDonald, P.V. & Van Emmerik, R.E.A. (1989). *Exploiting degrees of freedom in a bi-articular phase-transition. Paper presented at the Annual Meeting for the Society of Neuroscience, Phoenix, Arizona.*
 178. Van Emmerik, R.E.A. & McDonald, P.V. (1989). Phase-transitions in Multiple Degrees of Freedom Limb Movements. *Paper to be presented at the fifth International Conference on Event Perception and Action, Miami University, Miami, Ohio, July.*
 179. McDonald, P.V., Van Emmerik, R.E.A., & Newell, K.M. (1989). The Effects of Practice on Limb Kinematics in a Throwing Task. *Paper presented at the Conference of the North American Society for the Psychology of Sport and Physical Activity, Kent State University, Kent, Ohio, June.*
 180. Van Emmerik, R.E.A. (1989). Kinematic Analysis of Stereotypic Facial Movements in Tardive Dyskinesia. *Paper presented at the 113th Annual Meeting of the American Association on Mental Retardation, Chicago, Illinois, May.*
 181. Van Emmerik, R.E.A. (1989). Assessing Natural Abnormal Stereotypic Movements. *Paper presented at a symposium on Tardive Dyskinesia Assessment and Monitoring at the 22nd Annual Conference on Research and Theory in Mental Retardation and Developmental Disabilities, Gatlinburg, Tennessee, April.*
 182. Sprague, R.L., Van Emmerik, R.E.A., & Newell, K.M. (1988). Stereotypic facial movements of tardive dyskinesia patients. *Paper presented at the 1988 annual meeting of the American College of Neuropsychopharmacology, San Juan, Puerto Rico.*
 183. Van Emmerik, R.E.A. & Newell, K.M. (1988). The influence of task and organismic constraints on intralimb kinematics in a drawing task. *Paper presented at the 1988 annual meeting of the Society for Neuroscience, Toronto, Canada, November.*
 184. Kugler, P.N., Newell, K.M., Van Emmerik, R.E.A. & McDonald, P.V. (1988). Perceptually exploring biomechanical workspaces: Identifying search strategies. *Paper presented at the Conference of the North American Society for the Psychology of Sport and Physical Activity, Knoxville, Tennessee, June.*
 185. Van Emmerik, R.E.A. & Newell, K.M. (1987). Phase transitions in intralimb relative motion patterns in a drawing task. *Paper presented at the 3rd meeting of the International Graphonomics Society, Montreal, Canada, July.*
 186. Van Emmerik, R.E.A. & Newell, K.M. (1987). Effects of task constraints on intralimb coordination patterns in a drawing task. *Paper presented at the fourth Mid-Central Ergonomics/Human Factors Conference, Urbana-Champaign, Illinois, July.*
 187. McDonald, P.V., Van Emmerik, R.E.A. & Newell, K.M. (1987). Biokinematic analysis of relative segmental motion in a projectile task. *Paper presented at the Conference of the*

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North American Society for the Psychology of Sport and Physical Activity, Vancouver, Canada, June.

188. Van Emmerik, R.E.A. & Newell, K.M. (1987). Phase transitions in intralimb relative motion patterns in a drawing task. *Paper presented at the Conference of the North American Society for the Psychology of Sport and Physical Activity*, Vancouver, Canada, June.
189. Van Emmerik, R.E.A. & Rutter, B.G. (1987). Phase transitions and dimensional analysis in movement pattern formation: Effects of task constraints and systems' design. *In proceedings of Interface 87*, Rochester, New York, May.
190. Van Emmerik, R.E.A. & Newell, K.M. (1986). Topological characteristics of coordination in the acquisition of handwriting. *Paper presented at the Third Mid-Central Ergonomics/Human Factors Conference*, Miami, Ohio, July.
191. Van Emmerik, R.E.A. & Newell, K.M. (1986). Topological characteristics of coordination: Principles of acquisition. *Paper presented at the conference of the North American Society for the Psychology of Sport and Physical Activity*, Scottsdale, Arizona, June.

TEACHING ACTIVITIES

I. Courses Taught

- Motor Control and Dynamical Systems. Guest Lecturer. National Taiwan Sports University. June 23-28, Taipei, Taiwan.
- Undergraduate *Motor Control*. University of Massachusetts course KIN 450/460. 1995-present.
- Undergraduate course *Neuromechanics of Human Motion*: KIN 297G; Co-taught: 2009.
- Graduate course on *Movement Coordination and Perception*. University of Massachusetts course KIN 565. 1995-present.
- Graduate course on *Nonlinear Biodynamics*, and its applications to human motor performance. University of Massachusetts course KIN 697N. 1995-present.
- Graduate course on *Nonlinear Time Series Analysis: Applications to Human Perceptual-Motor Performance*. University of Massachusetts course KIN 797N. 1999-present.
- Graduate course on *Clinical Movement Evaluation*, KIN 597V, co-taught with Dr. J. Hamill 2008-2009.
- Graduate seminar on *Stability of Posture and Locomotion*. University of Massachusetts course EXCSCI 697S.
- Graduate course on Bernstein's contribution's to motor control University of Massachusetts course EXCSCI 697V/897V.
- Graduate seminar on novel techniques in nonlinear analysis. University of Massachusetts course EXCSCI 897N.
- *Honors Colloquium* Department of Kinesiology.

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- Graduate/undergraduate course on *Rehabilitation Psychology*, with special emphasis on the dynamics of movement disorders (Vrije Universiteit, the Netherlands).
- Graduate Seminar on *Dynamics of Healthy and Pathological Gait*. (Vrije Universiteit, the Netherlands).

II. Post-doctoral and Students Trained

Post-Doctoral Fellows:

1. Stephanie Jones (2008-2015)
2. Jongil Lim (2012-present)
3. Darnell Simon (2012-2015)

Ph.D. Students Chaired:

1. Erwin van Wegen Department of Kinesiology, Univ. of Massachusetts (2004)
2. Brian Peters Department of Kinesiology, Univ. of Massachusetts (2005)
3. Bill McDermott Department of Kinesiology, Univ. of Massachusetts (2005)
4. Jeffrey Haddad Department of Kinesiology, Univ. of Massachusetts (2006)
5. Molly Johnson Neuroscience and Behavior, Univ. of Massachusetts (2010)
6. Jebb Remelius Department of Kinesiology, Univ. of Massachusetts (2012)
7. Chris Palmer Department of Kinesiology, Univ. of Massachusetts (2012)
8. Jennifer Baird Department of Kinesiology, Univ. of Massachusetts (2012)
9. Mike Busa Department of Kinesiology, Univ. of Massachusetts (2015)
10. Scott Ducharme Department of Kinesiology, Univ. of Massachusetts (present)
11. Luis Rosado Department of Kinesiology, Univ. of Massachusetts (present)
12. Julianna Averill Department of Kinesiology, Univ. of Massachusetts (present)
13. Avelino Amado Department of Kinesiology, Univ. of Massachusetts (present)

Doctoral Students (Committee member):

Li, Li. (1999);Carolynn Patten (1998); Ed Melanson (1999); Bryan Heiderscheit (2000); Mike Rosenstein (2003); Kris O' Connor (2004); Sandy Whittlesey (2004); Christine Pollard (2005); Dave Pober (2007); Chris McLean (2007); Brendan Burns (2007); Joseph Seay (2008); Sheree Loftus (2008); Chris Hasson (2009); Ashvin Shah (2009); Anita Christie (2009); Patrick Deegan (2010); Ryan Chang (2009); Linda Chung (2010); Elizabeth Russell (2010); Kelly-Anne McKeown (2010); Ross Miller (2011); Pedro Rodrigues (2011); Trampas TenBroek (2011); Allison Gruber (2012); Steve Foulis (2013); Jeffer Sasaki (2014); Brittney Muir (Purdue University; 2015); Natalia Rinaldi (University of Sao Paulo, Brazil; 2015);
Present: Holly Stock (University of Bath, UK); Sangsoo Park; Jan Stenum;

Master's Students Chaired:

1. Erwin van Wegen Department of Kinesiology, Univ. of Massachusetts (2000)
2. Brian Peters Department of Kinesiology, Univ. of Massachusetts (2000)

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3. Bill McDermott Department of Kinesiology, Univ. of Massachusetts (2000)
4. Jeffrey Haddad Department of Kinesiology, Univ. of Massachusetts (2000)
5. Molly Johnson Neuroscience and Behavior, Univ. of Massachusetts (2006)
6. Jebb Remelius Department of Kinesiology, Univ. of Massachusetts (2007)
7. Jennifer Baird Department of Kinesiology, Univ. of Massachusetts (2007)
8. Catherine Gariépy Department of Kinesiology, Univ. of Massachusetts (2008)
9. André Boulay Neuroscience and Behavior, Univ. of Massachusetts (2012)
10. Julianna Averill Department of Kinesiology, Univ. of Massachusetts (2013)
11. Karthik Sugumaran Department of Kinesiology, Univ. of Massachusetts (2013)
12. Avelino Amado Neuroscience and Behavior, Univ. of Massachusetts (2012)

Master's students (Committee Member)

Pam Bockol (1999); David Asermely (1997); Bryan Heiderscheit (1998); Geir Oterhals (1998; Norway); Paul Jarle Mork (1998; Norway); Sandy Whittlesey (1999); Chris Baggett (1999); Stephanie Jones (2000); Jeffrey Chu (2000); Rob Kandell (2002); Rachel Merrell (2003); Michelle Countryman (2003); Kelly-Anne McKeown (2004); Fidler, Andrea (2004); Ryan Crews (2004); Mariko Holbrook (2006); Elizabeth Russell (2007); Luis Rosado (2012); Carl Jewell (2013); Devon Kelly (2015); Amy Whitehead (2015);

Present: Ben Hoffmann;

Undergraduate Honors Student Thesis Chair:

1. Liliy Egan Department of Kinesiology, Univ. of Massachusetts (1996)
2. Rick Rumford Department of Kinesiology, Univ. of Massachusetts (2000)
3. Rebecca Bell Department of Kinesiology, Univ. of Massachusetts (2002)
4. Kristen Kneeland Department of Kinesiology, Univ. of Massachusetts (2000)
5. Gary Loomis Department of Kinesiology, Univ. of Massachusetts (2006)
6. Amy Pascale Department of Kinesiology, Univ. of Massachusetts (2009)
7. Stephen McLean Department of Kinesiology, Univ. of Massachusetts (2010)
8. Josh Liddy Department of Kinesiology, Univ. of Massachusetts (2012)
9. Mary Chaput Neuroscience and Behavior, Univ. of Massachusetts (2013)
10. Leo Sheehan Department of Kinesiology, Univ. of Massachusetts (2014)
11. Jack Bernadon Department of Kinesiology, Univ. of Massachusetts (2014)

Undergraduate Honors Thesis member of Committee:

Elizabeth Devine (2002); Catherine Gariépy (2006); Katherine Kilmartin (2007); Joe Collins (2007); Brigid McKenna (2007); Jillian Angelo (2009); Matt Stranberg (2011); Carl Jewell (2011); Andrea Arabadjis (2012); Eric Dibasio-White (2013);

I. Kinesiology Department

- Member departmental Personnel Committee (1995-present)
- Kinesiology Departmental Honors Program Director (1997-present)
- Member Department of Kinesiology Search Committees (1998; 2004; 2007; 2012-2013; 2015)
- Chair Department of Kinesiology Search Committee (2008; 2014)
- Coordinator Exercise Science/Kinesiology Graduate Seminar (1999; 2006)
- Departmental Library coordinator (1999-2012)
- Department of Kinesiology Strategic Planning Committee (2005-2012)
- Department of Kinesiology Qualifying Exam Committee (2005-2011)

II. School of Public Health and Health Sciences (SPHHS)

- Chair of School of Public Health and Health Sciences Human Subjects Review Committee (SPH&HS-HSRC) (1996-2008).
- Member School Personnel Committee (2012-present)
- Member School Strategic Planning Committee (2013)

III. University of Massachusetts

- Member and Vice-Chair University of Massachusetts Human Subjects Review Committee (1999-present).

IV. External Doctoral Examiner foreign Universities

- Genevieve Williams, Cardiff School of Sport, Cardiff Metropolitan University, United Kingdom (2012)
- Tal Krasovsky, School of Physical and Occupational Therapy, McGill University, Montreal (Qc), Canada.

V. Service to Disciplinary Associations, Federal Agencies and Foundations

- Standing member National Multiple Sclerosis Society (NMSS) grant review panel (12/1/2013 – 12/31/2016).
- Promotion and Tenure reviews 2005-present
- External Reviewer, National Science Foundation 2006-present.

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- Grant Reviewer, Canadian Institutes of Health Research, 2006-present
- External reviewer, National Engineering and Research Council of Canada (NSERC), 2009-present
- Standing panel member, National Science Foundation, Perception, Action and Cognition; grant reviewer from 2003-2006.
- Grant review NIH Rehabilitation Research and Development Service: Aging and Neurodegenerative Diseases: 2010
- Grant review National Science Foundation, Social and Behavioral Sciences, special panel on modeling dynamics, June 2004
- External reviewer, National Multiple Sclerosis Society, 2008-present.
- Abstract reviews for North American Society for the Psychology of Sport and Physical Activity, American Society of Biomechanics, and Annual Dynamic Systems and Control Conference (1995-present)
- Grant Review, National Aeronautics and Space Agency (NASA) peer review panel Life Sciences Neuroscience Division: In-flight experiments, January 1999, Washington, D.C.
- Grant Review, Israeli Science Foundation, 1996
- Grant Review, Medical Research Council of Canada (1995-1996)
- Member, Five-College Research Consortium Williams Syndrome, Berkshire Hills Music Academy
- Grant Review, Dutch Organization for Scientific Research (1991-1995)

VI. Conferences and Symposia Organized

- International conference on Event Perception and Action, 2008: Scientific Committee.
- “Coordination Dynamics of Posture and Gait: Translational Implications for Rehabilitation Practice”. Symposium organized with R.C. Wagenaar at the Joint meeting of the American Congress of Rehabilitation Medicine (ACRM) and the American Society of Neurorehabilitation (ASNR), Boston, Massachusetts, September 27-October 1, 2006.
- “Clinical Applications of Dynamical Systems Theory.” Symposium organized (with J. Hamill) at the *Gait and Clinical Movement Analysis Society* (GCMAS) meeting, April 11-14, 2007, Springfield, Massachusetts.
- North American Society for the Psychology of Sport and Physical Activity (NASPSPA), Motor control and learning committee organizing the 2001 conference.
- North American Society for the Psychology of Sport and Physical Activity (NASPSPA), Motor control and learning committee organizing the 1999 conference.
- 1997 Spring meeting of the North American section of the International Society for Ecological Psychology, Amherst, May 29 1997.
- American College of Sports Medicine, New England Chapter, 1997 meeting at Boxborough, Massachusetts, symposium: “Dynamical approaches to movement coordination and control in human posture and locomotion”, November 7, 1997.

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- International conference on Event Perception and Action, 1997, Toronto Canada. Symposium: “Dynamics of movement disorders”, July 22, 1997.

VII. Editorial Board and Journal Review

Editorial Board:

- Human Movement Science
- Motor Control
- Kinesiology Review

Ad hoc Reviewer:

Adapted Physical Activity Quarterly; Archives of Physical Medicine and Rehabilitation; Clinical Biomechanics; Ecological Psychology; European Journal of Applied Physiology; Exercise and Sport Sciences Reviews; Experimental Brain Research; Human Movement Science; Journal of Applied Biomechanics; Journal of Applied Physiology; Journal of Physiology; Journal of Biomechanics; Journal of Experimental Psychology: Human Perception and Performance; Journal of Gerontology; Journal of Motor Behavior; Journal of rehabilitation Medicine; Medicine and Science in Sport and Exercise; Motor Control; Naturwissenschaften; Neurorehabilitation and Neural Repair; Sports Biomechanics; Parkinsonism and Related Disorders; Research Quarterly for Exercise and Sport; Trends in Neurosciences.