

Carolyn Curtze, PhD

Department of Biomechanics
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Research Interests

My research focuses on improving functional mobility and reducing falls in people with neurological dysfunction. The emphasis of my work is on concepts of dynamic stability and how Parkinson's disease and antiparkinsonian medication affects postural control and dynamic stability during walking and turning. I develop new ways to quantify dynamic balance continuously during daily life using inertial sensors to reveal instability and fluctuations in sensorimotor control. My goal is to improve rehabilitation approaches and optimize individualized patient care.

Keywords: neuromechanics | gait | balance | turning | dynamic stability | inertial sensors | aging | Parkinson

Employment

- 2018 – present **Assistant Professor**
Department of Biomechanics, University of Nebraska Omaha, Omaha, NE, USA
- 2017 – 2018 **Senior Research Associate**
Department of Neurology, Oregon Health & Science University, Portland, OR, USA
- 2012 – 2017 **Postdoctoral Fellow**
Department of Neurology, Oregon Health & Science University, Portland, OR, USA
Mentor: Prof. Dr. Fay B. Horak
Research area: *Balance and Gait Disorders in Parkinson's Disease*
- 2003 – 2004 **Graduate Research Assistant**
Department of Sport Sciences, Justus Liebig University Giessen, Germany

Education

- 2005 – 2012 **Ph.D. in Medical Sciences**
Department of Rehabilitation, University of Groningen, The Netherlands
Advisors: Prof. Dr. Klaas Postema^[1]_{SEP}
Prof. Dr. Bert Otten^[1]_{SEP}
Dr. ir. At L. Hof
Honors: 'Cum Laude', highest grade in the Netherlands, awarded to the top 5%
Thesis topic: *Neuromechanics of Movement in Lower Limb Amputees*
- 2004 – 2005 **Master of Arts in Sport Science**
Department of Sport Sciences, Justus Liebig University Giessen, Germany
Minors: Psychology and German Studies
Honors: Graduated with Distinction^[1]_{SEP}
Thesis topic: *Representation of Complex Sequential Skills in Human Very Long-term Memory*
- 1999 – 2003 **First State Examination in Primary School Teaching**
Justus Liebig University Giessen, Germany
Majors: Physical Education, Mathematics and German Studies
Honors: Graduated with High Distinction
Thesis topic: *Effect of Different Running Speeds on Movement Patterns of Novice and Expert Runners – A Kinematical Analysis*

Honors and Awards

- 2017 1st place for Educational Research at the OHSU Symposium on Educational Excellence
Wearable inertial sensors allow for quantitative assessment of arthroscopic skill in a cadaveric knee model
- 2015 Paper of the Month, School of Medicine, OHSU, Portland, OR, USA
Levodopa is a Double-Edged Sword for Balance and Gait in People with Parkinson's Disease
- 2011 Ph.D. Top Publication Award, Graduate School of Medical Sciences, Research Institute SHARE, University of Groningen, The Netherlands
Balance recovery after an evoked forward fall in unilateral transtibial amputees
- 2009 Ph.D. Top Publication Award, Graduate School of Medical Sciences, Research Institute SHARE, University of Groningen, The Netherlands
Comparative roll-over analysis of prosthetic feet

Grant Support

- 2020-2021 ORCA – FUSE, Mavrov (PI), Curtze, (Mentor)
The effect of dual-tasking on postural sway and eye dilation
The goal of this project is to determine the relationship between cognitive effort and increase in postural sway during dual-tasking.
- 07/19 – 06/20 Nebraska Research Initiative/Collaboration Initiative Planning Generation Grant (State of Nebraska), Curtze (PI)
Visual control of locomotion in people with Parkinson's' Disease
The goal of this funding is to support: 1) identification specific extramural funding opportunities that would grow its collective research portfolio; 2) identification knowledge and expertise gaps that must be addressed in order to prepare a competitive extramural research proposal; 3) facilitation study design and/or modest data collection; and 4) preparation extramural funding applications.
- 2017 Movement Disorders Society Travel Grant
- 02/16 – 08/17 Medical Research Foundation of Oregon - Early Clinical Investigator Award, Curtze (PI)
The Turning Point: Dynamic Stability in People with Parkinson's Disease
The purpose of this project is to characterize the effect of levodopa-induced dyskinesia and impulse control disorder on turning impairments in people with Parkinson's disease.
- 09/16 – 05/19 NIH NIA, El-Gohary & Horak (PI)
Role: Postdoctoral researcher
Mobility Life: Monitoring Mobility in Daily Lives of People with Neurological Disease
The major goals of this project are to develop an instrumented ankle wrap for continuous monitoring of gait, and to determine which measures of mobility are most indicative of fall risk.
- 05/14 – 03/19 NIH/NIA R37 (AG006457, Years 30-34) Horak (PI)
Role: Postdoctoral researcher
Peripheral & Central Postural Disorders in the Elderly
This is the first study to relate integrity of the brain's postural/locomotor circuits to objective measures of balance and gait disorders in patients with idiopathic Parkinson's disease compared to patients with Frontal Gait Disorders (e.g., vascular parkinsonism). This project will improve our

understanding of the role of the frontal cortex in balance and gait and how cognitive impairments relate to postural disorders with the goal of improving mobility rehabilitation in the elderly.

- 06/14 – 05/19 SBIR Phase I from NIH/NIA 1 R43 AG04486301 El-Gohary & Horak (Co-PI)
Role: Postdoctoral researcher
Monitoring Balance and Gait Disorders with the “Home Objective Mobility Exam (HOME)”
The goal of this project is to determine the feasibility of developing a self-administered balance and gait test for patients with mobility disability. This novel, Home Objective Mobility Exam (HOME) will uniquely provide information about day-to-day variability, daily fluctuations, and ecological effects on gait and balance to physicians, physical therapists, and clinical trialists so they can more quickly improve interventions to prevent or limit mobility disability.
- 04/12 – 03/14 NIH/CHHD/NCMRR 1 R41 HD071760 (Years 1-2) Horak (PI, STTR)
Role: Postdoctoral researcher
A Short Instrumented Test of Mobility for Neurological Disorders
The goals of this project is to develop algorithms for automatic metrics and a composite ‘Fall Risk’ score from instrumented (inertial sensors) stand and walk test (ISAW) and to integrate the ISAW into the proprietary user interface of the Mobility Lab system.
- 04/12 – 03/14 NINDS 1R41 NS07608801 (Years 1-2) Horak (PI, STTR)
Role: Postdoctoral researcher
Continuous Monitoring of Turning in Patients with Parkinson’s Disease
The long-term goal is to develop and commercialize a unique system to measure mobility (gait and dynamic balance) using wearable sensors throughout the day.
- 2009 Stichting Beatrixoord Noord-Nederland, Curtze (PI)
Walking and Balance Capacity in Lower Limb Amputees
- 2006 OIM Foundation, Curtze (PI)
Interaction of Prosthetic Foot Properties and Individual Motor Capacity
- 2006 – 2012 Ubbo Emmius Ph.D. Scholarship, University of Groningen, The Netherlands

Publications

1. Fino PC, Horak FB, **Curtze C** (2020). Inertial sensor-based centripetal acceleration as a correlate for lateral margin of stability during walking and turning. *IEEE Transactions on Neural Systems & Rehabilitation Engineering*. doi: 10.1109/TNSRE.2020.2971905 (*IF 3.478*)
Also available as preprint on bioRxiv, 768192. doi: 10.1101/768192
2. Nutt JG, **Curtze C**, Hiller A, Anderson S, Larson PS, Van Laar AD, Richardson RM, Thompson ME, Sedkov A, Leinonen M, Ravina B, Bankiewicz KS, Christine CW (2020). Aromatic L-amino acid decarboxylase gene therapy enhances levodopa response in Parkinson’s disease. *Movement Disorders*. doi: 10.1002/mds.27993 (*IF 8.324*)
3. Shah VV, McNames J, Mancini M, Carlson-Kuhta P, Spain RI, Nutt JG, El-Gohary M, **Curtze C**, Horak FB (2020). Quantity and quality of gait and turning in people with multiple sclerosis, Parkinson’s disease and matched controls during daily living. *Journal of Neurology*, pp.1-9. doi: 10.1007/s00415-020-09696-5 (*IF 4.204*)

4. Fallahtafti F, **Curtze C**, Samson K, Yentes J (2020). Chronic obstructive pulmonary disease patients increase medio-lateral stability and limit changes in antero-posterior stability to curb energy expenditure. *Gait & Posture*, 75, 142-148. (IF 2.414)
5. McNames J, Shah V, Mancini M, **Curtze C**, El-Gohary M, Aboy M, and Horak FB (2019). A Two-Stage Tremor Detection Algorithm for Wearable Inertial Sensors During Normal Daily Activities. 2019 41st Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC) (pp. 2535-2538).
6. Morris R, Stuart S, McBarron G, Fino PC, Mancini M, **Curtze C** (2019). Validity of MobilityLab (version 2) for gait assessment in young adults, older adults and Parkinson's disease. *Physiol Meas*. doi: 10.1088/1361-6579/ab4023. (IF 2.246)
7. Mancini M, **Curtze C**, Stuart S, El-Gohary M, Nutt JG, & Horak FB (2018). The Impact Of Freezing Of Gait On Balance Perception And Mobility In Community-Living With Parkinson'S Disease. 40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC) (pp. 3040-3043). IEEE. doi: 10.1109/EMBC.2018.8512910.
8. Fino PC, Mancini M, **Curtze C**, Nutt JG & Horak FB (2018). Gait stability has phase-dependent dual-task costs in Parkinson's disease. *Frontiers in Neurology*. 9:373. doi: 10.3389/fneur.2018.00373.
9. Fling BW, **Curtze C** & Horak FB. (2018). Gait asymmetry in people with Parkinson's disease is linked to reduced integrity of callosal sensorimotor regions. *Frontiers in Neurology*. 9:215. doi: 10.3389/fneur.2018.00215.
10. Dale M, **Curtze C**, Nutt JG. (2018). Apraxia of gait or apraxia of postural transitions? *Parkinsonism & Related Disorders*. 50:19-22. doi: 10.1016/j.parkreldis.2018.02.024.
11. Rose M, **Curtze C**, O'Sullivan J, El-Gohary M, Crawford D, Friess D, & Munch J. (2017). Wearable inertial sensors allow for quantitative assessment of shoulder and elbow kinematics a cadaveric knee model. *Arthroscopy: The Journal of Arthroscopic and Related Surgery*. 33(12):2110-2116. doi: 10.1016/j.arthro.2017.06.042.
12. **Curtze C**, Nutt JG, Carlson-Kuhta P, Mancini M, Horak FB. (2016). Objective gait and balance impairments relate to balance confidence and perceived mobility in people with Parkinson disease. *Physical Therapy* 96(11):1734-1743. doi: 10.2522/ptj.20150662.
13. **Curtze C**, Hof AL, Postema K, Otten B. (2016). Staying in dynamic balance on a prosthetic limb: A leg to stand on? *Medical Engineering & Physics* 38(6):576-80. doi: 10.1016/j.medengphy.2016.02.013.
14. Hof AL, **Curtze C**. (2016). A stricter condition for standing balance after unexpected perturbations. *Journal of Biomechanics* 49(4):580-5. doi: 10.1016/j.jbiomech.2016.01.021.
15. Fling BW, Dale ML, **Curtze C**, Smulders K, Nutt JG, Horak FB. (2016). Associations between mobility, cognition and callosal integrity in people with parkinsonism. *Neuroimage Clinical* 11:415-22. doi: 10.1016/j.nicl.2016.03.006.
16. Dale ML, Mancini M, **Curtze C**, Horak FB, Fling BW. (2016). Freezing of gait associated with a corpus callosum lesion. *Journal of Clinical Movement Disorders* 3:2. doi: 10.1186/s40734-016-0030-2.
17. **Curtze C**, Nutt JG, Carlson-Kuhta P, Mancini M, Horak FB. (2015). Levodopa is a double-edged sword for balance and gait in people with Parkinson's disease. *Movement Disorders* 30(10):1361-70. doi: 10.1002/mds.26269.
18. **Curtze C**, Hof AL, Postema K, Otten B. (2012). The relative contributions of the prosthetic and sound limb to balance control in unilateral transtibial amputees. *Gait & Posture* 36(2):276-81. doi: 10.1016/j.gaitpost.2012.03.010.
19. **Curtze C**, Hof AL, Postema K, Otten B. (2011). Over rough and smooth: amputee gait on an irregular surface. *Gait & Posture* 33(2):292-6. doi: 10.1016/j.gaitpost.2010.11.023.

20. **Curtze C**, Otten B, Hof AL, Postema K. (2011). Determining asymmetry of roll-over shapes in prosthetic walking. *Journal of Rehabilitation Research and Development* 48(10):1249-60.
21. **Curtze C**, Postema K, Akkermans HW, Otten B, Hof AL. (2010). The Narrow Ridge Balance Test: a measure for one-leg lateral balance control. *Gait & Posture* 32(4):627-31. doi: 10.1016/j.gaitpost.2010.09.005.
22. **Curtze C**, Hof AL, Otten B, Postema K. (2010). Balance recovery after an evoked forward fall in unilateral transtibial amputees. *Gait & Posture* 32(3):336-41. doi: 10.1016/j.gaitpost.2010.06.005.
23. **Curtze C**, Otten B, Postema K. (2010). Effects of lower limb amputation on the mental rotation of feet. *Experimental Brain Research* 201(3):527-34. doi: 10.1007/s00221-009-2067-z.
24. **Curtze C**, Hof AL, van Keeken HG, Halbertsma JP, Postema K, Otten B. (2009). Comparative roll-over analysis of prosthetic feet. *Journal of Biomechanics* 42(11):1746-53. doi: 10.1016/j.jbiomech.2009.04.009.

Invited Talks

What is Dynamic Balance? UNO, Omaha, NE, USA April 19, 2019.

Dynamic balance in people with Parkinson's disease. UNO, Omaha, NE, USA, February 26, 2018.

Classifying Parkinsonian Gait and Turning in Daily Life with Wearable Technology. Pacific Northwest Basal Ganglia Coterie, Union, WA, USA, May 11, 2018

Dynamic balance during turning in people with Parkinson's disease. CSU, Fort Collins, CO, USA, August 7, 2017

Dynamic balance in people with Parkinson's disease: a wearable sensors approach. CITEC, Bielefeld, Germany, July 19, 2017

The Turning Point in Parkinson's Disease. Pacific Northwest Basal Ganglia Coterie, Whistler, BC, Canada, March 16, 2017

Neuromechanics of movement in lower limb amputees. Revalidatiegeneeskunde – Beweging in Bewegen, Groningen, The Netherlands, September 9, 2016

Home monitoring of gait in people with Parkinson's disease. Pacific Northwest Basal Ganglia Coterie, Timberline, OR, USA, February 26, 2016 ^[1]_{SEP}

Human movement adaptations with biomechanical constraints. Department of Sport Science, Humboldt-University, Berlin, Germany, October 21, 2013 ^[1]_{SEP}

Integration of the prosthesis into the movement control of lower limb amputees. 56. FOT- Jahrestagung, Bundesfachschule für Orthopädie-Technik, Berlin, Germany, September 29, 2012 ^[1]_{SEP}

Dynamic stability in lower limb amputees. Department of Sport Science, University of Giessen, Giessen, Germany, May 29, 2012 ^[1]_{SEP}

“De Wetenschapper en de Aanpasser”. Symposium – Studiosi Mobilae: Make a Change, Make a Move, Groningen, The Netherlands, May 23, 2012 ^[1]_{SEP}

Walking and falling. Symposium: Electromyografie – Elasticiteit – Evenwicht, Groningen, The Netherlands, January 27, 2011 ^[1]_{SEP}

Prosthetic properties and motor capacity. Klinik und Poliklinik für Technische Orthopädie und Rehabilitation, Universitätsklinikum Münster, Münster, Germany, July 3, 2007 ^[1]_{SEP}

Interaction of prosthetic foot properties and individual motor capacity. 8e Symposium Revalidatietechniek, Groningen-Enschede, The Netherlands, May 19, 2006 ^[1]_{SEP}

Long-term retention of sequential skills. Department of Sport Science, University of Giessen, Giessen, Germany, December 13, 2005 ^[1]_{SEP}

Conference Contributions

- Shah V, McNames J, **Curtze C**, Mancini M, Carlson-Kuhta P, Nutt JG, El-Gohary M, Horak FB. Does Gait in Real Life differ between People with Parkinson's Disease and Healthy Controls? International Congress of Parkinson's Disease and Movement Disorders 2019.
- Shah V, McNames J, **Curtze C**, Mancini M, Carlson-Kuhta P, Nutt JG, El-Gohary M, Horak FB. Association between Gait during Daily Life and Clinical Measures: Effects of Bout Length. International Congress of Parkinson's Disease and Movement Disorders 2019.
- Curtze C**. Insights from foot placement and centripetal accelerations during turning. ISB/ASB 2019. Calgary, Canada.
- McNames J, Shah V, Mancini M, **Curtze C**, El-Gohary M, Aboy M, and Horak FB. A Two-Stage Tremor Detection Algorithm for Wearable Inertial Sensors During Normal Daily Activities. EMBC 2019. Berlin, Germany.
- Horak FB, Shah V, McNames J, Mancini M, Carlson-Kuhta P, Nutt JG, El Gohary M, **Curtze C**. Effect of Bout Size on Gait Metrics During Daily Activity. ISMPB – ICAMPAM 2019.
- Shah V, McNames J, **Curtze C**, Mancini M, Carlson-Kuhta P, Nutt JG, El Gohary M, Horak FB. Quantity and Quality of Ambulatory Activity in People with Parkinson's Disease and Healthy Controls. ISMPB – ICAMPAM 2019.
- Curtze C**. Unwinding the control of walking turns. ISPGR 2019. Edinburg, UK.
- Fino PC, **Curtze C**. Estimating lateral margin of stability during walking and turning using inertial sensors. ISPGR 2019. Edinburg, UK.
- Shah V, McNames J, Carlson-Kuhta P, Spain R, Nutt JG, El Gohary M, Horak FB, **Curtze C**. Comparison among PD, MS and healthy people between prescribed gait test and continuous monitoring of gait in a community setting. ISPGR 2019. Edinburg, UK.
- Shah V, McNames K, Carlson-Kuhta P, Spain R, Nutt JG, El Gohary M, Horak FB, **Curtze C**. Quantity and quality of gait in PD, MS and healthy people in a community setting. ISPGR 2019. Edinburg, UK.
- McNames J, Shah V, Carlson-Kuhta P, El-Gohary M, Nutt JG, Spain R, Horak FB, **Curtze C**. Diurnal systematic variance of gait during normal daily monitoring. ISPGR 2019. Edinburg, UK.
- Mancini M, Shah V, **Curtze C**, Stuart S, El-Gohary M, McNames J, Horak FB, Nutt JG. The impact of freezing of gait in daily life: a wearable sensors approach. ISPGR 2019. Edinburg, UK.
- Horak FB, McNames J, El Gohary M, Nutt JG & **Curtze C**. Classifying Parkinsonian Gait and Turning in Daily Life with Wearable Technology. International Congress of Parkinson's Disease and Movement Disorders 2018.
- Nutt J, Curtze C, Christine CW, Larson PS, Van Laar A, Richardson RM, Boot B, Thompson ME, Sedkov A, Leinonen M, de Somer M. AADC Gene Therapy (VY-AADC01) Enhances Responses to IV-Levodopa in Parkinson's Disease (PD). In ANNALS OF NEUROLOGY 2018 Oct 1 (Vol. 84, pp. S230-S231).
- Nutt JG, **Curtze C**, Christine CW, Larson PS, Van Laar A, Richardson RM, Boot B, Thompson ME, Sedkov A, Leinonen M, de Somer M, Bankiewicz KS, Ravina B (2018). AADC Gene Therapy (VY-AADC01) Enhances Responses to IV-Levodopa in Parkinson's Disease (PD). Annual Meeting of the American Neurological Association, Atlanta, GA, USA.
- Horak FB, McNames J, El-Gohary M, Nutt JG, **Curtze C** (2018). Classifying Parkinsonian Gait and Turning in Daily Life with Wearable Technology. International Congress of Parkinson's Disease and Movement Disorders, Hong Kong.
- Curtze C** (2018). Unwinding the control of walking turns. American Society of Biomechanics, Rochester, MI, USA.

- Mancini M, **Curtze C**, Stuart S, El-Gohary M, McNames J, G Nutt JG, Horak FB (2018). The impact of freezing of gait on balance perception and mobility in community-living with Parkinson's disease. 40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC'18), Honolulu, HI, USA.
- Mancini M, **Curtze C**, Stuart S, El-Gohary M, McNames J, G Nutt JG, Horak FB (2018). The impact of freezing of gait in daily life: a wearable sensors approach. 4th International Workshop on Freezing of Gait, Leuven, Belgium.
- Curtze C**, Fino PC, Smith S, Carlson-Kuhta P, Nutt JG & Horak FB (2017). Segmental coordination during turning in people with parkinson's disease. American Society of Biomechanics, Boulder, CO, USA.
- Curtze C**, Smith S, Fino PC, Carlson-Kuhta P, Nutt JG & Horak FB (2017). The Turning Point: Dynamic stability in people with Parkinson's disease. ISPGR, Fort Lauderdale, FL, USA.
- Curtze C**, Fling BW, Horak FB (2017). Gait asymmetry in people with Parkinson's disease is linked to reduced integrity of callosal sensorimotor regions. ISPGR, Fort Lauderdale, FL, USA.
- Curtze C**, Fino PC, Smith S, Carlson-Kuhta P, Nutt JG & Horak FB (2017). Dynamic stability during turning in people with Parkinson's disease. International Congress of Parkinson's Disease and Movement Disorders, Vancouver, BC, Canada.
- Curtze C**, Fling BW, Dale ML, Nutt JG, Horak FB (2016). Callosal integrity and dynamic stability of gait in people with parkinsonism. Society for Neuroscience, San Diego, CA, USA.
- Curtze C**, McNames J, El-Gohary M, Nutt JG, Mancini M, Carlson-Kuhta P & Horak FB (2016). Prescribed gait tests versus continuous monitoring of gait in people with Parkinson's disease. 4th World Parkinson Congress, Portland, OR, USA.
- Curtze C**, McNames J, El-Gohary M, Nutt JG, Mancini M, Carlson-Kuhta P & Horak FB (2016). Prescribed gait tests versus continuous monitoring of gait in people with Parkinson's disease. Movement Disorders Conference, Berlin, Germany.
- Curtze C**, Gera G & Horak FB (2015). Characteristics of gait during long-duration walking in people with multiple sclerosis. International Symposium on Gait & Balance in MS, Portland, OR, USA.
- Curtze C**, Nutt JG, Carlson-Kuhta P, Mancini M & Horak FB (2015). Locomotor deficits and their relation to balance confidence and perceived motor functioning in people with Parkinson's Disease. ISPGR, Seville, Spain.
- Curtze C**, Gera Dutta G, Horak FB (2015). Characteristics of gait during long-duration walking in people with multiple sclerosis. ISPGR, Seville, Spain.
- Curtze C**, Nutt JG, Carlson-Kuhta P, Mancini M & Horak FB (2015). UPDRS Motor subscales provide a measure of key locomotor function. 19th International Congress of Parkinson's Disease and Movement Disorders, San Diego, CA, USA.
- Dale ML, Fling BW, Mancini M, Peterson DS, **Curtze C**, Smulders K, Fleming M, Horak FB, Nutt JG (2015). Frontal gait disorders: DTI corpus callosal integrity correlates with stride width and cognitive function. 19th International Congress of Parkinson's Disease and Movement Disorders, San Diego, CA, USA.
- Fling BW, Livingston M, **Curtze C**, Peterson D, Smulders K, Fair D, Nutt JG, Horak FB (2015) Callosal integrity's associations with mobility and cognitive function in frontal gait disorders. OHBM, Honolulu, HI, USA.
- Curtze C**, Gera Dutta G, Horak FB (2015). Characteristics of gait in people with multiple sclerosis. GCMAS, Portland, OR, USA.
- Curtze C**, Mancini M, Carlson-Kuhta P, Nutt JP & Horak FB (2014). Effects of levodopa and severity of Parkinson's disease on postural sway and gait. ISPGR World Congress, Vancouver BC, Canada.
- Curtze C**, Mancini M, Carlson-Kuhta P, Nutt JP & Horak FB (2014). Effects of levodopa on instrumented measures of balance and gait. 18th International Congress of Parkinson's Disease and Movement Disorders, Stockholm, Sweden.

- Curtze C**, Hof AL, Otten E & Postema K (2010). Balance recovery after a simulated fall in lower limb amputees. 13th World Congress of the International Society for Prosthetics and Orthotics, May 12–15, Leipzig, Germany.
- Curtze C**, Otten E, Hof AL & Postema K (2010). Asymmetry of roll-over in prosthetic walking. 13th World Congress of the International Society for Prosthetics and Orthotics, May 12–15, Leipzig, Germany.
- Curtze C**, Otten E & Postema K (2010). Effects of lower limb amputation on the mental rotation of feet: an analysis of constraints and plasticity. Neural Control of Movement, April 20–25, Naples, Florida, USA.
- Curtze C**, Hof AL, van Keeken HG, Halbertsma JPK, Otten E & Postema K (2009). Lower limb amputation and the ability to reorganize motor control. European Society of Movement Analysis in Adults and Children, September 14–19, London, UK.

Ad Hoc Reviewer

Archives of Gerontology and Geriatrics ^[1] _[SEP]	Japan Journal of Nursing Science
Archives of Physical Medicine and Rehabilitation ^[1] _[SEP]	Journal of Biomechanics
BMC Musculoskeletal Disorders ^[1] _[SEP]	Journal of Rehabilitation Medicine
Clinical Biomechanics ^[1] _[SEP]	Medical Engineering & Physics
Frontiers in Neurology Movement Disorders	Neuroscience & Biobehavioral Reviews
Gait & Posture ^[1] _[SEP]	Parkinson's Disease and Related Disorders
Human Movement Science	PLoS ONE

Ad Hoc Grant Reviewer

Orthotic and Prosthetic Education and Research Foundation (OPERF)

Editorial services

Editorial Board of Frontiers in Neurology as Review Editor 2018 – present

Membership

American Society of Biomechanics
 International Parkinson and Movement Disorder Society
 International Society for Posture and Gait

Teaching Experience

Spring 2019 - BMCH 9460 Advanced Biomechanics II

Spring 2020 A comprehensive and advanced detailed investigation of the biomechanics of motor performance in special populations such as stroke, Parkinson's disease, and amputees. Includes advanced study of the mechanical analysis of motor skills and movement patterns and the research techniques for collecting and interpreting biomechanical data. Detailed lectures will cover etiology of such special populations with a focus on the endpoint movement disorders.

2013 – 2018 Laboratory demonstrations for Pacific University DPT students, Saturday Academy, and outreach activities, e.g. OHSU Brain Fair

2012 Guest Lecturer "Clinical Movement Analysis"
 Master of Sciences in Human Movement Sciences, VU Amsterdam, The Netherlands

- 2007 Guest Lecturer “Motor Learning and Control”
Master of Sciences in Human Movement Sciences, University of Groningen, The Netherlands
- 2001 Taught Physical Education as a trainee at “Albert Schweitzer-Schule”, Wetzlar, Germany
- 2001 Taught German, Mathematics and Physical Education as a trainee at the elementary school in
Lollar, Germany

Student Mentoring

- 2019 – Kalina Mavrov, BA student, Biomechanics, UNO, USA
- 2019 – Kyle Brozek, MS student, Biomechanics, UNO, USA
- 2018 Daniel Krawczyk, BA student, Exercise Science, UNO, USA
- 2018 Gabriela Garaycochea, BA student, Neuroscience, UNO, USA
- 2016 Michael Cameron, Visiting Bachelor student, University of Waterloo, Canada
- 2015 Lucile Gautier, Visiting Master student, Sorbonne, France
- 2014 Amber Askarieh, Visiting MD student, University of Aberdeen, UK
- 2014 Cara Forster, Summer student, Oberlin College, USA
- 2013 Kristina Buckova, Visiting PhD student, Slovak Academy of Sciences, Bratislava, Slovakia
- 2013 Jana Lobotkova, Visiting PhD student, Slovak Academy of Sciences, Bratislava, Slovakia
- 2009 Henk Zijlstra, BSc student Orthopedic Technology, Fontys Hogescholen, The Netherlands
- 2006 Hilda W. Akkermans, BSc student, Center for Human Movement Sciences, University of
Groningen, The Netherlands

Thesis Committee Member

Title: The Effects of Aging and Knee Arthroplasty on Joint Angle Variability Across Terrains
Graduate Student: Tyler Hamer
Master’s Thesis Committee Chair: Brian A. Knarr, PhD
Committee Members: Carolin Curtze, PhD; Adam Rosen, PhD, ATC

Title: The effect of Dual Task Walking on Gait Variability in People with Parkinson’s Disease
Graduate Student: Shane Meltz
Master’s Thesis Committee Chair: Vivien Marmelat, PhD
Committee Members: Carolin Curtze, PhD; Michael Cortese, PhD

Title: Characterizing Diverse, Unconstrained Slips and Recovery Reactions during Curvilinear Walking
Graduate Student: Corbin Rasmussen
Master’s Thesis Committee Chair: Nate Hunt, PhD
Committee Members: Carolin Curtze, PhD; Mukul Mukherjee, PhD; Joseph Ka-Chun Siu, PhD

Title: Dynamic Stability of Human Walking during Steady State and Perturbed Conditions
PhD Student: Farahnaz Fallah Tafti

Committee Chair: Jennifer Yentes, PhD

Committee Members: Carolin Curtze, PhD; Julie Blaskewicz Boron, PhD; Joseph Ka-Chun Siu, PhD

Title: TBD

PhD Student: Ryan Meidinger

Committee Chair: Nate Hunt, PhD

Committee Members: Carolin Curtze, PhD; Mukul Mukherjee, PhD; Christopher Burcal, PhD

Service

2019 Member of the Faculty Search Committee

2018 – 2019 Alternate Member of the College of Education Academic Standards and Policy Committee

Special Skills

- German (native), English (fluent), Dutch (fluent), French (conversational)
- Beyond my scientific interest in human movement I enjoy running, road biking and downhill skiing