

## Robert D. Catena, Ph.D.

## Curriculum Vitae

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Pullman, WA 99164-1410  
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### EDUCATION

|      |           |   |
|------|-----------|---|
| 2009 | Post-Doc. | HARVARD UNIVERSITY – Boston, MA<br>Occupational Biomechanics and Ergonomics<br>School of Public Health          |
| 2008 | Ph.D.     | UNIVERSITY OF OREGON – Eugene, OR<br>Biomechanics<br>Department of Human Physiology                             |
| 2005 | M.S.      | UNIVERSITY OF OREGON – Eugene, OR<br>Biomechanics<br>Department of Exercise and Movement Science                |
| 2003 | B.S.      | UNIVERSITY OF ALASKA, FAIRBANKS – Fairbanks, AK<br>Biological Sciences<br>Department of Biology and Wildlife    |
|      | Minor     | UNIVERSITY OF ALASKA, FAIRBANKS – Fairbanks, AK<br>Business Management<br>Department of Business Administration |

### PROFESSIONAL EXPERIENCE

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|----------------|--|
| 2014 – present | WASHINGTON STATE UNIVERSITY – Pullman, WA<br><i>Assistant Professor, Kinesiology Program</i>   |
| 2011 – 2014    | UNIVERSITY OF EVANSVILLE – Evansville, IN<br><i>Assistant Professor, Department of Physical Therapy</i><br><i>Director, Dunigan Movement Analysis Laboratory</i> |
| 2009 – 2010    | VECTOR SCIENTIFIC, INC. – Torrance, CA<br><i>Biomechanist</i>  |
| 2008 – 2009    | HARVARD SCHOOL OF PUBLIC HEALTH – Boston, MA<br>LIBERTY MUTUAL RESEARCH INSTITUTE FOR SAFETY – Hopkinton, MA<br><i>Post-Doctoral Research Fellow</i>             |

- 2004 – 2008 UNIVERSITY OF OREGON – Eugene, OR  
*Graduate Teaching Fellow, Department of Human Physiology*
- 2007 – 2008 BIOMECHANICAL CONSULTING – Eugene, OR  
*Assistant Biomechanist*
- 2001 – 2007 UNIVERSITY OF ALASKA, FAIRBANKS – Fairbanks, AK  
*Instructor – Alaska Summer Research Academy*
- 2003 WARBELOW'S AIR AMBULANCE SERVICE – Fairbanks, AK  
*Medic*
- 2002 – 2003 UNIVERSITY FIRE DEPARTMENT – Fairbanks, AK  
*Firefighter and EMT*

### **JOURNAL PUBLICATIONS**

Xu X, Qin J, Catena RD, Faber GS, Lin JH (2013). Effect of aging on inter-joint synergies during machine-paced assembly tasks. *Experimental Brain Research*. 231:249-256.

Catena RD, DiDomenico A, Banks JJ, Dennerlein JT. (2011). Balance control during lateral load transfers over a slippery surface. *Ergonomics*. 54(11):1060-1071.

Raymond DE, Catena RD, Vaughn TD, (2011). Biomechanics and injury risk assessment of falls onto protective floor mats. *Rehabilitation Nursing*. 36(6):248-254.

Catena RD, van Donkelaar P, Chou LS. (2011). The effects of attention capacity on dynamic balance control following concussion. *Journal of NeuroEngineering and Rehabilitation*. 8:8.

Catena RD, DiDomenico A, Banks JJ, Dennerlein JT. (2010). The effect of load weight on balance control during lateral box transfers. *Ergonomics*. 53(11):1359-1367.

Catena RD, van Donkelaar P, Chou LS. (2009). Different gait tasks distinguish immediate vs. long-term effects of concussion. *Journal of NeuroEngineering and Rehabilitation*. 6:25.

Catena RD, Halterman CI, van Donkelaar P, Chou LS. (2009). Spatial orientation of attention and obstacle avoidance following concussion. *Experimental Brain Research*. 194(1):67-77.

Siu KC, Catena RD, Chou LS, van Donkelaar P, Woollacott MH. (2007). Effects of secondary task on obstacle avoidance in healthy young adults. *Experimental Brain Research*. 184(1):115-20.

Catena RD, van Donkelaar P, Chou LS. (2007). Altered balance control after concussion is better detected by attention tests during gait. *Gait and Posture*. 25(3):406-11.

Catena RD, van Donkelaar P, Chou LS. (2007). Cognitive task effects on gait stability following concussion. *Experimental Brain Research*. 176(1):23-31.

## **CONFERENCE PUBLICATIONS**

Yoshida Y, Blue C, Catena RD. (2014). Do asymmetric gait kinematics result from an inter-limb temporal differences? World Congress of Biomechanics. Boston, MA.

Catena RD, Ivanovic N, Gudat SO, Yoshida Y. (2013). Alterations to lower extremity kinematics during downhill running. Gait and Clinical Movement Analysis Society meeting. Cincinnati, OH.

Catena RD, DiDomenico A, Banks JJ, Dennerlein JT. (2009). Balance control during material handling over a slippery surface. American Society of Biomechanics 33<sup>rd</sup> meeting. Penn State University.

Catena RD, DiDomenico A, Banks JJ, Dennerlein JT. (2009). The effects of a load on balance during lateral load transfers. International Society for Posture and Gait Research XIX meeting. Bologna, Italy.

Catena RD, van Donkelaar P, Chou LS. (2008). Conflict resolution task effects on gait balance after a concussion. Proceedings of the North American Congress on Biomechanics. University of Michigan.

Catena RD, Halterman CI, van Donkelaar P, Chou LS. (2007). Obstacle avoidance with varying ability to spatially orient attention following mild traumatic brain injury. Proceedings of the American Society of Biomechanics 31<sup>st</sup> meeting. Stanford University.

Catena RD, Halterman CI, van Donkelaar P, Chou LS. (2007). The relationship between spatial orientation of attention and obstacle crossing parameters following mild traumatic brain injury. International Society of Biomechanics XXI Meeting. Taipei, Taiwan.

Catena RD, Halterman CI, van Donkelaar P, Chou LS. (2007). Using attention to avoid obstacles following a concussion. Proceedings of the 2007 Northwest Biomechanics Symposium. University of Oregon.

Catena RD, Halterman CI, van Donkelaar P, Chou LS. (2007). The spatial orientation of attention during obstacle crossing following mild traumatic brain injury. Proceedings of the 12<sup>th</sup> annual Gait & Clinical Movement Analysis meeting. Springfield, MA.

Catena RD, van Donkelaar P, Chou LS. (2006). Different gait paradigms distinguish immediate vs. long-term effects of concussion. Proceedings of the American Society of Biomechanics 30<sup>th</sup> meeting. Virginia Polytechnic Institute and State University.

Catena RD, van Donkelaar P, Chou LS. (2006). Attention tests can best detect reduced gait stability following concussion. Proceedings of the 2<sup>nd</sup> Annual Injury Biomechanics Symposium. The Ohio State University.

Catena RD, van Donkelaar P, Chou LS. (2006). Different gait paradigms distinguish immediate vs. long-term effects of concussion. Proceedings of the 2006 Northwest Biomechanics Symposium. University of British Columbia.

Catena RD, van Donkelaar P, Parker TM, Osternig LR, Chou LS. (2005). Maintenance of gait stability in concussed college patients during dual tasks. International Society of Biomechanics XX Meeting and American Society of Biomechanics 29<sup>th</sup> Meeting. Cleveland, OH.

Parker TM, Catena RD, Osternig LR, van Donkelaar P, Chou LS. (2005). Longitudinal study of gait stability after concussion. International Society of Biomechanics XX Meeting and American Society of Biomechanics 29<sup>th</sup> Meeting. Cleveland, OH.

Catena RD, van Donkelaar P, Parker TM, Osternig LR, Chou LS. (2005). Secondary task effects on gait stability in concussed college patients. Proceedings of the X Gait & Clinical Movement Analysis Society Meeting. Portland, OR.

### **FUNDED RESEARCH GRANTS**

“The effects of divided attention during learning asymmetric gait coordination”

Funding Agency: University of Evansville UExplore

Role: Faculty Advisor and Primary Investigator

“A comparison of clinical balance tests following a concussion”

Funding Agency: University of Evansville UExplore

Role: Faculty Advisor and Co-investigator

“Biomechanical and Neuromotor Alterations in Healthy Individuals performing Asymmetric Gait”

Funding Agency: University of Evansville UExplore

Role: Faculty Advisor and Co-investigator

“Downhill running performance and injury avoidance”

Funding Agency: University of Evansville UExplore

Role: Faculty Advisor and Primary Investigator

“Lateral load transfers: balance during slippery and non-slippery conditions.”

Funding Agency: Liberty Mutual Research Institute for Safety

Role: Author, Primary Investigator

“The effects of executive functioning on gait stability following mild traumatic brain injury.”

Funding Agency: American Society of Biomechanics

Role: Author, Student Investigator

### **INVITED PRESENTATIONS**

Catena RD. (2014). Motor Performance Following Concussion. Cognitive and Neural Sciences Crick Lecture Series. University of Evansville. Evansville, IN USA.

Catena RD, Chen TC. (2013). Clinical Balance Measures. Presentation to family members of the UE Board of Trustees. University of Evansville. Evansville, IN USA.

Catena RD. (2012). How much biomechanics does a PT need to know and how can it best be taught? Presented at the 2<sup>nd</sup> Kinesiology Workshop for Instructors. Marquette University. Milwaukee, WI USA.

Catena RD. (2012). Inclusion of scientific findings and contradictions in lecture. Presented at the 2<sup>nd</sup> Kinesiology Workshop for Instructors. Marquette University. Milwaukee, WI USA.

Catena RD., Joyce B. (2011). Dunigan Movement Analysis Lab: Past, Present, and Future. Presented at Wednesday Mornings at UE. University of Evansville. Evansville, IN USA.

Catena RD, Jones KO, Wheeler JB. (2010). Concussion awareness in ice hockey. Presented at the Arvada Hockey Association Coaching Clinic. Arvada, CO USA.

Catena RD. (2009). Attention and gait performance following a concussion. Presented at the U.S. Army Natick Soldier Research Development and Engineering Center. Natick, MA USA.

Catena RD. (2008). Dynamic balance control following concussion: Paying attention to more crucial matters. Presented at Liberty Mutual Research Institute for Safety. Hopkinton, MA USA.

Catena RD. (2007). The gait and attention interaction following mild traumatic brain injury. Presented in HPHY 410/510: Neurophysiology of Concussions at the University of Oregon. Eugene, OR USA.

### **AWARDS AND HONORS**

- John H. Schroeder Faculty Development Grant (2013) – University of Evansville
- John H. Schroeder Faculty Development Grant (2012) – University of Evansville
- GCMAS Travel Award (2007) – Gait & Clinical Movement Analysis Society
- General Henry H. Arnold Education Grant (2000) – Air Force Aid Society
- University of Alaska Scholars Award (1999) – University of Alaska
- General Henry H. Arnold Education Grant (1999) – Air Force Aid Society

## **SCIENTIFIC MEMBERSHIPS**

- American Society of Biomechanics (ASB)
- Contact Group for Slips, Trips & Falls (CGSTF)
- Gait and Clinical Movement Analysis Society (GCMAS)
  - Education Committee
- International Society for Posture & Gait Research (ISPGR)

## **SCIENTIFIC ACTIVITIES**

- American Society of Biomechanics (ASB) 2011, 2013 abstract reviewer
- Ergonomics Journal manuscript reviewer
- Human Factors Journal manuscript reviewer
- Journal of Applied Ergonomics manuscript reviewer
- Journal of Industrial Ergonomics manuscript reviewer
- Journal of Sports Science manuscript reviewer
- National Institute of Occupational Safety and Health (NIOSH) grant reviewer
- National Institute of Occupational Safety and Health (NIOSH) manuscript reviewer
- Open Journal of Sports Medicine manuscript reviewer
- Rehabilitation Nursing Journal manuscript reviewer
- Society of Automotive Engineers (SAE) 2010 abstract reviewer
- Workers Safety & Insurance Board of Ontario (WSIBO) grant reviewer

## **ACADEMIC ACTIVITIES**

### Washington State University teaching

- KINES 462 – Biomechanics

### University of Oregon teaching

- HPHY 410/510 – Advanced Techniques in Movement Science
- ESS/HPHY 381 – Biomechanics
- ANAT 313 – Cadaver dissection
- ANAT 311L – Musculoskeletal Anatomy lab
- ANAT 312L – Systems Anatomy lab

### University of Evansville teaching

- PT 435 – Foundations of Biomechanics
- PT 432 – Kinesiology
- PT 431 – Gross Anatomy (Lab content)
- PT 421 – Patient Management 1 (Gait and Balance content)
- PT 417 – Tests and Measurements (Lab content)
- ID 356 – Functional Anatomy and Biomechanics
- EXSS 356 – Biomechanics
- PT 100 – Medical Terminology

University of Evansville committees

- University level – Undergraduate Research Committee
- University level – Admissions and Standards Committee
- College level – CEHS Wellness Committee
- Department level – Physical Therapy Expansion Committee (chair)
- Department level – Physical Therapy Branding Committee
- Department level – Physical Therapy Outcomes Committee

**CONSULTING SERVICES**

- Slips, trips, and falls
- Joint injury
- Concussion rehabilitation