

Christopher J Burcal, PhD, ATC

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EDUCATION

- University of North Carolina at Charlotte, Charlotte, NC July 2017
Ph.D. in Biology
College of Liberal Arts and Sciences
Dissertation: Cortical activity of the sensorimotor system in participants with chronic ankle instability
- Liverpool John Moores University, Liverpool, UK December 2012
MSc. in Sports Biomechanics
School of Sport and Exercise Sciences
Thesis: The role of central modulation on the stretch reflex of the peroneus longus
- University of North Carolina at Charlotte, Charlotte, NC July 2011
B.S. in Athletic Training
College of Health and Human Services

WORK EXPERIENCE

Academic Appointments:

- University of Nebraska at Omaha 2017 – present
Assistant Professor
School of Health and Kinesiology
Athletic Training
PE 8710: Graduate Practicum I
PE 4370: Undergraduate Practicum III
PE 4340/8346: Rehabilitation Techniques in Athletic Training
- University of North Carolina at Charlotte, Charlotte, NC 2014 – 2017
Anatomy Laboratory Coordinator
Department of Kinesiology
KNES 2168L/2169L: Human Anatomy and Physiology for Health Professions Laboratory
- University of North Carolina at Charlotte, Charlotte, NC 2013 – 2017
Teaching Assistant
Department of Kinesiology
KNES 2168L/2169L: Human Anatomy and Physiology for Health Professions Laboratory

Clinical Appointments:

Chicago Fire Soccer Club, Chicago, IL
Athletic Training Intern

Summer 2010

Charlotte Eagles Soccer Club, Charlotte, NC
Athletic Training Intern

Summer 2009

PUBLICATIONS

Published Manuscripts:

1. **Burcal CJ**, Wikstrom EA. Examining the Relationship Between Chronic Ankle Instability Symptoms and Dual-Task Balance Performance. *International Journal of Athletic Therapy and Training*. (In press) DOI: 10.1123/ijatt.2016-0033
2. **Burcal CJ**, Hoch MC, Wikstrom EA. Effects of a Stocking on Plantar Sensation in Individuals with and without Ankle Instability. *Muscle & Nerve*. (In press) PMID: 27490972
3. **Burcal CJ**, Trier AY, Wikstrom EA. Balance Training vs. Balance Training with STARS in CAI Patients: A Randomized Controlled Trial. *Journal of Sport Rehabilitation*. 2016; 24:1-30
4. Song K, **Burcal CJ**, Hertel J, Wikstrom EA. Increased Visual Utilization in Chronic Ankle Instability: A Meta-analysis. *Medicine and Science in Sports and Exercise*. 2016; 48(10):2046-2056
5. **Burcal CJ**, Wikstrom EA. Cognitive Loading-Induced Sway Alterations are Similar in Those with Chronic Ankle Instability and Uninjured Controls. *Gait Posture*. 2016; 48:95-98
6. **Burcal CJ**, Wikstrom EA. Plantar Cutaneous Sensitivity with and without Cognitive Loading in People with Chronic Ankle Instability, Copers, and Uninjured Controls. *Journal of Orthopaedic and Sports Physical Therapy*. 2016; 46(4):270-276
7. **Burcal CJ**, Drabik EC, Wikstrom EA. The Effect of Instructions on Postural-Suprapostural Interactions in Three Working Memory Tasks. *Gait Posture*. 2014; 40(2):310-314

Manuscripts in Review:

1. Hubbard-Turner TJ, Turner MJ, **Burcal CJ**, Song KT, Wikstrom EA. Ankle Sprains: An Overlooked Public Health Burden. *Journal of Athletic Training*. In review August 2017
2. **Burcal CJ**, Jeon HJ, Gonzales JM, Faust ME, Thomas AC, Hubbard-Turner TJ, Wikstrom EA. Balance Training and Feed-Forward Cortical Activity in Patients with Chronic Ankle Instability. *Journal of Athletic Training*. Invited submission. In review October 2017
3. Duncan AL, Thomas AC, Hubbard-Turner TJ, **Burcal CJ**, Turner MJ, Wikstrom EA. Dual-Tasking does not Alter Spatio-temporal Parameters of Treadmill Walking in Those with Chronic Ankle Instability Relative to Uninjured Controls. *Human Movement Science*. In review October 2017

Manuscripts in Preparation:

1. **Burcal CJ**, Sandrey MA, Hubbard-Turner TJ, McKeon PO, Wikstrom EA. Predicting Dynamic Balance Improvements Following 4-Weeks of Balance Training in Chronic Ankle Instability Patients. *Journal of Athletic Training*, anticipated re-submission 11/2017.
2. **Burcal CJ**. Do Chronic Ankle Instability Patients Have Decreased Plantar Sensation? A Critically Appraised Topic. *Journal of Sport Rehabilitation*, anticipated submission 11/2017.
3. **Burcal CJ**, Jeon HJ, Bruce CM, Faust ME, Thomas AC, Hubbard-Turner TJ, Wikstrom EA. Chronic Ankle Instability Status does not Alter Cortical Measures of Feed-forward or Feed-back Sensorimotor Control. *Journal of Neuroscience*, anticipated submission 1/2018.
4. **Burcal CJ**, Faust ME, Thomas AC, Hubbard-Turner TJ, Wikstrom EA. Changes in Cortical Activity During Static Balance After 4-Weeks of Balance Training in Patients with Chronic Ankle Instability. *Neuroscience Letters*, anticipated submission 3/2018

PRESENTATIONS

1. **Burcal CJ**, Jeon HJ, Gonzales JM, Bruce CM, Thomas AC, Hubbard-Turner TJ, Wikstrom EA. Changes in Cortical Activity Relates to Changes in Balance Following 4-Weeks of Balance Training in Chronic Ankle Instability Patients. Poster Presentation. 7th International Ankle Symposium, September 2017; Chapel Hill, NC.
2. Gonzales JM, Thomas AC, **Burcal CJ**, Howden R, Kolesar JM, Glover BJ, Hubbard-Turner TJ. Effects of a 4-Week Balance Training and Cognitive Loading Program in Subjects with Chronic Ankle Instability. Oral Presentation. 7th International Ankle Symposium, September 2017; Chapel Hill, NC.
3. **Burcal CJ**, Bruce CM, Gonzales JM, Jeon HJ, Thomas AC, Hubbard-Turner TJ, Wikstrom EA. Cortical Activity Relates to Injury Severity in Chronic Ankle Instability Patients. Podium Presentation. National Athletic Trainers' Association Annual Meeting, June 2017; Houston TX.
4. **Burcal CJ**, Sandrey MA, McKeon PO, Wikstrom EA. Predicting Dynamic Balance Improvements Following 4-Weeks of Balance Training in Chronic Ankle Instability Patients. Podium Presentation. Human Movement Science Curriculum and Biomechanics Symposium, March 2017; Chapel Hill, NC.
5. Gonzales JM, Thomas AC, **Burcal CJ**, Howden R, Kolesar JM, Glover BJ, Hubbard-Turner TJ. Effects of a 4-Week Balance Training and Cognitive Loading Program in Subjects with Chronic Ankle Instability. Poster Presentation. Human Movement Science Curriculum and Biomechanics Symposium, March 2017; Chapel Hill, NC.
6. **Burcal CJ**, McKeon PO, Wikstrom EA. Two-Weeks of Ankle Joint Mobilization does not Improve Gait Initiation Outcomes in Patients with Chronic Ankle Instability. Poster Presentation. American Society of Biomechanics Annual Meeting, July 2016; Raleigh, NC.
7. Duncan A, **Burcal CJ**, Thomas AC, Hubbard-Turner TJ, Turner MJ, Wikstrom EA. Dual-Task Influences on Gait in Chronic Ankle Instability Patients. Poster Presentation. American Society of Biomechanics Annual Meeting, July 2016; Raleigh, NC.
8. Wikstrom EA, Song K, **Burcal CJ**, Hubbard-Turner TJ. Recovery of Postural Control Following Acute Lateral Ankle Sprains. Poster Presentation. American Society of Biomechanics Annual Meeting, July 2016; Raleigh, NC.

9. **Burcal CJ**, McKeon PO, Wikstrom EA. A Clinical Prediction Rule for Patients with Chronic Ankle Instability who Respond to Plantar Massage Treatments. Podium Presentation. National Athletic Trainers' Association Annual Meeting, June 2016; Baltimore, MD.
10. Wikstrom EA, Song K, **Burcal CJ**, Hubbard-Turner TJ. Recovery of Star Excursion Balance Test Scores Following a First Time Acute Lateral Ankle Sprain. Podium Presentation. National Athletic Trainers' Association Annual Meeting, June 2016; Baltimore, MD.
11. Hubbard-Turner TJ, Song K, **Burcal CJ**, Wikstrom EA. Ankle Laxity is Still Present One Year After an Acute Lateral Ankle Sprain. Podium Presentation. National Athletic Trainers' Association Annual Meeting, June 2016; Baltimore, MD.
12. Hubbard-Turner TJ, Song K, **Burcal CJ**, Wikstrom EA. Physical Activity Levels One Year after an Acute Lateral Ankle Sprain. Poster Presentation. American College of Sports Medicine Annual Meeting, May 2016; Boston, MA.
13. **Burcal CJ**, Song K, Hubbard-Turner TJ, Wikstrom EA. Recovery of Gait Following a First Time Acute Lateral Ankle Sprain. Podium Presentation. Human Movement Science Curriculum and Biomechanics Symposium, February 2016; Chapel Hill, NC.
14. **Burcal CJ**, Wikstrom EA. Balance Training does not Improve Balance Performance While Dual-Tasking in Chronic Ankle Instability Patients. Thematic Poster. Southeast American College of Sports Medicine Annual Meeting, February 2016; Greenville, SC.
15. **Burcal CJ**, Trier AY, Wikstrom EA. Balance Training Alone is as Effective as Balance Training Augmented with Sensory Treatments in Those with Chronic Ankle Instability. Podium Presentation. 6th International Ankle Symposium, October 2015; Dublin, Ireland.
16. Song K, **Burcal CJ**, Hertel J, Wikstrom EA. Reweighting of Visual Information in Individuals with Chronic Ankle Instability: A Systematic Review with Meta-analysis. Poster Presentation. 6th International Ankle Symposium, October 2015; Dublin, Ireland.
17. **Burcal CJ**, Hoch MC, Wikstrom EA. Plantar Cutaneous Mechanoreceptor Thresholds Differ Among Uninjured Controls, Copers, and Those with Chronic Ankle Instability. Poster Presentation. National Athletic Trainers' Association, June 2015; St. Louis, MO.
18. **Burcal CJ**, Wikstrom EA. Detection of a Suppressed Habituation Stimulus is Altered in Those with Chronic Ankle Instability. Podium Presentation. North Carolina Athletic Trainers' Association Annual Meeting, March 2015; Concord, NC.
19. **Burcal CJ**, Trier AY, Wikstrom EA. Balance Training vs. Balance Training with STARS in Those with Chronic Ankle Instability: A Randomized Controlled Trial. Podium Presentation. National Athletic Trainers' Association Annual Meeting, June 2014; Indianapolis, IN.
20. **Burcal CJ**, Drabik EC, Wikstrom EA. The Effect of Instructions on Postural-Suprapostural Interactions in Three Working Memory Tasks. Poster Presentation. Southeast American College of Sports Medicine Annual Meeting, February 2014; Greenville, SC.
21. **Burcal CJ**, Lake MJ. The Role of Central Modulation on the Stretch Reflex of the Peroneus Longus. Poster Presentation. Southeast American College of Sports Medicine Annual Meeting, February 2013; Greenville, SC.
22. **Burcal CJ**, Drabik EC, Wikstrom EA. Impact of Dual-Tasking on Postural Control in Those with Chronic Ankle Instability. Podium Presentation. 5th International Ankle Symposium, October 2012; Lexington, KY.

GRANTS & CONTRACTS

Completed:

Cortical Correlates of Postural Control and its Response to Balance Training in Those with CAI

Mid-Atlantic Athletic Trainers' Association

Amount: \$1,000

Active 11/2015 to 07/2017

Role: PI

Description: Cortical activity, measured with EEG, will be compared among groups of CAI patients, copers, and controls while completing a lateral stepping task to evaluate feed-forward sensorimotor control. Cortical activity will also be measured in CAI patients before and after completing four weeks of balance training.

Cortical Measures of Postural Control in Uninjured Controls, Copers, and Those with Chronic Ankle Instability

National Athletic Trainers' Association Research and Education Foundation Doctoral Research Grant

Amount: \$2,500

Active 7/2015 to 7/2017

Role: PI

Description: Cortical activity, measured with EEG, will be compared among groups of CAI patients, copers, and controls while completing a voluntary leaning task in three directions to evaluate feed-forward and feed-back sensorimotor control.

Cutaneous Sensation and Cognitive Loading in Those with CAI, Copers, and Uninjured Controls

Mid-Atlantic Athletic Trainers' Association

Amount: \$500

Active 11/2013 to 12/2014

Role: Co-PI with Erik Wikstrom (Co-PI & Faculty Supervisor).

Description: This study was designed to evaluate differences in plantar cutaneous sensation among groups of varying ankle injury history at baseline, under a condition of cognitive loading, and a model of footwear.

Not Funded:

Somatosensory Reweighting in Those with Chronic Ankle Instability

Mid-Atlantic Athletic Trainers' Association

Amount: \$1,000

Submitted 10/2014

Role: Co-PI

Description: This study aimed to observe the effects of altering somatosensory input via foot cooling on static balance in people with and without ankle instability. Sensorimotor assessments of cortical and corticospinal activity were also included.

MENTORSHIP

Current Students:

Nayun Ahn: M.A. in Athletic Training; UNO – Committee member
Yoshiki Imazaki: M.A. in Athletic Training; UNO – Committee member
Boyoung Park: M.A. in Athletic Training; UNO – Committee member

Past Students:

Casey Bruce: B.S in Exercise Science, M.S. in Kinesiology; UNC Charlotte	2015 – 2017
John Gonzales: M.S. in Kinesiology; UNC Charlotte	2015 – 2017
Ashley Duncan: M.S. in Kinesiology; UNC Charlotte	2014 – 2016

SERVICE

Committees:

Planning Committee for 7 th International Ankle Symposium	2016 – 2017
<i>Ad Hoc</i> UNC Charlotte Athletic Training Program Admissions Committee Member	2015 – 2017

Outreach:

Face 2 Face with Sports Science	2011 – 2012
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Journal Reviewer:

Gait and Posture
International Journal of Athletic Therapy and Training
Journal of Athletic Training
Muscle and Nerve
Physical Therapy in Sport
Journal of Sport Rehabilitation

MEMBERSHIPS & CERTIFICATIONS

Memberships:

National Athletic Trainers' Association	August 2010 – Present
Mid-American Athletic Trainers' Association	August 2017 – Present

Certifications and Licensures:

Licensed Athletic Trainer, Nebraska	August 2017 – Present
Certified Athletic Trainer; Certification #2000007528	April 2011 – Present
American Red Cross CPR/AED	December 2007 – Present

AWARDS

Department of Biological Sciences Outstanding Research Manuscript; University of North Carolina at Charlotte	May 2017
Department of Biological Sciences Outstanding Research Manuscript; University of North Carolina at Charlotte	May 2016
Center for Biomedical Engineering and Science Student Travel Award; University of North Carolina at Charlotte	October 2015
MSc. Awarded with Merit; Liverpool John Moores University	December 2012
Center for Biomedical Engineering and Science Student Travel Award; University of North Carolina at Charlotte	September 2012

REFERENCES

Erik A. Wikstrom, PhD, ATC

Assistant Professor
Department of Exercise and Sports Science
University of North Carolina at Chapel Hill
(919) 962-2260 | wikstrom@unc.edu

Abbey C. Thomas, PhD, ATC

Assistant Professor
Department of Kinesiology
University of North Carolina at Charlotte
(704) 687-8628 | afenwick@uncc.edu

Adam B. Rosen, PhD, ATC

Assistant Professor
School of Health and Kinesiology
University of Nebraska at Omaha
(402) 554-2057 | arosen@unomaha.edu

Samuel J. Wilkins, MS, ATC

Clinical Education Coordinator
School of Health and Kinesiology
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