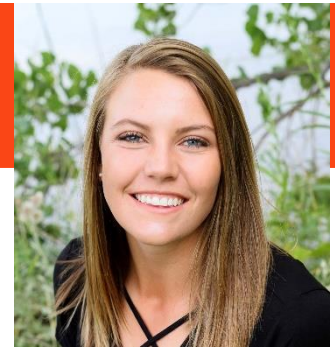


Moriah R. Hanson

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Education

M.S. – Health and Exercise Science: 2019

Colorado State University, Fort Collins, CO

- **Thesis:** Influence of Cortical Inhibition on Age-Related Force Control Deficits of the Legs
- **Research Laboratory:** Sensorimotor Neuroimaging Laboratory
- **Advisor:** Brett W. Fling, Ph.D.
- **GPA:** 4.0

B.S. – Health and Exercise Science: 2017

Colorado State University, Fort Collins, CO

- **Concentration:** Sports Medicine
- **GPA:** 3.542

Research Interests

My research interests involve understanding the relationship between the neurophysiology of the brain and neural control of movement in aging and clinical populations. I am interested in using neuroimaging techniques, such as TMS and MRI, to understand the structural and functional implications of neurological diseases on functional outcomes, such as gait and balance. I hope to use this understanding to improve quality of life for those with neurological disease or who are advancing in age.

Manuscripts

1. **Hanson, M.R.**, Swanson, C.W., Whittier, T.T., Fling, B.W. (2020). Influence of Cortical Inhibition on Age-Related Force Control Deficits of the Legs. *In Progress*.
2. **Hanson, M.**, & Concialdi, M. (2019). Motor imagery in multiple sclerosis: exploring applications in therapeutic treatment. *Journal of Neurophysiology*, 121(2), 347–349. <https://doi.org/10.1152/jn.00291.2018>.

Published Abstracts and Conference Presentations

1. **Moriah R. Hanson**, Clayton W. Swanson, Tyler T. Whittier, Brett W. Fling. (November 2019). Influence of Cortical Inhibition on Age-Related Force Control Deficits of the Legs. *Graduate Student Showcase, Fort Collins, CO, USA*.
2. Clayton W. Swanson, Sutton B. Richmond, Andrew S. Monaghan, **Moriah R. Hanson**, Tyler T. Whittier, & Brett W. Fling. (July 2019). Associations Between Motor Cortex Inhibition and Stable Turning

Characteristics in Healthy Controls and People with Multiple Sclerosis. *International Society of Posture and Gait Research, Edinburgh, Scotland, UK.*

3. **Moriah R. Hanson**, Tyler T. Whittier, Clayton W. Swanson, Brett W. Fling. (April 2019). Relationship between Force Stability and Cortical Inhibition in Young and Older Adults. *Rocky Mountain Chapter of the American Society of Biomechanics, Estes Park, CO, USA.*
4. **Moriah R. Hanson**, Brian L. Tracy. (June 2018). Experiential Teaching Techniques in Undergraduate Neuromuscular Physiology. *International MotoNeuron Society, Boulder, CO, USA.*
5. **Moriah R. Hanson**, Brian L. Tracy. (April 2018). Experiential Teaching Techniques in Undergraduate Neuromuscular Physiology. *Rocky Mountain Chapter of the American Society of Biomechanics, Estes Park, CO, USA.*
6. **Moriah R. Hanson**, Brian L. Tracy. (April 2018). Experiential Teaching Techniques in Undergraduate Neuromuscular Physiology. *Rocky Mountain Chapter of the American College of Sports Medicine, Colorado Springs, CO, USA.*
7. Patrick G. Monaghan, **Moriah R. Hanson** & Brian L. Tracy. (April 2018). A Smartphone-Based Instrumented Functional Reach Test. *Rocky Mountain Chapter of the American Society of Biomechanics, Estes Park, CO, USA*
8. Patrick G. Monaghan, **Moriah R. Hanson** & Brian L. Tracy. (April 2018). A Smartphone-Based Instrumented Functional Reach Test. *Rocky Mountain Chapter of the American College of Medicine, Colorado Springs, CO, USA*

Grant Participation

Title: The 9th International Symposium on Gait and Balance in Multiple Sclerosis
PI: Brett W. Fling, Ph.D.
Role: Application author and symposium coordinator
Agency: Biogen, Inc.
Purpose: To provide exhibiting support for the 9th International Symposium on Gait and Balance in Multiple Sclerosis in Denver, Colorado in October, 2019.

Title: 9th International Symposium on Gait and Balance in Multiple Sclerosis
PI: Brett W. Fling, Ph.D.
Role: Symposium coordinator
Agency: Paralyzed Veterans of America
Purpose: To provide support for the 9th International Symposium on Gait and Balance in Multiple Sclerosis in Denver, Colorado in October, 2019.

Title: Effects of Dabbing on Marijuana Intoxication, Driving, and Cognition
PI: Cinnamon L. Bidwell, Ph.D.
Colloborator: Brian L. Tracy Ph.D
Role: Research Assistant- data anlysis, interpretation and summation of results
Agency: Colorado Department of Public Health and Environment
Purpose: To investigate the acute effects of dabbing marijuana on congition and driving ability.

Funding Awards

2019-2020 2019 Columbine Health Systems Scholarship, Colorado State University, College of Health and Human Sciences. Awarded \$1500 per semester for Fall of 2019 and Spring of 2020 for pursuing a career in the geriatric field.

2018-Present Graduate Teaching Assistantship, Colorado State University. Department of Health and Exercise Science. Awarded \$16,000 per nine months plus tuition.

Jan 2018 Graduate Student Fellowship. Colorado State University. Department of Health and Exercise Science. Awarded \$625.

Invited Presentations

- Fall 2019** Thesis Presentation: **Evaluating Central Mechanisms for Age-Related Force Control Deficits of the Legs**. Department of Health and Exercise Science, Colorado State University.
- Spring 2019** Lecture: **Life after Sports Med: Is Graduate School for You?** Health and Exercise Science 492: Sports Medicine Capstone Class.
- Fall 2018** Lecture: **Life after Sports Med: Is Graduate School for You?** Health and Exercise Science 492: Sports Medicine Capstone Class.
- Spring 2018** Lecture: **MR Spectroscopy: Background and use in Multiple Sclerosis and Parkinson's Disease**. Graduate-level Techniques of Neuroimaging class, Colorado State University.

Research Experience

- Evaluating the effects of cortical inhibition on force variability in young and older adults using transcranial magnetic stimulation (TMS).
- Using MRI to assess brain structural integrity in relation to functional ability in people with multiple sclerosis.
- Examining the mechanisms of how declining neuromuscular function affects physical function and quality of life in aging and neurologically impaired populations.
- Assessing ankle control, locomotion and physical function after lower limb nerve decompression surgery in peripheral neuropathy subjects.
- Subject population: older adults, people with multiple sclerosis, people with Parkinson's Disease

Work Experience

- Dec. 2018-Oct. 2019:** **Conference Coordinator**
9th International Symposium on Gait and Balance in Multiple Sclerosis, Colorado State University, Fort Collins, CO
- Fall 2018 and 2019:** **Assistant Wellness Coach**
Women in the Rockies Wellness Retreat
- Jan. 2018 – Dec. 2019:** **Graduate Research Assistant**
Colorado State University, Fort Collins, CO
- Jan. 2018 – Dec. 2019:** **Graduate Teaching Assistant**
Colorado State University, Fort Collins, CO
- May-October 2017:** **Wrangler**
C Lazy U Ranch, Granby, CO
- August 2015-May 2017:** **Admission Coordinator**
Centre Avenue Health and Rehab Facility, Fort Collins, CO
- May-August 2015:** **Wrangler**
C Lazy U Ranch, Granby, CO
- September 2014-May 2015:** **Caregiver**
Lighthouse Elder Care, Fort Collins, CO

Technical Skills

- Data Collection:** Metabolic Cart (Parvomedics), Customized Motor Control/Strength Apparatus, Joint Proprioception Equipment, Cutaneous Sensory Equipment, Physical Functioning Testing, APDM Opals, Balance Tracking System (BTrackS),

Data Analysis: electromyography (EMG).
MATLAB, JASP, JMP, R, Sensor Data Application (Wavefront Labs), Spike 2 (Cambridge Electronic Design Limited, UK, Version 7.18), APDM Mobility Lab.

Professional and Academic Service

Conference Coordination

Spring 2019-Present Coordinator, 9th *International Symposium on Gait & Balance in Multiple Sclerosis*

Entails communicating with speakers, hotels, restaurants, caterers, rental companies, attendees, and other conference planners to ensure that the conference runs smoothly and is a success. This symposium brings together scientists, clinicians, and exhibitors to discuss the most recent advances in technology in the field of Multiple Sclerosis. For more information, visit <https://www.ohsu.edu/xd/health/services/brain/healthcare-professionals/continuing-education/gait-balance-in-ms.cfm>.

Professional Affiliations

Spring 2018- Present Rocky Mountain Chapter of the American Society of Biomechanics
Rocky Mountain Chapter of the American College of Sports Medicine

Outreach

Program: CSU Health and Exercise Science Department Fest: *Spring 2018*

Position: Assistant

Aim: The Health and Exercise Science (HES) Fest is an annual event designed to celebrate the undergraduate students and encourage involvement in the department. Students receive exposure to faculty members, graduate students, and research in a casual environment and experience some of the ways in which they can get involved. My role in this event is to facilitate a research station and engage with the students, showing them examples of potential experience in HES.

Teaching Experience

Colorado State University – Graduate Teaching Assistant **Spring 2018-Present**

Courses taught:

HES340	Exercise Prescription (Lab Instructor)	Fall 2019
HES319	Neuromuscular Aspects of Human Movement (Lab Instructor)	Spring 2018
HES340	Exercise Prescription (Lab Instructor)	Spring 2018
HES319	Neuromuscular Aspects of Human Movement (Lab Instructor)	Summer 2018
HES319	Neuromuscular Aspects of Human Movement (Lab Instructor)	Fall 2018
HES403	Physiology of Exercise (Lab Instructor)	Fall 2018
HES319	Neuromuscular Aspects of Human Movement (Lab Instructor)	Spring 2019

Honors

Graduate Research Assistantship
Colorado State University, Fort Collins, CO

January 2018 - December 2019

Graduate Teaching Assistantship
Colorado State University, Fort Collins, CO

January 2018 – December 2019

College Honors
Celebration of Undergraduate Research & Creativity
Colorado State University, Fort Collins, CO

2017

References

Brett W. Fling
Assistant Professor, Colorado State University
Email: brett.fling@colostate.edu

Matthew S. Hickey
Professor, University Distinguished Teaching Scholar, Colorado State University
Email: matthew.hickey@colostate.edu