RYAN ALCANTARA

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EDUCATION

University of Colorado Boulder *Defend in March 2021*
PhD candidate in Integrative Physiology – Applied Biomechanics Lab
Advisor: Dr. Alena Grabowski

University of Colorado Boulder *2019*
MSc in Integrative Physiology – Applied Biomechanics Lab
Advisor: Dr. Alena Grabowski

Seattle Pacific University *2015*
BSc Applied Human Biology, Kinesiology Minor
Advisor: Dr. Cara Wall-Scheffler

RESEARCH EXPERIENCE

Graduate Research Assistant *2017 – Present*
Applied Biomechanics Lab, University of Colorado Boulder
Funded by the PAC-12 Student-Athlete Health & Well-Being Grant Program

Research Technician *2016*
Footwear Biomechanics Laboratory, Brooks Running
Performed 3D motion capture data collections, developed custom MATLAB scripts for data analysis, reported findings to Footwear R&D

Research Intern *2015*
Footwear Biomechanics Laboratory, Brooks Running
Assisted with mechanical footwear testing, subject recruitment, and data processing

Undergraduate Research Assistant *2014*
Seattle Pacific University
Investigated the biomechanical and physiological effects of running with a stroller

TEACHING EXPERIENCE

Graduate Teaching Assistant *2017*
Human Anatomy Laboratory, University of Colorado Boulder

Undergraduate Teaching Assistant *2014*
Introductory Physics I & II, Seattle Pacific University

HONORS & AWARDS

Best Presentation – Athletics, International Society of Biomechanics in Sports *2020*
IPHY Fellowship Travel Award, University of Colorado Boulder *2019*

Diversity Travel Award, American Society of Biomechanics (ASB) *2018*
Best Masters Student Poster Presentation, Rocky Mountain ASB Regional Meeting *2018*
Graduate Student Travel Grant, University of Colorado Boulder *2018*
Graduate Dean's Fellowship, University of Colorado Boulder *2017*
Oregon Latino Scholarship, Hispanic Metropolitan Chamber of Commerce *2012*
President's Scholar Award, Seattle Pacific University *2011 – 2015*

PEER-REVIEWED PUBLICATIONS

Alcantara R., Day E., Hahn M. Grabowski A. Sacral acceleration can predict whole-body kinetics and stride kinematics across running speeds *(under review).*

Day E., **Alcantara R.,** McGeehan M., Grabowski A., Hahn M. Low-pass filter cutoff frequency affects sacral-mounted inertial measurement unit estimations of peak vertical ground reaction forces and contact time during treadmill running. *(under review).*

Alcantara R. Prosthetic leg design, force production, and curve sprint performance: A pilot study. *International Society of Biomechanics in Sports Proceedings Archive:* 38(1), Article 230

Alcantara R., Beck O., Grabowski A. Added lower limb mass does not affect biomechanical asymmetry but increases metabolic power in runners with a unilateral transtibial amputation. *European Journal of Applied Physiology 120, 1449-1456.* (2020).

Alcantara R. Dryft: A Python and MATLAB package to correct drifting ground reaction force signals during treadmill running. *Journal of Open Source Software 4(44), 1910* https://doi.org/10.21105/joss.01910 . (2019).

Alcantara R., Trudeau M., Rohr E. Calcaneus range of motion underestimated by markers on running shoe heel. *Gait & Posture 63: 68-72.* (2018).

Alcantara, R. & Wall-Scheffler, C. Stroller Running: Energetic and kinematic changes across pushing methods. *PLoS One 12(7): e0180575.* (2017).

PREPRINTS

Alcantara R., Beck O., Grabowski A. Added lower limb mass does not affect biomechanical asymmetry but increases metabolic power in runners with a unilateral transtibial amputation. Preprint. *SportRxiv* https://doi.org/10.31236/osf.io/xcus7 . (2019).

CONFERENCE PRESENTATIONS

Alcantara R. (2020) Prosthetic Leg Design, Force Production, and Curve Sprint Performance: A Pilot Study*. International Society of Biomechanics in Sports. (virtual presentation)
**Awarded Best Presentation (Topic: Athletics)*

Alcantara R. & Grabowski A. (2020) Loading Asymmetry Before and After Metatarsal Stress Fracture: A Case Study. American Society of Biomechanics. (virtual presentation)

Alcantara R. (2020) Curve Sprinting With a Split-Toe Running Specific Prosthesis: A Pilot Study. American Society of Biomechanics. (virtual presentation)

Alcantara R. & Grabowski A. (2020) Curve Sprinting with a Split-Toe Running Specific Prosthesis: A Pilot Study. Rocky Mountain ASB Meeting. (accepted – conference cancelled)

Alcantara R., Day E., Hahn M., Grabowski A. (2019) Sacral Accelerations Predict Whole Body Kinetics and Stride Kinematics During Running. International Society of Biomechanics. (podium)

Alcantara R., Day E., Hahn M., Grabowski A. (2019) Sacral Accelerations Predict Whole Body Kinetics and Stride Kinematics During Running. Rocky Mountain ASB Meeting. (podium)

Alcantara R., Beck O., Grabowski A. (2018) Mass added to a running-specific prosthesis increases metabolic power during running. American Society of Biomechanics. (thematic)

Alcantara R., Beck O., Grabowski A. (2018) Mass added to a running-specific prosthesis increases metabolic power during running*****. Rocky Mountain ASB Meeting. (poster)
**Awarded Best Poster Presentation by M.Sc. Student*

Alcantara R., Trudeau M., Brüggemann G., Hamill J., Rohr E. (2016) Running Shoe Forefoot Bending Stiffness Affects Calf Muscle EMG. Northwest ASB Meeting. (poster)

Alcantara R. & Wall-Scheffler C. (2016) Running With A Stroller: Kinematic and Energetic Changes Across Different Stroller Pushing Techniques. American College of Sports Medicine. (poster)

Alcantara R. & Wall-Scheffler C. (2015) Push it, Push it Real Good: The energetic cost of running with a stroller. Murdock College Science Research Program. (poster)

Alcantara R. & Wall-Scheffler C. (2015) Push it, Push it Real Good: The energetic cost of running with a stroller. Seattle Pacific University Summer Research Symposium. (podium)

INVITED PRESENTATIONS

"Version Control for Researchers" Workshop *2020*
University of Wisconsin-Milwaukee

"Version Control for Researchers" Workshop *2020*
American Society of Biomechanics Annual Meeting

Panel Member *2020*
Biology Cornerstone Seminar, Seattle Pacific University

Panel Member *2020*
Student Academic Success Center, University of Colorado Boulder

"Using inertial measurement units to predict running kinetics and kinematics" *2019*
LEOMO Inc., Boulder, CO

"Wearable devices estimate biomechanical risk factors for stress fractures" *2019*
Integrative Physiology Department Colloquium, University of Colorado Boulder

Guest Lecturer *2018*
Introductory Biomechanics, Colorado School of Mines

Panel Member *2018*
Capstone Seminar, George Fox, University

Guest Lecturer *2016*
Disciplinary Research and Writing, Seattle Pacific University

Panel Member *2016*
Biology Cornerstone Seminar, Seattle Pacific University

MENTORSHIP & OUTREACH

Mentor *2019 – Present*
Graduate Student Peer Mentoring Program, University of Colorado Boulder

Mentor *2019*
"L2k" Legacy High School STEM Internship Program, Boulder, CO

Volunteer *2019*
Colorado Advantage Program, University of Colorado Boulder

Volunteer Organizer *2018 – 2019*
National Biomechanics Day, University of Colorado Boulder

Undergraduate Researcher Supervisor *2017 – 2020*
Applied Biomechanics Lab, University of Colorado Boulder

ACADEMIC SERVICE

Moderator, Biomch-L Weekly Literature Updates *2021 – Present*
Co-Chair, Locomotion Session – *American Society of Biomechanics Meeting* *2020*
Reviewer, British Journal of Sports Medicine *2020*
Reviewer, Journal of Open Source Software *2019 – Present*
Co-Chair, Running Performance Session – *Footwear Biomechanics Symposium* *2019 – Present*
Co-Chair, PhD Competition Session – *American Society of Biomechanics Meeting* *2018*
Co-Chair, Sports Session – *Rocky Mountain ASB Regional Meeting* *2018*
Member, ASB Student Advisory Committee for Biomechanics Advocacy *2017 – 2018*

SPECIALIZED SKILLS

Laboratory: Vicon Nexus, Motion Analysis Cortex, Visual3D, Novel Pedar, Instron Material Testing, Delsys sEMG, Noraxon sEMG, IMeasureU, Parvo Medics, Oxycon Mobile, Biodex
Computer: MATLAB, Python (numpy, pandas, tensorflow, keras, scikit-learn), R (ggplot, caret, nlme, dpylr, R shiny), Git, LaTeX, Slurm Workload Manager, Tableau
Analysis: Mixed-Effects Models, Linear Regression, Recurrent Neural Networks (LSTM), Feed-Forward Neural Networks, Random Forests, Transfer Learning

REFERENCES

Dr. Alena Grabowski – Associate Professor, University of Colorado Boulder
Dr. Rodger Kram – Associate Professor Emeritus, University of Colorado Boulder

MEDIA & PRESS

Selected Press for *Energetic Cost of Stroller Running*:
New York Times
Inside Science
Society Magazine (Paris, France), by Emmanuelle Andreani
Personal Interview - SPU etc. Magazine:
https://voices.spu.edu/articles/dream-career-reality-college-etc