

RYAN ALCANTARA

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EDUCATION

University of Colorado Boulder	<i>2021</i>
PhD candidate in Integrative Physiology	
University of Colorado Boulder	<i>2019</i>
MSc in Integrative Physiology	
Seattle Pacific University	<i>2015</i>
BSc Applied Human Biology, Kinesiology Minor	

RESEARCH EXPERIENCE

Postdoctoral Research Fellow	<i>2021 – Present</i>
Neuromuscular Biomechanics Lab, Stanford University	
Advisor: Dr. Scott Delp	
Graduate Research Assistant	<i>2017 – 2021</i>
Applied Biomechanics Lab, University of Colorado Boulder	
Advisor: Dr. Alena Grabowski	
Funded by the PAC-12 Student-Athlete Health & Well-Being Grant Program	
Research Technician	<i>2016</i>
Footwear Biomechanics Laboratory, Brooks Running	
Research Intern	<i>2015</i>
Footwear Biomechanics Laboratory, Brooks Running	
Undergraduate Research Assistant	<i>2014</i>
Seattle Pacific University	
Advisor: Dr. Cara Wall-Scheffler	

TEACHING EXPERIENCE

Graduate Teaching Assistant	<i>2017</i>
Human Anatomy Laboratory, University of Colorado Boulder	
Undergraduate Teaching Assistant	<i>2014</i>
Introductory Physics I & II, Seattle Pacific University	

HONORS & AWARDS

Eyes High Postdoctoral Fellowship , University of Calgary (<i>awarded, declined</i>)	<i>2020</i>
Best Presentation – Athletics , International Society of Biomechanics in Sports	<i>2020</i>
IPHY Fellowship Travel Award , University of Colorado Boulder	<i>2019</i>
Diversity Travel Award , American Society of Biomechanics (ASB)	<i>2018</i>
Best Masters Student Poster Presentation , Rocky Mountain ASB Regional Meeting	<i>2018</i>

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

PUBLICATIONS

- Alcantara R.**, Day E., Hahn M., Grabowski A. Sacral acceleration can predict whole-body kinetics and stride kinematics across running speeds *PeerJ*. <https://doi.org/10.7717/peerj.11199>. (2021).
- Alcantara R.**, Edwards B., Millet G., Grabowski A. Predicting continuous ground reaction forces from accelerometers during uphill and downhill running: A recurrent neural network solution. *bioRxiv* 2021.03.17.435901, (2021).
- 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. *Journal of Biomechanics* 119, 110323, (2021).
- Alcantara R.** Prosthetic leg design, force production, and curve sprint performance: A pilot study. *International Society of Biomechanics in Sports Proceedings Archive* 38(1), (2020).
- 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).

CONFERENCE PRESENTATIONS

- Alcantara R.** & Grabowski A. (2021) Biomechanics of the Inside and Outside Leg When Sprinting Along Flat Curves. American Society of Biomechanics.
- Diaz G., **Alcantara R.**, Grabowski A. (2021) Effects of Curve Radii on Maximum Curve Sprinting Velocity in Athletes With a Leg Amputation. American Society of Biomechanics
- Alcantara R.** & Grabowski A. (2021) Increases in a Runner's Cumulative Load Precede Metatarsal Stress Fracture: A Case Study. American Society of Biomechanics.
- Alcantara R.** & Grabowski A. (2021) Biomechanics of the Inside and Outside Leg When Sprinting Along Flat Curves. Rocky Mountain ASB Meeting.
- Diaz G., **Alcantara R.**, Grabowski A. (2021) Effects of Curve Radii on Maximum Curve Sprinting Velocity in Athletes With a Leg Amputation. Rocky Mountain ASB Meeting.
- Alcantara R.** (2020) Prosthetic Leg Design, Force Production, and Curve Sprint Performance: A Pilot Study*. International Society of Biomechanics in Sports.
*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.
- Alcantara R.** (2020) Curve Sprinting With a Split-Toe Running Specific Prosthesis: A Pilot Study. American Society of Biomechanics.
- 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.
- Alcantara R.,** Day E., Hahn M., Grabowski A. (2019) Sacral Accelerations Predict Whole Body Kinetics and Stride Kinematics During Running. Rocky Mountain ASB Meeting.
- Alcantara R.,** Beck O., Grabowski A. (2018) Mass added to a running-specific prosthesis increases metabolic power during running. American Society of Biomechanics.
- Alcantara R.,** Beck O., Grabowski A. (2018) Mass added to a running-specific prosthesis increases metabolic power during running*. Rocky Mountain ASB Meeting.
**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.
- Alcantara R. & Wall-Scheffler C.** (2016) Running With A Stroller: Kinematic and Energetic Changes Across Different Stroller Pushing Techniques. American College of Sports Medicine.
- 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.
- 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.

INVITED TALKS & EVENTS

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| Using Accelerometers to Measure a Runner's Biomechanics and Monitor Injury Risk | <i>2021</i> |
| LIBM Seminar, Université Jean Monnet Saint-Etienne | |
| Improving Running Performance and Monitoring Injury Risk with Wearable Devices | <i>2021</i> |
| Neuromuscular Biomechanics Lab, Stanford University | |
| Version Control for Researchers Workshop | <i>2020</i> |
| University of Wisconsin-Milwaukee | |
| Version Control for Researchers Workshop | <i>2020</i> |
| American Society of Biomechanics Annual Meeting | |
| Panel Member | <i>2020</i> |
| Biology Cornerstone Seminar, Seattle Pacific University | |
| Panel Member | <i>2020</i> |
| Student Academic Success Center, University of Colorado Boulder | |
| Using inertial measurement units to predict running kinetics and kinematics | <i>2019</i> |
| LEOMO Inc., Boulder, CO | |
| Wearable devices estimate biomechanical risk factors for stress fractures | <i>2019</i> |
| Integrative Physiology Department Colloquium, University of Colorado Boulder | |
| Guest Lecturer | <i>2018</i> |
| Introductory Biomechanics, Colorado School of Mines | |
| Panel Member | <i>2018</i> |
| Capstone Seminar, George Fox, University | |
| Guest Lecturer | <i>2016</i> |
| Disciplinary Research and Writing, Seattle Pacific University | |
| Panel Member | <i>2016</i> |
| Biology Cornerstone Seminar, Seattle Pacific University | |

MENTORSHIP & OUTREACH

Mentor	<i>2019 – Present</i>
Graduate Student Peer Mentoring Program, University of Colorado Boulder	
Mentor	<i>2019</i>
"L2k" Legacy High School STEM Internship Program, Boulder, CO	
Volunteer	<i>2019</i>
Colorado Advantage Program, University of Colorado Boulder	
Volunteer Organizer	<i>2018 – 2019</i>
National Biomechanics Day, University of Colorado Boulder	
Undergraduate Researcher Supervisor	<i>2017 – 2020</i>
Applied Biomechanics Lab, University of Colorado Boulder	

ACADEMIC SERVICE

Moderator , Biomch-L Weekly Literature Updates	<i>2021 – Present</i>
Reviewer , Computer Methods in Biomechanics and Biomedical Engineering	<i>2021 – Present</i>
Reviewer , Journal of Science and Medicine in Sport	<i>2021 – Present</i>
Reviewer , British Journal of Sports Medicine	<i>2020 – Present</i>
Co-Chair , Locomotion Session – <i>American Society of Biomechanics Meeting</i>	<i>2020</i>
Reviewer , Journal of Open Source Software	<i>2019 – Present</i>
Co-Chair , Running Performance Session – <i>Footwear Biomechanics Symposium</i>	<i>2019</i>
Co-Chair , PhD Competition Session – <i>American Society of Biomechanics Meeting</i>	<i>2018</i>
Co-Chair , Sports Session – <i>Rocky Mountain ASB Regional Meeting</i>	<i>2018</i>
Member , ASB Student Advisory Committee for Biomechanics Advocacy	<i>2017 – 2018</i>

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, dplyr, R shiny), Git, LaTeX, Slurm Workload Manager, Tableau
Analysis:	Mixed-Effects Models, Linear Regression, Recurrent Neural Networks, 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