

Curriculum Vitae

Jonas Rubenson

Department of Kinesiology
The College of Health and Human Development
The Pennsylvania State University
29 E Recreation Building
University Park, PA, 16802, USA
Email: jonas@psu.edu
Ph: +1 814 867 6209
Web: www.locomotionlab.net and <https://hhd.psu.edu/contact/jonas-rubenson>

Contents

Personal Information.....	2
Education.....	2
Academic Positions.....	2
Research Focus.....	3
Honors and Awards.....	3
Research Funding.....	4
Publications	8
Conference Abstracts	13
Supervision	20
Graduate Student Committees	24
Student and Postdoctoral Awards (PI Rubenson supervisor)	25
Visiting Scholars	26
Teaching	26
Membership and Roles in Professional Organizations	28
Scientific Conferences Organized	28
Editorial Service	29
University Service and Outreach	30
National and International Service	31
External Grant Reviews	31
External Review for Tenure / Promotion	31
Visiting Professorships	32
Invited Lectures	32
Other Creative (Academic) Accomplishments	34
Popular Press Coverage	35

Personal Information

Birthplace: Sollentuna, Sweden
Citizenship: Canada, Australia, Sweden
Permanent Residency: USA

Education

- 1999 – 2005 Ph.D. University of Western Australia, Perth, Australia.
Biomechanics, School of Human Movement & Exercise Science.
Awarded with Distinction.
- 1996 – 1998 B.Sc. (Hon.) University of Western Australia, Perth, Australia.
Exercise Physiology, School of Human Movement & Exercise Science
Awarded with 1st Class.
- 1993 – 1996 B.Sc. coursework, University of British Columbia, Vancouver, Canada.
School of Human Kinetics / Department of Biology.

Academic Positions

- 2024 – Pres. Professor, Department of Kinesiology. The Pennsylvania State University, University Park.
- 2014 – Pres. Faculty Member, Integrative and Biomedical Physiology Graduate Program, The Pennsylvania State University, University Park.
- 2014 – 2024 Associate Professor, Department of Kinesiology. The Pennsylvania State University, University Park. (Tenured May, 2019).
- 2014 – Pres. Adjunct Associate Professor, School of Human Sciences. The University of Western Australia.
- 2014 – 2017 Adjunct Associate Professor, Department of Kinesiology, The University of Massachusetts, Amherst.
- 2012 – 2014 Assistant Professor (tenured), School of Sport Science, Exercise & Health, The University of Western Australia.
- 2008 – 2012 Assistant Professor (non-tenured), School of Sport Science, Exercise & Health, The University of Western Australia.
- 2007 – 2008 Post-Doctoral Research Associate, Sports Medicine, Department of Orthopaedic Surgery, Stanford University.
- 2006 – 2007 Post-Doctoral Research Associate, Joint; Department of Biological Sciences, California State Polytechnic University, Pomona and Department of Biology, Northeastern University.
- 2004 – 2006 Post-Doctoral Research Associate, Department of Biology, Northeastern University.

Research Focus

- Limb, joint and muscle mechanical function during locomotion
- Relationship between joint and muscle mechanics and metabolic energetics during locomotion
- Musculoskeletal plasticity; effect of load stimulus and growth
- Locomotor optimization
- Assistive gait technology; surgical/implanted assistive device development

Honors and Awards

- 2023 Journal of Biomechanics Award, American Society of Biomechanics Annual meeting, Knoxville Tennessee (with K. Katugam-Dechene Ph.D. candidate, T. Johnson, S.M. Cox, I. Dechene and Stephen Piazza).
- 2023 – pres. Executive Board (elected), International Society of Biomechanics.
- 2023 – pres. Treasurer (elected), Comparative Neuromuscular Biomechanics Working Group (CNB) of the International Society of Biomechanics.
- 2019 – 2023. Chairperson (elected), Comparative Neuromuscular Biomechanics Working Group (CNB) of the International Society of Biomechanics.
- 2018 American Society of Biomechanics, East Coast Regional Meeting; Best Poster Award, Reading, PA, USA. (With M. Salzano, Ph.D. Candidate, S. Cox and S. Piazza).
- 2017 Journal of Biomechanics Award, American Society of Biomechanics, Boulder, CO. (With M. Salzano, Ph.D. Candidate, S. Cox and S. Piazza).
- 2011 Nominated (by Deputy Vice-Chancellor Research, UWA): Eureka Prize for Scientific Research. (Eureka Prizes reward outstanding achievements in Australian science and science promotion/communication and are Australia's major national science awards).
- 2011 Early-Career Researcher “Best Publication of the Year” award (Engineering and Mathematics Category), The University of W. Australia.
- 2010 Heart Foundation Research Award, National Heart Foundation, Australia.
- 2006 The Company of Biologists (Journal of Experimental Biology) Travelling Fellowship. With Prof. Scott Delp, Stanford University, Bioengineering.
- 2005 The University of Western Australia, Ph.D. Distinction Honors.
- 2005 Valedictorian speaker, graduation ceremony for the Faculty of Life and Physical Sciences, faculty of Natural and Agricultural Sciences, and Faculty of Architecture, Landscape and Visual Arts, The University of Western Australia.
- 1999-2002 The University of Western Australia, Post-Graduate Award.
- 1988 The University of Western Australia, B.Sc. Hons 1st Class Distinction.

1996 The University of British Columbia Scholarship (awarded for high academic merit in undergraduate studies).

Research Funding

Role is identified as Principal Investigator, *Co-Principal Investigator, Co-Investigator or Consultant:

* Australian grants identify Principal Investigators using alphabetical designation (e.g. PI-A is the Principal Investigator; PI-B, PI-C, etc. are Co-Principal Investigators).

NOTE: Australian awards have been converted to USD currency using historical conversion rates.

Awarded External:

Name of Project: *Active Growth, Active Life: Eliminating Biomechanical Barriers to Physical Activity through Growth-Period Exercise: R01AR080711.*

Source of Funding: National Institutes of Health (NIH), R01

Principal Investigator: Jonas Rubenson (S. Piazza, M-PI)

Total Award: \$2,587,700

Period: April 2022 – April 2027

Name of Project: *Set for life: Long-term effects of inactivity during growth on musculoskeletal form and locomotor function. R21AR07158.*

Source of Funding: National Institutes of Health (NIH), R21

Principal Investigator: Jonas Rubenson (S. Piazza, M-PI)

Total Award: \$365,312

Period: April 2018 – May 2021

Name of Project: *Avian ossified tendons, a source of functional information for understanding musculoskeletal biomechanics.*

Source of Funding: National Science Foundation (NSF). Post-Doctoral Fellowship in Biology FY 2017

Principal Investigator: Kristin Stover (Rubenson is Co-I).

Total Award: \$142,000 (Declined by PI Stover)

Period: September 2017 – September 2020

Name of Project: *Neurodevelopmental consequences of mechanical ventilation and postnatal steroids in preterm lambs.*

Source of Funding: National Health and Medical Research Council (Australia)

Principal Investigator: Jane Pillow (Rubenson is Co-PI, PI-G*)

Total Award: \$1,562,353

Period: January 2014 – January 2018

Name of Project: *Postnatal steroids and antenatal chorioamnionitis: between the Scylla and Charybdis of inflammation and apoptosis after preterm birth.*

Source of Funding: Western Australia Department of Health; Telethon-Perth Children's Hospital Research Fund (Australia)

Principal Investigator: Jane Pillow (Rubenson is Co-I)

Total Award: \$206,091

Period: January 2012 – December 2013

Name of Project: *Tissue engineered muscle actuators as evocative cultural objects.*
Source of Funding: Australian Research Council (DECRA)
Principal Investigator: Ionat Zurr (Rubenson is Co-I)
Total Award: \$397,114
Period: November 2011 – October 2014

Name of Project: *Bioengineered bioscaffolds for Achilles tendinopathy treatment.*
Source of Funding: Australian Research Council (Linkage Projects)
Principal Investigator: David Lloyd (Rubenson is Co-PI, PI-F*)
Total Award: \$1,603,170
Period: June 2011 – July 2015

Name of Project: *Optimising exercise and functional capacity in heart failure: A focus on enhancing skeletal muscle mechanics.*
Source of Funding: National Heart Foundation (Australia)
Principal Investigator: Jonas Rubenson (Co-PI's: D. Green PI-B*, A. Maiorana PI-C*, L. Naylor PI-D*)
Total Award: \$126,856
Period: November 2010 – October 2012

Name of Project: *Integrating musculoskeletal modelling and experimental measurement in testing the mechanical determinants of the metabolic cost of limb swing in bipedal gait.*
Source of Funding: Company of Biologists Travelling Fellowship
Principal Investigator: Jonas Rubenson
Total Award: \$4,000
Period: January 2006 – January 2007

Pending External:

Name of Project: *Myobionics; embodied bionic muscles for discovering the rules of animal movement.*
Source of Funding: W.M. Keck Foundation
Principal Investigator: Jonas Rubenson (Co-Is Bo Cheng, Huanyu Cheng, Michael Aynardi, Gregory Sawicki)
Total Requested: \$1,153,000
Period: Jan 2025 – Jan 2028

Awarded Internal:

Name of Project: *Embodied Synthetic Muscles for Adaptive Preservation of Locomotor Function in Aging.*
Source of Funding: Penn State / Huck Institutes of Life Sciences.
Principal Investigator: Jonas Rubenson (Co-Is Bo Cheng, Huanyu Cheng, Michael Aynardi, Gregory Sawicki)
Total Awarded: \$160,000
Period: March 2022 – March 2024

Name of Project: *College of Health and Human Development teaching release to support grant writing.*

Source of Funding: Penn State College of Health and Human Development

Principal Investigator: Jonas Rubenson

Total Awarded: Teaching Release (15% Academic Year Salary)

Period: August 2023 – December 2023

Name of Project: *College of Health and Human Development Bridge Funding.*

Source of Funding: Penn State College of Health and Human Development

Principal Investigator: Jonas Rubenson

Total Awarded: \$17,042

Period: March 2022 – March 2023

Name of Project: *A platform for advancing computational neuromuscular modelling of human and animal movement.*

Source of Funding: Penn State / University of Auckland Collaboration Grant

Principal Investigator: Jonas Rubenson (Co-PI, T. Besier, Univ. Auckland)

Total Awarded: \$20,000 NZD

Period: July 2020 – December 2021

Name of Project: *Teaching release for grant writing, Kinesiology.*

Source of Funding: Penn State College of Health and Human Development

Principal Investigator: Jonas Rubenson

Total Awarded: Teaching Release (15% Academic Year Salary)

Period: August 2020 – December 2020

Name of Project: *The brain as regulator of skeletal growth: relationship between life history and skeletal phenotypic variation.*

Source of Funding: HUCK Institutes of the Life Sciences; Center for Human Evolution and Diversity, Penn State.

Principal Investigator: Jonas Rubenson (T. Ryan Co-PI).

Total Awarded: \$24,757

Period: August 2019 – July 2020

Name of Project: *College of Health and Human Development teaching release to support grant writing.*

Source of Funding: Penn State College of Health and Human Development

Principal Investigator: Jonas Rubenson

Total Awarded: Teaching Release (15% Academic Year Salary)

Period: January 2019 – May 2019

Name of Project: *College of Health and Human Development teaching release to support grant writing.*

Source of Funding: Penn State College of Health and Human Development

Principal Investigator: Jonas Rubenson

Total Awarded: Teaching Release (15% Academic Year Salary)

Period: August 2017 – December 2017

Name of Project: *Exercise-induced developmental plasticity of musculoskeletal form and function.*

Source of Funding: HUCK Institutes of the Life Sciences; Center for Human Evolution and Diversity, Penn State

Principal Investigator: Jonas Rubenson (S. Piazza, T. Ryan, R. Schilder, P. Reno, Co-PIs).

Total Awarded: \$19,942

Period: January 2016 – December 2016

Name of Project: *The effect of load stimulus during growth on musculoskeletal architecture and locomotor biomechanics in an avian bipedal model (Numida Meleagris).*

Source of Funding: HUCK Institutes of the Life Sciences; College of Health and Human Development Mini-Grant Program, Penn State

Principal Investigator: Jonas Rubenson

Total Awarded: \$5,000

Period: December 2015 – December 2016

Name of Project: *Diffusion tensor imaging of rabbit Achilles tendon to characterize tendon fiber architecture.*

Source of Funding: Griffith Health Institute (Australia)

Principal Investigator: David Lloyd (Rubenson is Co-I)

Total Awarded: \$11,542

Period: January 2013 – January 2014

Name of Project: *Validation of a freehand 3D ultrasound system for morphological measures of the calf muscle in young children with cerebral palsy.*

Source of Funding: U. of Queensland Bilateral Research Collaboration Awards

Principal Investigator: Lee Barber (Rubenson is Co-I)

Total Awarded: \$7,268

Period: January 2013 – January 2014

Name of Project: *Creating human subject-specific neuromuscular skeletal models.*

Source of Funding: The University of Western Australia

Principal Investigator: David Lloyd (Rubenson is Co-PI, PI-B*)

Total Awarded: \$16,293

Period: January 2011 – January 2012

Name of Project: *Development and validation of a data rich neuromuscular-skeletal computational modelling framework to study muscular-skeletal disorders in humans and animals.*

Source of Funding: The University of Western Australia

Principal Investigator: David Lloyd (Rubenson is Co-PI, PI-B*)

Total Awarded: \$7,278

Period: January 2010 – January 2011

Name of Project: *Animating semi-living: Muscle actuators as cultural evocative objects.*

Source of Funding: The University of Western Australia

Principal Investigator: Ionat Zurr, (Rubenson is Co-PI, PI-B*)

Total Awarded: \$22,609

Period: January 2010 – January 2011

Name of Project: *Understanding the link between muscle mechanics and energetics in vivo: Integrating empirical data and musculoskeletal modeling.*

Source of Funding: The University of Western Australia

Principal Investigator: Jonas Rubenson

Total Awarded: \$15,692

Period: January 2009 – January 2010

Publications (Peer Reviewed)

Rubenson's students underlined; undergraduate, graduate

*Rubenson is senior/corresponding author

Submitted

55. Thornton, L. H., Dick, T. J.M., Hutchinson, J. R., Lichtwark, G. A., McGowan, C. P., Wiktorowicz-Conroy, A., **Rubenson, J.** and Clemente, C. J. Postural adaptations underpin increased tendon stress in hopping kangaroos: potential contributors to the energetic advantages of hopping. *Journal of Experimental Biology*.

54. Salzano, M.Q., Cox, S.M., Piazza, S.J., Ryan, T.M., and ***Rubenson, J.** Growth-period exercise alter bone shape in addition to strength in an animal bipedal model. *J. Anatomy*.

53. Jurestovsky, D.J., Cox, S.M., Salzano, M.Q., Piazza, and ***Rubenson, J.** Substantial Reductions in Adult Physical Activity Follow an Exercise-Restricted Growth Period in Guinea Fowl. *Journal of Experimental Biology*.

2023

52. Thomas, S., Joshi, R., Sawicki, G.S., and ***Rubenson, J.** (2023). An Implantable Variable Length Actuator for Assistive Muscle Force Application and Gait Rehabilitation in a Bipedal Animal Model. *IEEE/RSJ Intelligent Robots and Systems (IROS)*, 8538-8543, doi: 10.1109/IROS55552.2023.10341584.

2022

51. McDonald, K.A., Cusumano, J.P., Hieronymi, A., and ***Rubenson, J.** (2022). Humans trade off whole-body energy cost to avoid overburdening muscles while walking. *Proc. R. Soc. Lond. B.* **289**: 20221189; doi: <https://doi.org/10.1098/rspb.2022.1189>.

50. ***Rubenson J**, Sawicki GS. (2022). Running birds reveal secrets for legged robot design. *Science Robotics*. Mar 16;7(64):eabo2147. doi: 10.1126/scirobotics.abo2147. Epub 2022 Mar 16. PMID: 35294221.

2021

49. Cox S.M, De Boef, A., Salzano, M.Q., Katugam, K., Piazza, S.J., ***Rubenson, J.** (2021). Plasticity of the gastrocnemius elastic system in response to decreased work and power demand during growth. *J. Exp. Biol.* 1;224(21):jeb242694. doi: 10.1242/jeb.242694. PMID: 34522962.

2020

48. Katugam, K., Cox S.M, Salzano, M.Q., De Boef, A., Neuberger, T., Ryan, T.R., Piazza, S.J., ***Rubenson, J.** (2020). Altering the mechanical load environment during growth does not affect adult Achilles tendon properties in an avian bipedal model. *Front. Bioeng. Biotechnol.* 8:994.

47. Cox, S.M., Salzano, M.Q., Piazza, S.J., ***Rubenson, J.** Eliminating high-intensity activity during growth reduces mechanical power capacity but not sub-maximal metabolic cost in a bipedal animal model. (2020). *J. Appl. Physiol.* 128 (1): 50-8.

2019

46. McDonald, K.A., Devaprakash, D., ***Rubenson, J.** Is conservation of center of mass a priority in human walking? Insights from leg length asymmetry experiments. (2019). *J. Exp. Biol.* 222: doi: 10.1242/jeb.195172.

45. Cox, S., Easton, K, Cromie, M., Marsh, R., Delp, S., ***Rubenson, J.** (2019). The interaction of compliance and activation on the force-length operating range and force generating capacity of skeletal muscle: a computational study using a guinea fowl musculoskeletal model. *Integrative Organismal Biology*, obz022, <https://doi.org/10.1093/iob/obz022>.

44. McDonald, K.A., Cusumano, J.P., Peeling, P., ***Rubenson, J.** (2019). Multi-objective control in human walking: insights gained through simultaneous degradation of energetic and motor regulation systems. *J. R. Soc. Interface.* 16: doi: 10.1098/rsif.2019.0227.

2018

43. Cox, S.M., ***Rubenson, J.**, *Sawicki, G.S. (2018). A soft-exosuit enables multi-scale analysis of wearable robotics in a bipedal animal model. *IEEE Intelligent Robots and Systems IROS*. [*contributed equally to this work as co-senior authors].

42. Pires, N.J., Lay, B., ***Rubenson, J.** (2018). Modulation of joint and limb mechanical work in walk-to-run transition steps in humans. *J. Exp. Biol.* 221: 1-13.

41. Salzano, M.Q., Cox, S.M., Piazza, S.J., ***Rubenson, J.** (2018). American Society of Biomechanics Journal of Biomechanics Award 2017: High acceleration training during growth increases optimal muscle fascicle lengths in an avian bipedal model. *J. Biomech.* 80: 1-7.

40. Bishop, P.J., Graham, D.F., Lamas, L.P., Hutchinson, J.R., **Rubenson, J.**, Hancock, J., Wilson, R.S., Hocknull, S.A., Barrett, R.S., Lloyd, D.G., Clemente, C.J. (2018). The influence of speed and size on avian terrestrial locomotor biomechanics: Predicting locomotion in extinct theropod dinosaurs *PLoS ONE*. 2018 Feb 21;13(2):e0192172.

2017

39. Bishop, P.J., Clemente, C.J., Weems, R.E., Graham, D.F., Lamas, L.P., Hutchinson, J.R., **Rubenson, J.**, Wilson, R.S., Hocknull, S.A., Barrett, R.S., Lloyd, D.G. (2017). Using step width to compare locomotor biomechanics between extinct, non-avian theropod dinosaurs and modern obligate bipeds. *J. R. Soc. Interface*. Jul;14(132).

38. Sartori, M., **Rubenson, J.**, Lloyd, D. G. & Panizzolo, F.A. (2017). Subject-specificity via 3D ultrasound and personalized musculoskeletal modeling. In *Converging Clinical and Engineering Research on Neurorehabilitation II*. Springer International Publishing, Heidelberg, pp.639-642.

37. Xin Pang, Jian Ping Wu, Garry T Allison, Jiake Xu, David Smith, **Rubenson, J.**, Ming-Hao Zheng, David G Lloyd, Bruce Gardiner, Allan Wang, Thomas Brett Kirk. (2017). Three-dimensional microstructural network of elastin, collagen and cells in Achilles tendons. *J. Orthop. Res.* 35:1203-1214.

2016

36. Panizzolo, F.A., Maiorana, A.J., Naylor, L., Dembo, L.G., Lloyd, D.G., Green, D.J. and ***Rubenson, J.** (2016) Muscle size explains low passive skeletal muscle force in heart failure patients. *PeerJ*, 1-11. ISBN/ISSN #/Case #/DOI #: 10.7717/peerj.2447.

35. Young, S, Mehdizadeh, A., Gardiner, B., Umberger, B.A., **Rubenson, J.**, Smith, D. (2016). Adaptive remodeling of Achilles tendon: A multi-scale computational model. *PLoS Computational Biology*, 2(9):e1005106, 1-30.

34. Waldcock, C., Donnelly, C.J., **Rubenson, J.**, N. Milne (2016). The use of geometric morphometric techniques to identify sexual dimorphism in gait. *J. Appl. Biomech.* 32: 441 - 448.

33. Stearne, S.M., McDonald, K.A., North, I, Oxnard, C.E., Alderson, J.A., and ***Rubenson, J.** (2016). The foot's arch and the energetics of human locomotion. *Scientific Reports*. 6: 19403, 1-10.

32. McDonald, K.A., Stearne, S.M., Pires, N.J., North, I, Alderson, J.A., and ***Rubenson, J.** (2016). The role of arch compression and metatarsophalangeal joint dynamics in modulating plantar fascia strain in running. *PLoS ONE*. Apr 7;11(4):e0152602.

31. Rankin, J.W., **Rubenson, J.** and Hutchinson, J.R. (2016). Inferring muscle functional roles of the ostrich pelvic limb during walking and running using computer optimization. *J. R. Soc. Interface*. 13(118). 20160035. <http://doi.org/10.1098/rsif.2016.0035>.

30. Green, D.J., Panizzolo, F.A., Lloyd, D.G, ***Rubenson, J**, and Maiorana, A.J. (2016). Soleus muscle as surrogate for health status in human heart failure. *Exerc. Sport Sci. Rev.* 44: 45-50.

29. Caulfield S., McDonald K.A., Dawson B., Stearne S.M., Green B.A., **Rubenson J.**, Clemons T.D., Peeling P. (2016). A comparison of haemolytic responses in fore-foot and rear-foot distance runners. *J Sports Sci.* 34: 1485-1490.

2015

28. Hutchinson, J.R., Rankin, J.W., **Rubenson, J.**, Rosenbluth, K.H., Siston R.A., and Delp, S.L. (2015). Musculoskeletal modeling of an ostrich (*Struthio camelus*) pelvic limb: Influence of limb orientation on muscular capacity during locomotion. *PeerJ* 3:e1001 <https://dx.doi.org/10.7717/peerj.1001>.

27. Wang, T., Ni, M., Day, R.E., Gardiner, B.S., Landao-Bassonga, E., **Rubenson, J.**, Kirk, T.B., Smith, D.W., Wang, A., Lloyd, D.G., Hardisty, G., Wang, Y., Zheng, Q., Zheng, M.H. and Lin, Z. (2015). Cyclical mechanical stimulation rescues rabbit Achilles tendon from degeneration in a bioreactor system. *Journal Orthop. Res* 33:1888-96.

26. Nathan, D., Huynh, D., **Rubenson, J**, Rosenberg, M. (2015). Estimating physical activity energy expenditure with the Kinect sensor in an exergaming environment. *PLoS ONE* 10(5): 1-22.

25. ***Rubenson, J.** (2015). More than meat and a motor: the diverse biomechanical roles of skeletal muscle and their role in semi-living machines. Invited paper for *Leonardo Journal / the International Society for the Arts, Sciences and Technology*, MIT Press. 48: 176-7.

24. Panizzolo, F.A., Maiorana, A.J., Naylor, L., Lichtwark, G.A., Dembo, L.G., Lloyd, D.G., Green, D.J. and ***Rubenson, J.** (2015). Is the soleus a sentinel muscle for impaired aerobic capacity in Heart Failure? *Med. Sci. Sports Exerc.* 47: 498-508.

2014

23. Panizzolo, F.A., Maiorana, A.J., Naylor, L., Lloyd, D.G., Dembo, L.G., Green, D.J. and ***Rubenson, J.** (2014). Gait analysis in chronic heart failure: the calf as a locus of impaired walking capacity. *J. Biomech.* 47: 3719-25.

22. Pires, N.J., Lay, B. and ***Rubenson, J.** (2014). Joint-level mechanics of the walk-to-run transition in humans. *J. Exp. Biol.* 217: 3519-3527.

21. Stearne, S.M., Alderson, J.A., Green, B., Donnelly, C.J. and ***Rubenson, J.** (2014). Joint kinetics in rearfoot vs. forefoot running: implications of switching technique. *Med. Sci. Sports Exerc.* 46:1578-87.

2013:

20. Panizzolo, F.A., Green, D.J., Lloyd, D.G., Maiorana, A.J. and ***Rubenson, J.** (2013). Soleus fascicle length changes are conserved between young and old adults at their preferred walking speed. *Gait and Posture*. 38: 764 - 769.
19. Smith, D.W., **Rubenson, J.**, Lloyd, D.G., Zheng, M., Besier, T.F., Xu, J. and Gardiner, B.S. (2013). A conceptual framework for computational models of Achilles tendon homeostasis. *Wiley Interdisciplinary Reviews: System Biology and Medicine*. 5: 523 – 538.
18. Wang, T., Lin, Z., Day, R., Gardner, B., **Rubenson, J.**, Kirk, T.B., Smith, D.W., Lloyd, D.G., Hardisty, G., Wang, A. and Zheng, M.H. (2013). Programmable mechanical stimulation influences tendon homeostasis in a bioreactor system. *Biotechnol Bioeng*. 110: 1495-507.
17. Wang, T., Gardner, B., Lin, Z., Kirk, T.B., **Rubenson, J.**, Wang, A., Hunter, P., Anderson, P., Xu, J., Daish, K., Smith, D.W., Lloyd, D.G., and Zheng, M.H. (2013). Bioreactor design for tendon/ligament engineering. *Tissue Eng. Part B. Rev.* 19: 133-46.
16. Haughton, L., Dawson, B., ***Rubenson, J.** (2013). Achilles tendon mechanical properties after both prolonged continuous running and prolonged intermittent shuttle running in cricket batting. *J. Appl. Biomech.* 29: 453 - 462.
15. Haughton, L., Dawson, B., ***Rubenson, J.** (2013). Effects of plyometric training on Achilles tendon properties and shuttle running during a simulated cricket batting innings, *J. Strength Cond. Res.* 27: 1036 – 1046.

2012:

14. ***Rubenson, J.**, Pires, N.J., Loi, H.O., Pinniger, G.J., and Shannon, D. (2012). On the ascent: the soleus operating length is conserved to the ascending limb of the force-length curve across gait mechanics in humans. *J. Exp. Biol.* 215: 3539 - 3551.

2011:

13. ***Rubenson, J.**, Heliamas, B.D., Besier, T.F., Lloyd, D.A., and Fournier, P.A. (2011). Adaptations for economical bipedal running: the effect of limb structure on three-dimensional joint mechanics. *J. R Soc., Interface.* 8: 740-755.
12. Umberger, B.R. and **Rubenson, J.** (2011). Understanding muscle energetics in locomotion: New modeling and experimental approaches *Exerc. Sport Sci. Rev.* 39: 59-67.
11. Park, D, **Rubenson, J.**, Carr, A, Mattson, J, Besier, T.F., and Chou, L. (2011). The Influence of stretching and warm-up on Achilles tendon material properties. *Foot and Ankle Int.* 32: 407-413.
10. Carr, J.A., Ellerby, D.J., **Rubenson, J.**, and Marsh, R.L. (2011). Mechanisms producing coordinated function across the breadth of a large biarticular thigh muscle. *J. Exp. Biol.* 114: 3396 - 3404.

9. Watson, R.R., **Rubenson, J.**, Coder, L., Hoyt, D.F., Propert, M.W.G., and Marsh, R.L. (2011). Gait specific energetics contribute to economical walking and running in emus and ostriches. *Proc. R. Soc. Lond. B.* 278: 2040-2046.
 8. Haughton, L., Dawson, B., **Rubenson, J.**, Tobin, M. (2011). Movement patterns and physiological strain during a novel, simulated cricket batting innings (BATEX), *J. Sport. Sci.* 29: 801-809.
 7. Haughton, L., Dawson, B., ***Rubenson, J.** (2011). Performance in a simulated cricket batting innings (BATEX): Reliability and discrimination between playing standards. *J. Sport. Sci.* 29: 1097-103.
- 2009 & Earlier:*
6. ***Rubenson, J.** and Marsh, R.L. (2009). Mechanical efficiency of limb swing during walking and running in guinea fowl (*Numida meleagris*). *J. Appl. Physiol.* 106: 1618 – 1630.
 5. ***Rubenson, J.**, Heliams, B.D., Lloyd, D.A., Maloney, S.K., Withers, P.C. and Fournier, P.A. (2007). Reappraisal of the comparative cost of human locomotion using gait-specific allometric analyses. *J. Exp. Biol.* 210: 3513-3524.
 4. ***Rubenson, J.**, Lloyd, D.A., Besier, T.F., Heliams, B.D., and Fournier, P.A. (2007). Running in ostriches (*Struthio camelus*): three-dimensional joint axes alignment and joint kinematics. *J. Exp. Biol.* 210: 2548-2562.
 3. Marsh, R.L., Ellerby, D.J., Henry, H.T. and **Rubenson, J.** (2006). The energetic cost of trunk and distal limb loading during walking and running in guinea fowl *Numida meleagris*. I. Organismal metabolism and biomechanics. *J. Exp. Biol.* 209: 2050-63.
 2. **Rubenson, J.**, Henry, H.T., Dimoulas, P.M. and Marsh, R.L. (2006). The cost of running uphill: linking organismal and muscle energy use in guinea fowl *Numida meleagris*. *J. Exp. Biol.* 209: 2395-2408.
 1. **Rubenson, J.**, Heliams, B.D., Lloyd, D.A., and Fournier, P.A. (2004). Gait selection in the ostrich: mechanical and metabolic characteristics of walking and running with and without an aerial phase. *Proc. R. Soc. Lond. B.* 271: 1091– 1099.

Conference Proceedings

77. ***Rubenson, J.**, Arellano, C.J., Arias, A., Daley, M., Dick, T.J.M., Holt, N.C., Manafzadeh, A.R., Richards, C.T., Sawicki, G.S., and Schulz, A.K. Comparative Neuromuscular Biomechanics (CNB): The Intersection of Comparative and Human Biomechanics. Society for Integrative and Comparative Biology Annual Meeting, 2024, Seattle, USA.
76. Katugam-Dechene, K., Johnson, T., Dechene, I., Cox, S.M., Piazza, S.J., ***Rubenson, J.** Locomotor and Musculoskeletal Adaptations to Growth-Period Load Stimulus. Society for Integrative and Comparative Biology Annual Meeting, 2024, Seattle, USA.

75. Clemente, C. J., Thornton, L. H., Hutchinson, J. R., Lichtwark, G. A., McGowan, C. P., Wiktorowicz-Conroy, A, **Rubenson, J.**, and Dick, T.J.M. Unlocking Kangaroo Hopping: Posture, Tendon Stress, & the Metabolic Mystery. Society for Integrative and Comparative Biology Annual Meeting, 2024, Seattle, USA.

74. ***Rubenson, J.** Comparative Neuromuscular Biomechanics (CNB) Group Symposium: Muscles, Models, Machines. Comparative Neuromuscular Biomechanics Working Group Biennial Meeting; International Society of Biomechanics XXIX, 2023, Fukuoka, Japan.

73. Jurestovsky, D., Cox, S.M., Piazza, S.J., ***Rubenson, J.** Substantial reductions in adult physical activity follow an exercise-restricted growth period in guinea fowl. International Society of Biomechanics XXIX, 2023, Fukuoka, Japan.

72. Katugam-Dechene, K., Johnson, T., Dechene, I., Cox, S.M., Piazza, S.J., ***Rubenson, J.** Energetics, mechanics, and muscle: Locomotor adaptations to chronic limb loading during development. International Society of Biomechanics XXIX, 2023, Fukuoka, Japan.

71. ***Rubenson, J.** Convincing reviewers (NIH) to fund basic science. Workshop on NIH funding. American Society of Biomechanics Annual Meeting, 2023, Knoxville, TN, USA. (*Invited panelist*).

70. Jurestovsky, D., Cox, S.M., Piazza, S.J., ***Rubenson, J.** Substantial reductions in adult physical activity follow an exercise-restricted growth period in guinea fowl. 2023 Huck Institutes of the Life Sciences, Life Sciences Symposium, Penn State University, University Park, PA, USA.

69. Thomas, S., Sawicki, G.S., Cheng, B., Cheng, H., Aynardi, M., ***Rubenson, J.** An Implantable Actuator for Musculotendon Force Assistance in a Bipedal Animal Model. American Society of Biomechanics Annual Meeting, 2023, Knoxville, TN, USA.

68. Katugam-Dechene, K., Johnson, T., Piazza, S.J., ***Rubenson, J.** Developmental plasticity of muscle architecture in response to chronic limb loading. American Society of Biomechanics Annual Meeting, 2023, Knoxville, TN, USA.

67. Thomas, S., Sawicki, G.S., Cheng, B., Cheng, H., Aynardi, M., ***Rubenson, J.** An Implantable Actuator for Musculotendon Force Assistance in a Bipedal Animal Model. 2023 Huck Institutes of the Life Sciences, Life Sciences Symposium, Penn State University, University Park, PA, USA.

66. Katugam, K., Johnson, T., Dechene, I., Cox, S.M., Piazza, S.J., ***Rubenson, J.** Developmental plasticity of walking energetics and swing phase mechanics in chronically limb-loaded fowl. North American Congress on Biomechanics. 2022, Ottawa, Canada.

65. ***Rubenson, J.** Animals in OpenSim: Basic Musculoskeletal Function and Model Validation. World Congress of Biomechanics IX. 2022, Taipei (Invited Workshop).

64. Katugam, K., Johnson, T., Dechene, I., Cox, S.M., Piazza, S.J., ***Rubenson, J.** Adaptations in mechanical limb power and metabolic energy cost after chronic growth-period limb loading. International Society of Biomechanics Annual Meeting, 2021, Stockholm, Sweden (Online).

63. Johnson, T., Katugam, K., Dechene, I., Cox, S.M., Piazza, S.J., ***Rubenson, J.** Developmental Plasticity of Locomotor Economy in an Avian Bipedal Model. International Society of Biomechanics Annual Meeting, 2021, Stockholm, Sweden (Online).
62. Johnson, T., Katugam, K., Dechene, I., Cox, S.M., ***Rubenson, J.** Chronic limb loading results in a remarkable economy of walking with added limb mass. Dynamic Walking 2021 Annual Meeting, Online.
61. Johnson, T., Katugam, K., Dechene, I., Cox, S.M., Piazza, S.J., ***Rubenson, J.** Developmental Plasticity of Locomotor Economy in guinea fowl. Society for Integrative and Comparative Biology, 2021, Washington, DC, USA; online.
60. Cox, S.M., Salzano, M.Q., Katugam, K., Piazza, S.J., ***Rubenson, J.** Restricting jumping during growth does not alter energy storage capacity. Society for Integrative and Comparative Biology, 2021, Washington, DC, USA; online.
59. Katugam, K., Johnson, T., Dechene, I., Cox, S.M., Piazza, S.J., ***Rubenson, J.** Developmental Plasticity of walking energetics and swing-phase mechanics in chronically limb-loaded fowl. Society for Integrative and Comparative Biology, 2021, Washington, DC, USA; online.
58. Katugam, K., Cox S.M, Salzano, M.Q., De Boef, A., Neuberger, T., Ryan, T.R., Piazza, S.J., ***Rubenson, J.** Achilles Tendon Material Properties are Resilient to Variations in Load During Growth. American Society of Biomechanics Annual Meeting, 2020, Atlanta, GA, USA; online.
57. Johnson, T., Katugam, K., Dechene, I., Cox, S.M., Piazza, S.J., ***Rubenson, J.** Developmental Plasticity of Locomotor Economy in an Avian Bipedal Model. American Society of Biomechanics Annual Meeting, 2020, Atlanta, GA, USA; online.
56. Salzano, M.Q., Cox, S.M., Piazza, S.J., ***Rubenson, J.** Moment Arm Plasticity in Response to Loading History during Growth. American Society of Biomechanics Annual Meeting, 2020, Atlanta, GA, USA; online.
55. McDonald, K.A., Cusumano, J.P., Hieronymi, A., and ***Rubenson, J.** Decoupling the Metabolic and Neuromuscular Control of Human Walking. Dynamic Walking 2020 Annual Meeting, Online.
54. Cox, S., Easton, K, Cromie, M., Marsh, R., Delp, S., ***Rubenson, J.** Probing the interaction of compliance and activation on the force-length operating range and force capacity of skeletal muscle using comparative musculoskeletal modelling. American Society of Biomechanics / International Society of Biomechanics Annual Meeting, 2019, Calgary, AB, Canada.
53. Salzano, M.Q., Cox, S.M., Piazza, S.J., ***Rubenson, J.** Effects of exercise during growth on bone strength and morphology. American Society of Biomechanics / International Society of Biomechanics Annual Meeting, 2019, Calgary, AB, Canada.
52. Katugam, K., Salzano, M.Q., Cox, S.M., Piazza, S.J., ***Rubenson, J.** Material properties of the achilles tendon are unaltered by botulinum toxin across growth in an avian bipedal model. American Society of Biomechanics / International Society of Biomechanics Annual Meeting, 2019, Calgary, AB, Canada.

51. Salzano, M.Q., Cox, S.M., Piazza, S.J., ***Rubenson, J.** Impaired jumping performance arising from sedentary growth is recovered through exercise in adulthood. American Society of Biomechanics 42nd Annual Meeting, 2018, Rochester, MN, USA.
50. Cox, SM, Sawicki, G, ***Rubenson, J.** RoboBird: A passive exo-tendon for guinea fowl. 2018 Neural Control of Movement, 2018, Santa Fe, NM, 1-F-60.
49. Salzano, M.Q., Cox, S.M., Piazza, S.J., ***Rubenson, J.** Impaired jumping performance arising from sedentary growth is recovered through exercise in adulthood. American Society of Biomechanics East Coast Regional Meeting, 2018, Reading, PA, USA.
48. Salzano, M.Q., Ryan, T., Cox, S.M., Piazza, S.J., ***Rubenson, J.** Musculoskeletal adaptations to high-acceleration training during growth in an avian bipedal model. The Penn State Bone and Joint Institute Annual Musculoskeletal Research Symposium, 2018, University Park, PA, USA.
47. ***Rubenson, J.**, Salzano, M.Q., Cox, S.M., Piazza, S.J. Developmental plasticity of musculoskeletal structure and locomotor function in guinea fowl (*Numida meleagris*). Society for Integrative and Comparative Biology, Annual Meeting, 2018, San Francisco, CA. *Integr. Comp. Biol.* 58: E194.
46. Brainerd, E.L., Cox, S.M., Sawicki, G., Olsen, A.M., Flammang, B.E., Biewener, A.A., ***Rubenson, J.** ASB-SICB Joint Symposium: Insights from Animal Biomechanics. American Society of Biomechanics 41st Annual Meeting, 2017, Boulder, CO.
45. Cox, S.M., Sawicki, G., ***Rubenson, J.** Robobird: An avian model for passive-elastic exoskeletons. American Society of Biomechanics 41st Annual Meeting, 2017, Boulder, CO.
44. Salzano, M.Q., Cox, S.M., Piazza, S.J., ***Rubenson, J.** High-acceleration training during growth increase optimal muscle fiber lengths in an avian bipedal model. American Society of Biomechanics 41st Annual Meeting, 2017, Boulder, CO.
43. Green, B.A., Sawicki, G., ***Rubenson, J.** Energy cost of walking in a metatarsophalangeal passive-elastic exoskeleton. American Society of Biomechanics 41st Annual Meeting, 2017, Boulder, CO.
42. McDonald, K.A., Peeling P., ***Rubenson, J.** Preferred walking speed in normal and unstable gait environments. American Society of Biomechanics 40th Annual Meeting, 2016, Raleigh, NC.
41. McDonald, K.A., Peeling P., ***Rubenson, J.** Energetic optimization in unstable gait environments. Biomechanics and Neural Control of Movement (BANCOM), 2016, Mt. Sterling, OH.
40. Salzano, M.Q., Piazza, S.J., ***Rubenson, J.** The effect of disuse on muscle lever systems in a rapid-growing avian bipedal model. American Society of Biomechanics 40th Annual Meeting, 2016, Raleigh, NC.
39. Sartori, M., **Rubenson, J.**, Lloyd, D.G., Farina, D., Panizzolo, F. Subject-Specificity via 3D Ultrasound and Personalized Musculoskeletal Modeling. International Conference on Neurorehabilitation (ICNR), 2016, Segovia, Spain.

38. McDonald, K.A., Stearne, S.M., and ***Rubenson, J.** The role of arch compression and metatarsophalangeal joint dynamics in modulating plantar fascia strain in running. International Society of Biomechanics XXV, 2015, Glasgow, UK.
37. Panizzolo, F.A., Maiorana, A.J., Naylor, L., Dembo, L.G., Lloyd, D.G., Green, D.J. and ***Rubenson, J.** Passive and Active soleus muscle forces in chronic heart failure. International Society of Biomechanics XXV, 2015, Glasgow, UK.
36. ***Rubenson, J.** Modulation and Distribution of Joint Work and Power in Bipedal Locomotion. International Symposium on Adaptive Motion of Animals and Machines (AMAM). 2015, MIT, Cambridge, MA, USA.
35. ***Rubenson, J.**, Sanghvi, H., Cromie, M.J., Easton, K.L., Marsh, R.L. and Delp, S.L. Invited symposium speaker: 'OpenSim Showcase Seminar'. World Congress Biomechanics VII, 2014, Boston, MA, USA.
34. ***Rubenson, J.** Invited symposium speaker: 'Comparative Biomechanics of Bipedal Locomotion'. World Congress Biomechanics VII, 2014, Boston, MA, USA.
33. ***Rubenson, J.**, Sanghvi, H., Cromie, M.J., Easton, K.L., Marsh, R.L. and Delp, S.L. Influence of tendon compliance and activation level on fibre operating lengths of skeletal muscle. Society for Integrative and Comparative Biology, 2013, San Francisco, CA, USA. *Integr. Comp. Biol.* 53: E186.
32. Rankin, J.W., **Rubenson, J.** and Hutchinson, J.R. The influence of ostrich hip morphology on walking and running economy: a test case for using detailed musculoskeletal models and computer simulations to link form and function. 10th International Congress of Vertebrate Morphology (ICVM-10), 2013, Barcelona, Spain.
31. Panizzolo, F.A., Maiorana, A.J., Green, D.J., Lloyd, D.G. and ***Rubenson, J.** Gait analysis in chronic heart failure patients points to the calf as the source of reduced functional capacity. International Society of Biomechanics XXIV, 2013, Natal, Brazil.
30. Panizzolo, F.A., Maiorana, A.J., Green, D.J., Lloyd, D.G. and ***Rubenson, J.** Muscle and tendon morphological characteristics in chronic heart failure patients. International Society of Biomechanics XXIV, 2013, Natal, Brazil.
29. Stearne, S.M., Alderson, J. and ***Rubenson, J.** Sole searching: Exploring the spring function of the arch of the foot across different foot strike techniques using a novel insole approach. International Society of Biomechanics XXIV, 2013, Natal, Brazil.
28. Stearne, S.M., Alderson, J., Green, B., Donnelly, C.J. and ***Rubenson, J.** Redistribution of mechanical work and power in rear- and fore-foot strike running techniques. International Society of Biomechanics XXIV, 2013, Natal, Brazil.
27. Easton, K.L., Hayes, A., Besier, T., Lloyd, D. and ***Rubenson, J.** (2013). Development of a musculoskeletal model of the New Zealand white rabbit hindlimb: Joint power and work during hopping and jumping. International Society of Biomechanics XXIV, 2013, Natal, Brazil.

26. ***Rubenson, J.**, Sanghvi, H., Cromie, M.J., Easton, K.L., Marsh, R.L. and Delp, S.L. (2013). Interaction between tendon compliance the activation level on fiber operating lengths of skeletal muscle. International Society of Biomechanics XXIV, 2013, Natal, Brazil.
25. Stearne, S.M., **Rubenson, J.** and Alderson, J.A. Investigation of running foot strike technique on Achilles tendon force using ultrasound techniques and a Hill-type model. 3rd Congress of the International Foot and Ankle Biomechanics (i-FAB) Community, Sydney, Australia. *Journal of Foot and Ankle Research* 2012, 5(Suppl 1):P25.
24. ***Rubenson, J.**, Pires, N.J., Loi, H.O., Pinniger, G.J., and Shannon, D. (2012). On the ascent: the soleus muscle is conserved to the ascending limb of the force length curve across gait mechanics in humans. American Society of Biomechanics 36th Annual Meeting, 2012, Gainesville, Florida.
23. Rankin, J.W., **Rubenson, J.** and Hutchinson, J.R. Insights gained from a three-dimensional musculoskeletal model into ostrich pelvic limb muscle. Dynamic Walking, 2012, Pensacola Beach, Florida.
22. Panizzolo, F.A., Green, D.J., Maiorana, A.J., Lloyd, D.G. and ***Rubenson, J.** Soleus fascicle strain is matched in young and old adults at the preferred walking speed. International Society of Biomechanics XXIII, 2011, Brussels, Belgium.
21. Rankin, J.W., Tsaopoulos, D.E., ***Rubenson, J.** and Hutchinson, J.R. Biomechanical simulation to determine the mechanical roles of ostrich limb muscle during walking. Society for Experimental Biology, 2011, Glasgow, Scotland.
20. ***Rubenson, J.**, Pires, N.J., Shannon, D., Loi, H.O. The force length operating range of the human soleus muscle during walking and running. VI World Congress Biomechanics, 2010, Singapore.
19. ***Rubenson, J.**, Marsh, R.L. The role of passive joint moments in the mechanics and energetics of limb swing. International Society of Biomechanics XXII., 2009, Cape Town, SA.
18. ***Rubenson, J.**, Marsh, R.L. Revealing the mechanical determinants of limb-swing cost. Society for Experimental Biology, 2008, Marseille. *Comp. Biochem. Physiol. A.* 150: S68.
17. ***Rubenson, J.**, Marsh, R.L. Integrating the mechanical and metabolic energetics of the swing phase of walking and running, American Society of Biomechanics 31st Annual Meeting, 2007, Stanford, CA.
16. ***Rubenson, J.** and Marsh, R.L. The in vivo function of two swing-phase muscles in running guinea fowl and their relation to limb-swing dynamics. Society for Experimental Biology, 2006, Canterbury. *Comp. Biochem. Physiol. A.* 143: S90.
15. Marsh, R.L. and **Rubenson, J.** Passive moments at the leg joints of guinea fowl. American Physiological Society Intersociety Meeting: Comparative Physiology: Integrating Diversity, 2006, Virginia Beach, VA.
14. Marsh R.L., **Rubenson J.**, Henry H. and Ellerby, D. Lateral gastrocnemius function in running and jumping guinea fowl *Comp. Society for Experimental Biology*, 2006, Canterbury. *Comp. Biochem. Physiol. A.* 143: S91.

13. ***Rubenson J**, Besier T.F., Lloyd D.A., Helaims, D.B. and Fournier, P.A. Three-dimensional joint kinematics and kinetics during bipedal running: Effect of limb posture. Society for Experimental Biology, Barcelona., 2005, *Comp. Biochem. Physiol. A*. 141: S146.
12. ***Rubenson, J.**, and Marsh, R.L. Integrating the mechanics and energetics of the swing phase during walking and running. Society for Experimental Biology, 2005, Barcelona. *Comp. Biochem. Physiol. A*. **141**: S135.
11. Marsh R.L., Ellerby, D.J., **Rubenson, J.** and Henry, H.T. Altering energy use by specific muscle groups in running guinea fowl: carrying loads and running uphill. Society for Experimental Biology, 2005, Barcelona. *Comp. Biochem. Physiol. A*. 141: S135.
10. Dimoulas P.M., Henry H., **Rubenson J.**, et al. Homogenous activation patterns of the anatomically compartmentalized semimembranosus muscle in *Bufo marinus*. Society for Integrative and Comparative Biology, 2005, San Diego. *Integr. Comp. Biol.* 44: 546.
9. Henry HT, **Rubenson J**, Hoogendyk T.A. and Marsh, R.L. Storage of elastic energy in guinea fowl lateral gastrocnemius tendon in running versus jumping. Society for Integrative and Comparative Biology, 2005, San Diego. *Integr. Comp. Biol.* 44: 547.
8. Marsh RL, **Rubenson J**, Henry H.T. and Dimoulas, D.M. Muscle energetics measured by blood flow in guinea fowl during uphill running. Society for Integrative and Comparative Biology, 2005, San Diego. *Integr. Comp. Biol.* 44: 597.
7. ***Rubenson, J.** and Marsh, R.L. Joint moments and powers during the swing-phase of running in the guinea fowl (*Numida meleagris*). Society for Integrative and Comparative Biology, 2005, San Diego. *Integr. Comp. Biol.* 44: 633.
6. ***Rubenson, J.**, Besier, T.F., Heliams, B.D., Lloyd, D.A., and Fournier, P.A. Three-dimensional kinematics and kinetics of running in the ostrich (*Struthio camelus*). Society for Integrative and Comparative Biology, 2005, San Diego. *Integr. Comp. Biol.* 44: 744.
5. Carr, J.A., Ellerby, D., Hoogendyk, T.A., **Rubenson, J.**, Marsh, R.L. Differential strain in an architecturally complex muscle. Society for Integrative and Comparative Biology, 2005, San Diego. *Integr. Comp. Biol.* 44: 533.
4. Hoogendyk, T.A Carr, J.A., Henry, H.T., **Rubenson, J.**, Marsh, R.L. Mechanical and neural determinants of differences in fascicle strain between functionally distinct compartments in *M. Iliofibularis* during terrestrial locomotion in guinea fowl. Society for Integrative and Comparative Biology, 2005, San Diego. *Integr. Comp. Biol.* 44: 571.
3. ***Rubenson, J.**, Heliams, B.D., Maloney, S.K., Withers, P.C., Martin, G.B.M., Lloyd, D.A., and Fournier, P.A. How economical is human bipedal locomotion? *V World Congress Biomechanics*, 2002, Calgary, Canada.
2. ***Rubenson, J.**, Heliams, B.D., Maloney, S.K., Withers, P.C., Martin, G.B.M., Lloyd, D.A., and Fournier, P.A. Mechanical and metabolic characteristics of bipedal gait transition. *International Society of Biomechanics XVIII*, 2001, Zurich, Switzerland.

1. ***Rubenson, J.**, Heliams, B.D., Maloney, S.K., Withers, P.C., Martin, G.B.M., Lloyd, D.A., and Fournier, P.A. The economy of bipedal locomotion: effect of limb design. *International Union of Physiological Sciences XVIII satellite*, 2001, Wollongong, Australia.

Supervision

Post-doctoral scholars (current)

Dr. Sean Thomas, Ph.D. (2022 -). Postdoctoral scholar on Huck Institutes *Embodied Synthetic Muscles for Adaptive Preservation of Locomotor Function* Seed Grant.

Dr. Derek Jurestovsky, Ph.D. (2022 -). Postdoctoral scholar on NIH R01 *Active Growth, Active Life: Eliminating Biomechanical Barriers to Physical Activity through Growth-Period Exercise: R01AR080711*.

Dr. Timo Van Leeuwen, Ph.D. (2022 -). Postdoctoral scholar on Research Foundation Flanders (FWO) project in collaboration with KU Leuven, University of Auckland and Penn State University *An innovative modelling approach to estimating loading history from bone micro-architecture*.

Post-doctoral scholars (past)

Dr. Suzanne Cox, Ph.D. (2016 - 2021). Postdoctoral scholar on NIH R21 *Set for life: Long-term effects of inactivity during growth on musculoskeletal form and locomotor function*. R21AR07158. Currently Research Scientist, Department of Biology, Duke University.

Dr. Katrina Easton, Ph.D. (2011 - 2014). Postdoctoral scholar on ARC Linkage grant *Bioengineered bioscaffolds for Achilles tendinopathy treatment*. Was in veterinary practice 2014 – 2020. Currently Research Scientist, Department of Biomedical Engineering, University of Tennessee (with Dustin Crouch).

Graduate Students (current)

Jessica Murawski. (Ph.D. 2024 -) Department of Kinesiology, Penn State. *Thesis Topic: TBD*. Commencing Jan., 2024.

Roberto Castro, Jr. (Ph.D. 2022 -) Department of Kinesiology, Penn State. *Thesis Topic: Effect of growth-period loading stimulus on joint architecture*.

Graduate Students (past)

Kavya Katugam-Dechene (Ph.D. 2020 – 2023) Department of Kinesiology, Penn State. *Thesis Topic: Developmental plasticity of locomotor mechanics & energetics*. Postdoctoral Scholar, UMass Lowell / Harvard University.

Talayah Johnson (M.Sc. 2019 – 2021) Department of Kinesiology, Penn State. *Thesis topic: Locomotor energetic plasticity.* Current Ph.D. Candidate, UPenn Perelman School of Medicine.

Kavya Katugam-Dechene (M.Sc. 2018 – 2020) Department of Kinesiology, Penn State. *Thesis Topic: Effect of growth-period exercise on the mechanical properties of the Achilles tendon in fowl.*

Mathew Salzano (Ph.D. 2015 – 2020) Integrative and Biomedical Physiology Program, Penn State. *Thesis topic: Effect of load stimulus during growth on musculoskeletal form and function.* Current Postdoctoral Scholar, UMass, Amherst, Kinesiology.

Neville Pires (Ph.D. 2009 – 2019; candidature suspended from 2014 – 2019 while working at Vicon Inc). School of Human Movement and Exercise Science, The University of Western Australia. *Thesis topic: Distribution and modulation of joint mechanical work and power across gaits and speed in human locomotion.* Current Engineer, Vicon Inc., Denver, CO.

Kirsty McDonald (Ph.D. 2013 – 2018; Penn State visiting scholar from 2015 - 2018). School of Human Movement and Exercise Science, The University of Western Australia. *Thesis topic: Discovering optimality criteria in human walking.* Was postdoctoral scholar, Department of Mechanical Engineering, Vanderbilt University (with Karl Zelik). Current Assistant Professor, Department of Physiology, School of Medicine, University of New South Wales.

Carl Grob (Ph.D. 2013 – 2017). School of Human Movement and Exercise Science, The University of Western Australia. *Thesis topic: Surgical exposure of the hip joint and femur with a special emphasis on the architecture and function of the quadriceps muscle group and femoral blood supply.* Current faculty physician, Department of Anatomy, University of Zurich, UZH.

Peter Bishop (Ph.D. 2013 – 2017). Griffith University (co-supervisor). *Thesis topic: Biomechanics of extant and extinct bipeds.* Was postdoctoral research associate, Royal Veterinary College, University of London (with John Hutchinson). Current postdoctoral scholar, Museum of Comparative Zoology, Harvard University (with Stephanie Pierce).

David Survepalli (Ph.D. 2013 – 2016). School of Human Movement and Exercise Science, The University of Western Australia. *Thesis topic: Triceps surae blood pump function during gait.*

Fausto Panizzolo (Ph.D. 2010 – 2014). School of Human Movement and Exercise Science, The University of Western Australia. *Thesis topic: Optimizing exercise and functional capacity in heart failure: A focus on enhancing skeletal muscle mechanics.* Was postdoctoral research associate, Wyss Institute, Harvard University (with Conor Walsh). Now CEO MoveoWalks, Cambridge, MA / Padova, Italy.

Sara Stearne (Ph.D. 2010 – 2014). School of Human Movement and Exercise Science, The University of Western Australia. *Thesis topic: Exploring passive elastic mechanisms in walking and running.* Current Adjunct Assistant Prof., School of Physiotherapy & Exercise Science, Curtin Univ., Australia.

Laurence Haughton (Ph.D. 2009 – 2012). School of Human Movement and Exercise Science, The University of Western Australia. *Thesis topic: Effect of fatigue on the Achilles tendon material properties.*

Hardik Sanghvi (M.Sc.. 2011 – 2012). Linköping University, Bioengineering Dept.; UWA visiting scholar (Co-Supervisor). *Thesis topic: A 3D computational neuromuscular model of the avian hind-limb (guineafowl).*

Shioto Fukushima (Ph.D. 2008 – 2009). School of Human Movement and Exercise Science, The University of Western Australia (Co-supervisor). *Thesis topic: Effect of flexibility on forward bending kinematics.*

Lisa Coder (Ph.D. 2006 – 2008). California State Polytechnic University (Supervisor-Adjunct). *Thesis topic: Effect of growth on the metabolic cost of locomotion in ostriches.*

Undergraduate Honors/Thesis Students (current)

Valeria Ortiz, Mechanical Engineering, Penn State, Millennium Scholar Program. *Thesis topic: The effect of growth-period chronic limb loading on bone microstructure in fowl.*

Aidan Johnson, Biobehavioral Health, Penn State (pre-med). *Thesis topic: Test of micro-corkscrew bone anchor strength in guinea fowl tibia.*

Julia Raich, Engineering Sciences and Mechanics, Penn State Schreyer Honors College. *Thesis topic: Deep Learning for markerless pose estimation in a bipedal animal model of artificial muscle implantation.*

Undergraduate Honors/Thesis Students (past)

Rasheedat Ekiyoyo, Mechanical Engineering, Penn State, Millennium Scholar Program. *Thesis topic: Assessment of locomotor mechanics pre- and post-operative following micro-actuator muscle replacement.* Current PhD graduate student with Tyler Clites, UCLA.

Talayah Johnson (2018 - 2019). Millennium Scholar Program Honors *Thesis topic: Analysis of stride variability during guinea fowl use of a lower limb exoskeleton.*

Megan McPaul (2018 – 2019). Schreyer Honors Student, Penn State. *Thesis topic: Tendon material properties after disuse during growth in an avian biped (Numida meleagris).*

Adam De Boef (2017 – 2018). Penn State. *Thesis topic: Effect of botulinum toxin induced muscle paralysis during growth on muscle-tendon architecture in an avian biped (Numida meleagris).*

David Nathan (2013). B.Sc. Honors student, Computer Science, UWA (Co-Supervisor). *Thesis topic: Development of a Microsoft Kinect plugin for estimating metabolic energy expenditure using a 3D kinematic model and machine learning.*

Kirsty McDonald (2013). B.Sc. Honors student, UWA (Coordinating Supervisor). *Thesis topic: Plantar fascia mechanics during shod and barefoot running in rear- and fore-foot runners.*

Jonathan Staynor (2012). B.Sc. Honors student, UWA (Coordinating Supervisor). *Thesis topic: Development of a NZ white rabbit computational musculoskeletal model in OpenSim.*

Ben Milton (2011). B.Eng. Honors student, UWA (Co-Supervisor). *Thesis topic: Design and implementation of an ankle orthosis for augmenting elastic energy storage and release.*

Sean Pepper (2011). B.Eng., 3rd year thesis, UWA (Co-Supervisor). *Thesis topic: Design and implementation of a micro muscle ergometer for cultured muscle cells* (in collaboration with SymbioticA, Center of Excellence in Biological Arts).

Heok Loi (2010). B.Sc. Honors student, UWA (Coordinating Supervisor). *Thesis topic: Effect of age on the force-length properties of the human soleus muscle.*

Neville Pires (2019). B.Sc. Honors student, UWA (Coordinating Supervisor). *Thesis topic: A novel method for establishing the force-length properties of the human soleus muscle and its operating range during walking.*

Edwin Goh (2009). B.Eng. Honors student, UWA (Co-Supervisor). *Thesis topic: Design and implementation of a lower-limb orthotic garment.*

Danielle Gutierrez (2006). B.Sc., Veterinary Science, Cal Poly, 2007, (Supervisor-Adjunct). Senior student project, SEES/California Wellness Health Professionals Program. *Thesis topic: locomotor mechanics and energetics in emus.*

Rainy Grandpre (2006). B.Sc., Veterinary Science, Cal Poly, 2007, (Supervisor- Adjunct). Senior student project, McNair Fellowship. *Thesis topic: Pelvic limb muscle architecture in the ostrich.*

Undergraduate Student Laboratory Assistants

2023 – pres.	Maya Yaroni
2023 – pres.	Alexander Carlin
2023 – pres.	Julia Szyszko
2023 – pres.	Hailey Mercado
2023 – pres.	Jocelyn Krieger
2022 – pres.	Ravin Joshi
2021 – pres.	Jessica Murawski
2021 – pres.	Faith Cooper
2021 – pres.	Krupa Bahwasar
2021 – 2022.	Alyssa Kutshaw
2021 – 2022	Hannah Koval
2020	Faith Swanger
2020	Joseph Schotts
2019	Devon Van Rensburg
2019	Megan McPaul
2017	Leighanne Warholak

2017	Justin Csaszar
2016	Emily Nader
2016	Alexandra Dubnanasky
2015 – 2016	Jill Butkiewicz
2015 – 2016	Sina Pooresmaeil
2015 – 2016	Tyler Faimon
2015 – 2016	Paige Reynolds
2015	Brandon Stone
2015	Melissa Minniti

Graduate Student Committees

Penn State University

Logan Faux-Dugan, Ph.D. Student. Department of Kinesiology. Anticipated graduation – 2026.

Roberto Castro, Ph.D. student. Department of Kinesiology. Anticipated graduation – 2026.

Zoe Moore, Ph.D. student. Department of Bioengineering. Anticipated graduation – 2024.

America Campillo, Ph.D. student. Department of Anthropology. Graduated – Anticipated graduation – 2023.

Krishna Pedaprolu, Ph.D. student. Department of Bioengineering. Graduated – 2023.

Kavya Katugam-Dechene, Department of Kinesiology. Ph.D. student. Graduated – 2023.

Danny Davis, Ph.D. student. Department of Kinesiology. Graduated – 2023.

David Desmet, Ph.D. student. Department of Kinesiology. Graduation – 2023.

Logan Faux-Dugan, MSc. Student. Department of Kinesiology. Graduated – 2022.

Meghan Kazanski, Ph.D. student. Department of Kinesiology. Graduated – 2022.

Lauren Hickox, Ph.D. student. Department of Mechanical Engineering. Graduated – 2022.

Lily Doershuck, Ph.D. student. Department of Anthropology. Graduated – 2021.

Matthew Salzano, Ph.D. student. Integrative and Biomedical Physiology IDGP. Graduated – 2021.

Talayah Johnson, M.Sc. student. Department of Kinesiology. Graduated – 2020.

America Guerra, M.Sc. student. Department of Anthropology. Graduated – 2022.

Cristian Javier Cuadra Gonzales Sr., Ph.D. student. Department of Kinesiology. Graduated – 2019.

Samuel Masters, Ph.D. student. Department of Kinesiology. Graduated – 2021.

Francesca Wade, Ph.D. student. Department of Kinesiology. Graduated – 2020.

Kavya Katugam, Department of Kinesiology. M.Sc. student. Graduated – 2020.

Gautum Srinivisan, M.Sc. student. Department of Kinesiology. Graduated – 2018.

Sasha Reschechtko, Ph.D. student. Department of Kinesiology. Graduated – 2018.

Justin Wager, M.Sc. student. Department of Kinesiology. Graduated- 2017.

External Committee Member (Domestic) and Thesis Examiner (International)

Ryan Schroeder, Ph.D. student. Department of Biomedical Engineering, University of Calgary. Supervisor: John Bertram. Graduated – 2020.

Nikolaos Papachatzis, Ph.D. student. Center for Research in Human Movement Variability, University of Nebraska at Omaha. Supervisor: Kota Takahashi. Anticipated graduation – 2022.

Lee Barber, Ph.D., Griffith University. Supervisor: Glen Lichtwark. Graduated – 2011.

T. Zwaan, Ph.D., University of Notre Dame, Fremantle, Australia. Graduated – 2012.

Student and Postdoctoral Awards (PI Rubenson supervisor)

- 2023 **Kavya Katugam-Dechene** (Ph.D. student); Journal of Biomechanics Award, American Society of Biomechanics
- 2023 **Kavya Katugam-Dechene** (Ph.D. student); David Winter Young Investigator Award (poster), International Society of Biomechanics
- 2023 **Kavya Katugam-Dechene** (Ph.D. student); Journal of Experimental Biology People's Choice Poster Award; Comparative Neuromuscular Biomechanics Meeting; International Society of Biomechanics
- 2023 **Kavya Katugam-Dechene** (Ph.D. student); Student Travel Award, American Society of Biomechanics
- 2023 **Kavya Katugam-Dechene** (Ph.D. student); Congress Travel Grant, International Society of Biomechanics.
- 2020 **Kavya Katugam-Dechene** (Ph.D. student); Finalist, ASB 3-minute thesis competition- Masters category, American Society of Biomechanics
- 2020 **Talayah Johnson** (M.Sc. student); Winner, ASB 3-minute thesis competition- Masters category, American Society of Biomechanics
- 2021 **Talayah Johnson** (M.Sc. student); Finalist, Young Investigator poster category, International Society of Biomechanics
- 2018 **Suzanne Cox** (Postdoctoral scholar); National Center for Simulation in Rehabilitation Research (NCSRR) Visiting Scholar.
- 2018 **Matthew Salzano** (Ph.D. student); Meeting best poster award, American Society of Biomechanics East Coast Regional Meeting.
- 2019 **Neville Pires** (B.Sc. Hon. Student); Rod Fry Prize (top ranked honors thesis), School of Human Movement and Exercise Science, University of Western Australia
- 2019 **Neville Pires** (B.Sc. Hon. Student); 1st Class Honors recognition, School of Human Movement and Exercise Science, University of Western Australia
- 2017 **Matthew Salzano** (Ph.D. student); Journal of Biomechanics Award, American Society of Biomechanics
- 2017 **Karl Grob** (Ph.D. student); Graduate Research School Dean's List, University of Western Australia (for Ph.D. thesis).

- 2013 **Fausto Panizzolo** (Ph.D. student). Finalist: Student Congress Young Investigator Award, International Society of Biomechanics
- 2011 **Katrina Easton** (Postdoctoral scholar); National Center for Simulation in Rehabilitation Research (NCSRR) Visiting Scholar.
- 2010 **Heok Loi** (B.Sc. Hon. Student); 1st Class Honors recognition, School of Human Movement and Exercise Science, University of Western Australia

Visiting Scholars (student, postdoctoral, faculty)

Alberito Carvalho (2015 – 2016). Ph.D. Candidate, Universidade Estadual do Oeste do Paraná, Carvalho Brazil (Co-Supervisor). *Thesis topic: Cardiopulmonary-Locomotor synchronisation in distance running*. Joint project with Prof. Leonardo Tartaruga, Science Without Borders Program).

Dr. Fausto Panizzolo (2018). 3-day workshop. Postdoctoral Associate, Harvard University.

Dr. Jeroen Aeles (2021). 3-month visit. Postdoctoral Associate, University of Nantes.

Dr. Scott Delp (2009). 6-month visit. Professor, Mechanical Engineering, Stanford University.

Teaching

Teaching; Courses Taught at The Pennsylvania State University

- 2015 – 2016 **Course Coordinator, KINES 384**, “Biomechanics”. Single semester (15 weeks), 3rd-year undergraduate course with laboratory component.
Student Rating of Teaching Effectiveness Fall 2015: 5.15 / 7.
Student Rating of Teaching Effectiveness Fall 2016: 6.06 / 7.
- 2016 – 2019 **Course Coordinator, KINES 488**, “Biomechanics of Locomotion”. Single semester (15 weeks), 4th -year undergraduate course incorporating laboratory work.
Student Rating of Teaching Effectiveness Spring 2016: 6.86 / 7.
Student Rating of Teaching Effectiveness Spring 2017: 6.33 / 7.
Student Rating of Teaching Effectiveness Fall 2017: 6.67 / 7.
Student Rating of Teaching Effectiveness Spring 2019: 6.33 / 7.
- 2016 – 2018 **Team Taught Course; PHYSIOL 571**, “Animal Physiology”. Single semester (15 weeks), 5th -year graduate course incorporating laboratory work. Team taught course; 4 lectures (~8.5% of course).
Student Rating of Teaching Effectiveness Fall 2016: 4.80 / 7.
Student Rating of Teaching Effectiveness Fall 2017: 6.25 / 7.

- 2018 – present **Course Coordinator, KINES 597**, “Instrumentation and Physical Computing for Movement Sciences”. Single semester (15 weeks), 5th - year graduate course.
 Student Rating of Teaching Effectiveness Spring 2018: 6.00 / 7.
 Student Rating of Teaching Effectiveness Spring 2020: 7.00 / 7.
 Student Rating of Teaching Effectiveness Spring 2022: 7.00 / 7.
- 2019 – present **Course Coordinator, KINES 101**, “The Biophysical Foundations of Kinesiology”. Single semester (15 weeks), 1st-year undergraduate course.
 Student Rating of Teaching Effectiveness Fall 2019: 5.36 / 7.
 Student Rating of Teaching Effectiveness Sp. 2020: 6.19 / 7.
 Student Rating of Teaching Effectiveness Fall 2020: 6.00 / 7.
 Student Rating of Teaching Effectiveness Spring 2021: 6.00 / 7.
 Student Rating of Teaching Effectiveness Spring 2022: 5.00 / 7.

Teaching; Courses Taught at The University of Western Australia

Evaluations are based on Student Perceptions of Teaching (SPOT) surveys. A score of 5 represents the highest ranking. Rankings between 4.4 and 5.0 fall in the top 25% of all scores at UWA. Ranking between 3.5 and 4.4 represents the middle 50% of all scores at UWA.

- 2012 – 2014 **Unit Coordinator, SSEH 3355**, “Biomechanical Principles: from movement analysis to muscle function”. Single semester (13 weeks), 3rd-year undergraduate course with laboratory component.
 Student Perception of Teaching Semester 1, 2012: na.
 Student Perception of Teaching Semester 1, 2013: 4.8 / 5.
 Student Perception of Teaching Semester 1, 2014: 4.7 / 5.
- 2013 **Unit Coordinator, SSEH 5634**, “Principles of Musculoskeletal and Locomotor Biomechanics”. Single semester (13 weeks), graduate course with laboratory component.
 Student Perception of Teaching Semester 2, 2013: 4.8 / 5.
- 2008 – 2011 **Unit Coordinator, SSEH 3356**, “Neuromuscular biomechanics and motor control”. Single semester (13 weeks), 3rd-year undergraduate course with laboratory component.
 Student Perception of Teaching Semester 2, 2008: 3.7 / 5.
 Student Perception of Teaching Semester 2, 2009: 4.6 / 5.
 Student Perception of Teaching Semester 2, 2010: 4.5 / 5.
 Student Perception of Teaching Semester 2, 2011: 4.4 / 5.
- 2009 – 2011 **Unit Coordinator, SSEH 7634**, “Advanced neuromuscular biomechanics and motor control”. Single semester (13 weeks), graduate course with laboratory component.
 Student Perception of Teaching Semester 2, 2009: 4.7 / 5.
 Student Perception of Teaching Semester 2, 2010: 4.7 / 5.
 Student Perception of Teaching Semester 2, 2011: 4.4 / 5.

- 2009 – 2013 **Team Taught Course, SSEH 2250**, “Biomechanics in sport and exercise”. Single semester (13 weeks), 2nd-year undergraduate course with laboratory component. Team Instruction; 3 lectures (~ 8% of course).
Student Perception of Teaching Semester 1, 2009: na.
Student Perception of Teaching Semester 1, 2010: na.
Student Perception of Teaching Semester 1, 2011: na.
Student Perception of Teaching Semester 1, 2012: na.
Student Perception of Teaching Semester 1, 2013: na.

Teaching; Courses Taught at Northeastern University

- 2005 – 2006 Guest Instructor, Biology U553- Biology of Muscles: Molecules to Movement; Department of Biology, Northeastern University.

Membership and Roles in Professional Organizations

- 2023 – pres. Executive Council Board Member (elected), International Society of Biomechanics.
2023 – pres. Comparative Neuromuscular Biomechanics; Technical Group of the International Society of Biomechanics, Treasurer (elected).
2018 – 2023. Comparative Neuromuscular Biomechanics; Technical Group of the International Society of Biomechanics, Founder and Chairperson (elected).
<https://sites.psu.edu/cnbgroup/>
2010 – 2014 Member, Australia & New Zealand Society of Biomechanics
2007 – pres. Member, American Society of Biomechanics
2005 – 2008. Member, Society for Integrative and Comparative Biology
2012 – pres. Member, Society for Integrative and Comparative Biology
2001 – pres. Member, International Society of Biomechanics
2006 – 2010 Member, Society for Experimental Biology

Scientific Conferences and Meetings Organized

- 2023 Comparative Neuromuscular Biomechanics Working Group (of the ISB) biennial meeting II; Comparative Neuromuscular Biomechanics (CNB) Group Symposium: Muscles, Models, Machines. Hosted at the International Society of Biomechanics XXIX Congress, Fukuoka Japan. 1-day meeting.
2022 Comparative Neuromuscular Biomechanics Working Group (of the ISB) workshop; CNB Mini Symposia. Online. 1-day meeting.
<https://sites.psu.edu/cnbgroup/meetings/>
2020 Comparative Neuromuscular Biomechanics Working Group (of the ISB) workshop; Integrative Muscle Modelling for Neuromechanics. Online. 1-day meeting.
<https://sites.psu.edu/cnbgroup/cnb2020/>

- 2019 Comparative Neuromuscular Biomechanics Working Group (of the ISB) biennial meeting I; Comparative biomechanics across organizational scales (tissues to whole body dynamics). Hosted at American Society of Biomechanics / International Society of Biomechanics XXVII Meeting, 2019, Calgary, AB, Canada.
<https://sites.psu.edu/cnbgrou/CNB2019/>
- 2017 ASB-SICB Joint Symposium: Insights from Animal Biomechanics. American Society of Biomechanics 41st Annual Meeting, Boulder, CO.
- 2014 Symposium Organizer; 'OpenSim Showcase Seminar'. World Congress Biomechanics VII, 2014, Boston, MA, USA.

Editorial Service

Editorial Boards

- 2021 – Pres. Associate Editor: Royal Society of London; *Royal Society Open Science*, Organismal and Evolutionary Biology Section.
- 2019 – Pres. Associate Editor: *Frontiers in Physiology*; *Integrative Physiology*.

Reviewer

American Journal of Physical Anthropology
Comparative Biochemistry and Physiology
Current Opinion in Biomedical Engineering
Exercise and Sport Sciences Reviews
Frontiers in Physiology
IEEE Internet of Things Journal
IEEE Transactions on Biomedical Engineering
Journal of Anatomy
Journal of Applied Biomechanics
Journal of Applied Physiology
Journal of Biomechanics
Journal of Comparative Physiology B.
Journal of Experimental Biology
Journal of Experimental Zoology
Journal of Motor Behavior
Journal of Neurophysiology
Journal of Physiology
Journal of Theoretical Biology
Medicine and Science in Sport and Exercise
Nature Communications
PeerJ
Philosophical Transactions of the Royal Society, B
PLoS ONE
Royal Society Open Science

Proceedings of the National Academy of Sciences
Proceedings of the Royal Society, London, B
Scandinavian Journal of Medicine and Science in Sports
Science Robotics
Zoology

University Service and Outreach

The Pennsylvania State University

- 2024 – pres. Elected Member, Promotion & Tenure Committee, Department of Kinesiology.
- 2019 – pres. Council Member, Penn State Research Computing and Cyber Infrastructure (RCCI) Advisory Council.
- 2019 – 2022 Honors Advisor, Kinesiology Representative, Penn State Schreyer Honors College.
- 2019 Penn State College of Medicine Institutional Mock Review of Grants (MoRe) for pre-submission NIH proposals
- 2015 – 2017
2021- 2022. Committee Member, Curriculum Committee, Department of Kinesiology
- 2018 – pres. Reviewer, PSU- Hershey Pathway to Partnership Stage (P3) grant reviewer.
- 2020 – 2021 Committee Chair, Awards Committee, Department of Kinesiology.
- 2017 – 2019 Committee Member, Diversity & Climate Committee, Department of Kinesiology.
- 2016 American Society of Biomechanics, National Biomechanics Day participating laboratory. Demonstrations and tours for 60 local high school students.
- 2017 College of Health and Human Development, graduate student fellowship grant reviewer (Kligman Fellowships).
- 2016 Development of educational programs for the NSF and Robert Wood Johnson Foundation supported “Finding your Roots” summer science camp at Penn State (PI Nina Jablonski).

The University of Western Australia Service and Outreach

- 2012 – 2014 Academic Board Member, The University of Western Australia.
- 2012 – 2014 Committee Member, The University of Western Australia Faculty of Science Research Committee.

- 2011 – 2014 Sustainability coordinator for the School of Sport Science, Exercise and Health, Green Building Project.
- 2008 – 2014 Committee Member, Higher Degrees and Ethics Committee, School of Sport Science, Exercise & Health.
- 2008 – 2014 Committee Member, Research Development Committee, School of Sport Science, Exercise & Health (Chair, 2013 - 2014).

National and International Service

- 2024 External assessor, Arthur McDonald Fellowship, National Science and Engineering Research Council (NSERC), Canada.
- 2023 – pres. Board member (elected), Executive Committee, International Society of Biomechanics.
- 2019 – pres. Reviewer, International society of Biomechanics meeting abstracts.
- 2019 Session moderator, International Society of Biomechanics XXVII Congress.
- 2018 – pres. Founder and Chair (elected), International Society of Biomechanics Working Group in Comparative Neuromuscular Biomechanics. <https://sites.psu.edu/cnbgroup/>.
- 2016, 2017 Moderator, American Society of Biomechanics annual meeting.
- 2015, 2016 American Society of Biomechanics Award Committee, Reviewer.
- 2020 – pres.
- 2015 – pres. Reviewer, American Society of Biomechanics meeting abstracts.
- 2014 – pres. Reviewer, International Society of Biomechanics; Student dissertation and travel awards.
- 2014 Session Moderator, World Congress Biomechanics VII, Boston, MA, USA.

External Grant Reviews

- American College of Sports Medicine ACSM Grants.
- Research Foundation Flanders (Belgium).
- Human Frontiers Science Program (HFSP) Program Grant Scheme.
- Australian Research Council (OZREADER).
- National Health & Medical Research Council (NHMRC, Australia).
- National Science Foundation, Division of Integrative Organismal Systems, External Reviewer, 2019, 2022.
- National Science Foundation, CAREER Proposal reviewer, 2019.
- National Science Foundation, Division of Integrative Organismal Systems, invited grant panelist, 2016; 2020 (could not attend panel due to proposal submission).

External Review for Tenure / Promotion

The University of California, Irvine, 2023.
The University of Houston, 2022.
The University of Memphis, 2017.
The University of California, Irvine, 2019
Ben Gurion University of the Negev, 2020
Hebrew University, Jerusalem, 2020

Visiting Professorships

2022 – 2023 Visiting Scholar, Department of Biomedical Physiology and Kinesiology, Simon Fraser University.

2012 Visiting Scholar, Department of Kinesiology, University of Massachusetts, Amherst (3 months).

2012 Visiting Scholar, Structure and Motion Laboratory, Royal Veterinary College, University of London.

Invited Lectures

2024 Center for Neural Engineering Seminar, Penn State University, University Park, PA. “Effort minimization: A fundamental objective in the control scheme of movement?”

2024 Noll Seminar, Penn State University, University Park, PA. “Energy minimization principle in movement and physical activity.”

2023 American Society of Biomechanics. Workshop: “Writing a successful NIH R01 proposal”. Knoxville TN, August, 2023.

2023 Department of Biomedical Physiology and Kinesiology Seminar Series, Simon Fraser University, Burnaby, BC, Canada. “Locomotor Energy Minimization Over Evolutionary, Lifespan, and Acute Time Scales

2022 Center for Limb Loss and Mobility, VA Puget Sound / University of Washington, Seattle, WA. “Avian bipedal models in pre-clinical biomechanics research”.

2022 OpenSim Creator Workshop, TU Delft. “OpenSim bird models for studying locomotor mechanics and energetics”.

2022 World Congress of Biomechanics IX. 2022, Taipei. “Animals in OpenSim: Basic Musculoskeletal Function and Model Validation”. (Invited Workshop).

2020 Action Club, HUCK Life Sciences, Penn State University. “The merits of comparative biomechanics and motor control”.

- 2019 Art and Design Research Incubator Seminar Series, School of Visual Arts, Penn State University. "Walking in Patterns"
- 2019 Department of Ecology and Evolutionary Biology Seminar Series, Brown University. "Blurring the lines between comparative and applied biomechanics"
- 2019 Movement Research Center (UMOVE) seminar, UMass Lowell. "Keynote: Comparative Biomechanics: from basic principles to Human Health"
- 2018 Applied Physiology Graduate Program Seminar Series, Georgia Tech. "Effort minimization: A general principle of legged locomotion?"
- 2017 Action Club, HUCK Life Sciences, Penn State University. Effort minimization in legged locomotion".
- 2016 Animal Science Seminar Series, Penn State University, University Park, PA. "Discovering Locomotor Function Using Avian Bipedes".
- 2015 AMAM International Symposium: Adaptive Motion in Animals and Machines. MIT, Cambridge, MA, USA, "Modulation and Distribution of Joint Work and Power in Bipedal Locomotion."
- 2015 Biomechanics Symposium, Penn State University, UP. "Integrative locomotor biomechanics: Bridging human and comparative research."
- 2015 Noll Seminar, Penn State University, University Park, PA. "Bridging biomechanics and physiology of movement: Basic principles & human health."
- 2014 Noll Seminar, Penn State University, University Park, PA. "Muscle Mechanics & Energetics in Locomotion: from basic research to human health."
- 2014 Department of Biology, Mount Allison University. "Muscle Mechanics & Energetics in Locomotion: from basic research to human health."
- 2014 World Congress Biomechanics VII. Boston, MA, USA. Symposium Chair (with Brian Umberger): 'Metabolic Energy Use in Movement: Basic Principles to Human Health'.
- 2014 World Congress Biomechanics VII. Boston, MA, USA. Invited symposium speaker: "OpenSim Showcase Seminar".
- 2014 World Congress Biomechanics VII. Boston, MA, USA. Invited symposium speaker: "Comparative Biomechanics of Bipedal Locomotion".
- 2012 Royal Veterinary College, University of London. "Muscle mechanics & energetics in locomotion: bridging comparative and human research".
- 2012 University of Western Australia Centennial Conference, Perth Australia. "Let's do the Leg Work: Bridging Basic and Clinical Research in Gait Biomechanics".
- 2011 Australian Conference of Science and Medicine in Sport Fremantle, WA, Australia; Influence of development, exercise and disease on tendon and muscle mechanics symposium.

- 2008 Society for Experimental Biology; Linking Mechanics and Energetics Seminar, Marseille, France; “Revealing the mechanical determinants of limb-swing cost”.
- 2007 Harvey Mudd College: Department of Biology Colloquium “Mechanics and energetics of bipedal locomotion: from organismal analyses to muscle-specific measurements”.
- 2006 Brown University: Department of Ecology and Evolutionary Biology; “Integrating experimental data and neuromusculoskeletal modeling in exploring muscle mechanics and energetics”.
- 2005 Stanford University: Dep. of Bioengineering., Neuromuscular Biomechanics Meeting; “The mechanical determinants of the metabolic cost of locomotion: current dogma and future directions”.
- 2005 Harvard University: Department of Organismal and Evolutionary Biology, Concord Field Station Seminar; “The effect of limb orientation on joint mechanics: a comparison of human and avian running”.
- 2003 University of British Columbia: Department of Physics, Biophysics Seminar; “Mechanics and energetics of running with and without an aerial phase”.
- 2003 Stanford University: Department of Bioengineering, Neuromuscular Biomechanics Meeting; “Mechanics and energetics of bipedal locomotion”.

Other creative (academic) accomplishments

- 2023 Scientific collaborator on Ex-Utero: A Sculptural Exploration of Ectogenesis; Joint projects in Life/Medical Sciences, Arts, and Humanities Seed grant, Penn State University (\$20,000). (Cristin Millet and Cynthia White PIs).
- 2023 Scientific collaborator on Ex-Utero sculptural artwork presented at ISEA2023, the 28th International Symposium on Electronic Art, in Paris. (Cristin Millet and Cynthia White PIs).
- 2019 OpenSim Software, SimTK; Musculoskeletal bipedal model (*Numida meleagris*), Cox, S. M., Co-Developer, Easton, K. L., Co-Developer, Cromie Lear, M., Co-Developer, Marsh, R. L., Co-Developer, Delp, S. L., Co-Developer, **Rubenson, J.**, Co-Developer.
Development of a 3D musculoskeletal model of a guinea fowl's pelvic limb with all major muscle groups. The full OpenSim model is provided here:
<https://simtk.org/projects/guineafowl>
- 2017 Walking in Patterns’ in Faculty Group Show, HUB Robeson Gallery, Penn State (Sept. 27 – Nov. 17, 2017). (Andrew Hieronymi PI).
- 2016 ‘Walking in Patterns’ in Big Wet and Potentially Dangerous Zoller Gallery, Penn State (Oct. 19 – Nov. 1, 2016). (Andrew Hieronymi PI).
- 2015 OpenSim Software, SimTK; Musculoskeletal bipedal model (*Struthio camelus*). Hutchinson, J. R., Co-Developer, Rankin, J. W., Co-Developer, **Rubenson, J.**, Co-

Developer, Rosenbluth, K. H., Co-Developer, Siston, R. A., Co-Developer, Delp, S. L., Co-Developer.

Development of a 3D musculoskeletal model of an ostrich's pelvic limb with all major muscle groups. The full OpenSim model is provided here:
https://simtk.org/frs/?group_id=1017

- 2015 Tissue Engineered Muscle Actuator (TEMA)' project (2013-15). An art/science project with SymbioticA (Australian Research Council Center for Excellence) that cumulated in the 'Agency in Movement', A symposium and collection of papers published in Leonardo Journal (MIT Press). (Ionat Zurr PI).

Popular Press Coverage

"State High Students Learn About Biomechanics at Penn State Lab," Newspaper, State College News. (April 28, 2016).

"High school students learn about biomechanics," Web, Penn State News. (April 26, 2016).

"Looking to run faster? Ditch the insoles," Magazine, Men's Journal. (March 18, 2016).

"How Your Arches Make You a Faster Runner," Magazine, Runner's World. (February 18, 2016).

"Heart patients urged to exercise their calf muscles," Web, Medical Xpress. (January 8, 2015).

"Technique change benefits limited to 'forefoot' runners," Web, Medical Xpress. (April 15, 2014).

"Changing The Way You Run May Be Harmful," Web, Asian Scientist Magazine. (February 17, 2014).

"Changing running technique could cause more harm than good," Web, Medical Xpress. (February 13, 2014).

"Changing running technique could cause more harm than good," Web, Health Canal. (February 13, 2014).

"Research Reveals Spring in Ostriches Step". Web, ABC Science, (October 27, 2010).

"How ostriches use their 'springy' legs to help them run faster and longer". Magazine, Daily Mail (UK) (November 1, 2010).

"How ostriches run faster than us," Web, BBC News. (October 29, 2010).

"Elastic joints help ostriches run fast," Newspaper, Daily Telegraph (UK). (October 26, 2010).

"Robot has Run-in with Ostrich", Magazine, Subiaco Post, Australia (November 13, 2010).

“Vicon Investigating the Locomotion of Birds to Understand the Principles of Human Bipedal Locomotion” Magazine, Vicon Standard (No 2, 2008).

“A Bird Like No Other” Magazine, National Wildlife Magazine (Aug/Sep 2006; vol. 44 no. 5)

“Born to Run” Magazine, New Scientist; (December 25, 2004; Vol. 184 Issue 2479/2480, p62-63).