Geoffrey Alonzo Power PhD.

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Professional Appointments/Employment:

Associate Professor. Department of Human Health and Nutritional Sciences, College of Biological Sciences, University of Guelph, Guelph Ontario, Canada. July 2020 - Present

Assistant Professor. Department of Human Health and Nutritional Sciences, College of Biological Sciences, University of Guelph, Guelph Ontario, Canada. October 2015 – June 2020

Banting & Killam Postdoctoral Research Fellow (Canadian Institutes of Health Research; CIHR). Human Performance Laboratory, University of Calgary: January 2013-October 2015.
Project(s): Age-related alterations to muscle mechanics. Supervisor: Dr. Walter Herzog

Visiting Research Scientist (invited). McGill University: January-March 2013
Collaborators: Dr(s) Dilson Rassier, Tanja Taivassalo, Russ Hepple
Project: Single muscle fiber contractile properties in very old world champion masters athletes

Education:

PhD. Neuromuscular Physiology. The University of Western Ontario: 2008-2012
Thesis: Neuromuscular function following lengthening contractions
Supervisor(s): Drs. Anthony A. Vandervoort, Charles L. Rice

MSc. Integrative Physiology. Memorial University of Newfoundland and Labrador: 2005-2008
Thesis: Modulation of breathing parameters between treadmill and cycle ergometer tests in endurance trained and recreationally active individuals

BKin. Kinesiology (Honours). Memorial University of Newfoundland and Labrador: 2001-2005

Research Interests:

- Structural and functional effects of aging on basic muscle contractile function
- Age-related alterations to muscle mechanics, acute and chronic alterations to the neuromuscular system as a result of muscle fatigue, damage and natural aging
- Muscle mechanics and lengthening muscle actions
- Cross-bridge (actin-myosin) and non-cross-bridge (titin) based forces
- History dependence of force production
- Masters athletes and neuroprotective effects of exercise
- Muscle architecture plasticity (sarcomere to whole muscle level) and effects on function
- Neural control of human movement

Published Peer Reviewed Articles: n = 122 and 200+ conference abstracts/presentations

Key papers relevant to symposium:

1. *Hinks A, *Vlemmix E, & **Power GA.** (2024). Submaximal eccentric resistance training increases serial sarcomere number and improves dynamic muscle performance in old rats. *Physiological Reports.* 12(19): e70036

2. *Hinks A, & **Power GA.** (2024). Age-related differences in the loss and recovery of serial sarcomere number following disuse atrophy in rats. *Skeletal Muscle.* 14(1): 18.

3. *Hinks A, *Patterson M, *Njai B, **Power GA**. (2024). Age-related blunting of serial sarcomerogenesis and mechanical adaptations following 4 weeks of maximal eccentric resistance training. *Journal of Applied Physiology*. 136(5): 1209-1225

4. *Hinks A, Franchi MV, **Power GA** (2023). Ultrasonographic measurements of fascicle length overestimate adaptations in serial sarcomere number. *Experimental Physiology*. 108(10):1308-1324.

5. *Hinks A, Hawke T, Franchi MV, **Power GA** (2023). The importance of serial sarcomere addition for muscle function in old age. *Journal of Applied Physiology*. 135(2): 375-393.

6. *Hinks A, *Jacob K, *Mashouri P, Medak KD, Franchi M, Wright DC, Brown SHM, **Power GA.** (2022). An increase in serial sarcomere number induced via weighted downhill running improves work loop performance in the rat soleus. *Biology OPEN.* 11(7):bio059491

7. *Hinks A, Franchi M, **Power GA**. (2022). The influence of longitudinal muscle fascicle growth on mechanical function. *Journal of Applied Physiology*. 133(1):87-103.

8. **Power GA**, Crooks S, Fletcher JR, MacIntosh BR, Herzog W (2021). Age-related reductions in the number of serial sarcomeres contribute to shorter fascicle lengths but not elevated passive tension. *Journal of Experimental Biology.* 224(10):jeb242172

9. *Chen J, *Mashouri P, *Fontyn S, *Valvano M, *Elliott-Mohamed S, *Noonan AM, Brown SHM, **Power GA**. (2020). The influence of training-induced sarcomerogenesis on the history-dependence of force. *Journal of Experimental Biology*. 223(15); jeb218776

Select Grants & Awards: (Total Lifetime Funding: $1,94 Million)

Award: NSERC Discovery Grant
Project title: Is sarcomerogenesis blunted in old age and what effects does this have on mechanical function?
Amount: *$275,000 (55k/yr)* **Date awarded:** April 2024-2029 **Primary applicant:** Dr. Geoffrey A. Power

Award: Sylvan Adams Sports Science Institute Sports Science Project Grant (McGill)
Project title: Investigating the physiological advantage of androgens in elite female athletes
Amount: *$35,000* **Date awarded:** May 2024 **Primary applicant:** Dr. Usselman (McGill) My Role: Collaborator

Project title: Muscle weakness and function in older adults: Moving from cell to society
Amount Funded: $150,000 **Date awarded:** April 2019 **Primary applicant:** Dr. Geoffrey A. Power

Award: David Winter Young Investigator Award – Canadian Society for Biomechanics (Hamilton, Ontario)
Project title: Age-related alterations to muscle mechanics **Date awarded:** 7/2016

Award: David Winter Young Investigator Finalist - International Society of Biomechanics (Glasgow, Scotland)
Project title: Age-related reductions in the number of serial sarcomeres contribute to shorter fascicle lengths: A source of elevated passive tension in the elderly? **Date awarded:** 7/2015