

Address

Faculty of Kinesiology, University of Calgary: Office KNB 436

Education

- 2009 - **Doctorate in Muscle Physiology** University of Calgary, Canada
2017
Discipline: Skeletal Muscle Physiology.
Main subjects: Muscle Physiology, Computational Biology, Data Analysis, Structural Modeling, Stochastic Agent based Modelling.
Thesis: "Three dimensional stochastic computer model of the skeletal muscle half sarcomere: changes in calcium diffusion caused by the myofilament lattice."
Committee: Drs., Brian MacIntosh, Henk ter Keurs, Christian Jacob, Chris Barclay.
- 1997 - **Master of Science** University of Calgary, Canada
2000
Discipline: Exercise Physiology.
Main subjects: Cycling Power, Muscle Power.
Thesis: "Validation of single maximal effort tests for power measurement."
Committee: Drs., Brian MacIntosh, Stephen Norris, Douglas Syme.
- 1990 - **Bachelor's Degree in Physical Education** University of Calgary, Canada
1993
Main subjects: Outdoor Pursuits, Leadership in Extreme Environments.
Senior Project: "Calgary River Cleanup, Conservation of Calgary Rivers and Pathways".

Courses Taught

KNES 213 Introduction to Kinesiology

Year	Term	Class size
2024	Winter	141
2023	Fall	145
2023	Spring	55
2023	Winter	150
2022	Fall	150
2022	Winter	150
2021	Fall	144
2021	Winter	148
2020	Fall	133
2020	Winter	120
2019	Fall	120

KNES 355 –Human Growth and Development

Year	Term	Class size
2021	Winter	262
2020	Winter	250

KNES 375 –Tests and Measurements in Kinesiology

Year	Term	Class size
2023	Fall	71
2022	Fall	78
2022	Winter	77
2021	Winter	80
2020	Winter	77

KNES 381 –Computer Applications in Kinesiology

Year	Term	Class size
2024	Fall	24
2023	Winter	24
2012	Winter	24
2010	Fall	24

2022	KNES 475 –Physiological bases of Athletic Performance	Winter 2022 –Class Size 40
2020 - Current	KNES 613 –Practical Skills for Applied Exercise Physiology	Fall–2024 –Class Size 14
2020 - Current	KNES 614 –Practical Skills for Applied Exercise Physiology	Winter –2023 –Class Size 14
2020 - Current	KNES 606 –Practical Skills for Applied Exercise Physiology	Fall–Winter 2022-23 –Class Size 14
		Fall–Winter 2021-22 –Class Size 15
		Fall–Winter 2020-21 –Class Size 9

Honours Students and Self-Directed Studies

Course Title	Name	Project
KNES 604 2020-2021	Tara McNeil	Physiology of Swimming
KNES 490 2020-2021	Ashley Lorenz	VR Fitness
KNES 490 2021-2022	Allysan Lui	Aerobic Power in Dancers
KNES 490 2021-2022	Chantel Vogel	Motivation in VR Zwift
KNES 490 2021-2022	Andreas Cordido	FTP ramp Zwift
KNES 466 2022-2023	Ashley Matesic	Polling cadence in x-country skiing

Research Memberships

2024	Alberta Children's Hospital Research Institute Alberta Health Services and the Alberta Children's Hospital Foundation	University of Calgary
2024	McCaig Institute for bone and joint health Cumming School of Medicine	University of Calgary

Committee Work

2022- Current	Teaching and Learning Committee Faculty of Kinesiology	University of Calgary
2019 - Current	Learning Technologies Advisory Committee Faculty of Kinesiology	Taylor Institute for Teaching and Learning
2021 - Current	Ethics Committee for Human Studies Faculty of Kinesiology representative	University of Calgary
2021 - 2022	National Survey of Student Engagement Faculty of Kinesiology	University of Calgary
2019 - 2021	New Student Orientation Faculty of Kinesiology	University of Calgary
2019 - 2021	Student Orientation - Faculty Advisor Panel Faculty of Kinesiology	University of Calgary
2021	Search Committee: Human Growth and Development position Faculty of Kinesiology	University of Calgary
2020	Student Orientation Online Technologies Special Committee Central Orientation Committee	University of Calgary
2019	YUJA Video Evaluation Group Faculty of Kinesiology	Taylor Institute for Teaching and Learning

Summer & Honours Students

2024	Undergraduate student research award (NSERC) –Arianna Hu
2024	Summer student Internship Latif Oerkhil Investigating active force and sarcomeric protein content in gracilis muscle of children with cerebral palsy
2023	Undergraduate Student Research Award (NSERC) –Birtej Mangat Investigating the Mechanical Properties of Cardiac Muscle in Obese Rats
2023	Summer student internship –Latif Omerkhil Investigating active force in muscle fibres from children with cerebral palsy
2022 - 2023	KNES 466 Advanced Projects in Biomechanics –Ashley Matesic Relative Hip Drop Timing at Different Speeds and its Relationship to Performance and Force Production in Cross-Country Skiing Double Poling
2022	Kinesiology Undergraduate Research Funding –Thomas Manktelow Objective Analysis of Double-Pole Timing in X-Country Skiing.
2022	PURE Summer Student Ship –Gavin Thomas Active force in skeletal muscle fibres from children with cerebral palsy
2021 - 2022	KNES 490 Honours Project –Allysan Lui Assessment of Aerobic power in Collegiate Contemporary Dance Using a High-Intensity Dance Performance Fitness Test (DAFT2)

- 2021 - **KNES 490 Honours Project –Chantal Vogel**
2022 Effect of Zwift's Virtual Setting on Individual Outcomes and Performance in Comparison to Traditional Stationary Cycling
- 2021 - **KNES 490 Honours Project –Andreas Cordido**
2022 Exercise Thresholds: Functional Threshold Power on an Exergaming Platform versus Power Output at the Respiratory Compensation Point
- 2021 **Biomedical Engineering Summer Studentship –Maleeka Malik**
Investigating the changes in titin isoforms and concentration and sarcomere organization in skeletal muscles of obese rats
- 2020 - **KNES 490 Honours Project –Ashley Lornez**
2021 *Investigating Physical Activity Intensity of Virtual Reality Exergame in Recreationally Active Young Adults*

Graduate Student Trainees

- 2021 - **Jesse Oswald** MKin Capstone project
2022 Mentoring undergraduate students in Honours Research projects
- 2021 - **Keenan McDougal** CURE Program
2022 CURE Coach Course research project design in Kinesiology 375
- 2021 - **Krystyna Sandowski** CURE Program
2022 CURE Coach Course research project design in Kinesiology 375
- 2021 - **Krystyna Sandowski** MKin Capstone Project
2022 Alternative Laboratory Teaching Methods in Undergraduate Kinesiology
A Case Study: KNES 375

Supervisory Committees

- 2023 - **MSc. Timi Ajayai** Faculty of Kinesiology
Present *Detrended fluctuation analysis of heart rate data during constant intensity exercise*
- 2022 - **PhD. Gabriele Marinari** Faculty of Kinesiology
Present *New approaches to characterize the $\dot{V}O_2$ slow component and its physiological mechanisms*
- 2022 - **MSc. Marissa Doroshuk** Faculty of Kinesiology
Present *Novel Ovulation Research-Recruitment Methods for an App Study*
- 2022 - **MSc. Alissa Kazakoff** Faculty of Kinesiology
Present *Novel Ovulation Research-Recruitment Methods for an App*
- 2021 - **Msc. Mary Mackie** Faculty of Kinesiology
2022 *The "Step-Ramp-Step" Protocol: Evaluating the Effects of a Smaller First Step Amplitude and Different Ramp Slopes to Determine the $\dot{V}O_2$ Mean Response Time and the Expression of the $\dot{V}O_2$ Slow Component During Ramp-Incremental Tests*
- 2020 - **PhD. Keanen McDougal** Faculty of Kinesiology
Present *Alterations in fatigue, efficiency, and pedaling mechanics during incremental and constant-load high-intensity cycling*

2019 - Present **MSc. Jim Griffiths** Faculty of Kinesiology
Heart Rate Variability Novel Methods of Detection

Thesis Examiner

2023 **PhD. Candidacy –Thomas Tripp** Faculty of Kinesiology
2022 **PhD. Candidacy –Cody van Rassel** Faculty of Kinesiology
2021 **PhD. Candidacy –Nada Abughazaleh** Biomedical Engineering
2020 **PhD. Candidacy –Calaine Inglis** Faculty of Kinesiology

Thesis Neutral Chair

2023 **Calaine Inglis** Faculty of Kinesiology
Characterizing the effect of precise exercise intensity prescription on physiological adaptations to endurance training - an intensity domain-specific approach

2023 **Jenny Zhang** Faculty of Kinesiology
FOS field of study exam PhD. Candidacy

2020 **Anmol Mattu** Faculty of Kinesiology
Menstrual and Oral Contraceptive Phases Do Not Influence Submaximal and Maximal Responses to Exercise or Vascular Responsiveness at Rest

2021 **Anna Thacker** Faculty of Kinesiology
Peer to Peer Learning – Using Structured Video as a Tool to Improve Performance with Middle School Children

2021 **Austin Beever** Faculty of Kinesiology
The effects of simulated altitude on maximal and submaximal exercise

2021 **Hilkka Kontro** Faculty of Kinesiology
Exercise Health and Human Performance

2021 **Jenny Zhang** Faculty of Kinesiology
Neuro-muscular fatigue, cardio-respiratory, and perceptual responses are dependent on the amount of active muscle mass during exhaustive ramp incremental cycling

2022 **Kate Sales** Faculty of Kinesiology
Nutrition, Metabolism and Genetics

2020 **Nate Morries** Faculty of Kinesiology
Biomechanical and Morphological Deficits Following Anterior Cruciate Ligament Reconstruction with Hamstring Autographs: Implications for Rehabilitation and Return to Sport Testing

2020 **Thomas Tripp** Faculty of Kinesiology
Exercise Health and Human Performance

Interviews, News Articles, & Podcasts

2024 **Future Tense: Technology is revolutionizing sport performance.** Interview with Antony Funnell.
<https://www.abc.net.au/listen/programs/futuretense/technology-future-of-sport-cheating-advancement-performance-peak/104040538>

- 2024 **Calgary Herald: How to cold down when the heat is on.** Interview on thermoregulation.
<https://calgaryherald.com/health/diet-fitness/how-to-cool-down-when-the-heat-is-on>
- 2024 **N.S. woman says ocean plunges offering her health benefits** Global News
<https://globalnews.ca/video/10233505/n-s-woman-says-ocean-plunges-offering-her-health-benefits/>
- 2024 **Cold Plunges for the new year** CBC -Edmonton Live
 January 8th
- 2024 **West coast cold plunges** CKNW 980 Vancouver with Scott Shantz
 January 5th
- 2024 **Cold Plunge fad or fact** CHEB -Edmonton Live
 January 4th
- 2024 **Cold plunges are all the rage. But what does the science say?** CBC news
<https://www.cbc.ca/news/canada/cold-plunges-1.7072906>
- 2023 **Innovator/Educator –Dr. John Holash** Taylor Institute for Teaching and Learning Video series
<https://youtu.be/ht2z2Jpy1Bc?si=M88XOgBj6ROXxCmF>
- 2023 **Are you ready to take the plunge? Experts weigh in on cold plunge benefits** Global News
<https://globalnews.ca/the-curator/10042896/cold-plunge-benefits/>
- 2023 **Best of Health Magazine:The Many Health Benefits of Nordic Skiing** readers digest
https://www.besthealthmag.ca/article/nordic-skiing-cross-country-skiing?_cmp=stf
- 2023 **Why some people are taking a wintry dip from the banks of the Bow River** CBC News
<https://t.co/yGpoTu8sB5>
- 2022 **UToday News Article: Course revamp is a hit with kinesiology students when they create their own fitness tests** UToday
<https://news.ucalgary.ca/news/course-revamp-hit-kinesiology-students-when-they-create-their-own-fitness-tests>
- 2022 **Council on Undergraduate Research: Course revamp is a hit with kinesiology students when they create their own fitness tests** CUR.org
<https://www.cur.org/course-revamp-is-a-hit-with-kinesiology-students-when-they-create-their-own-fitness-tests/>
- 2022 **KQ Education Group: Course revamp is a hit with kinesiology students when they create their own fitness tests** KQ Education Group
<https://kqeducationgroup.com/course-revamp-is-a-hit-with-kinesiology-students-when-they-create-their-own-fitness-tests-news/>
- 2021 **Spotify Podcast COVID Coffee Chats @ Ucalgary Episode 8: Creating a flipped Classroom with John Holash** Spotify Podcast
<https://open.spotify.com/episode/1yF8Ff4Zn62JHdBuZ1LB6q?si=0ead0ddf70f24661>
- 2021 **Calgary Journal by Lee Reed: Connection between Mental Health and Exercise. Interview with Dr. John Holash** Calgary Journal
- 2021 **UToday News Article: HealthyU team creates accessible, cost-friendly workouts catered to students' busy lives** UToday
<https://www.ucalgary.ca/news/healthyu-team-creates-accessible-cost-friendly-workouts-catered-students-busy-lives>

Publications

Published Journal Articles

A Ramp- Versus Step-Transition to Constant-Work Rate Exercise Decreases Steady-State Oxygen Uptake
Gabriele Marinari, Danilo Iannetta, John R. Holash, Robin Trama, Robin Faricier, Alessandro M. Zagatto, Daniel A. Keir, and Juan M. Murias

Medicine & Science in Sports & Exercise (May 2024). doi: 10.1249/MSS.0000000000003372

Heavy-intensity priming exercise extends the Vo₂max plateau and increases peak-power output during ramp-incremental exercise

Gabriele Marinari, Danilo Iannetta, Robert John Holash, Alessandro M Zagatto, Daniel A. Keir, and Juan M. Murias
American Journal of Physiology-Regulatory, Integrative and Comparative Physiology 327 (2 Aug. 2024)

Technological Breakthroughs in Sport: Current Practice and Future Potential of Artificial Intelligence, Virtual Reality, Augmented Reality, and Modern Data Visualization in Performance Analysis

Victor R. A. Cossich, Dave Carlgren, Robert John Holash, and Larry Katz

Applied Sciences 13.23 (2023). doi: 10.3390/app132312965

In support of the continued use of the term anaerobic threshold

Brian R. MacIntosh, Keenan B. MacDougall, Tara M. Falconer, and R. John Holash

The Journal of Physiology *.* (2021) *. doi: <https://doi.org/10.1113/JP281262>

A stochastic simulation of skeletal muscle calcium transients in a structurally realistic sarcomere model using MCell.

Robert J Holash and Brian R MacIntosh

PLoS Computational Biology 15 (3 Mar. 2019) pp. 1–25. doi: <https://doi.org/10.1371/journal.pcbi.1006712>

An innovative ergometer to measure neuromuscular fatigue immediately after cycling.

Douglas Doyle-Baker, John Temesi, Mary E Medysky, Robert J Holash, and Guillaume Y Millet

Medicine and Science in Sports and Exercise 50 (2 Feb. 2018) pp. 375–387. doi: <https://doi.org/10.1249/MSS.0000000000001427>

A New Test to Measure Neuromuscular Fatigue During and Immediately After Cycling Exercise: A Reliability Study.

Douglas Doyle-Baker, John Temesi, Mary E Medysky, Rosie Twomey, Robert J Holash, Nicole Culos-Reed, and Guillaume Y Millet

Medicine and Science in Sports and Exercise 263 (9 Sept. 2017)

Skeletal muscle fatigue—regulation of excitation—contraction coupling to avoid metabolic catastrophe.

Brian R MacIntosh, Robert J Holash, and Jean-Marc Renaud

Journal of Cell Science 125.9 (2012) pp. 2105–2114. *The Company of Biologists Ltd*

A comparison of exer-gaming interfaces for use in rehabilitation programs and research.

Kazumoto Tanaka, Jim Parker, Graham Baradoy, Dwayne Sheehan, John R Holash, and Larry Katz

Loading 6.9 (2012) pp. 69–81

Feasibility of the two-hour marathon is a burning issue.

Jared R Fletcher, Shane P Esau, R John Holash, and Brian R MacIntosh

Journal of Applied Physiology (Bethesda, Md.: 1985) 110.1 (2011) 282–discussion

Procedures for rat in situ skeletal muscle contractile properties.

Brian R MacIntosh, Shane P Esau, R John Holash, and Jared R Fletcher

Journal of Visual Experimentation 56 (2011)

Books / Book Chapters

Technological Breakthroughs in Sport

Victor R. A. Cossich, Dave Carlgren, Robert John Holash, and Larry Katz

2024. *Encyclopedia.pub*

Cardiac Function in Exercise.

B R MacIntosh and R J Holash

Open Textbook of Exercise Physiology. 2024 chap. 8. Open Education Alberta.

<https://openeducationalberta.ca/otep/>

Skeletal Muscle Structure.

B R MacIntosh and R J Holash

Open Textbook of Exercise Physiology. 2023 chap. 4. Open Education Alberta.

<https://openeducationalberta.ca/otep/>

Power output and force-velocity properties of muscle.

B R MacIntosh and R J Holash

Biomechanics and Biology of Movement. 2000 chap. 11. Human Kinetics

Conference Presentations / Published Abstracts

Active properties of skinned muscle fibres from children with cerebral palsy.

Venus Joumaa, Jason Howard, Gavin Thomas, Sach Dabgotra, Christopher Roberts, Mahmoud Abusara, Shuyue Liu, R. John Holash, Shuyue Leonard, and Walter Herzog

Journal of Muscle Research and Cell Motility (2023). *European Muscle Conference. Florence, Italy*

Increased occupation of sarcomeric calcium buffers reduces required calcium release for similar troponin-c binding of subsequent activation.

Robert John Holash, Ian Smith, Walter Herzog, and Brian R MacIntosh

Journal of Muscle Research and Cell Motility vol. 37 (2017). *European Muscle Conference. Montpellier, France*

Effect of sarcomere length on calcium diffusion in a 3-D sarcomere model.

Robert John Holash and Brian R MacIntosh

Journal of Muscle Research and Cell Motility vol. 36 (2015). *European Muscle Conference. Strasbourg, Austria*

The importance of structure on: calcium release, diffusion, and binding in a spatially realistic 3-D sarcomere model.

Robert John Holash and Brian R MacIntosh

(2013). *Biomedical Basis for Human Performance Across the Lifespan*

3-Dimensional calcium kinetics; release, diffusion, binding, and uptake in a multicompartamental, skeletal muscle 1/2 sarcomere.

Robert John Holash and Brian R MacIntosh

Applied Physiology, Nutrition, and Metabolism vol. 37 (2012). *Canadian Society of Exercise Physiology Conference, CSEP*

Modelling calcium diffusion, binding, and uptake in a spatially realistic 3-dimensional sarcomere model.

Robert John Holash and Brian R MacIntosh

Journal of Muscle Research and Cell Motility vol. 33 (2012). *European Muscle Conference. Rhodes, Greece*

A comparison of exer-gaming interfaces for use in rehabilitation programs and research.

Kazumoto Tanaka, Jim Parker, Graham Baradoy, Dwayne Sheehan, John R Holash, and Larry Katz

Loading vol. 6.9 (2012). *Interactive Media Conference. Calgary, Alberta*

Micro-physiological simulation of calcium diffusion in a 3-dimensional sarcomere model.

Robert John Holash and Brian R MacIntosh

Applied Physiology, Nutrition, and Metabolism vol. 36 (2011). *Canadian Society of Exercise Physiology Conference, CSEP*

Can the second head of myosin bind to the adjacent thin filament?

Robert John Holash and Brian R MacIntosh

(2009). *Multi-scale Muscle Mechanics Conference. Woods Hole, Massachusetts*

Skeletal muscle filament spacing changes with contraction.

Robert John Holash and Brian R MacIntosh

Applied Physiology, Nutrition, and Metabolism (2009). *Canadian Society of Exercise Physiology Conference, CSEP*

Modelling calcium release in a simplified two dimensional skeletal muscle model using the agent-based system Netlogo.

Robert John Holash and Brian R MacIntosh

Applied Physiology, Nutrition, and Metabolism vol. 33 (2008). *Canadian Society of Exercise Physiology Conference, CSEP*

Validation of single maximal effort tests for peak power output.

Robert John Holash, Igor Kopecky, Krista Sevdhal, and Brian R MacIntosh

Canadian Journal of Applied Physiology vol. 25 (2000). *Canadian Society of Exercise Physiology Conference, CSEP*

Theses

Three dimensional stochastic computer model of the skeletal muscle half sarcomere: changes in calcium diffusion caused by the myofilament lattice.

Robert John Holash

PhD thesis, University of Calgary.

<https://dx.doi.org/10.5072/PRISM/28434>

Validation of single maximal effort tests for power measurement.

Robert John Holash

Masters of Science Thesis, University of Calgary.

<https://dx.doi.org/10.5072/PRISM/11695>

Conference presentation-Students

2023 Bio-Medical Engineering Summer Student Symposium August 22

Investigating Active Force in Muscle Fibres from Children with Cerebral Palsy

Presenter **Latif Omerkhil**

Authors Names: Latif Omerkhil, Venus Joumaa, Faizan Syed, John Holash and Walter Herzog

2023 McCaig Institute Sumer Student Symposium

Investigating Active Force in Muscle Fibres from Children with Cerebral Palsy

Presenter **Latif Omerkhil**

Authors Names: Latif Omerkhil, Venus Joumaa, Faizan Syed, John Holash and Walter Herzog

2023 Bio-Medical Engineering Summer Student Symposium August 22

Effect of freezing on the mechanical properties of cardiac papillary muscles in rabbits

Presenter: **Birteg Mangat**

Authors Names: Birtej Mangat, Venus Joumaa, John Holash, Walter Herzog

2023 McCaig Institute Sumer Student Symposium

Effect of freezing on the mechanical properties of cardiac papillary muscles in rabbits

Presenter: Birteg Mangat

Authors Names: Birtej Mangat, Venus Joumaa, John Holash, Walter Herzog

2023 CASEM Canadian Society of sport and exercise medicine conference March 8-11th

An investigation of active force in skeletal muscle fibres from children with cerebral palsy

Presenter: *Gavin Thomas*

Authors Names: Gavin K. Thomas, Venus A. Joumaa, PhD, Tim L. Leonard, PhD, Jason J. Howard, MD, Robert J. Holash, PhD, and Walter Herzog, PhD

32nd International Association for Dance Medicine and Science Conference.

Validity of the High Intensity Dance Performance Fitness Test in Undergraduate Contemporary Dancers.

Presenter: Allysan Lui

Supervisor: Mr. Jesse Oswald & Dr. John Holash

16th Annual Biomedical Engineering Undergraduate Summer Research Symposium Active Force of Skinned Muscle Fibers in Children with Cerebral Palsy

Presenter: Gavin Thomas

Supervisor: Dr. Venus Joumaa & Dr. John Holash

McCaig Institute Summer Student Symposium 2022 Gavin Thomas - Investigating active force in skeletal muscle fibres from children with cerebral palsy

Presenter: Gavin Thomas

Supervisor: Dr. Venus Joumaa & Dr. John Holash

15th Annual Biomedical Engineering Undergraduate Summer Research Symposium: Investigating titin isoforms and content in the skeletal muscle of obese rats

Presenter: Maleeka Malik

Supervisor: Dr. Venus Joumaa & Dr. John Holash

22nd Alberta Biomedical Engineering Conference, Banff AB, Oct 22-23, 2021. Poster presentation Effects of diet-induced obesity on titin isoforms and content in skeletal muscles of rats.

Malik M, Joumaa V, Rios J, Holash J, Herzog W.

CSEP 2021 Zooming into the future: Exercise science in the virtual age: Investigating physical activity intensity of virtual reality exergame in recreationally active young adults. Oral Presentation.

Ashley Lorenz

Supervisor Dr. John Holash

Student Awards

2023 McCaig Institute Summer Student Symposium 2023 -- Second places Poster presentation: Latif Omerkhil: Investigating Active Force in Muscle Fibres from Children with Cerebral Palsy

2022 IADMS International Association for Dance Medicine & and Science -- Student Research Award:

Allysan Lui: Validity of the high intensity dance performance fitness test in undergraduate contemporary dancers

2021 BME / Faculty of Science Summer Student Best Presentation Award: For Maleeka Malik: Titan isoform changes in an obesity feeding rat model.

Awards and Grants

2024 Spark Grant McCaig Institute for bone and joint health "ACTIVATION: Activity Capture To Investigate Voluntary AcTivity in Oncology and Normal populations" With Dr. Joel Kendal Grant Value \$20,000 University of Calgary, Calgary AB.

2024 Science of Teaching and Learning (SOTL) Grant: Project: Evaluating Enhanced Learning Outcomes: Developing a Multimedia Library with Educational Videos and Interactive Tools for Laboratory Training. With Dr. Venus Joumaa

Grant Value \$40,000 University of Calgary, Calgary AB.

2023 Undergraduate Student Research Award (NSERC)–Birtej Mangat Project: Investigating the Mechanical Properties of Cardiac Muscle in Obese Rats.

Grant Value \$6000 University of Calgary, Calgary AB.

2022 PURE Studentship Grant: For Gavin Thomas: Project: Investigating active force in skeletal muscle fibres from children with cerebral palsy.

Grant Value \$7000 University of Calgary, Calgary AB.

2022 Faculty of Kinesiology Undergraduate Research Scholarship: For Thomas Manktelow Project: Objective Analysis of Double-Pole Timing in X-Country Skiing.

Grant Value \$7000 Faculty of Kinesiology

2021 CURE Curriculum Based Undergraduate Research Experience Project: Redevelopment of Lab component of Kinesiology 375 so that final lab experiment is student enquiry driven.

Grant Value \$10,000 Taylor Institute for Teaching and Learning

2021 BME /Faculty of Science Summer Student Best Presentation Award: For Maleeka Malik: Titan isoform changes in an obesity feeding rat model.

2019 Faculty of Kinesiology Startup Funds: For John Holash

Grant Value \$40000 University of Calgary, Calgary AB.

2013 Young Investigator Award: Best Presentation for: The importance of structure on: calcium release, diffusion, and binding in a spatially realistic 3-D Sarcomere Model. Bio-medical Basis for Human Performance Across the Lifespan.

University of Calgary, Calgary AB.

2013 Outstanding Leadership (Staff) Award. Roger Jackson Centre for Health and Wellness.

University of Calgary, Calgary AB.

2012 Research Travel Grant Faculty of Graduate Studies.

University of Calgary, Calgary AB.

2011 Excellence in Research Grant Faculty of Graduate Studies.

University of Calgary, Calgary AB.

1998 Alberta Sports Research Grant Development of electronic bike ergometer.

Government of Alberta.

1996 Alberta Parks and Recreation Grant Measuring muscle tone in children with Downs Syndrome.

University of Calgary, Calgary AB.

1996 You make a difference Award Blind bowling program.

Canadian National Institute for the Blind, Calgary AB.

1994 Clean World Award, International Association for Environmental Urban Living (GBH): for accomplishments running the Calgary River Clean-up 1994.

1993 Mayors Environmental Stewardship Award, Presented by Mayor Al Duer, for organizing and running the Calgary River Clean-up 1993.

Mayoral Office, Calgary AB.

Scientific and Professional Memberships

2024- **Alberta Children's Hospital Research Institute**

ACHRI

Current

2024- **McCaig Institute for Bone and Joint Health**

Associate member

Current

1997- Current	Canadian Society for Exercise Physiology	CSEP
2010- Current	European Muscle Physiology Society	EMC
2010- Current	Canadian High Performance Computing Society	HPC

Training & Learning

2022	TI 0746-002 Developing Your Teaching Dossier for Tenure and/or Promotion	Taylor Institute
2022	TI 0913-003 Creating a Flipped Lesson	Taylor Institute
2022	TI 0765-004 Intentional D2L Course Shell Design	Taylor Institute
2022	TI 0795-003 Online Student Assessment	Taylor Institute
2022	TI 0783-001 Undergraduate Research and Experiential Learning: Focusing Strategies for Courses & Programs	Taylor Institute
2022	Academic Integrity in Online courses: Adapting during COVID (March 25)	Taylor Institute
2021	Learning to teach online	Linda Learning
2021	Data science essentials with R	Linda Learning
2021	Creating fun and Engaging Video Training: The Why	Linda Learning
2022	Learning Git and GitHub	Linda Learning
2022	Web Scraping in Python	Linda Learning
2022	Using Python with Excel	Linda Learning
2022	Excel Advanced formulas and Functions	Linda Learning
2020	Putting your course online (March 23)	Taylor Institute
2020	Increasing engagement with eLearning programs	Linda Learning
2020	eLearning essentials: Visual design	Linda Learning
2020	eLearning essentials: Instructional design	Linda Learning
2020	Developing and delivering online courses	Taylor Institute
2019	Teaching Days	Taylor Institute
2019	Data Science with Python	Linda Learning
2018	Spill Response Training	Online, UofC
2018	Bio-Safety Training	Online, UofC
2017	Chematix / Lab Manager	Chematix, UofC
2007	Animal Care and Handling	Online, UofC

2018	Occupational Health and Safety Orientation	Online, UofC
2018	Workplace Inspections Training	Online, UofC
2016	WHMIS 2015	Online, UofC
2016	Bio-Safety Program Training	Online, UofC
2016	Hazard Assessment Training	Online, UofC

Experience

2019- Current	Professor (teaching): Exercise Physiology, Data Science, Computational Biology	Kinesiology, UofC
	Teaching and Supervising Students in : Exercise Physiology, Data Science, Computational Biology. Developing and teaching the most current techniques for monitoring, recording, and understanding data relating to the physical health, wellness, and performance of peoples throughout the lifespan.	
2013 - 2018	Data Scientist / Systems Architect	HPL, Kinesiology, UofC
	Design, develop and maintain expert computational solutions for research problems within the Human Performance Lab (HPL). Maintain computers, and research equipment used within the HPL. Design and development of custom software, algorithms, and for research equipment and special projects. Guest Lecturer for KNES: 201, 203, 615, 381, 485/685 courses	
2000 - 2013	Senior Systems Analyst	Kinesiology, UofC
	Technical lead, software designer, and analyst for Kinesiology IT. Led the development and implementation of numerous software projects, network designs, and multi-factor computer projects within Kinesiology co-supervising up-to 5 employees. Led the development of 3 versions of the Kinesiology websites. Led the development and roll out of the first interactive websites for the Olympic Oval, and Active Living (formerly Campus Recreation).	
1984 - 2010	IT Security and Networking Consultant	RJHolash Consulting
	Operated a private consulting firm which provided: computer technical support, security development, security testing, software development, application development, and general trouble/problem solving related to hardware, software, and operating systems. Clients included: Calgary Separate School Board, Calgary Regional Health Authority, Canadian National Institute for the Blind, and several private companies in Research Park. Employed up to 3 additional staff for various projects.	
1997 - 2000	Systems Analyst	Kinesiology, UofC
	Created the first Active Directory on the University of Calgary campus to solve ongoing computer issues within the Faculty of Kinesiology. Worked to merge Faculty of Kinesiology IT, Campus Recreation IT groups and developed a process to provide IT services to Canadian Sport Centre, Olympic Oval, and Athletic department, in order to provide unified and consistent IT services. Directly managed 2 employees.	
1996 - 1997	Instructor / Research Assistant GAT	Kinesiology, UofC
	Lab supervisor & learning tutorials: Human Growth and Development: labs & occasional lectures. Tests and Measures & Exercise Physiology: labs and lectures for Environmental Physiology, and Adapted Physical Education; Developed/taught biomechanics modules for the Outdoor Pursuits rock-climbing course.	

- 1996 - **Mini University Course Instructor** Campus Recreation, UofC, Calgary
1996 Mini PhD program in Medicine, Camps for Kids. Developed course program and led activities.
- 1991 - **Teaching & Lab Assistant / Instructors Assistant** Kinesiology, UofC
1994 Lab supervisor / Tutorials led for: Human Anatomy, Human Growth and Development, Statistics, Test and Measures, Computer Usages in Sport, and numerous activities and outdoor pursuit courses. Coordinated research studies and programs in biomechanics for Dr. Jack Engsborg. Testing and coordinating subjects and performing initial analysis and statistical analysis of data.
- 1994 - **Civilian Instructor Department of National Defence** DND CFB Medley, AB
1996 Developed & Taught Survival Instructors, and Air Crew Survival courses and curriculum for the Department of National Defence. Programs included: orienteering, back country survival, camp skills, water craft safety, canoe tripping, leadership.
- 1993 - **Ski Instructor/Coach/Guide** Canada Olympic Park, Calgary
1996 Ski Instructor for children's day camps, school programs and private lessons. Taught Alpine, Nordic, and Telemark skiing techniques. Coached junior development programs for Alpine skiing.
- 1992 - **Canoe Instructor/Coach/Guide** Calgary Canoe Club, Calgary
1994 Instructed Canoe and kayaking skills and techniques for all manner of groups and school programs, day camps. Organized and led river, backcountry, and white water trips. Coached novice canoe and kayak programs.

Certifications

- 2020 **RSO- Range Safety officer** Canmore Nordic Centre
- 2016 **FIS X-Country Ski Official** Canmore Nordic Centre
cross country skiing international federation of sport, officials course
- 2013 **ADI Instruments System Management and Teaching basics** University of Saskatoon
ADI System Management and Physiology Instruction modules
- 2008 **ITIL Intermediate Level V3 certification** University of Calgary
Standards for Computer Support
- 2005 **Management Training** Franklin Covey Leadership
Franklin Covey Leadership
- 2004 **Microsoft Certified System Architect** Continuing Education, UofC
MCSA
- 2001 **Microsoft Certified Database Professional** Continuing Education, UofC
MCDP
- 1998 **Microsoft Certified Professional** Continuing Education, UofC
MCP
- 1994 **Canadian Association of Alpine Ski Instructors** Canada Olympic Park, WinSport
CSIA Level I

1994	Canadian Association of Nordic Ski Instructors CASI Level I	Canada Olympic Park, WinSport
1992	Canadian Recreational Canoe Association CRCA Level V	Calgary Canoe Club

Conference Organization

2018 - 2019	Invited Reviewer - International Society of Biomechanics ISB	Calgary, Alberta
2006 - 2007	Technology Coordinator, CSEP Conference Banff CSEP	Banff, AB
1999 - 2000	Technology Coordinator, CSEP Conference Canmore CSEP	Canmore, AB
2002	Presentation Assistant - World Congress of Biomechanics WCB	Calgary, Alberta
1999	Presentation Assistant - International Society of Biomechanics ISB	Calgary, Alberta
1995 - 1996	Technology Director Special Olympics Canada Winter Games Conference Special Olympics Calgary	Calgary, AB

Governing Boards-Volunteer

2019	Team Captain, speaker ready room ISB/ASB, Calgary, AB	Calgary, AB
2019	Course Maintenance International Biathlon Union, World Cup at Canmore	Canmore, AB
2003 - 2016	Board Member, Canadian Internet Registration Authority CIRA	Calgary, AB
1995 - 1996	Technology Director, Special Olympics Canada Winter Games Special Olympics Calgary	Calgary, AB
1996	Program Coordinator, Special Olympics swimming Special Olympics	Calgary, AB
1995 - 1996	Program Facilitator, PREP program Preparation for Re-entry into Education Program, Grace Hospital	Calgary, AB
1993 - 1996	Environmental Director Calgary Canoe Club	Calgary, AB
1994 - 1996	Environmental Director Calgary Area Outdoor Council	Calgary, AB
1993 - 1996	Outdoor activity and environment advisor Mayor's Environmental Committee, City of Calgary	Calgary, AB

1992 - **Emergency Room Support and care**
1995 Calgary General and Rocky View Hospitals

Calgary, AB

August 26, 2024

John Holash