

RUSSELL THOMAS HEPPLER

Work

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CITIZENSHIP Canada & United Kingdom

(A) ACADEMIC TRAINING

Post Doctoral Research Fellow, 1996-99
Department of Medicine, University of California, San Diego, USA
Mentors: Odile Mathieu Costello, Ph.D. and Peter D. Wagner, M.D.
Ph.D., 1996
Department of Physiology, University of Toronto, ON, Canada.
Mentor: Michael J. Pyley, Ph.D.
M.Sc., 1992
Department of Physiology, University of Toronto, ON, Canada.
Mentor: Michael J. Pyley, Ph.D.
B.Sc., 1988
Department of Physiology, University of Saskatchewan, SK, Canada.

(B) ACADEMIC APPOINTMENTS

2005- Associate Professor
Faculty of Kinesiology, University of Calgary, CAN
Associate Professor
Faculty of Medicine, Department of Physiology & Pharmacology
University of Calgary, CAN
1999-2005 Assistant Professor
Faculty of Kinesiology, University of Calgary, CAN
Assistant Professor
Faculty of Medicine, Department of Physiology & Biophysics
University of Calgary, CAN
1992-95 Sessional Instructor
School of Physical and Health Education, University of Toronto, CAN.

(C) PUBLICATIONS

Names of authors underlined indicate trainees under R.T. Hepple's supervision.

Published Manuscripts and Tutorials:

1. **R.T. Hepple** A new measurement of tissue capillarity: the capillary-to-fibre perimeter exchange index. *Canadian Journal of Applied Physiology* 22(1): 11-22, 1997.
2. **R.T. Hepple**, S.L.M. MacKinnon, S.G. Thomas, J.M. Goodman, and M.J. Plyley. Quantitating the capillary supply and the response to resistance training in older men. *Pflügers Archive European Journal of Physiology* 433: 238-244, 1997.
3. **R.T. Hepple**, S.L.M. MacKinnon, S.G. Thomas, J.M. Goodman, and M.J. Plyley. Resistance and aerobic training in older men: effects on VO_{2peak} and the capillary supply to skeletal muscle. *Journal of Applied Physiology* 82(4): 1305-1310, 1997.
4. **R.T. Hepple**, P.J. Agey, L. Hazelwood, J.M. Szewczak, R.E. MacMillen, and O. Mathieu-Costello. Increased capillarity in leg muscle of finches living at altitude. *Journal of Applied Physiology* 85(5): 1871-1876, 1998.
5. **R.T. Hepple**, T.L. Babits, M.J. Plyley and J.M. Goodman. Dissociation of maximum vascular conductance and VO_{2max} among highly-trained athletes. *Journal of Applied Physiology* 87(4): 1368-1372, 1999.
6. **R.T. Hepple**, P.P. Liu, M.J. Plyley, and J.M. Goodman. Oxygen uptake kinetics during exercise in chronic heart failure: influence of peripheral vascular reserve. *Clinical Science* 97: 569-577, 1999.
7. Hogan, M.C., Kohin, S., Sary, C.M., and **R.T. Hepple**. Rapid force recovery in skeletal muscle following ischemia is dependent on O_2 availability. *Journal of Applied Physiology* 87(6): 2725-2729, 1999.
8. **R.T. Hepple**. Skeletal muscle: microcirculatory adaptation to metabolic demand. *Medicine and Science in Sports and Exercise* 32(1): 117-123, 2000.
9. Richardson, R.S., C.A. Harms, B. Grassi, and **R.T. Hepple**. Skeletal muscle: master or slave of the cardiovascular system? *Medicine and Science in Sports and Exercise* 32(1): 89-93, 2000.
10. **R.T. Hepple**, M.C. Hogan, C. Sary, D.E. Bebout, O.Mathieu-Costello and P.D. Wagner. Structural basis of muscle O_2 diffusing capacity: evidence from muscle function *in situ*. *Journal of Applied Physiology* 88: 560-566, 2000.
11. **R.T. Hepple** and O. Mathieu-Costello. Estimating the size of the capillary-to-fiber interface in skeletal muscle: A comparison of methods. *Journal of Applied Physiology* 91(5): 2150-2156, 2001.
12. **R.T. Hepple**. The role of O_2 supply in muscle fatigue. *Canadian Journal of Applied Physiology* 27(1): 56-69, 2002. (Published proceedings of 2000 Canadian Society for Exercise Physiology Annual Meeting).
13. Mathieu-Costello, O. and **R.T. Hepple**. Assessment of muscle structural capacity for oxygen flux from capillary to fiber mitochondria: Comparative perspectives and plasticity. *Exercise and Sport Sciences Reviews* 30(2): 80-84, 2002. (Invited Review)
14. **R.T. Hepple**, J.L. Hagen and D.J. Krause. Oxidative capacity interacts with oxygen delivery to determine VO_{2max} in rat skeletal muscles *in situ*. *Journal of Physiology* 541.3: 1003-1012, 2002.

15. **R.T. Hepple**, J.L. Hagen, D.J. Krause, and C.C. Jackson. Aerobic power declines with aging in rat skeletal muscles perfused at matched convective O₂ delivery. *Journal of Applied Physiology* 94: 744-751, 2003.
16. **R.T. Hepple**, C.M. Stary, S. Kohin, P.D. Wagner and M.C. Hogan. No effect of trans sodium crocetin on maximal O₂ conductance in canine skeletal muscle under moderately hypoxic conditions. *Respiration Physiology & Neurobiology* 134: 239-246, 2003.
17. **R.T. Hepple**, D.J. Krause, J.L. Hagen, and C.C. Jackson. VO_{2max} is unaffected by altering the temporal pattern of stimulation frequency in rat hindlimb *in situ*. *Journal of Applied Physiology* 95: 705-711, 2003.
18. J.M. LaMothe, **R.T. Hepple**, and R.F. Zernicke. Bone adaptation with aging and long-term caloric restriction in Fischer 344 X Brown Norway F1-hybrid rats. *Journal of Applied Physiology* 95: 1739-1745, 2003.
19. **R.T. Hepple**. Sarcopenia--A Critical Perspective. *Science of Aging Knowledge Environment* 2003, 46: pe31, 2003 (<http://sageke.sciencemag.org/cgi/content/full/sageke;2003/46/pe31>).
20. **R.T. Hepple**, K.D. Ross, and A.B. Rempfer. Fiber atrophy and hypertrophy in skeletal muscles of late middle aged Fischer 344 X Brown Norway F1-hybrid rats. *Journals of Gerontology Biological Sciences* 59A(2): 108-117, 2004.
21. **R.T. Hepple** and J.E. Vogell. Anatomic capillarization is maintained in relative excess of fiber oxidative capacity in some skeletal muscles of late middle aged rats. *Journal of Applied Physiology* 96: 2257-2264, 2004.
22. J.L. Hagen, D.J. Krause, D.J. Baker, M. Fu, M.A. Tarnopolsky, and **R.T. Hepple**. Skeletal muscle aging in F344BN F1-hybrid rats: I. Mitochondrial dysfunction contributes to the age-associated reduction in VO_{2max}. *Journals of Gerontology Biological Sciences* 59A(11): 1099-1110, 2004.
23. **R.T. Hepple**, J.L. Hagen, D.J. Krause, and D.J. Baker. Skeletal muscle aging in F344BN F1-hybrid rats: II. Improved contractile economy in senescence helps compensate for reduced ATP generating capacity. *Journals of Gerontology Biological Sciences* 59A(11): 1111-1119, 2004.
24. **R.T. Hepple**, D.J. Baker, J.J. Kaczor and D.J. Krause. Long-term caloric restriction abrogates the age-related decline in skeletal muscle aerobic function. *The FASEB Journal* 19(10): 1320-1322, 2005.
25. D.J. Baker and **R.T. Hepple**. Utility of a Pump-perfused Rat Hindlimb Preparation for Research in the Exercise Sciences. Proceedings from the 2003 Canadian Society for Exercise Physiology Meeting. *Canadian Journal of Applied Physiology* 30(5): 576-590, 2005.
26. **R.T. Hepple**, J.L. Hagen, D.J. Krause and D.J. Baker. The role of impaired O₂ transfer from blood to muscle mitochondria in VO_{2max} decline with aging. In: Scientific Proceedings from the 6th World Congress on Aging and Physical Activity, P. 19-24, Edited by G.R. Jones, A.W. Taylor and N.A. Ecclestone, ISBN 0-9688516-1-4, 2005.
27. D.J. Krause, J.L. Hagen, C.A. Kindig and **R.T. Hepple**. NOS inhibition reduces the O₂ cost of contractions in pump-perfused rat hindlimb muscles: Effects are independent of convective O₂ delivery. *Experimental Physiology* 90.6: 889-900, 2005.
28. **R.T. Hepple**. Dividing to keep muscle together: The role of satellite cells in aging skeletal muscle. *Science of Aging Knowledge Environment* 2006 (3): pe3, 2006. (<http://sageke.sciencemag.org/cgi/content/full/2006/3/pe3>).

29. **R.T. Hepple**, D.J. Baker, M. McConkey, T. Murynka and R. Norris. Caloric restriction protects mitochondrial function with aging in skeletal and cardiac muscles. *Rejuvenation Research* 9(2): 219-222, 2006.
30. D.J. Baker, D.J. Krause, R.A. Howlett and **R.T. Hepple**. NOS inhibition reduces the O₂ cost of force development and spares high energy phosphates following contractions in pump-perfused rat hindlimb muscles. *Experimental Physiology* 91.3: 581-589, 2006.
31. D.J. Baker, A.C. Betik, D.J. Krause, and **R.T. Hepple**. No decline in skeletal muscle oxidative capacity with aging in long-term caloric restricted rats: effects are independent of mtDNA integrity. *Journals of Gerontology Biological Sciences* 61A: 675-684, 2006.
32. D.J. Baker and **R.T. Hepple**. Elevated caspase and AIF signaling correlates temporally with progression of sarcopenia in male F344BN rats. *Experimental Gerontology* 41: 1149-1156, 2006.
33. J.S. Vantanajal, J.C. Ashmead, T.J. Anderson, **R.T. Hepple** and M.J. Poulin. Differential sensitivities of cerebral and brachial blood flow to hypercapnia in humans. *Journal of Applied Physiology* 102: 87-93, 2007.
34. **R.T. Hepple** (2007), "Muscle Mitochondrial Function and Biogenesis with Aging", in Hood, D. (ed.), *Mitochondrial Biogenesis: Processes, Regulation, Functions and Disease*, The Biomedical & Life Sciences Collection, Henry Stewart Talks Ltd, London (online at <http://www.hstalks.com/?t=BL0151490-Hepple>)
35. A.C. Betik and **R.T. Hepple**. Determinants of VO_{2max} Decline with Aging: An Integrated Perspective. *Applied Physiology, Nutrition and Metabolism* 33(1): 130-140, 2008.
36. A.C. Betik, D.J. Baker, D.J. Krause, M.J. McConkey, and **R.T. Hepple**. Exercise training in late middle aged male F344BN rats improves skeletal muscle aerobic function. *Experimental Physiology* 93.7: 863-871, 2008.
37. Z.W. Westerbrook, **R.T. Hepple**, and R.F. Zernicke. Effects of Aging and Caloric Restriction on Bone Structure and Mechanical Properties. *Journals of Gerontology Biological Sciences* 63(11): 1131-1136, 2008.
38. **R.T. Hepple**, M. Qin, H. Nakamoto, and S. Goto. Caloric restriction optimizes the proteasome pathway with aging in rat plantaris muscle: implications for sarcopenia. *American Journals of Physiology Regulatory Integrative and Comparative Physiology* 295(4): R1231-1237, 2008.
39. **R.T. Hepple**. Why Eating Less Keeps Mitochondria Working in Aged Skeletal Muscle. *Exercise and Sport Sciences Reviews* (Invited Review) 37(1): 23-28, 2009.
40. L. E. Wong, T. Garland Jr., S. Rowan, **R.T. Hepple**. Anatomic capillarization is elevated in medial gastrocnemius muscle of mighty mini mice. *Journal of Applied Physiology* 106(5): 1660-1667, 2009.
41. A.C. Betik, M.M. Thomas, K.J. Wright, C.D. Riel and **R.T. Hepple**. Exercise training from late middle age to senescence does not attenuate the declines in skeletal muscle aerobic function. *American Journals of Physiology Regulatory Integrative and Comparative Physiology* 297(3): R744-755, 2009.
42. **R.T. Hepple**, R.A. Howlett, C.A. Kindig, C.M. Stary and M.C. Hogan. The O₂ cost of the time-tension integral in isolated single myocytes during fatigue. *American Journals of Physiology Regulatory Integrative and Comparative Physiology* (In Press).

Manuscripts Submitted

1. C. Tweedie, C. Romestaing, Y. Buelle, A. Safdar, M.A. Tarnopolsky, S.L. Britton, L. Koch, and R.T. Hepple. Lower oxidative DNA damage despite greater ROS production in muscles from rats selectively bred for high running capacity. *Journal of Physiology*.
2. M.M. Thomas, C. Vigna, A.C. Betik, A.R. Tupling, R.T. Hepple. Initiating treadmill training in late middle age offers modest adaptations in Ca²⁺ handling but enhances oxidative damage in senescent rat skeletal muscle. *American Journals of Physiology Regulatory Integrative and Comparative Physiology*.

Book Chapters:

1. **R.T. Hepple,** Alterations in Mitochondria and their Impact in Aging Skeletal Muscle. *In: Sarcopenia, Advances in Experimental Medicine and Biology*, Gordon Lynch (Editor), Springer Publishing (In Press).

Theses:

1. **Hepple, R.T.** VO₂ kinetics and peripheral blood flow in idiopathic heart failure and healthy sedentary subjects. M.Sc. Thesis, University of Toronto, 1992.
2. **Hepple, R.T.** Quantitating the capillary supply and the cardiorespiratory response to maximal exercise in older men: a training study. Ph.D. Dissertation, University of Toronto, 1996.

(D) AWARDS

- 2007-14 ·AHFMR Senior Scholar; An Integrative Approach Towards Understanding the Mechanisms of Sarcopenia; \$995,000
- 2003 ·Special Recognition Canadian Institutes of Health Research Institute of Aging New Investigator Award (given to the top ranked applicant in the CIHR Open Competition in the field of research on aging); \$10,000
- 2003-08 ·Canadian Institutes of Health Research Institute of Aging New Investigator; \$250,000
- 2002-07 ·Heart and Stroke Foundation of Canada New Investigator; \$250,000 (declined 2003-07 portion upon receiving CIHR award)
- 1996 ·American Physiological Society Integrative Biology of Exercise Conference: Graduate Student Award Finalist
- 1995 ·University of Toronto Graduate Bursary; \$1,500
- 1992-94 ·University of Toronto Open Fellowship; \$10,800
· T-Holders Academic All-Canadian (for athletic and academic excellence)
- 1990 ·University of Toronto Open Fellowship; \$10,200
- 1990 ·University of Toronto Life Sciences Award; \$1,500

(E) GRANTS AND RESEARCH CONTRACTS:

CURRENTLY HELD -

- 2005-11 ·Canadian Institutes of Health Research, Operating Grant: *Interventions to maintain skeletal muscle aerobic function with aging*. Principal Investigator: \$490,000

Russell T. Hepple, Ph.D.

- 2007-10 ·Canadian Institutes of Health Research, Operating Grant: *Strategies for combating sarcopenia: insights from exercise training and caloric restriction*. Principal Investigator: \$315,000
- 2005-10 ·Natural Sciences and Engineering Research Council. Title: *Regulation of Performance in Contracting Skeletal Muscle*. Principal Investigator. \$148,000

PREVIOUSLY HELD -

- 2006-09 ·Canadian Institutes of Health Research, Operating Grant: Frailty, inflammatory mechanisms and adverse health outcomes; Co- Investigator; \$177,000
- 2005-06 ·Canadian Institutes of Health Research, Operating Grant: *Mechanisms of Sarcopenia*; Principal Investigator; \$79,712
- 2005-06 ·Pfizer, Research Agreement. Title: *Effect of life long exercise on gene expression in aging skeletal muscle: Implications for sarcopenia*. Principal Investigator. \$123,000
- 2004-05 ·Brenda Strafford Foundation Chair in Geriatric Research. Pilot Project Grant. Title: *Effect of life long exercise on gene expression in aging skeletal muscle: Implications for sarcopenia and resulting frailty*. Principal Investigator. \$24,500
- 2003-06 ·Canadian Institutes of Health Research, Special Science of Aging Knowledge Environment (SAGE-KE) Grant. Title: *The Physiology of Aging Skeletal Muscle*; (Contributing Editor to SAGE-KE online journal). Principal Investigator. \$15,000
- 2002-05 ·Canadian Institutes of Health Research, Operating Grant. Title: *Influence of Sarcopenia on Aerobic Performance in Aged Skeletal Muscles*. Principal Applicant. \$257,244
- 2001-02 ·Canadian Institutes of Health Research, Operating Grant. Title: *Determinants of Aerobic Metabolic Performance in Healthy and Aged Skeletal Muscles*. Principal Applicant. \$110,026
- 2000-01 ·Alberta Heritage Foundation for Medical Research, Major Equipment Grant; \$35,000
- URGC Starter Grant. Principal Applicant. \$9,829
- 1999-2000 ·Alberta Innovation and Science, Research Excellence Envelope. Principal Applicant. \$50,800
- Faculty of Kinesiology Start-up Grant (through the Alberta Heritage Foundation for Medical Research). Principal Applicant. \$50,000

(F) MENTORSHIP

CURRENT -

- Melissa Thomas (Supervisor, Ph.D. program, Faculty of Kinesiology)
- Sharon Rowan (Supervisor, M.Sc. program, Faculty of Kinesiology)
- Darmyn Ritchie (Supervisor, M.Sc. program, Faculty of Kinesiology)
- Kathryn Wright (Supervisor, M.Sc. program, Faculty of Kinesiology)
- Rui Mi (Supervisor, Lab Technician)
- Lisa Wong (Committee member, M.Sc. program, Faculty of Kinesiology)

FORMER -

Russell T. Hepple, Ph.D.

- Caroline Romestaing (Supervisor, Postdoctoral Fellow, 2009)
- David Baker, Ph.D. (Supervisor, Postdoctoral Fellow, 2003-06)
- Jason Villarin, Ph.D. (Supervisor, Postdoctoral Fellow, 2005-06)
- Constance Tweedie (Supervisor, M.Sc. program, Faculty of Kinesiology; defended 2009)
- Andrew Betik (Supervisor, Ph.D. program, Faculty of Kinesiology; defended 2009)
- Jon Ashmead (Supervisor, M.Sc. program, 2003-05, Faculty of Kinesiology; defended 2004)
- Jason Hagen (Supervisor, M.Sc. program, 2000-03, Faculty of Kinesiology; defended 2003)
- Dan Krause (Supervisor, M.Sc. program, 2000-03, Medical Sciences; defended 2003)
- Janis Vogel (Supervisor, M.Kin program, 2000-01, Faculty of Kinesiology; defended 2001)
- Scott Seadon (Supervisor, 2007-08 Winter USRP, Faculty of Kinesiology)
- Kathryn Wright (Supervisor, 2008-09 Winter USRP program, Faculty of Kinesiology)
- Chun Mei (Maggie) Qin (Supervisor, Technician, Faculty of Kinesiology)
- Lisa Wong (Supervisor, Undergraduate Honour's student, Faculty of Kinesiology)
- Elaine Huba (Supervisor, 2006-07 Markin Flanagan Winter USRP, Faculty of Kinesiology)
- Ryan Garlough (Supervisor, Research Assistant, Faculty of Kinesiology; 2006)
- Sara-Jane Manuel (Supervisor, Winter 2005-06, Markin Flanagan USRP, Faculty of Kinesiology)
- Peyman Shooshtari, M.D. (Supervisor, Clinician Scientist, Faculty of Kinesiology; 2005)
- Tania Muryinka (Supervisor, undergraduate student, 2004, CIHR IMHA Summer Scholarship in Musculo-skeletal Research awardee)
- Robin Norris (Supervisor, undergraduate research assistant, Faculty of Kinesiology)
- Joel Rollefstad (Supervisor, Markin-Flanagan Undergraduate Student Research Project Scholar in Bone & Joint Health, Faculty of Kinesiology, Fall 2004)
- Amanda Rempfer (Supervisor, Undergrad Honours Project, Faculty of Kinesiology, 2003-04)
- James Heth (Supervisor, Markin-Flanagan Undergraduate Student Research Project Scholar in Bone & Joint Health, Faculty of Kinesiology, 2003-04)
- Chelsey Wyrostok (Supervisor, Part-time Technician, Faculty of Kinesiology)
- Nancy Martin (Supervisor, Research Assistant, Feb.-Aug. 2002)
- Philip Chang (Supervisor, University of Calgary High School Science Enrichment Program, Faculty of Kinesiology, Jan.-May 2002)
- Chelsey Wyrostok (Supervisor, EP Scarlett High School Biology Student Summer Research Program; Sponsored by the Alberta Heart & Stroke Foundation; 2000-01)
- Ruth Duplisea, M.Sc. Technician. (Supervisor, 2000-2001)
- Reza Shahi (Committee member, Ph.D. program, Faculty of Kinesiology)

- Stan Mazursky (Committee member, MSc. program, Faculty of Kinesiology, defended 2009)
- Alannah Maurer (Committee member, PhD. program, Faculty of Kinesiology)
- Gary Dormer (Committee member, MSc. program, Faculty of Kinesiology, defended 2007)
- Caeley Lorincz (Committee member, Ph.D. program, Faculty of Kinesiology, defended 2009)
- Andrea Devrome (Committee member, Ph.D. program, Medical Sciences, defended 2006)
- Danny Peterson (Committee member, Ph.D. program, Faculty of Kinesiology, defended 2005)
- Tim Butterfield (Committee member, Ph.D. program, Faculty of Kinesiology, defended 2005)
- Meredith MacNaughton (Committee member, M.Sc. program, Faculty of Kinesiology, defended 2005)
- Jimmy Vantanajal (Committee member, M.Sc. program, Faculty of Medicine; defended 2004)

(G) TEACHING

- 2003- ·*KNES 495 Physiological Aspects of Aging, Disease, and Physical Activity* – A senior elective course for Kinesiology students at the University of Calgary. Examines the interaction between aging, age-associated disease (e.g., cardiovascular disease) and physical activity. Focus on biological basis for age-associated physiological decline.
- 2000- ·Guest Lectures: I frequently guest lecture for senior undergraduate and graduate courses in the Faculty of Medicine and Department of Biology, including MDSC 404 (Physiology), MDSC 751.30 (Special Topics in Joint Injury and Disease), and Zool 595 (Comparative Neuromuscular Physiology).
- 2000-03, 09 ·*KNES 355 Human Growth and Development* – A required course for all Kinesiology majors at the University of Calgary. Covers the biological aspects of growth and development from “womb to tomb”, with an emphasis on the interaction between physical activity and growth, maturation, and aging.
- 2000-02 ·*KNES 673 Exercise Physiology* – A graduate course for Kinesiology M.Sc. and M.Kin. students at the University of Calgary covering a range of current topics in exercise physiology, with an emphasis on developing the ability to critically assess the scientific literature.
- 2002 ·*KNES 465 Physiological Adaptation to Environmental Stress*. An upper level elective course. This course examined the influence that different environmental conditions (e.g., heat, cold, hypoxia, hyperbaria, pollution) had on the capacity for physical activity, and the physiological adaptations (acute and chronic) occurring in response to these different environmental stressors.

(H) Invited Lectures

1. *Mitochondrial Biogenesis in Senescent Skeletal Muscle: The Good, the Bad, and the Ugly*. Department of Physiology, McGill University, Montreal, CANADA, February 5, 2010.
2. *Are Aging Muscles Withering in an Oxidative Storm or Simply Hungry for Attention?* Department of Kinesiology and Physical Education, McGill University, Montreal, CANADA, December 15, 2009.
3. *Successful Aging in Skeletal Muscle: Do More or Eat Less?* Canadian Society for Exercise Physiology Annual Meeting, Vancouver, CANADA, November 14, 2009.
4. *Efficacy of Exercise Training for Aging Skeletal Muscle: What Can Rodent Models Tell Us?* Medical Research Council Workshop on Aging and Exercise, University of Newcastle-Upon-Tyne, Newcastle, UNITED KINGDOM, November 6, 2009.
5. *Plasticity of Mitochondrial Biogenesis in Aging Skeletal Muscle*. Montreal Neurological Institute, McGill University, Montreal, CANADA, October 22, 2009.
6. *Plasticity of Mitochondrial Biogenesis in Aging Skeletal Muscle*. Department of Endocrinology, Royal Victoria Hospital, McGill University, Montreal, CANADA, October 15, 2009.
7. *Is Skeletal Muscle Mitochondrial Plasticity Impaired with Age?* Lady Davis Institute, McGill University, Montreal, CANADA, March 31, 2009.
8. *Impact of Aging and Caloric Restriction on Skeletal Muscle*. Department of Medicine, Juntendo University, Tokyo, JAPAN, February 3, 2009.
9. *Impact of Endurance Training on Aging Skeletal Muscle*. School of Physical Education, Tokai University, Kanagawa, JAPAN, February 2, 2009.
10. *Impact of Aging on Skeletal Muscle*. Symposium on Sport and Exercise, Juntendo University, Narita, JAPAN, January 31, 2009.
11. *Plasticity of Mitochondrial Biogenesis in Senescent Skeletal Muscle*. Alberta Cancer Research Institute meeting, Banff, AB, CANADA, Nov 26, 2008.
12. *Is Skeletal Muscle Mitochondrial Plasticity Impaired with Aging?* Mitochondrial Research Interest Group, University of Newcastle Upon Tyne, Newcastle, UNITED KINGDOM, Oct 27, 2008.
13. *Do Life-long Hunger Pangs Make Aging Muscles Happy?* Academic Ageing Seminar, Institute of Ageing and Health, University of Newcastle Upon Tyne, Newcastle, UNITED KINGDOM, Oct 24, 2008.
14. *Applicability of the Mitochondrial Theory of Aging for Skeletal Muscle*. CIHR NSFC Canada-China Research Workshop on Aging. Vancouver, CANADA, Sept 24, 2008.
15. *Impact of Aging on Skeletal Muscle Mitochondrial Function and the Impact of Oxidative Stress*. Canadian Federation of Biological Sciences Annual Meeting, Winnipeg, MB, CANADA, June 18-20, 2008.
16. *Effect of Caloric Restriction on Mitochondrial Content and Function in Aging Muscle*. Experimental Biology Annual Meeting, San Diego, CA, USA, April 4-9, 2008.
17. *Effect of Aging on Fatigue in Skeletal Muscle*. Experimental Biology Annual Meeting, San Diego, CA, USA, April 4-9, 2008.

18. *Caloric Restriction Attenuates Developmental Myosin Heavy Chain Expression and Myostatin Signaling in Aged Muscles*. Experimental Biology Annual Meeting, San Diego, CA, USA, April 4-9, 2008.
19. *Caloric Restriction: Why eating less leaves more*. Clinical Nutrition Research Center, University of Alabama at Birmingham, Birmingham, AL, USA, Dec 11, 2007.
20. *Sarcopenia and Caloric Restriction*. Nathan Shock Center Conference on Aging. San Antonio, TX, USA, Oct 25-28, 2007.
21. *Mechanisms underlying the protection of aging muscle by caloric restriction*. Faculty of Kinesiology, McGill University, Montreal, Qc, Oct. 15, 2007.
22. *Aerobic Function of Aged Skeletal Muscle*, ACSM Annual Meeting, New Orleans, LA. May 30-June 2, 2007.
23. *Aging Muscles and Caloric Restriction*. Western Obesity Summit, Kananaskis, Alberta, May 6-8, 2007.
24. *Mechanisms by which caloric restriction attenuates sarcopenia*. University of Montreal, Montreal, Qc, April 5, 2007.
25. *Benefits of Caloric Restriction for Aging of Skeletal Muscle*. Edmonton Aging Symposium, Edmonton, AB, CAN, March 30, 2007
26. *Aging Muscles and Caloric Restriction: Why Eating Less Leaves More*. David Cunningham Honorary Lecture, School of Kinesiology, University of Western Ontario, February 5, 2007.
27. *Improving the trajectory of aging skeletal muscle: insights gained from caloric restriction*. Advances in Skeletal Muscle Biology in Health and Disease 10th biennial conference, University of Florida, Gainesville, FL, Jan 25-26, 2007.
28. *Alterations in Skeletal Muscle Aerobic Function with Aging*. Canadian Society for Exercise Physiology Annual Meeting, Halifax, NS, CAN, Nov. 1-4, 2006.
29. *Improving the Trajectory of Muscle Aging: Insights Gained From Caloric Restriction*. Department of Agriculture, Food and Nutritional Science, University of Alberta, October 11, 2006.
30. *Cardiovascular Responses to Exercise and the Effect of Aging*. Guest lectures for BEN 230C, Department of Bioengineering, University of California San Diego, San Diego, CA, USA, May 22 and May 24, 2006.
31. *Caloric restriction protects mitochondrial function with aging in skeletal and cardiac muscles*. Second Strategies for Engineered Senescence Conference, Cambridge, United Kingdom, Sept. 7-11, 2005.
32. *Cardiovascular Responses to Exercise and the Effect of Aging*. Guest lectures for BEN 230C May 18, 20 and 23rd, 2005. Department of Bioengineering, University of California San Diego, San Diego, CA, USA.
33. *The Role of Impaired O₂ Transfer from Blood to Muscle Mitochondria in VO_{2max} Decline with Aging*. Invited symposium participant in the World Congress of Aging and Physical Activity, Aug. 3-6, 2004, London, ON, CAN.
34. *Cardiovascular Responses to Exercise and the Effect of Aging*. Guest lectures for BEN 230C May 21, 24 and 26th, 2004. Department of Bioengineering, University of California San Diego, San Diego, CA, USA.

35. *Utility of the Pump-perfused Rat Hindlimb for Research in the Exercise Sciences*. Canadian Society for Exercise Physiology Annual Meeting, Oct. 2003. St. Catherines, ON, CAN.
36. *Consequences of Sarcopenia for Skeletal Muscle Function*. Department of Biology, University of California Riverside, June 11th, 2003. Riverside, CA, USA.
37. *Consequences of Sarcopenia for Skeletal Muscle Function*. Division of Physiology, University of California San Diego, June 6, 2003. San Diego, CA, USA.
38. *Causes, Consequences and Treatment of Muscle Atrophy with Aging*. Presented to the Nuclear Control Subgroup of the Cancer Biology Research Group, University of Calgary, April 3, 2003.
39. *Effect of Sarcopenia on Aerobic Performance in Aged Skeletal Muscles*. CIHR Institute of Aging Advisory Board Meeting, November 19, 2002. Calgary, AB, CAN.
40. *The Role of O₂ Supply in Muscle Fatigue*. Canadian Society for Exercise Physiology annual meeting, Oct. 25-28, 2000. Canmore, AB, CAN.
41. *Determinants of Skeletal Muscle O₂ Conductance: Implications for Aging*. May 14, 1999. Faculty of Kinesiology, University of Calgary, CAN.
42. *Determinants of Skeletal Muscle O₂ Conductance: Implications for Aging*. May 10, 1999. School of Physical and Health Education, University of Alberta, CAN.
43. *Determinants of Skeletal Muscle O₂ Conductance: Implications for Aging*. March 10, 1999. Department of Neurology, University of Newcastle Upon Tyne, U.K.
44. *Determinants of Skeletal Muscle O₂ Conductance: Evidence From Muscle Function In Situ*. March 8, 1999. Pfizer Central Research, Sandwich, U.K.
45. *Plasticity of skeletal muscle: microcirculatory adaptation to metabolic demand*. Symposium: *Skeletal muscle: Master or slave of the cardiovascular system?* June 3-6, 1998. American College of Sports Medicine Annual Meeting, Orlando, FL., USA.

(I) UNIVERSITY SERVICE

- 2008-09 ·Faculty of Kinesiology Representative (Fac. Nursing)
- 2006-08 ·University Research Grants Committee (University of Calgary)
·Faculty of Kinesiology Representative (Fac. of Science)
·Exercise and Health Physiology Faculty Search Committee (Fac. of Kinesiology)
- 2005- ·Striking Committee (Faculty of Kinesiology, University of Calgary)
·Faculty of Kinesiology Representative (Fac. of Nursing)
·Dean's Search Committee (Fac. of Kinesiology)
- 2003-06 ·Graduate Scholarship Committee (Fac. of Graduate Studies, Univ. of Calgary)
- 2002-04 ·Research Policy Committee (Fac. of Kinesiology, University of Calgary)
- 2000-03 ·Curriculum Policy Committee (Fac. of Kinesiology, University of Calgary)

EXTERNAL EXAMINER -

- 2008 ·External Examiner: Stephen Cornish (Ph.D. program, University of Saskatchewan)
- 2006 ·Internal/External Examiner: Andrew Carley (Ph.D. program, Faculty of Medicine, University of Calgary)
·Internal/External Examiner: Michael Butcher (Ph.D. program, Biological Sciences, University of Calgary)

- 2001 ·External Examiner: Aparna Nirdosh (M.Sc. program, Biological Sciences, University of Calgary)
·External Examiner: Janine Willis (M.Sc. program, Medical Sciences, University of Calgary)
- 2000 ·External Examiner: Shirley Bryan (M.Kin. program, Fac. Kinesiology, University of Calgary)
·External Examiner: Roxane Chia-Chi Shymkiw (M.Sc. program, Medical Sciences, University of Calgary)

(J) PROFESSIONAL SERVICE

ADVISORY BOARDS –

- CIHR Institute of Aging Advisory Board Member (2007-ongoing)
•Mobility in Aging Priority Working Group

GRANT REVIEW PANELS –

- Movement and Exercise (MOV) (2009-ongoing)

EDITORIAL BOARDS –

- American Journal of Physiology Regulatory Integrative and Comparative Physiology (2008-ongoing)
·Science of Aging Knowledge Environment (Contributing Editor) (2003-06)

EDITORIAL BOARDS -

- Editorial Board Member for *American Journals of Physiology Regulatory, Integrative and Comparative Physiology* (2008-ongoing)
- Science of Aging Knowledge Environment (Contributing Editor, 2003-06)

GRANT PEER REVIEW -

- Canadian Institutes of Health Research (MOV Grant Review Committee Member)
- Canadian Institutes of Health Research (Institute of Aging Age-plus Award Review Committee Member)
- Natural Sciences and Engineering Research Council (Grant Reviewer)
- Canadian Institutes of Health Research (Grant Reviewer)
- Heart and Stroke Foundation of Canada (Grant Reviewer)
- Wellcome Trust UK (Grant Reviewer)
- Canadian Foundation for Innovation (Grant Reviewer)
- New Zealand

JOURNAL PEER REVIEW -

- Journal of Physiology
- Aging Cell
- Experimental Gerontology
- Science Translational Medicine
- Mechanisms of Ageing and Development
- Journals of Gerontology Biological Sciences Medical Sciences
- American Journal of Physiology Regulatory, Integrative and Comparative Physiology
- American Journal of Physiology Heart and Circulatory Physiology
- American Journal of Physiology Endocrinology and Metabolism
- Journal of Applied Physiology
- Pflügers Archive
- Experimental Physiology

OTHER PEER REVIEW -

- CIHR Institute of Aging Age Plus Prize

(K) PROFESSIONAL AFFILIATIONS

- American Physiological Society
- Canadian Federation of Biological Societies
- Canadian Society for Exercise Physiology
- Gerontological Society of America
- American Association for the Advancement of Science