



Okanagan Senate

THE FOURTH REGULAR MEETING OF THE OKANAGAN SENATE FOR THE 2012/2013 ACADEMIC YEAR

WEDNESDAY, DECEMBER 19, 2012

3:30 P.M. to 5:30 P.M.

ASC 130| OKANAGAN CAMPUS

1. Senate Membership – Mr Christopher Eaton (information)

New Senator

Dr Barbara Marcolin, Assistant Professor of Management, Faculty Representative for the Faculty of Management (replacing Dr Gurupdesh Pandher)

2. Minutes of the Meeting of 20 November 2012 – Prof. Deborah Buszard (approval)
(Master Pages 3-13)

3. Business Arising from the Minutes

4. President's Remarks – Prof. Stephen J. Toope (information) (master pages 14-26)

Record of President's Activities for 27 August 2012 to 9 November 2012

5. Deputy Vice-Chancellor's Remarks – Prof. Deborah Buszard (information)

6. Admission & Awards Committee – Dr Spiro Yannacopoulos (approval)

a. Changes to Admission for Canadian Aboriginal Students (master pages 27-31)

b. New Policy O-52: Admission for Secondary School Applications following the BC / Yukon Curriculum and Discontinuation of Policy J-52 (master pages 32-45)

c. New and Revised Awards (master pages 45-46)

d. Major Entrance Scholarships (master pages 47-49)

7. Curriculum Committee – Dr Dwayne Tannant (approval) (master pages 50-70)

December Curriculum Report

8. Learning & Research Committee – Dr Peter Arthur (approval) (master pages 71-72)

Candidates for Emeritus Status

9. Nominating Committee – Mr Curtis Tse (approval) (master page 73)

Appointment to Senate Curriculum Committee

APPENDIX A

PRODUCTIVITY, FUNDING AND TRAINING OF HIGHLY QUALIFIED PERSONNEL BY THE INTEGRATIVE CARDIOVASCULAR AND RESPIRATORY RESEARCH GROUP SINCE INCEPTION IN JANUARY 2011.

Productivity, funding and training of highly qualified personnel by the integrative cardiovascular and respiratory research group consisting of the laboratories of Dr. Ainslie and Dr. Eves in the 19 months since inception.

Articles published or in-press in referred journals (01/11-07/12):

Notation

Supervised students of Ainslie and Eves are underlined.

1. **Ainslie PN**, Lucas S, Fan M, Thomas KN, Cotter JD, Burgess KR (2012) Influence of sympathoexcitation on cerebrovascular function and ventilatory control at high altitude. *J Appl Physiol*, In Press
2. Ainslie PN (2012) Regional brain blood flow regulation during orthostatic stress: new insights from Duplex sonography. *Experimental Physiol*, In Press
3. Bailey DM, Jones DJ, Sinnot A, Brugniaux JV, New K, Hodson D, Marley CJ, Smirl JD, Ogoh S, **Ainslie PN** (2012) Impaired cerebral hemodynamic function associated with chronic traumatic brain injury in professional boxers. *Clin Sci*, In Press
4. Tzeng YC, **Ainslie PN**, Cooke WH, Peebles KC, Willie CK, MacRae B, Smirl JD, Horsman H & Rickards CA (2012) Assessment of cerebral autoregulation: the quandary of quantification. *Am J Physiol Heart and Circ*, In Press
5. Phillips AA, **Ainslie PN**, Warburton DE (2012) Baroreflex function following spinal cord injury. *Journal of Neurotrauma*, In Press
6. Morrison SA, **Ainslie PN**, Lucas R, Cheung S, Cotter JD. (2012) Compression garments do not alter cerebrovascular responses to orthostatic stress after mild passive heat. *Scand J Med Sci Sports*, In press
7. Sugawara J, Willie CK, Miyazawa T, Komine H, Akimoto T, **Ainslie PN**, Ogoh S. (2012) Effects of transient change in carotid arterial stiffness on arterial baroreflex during mild orthostatic stimulation. *Artery Research*, In press
8. Smith KJ, Wong LE, **Eves ND**, Koelwyn GJ, Smirl JD, Willie CK, **Ainslie PN**. Regional Cerebral Blood Flow Distribution During Exercise: Influence of Oxygen. *Accepted by Respiratory Physiology and Neurobiology* (July 19th, 2012).
9. Koelwyn GE, Wong LE, Kennedy MD, **Eves ND**. The effect of hypoxia and exercise on heart rate variability, immune response, and orthostatic stress. *Accepted pending revisions. Scandinavian Journal of Exercise and Science in Sports and Exercise* (June 2012).
10. Davidson WJ, Verity WS, Traves SL, Leigh R, Ford GT, **Eves, ND**. The Effect of Incremental Exercise on Airway and Systemic Inflammation in Patients with COPD. *Journal of Applied Physiology*, 112(12): 2049-56, 2012.
11. Lewis NC, **Ainslie PN**, Atkinson G, Jones, H, Lucas S. The effect of time of day and sympathetic blockade on orthostatic tolerance *Cronobiology Int*, In press, 2012.
12. Smirl JD, Haykowsky M, Nelson M, **Ainslie PN**. Resting and exercise cerebral blood flow in long-term heart transplant recipients. *J of Heart and Lung Transplant*, In press, 2012.
13. Willie CK, Macleod DB, Shaw A, Smith KJ, Tzeng YC, **Eves ND**, Ikeda K, Graham J, Lewis NC, Day TA, **Ainslie PN**. Regional Brain Blood Flow in Man during Acute Changes in Arterial Blood Gases. *Journal of Physiology*, 590(14): 3261-3275, 2012.
 - a. Manuscript accompanied by an Editorial: Barnes JN. Beyond a one-track mind: understanding blood flow to the brain in *Journal of Physiology*, 590(14): 3217, 2012.
14. Murrell C, Cotter JD, Lucas S, Wilson L, Thomas K, Williams MJ, **Ainslie PN**. (2012) Cerebral blood flow and cerebrovascular reactivity at rest and during sub-maximal exercise: Effect of age and 12 weeks exercise training. *Age*. In press.

15. Koelwyn GK, Jones LW, Hornsby WE, **Eves ND**. Exercise Therapy in the Management of Dyspnea in Patients with Cancer. *Current Opinion in Supportive & Palliative Care* 6(2): 129-137, 2012.
16. Gelinas J, Marsden KR, Tzeng YC, Smirl JD, Smith KJ, Willie CK, Lewis NC, Binsted G, Bakker A, Day TA, **Ainslie PN**. Influence of posture on the regulation of cerebral perfusion. *Aviation, Space and Environmental Medicine, In press*, 2012.
17. Godoy D, Rabinstein A, Biestro A, **Ainslie PN**, Napoli M. Effects of Indomethacin Test on Intracranial Pressure and Cerebral Hemodynamics in Patients With Refractory Intracranial Hypertension: A Feasibility Study. *Neurosurgery, In Press*, 2012.
18. Andrews GR, **Ainslie PN**, Shepard K, Burgess KR. The effect of partial acclimatisation to high altitude on loop gain and central sleep apnoea severity. *Respirology*, 17(5): 835-840, 2012.
19. Lucas SJ, **Ainslie PN**, Murrell CJ, Thomas KN, Franz EA, Cotter JD. Effect of age on exercise-induced alterations in cognitive executive function: Relationship to cerebral perfusion. *Experimental Gerontology, In Press*, 2012.
20. Fan JJ, Burgess KR, Thomas KN, Cotter JD, Kayser B, Peebles, KC, **Ainslie PN**. Influence of acetazolamide on cerebrovascular function and breathing stability at 5050m. *Journal of Physiology*, 1213-25, 590, 2012.
21. Lakoski SG, **Eves ND**, Douglas, PS, and Jones LW. The Role of Exercise Training in Patients with Solid Tumors: Effects on Cardiopulmonary Function and Underlying Mechanisms. *Nature Reviews Clinical Oncology*. 9, 288–296, 2012.
22. Takahashi K, **Eves ND**, Piper A, Song Y, Maher TM. Respirology Year in Review: Acute Lung Injury, Interstitial Lung Diseases, Sleep, Physiology and Lung Cancer. *Respirology* 17(3), 554–562, 2012.
23. Jones LW, Hornsby, WE, Goetzinger A, Quist M, West M, **Eves ND**, Gradison M, Coan A, Abernethy AP. Prognostic Significance of Functional Capacity and Exercise Behavior in Patients with Metastatic Non-Small Cell Lung Cancer. *Lung Cancer*, 76(2): 248-52, 2012.
24. Burr JF, Davidson WJ, Shephard RJ, **Eves ND**. Chronic Respiratory Conditions: Assessing Risk for Physical Activity Clearance and Prescription. *Accepted by Canadian Family Physician* (July 21st, 2011).
25. Ross EZ, Cotter JD, Wilson LC, Fan JL, Lucas SL, **Ainslie, PN**. Cerebrovascular and corticocomotor function during progressive passive hyperthermia in humans. *Journal of Applied Physiology*, 112:748-58, 2012.
26. Lucas RAI, **Ainslie PN**, Thomas KN, Cotter JD. Influence of compression and aging on the circulatory adjustments to orthostasis and heat stress. *AGE* 34: 439-49, 2012.
27. Marsden KR, Hayhowsky MJ, Smirl JD, Jones H, Nelson MD, Altamairano-Diaz L, Gelinas JC, Smith KJ, Willie CK, Bailey DM, **Ainslie PN**. Aging blunts hyperventilation-induced hypocapnia and reduction in cerebral blood flow during maximal exercise. *AGE* (In Press), 2012.
28. **Eves ND** and Koelwyn GJ. Short of breath: Short of benefit: important considerations for the rehabilitation of IPF patients. *Respirology*, 16(8):1163-4, 2011.
29. Lubans DR, Plotnikoff RC, Jung M, **Eves N**, Sigal R. Testing Mediator Variables in a Resistance Training Intervention for Obese Adults with Type 2 Diabetes. *Psychology and Health* [Epub ahead of print], 2011.
30. Warburton DER, Jamnik VK, Bredin SSD, Burr, J, Charlesworth S, Chilibeck P, **Eves ND**, Foulds H, Goodman J, Jones LW, McKenzie DC, Rhodes R, Riddell M, Shephard RJ, Stone J, Thomas S, E. Zehr EP, Gledhill N. The 2011 Physical Activity Readiness Questionnaire (PAR-Q+) and the Electronic Physical Activity Readiness Medical Examination (ePARmed-X+). *Health and Fitness Journal of Canada*. 4(2): 24-25, 2011.
31. **Ainslie PN**, Lewis NC, **Eves ND**. Endogenous circadian rhythm in vasovagal response to head-up tilt. *Circulation* 124: 358, 2011.

32. Bailey DM, Evans KA, McEneny J, Young IA, Hullin DA, James PE, Ogoh S, **Ainslie PN**, Lusshesi C, Rockenbauer A, Culcasi M, Pietri. Exercise-induced oxidative-nitrosative stress is associated with impaired dynamic cerebral autoregulation and blood-brain barrier leakage. *Experimental Physiology* 96: 1196-20, 2011.
33. Nelson MD, Haykowsky MJ, Stickland MK, Altamirano-Diaz LA, Willie CK, Smith KJ, Petersen SR, **Ainslie PN**. Reductions in cerebral blood flow during passive heat stress in humans: partitioning the mechanisms. *J Physiology* 589: 4053-63, 2011.
34. Bellapart J, Fraser J, **Ainslie PN**, Tzeng YC, Chan G, Dunster K, Barnet A, Boots R. The effect of ventricular assist devices on cerebral and systemic blood flow fractality. *Physiological Measurement*. 32:1361-72, 2011.
35. **Ainslie PN**, Smith KJ. Integrated human physiology: Breathing, blood pressure and blood flow to the brain. *J Physiology* 589:2917, 2011.
36. Willie CK, **Ainslie PN**. Cool head, hot brain: cerebral blood flow distribution during exercise. *J Physiology* 589: 2657-8, 2011.
37. Taylor CE, Atkinson G, Willie CK, Jones H, **Ainslie PN**, Tzeng YC. Diurnal variation in the mechanical and neural components of the baroreflex. *Hypertension* 58: 51-6, 2011.
38. Tzeng YC, Chan G, Willie CK, **Ainslie PN**. Determinants of cerebral-flow velocity relationships in humans: new insights from cerebral Ca²⁺ blockade. *Journal of Physiology* 589: 3263-3274, 2011.
39. Jones H, Lewis NC, Green DJ, **Ainslie PN**, Lucas SJ, Tzeng S, Grant EJ, Atkinson G. (2011) Alpha-₁ adrenoreceptor blockade diminishes diurnal variation in endothelial-dependent flow mediated dilation in humans *American Journal of Physiology* 300:1437-42, 2011.
40. Perry SE, Koelwyn GJ, Wong LE, Davidson WJ, **Eves ND**. Helium-Hyperoxia: Alleviating Respiratory Limitation to Improve the Benefits of Pulmonary Rehabilitation. *International Journal of Respiratory Care*, 7(1) 19-24, 2011.
41. Pendharkar SR, Tsai WH, **Eves ND**, Ford GT, Davidson WJ. Continuous Positive Airway Pressure Therapy Increases Exercise Tolerance in Obese Subjects with Obstructive Sleep Apnea. *Respiratory Medicine* 105, 1565-1571, 2011.
42. Jones LW, **Eves ND**, Spasojevich I, Il'yasova D. Effect of Aerobic Training on Oxidative Stress in Postsurgical Non-Small Cell Lung Cancer Patients. *Lung Cancer* 72(1): 45-51, 2011.
43. Bellpart J, Chan G, Tzeng YC, **Ainslie PN**, Barnet AG, Dunster KR, Boots R, Fraser JF. The effect of ventricular devices on cerebral autoregulation: a preliminary study. *BMC Anesthesiology* 11:4-8, 2011.
44. Willie CK, Cowan E, **Ainslie PN**, Taylor C, Smith KJ, Tzeng YC. Distribution of cerebral blood flow and neurovascular coupling during exercise. *Journal of Neuroscience Methods* 198: 270-3, 2011.
45. Donnelly J, Cowan DC, Yeoman DJ, Lucas SJE, Herbison GP, **Ainslie PN**, Taylor DR. Exhaled nitric oxide and pulmonary artery pressures during graded ascent to high altitude. *Respiratory Physiology and Neurobiology* 177: 213-7, 2011.
46. Donnelly J, Lucas SJE, Cotter JD, **Ainslie PN**. Profound hyperventilation and development of periodic breathing during exceptional orthostatic stress in a 21 year-old man. *Respiratory Physiology and Neurobiology* 177:66-70, 2011.
47. Willie CK, **Ainslie PN**, Taylor C, Sin PYW, Jones H, Tzeng YC. Exacerbation of post-exercise cardiovagal baroreflex hysteresis is explained by selective reductions in carotid baroreflex neural transduction. *Hypertension* 57:927-33, 2011.
48. Chan G, **Ainslie PN**, Willie CK, Taylor C, Atkinson G, Jones H, Lovell N, Tzeng YC. Contribution of arterial Windkessel in low frequency cerebral hemodynamics during transient changes in blood pressure. *Journal of Applied Physiology* 110: 917-25, 2011.

49. Willie CK, Colino FL, Bailey DM, Tzeng YC, Binsted G, Haykowsky MJ, Bellapart J, Ogoh S, Smirl J, Smith K, Bailey DM, Ainslie PN. Utility of transcranial Doppler ultrasound for the integrative assessment of cerebrovascular function. *Journal of Neuroscience Methods* 196:221-37, 2011.
50. Lucas SJE, Tzeng YC, Ainslie PN. The cerebrovascular pressure-flow relationship: a simple concept but a complex phenomenon. *Hypertension* 46:312-13, 2011.
51. Lucas SJ, Burgess KR, Fan JJ, Lucas RAI, Peebles K, Cotter JD, Thomas K, Basnyat R, Thomas KN, Ainslie PN. Alterations in cerebral blood flow and cerebrovascular reactivity during 14 days at 5050m. *Journal of Physiology* 589: 741-753, 2011.
 - a. Manuscript accompanied by an Editorial: Foster GE (2011) High on altitude: new attitudes toward human cerebral blood flow regulation and altitude acclimatization. *Journal of Physiology* 589:449].
52. Lewis N, Atkinson G, Lucas S, Grant E, Jones H, Tzeng YC, Horseman H, **Ainslie PN**. Is there diurnal variation in initial and delayed orthostatic hypotension during standing and head-up tilt? *Chronobiology International* 28:135-145, 2011.
53. Fan JJ, Burgess KR, Lucas RAI, Lucas S, Peebles K, Thomas KN, Cotter JD, Ainslie PN. Influence of indomethacin on the ventilatory and cerebrovascular responsiveness to hypercapnia and hypoxia *European Journal of Applied Physiology*. 111: 601-10, 2011.
54. Murrell C, Cotter JD, George K, Shave R, Oxborough D, Wilson L, Thomas K, Williams MJ, Ainslie PN. Post-exercise and early postural hypotension are unrelated to syncope following prolonged exercise. *European Journal of Applied Physiology*. 111: 469-76, 2011.
55. Murrell C, Cotter JD, George K, Shave R, Oxborough D, Wilson L, Thomas K, Williams MJ, Ainslie PN. Cardiorespiratory and cerebrovascular responses to head-up tilt II: influence of age, training status and acute exercise. *Experimental Gerontology* 46: 1-8, 2011.
56. Murrell C, Cotter JD, George K, Shave R, Oxborough D, Wilson L, Thomas K, Williams MJ, Ainslie PN. Cardiorespiratory and cerebrovascular responses to head-up tilt I: influence of age and training status. *Experimental Gerontology* 46: 9-17, 2011.

Articles submitted to refereed journals:

57. Vasanji Z, Sigal RJ, Groves E, Isaac DL, Eves ND. Reproducibility of Two-Dimensional and Doppler Echocardiography during Exercise. *Submitted to Journal of Applied Physiology* (July 2012).
58. Vasanji Z, Thompson RB, Eves ND, Isaac DL, Friedrich MG, Chow, K, Sigal RJ. Increased Left Ventricular Extracellular Volume and Twist Function in Type 1 Diabetic Individual. *Submitted to Circulation: Cardiovascular Imaging* (May 2012).
59. Willie CK, Ainslie PN, Taylor CE, Eves ND, Tzeng YC. Maintained Cerebrovascular Function During Post-Exercise Hypotension. *Submitted to Acta Physiologica* (April 2012).
60. Roman MA, Koelwyn GK, Eves ND, Jones LW. Assessment of Physical Functioning in Surgical Candidates with Non-Small Cell Lung Cancer: Preliminary Comparison of Performance Status to Symptom-Limited Cardiopulmonary Exercise Testing. *Submitted to Journal of Thoracic Oncology* (May 2012).
61. Vasanji Z, Eves ND, Isaac DL, Sigal RJ. Aerobic exercise training alters left ventricular diastolic function in type 1 diabetic individuals: a cross-sectional study. *Submitted to Cardiovascular Diabetology* (June 2012).
62. Burgess KR, Lucas SJE, Shepherd K, Dawson A, Swart M, Thomas KN, Fan JL, Lucas RA, Donnelly J, Peebles KC, Basnyat R, Ainslie PN (2012) Central sleep apnea at high altitude – an important role of cerebral blood flow. *Sleep*, In Review (July 2012)

Refereed Books (01/11-07/12):

1. Ainslie PN (2012) *Human Ultrasonography* (ISBN: 978-953-307-652-2) Intech., New York (In Press)

Refereed Book Chapters (01/11-07/12):

1. **Ainslie PN** (2012) Chapter 7: Cardiovascular Physiology. Textbook: Exercise Physiology in Canada, First Edition. Publisher: McGraw-Hill. (Invited contribution)
2. Donnelly J, **Ainslie PN** (2012) Chapter 16: High Altitude Physiology - Climbing the Highest Peak on Earth: Textbook: Exercise Physiology in Canada, First Edition. Publisher: McGraw-Hill. (Invited contribution)
3. Bakker A, **Ainslie PN** (2012) Transcranial Doppler Duplex ultrasound. In: *Human Ultrasonography* (ISBN: 978-953-307-652-2) Ed: Ainslie PN. Intech., New York (In Press)
4. Smith K, Bakker A, Smith, B, **Ainslie PN** (2012) Utility of near-infrared spectroscopy as a vascular tool. In: *Human Ultrasonography* (ISBN: 978-953-307-652-2) Ed: Ainslie PN. Intech., New York (In Press)
5. Willie CK, Eller L, **Ainslie PN** (2012) New Directions in transcranial Doppler ultrasound. In: *Human Ultrasonography* (ISBN: 978-953-307-652-2) Ed: Ainslie PN. Intech., New York (In Press)
6. Koelwyn GJ, Currie KD, MacDonald M, **Eves ND**. Ultrasonography and Tonometry for the Assessment of Human Arterial Stiffness, Applied Aspects of Ultrasonography in Humans, Ainslie PN (Ed.), ISBN: 978-953-51-0522-0, InTech, 2012.
7. **Ainslie PN**, Wilson M, Imray C. (2012) The cerebral circulation and brain. In: *High Altitude: An Exploration of Human Adaptation*. Eds: Eric Swenson and Peter Bartsch. M. Dekker, Inc., New York & Basel. In press.

FUNDING SUMMARY (01/11-07/12) – Total: \$10,610,427

Career Awards and Research Chairs (\$1,135,000)

1. Ainslie PN – Canada Research Chair in Cerebrovascular Physiology, \$500,000, 2011-2016.
2. Eves ND – Michael Smith Foundation for Health Research – Clinical Scholar Award, \$635,000, 2011-2019.

Infrastructure Grants (\$314,000)

3. Ainslie PN – Integrative Cerebrovascular Physiology Laboratory – Canadian Foundation for Innovation, \$162,000, 2011-2016.
4. Ainslie PN – Integrative Cerebrovascular Physiology Laboratory – British Columbia Knowledge Foundation, \$162,000, 2011-2016.

Primary Operating Grants (from a total of \$800,235) as Principal or Co-Principal Investigator – see CV's for further details.

5. Ainslie PN – Interactions between the brain and lungs – NSERC Discovery Grant, \$208,000, 2010-2013.
6. Ainslie PN – Post Doctoral Research Fellow – NSERC Accelerator Supplement, \$120,000, 2010-2013
7. Ainslie PN – Human Environmental Chamber – NSERC RTI, \$143,000, 2011-2012.
8. Ainslie PN - Physical activity, obesity and obstructive sleep apnea - Canadian Institutes of Health Research, \$99,000, 2010-2011
9. Eves ND - Vascular-Ventricular Coupling Following Anthracycline-Containing Chemotherapy in Operable Breast Cancer. \$96,235, 2012-2014.

Primary Operating Grants as Co-Investigator (from a total of \$7,809,192) – see CV's for further details.

10. Ainslie PN – Mechanisms of Dynamic Cerebral Autoregulation. Health Research Council of New Zealand, \$500,000 (NZD), 2011-2015.
11. Eves ND - Randomized Trial of Optimal Timing of Aerobic Training in Breast Cancer. National Institute of Health (R01), \$2,558,860 (USD), 2012-2017
12. Eves ND - Randomized Trial of Optimal Type of Aerobic Training in Breast Cancer. National Institute of Health (R01), \$2,230,433 (USD), 2010-2015
13. Eves ND - Phase III Trial of Exercise Training in Postsurgical Lung Cancer. National Institute of Health (R01), \$1,803,899 (USD), 2009-2014

Funding of Undergraduate and Graduate Students and PDF's (\$552,000)

1. Anthony Bain, PhD student. **Awards received:** NSERC Alexander Graham Bell Canada Graduate Scholarship 2012-2015 (20k/year), University of British Columbia Graduate Scholarship and Entrance Scholarship 2012-2013 (12k).
2. Kurt Smith, PhD student, **Awards received:** NSERC Alexander Graham Bell Canada Graduate Scholarship 2012-2015 (20k/year), University of British Columbia Graduate Scholarship 2012-2013 (6k).
3. Chris Willie, PhD student. **Awards received:** Vanier Scholarship 2011-2014 (50k/year), NSERC André Hamer Prize 2011 (15k), NSERC Alexander Graham Bell Canada Graduate Scholarship 2011 (Declined), Izaak Walter Killam Memorial Doctoral Scholarship 2011 (Declined), University of British Columbia Graduate Scholarship 2012-2013 (6k).
4. Kit Marsden, MSc Student. **Award received:** NSERC Graduate Scholarship 2011-12, \$17k, University of British Columbia Graduate Scholarship 2012-2013 (3k).
5. Brittney Nelson, Undergraduate Student. **Award received:** Faculty of Health and Social Development Undergraduate Research Summer Award 2012-2013 (\$6k).
6. Ayla Graham, Undergraduate Student. **Award received:** Faculty of Health and Social Development Undergraduate Research Summer Award 2012-2013 (\$6k).
7. Graeme Koelwyn, MSc student. **Awards received:** Canadian Institute of Health Research CGS-MSFSS travel award 2011-2012 (\$6k), Canadian Institute of Health Research Banting and Best Masters Scholarship 2010-2011 (\$17.5k), Bill Tymchuk Cancer Research Award 2011-2013 (\$2k).
8. Sarah Perry, MSc student. **Award received:** Canadian Institute of Health Research Banting and Best Masters Scholarship 2010-2011 (\$17.5k).
9. Zainisha Vasani, PhD student. **Award received:** Alberta Heritage Doctoral Award 2009-2011 (\$25k/yr).
10. Nia Lewis, PhD (Post-Doctoral Fellow). **Award received:** Focus on Stroke Research Fellowship award 2012-2014 (\$40k/yr).
11. Shawnda Morrison (Post-Doctoral Fellow). **Award received:** Michael Smith Foundation for Health Research Fellowship award 2012-2014, (\$45k/yr).
12. Jinelle Gelinas, MSc program, **Award received:** British Columbia Graduate Scholarship 2012-2013 (3k).

Selection of Invited Presentations (2011-2012) – see CV's for further details

- 1) **Ainslie PN** – Reliance of cerebral blood flow on blood pressure. American Association of Anesthesiologists, Chicago, USA (2011)
- 2) **Ainslie PN** – How the brain controls breathing. CHEST, Hawaii, USA (2011)
- 3) **Eves ND** - Exercise Training for the Modification of Disease and the Prevention of Secondary Co-Morbidities. Symposium: Managing and Preventing Chronic Disease – An Emerging Role for Sports Medicine Practitioners. Canadian Academy of Sport and Exercise Medicine Conference, Kelowna, British Columbia (2012).

- 4) **Eves ND** - Optimizing the Exercise Prescription for People with Pulmonary Disease. CSEP Health Professionals of British Columbia, Annual Conferences. Vancouver, British Columbia (2012).
- 5) **Eves ND** - Exercise Recommendations for Persons Living with Pulmonary Conditions. Consensus Meeting: The development of exercise prescriptions for prominent medical conditions: An international consensus meeting funded by the Canadian Institutes of Health Research the Physical Activity line and the Health and Fitness Program of BC. Vancouver, British Columbia (2012)
- 6) **Eves ND** - Tailoring exercise for patients with COPD. CSEP Perspectives in Exercise Health Conference, Kananaskis, Alberta (2011)
- 7) **Eves ND** - Exercise as an Anti-Inflammatory Therapy In the Treatment of COPD. Pulmonary Medicine Rounds, Division of Respiratory Medicine, St. Paul's Hospital, University of British Columbia, May 2012.
- 8) **Eves ND** – Exercise and the Lung Cancer Continuum. Thoracic Rounds. Faculty of Medicine, University of British Columbia and the Kelowna General Hospital, October 2011.
- 9) **Eves ND** - Dyspnea and COPD: What are the Mechanisms and How do we Relieve it? Okanagan Respiratory Group Sponsored by Nycomed and Merck Frost, Kelowna. October 12th 2011
- 10) **Eves ND** - Strategies for Optimizing Exercise in Patients with COPD. C.O.A.C.H.'s 5th Annual Healthcare Professional Development Day, Kelowna. October 1st 2011

Mentorship of Highly Qualified Personnel (01/11-07/12):

- 1) Shawnda Morrison (Post Doctoral Fellow), School of Health and Exercise Sciences. Title: Role of cerebral blood flow in the pathophysiology of sleep apnea.
- 2) Anthony Bain, PhD student, School of Health and Exercise Sciences (Ainslie). Title: Influence of temperature on brain blood flow regulation.
- 3) Ayla Graham, Undergraduate Student, School of Health and Exercise Sciences (Eves). Title: The effect of dynamic hyperinflation on cardiovascular function in patients with chronic obstructive pulmonary disease.
- 4) Brittney Nelson, Undergraduate Student (Ainslie/Eves). Title: Alterations in cerebrovascular function in patients with chronic obstructive pulmonary disease.
- 5) Jinelle Gelinias, MSc program, School of Health and Exercise Sciences (Eves/Ainslie). Title: Effect of exercise training on peripheral and cerebrovascular function in patients with COPD.
- 6) Kit Marsden, MSc Program, School of Health and Exercise Sciences (Ainslie). Title: Relationship between pulmonary pressures and cerebrovascular function
- 7) Graeme Koelwyn, MSc program, School of Health and Exercise Sciences (Eves). Title: Vascular-Ventricular Coupling Following Anthracycline-Containing Chemotherapy in Operable Breast Cancer.
- 8) Kurt Smith, PhD program, School of Health and Exercise Sciences (Ainslie/Eves). Title: The effect of blood pressure and oxygen on cerebral blood flow regulation..
- 9) Chris Willie, PhD program, School of Health and Exercise Sciences (Ainslie). Title: The effect of carbon dioxide on cerebral blood flow regulation.
- 10) Nia Lewis, PhD (Post-Doctoral Fellowship), School of Health and Exercise Sciences, (Ainslie/Eves). Title: Sex differences in vascular and cerebrovascular function in COPD: benefits of exercise.
- 11) Erik Groves, PhD program, Faculty of Kinesiology (Eves - Supervisory Committee Member). Title: A Novel Physiological Model Examining the Tolerance to Exercise Above Maximal Lactate Steady State. Defended June 18th 2012.

- 12) Sarah Perry, MSc program, School of Health and Exercise Sciences (Eves, Ainslie - Supervisory Committee Member). Title: The effect of different interventions on the sensory and affective dimensions of dyspnea in patients with COPD during exercise. Defended June 12th 2012.
- 13) Zainisha VasANJI, PhD program, Faculty of Kinesiology (Eves). Title: Myocardial fibrosis, left ventricular function and aerobic capacity in individuals with type 1 diabetes. Defended May 23rd 2012.
- 14) Ondrej Vokoun, Visiting PhD Student for Charles University Prague, Czech Republic (Eves). Title: The effect of lower body negative pressure on the recovery from high intensity exercise. Three month Internship (Feb – May 2012)
- 15) Akke Bakker, Visiting MSc student for University of Amsterdam, The Netherlands (Ainslie). Title: Utility of Transcranial Color Doppler Duplex. Three month Internship (June – Sept 2011)
- 16) Lisa Wong, MSc program, School of Health and Exercise Sciences (Eves, Ainslie - Supervisory Committee Member). Title: The effect of alterations in oxygen content at rest and during exercise on endothelial function. Defended November 3rd 2011.
- 17) Jon Smirl, MSc program, Human Kinetics (Ainslie, Eves - Supervisory Committee Member). Title: Cerebral blood flow in cardiac transplant recipients during rest and incremental exercise. Defended August 3rd 2011.
- 18) Anna Alywin, MSc program, Faculty of Kinesiology (Eves - Supervisory Committee Member). Title: Maximal strength training improves the economy and sustainability of performance in trained male cyclists. Defended April 28th 2011.

Selection of Media Exposure (01/11-07/12) – See CV's for details:

1. Ainslie PN – **Research on Everest**; Discovery Channel, May 18
2. Ainslie PN – **The peak of scientific research** – Castanet online news – March 7
3. Ainslie PN - **UBC Okanagan team heads to Everest for high-level tests** – Victoria Times Colonist March 4
4. Ainslie PN - **UBC-led team off to Everest for oxygen study; Researchers to use own bodies to determine impact on function** – Vancouver Sun, March 5 (provincial edition)
5. Ainslie PN - **UBC-led team off to Everest for oxygen study** – Vancouver Sun.com, March 5
6. Ainslie PN - **UBC-led team off to Everest for oxygen study; Researchers to use own bodies to determine impact on function** – Vancouver Sun, March 5 (city edition)
7. Ainslie PN - **UBC Okanagan team heads to Everest for high-level tests** – Vancouversun.com, March 4
8. Ainslie PN - **Peak Performance** – Vancouver Sun, March 5
9. Ainslie PN - **UBC Okanagan reaches new heights with Mount Everest project** – Alaska Highway News, March 6
10. Ainslie PN - **Okanagan students to climb Everest** – Prince George Citizen, March 5
11. Ainslie PN - **Professor leads expedition to Mount Everest lab** – Vernon Daily Courier, March 14
12. Ainslie PN - **Professor leads expedition to Mount Everest lab** – Kelowna Daily Courier, March 14
13. Ainslie PN - **Professor leads expedition to Mount Everest lab** – Vernon Daily Courier, March 12
14. Ainslie PN - **Professor leads expedition to Mount Everest lab** – Kelowna Daily Courier, March 12
15. Ainslie PN - **Researchers prepare for highest lab on Earth** – Windsor Star, March 5

16. Ainslie PN - **Researchers heading to highest lab on Earth** – National Post, March 5 (National Edition)
17. Ainslie PN - **B.C. researchers head to highest lab on Earth; Everest base camp; Scientists to study affects of low oxygen on the body** – National Post, March 5 (Toronto edition)
18. Ainslie PN - **Canadian-led team prepares to work in Earth's highest lab** – Alberni Valley Times, March 5
19. Ainslie PN - **Canadian-led team prepares for Everest lab** – Nanaimo Daily News, March 5
20. Ainslie PN - **Researchers bound for world's highest lab** – March 5, 2012
21. Ainslie PN - **Researchers bound for world's highest lab; Effects of low oxygen levels to be studied** – Edmonton Journal, March 5
22. Ainslie PN - **Researchers prepare for highest lab on Earth** – Windsor Star, March 5
23. Ainslie PN - **Canadian-led team prepares for work in highest laboratory on Earth** – Post Media Regional News BC, March 5
24. Ainslie PN - **Canadian-led team prepares for work in highest laboratory on Earth** – Post Media News March 4
25. Ainslie PN - CHBC Global TV – March 6 newscast
26. Ainslie PN - UBCO-TV – March 5 video news release
27. Ainslie PN - CBC Radio Daybreak – March 7 interviews
28. Eves ND – CBC Radio - **Ralph Klein has COPD.**
29. Eves ND - **The anti-inflammatory effects of exercise in patients with chronic obstructive pulmonary disease.** Michael Smith Foundation for Health Research webpage.
30. Eves ND - **Neil Eves examines influence of exercise on respiratory disease**, UBC Website, Nov 24th.
31. Eves ND – **Ground breaking research** –Kelowna Capital News Nov 22nd
32. Eves ND - **UBC researcher breaks new ground on COPD** - Nov 17th UBC Website.
33. Eves ND - **Researcher aim to improve heart health for breast cancer survivors.** April 29th Kelowna Capital news
34. Eves ND - **Researcher aim to improve heart health for breast cancer survivors** – Vernon Daily Courier, April 29th
35. Eves ND - **Researcher aim to improve heart health for breast cancer survivors** – April 27th UBC website

APPENDIX B

CONSULTANCY AND FEE FOR SERVICE PRICING: AN ADDITIONAL INCOME SOURCE FOR THE CENTRE OF HEART, LUNG AND VASCULAR HEALTH

A series of validated and novel screening tests will be offered to the Okanagan public (regardless of their predisposition to atherosclerotic disease) with the specific aim of detecting and subsequently treating disease (eg. through exercise/dietary interventions) in the preclinical (early) stage. The CHLVH will offer two main screening procedures, each with a number of sub-test, that address different aspects of your cardiovascular and respiratory health. These tests may be performed individually, or in combination. All of the tests are non-invasive and involve minimal to no discomfort. These procedures are specifically designed to test various aspects of an individual's "vascular health and fitness". Each test provides another piece of information to build your comprehensive cardiovascular risk assessment, and enables the participant and their physician to determine the optimum individualized course of treatment. Each procedure and related test are briefly summarized below and will be offered at the following prices:

Vascular Screening:

Blood Sample (\$100): An overnight fasted sample will be taken to measure a wide number of traditional and novel biomarkers in the blood that ultimately predispose an individual to atherosclerosis, coronary artery disease and diabetes.

Carotid Artery Intima-Media Thickness (\$200): This is a stable measure of disease that measures the thickening of the artery walls and can identify focal plaque accumulation.

Endothelial Function (\$200): This is a dynamic test of the responsiveness of the arteries to increased blood flow. The arteries of healthy subjects respond better (*ie.* vasodilate more rapidly) than those with underlying vascular disease.

Ankle Brachial Blood Pressure Index (\$50): This test measures blood pressure at the ankles and arms to assess the flow of blood throughout the body. Lack of normal perfusion to the feet may indicate a condition known as peripheral vascular disease (PVD), manifest as intermittent claudication.

24-hour blood pressure monitoring (\$150): Guidelines published in 2011 by the National Institute for Health and Clinical Excellence (Nice) recommend that patients should be monitored for 24 hours to determine whether they have high blood pressure rather than having a measurement taken in a doctor's surgery. Ambulatory blood pressure monitoring involves wearing a cuff and a box on a belt for 24 hrs. You then bring our device back the following day for the recording to be downloaded on to a computer and an automatic report generated.

Arterial Stiffness (\$150): Aging and vascular disease causes blood vessels to become more rigid. This test will assess the "stiffness" of the arterial system and track corresponding changes following lifestyle (eg. an exercise training program or dietary regime) and/or medication changes.

Neurovascular reactivity (\$250): This test will examine how responsive the arteries that supply oxygenated blood to the brain are when challenged by acute changes in blood pressure and/or carbon dioxide.

Vascular package: (\$1,000)

Exercise Performance Screening:

Maximal Aerobic Power (VO_{2max}) (\$200): An incremental exercise test to volitional exhaustion, which measures the integrative capacity of the lungs, heart, vasculature and skeletal muscle to transport and utilize oxygen. This test is the gold-standard test for measuring aerobic fitness.

Lactate threshold testing (\$150): an incremental exercise test performed with finger prick blood samples which allows the determination of the lactate response to training and allows identification of the anaerobic threshold and appropriate training zones for any individual.

Critical Speed/Power Testing (\$200): A battery of three tests that lead to the prediction of the critical speed or power an athlete can maintain during races of different duration. This is a highly sensitive marker of performance and how performance can be altered with different training interventions.

Blood volume measurements (\$200): Measurement of blood volume (i.e. red blood cell count and plasma volume) which is critical for the enhancement of aerobic exercise performance.

Pulmonary Function Screening (\$150): This test involving spirometry, lung volumes and diffusion capacity can be used for the measurement of lung function and when combined with an exercise or a eucapnic voluntary hyperventilation stimulus can improve the sensitivity of assessing exercise induced bronchoconstriction.

Exercise package: (\$750)

Industry Consultancy:

We will also conduct and offer a number of industrial consultancies in the areas of thermal regulatory stress, clothing performance; hypoxia tolerance, overtraining and exercise programming. Pricing will be determined on an individual bases.