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CURRICULUM VITAE

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Degrees Received:

Doctor of Philosophy, Physiology , <i>With Distinction</i>	Department of Medical Physiology, State University of New York Health Sciences Center, Syracuse	1998
Master of Science	University of Guelph	1993
Bachelor of Science (Human Kinetics), <i>With Distinction</i>	University of Guelph	1992

Positions Held:

07/2018-	Vice President Academic and Provost	University of Waterloo
07/2015-05/2018	Dean	Faculty of Applied Health Sciences, University of Waterloo
07/2014-06/2015	Interim Dean	Faculty of Applied Health Sciences, University of Waterloo
07/2013-06/2014	Associate Dean	Faculty of Applied Health Sciences, University of Waterloo
07/2010-present	Professor	Department of Kinesiology, Faculty of Applied Health Sciences, University of Waterloo
07/2009-06/2013	Department Chair	Department of Kinesiology,

		Faculty of Applied Health Sciences, University of Waterloo
07/2008-06/2009	Associate Chair, Graduate Studies	Department of Kinesiology, Faculty of Applied Health Sciences, University of Waterloo
07/2006-06/2007	Associate Dean, Graduate Studies and Research	Faculty of Applied Health Sciences, University of Waterloo
07/2005-present	Associate Professor <i>with tenure</i>	Department of Kinesiology, University of Waterloo
2003-2013	CIHR-Canada Research Chair in Integrative Vascular Biology	Department of Kinesiology, University of Waterloo
07/2000-06/2005	Assistant Professor	Department of Kinesiology, University of Waterloo
05/1998-06/2000	Postdoctoral Fellow	Department of Veterinary Biomedical Sciences and Dalton Cardiovascular Research Center, University of Missouri-Columbia
08/1993-04/1998	Graduate Research Assistant	Department of Medical Physiology, State University of New York Health Sciences Center, Syracuse

Academic Awards and Distinctions:

10/2008	Young Investigator Award	Canadian Society for Exercise Physiology
05/2007	Outstanding Performance Award	University of Waterloo
05/2005	Leadership Performance Award	University of Waterloo
10/2003-09/2013	CIHR-Canada Research Chair in Integrative Vascular Biology	Department of Kinesiology, University of Waterloo
09/2003-2013	Associated Graduate Faculty	Department of Human Biology and Nutritional Sciences, University of Guelph
04/2003	Canada Foundation for Innovation Researcher Award	Canada Foundation for Innovation New Opportunities Program
<i>Post-Doctoral:</i>		
06/1999-05/2000	American Heart Association-Heartland Affiliate, Post-Doctoral Fellowship	
01/2000-12/2000	University of Missouri-Columbia, College of Veterinary Medicine Committee on Research Post-Doctoral Research Award.	
09/2000	American Physiological Society Intersociety meeting; The Integrative Biology of Exercise, Portland Maine—Post-Doctoral Award for research excellence	
<i>Graduate:</i>		
05/1992-11/1993	Natural Sciences and Engineering Research Council of Canada Postgraduate Scholarship-PGS A.--for <i>M.Sc. studies (tenured at University of Guelph)</i>	
05/1994-04/1996	Natural Sciences and Engineering Research Council of Canada Postgraduate Scholarship-PGS B.--for <i>Ph.D. studies (tenured at SUNY-Syracuse)</i>	
10/1996	American Physiological Society Intersociety meeting; The Integrative Biology of Exercise, Vancouver British Columbia-- Graduate Student Award for research excellence	
<i>Undergraduate:</i>		
09/1988-04/1992	University of Guelph President's Scholarship	
10/1988	University of Guelph Alma Mater Scholarship	
05-08/1990 and 05-08/1991	Natural Sciences and Engineering Research Council Undergraduate Summer Studentships	
04/1992	University of Guelph School of Human Biology Director's Award	

Publications:

Refereed Journal Articles:

1. Graham, T.E., **J.W.E. Rush**, and M.H. vanSoeren. Caffeine and exercise: metabolism and performance. *Can. J. Appl. Physiol.* 19(1): 111-138, 1994.
2. **Rush, J.W.E.**, D.A. MacLean, E. Hultman, and T.E. Graham. Exercise causes branched-chain oxoacid dehydrogenase dephosphorylation but not AMP deaminase binding. *J. Appl. Physiol.* 78(6): 2193-2200, 1995.
3. **Rush, J.W.E.**, P.C. Tullson, and R.L. Terjung. Molecular and kinetic alterations of muscle AMP deaminase during chronic creatine depletion. *Am. J. Physiol.* 274 (*Cell Physiol.* 43): C465-C471, 1998.
4. Tullson, P.C., **J.W.E. Rush**, B. Wieringa, and R.L. Terjung. Alterations in AMP deaminase activity and kinetics in skeletal muscle of creatine kinase deficient mice. *Am. J. Physiol.* 274 (*Cell Physiol.* 43): C1411-C1416, 1998.
5. Woodman, C.R., J.M. Muller, **J.W.E. Rush**, M.H. Laughlin, and E.M. Price. Flow regulation of eNOS and Cu/Zn SOD mRNA expression in porcine coronary arterioles. *Am. J. Physiol.* 276 (*Heart Circ. Physiol.* 45): H1058-H1063, 1999.
6. **Rush, J.W.E.**, M. H. Laughlin, Christopher R. Woodman, and E.M. Price. SOD-1 expression in pig coronary arterioles is increased by exercise training. *Am. J. Physiol. Heart Circ. Physiol.* 279: H2068-H2076, 2000.
7. Johnson, L.R., **J.W.E. Rush**, J.R. Turk, E.M. Price, and M.H. Laughlin. Short-term exercise training increases Ach-induced relaxation and eNOS protein in porcine pulmonary arteries. *J. Appl. Physiol.* 90: 1102-1110, 2001.
8. Tarnopolsky, M.A., M.J. Gibala, T.E. Graham, G. Parise, and **Rush, J.W.E.** Myoadenylate deaminase deficiency does not affect muscle anaplerosis during exhaustive exercise in humans. *J. Physiol.* 533.3: 881-889, 2001.
9. C.R. Woodman, W.G. Schrage, **J.W.E. Rush**, C.A. Ray, E.M. Price, E.M. Hasser, and M.H. Laughlin. Hindlimb unweighting decreases endothelium-dependent dilation and eNOS expression in soleus not gastrocnemius. *J. Appl. Physiol.* 91: 1091-1098, 2001.
10. **Rush, J.W.E.**, and L.L. Spriet. Skeletal muscle glycogen phosphorylase a kinetics: Effects of adenine nucleotides and caffeine. *J. Appl. Physiol.* 91: 2071-2078, 2001.
11. Laughlin, M.H., L.J. Rubin, **J.W.E. Rush**, E.M. Price, W.G. Schrage, and C.R. Woodman. Short-term training increases endothelium-mediated relaxation in conduit coronary arteries, not coronary arterioles. *J. Appl. Physiol.* 94: 234-244, 2003.

12. *Steinberg, G.R., **J.W.E. Rush**, and D.J. Dyck. AMP-kinase expression and phosphorylation are increased in rodent muscle following chronic leptin treatment. *Am. J. Physiol. Endocrinol. Metab.* 284: E648-E654, 2003.
13. Tarnopolsky, M.A., L. Stevens, J.R. MacDonald, C. Rodriguez, *D. Mahoney, **J.W.E. Rush**, and J. Maguire. Diagnostic utility of the forearm ischemic exercise test and technical issues relevant to exercise testing. *Muscle Nerve* 27: 359-366, 2003.
14. **Rush, J.W.E.**, J.R. Turk, and M.H. Laughlin. Exercise training regulates SOD-1 and oxidative stress in porcine aortic endothelium. *Am. J. Physiol. Heart Circ. Physiol.* 284: H1378-H1387, 2003.
15. Laughlin, M.H., W.V. Welshons, M. Sturek, *K. Henderson, **J.W.E. Rush**, J.R. Turk, B.M. Judy, J.A. Taylor, and V.K. Ganjam. Gender, exercise training, and eNOS expression in porcine skeletal muscle arteries. *J. Appl. Physiol.* 95: 250-264, 2003.
16. **Rush, J.W.E.**, and *S.D. Sandiford. Gender influences human plasma glutathione peroxidase protein level and activity. *Clin. Biochem.* 36: 345-351, 2003.
17. Woodman, C.R., J.R. Turk, **J.W.E. Rush**, and M.H. Laughlin. Exercise attenuates the effects of hyperlipidemia on endothelium-dependent relaxation in coronary arteries from adult female pigs. *J. Appl. Physiol.* 96: 1105-1113, 2004.
18. *Thompson, M.A. *K.K. Henderson, C.R. Woodman, J.R. Turk, **J.W.E. Rush**, E. Price, and M.H. Laughlin. Exercise preserves endothelium-dependent relaxation in coronary arteries of hypercholesterolemic male pigs. *J. Appl. Physiol.* 96: 1114-1126, 2004.
19. *Graham, D.A., and **J.W.E. Rush**. Exercise training improves aortic endothelium dependent vasorelaxation and determinants of nitric oxide bioavailability in spontaneously hypertensive rats. *J. Appl. Physiol.* 96: 2088-2096, 2004.
20. Henderson, K.K., J.R. Turk, **J.W.E. Rush**, and M.H. Laughlin. Endothelial function in coronary arterioles from pigs with early stage coronary disease induced by high fat/cholesterol diet: effect of exercise. *J. Appl. Physiol.* 97: 1159-1168, 2004.
21. **Rush, J.W.E.** *S.G. Denniss, and *D.A. Graham. Vascular nitric oxide and oxidative stress: Determinants of endothelial adaptations to cardiovascular disease and to physical activity. **Invited Review** *Can. J. Appl. Physiol.* 30: 442-474, 2005.
22. *Barr, D.J., H.J. Green, *D.S. Lounsbury, **J.W.E. Rush**, and J. Ouyang. Na⁺-K⁺-ATPase properties in rat heart and skeletal muscle 3 months after coronary artery ligation. *J. Appl. Physiol.* 99: 656-664, 2005.
23. **Rush, J.W.E.**, H.J. Green, D.A. MacLean, and *L.M. Code. Oxidative stress and nitric oxide synthase in skeletal muscles of rats with post-infarction compensated chronic heart failure. *Acta Physiol. Scand.* 185: 211-218, 2005.

24. *Ford, RJ, *DA Graham, *SG Dennis, J Quadriatero, and **JWE Rush**. Glutathione depletion in vivo enhances contractile responses and attenuates endothelium-dependent relaxation responses of isolated rat thoracic aorta. *Free Rad. Biol. Med.* 40: 670-678, 2006.
25. Quadriatero, J, and **JWE Rush**. Increased DNA fragmentation and altered apoptotic protein levels in skeletal muscle of spontaneously hypertensive rats. *J. Appl. Physiol.* 101: 1149-1161, 2006.
26. Marangoni, AG, SHJ Idziak, C Vega, H Batte, M Olivon, *PS Jantzi, and **JWE Rush**. Encapsulation-structuring of edible oil attenuates acute elevation of blood lipids and insulin in humans. *Soft Matter* 3: 183-187, 2007.
27. **Rush, JWE**, J Quadriatero, *AS Levy, and *RJ Ford. Chronic resveratrol enhances endothelium-dependent relaxation but does not alter eNOS levels in aorta of spontaneously hypertensive rats. *Exp Biol Med* 232: 814-822, 2007.
28. **Rush, JWE**, and *RJ Ford. Nitric oxide, oxidative stress and vascular endothelium in health and hypertension. *Clinical Hemorheology and Microcirculation* 37: 185-192, 2007.
29. Batte, HD, AJ Wright, **JW Rush**, SHJ Idziak, and AG Marangoni. Phase behavior, stability, and mesomorphism of monostearin-oil-water gels. *Food Biophysics* 2: 29-37, 2007.
30. Batte, HD, AJ Wright, **JW Rush**, SHJ Idziak, and AG Marangoni. Effect of processing conditions on the structure of monostearin-oil-water gels. *Food Research International* 40: 982-988, 2007.
31. Tupling, AR, C Vigna, *RJ Ford, SC Tsuchiya, *DA Graham, *SG Denniss, and **JWE Rush**. Effects of buthionine sulfoximine (BSO) treatment on diaphragm contractility and SR Ca²⁺ pump function in rats. *J Appl Physiol* 103: 1921-1928, 2007.
*Note that this paper was the subject of an Invited Editorial: Lecarpentier, Y. Physiological role of free radicals in skeletal muscles. *J Appl Physiol* 103: 1917-1918, 2007.
32. *Denniss SG, TD *Haffner, *JT Kroetsch, SR Davidson, **JWE Rush**, and RL Hughson. Effect of short-term lycopene supplementation and postprandial dyslipidemia on plasma antioxidants and biomarkers of endothelial health. *Vascular Health and Risk Management* 4: 213-222, 2008.
33. **Rush, JWE**, and *CD Aultman. Vascular biology of angiotensin and the impact of physical activity. *Applied Physiology Nutrition and Metabolism* 33: 162-172, 2008.

34. Quadrilatero J, and **JWE Rush**. Evidence for a pro-apoptotic phenotype in skeletal muscle of hypertensive rats. *Biochem Biophys Res Comm*, 368: 168-175, 2008.
35. Marangoni AG, SHJ Idziak, and **JWE Rush**. Controlled release of food lipids using monoglyceride gel phases regulates lipid and insulin metabolism in humans. *Food Biophysics*, 3: 241-245, 2008.
36. **Rush JWE**, *PS Jantzi, K Dupak, SHJ Idziak, and AG Marangoni. Effect of Food Preparation on the Structure and Metabolic Responses to a Monostearin-Oil-Water Gel-Based Spread. *Food Research International*, 41: 1065-1071, 2008.
37. *Denniss, SG, **JWE Rush**. Impaired hemodynamics and endothelial vasomotor function via endoperoxide-mediated vasoconstriction in the carotid artery of spontaneously hypertensive rats *Am J Physiol Heart Circ Physiol*, 296: H1038-H1047, 2009.
38. **Rush JWE**. Exercising an option to prevent age related decline of vascular BH₄ and uncoupling of eNOS. **Invited Perspective** *Journal of Physiology*, 587: 3755, 2009.
39. **Rush, JWE**, *PS Jantzi, K Dupak, SHJ Idziak, AG Marangoni. Acute metabolic responses to butter, margarine, and a monoglyceride gel-structured spread. *Food Research International*, 42: 1034-1039, 2009.
40. Dekker MJ, AJ Wright, VC Mazurak, AG Marangoni, **JWE Rush**, TE Graham, LE Robinson. Fasting triacylglycerol status, but not polyunsaturated/saturated fatty acid ratio, influences the postprandial response to a series of oral fat tolerance tests. *J Nutr Biochem*, 20: 694-704, 2009
41. Hughes NE, AG Marangoni, AJ Wright, MA Rogers, **JWE Rush**. Potential food applications of edible oil organogels. *Trends in Food Science & Technology*, 20: 470-480, 2009.
42. *Graham DA, **JWE Rush**. Cyclooxygenase and thromboxane/prostaglandin receptor contribute to aortic endothelium-dependent dysfunction in aging female spontaneously hypertensive rats. *J Appl Physiol*, 107: 1059-1067, 2009.
43. *AS Levy, *Chung JCS, *JT Kroetsch, and **JWE Rush**. Nitric oxide and coronary vascular endothelium adaptations in hypertension. *Vascular Health and Risk Management*, 5: 1075-1087, 2009.
44. Denniss SG, AJ Jeffery, and **JWE Rush**. RhoA-Rho kinase signaling mediates endothelium- and endoperoxide-dependent contractile activities characteristic of hypertensive vascular dysfunction. *Am J Physiol Heart Circ Physiol*, 298: H1391-H1405, 2010.
45. Grace SL, KL Russell, RD Reid, P Oh, S Anand, **J Rush**, K Williamson, M Gupta, DA Alter, and DE Stewart. Effect of cardiac rehabilitation referral strategies on utilization

- rates: A prospective, controlled study. *Archives of Internal Medicine*, 171: 235-241, 2011.
46. *Ford RJ, and **JWE Rush**. Endothelium-dependent vasorelaxation to the AMPK activator AICAR is enhanced in aorta from hypertensive rats and is NO- and EDCF-dependent. *Am J Physiol Heart Circ Physiol*, 300: H64-H75, 2011.
 47. *Denniss SG, AS Levy, and **JWE Rush**. Effects of glutathione depletion and aging on activity of endothelium-derived relaxing and contracting factors in carotid artery of Sprague Dawley rats. *Journal of Cardiovascular Pharmacology*, 58: 272-283, 2011.
 48. Arce-Esquivel AA, KV Kreutzer, **JWE Rush**, JR Turk, and MH Laughlin. Exercise does not attenuate early CAD progression in a pig model. *Medicine and Science in Sports and Exercise*, 44: 27-38, 2012.
 49. Dam AD, AS Mitchell, **JWE Rush**, and J Quadrilatero. Elevated skeletal muscle apoptotic signaling following glutathione depletion. *Apoptosis*, 17: 48-60, 2012.
 50. Crawford B, S Koshy, G Jhamb, C Woodford, CM Thompson, AS Levy, **JWE Rush**, JG Guillemette, D Lillicrap, and E Jervis. Cardiac Decellularisation with long-term storage and repopulation with canine peripheral blood progenitor cells. *Canadian Journal of Chemical Engineering*, 90: 1457-64, 2012.
 51. *Ford RJ, *SR Teschke, *EB Reid, *KK Durham, *JT Kroetsch, and **JWE Rush** AMP-activated protein kinase activator AICAR acutely lowers blood pressure and relaxes isolated resistance arteries of hypertensive rats. *Journal of Hypertension*, 30: 725-733, 2012.
 52. *Levy AS, *C Vigna, and **JWE Rush**. Glutathione enhances endothelium-mediated control of coronary vascular resistance via a ROS- and NO intermediate-dependent mechanism. *Journal of Applied Physiology*, 113: 246-54, 2012.
 53. McMillan EM, DA Graham, **JWE Rush**, and J Quadrilatero. Decreased DNA fragmentation and apoptotic signaling in soleus muscle of hypertensive rats following 6 weeks of treadmill training. *Journal of Applied Physiology*, 113: 1048-57, 2012.
 54. *Jantzi PS, AG Marangoni, SHJ Idziak, and **JWE Rush**. Markers of cardiovascular risk and metabolism assessed on multiple baseline occasions and in response to a single fatty meal in healthy young adults. *Food Digestion*, 4: 49-57, 2013.
 55. da Silva RF, JTC Sertorio, R Lacchini, AA Trape, JE Tanus-Santos, **JWE Rush**, SL Amaral, and AS Zago. Influence of training status and eNOS haplotypes on plasma nitrite concentrations in normotensive older adults: a hypothesis generating study. *Aging Clinical and Experimental Research*, 26: 591-8, 2014.

56. Macedo AG, ALO Krug, NA Herrera, AS Zago, **JWE Rush**, and SL Amaral. Low-intensity resistance training attenuates dexamethasone-induced atrophy in the flexor hallucis longus muscle. *Journal of Steroid Biochemistry and Molecular Biology*, 143: 357-64, 2014.
57. McMillan EM, M-F Pare, B Baechler, *DA Graham, **JWE Rush**, and J Quadrilatero. Autophagic signalling and proteolytic enzyme activity in cardiac and skeletal muscle of spontaneously hypertensive rats following chronic aerobic exercise. *PLOS ONE*, 2015 Mar 23;10(3):e0119382. doi: 10.1371/journal.pone.0119382. eCollection 2015. PMID: 25799101
58. Fajardo VA, E Bombardier, T Irvine, AH Metherel, KD Stark, T Duhamel, **JWE Rush**, HJ Green, and AR Tupling. Dietary docosahexaenoic acid supplementation reduces SERCA Ca²⁺ transport efficiency in rat skeletal muscle. *Chem Phys Lipids*, 2015 Apr;187:56-61. doi: 10.1016/j.chemphyslip.2015.03.001. Epub 2015 Mar 12. PMID: 25772907.
59. Krug AL, AG MAcedo, AS Zago, **JWE Rush**, CF Santos, and SL Amaral. High-intensity resistance training attenuates dexamethasone-induced muscle atrophy. *Muscle Nerve*, 53:779-788, 2016.
60. Smith IC, C Vigna, AS Levy, SG Denniss, JWE Rush, and AR Tupling. The effects of buthionine sulfoximine treatment on diaphragm contractility and SERCA pump function in adult and middle aged rats. *Physiol Rep* 2015 Sep;3(9). pii: e12547. doi: 10.14814/phy2.12547 PMID: 26371231.
61. Macedo AG, AL Krug, LM Souza, AM Martuscelli, PB Constantino, AS Zago, JWE Rush, CF Santos, and SL Amaral. Time-course of changes of catabolic proteins following muscle atrophy induced by dexamethasone. *Steroids* 107: 30-36, 2016.
62. Hughson RL, AD Robertson, P Arbeille, JK Shoemaker, JWE Rush, KS Fraser, DK Greaves. Increased post-flight carotid artery stiffness and in-flight insulin resistance resulting from six-months spaceflight in male and female astronauts. *Am J Physiol Heart Circ Physiol*. 310: H628-H638, 2016.
63. *Denniss SG, *RJ Ford, *CS Smith, *AJ Jeffery, and **JWE Rush**. Chronic in vivo or acute in vitro resveratrol attenuates endothelium-dependent cyclooxygenase-mediated contractile signalling in hypertensive rat carotid artery. *J Appl Physiol*, 120: 1141-50, 2016.

Under Review:

Refereed Book Chapters:

1. Graham, T.E., **J.W.E. Rush**, and D.A. MacLean. Skeletal muscle amino acid metabolism and ammonia production during exercise. Chapter 5 (pp 131-175) in: *Exercise Metabolism*; M. Hargreaves, editor. Copyright 1995, Human Kinetics Publishers, Inc.
2. **Rush, J.W.E.**, C.R. Woodman, A.P. Aaker, W.G. Schrage, and M.H. Laughlin. Skeletal muscle blood flow and endurance exercise: limiting factors and dynamic responses. Chapter 7 (pp 84-102) in: *Endurance in Sport, 2nd edition- Encyclopedia of Sports Medicine*, R.J. Shephard and P.-O. Astrand, editors. Copyright 2000, International Olympic Committee. Published by Blackwell Science Ltd.
3. N Hughes, **Rush JWE** and AG Marangoni. Clinical Study on 12-hydroxystearic acid organogel ingestion with Organogels. Chapter 14 in *Edible Oleogels: Structure and Health Implications*, N Garti and AG Marangoni, editors. Copyright 2011, American Oil Chemists Society, AOCS Press, Urbana, IL, USA.

Other Publications:

Published Abstracts of Presentations from National and International Meetings:

1. **Rush, J.W.E.**, D. MacLean, and T.E. Graham. Branched chain keto acid dehydrogenase and AMP deaminase activities in human skeletal muscle. *Proceedings of the annual meeting of the Canadian society for Exercise Physiology*, page 20, 1993.
2. **Rush, J.W.E.**, E. Hultman, and T.E. Graham. AMP deaminase and branched chain oxo acid dehydrogenase in human muscle during exercise. *Med. Sci. Sports Exerc.* 26 (5): S172, 1994.
3. **Rush, J.W.E.**, P.C.Tullson, and R.L. Terjung. Altered in vitro kinetics of skeletal muscle AMP deaminase after β -guanidinopropionic acid feeding. *Med. Sci. Sports Exerc.* 27 (5): S33, 1995.
4. **Rush, J.W.E.**, D.J. Dyck, B. Lindsay, and L.L. Spriet. Methylxanthines contribute to enhanced glycogenolysis but inhibit glycogen phosphorylase in vitro. *Proceedings of the annual meeting of the Canadian Society for Exercise Physiology*, page 23, 1995.
5. **Rush, J.W.E.**, and R.L. Terjung. Contractions decrease apparent AMP deaminase capacity in rat fast twitch muscle. *Med. Sci. Sports Exerc.* 28 (5): S76, 1996.
6. P.C. Tullson, **J.W.E. Rush**, and R.L. Terjung. Tetrameric AMP deaminase is decreased in creatine-depleted skeletal muscle. *Physiologist* 39(5): A-70, 1996.
7. **Rush, J.W.E.**, P.C. Tullson, and R.L. Terjung. Molecular and kinetic alterations of muscle AMP deaminase during creatine depletion. *Physiologist* 39(5): A-71, 1996.
8. **Rush, J.W.E.**, P.C. Tullson, B. Wieringa, and R.L. Terjung. Skeletal muscle creatine kinase deficiency (MCK-D) induces high affinity AMP deaminase kinetics. *Med. Sci. Sports Exerc.* 29 (5): S228, 1997.
9. **Rush, J.W.E.**, R.L. Sabina, D.G. Hardie, and R.L. Terjung. AMP-activated protein kinase phosphorylates and activates human skeletal muscle AMP deaminase. *Faseb J.* 12 (4): A-5948, 1998.
10. **Rush, J.W.E.**, R.L. Sabina, and R.L. Terjung. Human skeletal muscle AMP deaminase kinetics: allosteric regulation. *Med. Sci. Sports Exerc.* 30 (5): A-290, 1998.
11. **Rush, J.W.E.**, M.J. Gibala, T.E. Graham, G. Parise, and M.A. Tarnopolsky. Myoadenylate deaminase deficiency does not affect muscle metabolism during high intensity exercise. *Faseb J.* 13 (4): A-687.9, 1999.
12. **Rush, J.W.E.**, C.R. Woodman, M.H. Laughlin, and E.M. Price. Cu/Zn SOD mRNA expression in pig coronary arterioles is increased by exercise training and flow/shear. *Faseb J.* 13 (4): A-16.3, 1999.
13. Tarnopolsky, M.A., **J.W.E. Rush**, L. Stevens, and J. Maguire. The clinical utility of the forearm ischemic test lactate/ammonia response in the diagnosis of neuromuscular disorders (Insights into mitochondrial cytopathies and myoadenylate deaminase deficiency). *Neurology* 52: Suppl. 2 A 461, 1999.
14. Woodman, C.R., **J.W.E. Rush**, J.L. Parker, E.M. Price, and M.H. Laughlin. SOD-1 mRNA expression in porcine coronary arterioles: influence of coronary occlusion. *Faseb J.* 14 (4): A-1.2, 2000.
15. **Rush, J.W.E.**, P.K. Thorne, E.M. Price, and M.H. Laughlin. High fat diet and exercise training alter endothelium-mediated dilation and caveolin-1 and eNOS protein levels in porcine coronary arterioles. *Physiologist* 43: A18.4, 2000.

16. M.H. Laughlin, and **J.W.E. Rush**. Gender influences endothelial function and ecNOS protein expression in arteries supplying porcine skeletal muscle. *Physiologist* 43: A18.5, 2000.
17. L.R. Johnson, **J.W.E. Rush**, and M.H. Laughlin. Endothelial cell nitric oxide synthase protein content is increased in pulmonary arterial tissue following short-term but not long-term exercise training. *Physiologist* 43: A27.7, 2000.
18. Barr, D., J. Fowles, **J. Rush**, S. Sandiford, and H. Green. Alterations in Na⁺-K⁺-ATPase in rat skeletal muscle with chronic heart failure. *Can. J. Appl. Physiol.* 26: 460, 2001.
19. **Rush, J.W.E.** Human plasma glutathione peroxidase (pl•GPx): Gender and exercise. *Can. J. Appl. Physiol.* 26: 507, 2001.
20. **Rush, J.W.E.**, A. Bonen, and H.J. Green. NOS and Antioxidant Enzyme Adaptations in Skeletal Muscle of Chronic Heart Failure Rats. *Can. J. Cardiol.* 17 (Suppl. C): 383, 2001.
21. *Denniss, S.G., *D.A. Graham, and **J.W.E. Rush**. Dietary docosahexaenoic acid reduces left ventricular hypertrophy in spontaneously hypertensive rats. Abstract T047, *Proceedings of the 45th Annual Meeting of the Canadian Federation of Biological Sciences*, Montreal, 2002.
22. *Graham, D.A., *S.G. Denniss, and **J.W.E. Rush**. Dietary docosahexaenoic acid reduces hypertension-induced increase in NAD(P)H oxidoreductase in rat aorta. Abstract F100, *Proceedings of the 45th Annual Meeting of the Canadian Federation of Biological Sciences*, Montreal, 2002.
23. **Rush, J.W.E.** Enzyme adaptations and oxidative stress in skeletal muscle of chronic heart failure rats. *Can. J. Appl. Physiol.* 27: S43, 2002.
24. Scott, J.L., and **J.W.E. Rush**. Superoxide dismutase and oxidative stress in male spontaneously hypertensive rats: effects of dietary vitamin c. *Can. J. Appl. Physiol.* 27: S44, 2002.
25. *Benton, C.R., *S.G. Denniss, *D.A. Graham, *B. Hughson, and **J.W.E. Rush**. Cardiac hypertrophy and MAPK signaling in spontaneously hypertensive rats: effects of docosahexaenoic acid. *Can. J. Appl. Physiol.* 27: S5, 2002.
26. *Graham, D.A., and **J.W.E. Rush**. Increases in vascular anti-oxidant mechanisms in male but not female spontaneously hypertensive rats. *Can. J. Appl. Physiol.* 27: S19, 2002.
27. *Denniss, S.G., J.W.E. Rush, and R.L. Hughson. Lycopene protects against endothelial vasomotor dysfunction after fast-food hyperlipidemia in humans. Abstract #341.12, *Experimental Biology Conference, San Diego, 2003. Faseb J. Supplement.*
28. *Graham, D.A., and **J.W.E. Rush**. Exercise training improves aortic nitric oxide bioavailability in spontaneously hypertensive rats. Abstract #341.3, *Experimental Biology Conference, San Diego, 2003. Faseb J. Supplement.*
29. *Graham, D.A., and **J.W.E. Rush**. Hypertension-Induced endothelium-mediated vasomotor dysfunction is partially mitigated by dietary docosahexaenoic acid in spontaneously hypertensive rats. Abstract F029, *Proceedings of the 46th Annual Meeting of the Canadian Federation of Biological Sciences*, Ottawa, 2003.
30. *Aultman, C.D., *D.A. Graham, and **J.W.E. Rush**. Sex-dependent endothelium and nitric oxide-mediated vasomotor function in spontaneously hypertensive rats. *Can. J. Appl. Physiol.* 28 (Suppl): S29, 2003.

31. *Graham, D.A., and **J.W.E. Rush**. Chronic exercise training fully restores endothelium-dependent, nitric oxide-mediated vasomotor function in spontaneously hypertensive rats. *Can. J. Appl. Physiol.* 28 (Suppl): S60, 2003.
32. *Denniss, S.G., *T. Haffner, S. Davidson, *J. Kroetsch, **J.W.E. Rush**, and R.L. Hughson. Effect of antioxidant supplementation, acute hypertriglyceridemia, and gender on endothelial vasomotor function in humans. *The FASEB Journal*, 18: Abstract #5785, 2004.
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51. *Graham DA, and **JWE Rush**. Ageing alters hypertension- and sex-related influences on endothelial vasomotor function in rat thoracic aorta. *FASEB J.* 21: 745.10, 2007.
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57. *Ford RJ, and **JWE Rush**. AMP Kinase (AMPK) activator 5-aminoimidazole-4-carboxamide-1- β -D-ribofuranoside (AICAR) alters vascular smooth muscle vasomotor responses in thoracic aorta rings from spontaneously hypertensive (SHR) and Wistar-Kyoto (WKY) rats. *FASEB J* 22: Abstract 4151, 2008.
58. *Graham DA, DJ Dyck, and **JWE Rush**. Aortic vasorelaxation is not blunted in female Zucker diabetic fatty rats and is unaltered by anti-diabetic metformin treatment, chronic exercise training, or a combination of both. *FASEB J* 22: Abstract 4044, 2008.
59. *Levy AS, and **JWE Rush**. Nitric oxide-dependent regulation of coronary vascular resistance in hypertension. *FASEB J* 22: Abstract 4007, 2008.
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64. *Denniss SG, and **JWE Rush**. RhoA-Rho kinase activation mediates endothelium-dependent contractile signaling in hypertensive vascular dysfunction. European Vascular Biology Organisation: 5th European meeting on vascular biology and medicine, Marseille France, September, 2009.
65. *Levy AS, *CS Smith, and **JWE Rush**. Acute glutathione supplementation enhances endothelial-mediated coronary artery dilation. Experimental Biology 2010 meetings, Anaheim, CA. *FASEB J*, 2010 Abstract 1034.2.
66. *Ford RJ, and **JWE Rush**. Activation of AMP-activated protein kinase (AMPK) with 5-aminoimidazole-4-carboxamide-1- β -D-ribofuranoside (AICAR) inhibits endoperoxide-mediated vasoconstriction in aorta of spontaneously hypertensive rats. Submitted for the Joint Meeting of the Scandinavian and German Physiological Societies, March, 2010 Copenhagen, Denmark. *Acta Physiologica Congress*, 2010.
67. *Ford RJ, and **JWE Rush**. AMP-activated protein kinase (AMPK)-mediated relaxation responses are enhanced in aorta from hypertensive rats. Joint Meeting of the Scandinavian and German Physiological Societies, March, 2010 Copenhagen, Denmark. To be published in *Acta Physiologica Congress*, 2010.
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71. *A.S. Levy, *S.G. Denniss, *C.S. Smith, *A.J. Jeffery, *E.B. Reid, and **J.W.E. Rush**. Effects of modulation of glutathione on coronary vascular resistance and vasomotor function. Canadian Society for Exercise Physiology 2010 Meeting, Toronto, ON. *Applied Physiology, Nutrition, & Metabolism*, 2010, 35: S56.
72. *A.J. Jeffery, *K.K Durham, *C.S Smith, *R.J Ford, *A.S Levy and **J.W.E Rush**. Resveratrol causes endothelial-dependent and independent effects, and the dependent component has NO and EDCF-mediated action. Canadian Society for Exercise Physiology 2010 Meeting, Toronto, ON. *Applied Physiology, Nutrition, & Metabolism*, 2010, 35: S44.

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74. *Eric Benjamin Reid, *Rebecca J Ford, *Kristina K Durham, and **James W.E. Rush**. Activation of AMP-activated protein kinase (AMPK) causes vasorelaxation in isolated mesenteric arteries of hypertensive and normotensive rats. Experimental Biology 2011 meetings, Washington, DC. FASEB J March 17, 2011 25:lb477
75. *Kristina K Durham, *Chris S Smith, and **James WE Rush**. Chronic resveratrol treatment alleviates myocardial ischemia injury in a hypertensive model. Experimental Biology 2011 meetings, Washington, DC. FASEB J March 17, 2011 25:639.11
76. *Rebecca J Ford, *Susan Teschke, and **James WE Rush**. Injection of AMP-activated protein kinase (AMPK) activator AICAR acutely reduces blood pressure in Spontaneously Hypertensive Rats. Experimental Biology 2011 meetings, Washington, DC. FASEB J March 17, 2011 25:640.27
77. *Christopher Scott Smith, *Kristina K Durham, and **James W.E. Rush**. Improved endothelium dependent vasomotor function in spontaneously hypertensive rats following chronic treatment with resveratrol. Experimental Biology 2011 meetings, Washington, DC. FASEB J March 17, 2011 25:816.10
78. Holder, PE and **JWE Rush**. Suppression of phenylephrine contraction by AMPK inhibition in isolated carotid artery from normotensive WKY and hypertensive SHR rats. FASEB J. April 2013, 27 (Meeting Abstract Supplement) lb662, Experimental Biology, United States, Massachusetts, Boston.
79. **Rush JWE**, SG Denniss, CS Smith, AJ Jeffery and RJ Ford. Resveratrol attenuates endothelium-dependent cyclooxygenase-mediated contractile activity in the carotid artery of spontaneously hypertensive rats. FASEB J. 28 (Meeting Abstract Supplement for Experimental Biology 2014, San Diego, United States), 855.6
80. Denniss SG, CS Smith, and **JWE Rush**. Reduced carotid artery blood flow of spontaneously hypertensive rats is unaffected by aging from 20 weeks (young adulthood) to 65 weeks (upper middle age). FASEB J. 28 (Meeting Abstract Supplement for Experimental Biology 2014, San Diego, United States), LB690.
81. Holder PE, SG Denniss, and **JWE Rush**. Resveratrol Attenuates Thromboxane-Prostanoid Receptor-Mediated Vasocontraction via NO- and Endothelium- Independent Mechanisms. Experimental Biology 2015, Boston, United States. The FASEB Journal, vol 29 no. 1 Supplement, 640.9, April 2015.
82. Denniss SG, and **JWE Rush**. Polyvinylpyrrolidone can be Used to Cost-Effectively Increase the Viscosity of Culture Media. Experimental Biology 2015, Boston, United States. The FASEB Journal, vol 29 no. 1 Supplement, 1029.19, April 2015.
83. Denniss SG, R Mariani, PE Holder, L Wood and **JWE Rush**. Reduced Common Carotid Artery Blood Flow in Spontaneously Hypertensive Rats is Unaffected by Aging and/or Chronic In Vivo Resveratrol Treatment. Experimental Biology 2015, Boston, United States. The FASEB Journal, vol 29 no. 1 Supplement, 949.10, April 2015.
84. Wood, L, Denniss SG, PE Holder and **JWE Rush**. Perivascular Adipose Does Not Affect Endothelium-Dependent Relaxation or Contraction in Spontaneously Hypertensive and Wistar Kyoto Rat Aorta. Experimental Biology 2015, Boston, United States. The FASEB Journal, vol 29 no. 1 Supplement, LB603, April 2015.

85. Holder PE, SG Denniss, and **JWE Rush**. Resveratrol Attenuates Vasocontractile Responses to Phenylephrine and Potassium Chloride via a Nitric Oxide Synthase– and Endothelium–Independent Mechanism. *Experimental Biology 2015*, Boston, United States. The FASEB Journal, vol 29 no. 1 Supplement, LB599, April 2015.
86. Hughson RL, K Shoemaker, **J Rush**, P Arbeille. Sex-differences in the Cardio-metabolic and Hormonal Responses to Long-duration Spaceflight. The *FASEB Journal* 30 (1 Supplement), 762.4-762.4, 2016.

Presentations to Scholarly Groups:

Invited Conference Symposia:

Rush, J.W.E., and M.H. Laughlin. The Role of Free Radical Species in the Control of Local Blood Flow. *American College of Sports Medicine Annual Meeting*, Seattle, WA, June 1999.

Rush, J.W.E. Redox Mechanisms of Vascular Control in Health and Hypertension: Exercise and Dietary Adaptations. *Canadian Society for Exercise Physiology Annual Meeting*, Niagara on the Lake, ON, October, 2003.

Rush, J.W.E. Nitric Oxide and Oxidative Stress in Health and Disease. *University of Guelph Graduate Student Symposium*, Guelph Ontario, January 2005.

Rush, J.W.E. Endothelial Molecular and Functional Adaptations to Exercise. *Canadian Federation of Biological Societies 48th Annual Meeting*, Guelph ON, June 2005

Rush, J.W.E. Exercise and the Vascular Endothelium. . *Canadian Society for Exercise Physiology Annual Meeting*, Gatineau, Quebec, November, 2005.

Rush, J.W.E. Cardiovascular Disease: Nutrition, Exercise and Natural Health Products. *Nutrition and Exercise for Life Preventative Medicine Symposium, Human Health and Nutritional Sciences University of Guelph*, Guelph, ON, January, 2006.

Rush, J.W.E. NO, Oxidative Stress and Vascular Endothelium in Health and Hypertension. *First International Symposium on Cardiovascular Biology: Endothelial Cell in Health and Hypertension, European Society on Cell and Tissue Engineering and Therapy*, Prague-Czech Republic, June, 2006.

Rush, J.W.E. Oxidant Stress and Cardiovascular Disease. *American College of Sports Medicine Integrative Physiology of Exercise Conference*, Indianapolis, IN, September, 2006.

Rush, J.W.E. and M.H. Laughlin. Vascular Responsiveness during exercise is linked to ROS. *American College of Sports Medicine Integrative Physiology of Exercise Conference*, Indianapolis, IN, September, 2006.

Rush, JWE. Sex, Exercise, and Broken Hearts-NO Questions Asked: Nitric Oxide-Dependent Mechanisms of Cardioprotection. *Canadian Society for Exercise Physiology Annual Meeting*, London, Ontario, November, 2007.

Rush, JWE. Breaking down two solitudes: Sometimes vascular cells and muscle cells speak the same language during exercise and disease. *Young Investigator Award Invited Presentation, Canadian Society for Exercise Physiology Annual Meeting*, Banff, Alberta, October, 2008.

Rush, JWE. Physical Activity, vascular nitric oxide and the renin-angiotensin system. *Canadian Nitric Oxide Society Annual Meeting*, Waterloo, Ontario, August, 2009.

Rush, JWE. Emerging Mechanisms of Oxidative Stress in Vascular Biology and Cardiovascular Disease. Plenary lecture for III International Conference of Oxidative Stress-Havana-Redox 2011, Havana, Cuba, January, 2011.

Rush, JWE. Emerging Cellular Stress Mechanisms Mediating Vascular Adaptations to Exercise and Cardiovascular Disease. Plenary lecture for the *University of Sao Paulo International Conference on Stress*, Bauru, Brazil, November, 2012.

Invited Department Seminars:

Rush, J.W.E. Arterial Function and Gene Expression: Role of NO and ROS in Adaptations to Exercise and Hypertension. *School of Exercise, Leisure and Sport, Kent State University, Kent Ohio, Nov., 2001.*

Rush, J.W.E. Nitric Oxide and Vascular Wall Oxidative Stress in Hypertension. *Department of Kinesiology, York University, North York, Ontario, Jan., 2002.*

Rush, J.W.E. Vascular Endothelial Biology: influences of Exercise and Diet in Health and Disease. *Department of Human Biology and Nutritional Sciences, University of Guelph, Guelph, Ontario, March, 2002.*

Rush, J.W.E. Vascular Function and Gene Expression: Role of NO and ROS in Adaptations to Exercise and Hypertension. *Department of Kinesiology and Health Sciences, McMaster University, Hamilton, Ontario, February, 2003.*

Rush, J.W.E. Mechanisms of NO-Dependent Vascular Control in Health and Hypertension: Exercise and Dietary Adaptations. *School of Kinesiology, The University of Western Ontario, London, Ontario, March, 2004.*

Rush, J.W.E. Oxidative Stress-Mediated Effects on Vascular Function in Hypertension: Exercise Adaptations. *Department of Kinesiology and Health, Texas A&M University, College Station, TX, April, 2005.*

Rush, J.W.E. Oxidative Stress and the Vascular Dysfunction in Hypertension: Mechanisms of Exercise Adaptations. *Department of Physiology, West Virginia University, Morgantown, WV, March, 2006.*

Rush, J.W.E. Endothelium-derived hydrogen peroxide accounts for the enhancing effect of an angiotensin-converting enzyme inhibitor on endothelium-derived hyperpolarizing factor mediated responses. *Department of Veterinary Biomedical Sciences, University of Missouri, Columbia, MO, May, 2006.*

Rush, J.W.E. Vascular AMP-Activated Protein Kinase (AMPK) as a Mediator of Arterial Vasomotor Function in Hypertension. *Medical Sciences Division, Northern Ontario School of Medicine, Sudbury, ON, September, 2008.*

Invited Community Group Presentations:

Rush, J.W.E. Blood Vessel Function and Gene Expression: Role of Exercise and Antioxidants in Hypertension. Key Note address for *Heart and Stroke Foundation of Ontario, Sarnia-Lambton Health Fair*, Feb., 2002.

Rush, J.W.E. Lifestyle and Cardiovascular Health. Key Note address for *Heart and Stroke Foundation of Ontario and Grey-Bruce Health Unit*, March, 2003.

Rush, J.W.E. Lifestyle Factors and Vascular Health. Key Note address for the Heart and Stroke Foundation of Ontario F2004 Staff Conference, Toronto, November, 2003.

Rush, J.W.E. Lifestyle Influences on Vascular Function in Hypertension. *Organized Stroke Strategy Conference, Sponsored by the Heart and Stroke Foundation of Ontario*, Kitchener, November, 2005.

Knowledge Translation:

Launch of The RBC-University of Waterloo Retirement Research Centre's initiative "Your Future By Design® Retirement Research Series"

Website: <http://www.rbcroyalbank.com/retirementcentre.html>

The following materials are posted on this website and are also used by RBC staff in staff training and in client advising

The written reports, the videos, and the self-assessment tools produced out of this project contain health information and financial information. My input was in collecting, interpreting, and writing the health information portions of the reports, videos, and self-assessment tools, as well as extensive editing and advising on the production of the reports, videos, and self-assessment tools.

Written Reports:

1. Retire Well-Take Control of Your Health and Wealth. **Subtitle:** *The retirement phase of your life could easily last 25 or 30 years. To make the most of them, you need two things: good health and enough money. Find out what you can do to manage both.*
2. Health, Money, Retirement-The Different Needs of Men and Women. **Subtitle:** *Men and women approach retirement differently — and each can learn from the other. Find out what you're doing right, and where there's room for improvement.*

Videos:

1. About the Retirement Research Series. **Subtitle:** *Watch this introductory video to understand how our research series can help you have a better retirement.*
2. Aging and Life's Changes. **Subtitle:** *Although Canadians are living longer, the actual years that are disability free are less than you may think. Learn how to identify potential health and financial risks to your retirement.*
3. How Will You Measure Up? **Subtitle:** *Are you on track to have an active and healthy retirement? Explore the importance of taking care of yourself now to prepare for the future.*
4. What Men and Women Can Learn From One Another. **Subtitle:** *Understanding the best practices of both sexes can help you better plan for the health and financial changes that are likely to occur during retirement.*

Self-Assessment tools:

1. Take control of Your Health and Wealth. **Subtitle:** *This exercise will help you align your physical and financial strength, endurance, flexibility and balance today and in the future.*

2. The Different Needs of Men and Women. **Subtitle:** *Uncover the hidden expertise of the opposite sex – and things you didn't know about retirement planning.*

Research Grants and Contracts:

1. **James W.E. Rush**, University of Missouri-Columbia, College of Veterinary Medicine Committee on Research Grant, Sum: US \$ 5 045, (tenure: 01/2000-12/2000), *Exercise and gender as determinants of estrogen status and protein expression in vascular cells of rat aorta.*
2. **James W.E. Rush**, American Heart Association-Heartland Affiliate, Post-Doctoral Research Grant AHA9920467Z, Sum: US \$ 52 000, (tenure: 06/1999-05/2000), *Influence of exercise and hyperlipidemia/hypercholesterolemia on coronary vascular pro- and anti-oxidant gene expression.*
3. **James W.E. Rush** and H.J. Green, Applied Health Sciences Research Assistance Program, Sum: \$2,484, (tenure: 01/2001-12/2001), *Vascular and Skeletal Muscle Responses to Chronic Heart Failure (CHF).*
4. **James W.E. Rush**, Heart and Stroke Foundation of Canada (Ontario Foundation) Grant-in-Aid, Sum: \$109,178, (tenure: 07/2001-06/2003), *Exercise and antioxidants in health and hypertension: Mechanisms of vascular endothelial functional adaptations.*
5. **James W.E. Rush**, Canadian Institutes of Health Research, Operating Grant, Sum: \$80,305, (tenure: 04/2001- 03/2003), Mechanisms of gender-dependent vascular endothelial function: *Balance of pro- and anti-oxidant enzymes and the impact of high fat diet.*
6. **James W.E. Rush**, Canadian Foundation for Innovation, New Opportunities Grant, Sum: \$151,274, (tenure: 10/2001-10/2003), *Integrative Vascular Biology Laboratory (IVBL): Molecules-to-Physiology.*
7. **James W.E. Rush**, Ontario Innovation Trust Grant (matching funds for CFI Grant), Sum: \$151,274, (tenure: 10/2001-10/2003), *Integrative Vascular Biology Laboratory (IVBL): Molecules-to-Physiology.*
8. A. Bonen, H.J. Green, R.L. Hughson, and **J.W.E. Rush**. Canadian Foundation for Innovation Grant, Sum: \$424,947, (tenure: 2/2002-2/2004), *Facility for Musculo-Vascular Research in Physiology: Instrumentation for the Independent and Integrated Study of Exercise and Environment on Molecular, Cellular, and Functional Events.*
9. A. Bonen, H.J. Green, R.L. Hughson, and **J.W.E. Rush**. Ontario Innovation Trust Grant (matching funds for CFI grant), Sum: \$424,947, (tenure: 2/2002-2/2004), *Facility for Musculo-Vascular Research in Physiology: Instrumentation for the Independent and Integrated Study of Exercise and Environment on Molecular, Cellular, and Functional Events.*
10. **James W.E. Rush**, Canadian Foundation for Innovation, Infrastructure Operating Funds, Sum: \$45,382, (tenure: 12/2002-12/2004), *Integrative Vascular Biology Laboratory*

(IVBL): *Molecules-to-Physiology*.

11. **James W.E. Rush**, Natural Sciences and Engineering Research Council Discovery Grant, Sum: \$88,240, (tenure: 04/2003-03/2007), *Thiol Regulation of Vascular Function and Molecular Phenotype*.
12. **James W.E. Rush**, Heart and Stroke Foundation of Canada (Ontario Foundation) Grant, Sum: \$112,922, (tenure: 07/2003-06/2005), *Exercise and antioxidants in hypertension: vascular endothelial adaptations*.
13. A. Bonen, H.J. Green, R.L. Hughson, and **J.W.E. Rush**. Canadian Foundation for Innovation, Infrastructure Operating Funds, Sum: \$127,484, (tenure: 6/2003-5/2005), *Facility for Musculo-Vascular Research in Physiology: Instrumentation for the Independent and Integrated Study of Exercise and Environment on Molecular, Cellular, and Functional Events*.
14. **James W.E. Rush**, CIHR-Canada Research Chair in Integrative Vascular Biology, Sum: \$500,000, (tenure (10/2003-9/2008)).
15. **James W.E. Rush**, Canadian Foundation for Innovation, Infrastructure for Integrative Vascular Biology Laboratory (IVBL), Sum: \$120,607, (tenure (10/2003-9/2008)).
16. **James W.E. Rush**, Ontario Innovation Trust, Ontario Distinguished Researcher Award, Sum: \$120,607, (tenure (12/2003-9/2008)). *Infrastructure for Integrative Vascular Biology Laboratory (IVBL)*.
17. Hughson, R.L., P. Arbeille, J.K. Shoemaker, and **J.W.E. Rush**. European Space Agency/Canadian Space Agency, Sum: \$396 035 (tenure: Awarded 12/2003, project 08/2004-07/2006). *Vascular Remodeling and Functional Consequences During Long-Term Bed Rest*. Final funding level and period TBA upon partner funding confirmations and final ethics approval for parent project.
18. Hoffman-Goetz, L., Green, H.J., **Rush, J.W.E.**, and Wainwright, P.E. Natural Sciences and Engineering research Council, Equipment grants, Sum: \$53,952. *Gamma Counter*.
19. Robinson, L., T. Graham, **J.W.E. Rush**, and A. Marangoni. Ontario Ministry of Agriculture and Food, Sum: \$100,000, (tenure: 06/2004-05/2006). *Development of specific fat tolerance tests for evaluation of food products and risk factors for diabetes and cardiovascular disease*.
20. Graham, T.E., L. Robinson, A. Duncan, A. Bonen, R. Yada, and **J.W.E. Rush**. Ontario Ministry of Agriculture and Food/ University of Guelph Food Research Program, Sum: \$500,000 (tenure: 06/2004-05/2006). *Impact of breads on biomarkers for type 2 diabetes and cardiovascular disease*.

21. Marangoni, A., S. Idziac, and **J.W.E. Rush**. Ontario Ministry of Agriculture and Food/ University of Guelph Food Research Program, Sum: \$600,000 (tenure: 06/2004-05/2008). *The heart-healthy margarine of the future*.
22. **James W.E. Rush**, Heart and Stroke Foundation of Canada (Ontario Foundation) Grant, Sum: \$126,241, (tenure: 07/2005-06/2007), *Exercise and antioxidants in hypertension: vascular endothelial adaptations*.
23. Grace, S.L., Stewart, D.E., Scholey, P., Holder, G., Kaur, R., Rukholm, E., Alter, D., **Rush, J.**, Anand, S., Williamson, K., Harvey, P., Oh, P., & Bunker, S. (06/2005-02/2006). CIHR-ICRH Reducing Health Disparities & Promoting Equity for Vulnerable Populations Research Program Development Grant. *Cardiovascular Secondary Prevention for Vulnerable Populations: An interdisciplinary approach to improving access to services and outcomes*. \$5,000
24. Grace, SL, DE Stewart, DA Alter, SS Anand, S Bunker, PJ Harvey, G Holder, R Kaur, P Oh, EE Rukholm, **JWE Rush**, PE Scholey, and KM Williamson. Cardiovascular secondary prevention for vulnerable populations: An interdisciplinary approach to improving access to services and outcomes. CIHR Interdisciplinary Capacity Enhancement Grants (ICE)-Reducing health disparities and promoting equity for vulnerable populations. 09/2006-08/2011, SUM \$704,789.
25. **Rush, JWE**. Heart and Stroke Foundation of Canada (Ontario Foundation) Grant, Sum: \$146,214, (tenure: 07/2007-06/2009), *Vascular endothelium adaptations to hypertension and exercise*.
26. **Rush, JWE**. Natural Sciences and Engineering Research Council, Discovery Grant, Sum: \$128,750, (tenure: 04/2007-03/2012), *Thiol regulation of vascular function and phenotype*.
27. Hughson, R.L., J.K. Shoemaker, **J.W.E. Rush**, P. Arbeille, M.A. Custaud. Canadian Space Agency. (2009-2012) *Cardiovascular health consequences of long-duration space flight*. Sum: \$333,900.
28. Hughson, R.L, J.K. Shoemaker, **J.W.E. Rush**, P. Arbeille, R. Gorczynski. Canadian Space Agency. (2008-2011) Countermeasures to protect against bed rest-induced hormonal and inflammatory effects on blood vessels and bone. Sum: \$535,986
29. **James W.E. Rush**, CIHR-Canada Research Chair in Integrative Vascular Biology, Sum: \$500,000, (tenure (10/2008-9/2013)
30. **Rush, JWE**. Natural Sciences and Engineering Research Council, Discovery Grant, Sum: \$200,000, (tenure: 04/2012-03/2018), *Control Mechanisms of Vascular Endothelial Function*.

HQP Supervision:

Post-Doctoral Fellow

As Supervisor:

Joe Quadrilatero **04/2005-06/2006**, *vascular and skeletal muscle apoptosis in hypertension.*

Steven G Denniss **09/2012-08/2013**, *carotid hemodynamics in hypertension.*

PhD Students

As Supervisor:

Drew Graham **completed 08/2009 (09/2003-08/2009)**; *Endothelium-dependent vasomotor responses of hypertensive and type 2 diabetic rats: Effects of sex, ageing, and therapeutic interventions*

Andrew S. Levy **completed 01/2011 (09/2005-01/2011)**; *Influence of Acute and Chronic Glutathione Manipulations on Coronary Vascular Resistance and Endothelium Dependent Dilation in Isolated Perfused Rat Hearts*

Steven G. Denniss **Completed 03/2011 (01/2004-03/2011)**; *Mechanisms of endothelium-derived contracting factor function in hypertension*

Rebecca J. Ford **Completed; 01/2006-12/2011**; *AMP-activated protein kinase influences vasomotor function and endothelial phenotype*

As Co-Supervisor:

Chris Vigna **Completed 01/2009-11/2015-**; **co-advisor** with Dr. R. Tupling; *NADPH oxidase-dependent ROS production and impaired Ca²⁺ regulation are associated with exercise-induced cardiac fatigue in rat*

MSc Students

As Supervisor:

Drew Graham **completed 09/2001-06/2003**; *Chronic exercise training restores endothelial vasomotor function in spontaneously hypertensive rats*

Steven G. Denniss **completed 09/2001-12/2003**; *Endothelial vasomotor function after meal-induced hyperlipidemia: effect of manipulating the antioxidant lycopene*

Crystal D. Aultman **completed 09/2003-09/2005** ; *Exercise training alters hypertensive and endothelial dysfunction responses to angiotensin II*

Rebecca J. Ford **01/2005- ; fast-track to PhD program 01/2006**

Jeffrey Kroetsch **completed 05/2006-05/2008**; *Hydrogen peroxide is vasoactive in the mesenteric arteries of spontaneously hypertensive rats*

Justin Chung **completed 09/2006-08/2008**; *The effect of acute exercise on femoral artery vasoconstriction: Involvement of local vascular wall renin-angiotensin systems*

Christopher Smith **completed 09/2009-08/2011**; *Endothelium-dependent vasomotor function in spontaneously hypertensive rats following chronic treatment with resveratrol*

Kristina Durham **completed 01/2010-12/2011**; *Ischemia reperfusion injury in isolated hearts from spontaneously hypertensive rats following chronic resveratrol treatment*

E. Benjamin Reid **completed 09/2010-03/2013** ; The effects of chronic hydrogen sulfide treatment on endothelium-dependent contractions in adult Spontaneously Hypertensive Rats.

Peter E Holder **completed 01/2012-08/2014**; Influence of AMPK and ROCK inhibition on contractile responses in isolated carotid arteries in adult and aged WKY and SHR rats.

Laura Wood **completed 09/2014-12/2016**; Effects of a Chronic Mental Stress Intervention Protocol on Vasomotor Function in Common Carotid Artery from Wistar-Kyoto and Spontaneously Hypertensive Rats.

As Co-Supervisor:

Lisa Coles **completed 09/2002-04/2004**; **co-advisor** with Dr. A. Bonen; *The effects of a single exercise bout on monocarboxylate transporters (MCT1 and MCT4) in rat skeletal muscle*

Tanya Spitzig **completed 09/2002-05/2004**; **co-advisor** with Drs. M. Sharratt and R. Hughson; *Endothelial vasomotor function in pre- and post-menopausal women assessed by flow mediated dilation before and after a high-fat meal*

Rachelle Mariani **completed 09/2012-01-2015**; **co-advisor** with Dr. R. Tupling; *The role of phospholamban (PLN) in protection of sarc(endo)plasmic reticulum Ca²⁺-ATPase (SERCA) against oxidative stress in vascular smooth muscle.*

Isaac Streit **thesis in progress 09/2012-03/2015**; **co-advisor** with Dr. K Stark; mechanisms of omega 3 fatty acid amelioration of ischemia-perfusion injury.

Research Technicians:

Lisa Code **05/2001-08/2004**. Primary research technician and lab manager-Heart and Stroke Foundation projects

Lisa Coles **05/2004-08/2005**. Primary research technician and lab manager-Heart and Stroke Foundation projects

Pamela Jantzi **01/2004-05/2005**. Research technician-OMAF project

Kourtney Dupak **06/2005-08/2009**. Primary research technician and lab manager-OMAF, CIHR, and Heart and Stroke Foundation projects

Crystal Aultman **10/2005-08/2008**. Primary research technician and lab manager-NSERC Projects

Peter Holder **07/2014-12/2015.** Primary research technician and lab manager-NSERC
Projects

Other:

Steven G Denniss **09/2014-present,** *health innovation consultant re industry collaborations
in vascular biology of hypertension* and post-doctoral fellow.

Service:

University of Waterloo Service in Administrative Offices Held:

Administrative Offices held:

Dean, Faculty of Applied Health Sciences, University of Waterloo, 07/2015-present

Interim Dean, Faculty of Applied Health Sciences, University of Waterloo, 07/2014-06/2015

Associate Dean, Faculty of Applied Health Sciences, University of Waterloo, 07/2013-06/2014

Chair, Department of Kinesiology, University of Waterloo, 07/2009-06/2013

Associate Chair-Graduate Studies, Department of Kinesiology, University of Waterloo, 07/2008-06/2009

Associate Dean, Graduate Studies and Research, Faculty of Applied Health Sciences, University of Waterloo, 07/2006-06/2007.

Committee Service as Dean, Faculty of Applied Health Sciences (2014-present):

Chair, AHS Administrative Council

Chair, Faculty Tenure and Promotion Committee

AHS Faculty Council

UW Deans Group

UW Deans Council

UW Executive Council

UW Senate

UW Senate Finance Committee

UW Senate Long range Planning Committee

New Resource Allocation Model Steering Committee

UW Staff Relations Committee

Member, Board of Directors, Propel Centre for Population Health Research

Member, Board of Directors, Schlegel-UW Research Institute for Aging

Member, Senior management committee, Water Institute

Associate Provost Graduate Studies Nomination Committee

Vice President Advancement Nomination Committee

University Secretary Nomination Committee

Optometry Director Search Committee

Committee Service as Associate Dean, Faculty of Applied Health Sciences (2013-2014):

Member, Administrative Council, Faculty of Applied Health Sciences

Member, Faculty Council Executive

Chair, AHS Space Committee

CDPI steering committee

Member and co-chair, AHS Strategic Planning Committee

Committee Service as Chair, Department of Kinesiology, Faculty of Applied Health Sciences (2009-2013):

Chair, Department Council

Chair, Tenure and Promotion Committee

Chair, Department Advisory Committee on Appointments

Ex-officio member and Chair, Planning Committee
Ex-officio member, Undergraduate Committee
Ex-officio member, Graduate Committee
Member, Administrative Council, Faculty of Applied Health Sciences

University of Waterloo Service Outside of Administrative Offices Held:

University Committees:

University of Waterloo Bio-safety Committee, member (2001-2007)

University Animal Care Committee, member (2002-2008)

UW Senator (2013-2014)

Member, Senate Finance Committee (2013-2014)

Department Committees:

Screening Committee on Research Using Human Participants, member (2000-2003), chair (2002-2003)

Ad hoc Review Committee for teaching using research animals, member (2000-indefinite)

Kinesiology Committee on Planning, member (2001-2003)

Graduate Committee (2002-2003)

Undergraduate Committee (2003-2005)

Department Advisory committee on Appointments, member (2005-2007)

Executive Committee, member (2005-2007)

Search Committees:

Regular Member, Selection Committee, Dean of Applied Health Sciences (2009)

Director Search Committee-School of Pharmacy, Faculty of Science, Provost's representative (2010-2011)

Director Search Committee-School of Optometry, Faculty of Science, External member (2012)

Chair Search Committee-Department of Chemistry, External member (2013-14)

Scholarly and Professional Service:

Grants Committees:

- 02/2004-02/2008 Member, Grants Allocation Committee, Heart and Stroke Foundation of Ontario
- 04/2004-02/2007 Member, Master's Scholarship Review Committee, Heart and Stroke Foundation of Ontario

Grant reviews (external): average of 2 per year since 2001 for the following agencies: Alberta Heritage Foundation for Medical Research, Canadian Institutes of Health Research, Heart and Stroke Foundation of Canada, National Institutes of Health-USA, Natural Sciences and Engineering Research Council-Canada

Journal Editorships:

- 07-2009-present Editorial Board Member, Journal of Applied Physiology
- 01/2006-12/2007 Associate Editor, Applied Physiology, Nutrition and Metabolism
- 04/2004-12/2005 Associate Editor, Canadian Journal of Applied Physiology

Journal Refereeing (external): average of 10 per year since 2001 for the following journals:

American Journal of Physiology, Journal of Applied Physiology, Canadian Journal of Applied Physiology, Canadian Journal of Physiology and Pharmacology, Circulation, Circulation Research, Experimental Biology and Medicine, Food Research International, Hypertension, Journal of Physiology, Medicine and Science in Sports and Exercise, Pathophysiology

Membership in Profession Societies:

Regular Member, American Physiological Society
Regular Member, Canadian Society of Atherosclerosis, Thrombosis and Vascular Biology
Regular member, Canadian Society for Exercise Physiology

Membership on Boards of Directors:

- 04/2011-** Member, Board of Directors, Schlegel-University of Waterloo Research Institute for Aging
- 09/2011-** Member, Board of Directors, Waterloo Regional Cardiac Rehabilitation Foundation

Academic Program Reviews:

04/2011- Chair, external program review committee, Department of Biomedical Physiology and Kinesiology, Simon Fraser University.

11/2013- External reviewer, School of Human Kinetics, University of Ottawa.

Areas of Teaching Expertise:

Cardiovascular Physiology
Muscle Physiology
General and integrative Physiology
Vascular Biology

A summary of my overall Instructor and Course Evaluation scores is presented in the table below (scale of 5 as highest possible score):

Course, semester	# of students	Overall evaluation of Instructor	Overall evaluation of course
KIN 105, F2013	241	4.7	4.3
KIN 408, W2013	160	5.0	4.9
KIN 105, F2012	201	4.8	4.5
KIN 408, W2012	118	4.9	4.7
KIN 408, W2011	95	4.9	4.8
KIN 408, W2010	83	4.9	4.7
KIN 471, W2009	38	4.9	4.9
KIN401, W2007	38	5.0	4.8
KIN401, W2006	34	4.9	4.6
KIN401, W2005	31	5.0	4.9
KIN401, W2004	38	4.8	4.7
KIN205, W2004	88	4.2	4.0
KIN401, W2003	23	4.9	4.7
KIN401, W2002	14	4.9	4.9
KIN205, F2001	140	4.4	4.2
KIN401, W2001	20	4.9	4.8

KIN 408 is 'Cardiovascular Physiology and Pathophysiology' a senior elective course, KIN 471 is 'Special Topics in Kinesiology'-under which the KIN 408 course was offered its first time, KIN401 is 'Physiological Adaptations to Physical Activity' a senior elective course; KIN205 is 'Muscle Physiology in Exercise and Work' a core required course; KIN105 is 'Cardiovascular and Respiratory Responses to Exercise' a core required course