

**Muscle Health Research Centre (MHRC)
Annual Report
2016-2017**

1. Contact Information

Director:	David A. Hood
Admin Contact:	Liam Tryon
Address:	302 Farquharson
Tel:	Ext 66640
E-Mail:	dhood@yorku.ca or mhrc@yorku.ca
Website:	http://mhrc.info.yorku.ca

2. Charter Dates

July 1, 2008

3. Mandate – 150 words maximum

The MHRC is an organized research unit (ORU) within the Faculty of Health dedicated to Biomedical Sciences. Its mandate is to provide a centralized and focused research emphasis on the importance of “muscle health” for the overall health and well-being of Canadians. The MHRC consists of a strong cohort of well-funded and highly productive scholars (including two Canada Research Chairs) and graduate students from the Faculty of Health and the Faculty of Science. The vision statement of the MHRC is *“to be Canada’s leading research centre for the study of muscle health and disease”*. We are achieving this through 1) innovative research, 2) the education of qualified trainees, and 3) the translation of our findings for the benefit of all Canadians.

4. Membership and Governance

Active members (York faculty): 22; a complete list of active and adjunct members of the MHRC and their departmental affiliations is provided below.

Other members: Adjunct faculty members: 5; Graduate and UG student members (York): 90; Graduate and UG student members (non-York, other Universities): 50

Executive Committee members: Drs. David Hood (Director), Rolando Ceddia, Mike Connor, Mike Riddell, Robert Tsushima, and Ms. Meghan Hughes (Graduate Student Member)

YORK UNIVERSITY
OFFICE OF THE VICE-PRESIDENT RESEARCH & INNOVATION

Faculty Member	Rank	Research Area	Office Number/ E-Mail	Office Location
School of Kinesiology and Health Science				
Hood, David	Professor, Canada Research Chair, Director of the Muscle Health Research Center	Molecular basis of Mitochondrial Biogenesis in health and disease	dhood@yorku.ca (416)736-2100 x 66640	Farquharson Building, 302
Abdul-Sater, Ali	Assistant Professor	Exercise and immunology / inflammation	aasater@yorku.ca (416)736-2100 x 77226	Norman Bethune College, 341
Adegoke, Olasunkanmi	Associate Professor	Protein and amino acid nutrition and metabolism	oadegoke@yorku.ca (416)736-2100 x 20887	Norman Bethune College, 362
Belcastro, Angelo	Professor, Chair, School of Kinesiology and Health Science	Muscle injury and damage in health and disease	anbelcas@yorku.ca (416)736-2100 x 21088	Norman Bethune College, 333B
Biro, Olivier	Associate Professor	Vascular plasticity in striated muscle (angiogenesis vs. capillary regression)	birot@yorku.ca (416)736-2100 x 44043	Norman Bethune College, 353
Ceddia, Rolando	Associate Professor	Glucose and fat metabolism in muscle and adipose tissue	roceddia@yorku.ca (416)736-2100 x 77204	Lumbers Building, 225A
Connor, Michael	Associate Professor	Muscle Development and Cancer	mconnor@yorku.ca (416)736-2100 x 77206	Life Sciences Building, 423B
Drake, Janessa	Associate Professor	Biomechanics of the spine	jdrake@yorku.ca 416-736-2100 Ext. 33568	Sherman Health Science Research Centre, 2030
Edgell, Heather	Assistant Professor	Cardiovascular disease in women	edgell@yorku.ca (416) 736-2100 x 22927	Norman Bethune College, 355
Gage, William	Associate Professor, Associate Vice-President, Teaching and Learning	Biomechanics of postural control and of joint stability	whgage@yorku.ca (416)736-2100 x 33027 (416)736-2100 x 20774	Sherman Health Science Research Centre, 2022 Kaneff Tower, 906
Haas, Tara	Associate Professor	Angiogenesis in Muscle	thaas@yorku.ca (416)736-2100 x 77313	Farquharson Building, 341
Hamadeh, Mazen	Associate Professor Master of Stong College	Human Nutrition and Exercise Physiology, Diabetes and ALS	hamadeh@yorku.ca (416)736-2100 x 33552 (416)736-2100 x 66176	Norman Bethune College, 365 Stong College, 314
Hynes, Loriann	Assistant Professor & Athletic Therapy Coordinator	Sports-related injuries and rehabilitation	lyhnes@yorku.ca (416)736-2100 x 22734	Stong College, 326
Kuk, Jennifer	Associate Professor	Obesity, CVD, Type 2 diabetes and exercise interventions	jennkuk@yorku.ca (416)736-2100 x 20080	Sherman Health Science Research Centre, 2002
Perry, Christopher	Assistant Professor	Redox Metabolism, Skeletal Muscle, Diet and Exercise	cperry@yorku.ca (416)736-2100 x33232	Norman Bethune College, 344

Riddell, Michael	Professor KAHS Graduate Program Director	Exercise Physiology, Stress and Diabetes Metabolism	mriddell@yorku.ca (416)736-2100 x 40493	Norman Bethune College, 347
Scimè, Anthony	Associate Professor	Stem Cell Biology; Muscle Regeneration; Adipose Differentiation	ascime@yorku.ca (416) 736-2100 x33559	Norman Bethune College, 327C
Department of Biology				
Backx, Peter	Professor, Canada Research Chair	Cardiac Muscle Physiology and Disease	pbackx@yorku.ca (416)736-2100 x 33858	Farquharson Building, 135A
McDermott, John	Professor	Muscle Development	jmcderm@yorku.ca (416)736-2100 x 30344	Life Sciences Building, 427B
Tsushima, Robert	Associate Professor,	Cardiac Muscle Physiology and Disease	tsushima@yorku.ca (416)736-2100 x 20996	Farquharson Building, 333A
Adjunct Members				
Coe, Imogen	Professor, Dean, Faculty of Science	Cardiac Muscle Biochemistry	imogen.coe@ryerson.ca	Ryerson University
Hawke, Thomas	Associate Professor	Muscle Development and Regeneration	hawke@mcmaster.ca	McMaster University
Jacobs, Ira	Dean, Faculty of Physical Education	Muscle Metabolism, Applied Physiology and Pharmacology	ira.jacobs@utoronto.ca	University of Toronto
Laham, Robert	Physician	Muscle physiology	robertlaham@aim.com	York Lanes Appletree Medical Centre
Wharton, Sean	Physician	Obesity and exercise	wharton.sean@gmail.com	Wharton Medical Clinic
MHRC Coordinator				
Tryon, Liam	Research Assistant, MSc		mhrc@yorku.ca Farquharson Bldg, 342 X 22999	Farquharson Bldg, 342 Fax: 416-650-8483

5. Annual Activities in Fulfilling Mandate – 750 words maximum

The MHRC continues to expand its activities every year, consistent with the goal of uniting muscle health researchers and graduate students and providing a platform which will serve to increase the visibility of York University, and the MHRC, in Canada and around the world. Our accomplishments are listed in Appendix 2, including the funding obtained, awards received and most significant publications in peer-reviewed journals. This appendix contains a truncated version of the vast list of accomplishments of our faculty members (a complete list is provided on the MHRC website). It is clear from this Appendix that the MHRC is fulfilling its mandate in promoting muscle research for the health and well-being of Canadians. We continue to be successful at obtaining NSERC, CIHR, Heart and Stroke Foundation and Canadian Diabetes Association research funding, and at publishing our findings.

- a) Funding proposals: Several collaborations exist among MHRC faculty members, and among faculty at other institutions. These include a CREATE grant (Title: Fundamental Mechanisms of Muscle Dysfunction) as well as a large scale CFI Infrastructure grant for a MHRC “Core facility” (Title: Muscles for Health) involving many MHRC members and collaborators. We are awaiting the results of these applications currently.
- b) Events organized: We normally hold 3 types of events throughout the year:

- 1) Colloquia, featuring internal speakers discussing their work in an informal interactive research presentation. Normally this involves 3 graduate students who presented their research, or it highlights the work of new faculty members. This year we were unable to schedule this event, but we have one planned for early Fall 2017.
 - 2) Seminars, in which external speakers from other Universities were invited to present their work and to interact with faculty members and graduate students. This year, speakers were invited from the University of Louisville, the University of Wisconsin, and Boston University. The speaker from Boston University was an MHRC student-organized Seminar;
 - 3) The 7th Annual Muscle Health Awareness Day (MHAD), which attracted 9 external speakers, 25 other faculty members and 103 students. A total of 40 posters were presented (total registration: 128 people).
- c) Knowledge Mobilization / Outreach: All MHRC faculty members are involved in promoting knowledge mobilization of their research via the MHRC website, and MHRC social media outlets (Twitter and Facebook). Newly published papers-of-the-month are summarized in easy to read language for public dissemination. In addition, many members have had their work featured in Y-file, and some members spend considerable time promoting muscle health, metabolism and diabetes education to the public. Several MHRC members have had media interviews in the past year to promote muscle health in their field;
- d) Mentorship: MHRC faculty members are extremely active in the training and development of graduate students. One of the reasons that MHRC members are so successful individually with NSERC is that we are very active in the training of Highly Qualified Personnel (HQP), a major criterion for success with NSERC. MHRC faculty members directly trained and mentored ~60 MSc and PhD students, ~25 undergraduate students, and 10 post-doctoral fellows over the past year;
- e) Continuing Education: In collaboration with Faculty of Health staff involved in the Health Leadership and Learning network (HLLN), we have established the course curriculum to offer our Advanced Certificate in Exercise and Muscle Health for recent graduates or Allied Health professionals. We are now endeavouring to move some of these courses online.
- f) Other leadership activities: The MHRC sponsored two \$1000 MHRC Student Fellowships directed against the Graduate Student's fees;
- g) Industry partners: The MHRC has developed relationships with industry on several fronts, including Panacea Global, a cancer screening company with research interests that complement several of our members, Musclesound, a company seeking to develop a "Muscle Quality Index", Reveragen which provides reagents for muscle growth, and Aurora Scientific, a manufacturing company for muscle testing equipment.
- h) Student-based activities: The MHRC continues to significantly involve our graduate student and post-doctoral trainees in our activities. The MHRC Student Committee provides input into our programming and direction, particularly with regard to student interests in the MHRC Seminars and the Muscle Health Awareness Day program. Every year we have a student-invited Seminar speaker. This calendar year, we held our second annual Career Day on Friday February 24, 2017, featuring 8 guest speakers. These speakers were former graduate students who now have careers in a wide variety of fields (industry, academia, medicine etc.). The goal of this event was to have these speakers provide short talks regarding their career path, and give insight and advice to graduate students on possible career opportunities outside of academia. This event attracted over 50 graduate students from York University, McMaster University and the University of Toronto. We plan to run this event every 2 years, as it was a fantastic success and we received a great deal of positive feedback from attendees and speakers alike.

6. Challenges and Areas for Improvement – 500 words maximum

We have two major challenges, and both are related to funding:

- a) Funding for large scale collaborative initiatives related to 1) student training and 2) infrastructure. CREATE and CFI applications have been written, but have not yet been successful. In our second submissions of each, we are hoping for success, which would significantly increase our collaborations and visibility;
- b) Funding of the MHRC itself, either through donor contributions, industry support, or Continuing Education initiatives. Industry support may be forthcoming if the CFI grant is successful. Continuing Education using on-line courses is currently in development, and the curriculum is set. The pursuit of donors is in the hands of the Faculty Development Office, and it is difficult to gauge how much of a priority is being placed in seeking funds for the MHRC.

7. Financial Position

The attached Excel spreadsheet provides the 3 year rolling budget and line-by-line explanation. At the moment, there are no research grants or contracts that are administered by the MHRC. The Faculty of Health has made a commitment to provide supportive funding for the Centre for the next 3 years. The Faculty supports the MHRC's efforts to achieve self-sufficiency and attract donors, and cash contributions are provisionally committed if this is needed to balance the budget. The Faculty also funds the Director's course release (approximately \$20k/year). The MHRC continues to investigate the possibility of acquiring financial support through other initiatives, such as Continuing Education programs (see above) and industry or granting agency contract overhead contributions.

8. Space Utilization

1. Office Space

Room #	Name of Occupant	Occupant Affiliation ¹	Type of Workspace ²	Length and frequency of Occupancy ³	Notes ⁴
307A Farq	Liam Tryon	Centre Coordinator	Office / Meeting Space	5+ days/week, since 2009	See below
Previously 342 Farq, however that room is scheduled to be demolished with the renovations to the Farquharson Life Science Building. An agreement was in place with the Faculty of Health for use of this room. This room is used for MHRC Executive Committee and Student Committee meetings. It is available for all MHRC Faculty members to use, and is booked through the MHRC Coordinator.					
⁴ Explain if there is an agreement in place and how this room is being utilized					

2. Shared space/equipment

Room # ⁵	Type of Space ⁶	Access ⁷	Length and frequency of Occupancy ⁸	Requires booking? If so, who is responsible for booking the space/equipment? ⁹	Notes ¹⁰
311 Farq	Lab	Access by appointment using a key	7 Days/week, since 2015	Yes, done through MHRC Coordinator	See below
<p>The room contains some shared equipment that all MHRC Faculty members can use. An agreement is in place with the Faculty of Health. Equipment has been temporarily been moved to 204 Farquharson while renovations to the Farquharson Life Science Building take place.</p>					
<p>¹⁰ Explain if there is an agreement in place and how this room is being utilized</p>					

5 PIER Responses: Select 2 to 3 recommendations listed in Appendix A of PIER and explain how the ORU has addressed the recommendations in the past year and your plans to meet these or other recommendations in the future.

	Selected and applicable PIER Responses of the Muscle Health Research Centre (MHRC) Actions	MHRC Actions
1. Create opportunities and spaces to promote interactive research engagement that foster collaboration and interdisciplinarity	<p>Enhance emphasis on collaborative research in collegial discussion and strategic research planning.</p> <p>Promote the organization of symposia to foster interdisciplinary research</p> <p>Review and enhance spaces that promote informal faculty and research trainee engagement including the promotion of shared work environments and integration of ORUs within Faculty spaces.</p>	<p>Few general member MHC meetings are held, but many collaboration grants and papers are written</p> <p>6 Seminars featuring guest speakers; Muscle Health Awareness Day (MHAD) held yearly</p> <p>Facilitated with Farquharson renovations; the new 3rd floor will be MHRC space</p>
2.		
3.		
4. Promote and capture a multiplicity of research outputs with an emphasis on impact	Encourage non-traditional research outputs (web-based, film, social media etc.)	The faculty members in this ORU use traditional research outputs as indicators of success: grants/funding, publications, HQP trainees, invited

	<p>Emphasize research impact, mentoring and supporting colleagues to achieve the high possible impact venues for their scholarly outputs.</p> <p>Promote and value collaborative research and collaborative research outputs to decrease York's overall reliance on single authorship</p>	<p>seminars, awards</p> <p>All members are aware of this</p> <p>The MHRC promotes collaborative research grant writing and publications; evident in the Annual Report</p>
5. Build research intensity in the hiring, tenure and promotion of regular full-time faculty.	Complement planning to enhance focus on the alignment of professorial stream hires with the research needs and objectives of the hiring unit and Faculty;	Done yearly
6.		
7.		
8.		
9. Increase and strengthen York's research based graduate population and becoming a destination of choice for postdoctoral training.	<p>Increase the efficiency and effectiveness of graduate student recruitment to York through enhancing internal processes and external outreach</p> <p>Continue growth in professional development supports for graduate students and post-doctoral fellows, including best practice for postdoctoral fellow supervision</p> <p>Encourage and support applications to Increase the percentage of externally funded postdoctoral fellows</p> <p>Continue the development of supports for postdoctoral fellows in all areas</p>	<p>The MHRC faculty members train approximately 100 HQP yearly. Our activities are disseminated through social media and research journals and the website</p> <p>The MHRC has yearly programs (Career Day) in place and strong supervisory skills</p> <p>Always. This is visible on the MHRC website</p> <p>The MHRC supports PDFs by providing space and research funding (3-5 per year)</p>
10. Grow undergraduate participation in research	Increase the number of research opportunities for undergraduates. Includes credit opportunities and non-credit experiential learning opportunities	The MHRC has many UG research students yearly (30-40), during the FW semesters and in the Summer
11. Develop and employ general and specific measures to monitor research progress	<p>Make data on both traditional and nontraditional research outputs broadly available</p> <p>Develop research outputs data analyst capacity that also serves as</p>	<p>Yes</p> <p>MHRC research outputs are easy to quantify</p>

	<p>an interface for York with public and private research data aggregators that influence external university rankings.</p> <p>Units, programs, areas of focus and ORUs to develop relevant specific and externally comparable measures of research, scholarly and associated creative outputs</p>	All contained within the Annual Report
12.		
13.		
14.		
15. Enhance the development and implementation of research infrastructure	Develop and report on service level expectations for the implementation of research infrastructure for new hires	The MHRC members actively participate in infrastructure grant and training grant initiatives
16. Develop York's Innovation Landscape, supporting partnerships and translating research into action	Development of research infrastructure capital plan as part of overall university capital plan	MHRC members interact with Innovation York where appropriate. We have an established relationship with Cheryl Giblon.
17.		
18. Foster the internationalization of research	<p>Promote enhanced participation of York faculty in international and multinational research activities</p> <p>Increase international graduate student and postdoctoral fellow presence at York</p>	<p>MHRC members actively participate in international collaborations and symposia</p> <p>MHRC members invite international trainees and faculty members for visits and collaborations</p>
19.		
20. Develop Markham as a research-intensive campus.	Include research and innovation at the forefront of Markham campus planning and implementation	Where appropriate, interactions with the Markham campus will take place. The Executive Director, Angelo Belcastro, is an MHRC member
21. Research as a driver and enabler for future York initiatives.	<p>Support ongoing development and growth of research activities and infrastructure commensurate with other research intensive universities.</p> <p>Building relationships with regional hospitals, health agencies and community health organizations to include building support of the Medical School ambition</p>	<p>Always ongoing within the MHRC</p> <p>Yes, this is continuously ongoing with Westlake, Sunnybrook and St. Michael's, for example</p>

6 Objectives for Upcoming Year (e.g. events, membership, grants, space needs) - 750 words maximum

- Continue to try to develop Continuing Education on-line courses for Teachers, Nurses, Massage Therapists and recent graduates in an effort to bring in revenue to support the MHRC;
- Interact with our Development office within the University as needed to promote outreach and the visibility of the MHRC among members of the public, in an effort to seek interested financial contributions from potential benefactors.
- Develop a “Muscle Health Education Day” to increase the exposure of the MHRC to the public for educational purposes, as well as to encourage the involvement of potential donors. One of the challenges of this initiative is the lack of direct relationship of most of our MHRC research to clinical populations. This requires continued development;
- Continue to develop more relationships with industry to initiate contractual agreements which will bring in revenue for the MHRC. Discussion are ongoing with colleagues in Innovation York to help us with this;
- Initiate more industry workshops, in concert with yearly group applications for NSERC-RTI as well as the CFI application.
- Develop more collaborations between laboratories within the MHRC as well as more educational initiatives for trainees. This will be achieved with the success of the submitted CREATE and CFI/ORF grant applications.

7 Other relevant items the Director wishes to include in the annual report - 250 words maximum

No additional comments

8 Appendix 1 – Additional Information about Progress in Fulfilling Mandate (that does not appear elsewhere in the Report)

Please see below

9 Appendix 2 – Individual Member Contributions (up to five most notable items for each member)

Please see below

**Appendix 1: Additional Information about Progress in Fulfilling Mandate
between May 1, 2016 – April 30, 2017**

A total of 23 visitors were hosted by the MHRC:

Name	Institution	Position	Date of Visit	Purpose of Visit
Dr. Amira Klip	The Hospital for Sick Children/University of Toronto	Professor	May 27, 2016	Seminar
Dr. Jim Dowling	The Hospital for Sick Children/University of Toronto	Professor	May 27, 2016	Seminar
Dr. Martin Gibala	McMaster University	Professor	May 27, 2016	Seminar
Dr. Erin Kershaw	University of Pittsburgh	Professor	May 27, 2016	Seminar
Dr. Ren-Ke Li	UHN/Toronto General Research Institute (TGRI)	Professor	May 27, 2016	Seminar
Dr. Graham Fraser	University of Western Ontario	Professor	May 27, 2016	Seminar
Dr. Jeff Dilworth	University of Ottawa	Professor	May 27, 2016	Seminar
Dr. Jane Batt	St. Michael's Hospital/University of Toronto	Professor	May 27, 2016	Seminar
Dr. Yan Burelle	University of Montreal	Professor	May 27, 2016	Seminar
Dr. Wayne Phillips and Marlena Zimmerman	MuscleSound	Chief Science Officer and VP Sales	July 27, 2016	Seminar
Dr. Ashok Kumar	University of Louisville	Professor	October 7, 2016	Invited Seminar
Dr. William Schrage	University of Wisconsin	Professor	October 28, 2016	Invited Seminar
Dr. Kenneth Walsh	Boston University	Professor	March 17, 2017	Invited Seminar
Stuart Menzies	CTC Communications	Employee	February 24, 2017	Career Fair
Dr. Ayesha Saleem	Humber College	Professor	February 24, 2017	Career Fair
Chris Rand	Aurora Scientific	Employee	February 24, 2017	Career Fair

Dr. Erin Connelly	Janssen Pharmaceuticals	Employee	February 24, 2017	Career Fair
Kristy Menzies	McKesson Specialty	Employee	February 24, 2017	Career Fair
Dr. Mark Dekker	PepsiCo	Employee	February 24, 2017	Career Fair
Dr. Alex Hutchinson	Runners World / Globe and Mail	Employee	February 24, 2017	Career Fair
Chris Gerling	Bioventus Global	Employee	February 24, 2017	Career Fair
Stephanie Smith	Hoffman-La Roche	Employee	February 24, 2017	Career Fair

Appendix 2: Five most notable contributions associated with membership in the ORU between May 1, 2016 – April 30, 2017

Abdul-Sater, Ali A.

NSERC Discovery Grants Project

The Effects of Exercise on the Molecular Mechanisms of Inflammation, 2017-2022 (\$26,000 / year; \$130,000 total over 5 years)

Abdul-Sater AA, Edilova MI, Clouthier DL, Mbanwi A, Kremmer E, Watts TH. The signaling adaptor TRAF1 negatively regulates Toll-like receptor signaling and this underlies its role in rheumatic disease. *Nature Immunology* 2017 Jan;18(1):26-35.

Adegoke, Olasunkanmi A. J.

UPLC System for Muscle Research, NSERC RTI, \$143,809, Co-Applicant; PI David Hood Mahshid Moghei, Pegah Tavajohi-Fini, Brendan Beatty, Olasunkanmi A. J. Adegoke.

Ketoisocaproic acid, a metabolite of leucine, suppresses insulin-stimulated glucose transport in skeletal muscle cells in a BCAT2-dependent manner. *Am J Physiol Cell Physiol* Vol. 311 no. 3, C518-C527, 2016.

Backx, Peter H.

CIHR Operating Grant (Principal Investigator)

Uncovering the mechanism of atrial fibrillation using lessons from intense exercise models of atrial remodeling. \$756,000 Total (\$151,200/year for 5 years), Start April 2017

NSERC CHRP Grant (M. Radisic PI; Backx co-PI, Kumar co-PI)

Platform technology for maturation of human stem cell derived cardiomyocytes and cardiotoxicity screening \$290,000 Total (\$96,667/year for 3 years), Start June 2016

Huang J, Wu J, Wang S, You J, Ye Y, Ding Z, Yang F, Wang X, Guo J, Ma L, Yuan J, Shen Y, Yang X, Sun A, Jiang H, Bu L, Backx PH, Ge J, Zou Y. [Ultrasound Biomicroscopy Validation of a Murine Model of Cardiac Hypertrophic Preconditioning: Comparison with a Hemodynamic Assessment](#). Am J Physiol Heart Circ Physiol. 2017 Apr 28:ajpheart.00004.2017.

Kroetsch JT, Levy AS, Zhang H, Aschar-Sobbi R, Lidington D, Offermanns S, Nedospasov SA, Backx PH, Heximer SP, Bolz SS. [Constitutive smooth muscle tumour necrosis factor regulates microvascular myogenic responsiveness and systemic blood pressure](#). Nat Commun. 2017 Apr 5;8:14805.

Protze SI, Liu J, Nussinovitch U, Ohana L, Backx PH, Gepstein L, Keller GM. [Sinoatrial node cardiomyocytes derived from human pluripotent cells function as a biological pacemaker](#). Nat Biotechnol. 2017 Jan;35(1):56-68.

Belcastro, Angelo N.

Moghaddaszadeh A, Ahmadi Y, Belcastro AN. [Children and adolescent physical activity participation and enjoyment during active play](#). J Sports Med Phys Fitness. 2016 Dec 22.

Moghaddaszadeh A, Jamnik V, Belcastro AN. [Characteristics of children's physical activity during active play](#). J Sports Med Phys Fitness. 2016 Oct 13.

Birot, Olivier

NSERC Discovery Grant

Investigating the angiogenic role of Murine Double Minute-2 in contractile muscle cells
\$28,000 / year - 5 years

Dunford EC, Leclair E, Aiken J, Mandel ER, Haas TL, Birot O, Riddell MC. The effects of voluntary exercise and prazosin on capillary rarefaction and metabolism in streptozotocin-induced diabetic male rats. J. Appl. Physiol. 122: 492-502, 2017.

Aiken J, Birot O. The Vascular Endothelial Growth Factor-A Phosphorylates Murine Double Minute-2 on its Serine 166 via the Extracellular Signal-Regulated Kinase 1/2 and p90 Ribosomal S6 Kinase in Primary Human Endothelial Cells. Biochem. Biophys. Res. Commun. 478: 1548-1554, 2016.

Ceddia, Rolando B.

NSERC Discovery Grant

Regulation of whole-body energy homeostasis, 2016 -2020 (\$160,000)

Sepa-Kishi DM, Wu MV, Uthayakumar A, Mohasses A, Ceddia RB. [Anti-lipolytic and anti-lipogenic effects of the CPT-1b inhibitor oxfenicine in the white adipose tissue of rats.](#) Am J Physiol Regul Integr Comp Physiol. 2016 Aug 24;ajpregu.00243.2016.

Connor, Michael K.

Theriau, C.F. and M.K. Connor. Voluntary Physical Activity Counteracts the Proliferative Tumor Growth Microenvironment Created by Adipose Tissue via High Fat Diet Feeding in Female Rats. In press, *Physiol. Rep.* May, 2017.

Theriau, C.F., Shpilberg, Y. Riddell1, M.K. and M.K. Connor. Voluntary Physical Activity Abolishes the Proliferative Tumor Growth Microenvironment Created by Adipose Tissue in Animals Fed a High Fat Diet. *J. Appl. Physiol.* 121, 139-153, 2016.

Drake, Janessa D. M.

NSERC Discovery Grant

Thoracic and Lumbar Spine Biomechanics May 2012- Apr 2017, Extension May 2017-Apr 2018
\$29,000/year (Principle Investigator)

NSERC Research Tools & Instruments Grant

Operations and Maintenance Support for Multi-User York MRI Facility

Co-Applicant and Co-Investigator (Principal Investigator and Applicant Dr. J.K.E. Steeves (Psych), Director of York MRI Facility, York University; Other York Co-Applicants: Drs., J.D. Crawford, K.L. Hoffman, S. Rosenbaum, L.E. Sergio, W.D Stevens, G.R. Turner, T. Womelsdorf, \$150,000

Nairn, B.C., Sutherland, C.A., Drake, J.D.M. Motion and muscle activity are affected by instability location during a squat exercise. *Journal of Strength and Conditioning*, 31(3): 677-685, 2017.

Siu, A., Schinkel-Ivy, A., Drake, J.D.M. Arm position influences the activation patterns of trunk muscles during trunk range-of-motion movements. *Human Movement Science*, 49(Oct): 267-276, 2016.

Martins, O., Schinkel-Ivy, A., Cotter, B.D., Drake, J.D.M. Immediate and long-term effects of a neuromuscular training insole on spatiotemporal gait parameters. *Footwear Science*, 8(3): 147-154, 2016.

Edgell, Heather

CFI Infrastructure operating funds (2017) - \$7,700

St. Jude Medical (2016) –\$53,141 – Purchase of an Endo-PAT2000 (and operational funds) for microvascular function measurements at Southlake Regional Health Centre lab.

NSERC Discovery Grant - \$120,000 (continuing – 2nd of 5 years) – Cerebrovascular and ventilatory responses to autonomic reflex stimulation in supine and upright postures in women throughout the menstrual cycle and men

Stickland MK, Fuhr DP, Edgell H, Byers BW, Bhutani M, Wong EYL, and Steinback CD (2016) Chemosensitivity, cardiovascular risk, and the ventilatory response to exercise in Chronic Obstructive Pulmonary Disease. PLoS One 11(6): e0158341

Edgell H, Moore LM, Chung C, Byers BW, and Stickland MK (2016) Short-term cardiovascular and autonomic effects of inhaled salbutamol. Respir Physiol Neurobiol 231: 14-20.

Gage, William H.

Verniba D, Vescovi JD, Hood DA, Gage WH. [The analysis of knee joint loading during drop landing from different heights and under different instruction sets in healthy males.](#) Sports Med Open. 2017 Dec;3(1):6.

Kiriella JB, Perry CJ, Hawkins KM, Shanahan CJ, Gage WH, Moore AE. [Sagittal plane lumbar loading when navigating an obstacle and carrying a load.](#) Ergonomics. 2016 Nov;59(11):1505-1513

Haas, Tara L.

Heart and Stroke Research Foundation of Canada

\$266,211 total funding (3 years); “*Regulators of angiogenesis in peripheral limb ischemia*”
PI – Tara Haas; Co-applicants: C. Ellis (UWO) and O. Birot, 2015-2018

CIHR Operating Grant

\$390,800 total funding (4 years)

“*Microvascular remodeling of the adipose and muscle tissues in diet-induced obesity: regulation by FoxO proteins*”(PI; 1 Co-applicant: E. Roudier), 2013-2017

NSERC Discovery Grant (renewal);

“*Regulation of capillary sprouting and stabilization in skeletal muscle*”

\$165,000 total funding (5 years), 2013-2018

E.R Mandel, E.C. Dunford, G. Abdifarkosh, P. C. Turnbull, C.G.R. Perry, M.C. Riddell and T.L. Haas. The superoxide dismutase mimetic tempol does not alleviate glucocorticoid-mediated rarefaction of rat skeletal muscle capillaries. Physiol Rep, accepted March 2017

E. Nwadozi, E. Roudier, E. Rullman, S. Tharmalingam, H. Liu, T. Gustafsson, T.L. Haas. Endothelial FoxO proteins impair insulin sensitivity and restrain muscle angiogenesis in response to high fat diet. FASEB J. 2016 Sep;30(9):3039-52.

Hamadeh, Mazen J.

Minor Research Grant, Faculty of Health, York University, \$3,000 (PI)

Does vitamin D deficiency affect spinal cord endoplasmic reticulum stress and related apoptosis in amyotrophic lateral sclerosis?

Kolahdouzan M, Hamadeh MJ. The neuroprotective effects of caffeine in neurodegenerative diseases. *CNS Neurosci Ther* 2017;23:272-290. doi: 10.1111/cns.12684

Hood, David A.

NSERC Tier I **Canada Research Chair** in Cell Physiology (2nd renewal, January, 2017 start)

NSERC Research Tools and Instruments Grant *UPLC System for Muscle Health Research*, \$143,809, 2017

NSERC Discovery Grant *Mitochondrial Biogenesis in Skeletal Muscle*, \$65,000 per year, 2016-20

Canadian Institutes for Health Research (CIHR) Research Grant

Mitochondria in Aging Skeletal Muscle, \$117,937 per year, 2013-18

Mesbah Moosavi Z.S. and D.A. Hood. The unfolded protein response in relation to mitochondrial biogenesis in skeletal muscle cells. *Am. J. Physiol. Cell Physiol.* 2017 (April).

Hynes, Loriann

University of North Carolina, Chapel Hill 2017

“Role of Rehabilitation in Concussion Management: A Randomized Control Trial.”

Data Collection Site Principal Investigator (3 years)

YUFA Teaching and Learning Development Grant 2017

“Exploring the Experiences of Learners Exposed to Simulated person Methodology Within an Athletic Therapy Course.” (One-time Award), Co-Investigator

York University Junior Faculty Fund 2016

“Applying Simulated Person Methodology as Part of a Scenario-Based Skills Evaluation in an Athletic Therapy course” (One-time Award), Co-Investigator

Miller MB, Macpherson AK, Hynes LM. Athletic Therapy Students’ Perceptions of High Fidelity Manikin Simulation: A Pilot Study. *Athletic Training Education Journal*, *Submitted: Under Review*

Kuk, Jennifer L.

Lee S, Kuk JL: Visceral fat is associated with the racial differences in non-alcoholic fatty liver disease between black and white adolescent boys with obesity (Pediatric Diabetes – In Press).

Christensen R, Raiber L, Wharton S, Kuk JL: The associations of resting metabolic rate with chronic conditions and weight loss (Clinical Obesity – 2017 Apr;7(2):70-76. doi: 10.1111/cob.12178. Epub 2017 Feb 7).

Christensen R, Raiber L, MacPherson A, Kuk JL: The association between obesity and sinus infection in adults: A cross-sectional study. (Clinical Obesity – In Press)

Raiber L, Christensen R, Jamnik VK, Kuk JL: Accelerometer Thresholds: Accounting for Body Mass Reduces Discrepancies between Measures of Physical Activity for Individuals with Overweight and Obesity. (APNM – In Press)

Fung MDT, Wharton S, MacPherson A, Kuk JL: Receptivity to Bariatric Surgery in Qualified Patients (J Obesity – 2016;2016:5372190. doi: 10.1155/2016/5372190. Epub 2016 Jul 19).

Kuk JL and Wharton S: Differences in Weight Change Trajectory Patterns in a Publicly Funded Adult Weight Management Center (Obesity Science & Practice – – 2(2): 215-223, 2016). doi: 10.1002/osp4.35.

Lee J, Kuk JL, Ardern CI: The relationship between changes in sitting time and mortality in post-menopausal US women. (J Public Health (Oxf). 38(2):270-8, Jun 2016. doi: 10.1093/pubmed/fdv055. Epub May 1, 2015).

McDermott, John C.

Renewal of McLaughlin Research Chair, Faculty of Science 2017-2022

NSERC Discovery Grant Renewal (awarded April 2017).

MITACS accelerate grant (awarded Dec 2016) A collaboration with Sanofi-Pasteur, Markham, ON, Canada

Tobin, SW., Yang, D., Girgis, J., Farahzad, A., Blais, A. and McDermott JC. Regulation of Hspb7 by MEF2 and AP-1: implications for Hspb7 in muscle atrophy. **J Cell Sci.** 2016 Nov 1;129(21):4076-4090.

Pagiatakis C, Sun D, Tobin SW, Miyake T, McDermott JC. TGF β -TAZ/SRF signalling regulates vascular smooth muscle cell differentiation. **FEBS J.** 2017 Mar 25. doi: 10.1111/febs.

Perry, Christopher G. R.

Dean's Award for Excellence in Research: Early Career (Faculty of Health, York University)

CO-PI, Operating: **Centre for Sport Research** (Centrum för Idrottsforskning)

RNAseq analyses of human muscle responses to exercise, P.I.: J. Norrbom, Karolinska Institutet, Stockholm, Sweden, **Total award: 90,000 SEK (~\$13,500 CAD).**

PI, Operating: **Rare Disease Foundation** Microgrant

A novel mitochondrial-therapy to treat Duchenne muscular dystrophy, **Total: \$3,375**

Perry CGR. Mitochondrial adaptations to exercise in human skeletal muscle: a possible role for cristae density as a determinant of muscle fitness. *Accepted in J Physiol. (Jan 2017, Invited Perspectives)*

Ydfors M, Hughes MC, Laham R, Schlattner U, Norrbom J, Perry CGR. Modeling in vivo creatine/phosphocreatine in vitro reveal divergent adaptations in human muscle mitochondrial respiratory control by ADP post-exercise. *J Physiol. Jun 1; 594(11): 3127-40, 2016.* *These authors contributed equally to this investigation.

Riddell, Michael C.

JDRF Operating Grant.

Preclinical drug development of somatostatin receptor 2 antagonists for the prevention of recurrent hypoglycemia in type 1 diabetes. Grant JDRF 2-SRA-2014-268-M-R. \$286,920.04 (10/01/2014 - 09/30/2016).

NSERC Discovery Grant (individual- 3rd renewal)

Examining the mechanisms for the lipolytic and antilipolytic effects of glucocorticoids in adipose tissue. Grant #261306, \$165,000 (2013-2017)

Clinical Research Grant held at LMC Diabetes

Optimal Insulin Correction Factor in Post- High Intensity Exercise Hyperglycemia in Adults with Type 1 diabetes: The FIT Study. Aronson, R & Riddell, MC. LMC Diabetes and Manna Research. Sanofi Investigator Initiated Study. €461,689.00.

NIH Operating Grant

Control systems for Artificial Pancreas use during and after exercise #1DP3DK101075-01 \$2,478,076 (2013-2017) Subcontract to York= \$364,000.

Riddell MC, Gallen IW, Smart CE, Taplin CE, Adolfsson P, Lumb AN, Kowalski A, Rabasa-Lhoret R, McCrimmon RJ, Hume C, Annan F, Fournier PA, Graham C, Bode B, Galassetti P, Jones TW, Millán IS, Heise T, Peters AL, Petz A, Laffel LM. Exercise management in type 1 diabetes: a consensus statement. *Lancet Diabetes Endocrinol.* 2017 Jan 23. pii: S2213-8587(17)30014-1.

Roudier, Emilie

CIHR Operating Grant 2013-2017 (Co-applicant): *Microvascular remodeling of the adipose and muscle tissues in diet-induced obesity: regulation by FoxO proteins.* Principal investigator Dr. Tara Haas, Funding: 400K CAD for 4 years

York Academic Equipment Funds Grant to sustain the project related to experiential learning about the microvasculature, 6,000 CAD

York University Minor Research Grant, Faculty of Health

“Investigating the effects of statins on endothelial Mdm2 pathway and its downstream effectors” To facilitate collaboration with clinicians at St Michael Hospital, 1,900CAD

MITACS, Graduate student mobility: Globalink research award, A Community-Driven Solution for Improving Vascular Function in Active Healthy Kids (Campus France. Secondary supervisor)

Emmanuel Nwadozi, Emilie Roudier, Eric Rullman, Sujeenthar Tharmalingam, Hsin-yi Liu, Thomas Gustafsson, Tara L. Haas. Endothelial FoxO proteins impair insulin sensitivity and restrain muscle angiogenesis in response to high fat diet. *FASEB J.* 2016 Sep;60(9):3039-52.

Scime, Anthony

Porras, DP, Abbaszadeh, M, Bhattacharya D, D’Souza NC, Edjiu NR, Perry CGR and Scimè A. (2017). p107 determines a metabolic checkpoint required for adipocyte lineage fates. *Stem Cells.* 2017 May;35(5):1378-1391.

Bhattacharya D, Ydfors M, Hughes MC, Norrbom J, Perry CG and Scimè A. (2017). Decreased transcriptional corepressor p107 is associated with exercise-induced mitochondrial biogenesis in human skeletal muscle. *Physiol Rep.* 2017 Mar;5(5). pii: e13155.

Tsushima, Robert

Feridooni HA, Kane AE, Ayaz O, Boroumandi A, Polidovitch N, Tsushima RG, Rose RA, Howlett SE. [The impact of age and frailty on ventricular structure and function in C57BL/6J mice.](#) *J Physiol.* 2017 May 14. doi: 10.1113/JP274134.

Cumulative Financial Statement

ORU: Muscle Health Research Centre							
Cost Centre: 157001							
					3 Year Rolling Budget		
Account Description	2013-14 Actuals	2014-15 Actuals	2016-17 Actuals	Comments	2017-18	2018-19	2019-20
Revenue:							
Base Allocation from Central			n/a		\$ -	\$ -	\$ -
VPRI support (CR, stipend, operating)			n/a		\$ -	\$ -	\$ -
Faculty support			\$39,704.35	Year end allocation to balance. Support in 18-19 and beyond is placeholder; not yet committed.	\$ 37,206.80	\$ 37,206.80	\$ 37,206.80
Endowment Revenue			n/a		\$ -	\$ -	\$ -
Indirect Costs (Overhead)			\$2,820.16		\$ 3,000.00	\$ 3,000.00	\$ 3,000.00
Support from Grants and Contracts			n/a				
Other Internal Revenue			\$500.00	total internal support for Muscle Health Awareness Day	\$ 2,000.00	\$ 2,000.00	\$ 2,000.00
Other External Revenue			\$6,110.00	External Muscle Health Awareness Day Conference and MHRC Career Day support, including registration fees and sponsorship from external sources	\$ 6,000.00	\$ 6,000.00	\$ 6,000.00
TOTAL REVENUE			\$49,134.51		\$48,206.80	\$48,206.80	\$48,206.80
Expenses:							
Total Faculty Admin. Sal & Ben			\$7,596.19	Director Stipend + Benefits	\$ 7,596.19	\$ 7,596.19	\$ 7,596.19
Total Research Staff Sal & Ben			n/a		\$ -	\$ -	\$ -
Total Support Staff Sal & Ben			\$22,360.61	Centre Coordinator Salary + Benefits	\$ 22,360.61	\$ 22,360.61	\$ 22,360.61
Total Other Salaries & Ben			\$5,563.82	Honoraria, housing, food and travel costs for guests/invited speakers and associated costs for their seminar presentation at York University (excluding MHAD guests)	\$ 5,000.00	\$ 5,000.00	\$ 5,000.00
Total Equipment			\$1,734.29	Equipment purchases and machine shop services	\$ 1,000.00	\$ 1,000.00	\$ 1,000.00

