

CURRICULUM VITAE

Carrie G. McLean (Sharoff), Ph.D.

TRAINING

**National Research Service Award for Individual Postdoctoral Fellowship (F32)
(2010-2012)**

National Institute of Health, NIDDK
Arizona State University/Mayo Clinic, Center for Metabolic Biology
Mentor: Lawrence Mandarin, Ph.D.

Postdoctoral Fellowship (2008-2010)

American Diabetes Association
Arizona State University/Mayo Clinic, Center for Metabolic Biology
Mentor: Lawrence Mandarin, Ph.D.

Doctor of Philosophy (2008)

Kinesiology, concentration in Exercise Energy Metabolism

University of Massachusetts, Amherst,
Dissertation: The Combined Effects of Metformin and Exercise on AMPK, Insulin action and
Substrate Metabolism in Insulin Resistant Individuals
Mentor: Barry Braun, Ph.D.

Masters of Science (2004)

Exercise Science, concentration in Energy Metabolism

University of Massachusetts, Amherst
Thesis: *Physiological Assessment of Insulin Action across a Range of Insulin Sensitivities*
Mentor: Barry Braun, Ph.D.

Bachelor of Arts (2000)

Political Science (with High Honors)
Binghamton University, Binghamton, New York
Honors Thesis: Factors Affecting the Implementation of the Death Penalty

HONORS

2010	NRSA Individual Fellowship (F32)
2007	1 st place award: 10 th Annual School of Public Health and Health Sciences Annual Research Day <i>University of Massachusetts, Amherst</i>
2005	Mark Connolly Memorial Masters Scholarship, New England American College of Sports Medicine
2004	3 rd place award, 7 th Annual School of Public Health and Health Sciences Annual Research Day, <i>University of Massachusetts, Amherst</i>
2003	1 st place award, 6 th Annual School of Public Health and Health Sciences Annual Research Day, <i>University of Massachusetts, Amherst</i>
2003	Member, Phi Kappa Phi Honor Society
2003	Recognition for Excellence in Teaching, Center of Continuing Education, <i>University of Massachusetts, Amherst</i>
2000	Undergraduate Honors Research, Department of Political Science

TEACHING / MENTORSHIP

Online Instruction

January 2015-present Instructor for Exercise Physiology, course number HEXPH 455 DL, offered through Massachusetts General Hospital Institute of Health Professions

Classroom Instruction

Oct. 2010 Guest Lecturer in Special Topics: Obesity. ASU
April 2009 Guest Lecturer in Advance Topics in Exercise Physiology. ASU
January 2008 Guest Lecturer in Exercise and Disease Prevention. Fitchburg State University
Jan.-May 2007 Co-instructor, Human Nutrition and Performance (KIN 110, 220 students). UMASS
Sept.-May 2005-06 Lead Teaching Assistant for Human Nutrition and Performance (KIN 110). Responsible for creating discussion class lessons and overseeing 5 other TA's. UMASS
Jan. 2002-2008 Guest Lecturer for Energy Metabolism (KIN 574). UMASS
June-Aug. 2003 & 2004 Instructor Human Physiology (KIN 205). UMASS
Sept. 2003-present Responsible for overseeing undergraduate Honors Projects in the Energy Metabolism Laboratory. UMASS
Jan. 2003-present Teaching Assistant for Energy Metabolism class (KIN 574).
Responsible for teaching sections on glycolysis, beta oxidation, energy balance, grading and overseeing group projects. UMASS
Sept. 2002-Jan. 2003 Teaching Assistant for Human Physiology class (KIN 205).
Responsible for teaching sections on excitation-contraction coupling, musculoskeletal disease, and grading. UMASS

Mentorship

2010-present Kristen Kelly
Undergraduate Honors Student
Role: Primary research mentor
Project Title: Discovering novel exercise mediated binding partners of AS160
2009-present Ryan Dyarst
Undergraduate Independent Study Student
Role: Primary research mentor
2009-present Lauren Hayes
Undergraduate Honors Student
Role: Primary research mentor
Project Title: The effect of a single bout of exercise on mitochondrial protein content: a proteomics approach

2008-2009	Patrick Undergraduate Independent Study Student Role: Primary research mentor
2008-2009	Kyle Bronstein Undergraduate Independent Study Student Role: Primary research mentor

PEER-REVIEWED PUBLICATIONS (in chronological order)

Manuscripts

1. D'Eon TM, **Sharoff C**, Chipkin SR, Grow D, Ruby BC, and Braun B. Regulation of exercise carbohydrate metabolism by estrogen and progesterone in women. *American Journal of Physiology, Endocrinology, and Metabolism*. 2002 Nov;283(5):E1046-55.
2. Braun B, **Sharoff C**, Chipkin SR, Beaudoin F. Effects of insulin resistance on blood glucose flux and substrate utilization during exercise. *Journal of Applied Physiology*. 2004 Sep; 97(3):991-7.
3. Stephens BR, Sautter J, Holtz KA, **Sharoff CG**, Chipkin SR, Braun B. Effect of timing of energy/carbohydrate replacement on post-exercise insulin action. 2007 Dec;32(6):1139-47. *Appl Physiol Nutr Metab*.
4. Braun B, Eze P, Stephens BR, Hagobian TA, **Sharoff CG**, Chipkin SR, Goldstein B. Impact of metformin on peak aerobic capacity. *Appl Physiol Nutr Metab*. 2007 Dec;32(6):1139-47.
5. Hagobian TA, **Sharoff CG**, Braun B. Effects of acute exercise and energy surplus on hormones related to regulation of energy balance. *Metabolism*. 2008 Mar;57(3):393-8.
6. Holtz KA, Stephens BR, **Sharoff CG**, Chipkin SR, Braun B. The effect of carbohydrate availability following exercise on whole body insulin action. *Appl Physiol Nutr Metab*. 2008 Oct;33(5):946-56.
7. Witczak, C, **Sharoff CG**, Goodyear, LJ. AMPK in skeletal muscle: regulation and function. *Cellular and Molecular Life Sciences*. *Cell Mol Life Sci*. 2008 Nov;65(23):3737-55. Review.
8. Malin S, Stephens BR, **Sharoff CG**, Chipkin SR, Braun B. Metformin's effect on exercise and postexercise substrate oxidation. *International Journal of Sport Nutrition and Exercise Metabolism*. 2010 Feb;20(1):63-71.
9. Hagobian TA, **Sharoff CG**, Silva E, Wade G, Chipkin SR, Braun B. Effects of exercise on energy regulating hormones in men and women. *Am J Physiol Regul Integr Comp Physiol*. 2009 Feb;296(2):R233-42. Epub 2008 Dec 10.
10. **Sharoff CG**, Hagobian TA, Malin SK, Chipkin SR, Yu H, Hirshman MF, Goodyear LJ, Braun, B. Combining short-term metformin treatment and acute exercise does not increase insulin action in insulin-resistant individuals. *Am J Physiol Endocrinol Metab*. 2010 Apr; 298(4):E815-23. Epub 2010 Jan 13.
11. **Sharoff CG***, Hussey SE* , Garnham A, Zhengping Y, Bowen B, Mandarino LJ, Hargreaves M. Effect of exercise on the skeletal muscle proteome in patients with type 2 diabetes. *Med Sci Sports Exerc*. 2013 Jun;45(6):1069-76. Doi: 10.1249/MSS.0b013e3182814917.
(*denotes authors contributed equally to the manuscript)

12. Mielke C, Lefort N, **McLean CG**, Cordova JM, Langlais PR, Bordner AJ, Te JA, Ozkan SB, Willis WT, Mandarino LJ. Adenine nucleotide translocase is acetylated in vivo in human muscle: modeling predicts a decreased ADP affinity and altered control of oxidative phosphorylation. *Biochemistry*. 2014 Jun 17;53(23):3817-29. Doi: 10.102/bi401651e. Epub 2014 Jun 9.

Book Chapters

1. **Sharoff, C.G.** Metabolic Syndrome, In: ACSM's Guidelines for Exercise Testing and Prescription 8th Ed.
2. Braun, B., **Sharoff, C.G.** Diabetes Mellitus, In: ACSM's Guidelines for Exercise Testing and Prescription 8th Ed.

Published Abstracts

1. **Sharoff, Carrie G**, Jeanine Cordova, Darwin Tsinajinnie, Dawn Colletta, Benjamin Bowen, Lawrence J. Mandarino. Global Analysis of Gene Expression and Protein Abundance Difference in Response to a Single Bout of Exercise in Insulin Resistant Humans. American Diabetes Association 71st meeting. Abstract number 770-P.
2. Moulun L, April E. Mengos, Zhengping Yi, Paul Langlais, **Carrie G. Sharoff**, Lawrence J Mandarino. Identification of Liprin beta-1 as a Novel AKT Substrate. American Diabetes Association 71st meeting. Abstract number 1494-P.
3. Darwin Tsinajinnie, Veronica Vital, Paul Langlais, Natalie Lefort, **Carrie G. Sharoff**, Gabriel Q Shaibi, Lawrence Mandarino, Dawn K. Coletta. Epigenetic Mapping of Insulin Resistance in Humans. . American Diabetes Association 71st meeting. Abstract number 1421-P.
4. Natalie Lefort, **Carrie G. Sharoff**, Sarah Kuzmiak, Zhengping Yi, Paul Langlais, Jeanince Cordova, Clinton Mielke, Sefika Ozkan, Harini Chakerra, Wayne Willis, Lawrence Mandarino. Dysregulation of Acetylation of Mitochondrial Proteins after Exercise in Insulin Resistance. . American Diabetes Association 71st meeting. Abstract number 220-OR
5. Cordova, Jeanine, **Carrie G. Sharoff**, Darwin Tsinajinnie, Harini Chakerra, Moulun Lou, Paul Langlais, Lawrence J. Mandarino. NFATc1 Activity in Human Insulin Resistant Skeletal Muscle. American Diabetes Association 71st meeting. Abstract number 145-OR.
6. **Sharoff, Carrie G.**; Langlais Paul.; Yi Zhengping.; Mandarino Lawrence J. Regulation of Novel Sites on AS160 by Insulin and AICAR. ASEB J. April 2010 24 (Meeting Abstract Supplement) 783.4
7. Luo Moulun,; Yi Zhengping,; Langlais Paul,; **Sharoff Carrie G.**; and Mandarino Lawrence J. Liprin β -1 decreases insulin receptor tyrosine phosphorylation by association with LAR-PTP. *American Diabetes Association 70th Scientific Sessions*, Orlando, Florida
8. **Sharoff, Carrie G.**; Hagobian, Todd A.; Chipkin, Stuart R.; Yu, Haiyan; Hirshman, Michael F.; Goodyear, Laurie J.; Braun, Barry. Combined Effects of Metformin and Exercise on AMPK α 2 Activity and Insulin Action in Insulin Resistant Individuals. *American Diabetes Association 67th Scientific Sessions*, McCormick Place Convention Center, 22-26 June, Chicago, IL.

9. **Sharoff, Carrie G.**; Stephens, Brooke R.; Hagobian, Todd A.; Chipkin, Stuart R.; Braun, Barry. Effects of Galactose Consumption Prior to Exercise on Blood Glucose Regulation in Individuals with Type 2 Diabetes. *American Diabetes Association 66th Scientific Sessions*, Washington DC Convention Center, 9-13 Washington DC.
10. **Sharoff, Carrie G.**; Hagobian, Todd A.; Chipkin, Stuart R.; Yu, Haiyan; Hirshman, Michael F.; Goodyear, Laurie J.; Braun, Barry. Combined Effects of Metformin and Exercise on AMPK Activity and Insulin Sensitivity in Insulin Resistant Individuals. *Medicine & Science in Sports & Exercise*. 38(11) Suppl 1:S9, November 2006.
11. Hagobian, Todd A.; **Sharoff, Carrie G.**; Stephens, Brooke R.; Chipkin, Stuart R.; Braun, Barry. Neuroendocrine Response to Short-Term Energy Surplus and Exercise. *Medicine & Science in Sports & Exercise*. 38(11) Suppl 1:S26, November 2006.
12. Stephens, Brooke R.; Hagobian, Todd A.; **Sharoff, Carrie G.**; Eze, Pamela N.; Goldstein, Benjamin; Chipkin, Stuart R.; Braun, Barry. Effects of the Antidiabetic Drug Metformin on Maximal Aerobic Capacity. *Medicine & Science in Sports & Exercise*. 38(11) Suppl 1:S13, November 2006.
13. Stephens, Brooke R.; Sautter, Jeff M.; Holtz, Kaila A.; **Sharoff, Carrie G.**; Hagobian, Todd A.; Chipkin, Stuart R.; Braun, Barry. The Influence of Meal Timing on Insulin Action Following Exercise. *Medicine & Science in Sports & Exercise*. 38(5) Supplement:S91, May 2006.
14. **Sharoff, Carrie G.**; Hagobian, Todd A.; Gerson, Laura S.; Chipkin, Stuart R.; Braun, Barry. Effects of Galactose Consumption Prior to Exercise on Blood Glucose Regulation and Exercise Performance: 732: 4:00 PM - 4:15 PM. *Medicine & Science in Sports & Exercise*. 38(5) Supplement:S37, May 2006.
15. **Sharoff, C G.**; Braun, Barry. Physiological Measurement of Insulin Action across a Range of Insulin Sensitivities. *Medicine & Science in Sports & Exercise*. 36(5) Supplement:S328, May 2004.
16. **Sharoff, C G.**; Beaudoin, F; Chipkin, S R; Braun, B. Exercise Carbohydrate Utilization in Insulin-Resistant and Insulin-Sensitive Women matched for body fatness. *Medicine & Science in Sports & Exercise*. 35(5) Supplement 1:S11, May 2003.
17. **Sharoff, C G.**; D'Eon, T M; Chipkin, S R; Grow, D; Braun, B. Regulation of Insulin Sensitivity and Leptin Concentrations by Estrogen and Progesterone. *Medicine & Science in Sports & Exercise*. 34(5) Supplement 1:S70, May 2002.
18. Braun, B; Butterfield, G E; Brooks, G A; Muza, S R; Rock, P B; **Sharoff, C G.**; Moore, L G. Ovarian Hormones Alter FFA Availability and Oxidation, but Not Flux, During Exercise in Women. *Medicine & Science in Sports & Exercise*. 34(5) Supplement 1:S240, May 2002.
19. D'Eon, T M; **Sharoff, C G.**; Chipkin, S R; Grow, D; Braun, B Regulation of Substrate Utilization by Estrogen and Progesterone During Exercise. *Medicine & Science in Sports & Exercise*. 34(5) Supplement 1:S203, May 2002.
20. Doyle, J; Ng, A V. M; **Sharoff, C G.**; Beaudoin, F; Kent-Braun, J A. Estrogen Replacement Therapy Dose Not Affect Muscle Characteristics in Healthy Post-Menopausal Women. *Medicine & Science in Sports & Exercise*. 33(5) Supplement 1:S289, May 2001.

GRANTS

National Research Service Award for Individual Postdoctoral Fellowship (F32)
Life Fitness Academy Michael L. Pollock Memorial Research Award. \$2,500.00
Graduate Student Travel Grant, Office of Grants and Contracts. \$300.00
Graduate Student Travel Grant, Office of Grants and Contracts. \$240.00
Graduate Student Travel Grant, Office of Grants and Contracts. \$150.00

SCIENTIFIC PRESENTATIONS AND INVITED TALKS

Jun 2010 Adenine nucleotide translocase is acetylated in vivo in human muscle: modeling predicts a decreased ADP affinity and altered control of oxidative phosphorylation. American Diabetes Association Meeting, [*podium presentation*]

Oct 2010 Insulin sensitivity influences genetic changes in response to a single bout of exercise in sedentary humans. Mayo-Karolinska Exercise meeting, [*invited talk*]

April 2010 Regulation of Novel Sites on AS160 by Insulin and AICAR. Experimental Biology, [*poster presentation*]

June 2008 Short-term Metformin Treatment Added to a Single Bout of Exercise Does Not Improve Insulin Sensitivity. ACSM, [*symposium presentation*]

June 2007 Combined Effects of Metformin and Exercise on AMPK $\alpha 2$ Activity and Insulin Action in Insulin Resistant Individuals. American Diabetes Association, [*poster presentation*].

Sept. 2006 Combined Effects of Metformin and Exercise on AMPK Activity and Insulin Sensitivity in Insulin Resistant Individuals. Integrative Physiology of Exercise, [*poster presentation*].

June 2006 Effects of Galactose Consumption Prior to Exercise on Blood Glucose Regulation and Exercise Performance. American College of Sports Medicine, [*podium presentation*]

Nov. 2005 Effects of Galactose Consumption Prior to Exercise on Blood Glucose Regulation and Exercise Performance. New England Chapter, ACSM, [*podium presentation*]

Dec. 2004 Does Exercise Without Weight Loss Decrease Risk of Developing Type 2 Diabetes. UMASS, Department of Nutrition, Departmental Seminar, [*invited talk*]

Oct. 2004 Physiological Assessment of Insulin Action Across a range of Insulin Sensitivities. Integrative Biology of Exercise, [*poster presentation*]

June 2004 Physiological Assessment of Insulin Action Across a range of Insulin Sensitivities. American College of Sports Medicine, [*podium presentation*]

Nov. 2003 Peripheral Insulin Action Measured with a Modified CIGMA protocol and an Oral Glucose Tolerance Test. New England Chapter, ACSM [*podium presentation*]

May 2003 The effects of Insulin Resistance on Blood Glucose Flux on Substrate Utilization during Exercise. American College of Sports Medicine, [*podium presentation*]

- Nov. 2002 Exercise Carbohydrate Utilization in Insulin-Resistant and Insulin Sensitive Women Matched for Body Fatness. New England Chapter, ACSM [*podium presentation*]
- Dec. 2002 Dose-response Relationship between Exercise Volume and Insulin Sensitivity. Glass Symposium on Exercise Diabetes Reversal [*invited talk*]
- May 2002 Regulation of Insulin Sensitivity and Leptin Concentrations by Estrogen and Progesterone. American College of Sports Medicine, [*poster presentation*]

PROFESSIONAL SOCIETY MEMBERSHIPS AND SERVICE

- American Diabetes Association
- American College of Sports Medicine (National and New England Chapter).
- American Physiological Society
- Served as the Postdoctoral Trainee on the board of the Arizona Chapter of the American Physiological Society (2008-2009)
- Judge for 8th Annual Arizona Student research Conference (2010)
- Helped develop and implement the first and second annual “Diabetes Awareness Day” at the University of Massachusetts Amherst. November 2003 and 2004
- Helped develop and run the University of Massachusetts “DEXA Day” where all university employees could receive a DEXA scan and learn about the health effects of high body fat and low bone mineral density. March 2003
- Panelist/speaker at the University of Massachusetts “A PhD is Not Enough” symposium. November 2006
- Panelist/speaker at the University of Massachusetts Residential Hall Employee Health Fair. December 2006
- Lab representative for the Department of Kinesiology “Translating Research to the Community” open house. December 2005