
Sean Alec Newsom, Ph.D.

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School of Biological and Population Health Sciences
College of Public Health and Human Sciences
Oregon State University
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PRESENT POSITION

Assistant Professor | Kinesiology 2015-Present
School of Biological and Population Health Sciences
College of Public Health and Human Sciences
Oregon State University, Corvallis, OR

EDUCATION AND TRAINING

Postdoctoral Fellow Endocrinology, Metabolism and Diabetes 2014-2015
University of Colorado School of Medicine, Aurora, CO
Mentor: Bryan C. Bergman, Ph.D.

Postdoctoral Fellow Pediatrics – Neonatology 2012-2014
University of Colorado School of Medicine, Aurora, CO
Mentor: Jacob E. Friedman, Ph.D.

Ph.D. Kinesiology – Exercise Physiology 2007-2012
University of Michigan, Ann Arbor, MI
Mentor: Jeffrey F. Horowitz, Ph.D.

M.S. Health and Exercise Science – Exercise and Nutrition 2005-2007
Colorado State University, Fort Collins, CO
Mentor: Christopher Bell, Ph.D.

B.S. Kinesiology – Exercise Science 2000-2004
Michigan State University, East Lansing, MI
Mentor: Christopher J. Womack, Ph.D.

HONORS AND AWARDS

2012 Charles M. Tipton National Student Research Award - *American College of Sports Medicine*
2011 Paul A. Hunsicker Memorial Award - *School of Kinesiology, University of Michigan*
2009 Student's Choice Graduate Teacher of the Year - *School of Kinesiology, University of Michigan*
2009 Shirley Cooper International Research Travel Award - *School of Kinesiology, University of Michigan*
2008 Outstanding Graduate Student Instructor Nominee - *University of Michigan*
2007 First Place Abstract and Oral Presentation - *Rocky Mountain American College of Sports Medicine*
2004 Outstanding Senior Award - *Department of Kinesiology, Michigan State University*
2004 High Honor Graduate - *Michigan State University*

GRANT SUPPORT

ACTIVE

Nutrition Obesity Research Center Pilot & Feasibility Grant (PI: Newsom) 09/14-08/15

University of Colorado School of Medicine

Title: *Exercise-induced skeletal muscle diacylglycerol localization and composition*

The goal of this project is to determine whether a single session of exercise is sufficient to favorably alter skeletal muscle diacylglycerol localization and composition, and to determine the exercise-induced pathways responsible for altered diacylglycerol trafficking.

Role: Principal Investigator

Total Direct Funds: \$20,000

COMPLETED

T32 DK 07658-18 (PI: Krebs)

05/14-04/15

NIH/NIDDK Nutrition Research Fellowship Training Grant

Title: *Exercise-induced skeletal muscle diacylglycerol localization and composition*

The goal of this project is to determine whether a single session of exercise is sufficient to favorably alter skeletal muscle diacylglycerol localization and composition, and to determine the exercise-induced pathways responsible for altered diacylglycerol trafficking.

Role: PI/Postdoctoral Fellow (Research)

F32 DK 095509 (PI: Newsom)

05/12-04/14

NIH/NIDDK Ruth L. Kirschstein National Research Service Award

Title: *Role of Sirt3 in modulation of lipotoxicity in liver*

The goal of this project was to determine whether rescuing Sirt3 activity in the face of caloric excess may be sufficient to rescue liver function and attenuate the progression of metabolic disease.

Role: PI/Postdoctoral Fellow (Research)

Rackham Predoctoral Fellowship (PI: Newsom)

09/10-08/11

University of Michigan Rackham Graduate School

Title: *Effects of acute exercise and nutrient intake on muscle fat metabolism and insulin resistance in obesity*

The goal of this project was to improve understanding of the regulation of insulin action after exercise and enhance exercise and dietary lifestyle programs aimed at maximizing metabolic benefits of each exercise session in obese individuals.

Role: Predoctoral Fellow (Research)

PEER REVIEWED PUBLICATIONS

1. **Newsom SA**, RJ Paxton, GM Rynn, and C Bell. Oxidative stress and thermic effect of feeding in overweight and obese adults. *Obesity* 16(8): 1749-1754, 2008 PMID:18551121
2. **Newsom SA**, S Schenk, KM Thomas, MP Harber, ND Knuth, N Goldenberg, and JF Horowitz. Energy deficit after exercise augments lipid mobilization but does not contribute to the exercise-induced increase in insulin sensitivity. *J Appl Physiol* 108(3):554-560, 2010 PMID:20044472 PMCID:PMC2838634
3. **Newsom SA**, JC Richards, TK Johnson, JN Kuzma, MC Lonac, RJ Paxton, G Rynn, WF Voyles, and C Bell. Short-term sympathoadrenal inhibition augments the thermogenic response to beta-adrenergic receptor stimulation. *J Endocrinol* 206(3):307-315, 2010 PMID:20603265
4. **Newsom SA**, S Schenk, M Li, AC Everett, and JF Horowitz. High fatty acid availability after exercise alters the regulation of muscle lipid metabolism. *Metabolism* 60(6):852-859, 2011 PMID:20870251 PMCID:PMC3011035
5. Paxton RJ, MP Malcolm, **SA Newsom**, JC Richards, GM Rynn, and C Bell. Sympathetic responses to repetitive trans-spinal magnetic stimulation. *Clin Auton Res* 21(2):81-87, 2011 PMID:21113641
6. **Newsom SA**, AC Everett, A Hinko, and JF Horowitz. A single session of low intensity exercise is sufficient to enhance insulin sensitivity into the next day in obese adults. *Diabetes Care* 36(9):2516-2522, 2013 PMID:23757424 PMCID:PMC3747878
7. Boyle KE, **SA Newsom**, RC Janssen, M Lappas, and JE Friedman. Skeletal muscle MnSOD, mitochondrial complex II, and SIRT3 enzyme activities are decreased in maternal obesity during human pregnancy and gestational diabetes mellitus. *J Clin Endocr Metab* 98(10):E1601-E1609, 2013 PMID:23956348 PMCID:PMC3790616
8. **Newsom SA**, KE Boyle, and JE Friedman. Sirtuin 3: A major control point for obesity-related metabolic diseases? *Drug Discov Today Dis Mech* 10(1-2):e35-e40, 2013 PMID:23997790 PMCID:PMC3756827
9. Thorn SR, K Baquero, **SA Newsom**, KC El Kasmi, BC Bergman, GI Shulman, KL Grove, and JE Friedman. Maternal insulin resistance programs juvenile hepatic steatosis and inflammation. *Diabetes* 63(10):2702-2013, 2014 PMID:24705404 PMCID:PMC4113070

10. Van Pelt, DW, **SA Newsom**, S Schenk, and JF Horowitz. Systemic fatty acid availability and skeletal muscle inflammatory pathway activation may contribute to the variability in insulin sensitivity found in obesity. *Int J Obes* 39(1):149-155, 2015 PMID: 24785103 PMCID:PMC4216778
11. **Newsom SA**, AC Everett, S Park, DW Van Pelt, A Hinko, and JF Horowitz. Lipid mixtures containing a high proportion of saturated fatty acids only modestly impair insulin signaling in cultured muscle cells. *PLoS One* 10(3):e0120871 PMID:25793412 PMCID:PMC4368748

ABSTRACTS

1. **Newsom SA**, RJ Paxton, LM Trombley, WF Voyles, and C Bell. Use of clonidine to treat hypertension: implications for regulation of resting metabolism. North American Association for the Study of Obesity - 2006
2. **Newsom SA**, RJ Paxton, LM Trombley, WF Voyles, and C Bell. Use of clonidine to treat hypertension: implications for regulation of resting metabolism. American College of Sports Medicine Rocky Mountain Chapter - 2006
3. Paxton RJ, MP Malcolm, **SA Newsom**, GM Rynn, HW Maddox, D Strevey, SK Little, JC Richards, RJ Supon, KR Heulin, and C Bell, Manipulation of the sympathetic nervous system with repetitive trans-spinal magnetic stimulation in healthy adult humans. American College of Sports Medicine Rocky Mountain Chapter - 2006
4. Maddox HW, **SA Newsom**, RJ Paxton, GM Rynn, MK Tran, DR Strevey, SK Little, and C Bell. Influence of ascorbic acid on the thermic effect of feeding in overweight and obese adults. American College of Sports Medicine Rocky Mountain Chapter - 2006
5. Bell C, **SA Newsom**, RJ Paxton, HW Maddox, GM Rynn, MK Tran, DR Strevey, and SK Little. Influence of ascorbic acid on the thermic effect of feeding in overweight and obese adults. North American Association for the Study of Obesity - 2007
6. Paxton RJ, MP Malcolm, **SA Newsom**, GM Rynn, HW Maddox, D Strevey, SK Little, JC Richards, RJ Supon, KR Heulin, and C Bell, Manipulation of the sympathetic nervous system with repetitive trans-spinal magnetic stimulation in healthy adult humans. Federation of American Societies for Experimental Biology - 2008
7. **Newsom SA**, S Schenk, and JF Horowitz. Fat oxidation tracks with fatty acid availability at low but not high plasma fatty acid concentrations. Federation of American Societies for Experimental Biology Annual Meeting - 2008
8. **Newsom SA**, RJ Paxton, JC Richards, GM Rynn, WF Voyles, and C Bell. Influence of Short-Term Inhibition of sympathetic nervous system activity on thermogenic response to beta-adrenergic receptor stimulation. North American Association for the Study of Obesity - 2008
9. **Newsom SA**, KM Thomas, S Schenk, MP Harber, ND Knuth, N Goldenberg, and JF Horowitz. Reducing dietary fat from meals after exercise enhances muscle glycogen resynthesis. Integrative Biology of Exercise - 2008
10. **Newsom SA**, KM Thomas, S Schenk, MP Harber, ND Knuth, N Goldenberg, and JF Horowitz. Energy deficit after exercise may not contribute to the exercise-induced increase in insulin sensitivity. International Biochemistry of Exercise Conference - 2009
11. **Newsom SA**, KM Thomas, S Schenk, MP Harber, ND Knuth, N Goldenberg, and JF Horowitz. Energy deficit after exercise may not contribute to the exercise-induced increase in insulin sensitivity. Exercise in the Management and Prevention of Metabolic Disease symposium at the Karolinska Institute of Stockholm, Sweden - 2009
12. Tracy B, C Bell, C Feldman, L Hitchcock, **S Newsom**, R Paxton, J Richards, W Voyles, and S Welsh. Reduced motor output fluctuations with sympathetic inhibition: potential age-related differences. Society for Neuroscience - 2009

13. **Newsom SA**, S Schenk, M Li, AC Everett, and JF Horowitz. Elevated fatty acid availability after exercise increases intramyocellular triglyceride content by enhancing capacity for fatty acid flux into skeletal muscle. Federation of American Societies for Experimental Biology - 2010
14. **Newsom SA**, S Schenk, MP Harber, CF Burant, and JF Horowitz. Insulin sensitivity is lowest in obese women with high rates of fatty acid uptake. American College of Sports Medicine Conference on the Integrative Physiology of Exercise - 2010
15. **Newsom SA**, AC Everett, and JF Horowitz. A single session of exercise improves insulin sensitivity in obese adults: effects of exercise intensity. American College of Sports Medicine - 2011
16. **Newsom SA**, AC Everett, A Hinko, and JF Horowitz. Improved insulin sensitivity the day after a modest session of exercise in obese adults. American College of Sports Medicine - 2012
17. **Newsom SA**, AC Everett, A Hinko, and JF Horowitz. The severe impairment in insulin signaling with palmitate in cultured muscle cells not found with physiologic mixtures of fatty acids. American Diabetes Association - 2012
18. Park S, JP Gumucio, A Hinko, **SA Newsom**, and JF Horowitz. Insulin signaling in myotubes derived from obese adults was not impaired in response to a mixture of fatty acids resembling that found in human plasma. Integrative Biology of Exercise - 2012
19. Thorn SR, **SA Newsom**, R Aikens, RC Janssen, K Baquero, DL Takahashi, A Kostuba, KL Grove, and JE Friedman. Exposure to maternal high fat diet suppresses mitochondrial number and SIRT3 in non-human primate fetal liver: Further evidence for lipotoxicity in utero. Keystone Symposia Conference – Diabetes: New Insights into Mechanism of Disease and its Treatment - 2013
20. Van Pelt, DW, **SA Newsom**, S Schenk, and JF Horowitz. Systemic fatty acid availability and skeletal muscle inflammatory pathway activation may contribute to the variability in insulin sensitivity found in obesity. Federation of American Societies for Experimental Biology - 2013
21. Boyle KE, **SA Newsom**, RC Janssen, M Lappas, and JE Friedman. Decreased Sirt3 activity contributes to oxidative stress and mitochondrial dysfunction in skeletal muscle of obese women during pregnancy. American Diabetes Association - 2013
22. Thorn SR, **SA Newsom**, R Aikens, RC Janssen, K Baquero, DL Takahashi, A Kostuba, KL Grove, and JE Friedman. Maternal resveratrol supplementation reverses fetal hepatic lipid accumulation during maternal high fat diet exposure in non-human primate: Effects on mitochondrial activity and stress signals. Endocrinology Society - 2013
23. **Newsom SA**, CM Castorena, RC Janssen, GD Cartee, and JE Friedman. No evidence for impaired hepatic mitochondrial acetylation with acute high fat diet-induced insulin resistance and hepatic lipid accumulation. Keystone Symposia Conference – Obesity: A Multisystems Perspective – 2014
24. Danjun MA, **SA Newsom**, X Zhang, Y Qi, JF Horowitz, and Z Yi. Exercise regulation on skeletal muscle phosphoproteome in obese insulin resistant adults. American Diabetes Association – 2014
25. **Newsom SA**, AK Kerege, L Perreault, and BC Bergman. Improved skeletal muscle diacylglycerol localization and composition after a single session of exercise. American Diabetes Association – 2015

BOOK CHAPTERS

1. **Newsom SA** and S Schenk. Interaction between lipid availability, endurance exercise, and insulin sensitivity. *Medicine and Sports Science: Physical Activity and Diabetes*. Goedecke J, Ojuka EO (Eds). Karger Medical and Scientific Publishers, Basel, Switzerland. Vol. 60, 2014 PMID: 25226801

INVITED PRESENTATIONS

1. Health 101: A 60 Minute Guide to Physical Activity and Nutrition. *University of Michigan Air Force ROTC Annual Health and Wellness Lecture* – 2007
2. Metabolic research at the Michigan Clinical Research Unit: Horowitz Lab Studies. *Michigan Clinical Research Unit Continuing Education Seminar Series* – 2010

3. Fatty acid partitioning: A major determinant of insulin sensitivity? *Colorado State University Health and Exercise Science Seminar Series* – 2012
4. Sirtuin 3: A therapeutic target for treatment of fatty liver? *University of Colorado School of Medicine Division of Endocrinology, Metabolism, and Diabetes Endocrine Research Conference* – 2013
5. Improving metabolic health through translational science and refocused lifestyle interventions. *Oregon State University School of Biological and Population Health Sciences Seminar Series* – 2014
6. Altered skeletal muscle diacylglycerol localization and composition after exercise. *University of Colorado School of Medicine Nutrition Seminar Series* – 2014

INVITED REVIEWER FOR PROFESSIONAL JOURNALS

Applied Physiology, Nutrition, and Metabolism
American Journal of Physiology – Endocrinology and Metabolism
American Journal of Physiology – Regulatory, Integrative and Comparative Physiology
Biochimica et Biophysica Acta
Diabetes, Obesity and Metabolism
Endocrine
Endocrinology
Experimental Physiology
International Journal of Sports Medicine
Journal of Applied Physiology
Journal of Sport Sciences
PLoS One
Physiological Genomics
Scientific Reports

INVITED REVIEWER FOR GRANT PROPOSALS

2014 University of Michigan Nicholas Leoni Endowment Fund
2013 Central Michigan University Early Career Research Grant

PROFESSIONAL SERVICE

College of Health and Human Sciences Emerging Leaders Council <i>Colorado State University - Council Member</i>	2012-2015
Center for Exercise Research Journal Club <i>University of Michigan - Group Chair</i>	2009-2012
Curriculum Instruction and Advisory Group for the School of Kinesiology <i>University of Michigan - Graduate Student Representative</i>	2008-2011
Michigan Graduate Education Day at the State Capitol Building <i>University of Michigan Graduate Student Representative</i>	2010
Rackham Graduate School Academic Dispute Resolution Advisory Board <i>University of Michigan - School of Kinesiology Representative</i>	2009
Studying Movement: The Kinesiology Road to Healthcare Careers <i>University of Michigan - Movement Science Discipline Representative</i>	2009

PROFESSIONAL DEVELOPMENT

Grant Writer's Seminars and Workshops <i>Oregon State University College of Public Health and Human Sciences</i>	2014
Laboratory Management <i>University of Colorado School of Medicine</i>	2014

Colorado Mentoring Training Program (CO-Mentor) <i>University of Colorado School of Medicine</i>	2013-2014
Grant Writing Approach: What to do before your write <i>University of Colorado School of Medicine</i>	2013
Responsible Conduct of Research Training <i>University of Colorado School of Medicine</i>	2012-2013

STUDENT MENTORSHIP

Allison C. Everett - Senior Honors Thesis - University of Michigan <i>The effect of graded doses of a physiologic fatty acid mixture on lipid accumulation and metabolism in cultured muscle cells</i>	2009-2012
Kristin M. Thomas - Senior Honors Thesis - University of Michigan <i>Reduced carbohydrate intake after exercise contributes to enhanced insulin sensitivity</i>	2007-2009

TEACHING EXPERIENCE

<u>University of Colorado School of Medicine</u>	
IDPT 7823 - Systems Biology of Energetics – Discussion Group Leader	
<u>University of Michigan</u>	
MVS 340 - Exercise Physiology – Laboratory Instructor, Guest Lecturer	
MVS 250 - Statistics – Guest Lecturer	
<u>Colorado State University</u>	
EX 403 - Physiology of Exercise – Laboratory Instructor, Guest Lecturer	
EX 240 - First Aid and Emergency Care – Instructor	
EX 123 - Fitness and Wellness – Laboratory Instructor	
EX 101-B - Intermediate Tennis – Instructor	
EX 100-E - Beginning Tennis – Instructor	
EX 100-O - Beginning Weight Training – Instructor	

PROFESSIONAL REFERENCES

Bryan C. Bergman, Ph.D. 303.724.3921 bryan.bergman@ucdenver.edu	Associate Professor – <i>Postdoctoral Training Mentor</i> Endocrinology, Metabolism and Diabetes University of Colorado School of Medicine, Aurora, CO
Jacob E. Friedman, Ph.D. 303.724.3983 jed.friedman@ucdenver.edu	Professor – <i>Postdoctoral Training Mentor</i> Pediatrics, Biochemistry & Molecular Genetics University of Colorado School of Medicine, Aurora, CO
Jeffrey F. Horowitz, Ph.D. 734.647.1076 jeffhoro@umich.edu	Professor – <i>Doctoral Training Mentor</i> Kinesiology University of Michigan, Ann Arbor, MI
Gregory D. Cartee, Ph.D. 734.615.3458 gcartee@umich.edu	Professor – <i>Doctoral Training Committee Member</i> Kinesiology, Molecular & Integrative Physiology University of Michigan, Ann Arbor, MI
Charles F. Burant, M.D., Ph.D. 734.615.3481 burantc@med.umich.edu	Professor – <i>Doctoral Training Committee Member</i> Internal Medicine, Molecular & Integrative Physiology University of Michigan, Ann Arbor, MI
Christopher Bell, Ph.D. 970.491.7522 cbell@colostate.edu	Associate Professor – <i>Masters Training Mentor</i> Health and Exercise Science Colorado State University, Fort Collins, CO