

Courtney M. Peterson, PhD, MSc, MS, MAST

Assistant Professor

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RESEARCH INTERESTS

Dietary interventions to mitigate diabetes, obesity, and cardiovascular disease, particularly in the realms of meal timing, intermittent fasting, and botanical-rich foods. Mathematical modeling of energy and carbohydrate metabolism and body composition.

PROFESSIONAL EXPERIENCE

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|----------------------------|---|
| May 2016 – present | Assistant Professor
Department of Nutrition Sciences
University of Alabama at Birmingham |
| July 2014 – April 2016 | Assistant Professor, Research, LA CaTS Roadmap Scholars Fellowship
Skeletal Muscle Physiology Lab, Pennington Biomedical Research Center
Mentor: Eric Ravussin, Ph.D. |
| August 2013 – June 2014 | Instructor, LA CaTS Roadmap Scholars Fellowship
Skeletal Muscle Physiology Lab, Pennington Biomedical Research Center
Mentor: Eric Ravussin, Ph.D. |
| September 2011 – July 2013 | Postdoctoral Fellow, NIH T32 Obesity Fellowship
Skeletal Muscle Physiology Lab, Pennington Biomedical Research Center
Mentor: Eric Ravussin, Ph.D. |

EDUCATION

Tulane University, New Orleans, LA
M.S., Clinical Research, May 2015

Harvard University, Cambridge, MA
Ph.D., Physics, 2011

Imperial College London, London, England
M.Sc., Science Communication, 2004

University of Cambridge, Trinity College, Cambridge, England
MASt, Applied Mathematics & Theoretical Physics, *First-Class Honors*, 2003

Georgetown University, Washington, DC
B.S., Physics, Biology, *Summa cum laude, Phi Beta Kappa*, Class Rank: 3, 2002

FELLOWSHIPS AND SCHOLARSHIPS

2015 – 2017	KL2 Career Development Award , Center for Clinical and Translational Sciences at the University of Alabama at Birmingham
2013 – 2015	LA CaTS Roadmap Scholars Fellowship for Young Faculty, Louisiana Clinical and Translational Science (LA CaTS) Center
2011 – 2013	NIH T32 Obesity Postdoctoral Fellowship , Pennington Biomedical Research Center
2010	Alfred Wallace Noyes Fellowship , Department of Physics, Harvard University
2007 – 2009	National Science Foundation Graduate Research Fellowship (awarded 2004)
2004 – 2007	National Defense Science & Engineering Graduate Research Fellowship (awarded 2004)
2002 – 2004	Marshall Scholarship : One of 40 students nationwide
2000 – 2002	Clare Booth Luce Scholarship : Top female science major at Georgetown University
2000 – 2002	Barry M. Goldwater Scholarship : Top national award for science majors
1997, 1998	Howard Hughes Medical Institute (HHMI)-National Institutes of Health Summer (NIH) Research Program Fellowship

HONORS

2014	The Obesity Society's Early-Career Research Grant : Awarded to top 1% of applicants
2010	Nominee for Bok Award for Excellence in Teaching : University-wide teaching award, Harvard University
2010, 2007	White Prize for Excellence in Teaching , Department of Physics, Harvard University
2010	Certificate of Distinction in Teaching , Harvard University
2007	Robbins Prize : For contributions to the departmental community, Department of Physics, Harvard University
2003	American Academy of Achievement Student Delegate : One of 220 graduate students worldwide
2002	Commencement Marshall : One of three students from Georgetown University's College of Arts and Sciences
1998	USA Today High School Academic All-American : One of 60 high school students nationwide

GRANT SUPPORT

KL2 Career Development Award	PI: Peterson, CM	11/2015 – 10/2017
Impact of Time-Restricted Feeding on Energy Balance and Circadian Control of Metabolism		
This career development award supports training and research for two years. I will test the hypotheses that time-restricted feeding affects energy balance and circadian rhythms in clock genes in humans.		
Role: PI		
Early-Career Research Grant, The Obesity Society Does Meal Timing Affect Energy Expenditure	PI: Peterson, CM	08/2014 – 08/2015

This crossover pilot study in overweight men and women tests whether time-restricted feeding (eating over 6 hours) increases energy expenditure and lowers mean 24-hour glucose levels in comparison to average eating patterns (spreadout eating; eating over 12 hours). *2 awardees out of 156 applicants (top 1%)*

Role: PI

1 U54 GM104940-Funded P&F Study, NIGMS **PI: Peterson, CM** 06/2013 – 06/2015

Time-Restricted Feeding to Increase Glucose Tolerance and Improve Vascular Function in Obese Men

This crossover pilot study examines the effects of 5 weeks of time-restricted feeding versus spreadout eating on glucose tolerance, markers of inflammation, and vascular function in overweight men with pre-diabetes.

11 awardees out of 75 applicants (top 15%), only non-faculty member to receive the grant.

Role: PI

P30 DK072476-Funded P&F Study, NIDDK **PI: Peterson, CM** 06/2014 – 07/2015

Validation of Video Monitoring to Assess Compliance in Clinical Interventions

This study is testing the feasibility of using webcam technology as a novel method to assess compliance to clinical dietary and pharmaceutical interventions.

Role: PI

P50 AT0022776-Funded P&F Study, NICCH **PI: Peterson, CM** 10/2012 – 08/2014

Artemisia Extracts as Stimulators of AMPK α 1 and α 2 and Cellular Respiration

This study examines the effects of three Artemisia botanical extracts glucose uptake, AMPK activation, and mitochondrial respiration in rat skeletal muscle cells. (I am the PI on the P&F study only.)

Role: PI

R01 DK092575, NIDDK **PI: Ravussin, E** 05/2012 – 04/2017

Effects of Resistant Starch on Diabetes Risk Factors in Pre-diabetic People

This study investigates the impact of consuming resistant starch for 3 months on insulin sensitivity and insulin secretion in pre-diabetic people. Secondary outcomes measured include metabolic rate, body composition, ectopic fat, markers of inflammation, miRNAs, and fecal microbiota.

Role: Co-Investigator

P30 DK072476-Funded P&F Study, NIDDK **PI: Ravussin, E** 06/2011 – 05/2013

Effect of Hypoxia on Insulin Sensitivity and Inflammation in Humans

This study examines the effects of 10 nights of hypoxia treatment on insulin sensitivity and on markers of insulin signaling in obese men. This study tests the contrarian hypothesis that hypoxia enhances insulin sensitivity.

Role: Co-Investigator

PUBLICATIONS

1. Heymsfield SB, **Peterson CM**, Thomas DM, Hirezi M, Zhang B, Smith S, Bray G, Redman LM. Establishing energy requirements for body weight maintenance: Validation of a simplified intake-balance method. Submitted to Metabolism.
2. Thomas DM, **Peterson CM**, Heymsfield SB, Nduati A, Apolzan JW, Martin CK. A new dynamic universal model to describe eating rate and cumulative intake curves. Submitted to AJCN.
3. **Peterson CM**, Apolzan JW, Wright C, Martin CK. Video chat technology to remotely quantify dietary, supplement, and medication adherence in clinical trials. Submitted to Br J Nutr.

4. Sonomtseren S, Yanjmaa S, Ochir C, Johannsen DL, **Peterson CM**, Vandanmagsar B. Lifestyle intervention improves glycemic control in overweight and obese Mongolian subjects adults with newly diagnosed type 2 diabetes. Submitted to *Diabetes Obes Metab*.
5. **Peterson CM**, Thomas DM, Blackburn GL, Heymsfield SB. (2016). A single universal equation for estimating ideal body weight and body weight at key BMI levels. In press at *AJCN*.
6. Heymsfield SB, **Peterson CM**, Thomas DM, Heo M, Schuna JM. (2016). Why Are There Race/Ethnic Differences in Body Mass Index-Adiposity Relationships? *Obes Rev*. 17(3):262-75. PMID: 26663309.
7. **Peterson CM**, Lecoultre V, Frost EA, Simmons J, Redman LR, Ravussin E (2016). The thermogenic responses to overfeeding and cold are differentially regulated. *Obesity*. 24(1):96-101. PMID: 26592725.
8. Schuna JM Jr, **Peterson CM**, Thomas DM, Heo M, Hong S, Choi W, Heymsfield SB. (2014). Scaling of adult regional body mass and body composition as a whole to height: Relevance to body shape and body mass index. *Am J Hum Biol*. 27(3):372-9. PMID: 25381999.
9. Ravussin E, **Peterson CM**. (2015) Physical Activity and the Missing Calories. *Exerc Sport Sci Rev*. 43(3):107-108. PMID: 25906428.
10. Heymsfield SB, **Peterson CM**, Thomas D, Schuna J, Heo M, Hong S, Choi W. (2014). Scaling of adult body weight to height across sex and race/ethnic groups: Relevance to body mass Index. *Am J Clin Nutr*. 100(6):1455-61. PMID: 25411280; PMCID: PMC4232013.
11. Sonnier T, Rood J, Gimble JM, **Peterson CM**. (2014). Glycemic control is impaired in the evening in prediabetes through multiple diurnal rhythms. *J Diabetes Complications*. 28(6):836-43. PMID: 24835190.
12. **Peterson CM**, Lecoultre V, Schwarz JM, Ravussin E. (2014). Response to comment on Lecoultre et al. Ten nights of moderate hypoxia improves insulin sensitivity in obese humans. *Diabetes Care*. 37(6): e157-8. PMID: 24855183; PMCID: PMC4179519.
13. Zheng H, Tegmark M, Buza V, Dillon JS, Gharibyan H, Hickish J, Kunz E, Liu A, Losh J, Lutomirski A, Morrison S, Narayanan S, Perko A, Rosner D, Sanchez N, Schutz K, Tribiano SM, Valdez M, Yang H-I, Zarb Adami K, Zelko I, Zheng K, Armstrong R, Bradley RF, Dexter MR, Ewall-Wice A, Magro A, Matejek M, Morgan E, Neben AR, Pan Q, Penna RF, **Peterson CM**, Su M, Villasenor J, Williams CL, Yang HI. (2014). MITEoR: A Scalable Interferometer for Precision 21 cm Cosmology. *MNRAS*. 445(2): 1084-1103. <http://arxiv.org/abs/1405.5527>
14. Lecoultre V, **Peterson CM (co-first author)**, Covington JD, Ebenezer PJ, Frost EA, Schwarz JM, Ravussin E. (2013). Ten nights of exposure to moderate hypoxia improves insulin sensitivity in obese men. *Diabetes Care*. 36(12): e197-8. PMID: 24265370; PMCID: PMC3836149.
15. Thomas DM, Bredlau C, Bosity-Westphal A, Mueller M, Shen W, Gallagher D, Maeda Y, McDougall A, **Peterson CM**, Ravussin E, Heymsfield SB. (2013). Relationships between body roundness with body fat and visceral adipose tissue emerging from a new geometrical model. *Obesity*. 21(11): 2264-71. PMID: 23519954; PMCID: PMC3692604.
16. Lam YY, **Peterson CM**, Ravussin E. (2013). Resveratrol vs. calorie restriction: data from rodents to humans. *Exp Gerontol*. 48(10):1018-24. PMID: 23624181.
17. **Peterson CM**, Tegmark M. (2013). Testing multi-field inflation: A geometric approach. *Phys Rev D*. 87: 103507. <http://arxiv.org/abs/1111.0927>
18. Heymsfield SB, Thomas D, Bosity-Westphal A, Shen W, **Peterson CM**, Müller MJ. (2012). Evolving concepts on adjusting human resting energy expenditure measurements for body size. *Obes Rev*. 13(11):1001-14. PMID: 22863371; PMCID: PMC3477241.

19. **Peterson CM**, Johannsen DL, Ravussin E. (2012). Skeletal muscle mitochondria and aging: A review. *J Aging Res.* 2012:194821. PMID: 22888430; PMCID: PMC3408651.
20. **Peterson CM**, Tegmark M. (2011). Non-Gaussianity in two-field inflation. *Phys Rev D.* 84: 023520. <http://arxiv.org/abs/1011.6675>
21. **Peterson CM**, Tegmark M. (2011). Testing two-field inflation. *Phys Rev D.* 83: 023522. <http://arxiv.org/abs/1005.4056>
22. Le Stunff H, Galve-Roperh I, **Peterson C**, Milstien S, Spiegel S. (2002). Sphingosine-1-phosphate phosphohydrolase in regulation of sphingolipid metabolism and apoptosis. *J Cell Biol.* 158(6):1039-49. PMID: 12235122; PMCID: PMC2173216.
23. Le Stunff H, **Peterson C**, Liu H, Milstien S, & Spiegel S. (2002). Sphingosine-1-phosphate and lipid phosphohydrolases. *Biochim Biophys Acta.* 1582(1-3):8-17. PMID: 12069805.
24. Le Stunff H, **Peterson C**, Thornton R, Milstien S, Mandala S, Spiegel S. (2002). Characterization of murine sphingosine 1-phosphate phosphohydrolase. *J Biol Chem.* 277(11):8920-7. PMID: 11756451.
25. Samus NN, **Peterson C**, Holmes S, & Singer K. (2001). Lost variables in Sagittarius and Cygnus recovered on Nantucket plates. *JAAVSO.* 29(2): 112-7.
26. Mandala SM, Thornton R, Galve-Roperh I, Poulton S, **Peterson C**, Olivera A, Bergstrom J, Kurtz MB, Spiegel S. (2000). Molecular cloning and characterization of a lipid phosphohydrolase that degrades sphingosine-1-phosphate and induces cell death. *Proc Natl Acad Sci.* 97(14):7859-64. PMID: 10859351; PMCID: PMC16635.

MENTORSHIP

Pennington Biomedical Research Center

Fall 2013 – present

- 2 medical students
- 6 undergraduate students