

December 30, 2016

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<http://irp.nih.gov/our-research/research-in-action/the-human-energy-crisis>

## **PROFESSIONAL HISTORY**

09/10 – Present

**SENIOR INVESTIGATOR**  
**Integrative Physiology Section Chief**  
**Laboratory of Biological Modeling,**  
**NIDDK/NIH, Bethesda, MD**

My laboratory investigates the regulation of food intake, metabolism, and body weight. We perform experiments in both humans and rodents to better understand the complex mechanisms regulating macronutrient metabolism, body composition, energy expenditure, and food intake. A unique aspect of our laboratory involves the development of mathematical models to quantitatively describe, explain, integrate, and predict our experimental results.

07/03 – 09/10

**TENURE-TRACK INVESTIGATOR**  
**Laboratory of Biological Modeling,**  
**NIDDK/NIH, Bethesda, MD**

04/06 – 06/09

**ADJUNCT PROFESSOR**  
**Department of Agriculture, Food and Nutritional Science**  
**University of Alberta, Edmonton, AB, Canada**

I participated as a guest lecturer in Nutritional Science courses at the University of Alberta, assisted in the supervision of graduate research projects, presented research seminars, and served as a resource for staff and students as an expert in the field of Computational Systems Biology applied to mammalian energy metabolism.

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3/99 – 07/03

**DIABETES PHYSIOLAB™ DEVELOPMENT LEADER**

**Entelos Inc., Menlo Park, CA**

I led a team of scientists and engineers in the development of a complex mathematical model of human metabolism and the pathophysiology of type 2 diabetes. The resulting model, called the Diabetes and Metabolism PhysioLab™, resulted in a pair of U.S. patent applications. I also collaborated with leading academic researchers to design and interpret experimental tests of PhysioLab™ predictions. In my role as a senior scientist at Entelos, I also reviewed scientific and technological progress as a member of the Scientific Content Review Team. I played a leading role crafting Entelos' intellectual property development process and acted as the metabolism representative on Entelos' Intellectual Property Review Committee. Diabetes and Metabolism PhysioLab™, was the subject of numerous academic presentations including the President's Poster Session at the American Diabetes Association 61<sup>st</sup> Scientific Sessions.

**EDUCATION**

09/94 – 06/99

**DOCTOR OF PHILOSOPHY – PHYSICS**

**McGill University, Montreal, QC**

*Centre for Nonlinear Dynamics in Physiology and Medicine*

**Supervisor: Professor Leon Glass, FRSC**

**Thesis Title:** *Control of Abnormal Heart Rhythms*

My research employed mathematical techniques from nonlinear dynamics to develop algorithms for diagnosis and control of a variety of abnormal heart rhythms.

09/89 – 06/94

**BACHELOR OF SCIENCE – PHYSICS**

**McMaster University, Hamilton, ON**

**Honors Theoretical Physics, Minor in Philosophy**

*Graduated Summa Cum Laude*

For my senior thesis project, I examined a technique for calculating energy levels in bound quantum mechanical systems. I received the Chancellor's Scholarship in 1989 and the University Scholarship in 1990.

## **AWARDS**

- 2017                   **E.V. McCollum Award**  
This award from the American Society for Nutrition is given to a clinical investigator who is perceived as a major creative force, actively generating new concepts in nutrition and personally seeing to the execution of studies testing the validity of these concepts.
- 2016                   **Winner of the 4th annual OBESITY Journal Symposium**
- 2015                   **State-of-the-Art Lectureship from the International Society of Pharmacometrics**
- 2014                   **Mayo Clinic KROC Visiting Professor in the Division of Endocrinology, Diabetes, Metabolism, and Nutrition**
- 2013                   **National Institutes of Health Director's Award**  
This award is in recognition of my contribution to the creation of the original [Body Weight Simulator](#) which led to the development of the [NIH Body Weight Planner](#) and its implementation within the [USDA SuperTracker](#).
- 2013                   **National Institute of Diabetes & Digestive & Kidney Diseases Director's Award for Translational Research**  
For outstanding contributions to the development and patenting of inventions that have helped to achieve the NIDDK mission.
- 2013                   **HHSinnovates Honorable Mention**  
The HHSinnovates program is part of the Department of Health and Human Service's (HHS) Open Government efforts to celebrate innovation by HHS employees. Our innovation of the Body Weight Simulator was selected as one of six finalists.
- 2012                   **Lilly Scientific Achievement Award**  
This award from The Obesity Society recognizes excellence in an established research career and is made possible through an annual grant from the Eli Lilly Pharmaceutical Company. Recipients receive a plaque and \$5,000 cash prize plus a travel grant to the Annual Scientific Meeting. The award is presented during a plenary session at which the recipient is invited to present the Lilly Scientific Achievement Award Lecture. To be eligible for this award, the recipient must be within 15 years of receiving his or her terminal degree

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- 2012                    **National Institutes of Health Director's Award**  
This award is in recognition of my contribution to the Trans-NIH Collaborative on HBO Documentary Obesity Awareness Campaign.
- 2012                    **National Institute of Diabetes & Digestive & Kidney Diseases Director's Award**  
For outstanding dedication and teamwork to increase awareness of NIDDK evidence-based information on obesity through the HBO Obesity Awareness Campaign.
- 2009                    **Arthur C. Guyton Award for Excellence in Integrative Physiology**  
This award from the American Physiological Society is given to an independent investigator who holds an academic rank no higher than assistant professor and is pursuing research that utilizes quantitative and integrative approaches and feedback control system theory for the study of physiological functions. The \$15000 research award is given annually to an individual demonstrating outstanding promise based on his/her research program in feedback control systems, quantitative modeling, and integrative physiology.

## **CLINICAL RESEARCH PROTOCOLS**

**Principal Investigator:** Kevin D. Hall

*15-DK-0192* Quantifying Weight Regain and the Persistence of Metabolic Adaptation Following Extreme Weight Loss

ClinicalTrials.gov Identifier: NCT02544009

**Principal Investigator:** Kevin D. Hall

*14-DK-0154* Metabolic and Neural Adaptations to Weight Loss, Plateau, and Regain

ClinicalTrials.gov Identifier: NCT02199483

**Principal Investigators:** Kevin D. Hall and Eric Ravussin

*13-DK-0212* Effect of a Eucaloric Ketogenic Diet on Energy Expenditure: A Pilot Study

ClinicalTrials.gov Identifier: NCT01967563

**Principal Investigator:** Kevin D. Hall

*09-DK-0081* Selective Reduction of Dietary Carbohydrate versus Fat: Effects on Metabolism, Endocrine Physiology, Brain Activity and Reward Circuitry

ClinicalTrials.gov Identifier: NCT00846040

## **FUNDING**

### **FY2015 Intramural NIDDK**

[1-ZIA-DK013036-09: COMPUTATIONAL MODELING OF HUMAN METABOLISM, BODY WEIGHT AND COMPOSITION](#) \$204,962

[1-ZIA-DK013037-09 INTERACTIONS OF DIET, EXERCISE, METABOLISM, AND WEIGHT CHANGE IN HUMANS](#) \$307,443

[1-ZIA-DK013038-09 REGULATION OF RODENT ENERGY METABOLISM, BODY WEIGHT AND COMPOSITION](#) \$102,481

[1-ZIA-DK075076-04: METABOLIC AND BODY COMPOSITION CHANGES DURING RAPID AND MASSIVE WEIGHT LOSS](#) \$204,962

[1-ZIA-DK075107-02: NEUROSCIENCE OF HUMAN FOOD PERCEPTION AND EATING BEHAVIOR](#) \$204,962

### **Other Funding**

1. [Nutrition Sciences Initiative. Energy Balance Consortium Pilot Study.](#) \$711,888.
2. [Bill & Melinda Gates Foundation. Mathematical Modeling of Human Growth and Malnutrition.](#) \$ 166,995.

## **PUBLICATIONS**

### **Peer-reviewed Original Research**

1. D.M. Friend, K. Devarakonda, T.J. O'Neal, M. Skirzewski, A. Kaplan, J.S. Liow, J. Guo, M. Rubinstein, V.A. Alvarez, **K.D. Hall**, A.V. Kravitz. 'Basal ganglia dysfunction contributes to physical inactivity in obesity.' In press. *Cell Metabolism* (2017).
2. T.J. O'Neal, D.M. Friend, J. Guo, **K.D. Hall**, A.V. Kravitz. 'Increases in physical activity result in diminishing increments in daily energy expenditure in mice.' In press *Current Biology* (2017).
3. D. Polidori, A. Sanghvi, R. Seeley, **K.D. Hall**. 'How strongly does appetite counter weight loss? Quantification of the feedback control of human energy intake.' *Obesity* **24(11)**:2289-2295 (2016).
4. **K.D. Hall**, K.Y. Chen, J. Guo, Y.Y. Lam, R.L. Leibel, L.E.S. Mayer, M.L. Reitman, M. Rosenbaum, S.R. Smith, B.T. Walsh, E. Ravussin. 'Energy expenditure and body composition changes following an isocaloric ketogenic diet in overweight and obese men.' *American Journal of Clinical Nutrition* **104(2)**:324-33 (2016).
5. M.B. Katan, J.C. de Ruyter, L.D.J. Kuijper, C.C. Chow, **K.D. Hall**, M.R. Olthof. 'Impact of masked replacement of sugar-sweetened with sugar-free beverages on body weight increases with initial BMI: secondary analysis of data from an 18 month

- double-blind trial in children.' *PLoS ONE* **11(7)**:e0159771. doi: 10.1371/journal.pone.0159771 (2016).
6. E. Fothergill, J. Guo, L. Howard, J.C. Kerns, N.D. Knuth, R. Brychta, K.Y. Chen, M.C. Skarulis, M. Walter, P.J. Walter, **K.D. Hall**. 'Persistent metabolic adaptation 6 years after The Biggest Loser competition.' *Obesity* **24(8)**; 1612-1619 (2016).
  7. N.D. Bond, J. Guo, **K.D. Hall**, A.C. McPherron. 'Modeling Energy Dynamics in Mice with Skeletal Muscle Hypertrophy Fed High Calorie Diets.' *International Journal of Biological Sciences* **12(5)**:617-30 (2016).
  8. E.L. MacLeod, **K.D. Hall**, P.J. McGuire. 'Computational modeling to predict nitrogen balance during acute metabolic decompensation in patients with urea cycle disorders.' *Journal of Inherited Metabolic Disease* **39(1)**:17-24 (2016).
  9. **K.D. Hall**, T. Bemis, R. Brychta, K.Y. Chen, A. Courville, E.J. Crayner, S. Goodwin, J. Guo, L. Howard, N.D. Knuth, B.V. Miller III, C.M. Prado, M. Siervo, M.C. Skarulis, M. Walter, P.J. Walter, L. Yannai. 'Calorie for calorie, dietary fat restriction results in more body fat loss than carbohydrate restriction in people with obesity.' *Cell Metabolism* **22(3)**:427-36 (2015).
  10. G. Ferrannini, T. Hach, S. Crowe, A. Sanghvi, **K.D. Hall**, E. Ferrannini. 'Energy balance following sodium-glucose co-transporter-2 (SGLT2) inhibition.' *Diabetes Care* **38(9)**:1730-5 (2015).
  11. A. Sanghvi, L.M. Redman, C.K. Martin, E. Ravussin, **K.D. Hall**. 'Validation of an inexpensive and accurate mathematical method to measure long-term changes in free-living energy intake.' *American Journal of Clinical Nutrition* **102(2)**:353-8 (2015).
  12. S. Vandevijvere, C.C Chow, **K.D. Hall**, E. Umali, B.A Swinburn. 'Increased food energy supply as a major driver of the obesity epidemic: a global analysis.' *Bulletin of the World Health Organization* **93**:446-456 (2015).
  13. T. Lobstein, R. Jackson-Leach, M.L. Moodie, **K.D. Hall**, S.L. Gortmaker, B.A. Swinburn, P. James, Y. Wang, K. McPherson. 'Child and adolescent obesity: part of a bigger picture.' *The Lancet* **385(9986)**:2510-20 (2015).
  14. W.H. Dietz, L.A. Bauer, **K.D. Hall**, R.M. Puhl, E.M. Traveras, R. Uauy, P. Kopelman. 'Management of obesity: Improving health care training and systems for prevention and care.' *The Lancet* **385(9986)**:2521-33 (2015).
  15. N.D. Knuth, D.L. Johannsen, R.A. Tamboli, P.A. Marks-Shulman, R. Huizenga, K.Y. Chen, N.N. Abumrad, E. Ravussin, **K.D. Hall**. 'Metabolic adaptation following massive weight loss is related to the degree of energy imbalance and changes in leptin.' *Obesity* **22(12)**:2563-2569 (2014).
  16. J. Guo, W.K. Simmons, P. Herscovitch, A. Martin, and **K.D. Hall**. 'Striatal dopamine D2-like receptor correlation patterns with human obesity and opportunistic eating behavior.' *Molecular Psychiatry* **19(10)**:1078-1084 (2014).
  17. B. Göbel, A. Sanghvi, **K.D. Hall**. 'Quantifying energy intake changes during obesity pharmacotherapy.' *Obesity* **22(10)**:2105-2108 (2014).
  18. I. Brady and **K.D. Hall**. 'Dispatch from the field: Is mathematical modeling applicable to obesity treatment in the real world?' *Obesity* **22(9)**:1939-1941 (2014).
  19. C.C. Chow and **K.D. Hall**. 'Short and long-term energy intake patterns and their implications for human body weight regulation.' *Physiology & Behavior* **34**:60-65 (2014).

20. **K.D. Hall**, R.A. Hammond, H. Rahmandad. 'Dynamic interplay between homeostatic, hedonic, and cognitive feedback circuits regulating body weight.' *American Journal of Public Health* **104(7)**:1169-75 (2014).
21. W.K. Simmons, K.M. Rapuano, S.J. Kallman, J.E. Ingeholm, B.V. Miller, S.J. Gotts, **K.D. Hall**, and A. Martin. 'Category-specific integration of homeostatic signals in caudal, but not rostral, human insula.' *Nature Neuroscience* **16(11)**:1551-2 (2013).
22. **K.D. Hall**, N.F. Butte, B.A. Swinburn, C.C. Chow. 'Quantifying the dynamics of childhood growth and obesity.' *The Lancet Diabetes & Endocrinology* **1(2)**:97-105 (2013).
23. W.K. Simmons, K.M. Rapuano, J.E. Ingeholm, J. Avery, S. Kallman, **K.D. Hall**, A. Martin. 'The ventral pallidum and orbitofrontal cortex support food pleasantness inferences.' *Brain Structure & Function* **219(2)**:473-83 (2013).
24. **K.D. Hall**. 'Diet versus exercise in The Biggest Loser weight loss competition.' *Obesity* **21(5)**:957-9 (2013).
25. D.L. Johannsen, N.D. Knuth, R. Huizenga, J. Rood, E. Ravussin, **K.D. Hall**. 'Metabolic slowing with massive weight loss despite preservation of fat-free mass.' *Journal of Clinical Endocrinology and Metabolism* **97(7)**:2489-2496 (2012).
26. R.J. de Souza, G.A. Bray, V.J. Carey, **K.D. Hall**, M.S. Leboff, C.M. Loria, N.M. Laranjo, F.M. Sacks, S.R. Smith. 'Effects of 4 weight-loss diets differing in fat, protein, and carbohydrate on fat mass, lean mass, visceral adipose tissue, and hepatic fat: results from the POUNDS LOST trial.' *American Journal of Clinical Nutrition* **95(3)**: 614-625 (2012).
27. B.H. Lin, T.A. Smith, J.Y. Lee, **K.D. Hall**. 'Measuring weight outcomes for obesity intervention strategies: The case of a sugar-sweetened beverage tax.' *Economics & Human Biology* **9(4)**:329-41 (2011).
28. **K.D. Hall**, G. Sacks, D. Chandramohan, C.C. Chow, Y.C. Wang, S. Gortmaker, B.A. Swinburn. 'Quantifying the effect of energy imbalance on body weight.' *The Lancet* **378(9793)**:826-37 (2011).
29. B.A. Swinburn, G. Sacks, **K.D. Hall**, K. McPherson, D.T. Finegood, M.L. Moodie, S. Gortmaker. 'The global obesity pandemic: shaped by global drivers and local environments.' *The Lancet* **378(9793)**:804-14 (2011).
30. **K.D. Hall** and C.C. Chow. 'Estimating changes of free-living energy intake and its confidence interval.' *American Journal of Clinical Nutrition* **94(1)**:66-74 (2011).
31. J. Guo and **K.D. Hall**. 'Predicting changes of body weight, body fat, energy expenditure and metabolic fuel selection in C57BL/6 mice' *PLoS ONE*. **6(1)**: e15961 (2011).
32. J. Jo, J. Guo, T. Liu, S. Mullen, **K.D. Hall**, S.W. Cushman and V. Periwai. 'Hypertrophy-driven adipocyte death overwhelms recruitment under prolonged weight gain.' *Biophysical Journal* **99(11)**: 3535-3544 (2010).
33. **K.D. Hall**. 'Mathematical modeling of energy expenditure during tissue deposition.' *British Journal of Nutrition* **104(1)**: 4-7 (2010).
34. **K.D. Hall**. 'Predicting metabolic adaptation, body weight change and energy intake in humans.' *American Journal of Physiology*. **298(3)**: E449-66 (2010).
35. **K.D. Hall**, J. Guo, M. Dore, C.C. Chow 'The progressive increase of food waste in America and its environmental impact.' *PLoS ONE* **4(11)**:e7940 (2009).

36. J. Guo, **K.D. Hall**. 'Estimating the continuous-time dynamics of energy and fat metabolism in mice.' *PLoS Computational Biology*. **5(9)**:e1000511. doi:10.1371/journal.pcbi.1000511 (2009).
37. J. Guo, W. Jou, O. Gavrilova, **K.D. Hall**. 'Persistent diet-induced obesity in male C57BL/6 mice resulting from temporary obesigenic diets.' *PLoS ONE*. **4(4)**:e5370 (2009).
38. J.R. Lieffers, M. Mourtzakis, **K.D. Hall**, L.J. McCargar, C.M.M. Prado, V.E. Baracos. 'A viscerally-driven cachexia syndrome in patients with advanced colorectal cancer: contributions of organ and tumor mass to whole body energy demands.' *American Journal of Clinical Nutrition*. **89(4)**:1173-9 (2009).
39. **K.D. Hall** and P.N. Jordan. 'Modeling weight loss maintenance to help prevent body weight regain.' *American Journal of Clinical Nutrition*. **88**:1495-1503 (2008).
40. C.C. Chow and **K.D. Hall**. 'The dynamics of human body weight change.' *PLoS Computational Biology*. **4(3)**, e1000045. doi:10.1371/journal.pcbi.1000045 (2008).
41. **K.D. Hall** and V.E. Baracos. 'Computational modeling of cancer cachexia.' *Current Opinion in Clinical Nutrition and Metabolic Care*. **11**, 214-221 (2008).
42. C.E. Hallgreen and **K.D. Hall**. 'Allometric relationship between changes of visceral fat and total fat mass.' *International Journal of Obesity*. **32**, 845-852 (2008).
43. P.N. Jordan and **K.D. Hall**. 'Dynamic coordination of macronutrient balance during infant growth: Insights from a mathematical model.' *American Journal of Clinical Nutrition*. **87**, 692-703 (2008).
44. **K.D. Hall**. 'What is the required energy deficit per unit weight loss?' *International Journal of Obesity*. **32**, 573-576 (2008).
45. **K.D. Hall**, H.L. Bain, C.C. Chow. 'How adaptations of substrate utilization regulate body composition.' *International Journal of Obesity* **31**, 1378-1383 (2007).
46. **K.D. Hall**. 'Body fat and fat-free mass interrelationships: Forbes's theory revisited.' *British Journal of Nutrition* **97**, 1059-1063 (2007)
47. **K.D. Hall**. 'Computational model of *in vivo* human energy metabolism during semi-starvation and re-feeding.' *American Journal of Physiology* **291**, E23-37 (2006).
48. L. Glass, Y. Nagai, **K. Hall**, C. Villemaire, S. Nattel, M. Talajic. 'Predicting the entrainment of reentrant cardiac waves using phase resetting curves' *Physical Review E* **65**, Article 021908 (2002).
49. **K. Hall** and D.J. Christini. 'Restricted control of one-dimensional maps.' *Physical Review E* **63**, Article 046204 (2001).
50. L.P. Endresen, **K. Hall**, J.S. Hoye, J. Myrheim. 'A theory for the membrane potential of living cells.' *European Biophysics Journal* **29**, 90-103, (2000).
51. **K. Hall** and L. Glass. 'How to tell a target from a spiral: the two probe problem.' *Physical Review Letters* **82**, 5164-5167 (1999).
52. **K. Hall** and L. Glass. 'Locating ectopic foci.' *Journal of Cardiovascular Electrophysiology* **10**, 387-398 (1999).
53. **K. Hall**, D.J. Christini, M. Tremblay, J.J. Collins, L. Glass, J. Billette. 'Dynamic control of cardiac alternans.' *Physical Review Letters* **78**, 4518-4521, (1997).
54. F. Amellal, **K. Hall**, L. Glass, J. Billette. 'Alternation of atrioventricular nodal conduction time during atrioventricular reentrant tachycardia: Are dual pathways necessary?' *Journal of Cardiovascular Electrophysiology*. **7**, 943-951, (1996).

## Reviews, Commentaries, and Book Chapters

1. **K.D. Hall** and J. Guo. 'Obesity energetics: Beyond calories in, calories out.' In press. *Gastroenterology* (2017).
2. **K.D. Hall**. 'A review of the carbohydrate-insulin model of obesity.' In press. *European Journal of Clinical Nutrition* (2017).
3. **K.D. Hall**. 'Energy balance and regulation of body weight: Are all calories equal?' In N. Bergeron, G. Bray and R.M. Krauss (eds) *Clinical Nutrition in the Management of Cardiovascular Disease, Diabetes, and Obesity*. CRC Press, Taylor & Francis Group (2017).
4. **K.D. Hall**. 'Macronutrients, energy balance, and body weight regulation.' In K.D. Brownell and B.T. Walsh (eds) *Eating Disorders and Obesity: A Comprehensive Handbook, 3rd Edition*. Guilford Publications (2017).
5. Y. Freedhoff and **K.D. Hall**. 'Weight loss diet studies should foster help, not foment hype.' *The Lancet* 388: 849-851 (2016).
6. **K.D. Hall**, S. Gortmaker, M. Lott, Y.C. Wang. 'From calories to weight change in children and adults: The State of the Science.' Durham, NC: *Healthy Eating Research*; 2016. Available at <http://www.healthyeatingresearch.org>.
7. **K.D. Hall**. 'Prescribing low-fat diets: useless for long-term weight loss?' *The Lancet Diabetes & Endocrinology* **3(12)**:920-1 (2015).
8. **K.D. Hall**. '[5 myths of dieting and weight loss](#).' *The Washington Post*, October 15, 2015.
9. B.J. Bennett, **K.D. Hall**, F.B. Hu, A.L. McCartney, C. Roberto. 'Nutrition and the science of disease prevention: a systems approach to support metabolic health.' *Annals of the New York Academy of Science* **1352(1)**:1-12 (2015).
10. A.W Brown, **K.D. Hall**, D. Thomas, N.V. Dhurandhar, S.B. Heymsfield, D.B. Allison. 'Order of Magnitude Misestimation of Weight Effects of Children's Meal Policy Proposals.' *Childhood Obesity* **10(6)**: 542-545 (2014).
11. P.S. MacLean, R.R. Wing, T. Davidson, L. Epstein, B. Goodpaster, **K.D. Hall**, B.E. Levin, M.G. Perri, B.J. Rolls, M. Rosenbaum, A.J. Rothman, D. Ryan. 'NIH working group report: Innovative research to improve maintenance of weight loss.' *Obesity* **23(1)**:7-15 (2014).
12. **K.D. Hall**. 'Estimating human energy intake using mathematical models.' *American Journal of Clinical Nutrition* **100(3)**:744-5 (2014).
13. J.A. Dawson, **K.D. Hall**, D.M. Thomas, J.W. Hardin, D.B. Allison, S.B. Heymsfield. 'Novel Mathematical Models for Investigating Topics in Obesity.' *Advances in Nutrition* **5(5)**:561-562 (2014).
14. M.J. Müller, S.B. Heymsfield, V. Baracos, A. Bosy-Westphal, A. Dulloo, J. Eckel, K.C.H. Fearon, **K.D. Hall**, A. Pietrobelli, T.I.A. Sørensen, J. Speakman, P. Trayhurn, M. Visser. 'Functional Body Composition and Related Aspects in Research on Obesity and Cachexia.' *Obesity Reviews* **15**:640-656 (2014).
15. **K.D. Hall**. 'Computational modeling of energy metabolism and body composition dynamics.' In A. Krentz, L. Heinemann, M. Hompesch, S.R. Smith (eds) *Translational research methods for diabetes, obesity and cardiometabolic drug development: Focus on early phase clinical studies*. Springer-Verlag (2014).

16. **K.D. Hall** and C.C. Chow. 'Why is the 3500 kcal per pound weight loss rule wrong?' *International Journal of Obesity* **37(12)**:1614 (2013).
17. D.A. Schoeller, D. Thomas, E. Archer, S.B. Heymsfield, S.N. Blair, M.I. Goran, J.O. Hill, R.L. Atkinson, B.E. Corkey, J. Foreyt, N.V. Dhurandhar, **K.D. Hall**, J.G. Kral, B.C. Hansen, B.L. Heitmann, E. Ravussin, D.B. Allison. 'Self-report-based estimates of energy intake offer an inadequate basis for scientific conclusions.' *American Journal of Clinical Nutrition* **97(6)**:1413-5 (2013).
18. **K.D. Hall**. 'Metabolism of mice and men: Mathematical modeling of body weight dynamics.' *Current Opinion in Clinical Nutrition and Metabolic Care* **15(5)**:418-423 (2012).
19. **K.D. Hall**. 'Modeling metabolic adaptations and energy regulation in humans.' *Annual Review of Nutrition* **32**:35-54 (2012).
20. **K.D. Hall**, S.B. Heymsfield, J.W. Kremenitz, S. Klein, D.A. Schoeller, J.R. Speakman. 'Energy balance and its components: Implications for body weight regulation.' *American Journal of Clinical Nutrition* **95**:989-994 (2012).
21. **K.D. Hall**. 'Quantitative physiology of human starvation: adaptations of energy expenditure, macronutrient metabolism and body composition.' In M.D. McCue (ed) *Comparative Physiology of Fasting, Starvation, and Food Limitation*. Springer-Verlag (2012).
22. J. Guo and **K.D. Hall**. 'Challenges of indirect calorimetry in mice' *American Journal of Physiology*. **300(3)**: R780 (2011).
23. V. Baracos, P. Caserotti, C.P. Earthman, D. Fields, D. Gallagher, **K.D. Hall**, S.B. Heymsfield, M.J. Müller, A. Napolitano, C. Pichard, L.M. Redman, W. Shen, J.A. Shepherd, D. Thomas. 'Advances in the Science and Application of Body Composition Measurement.' *Journal of Parenteral and Enteral Nutrition* **36(1)**:96-107 (2011).
24. **K.D. Hall** and C.C. Chow. 'Estimating the quantitative relationship between changes of food energy intake and body weight.' *American Journal of Clinical Nutrition*. **91(3)**:816 (2010).
25. **K.D. Hall**. 'Mechanisms of metabolic fuel selection: Modeling human metabolism and body weight change.' *IEEE Engineering in Medicine & Biology Magazine*. **29(1)**:36-41 (2010).
26. A.A. de Graaf, A.P. Freidig, B. De Roos, N. Jamshidi, M. Heinemann, J.A.C. Rullmann, **K.D. Hall**, M. Adiels, B. van Ommen. 'Nutritional systems biology modeling: from molecular mechanisms to physiology.' *PLoS Computational Biology* **5(11)**: e1000554. doi:10.1371/journal.pcbi.1000554 (2009).
27. **K.D. Hall**. 'The energy cost of protein turnover is arbitrarily distributed between maintenance requirements and protein retention efficiency.' *British Journal of Nutrition* **102**:1695-1696 (2009).
28. **K.D. Hall** and S.B. Heymsfield. 'Models use Leptin and Calculus to Count Calories.' *Cell Metabolism*. **9**:3-4 (2009).
29. **K.D. Hall** and C.E. Hallgreen. 'Increasing weight loss attenuates the preferential loss of visceral versus subcutaneous fat: A predicted result of an allometric model.' *International Journal of Obesity*. **32**, 722 (2008).
30. **K.D. Hall**. 'Biosimulation in drug development' *Journal of Medicinal Chemistry*. **51**, 5468-5469 (2008).

31. **K. Hall**, R. Baillie, S. Michelson. 'Biosimulation: dynamic modeling of biological systems' *Annual Reports in Medicinal Chemistry* **37**, 279-288 (2002).
32. C.J. Musante, A. K. Lewis, **K. Hall**. 'Small- and large-scale biosimulation applied to drug development' *Drug Discovery Today* **7**, S192-S196 (2002).
33. D.J. Christini, **K. Hall**, J.J. Collins, L. Glass. 'Controlling cardiac arrhythmias: the relevance of nonlinear dynamics.' In F. Moss and S. Gielen (eds) *Handbook of Biological Physics volume 4: Neuro-informatics and Neural Modeling*, Elsevier Science, New York (2000).

## **MEDIA COVERAGE OF MY RESEARCH**

1. My commentary on the problem of adherence to weight loss diets published in *The Lancet* was the subject of a story in [Vox](#) and was discussed in the [New York Times](#).
2. My research published in the *American Journal of Clinical Nutrition* on an experimental test of the 'carbohydrate-insulin' model of body fat regulation was the subject of a feature story in [Vox](#) and Marion Nestle's popular [Food Politics](#) blog and was discussed in the [New York Times](#).
3. My research on the persistent metabolic changes in former contestants of 'The Biggest Loser' published in *Obesity* was the subject of an above-the-fold, front page article in the [New York Times](#) and subsequent coverage on [CNN's The Lead](#), [ABC Nightline](#), [Good Morning America](#), [CBC Radio's As it Happens](#), [NPR's On Point](#), [Science Friday](#), and [All Things Considered](#). This publication was #89 of Altmetric's [Top 100 Articles of 2016](#).
4. My research published in *Cell Metabolism* on the metabolic effects of a selective isocaloric reductions of dietary carbohydrates and fat was featured in the [Washington Post](#), [LA Times](#), [NPR](#), [Forbes](#), [BBC](#), [Daily Mail](#), [Time](#), [Newsweek](#), [Reuters](#), [Huffington Post](#), [Web MD](#), [ABC](#), [CBS News](#), and [NBC's Today show](#).
5. The NIH Body Weight Planner was featured in [Time](#), [Huffington Post](#), [Vox](#), [Runner's World](#), and the [Washington Post](#).
6. My clinical study on the Effect of a Ketogenic Diet on Energy Expenditure was the subject of a feature story in [WIRED magazine](#).
7. My work published in *Obesity* and the *Journal of Clinical Endocrinology & Metabolism* investigating contestants on 'The Biggest Loser' television program was featured in a [NBC news](#) health segment and a report in the [US News and World Report](#).
8. My work on dopamine neurocircuitry changes with obesity was covered in [New York Magazine](#) and the [NIH Director's Blog](#).
9. My work published in *The Lancet Diabetes & Endocrinology* on modeling childhood growth and the development and treatment of obesity was the subject of several articles including in [Forbes](#) and [Forbes online](#).
10. My work published in *Economics & Human Biology* assessing the potential effect of soda taxes on obesity prevalence in the USA was the subject of an article in [Forbes online](#).
11. I was a guest on NPR's '[The Diane Rehm Show](#)' on the subject of Obesity in the US.

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12. My work published in *The Lancet* on modeling adult body weight dynamics was the subject of many articles, including features in the [New York Times](#), [The Economist](#), the [BBC](#), and the [Globe & Mail](#).
13. My work on mathematical modeling of human body weight change was featured in a [Wall Street Journal](#) article and [online blog](#) about the relationship between diet and weight change was also featured on CBS's "[The Early Show](#)".
14. My work on calculating the progressive increase of food waste in America and its environmental impact received extensive press coverage including stories in [The Economist](#), the [Canadian Broadcasting Corporation](#), and the [New York Times](#) "Idea of the Day".
15. My work on the required energy deficit per unit weight loss was the subject of a [Nature News](#) story.
16. My work at Entelos Inc. modeling type 2 diabetes was featured in the cover story of *Silicon Valley Business Ink* **2(30)**, page 1, March 2002.
17. My research developing novel diagnostic techniques for distinguishing between different abnormal heart rhythms was the subject of a feature article by Arun Holden in the October 1999 issue of the internationally distributed *Physics World* magazine.
18. My work on controlling an abnormal heart rhythm was selected by *Quebec Science* magazine as one of 1997's top 10 discoveries (*Quebec Science*. **36(5)**, page 26, February 1998).

## **TECHNOLOGY TRANSFER**

### **Patents**

1. **K.D. Hall**. 'Personalized dynamic feedback control of body weight.' Filing date: 30 January 2013. U.S. Patent Application No. 13/754,058.
2. **K. Hall**, D. Polidori, and S. Siler. 'Hormone and drug concentrations in the portal vein and hepatic sinusoids' Filing date: 29 December 2006. U.S. Patent Application No. 11/618,383
3. D. Polidori and **K. Hall**. 'Apparatus and methods for assessing metabolic substrate utilization' Filing date: 8 September 2005. U.S. Patent No. 7,654,955 issued on February 2, 2010.
4. P. Brazhnik, **K. Hall**, D. Polidori S.Q. Siler, and J. Trimmer. 'Method and apparatus for computer modeling diabetes' Filing date: 9 January 2002. U.S. Patent No. 7353152 issued on April 1, 2008.
5. **K. Hall** and L. Glass. 'Apparatus and method for locating and confirming cardiac ablation sites.' Filing date: 26 February 1999. U.S. Patent Application No. 60/122, 101.

### **Material Transfer Agreements**

1. Harvard University
2. Columbia University
3. Stanford University
4. Johns Hopkins University
5. Cornell University

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6. New York University
7. National Institute of Agricultural Research – France
8. Brookings Institution
9. University of Queensland
10. National University of Singapore
11. Alabama Partnership for Children
12. Georgia Bio
13. Centro Federal de Educaçã Tecnol6gica de Minas Gerais (Brazil)
14. NutriSystem Inc.
15. McKinsey & Company

### **Research Collaboration Agreements**

1. Bill & Melinda Gates Foundation
2. Merck
3. Pfizer
4. Janssen Research & Development
5. Nutrition Science Initiative
6. Sanofi-Aventis
7. Orexigen Therapeutics, Inc.
8. Tactio Health Group
9. MetaLogics Corporation
10. MEI Research, Inc.

### **CONFERENCE/COURSE PRESENTATIONS**

1. Mars Lecture at the Annual Meeting of the Society for the Study of Ingestive Behavior, Montreal, Canada. July 18-22, 2017.
2. Plenary Speaker at the 14th Annual Nutrition and Health Conference, Phoenix, AZ. May 1-3, 2017.
3. Lecturer at the Institute of Human Nutrition & Weill Cornell Obesity course, New York, NY. April 20, 2017.
4. Symposium Speaker at the Endocrine Society Annual Meeting, Orlando, FL. April 1-4, 2017.
5. Speaker at the Metabolic/Bariatric Surgery session of the Annual Minimally Invasive Surgery Symposium, Las Vegas, NV. March 2-3, 2017.
6. Speaker at the Session on Mathematical Modeling of Obesity: Integrating Scientific Evidence for Practical Use at the AAAS Annual Meeting, Boston, MA. February 16-20, 2017.
7. Plenary Speaker at Dr. McDougall's Health and Medical Center 3-Day Advanced Study Weekend, Santa Rosa, CA. February 10-12, 2017.
8. Symposium Speaker at the Obesity Society Annual Meeting, New Orleans, LA. November 1-5, 2016.
9. Plenary Speaker at the 11th Annual Cleveland Clinic Obesity Summit, Cleveland, OH. September 29-30, 2016.

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10. Plenary Speaker at the Symposium on Regulation of Energy Balance: Classical Concepts and Novel Insights, Stuttgart, Germany. September 10, 2016.
11. Plenary Speaker at the International Conference on Nutrition in Medicine, Washington D.C. July 29-30, 2016.
12. Speaker at the Aspen Ideas Festival: Spotlight Health, Aspen, CO. June 23-24, 2016.
13. Symposium Speaker at the American Diabetes Association's 76th Scientific Sessions, New Orleans, LA. June 10-14, 2016.
14. Plenary Speaker at the European Obesity Summit, Gothenburg, Sweden. June 1-4, 2016.
15. Oral Presentation at the International Congress on Obesity, Vancouver, BC. May 1-4, 2016.
16. Workshop on Using the NIH Body Weight Planner for Nutrition Research and Counseling, Experimental Biology 2016, San Diego, CA. April 2-6, 2016.
17. Plenary Speaker at the second biannual conference on Childhood Obesity in the Community: Turning Science into Care, Cambridge, MA. March 31-April 1, 2016.
18. Oral Presentation at the Obesity Society Annual Meeting, Los Angeles, CA. November 3, 2015.
19. Plenary State-of-the-Art lecture at the American Conference on Pharmacometrics 6, Alexandria, VA. October 5, 2015.
20. Plenary Speaker at the New York Academy of Sciences Conference on Nutrition and the Science of Disease Prevention: A Systems Approach to Support Metabolic Health. New York, NY. April 16, 2015.
21. Plenary Speaker at the American Society of Bariatric Physicians annual meeting, Denver, CO. April 10-12, 2015.
22. Dynamic poster presentation at the Society for Neuroscience Annual Meeting, Washington D.C. November 15-19, 2014.
23. Oral Presentation at The Obesity Society Annual Meeting, Boston, MA. November 2-7, 2014.
24. Plenary speaker at the 10<sup>th</sup> Triennial Meeting of the International Society for Body Composition Research, Cascais, Portugal. June 11-14, 2014.
25. Plenary Speaker at the session on Obesity at the 11th annual Nutrition and Health Conference, Dallas, TX. May 5-7, 2014.
26. Symposium Speaker at the session entitled: Novel mathematical models for investigating topics in obesity, Experimental Biology 2014, San Diego, CA. April 2014.
27. Workshop Speaker at the Metabolic Origins of Disease Symposium, Orlando, FL. March 3-5, 2014.
28. Plenary Speaker at the 8<sup>th</sup> Annual Healthy Eating Research Meeting, Chapel Hill, NC. February 26-28, 2014.
29. Plenary Speaker at the 6<sup>th</sup> International Symposium on Strength Training, School of Physical Activity and Sports Sciences of the Technical University of Madrid, Madrid, Spain. December 12-15, 2013.
30. Symposium Speaker at the session entitled: Is a Calorie a Calorie? Effect of dietary macronutrients on human energy metabolism and body composition, The Obesity Society Annual Meeting, Atlanta, GA. November 16, 2013.

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31. Speaker at the session on Human Brain Imaging, The Obesity Society Annual Meeting, Atlanta, GA. November 15, 2013.
32. Speaker at the session on Diabetes, The Obesity Society Annual Meeting, Atlanta, GA. November 14, 2013.
33. Plenary Speaker at the Annual Michigan Metabolomics and Obesity Center Symposium, University of Michigan, Ann Arbor, MI. October 16, 2013. (Appearance cancelled due to U.S. federal government shutdown)
34. Plenary Speaker at the International Symposium on Eating Patterns, Diet Quality and Energy Balance, Purdue University, West Lafayette, IN. September 25, 2013.
35. Plenary Speaker at the IASO Annual Stock Conference, Hamburg, Germany. September 6, 2013.
36. Symposium Speaker at the session on Public Health and Policy in Obesity, Annual Meeting of the Society for the Study of Ingestive Behavior, New Orleans, LA. July 31, 2013.
37. Plenary Speaker at the Florida Dietetics Association Annual Symposium, Orlando, FL. July 16, 2013.
38. Symposium Speaker at the session on The Future of Drug Development in Diabetes and Obesity: Challenges and Quantitative Approaches in Combining New Chemical Agents, American Society for Clinical Pharmacology and Therapeutics Annual Meeting, Indianapolis, IN. March 7, 2013.
39. Obesity Symposium Speaker at the NIH Research Festival, Bethesda, MD. October 9-12, 2012.
40. Plenary Presentation of the Lilly Scientific Award Lecture at the Annual Meeting of The Obesity Society, San Antonio, TX. September 20-24, 2012.
41. Plenary Speaker at the annual Obesity Research Day, Minnesota Obesity Center, St. Paul, MN. June 20, 2012.
42. Plenary Speaker at the Dynamics in Neural, Endocrine and Metabolic Systems Symposium in Honor of Arthur Sherman, Bethesda, MD. June 7-8, 2012.
43. Plenary Speaker at the Biomarkers of Weight Loss, Maintenance, and Regain Symposium, Bethesda, MD. March 19-20, 2012.
44. Plenary Speaker at the First Caribbean Obesity Summit, Ponce, Puerto Rico. March 2, 2012.
45. Symposium Speaker at the session on Illuminating the Obesity Epidemic with Mathematics, AAAS Annual Meeting, Vancouver, BC. February 16-20, 2012.
46. Speaker at the 2012 ILSI Annual Meeting, Phoenix, AZ. January 20-25, 2012.
47. Plenary Speaker at the 9<sup>th</sup> Annual World Congress on Insulin Resistance, Diabetes and Cardiovascular Disease (WCIRD), Los Angeles, CA. November 3-5, 2011.
48. Speaker at the 33<sup>rd</sup> Congress of Clinical Nutrition and Metabolism, Gothenberg, Sweden. September 3-6, 2011.
49. Symposium Speaker at launch of The Lancet Obesity Series, London, UK. August 26, 2011.
50. Plenary Speaker at the NIMBioS Workshop on Mathematical Modeling of Metabolism and Body Weight Regulation, Knoxville, TN. July 13-16, 2011.
51. Keynote Speaker at the Ninth International Conference on Body Composition, Hangzhou, China. May 21 – 24, 2011.

52. Symposium Speaker at the session on Frontiers in Obesity Research, Annual Meeting of the American Society for Biochemistry and Molecular Biology, Washington D.C. April 9-13, 2011.
53. Invited Speaker at the American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.) Workshop – Current Advances in the Science and Application of Body Composition Measurement, Vancouver, BC. January 29, 2011.
54. Plenary Speaker at the annual meeting of the European Nutrigenomics Organization (NuGO), Glasgow, Scotland. August 31 - September 3, 2010.
55. Invited Speaker at the American Society for Nutrition Workshop – Applications of Modeling Techniques to Identify Mechanisms Involved in Obesity, Anaheim, CA. April 27, 2010.
56. Plenary Speaker at the EPSRC Symposium Workshop – From molecules to bodies: spanning levels of biological organization in medicine (M2B), Warwick Mathematics Institute, Warwick, U.K. December 14-15, 2009.
57. Symposium Speaker at The Obesity Society Annual Scientific Meeting, Washington D.C. October 28, 2009.
58. Plenary Speaker at the annual meeting of the European Nutrigenomics Organization (NuGO), Montecatini Terme, Italy. September 1, 2009.
59. Plenary Speaker at the 5<sup>th</sup> annual BioSim Conference, Copenhagen, Denmark. August 29, 2009.
60. Mini-symposium Speaker at the Energy Balance, Macronutrient Composition and Weight Loss session of the Experimental Biology 2009 Conference, New Orleans, LA. April 20, 2009.
61. Plenary Speaker at the Pennington Scientific Symposium on Adaptive Thermogenesis and Obesity, Pennington Biomedical Research Center, Baton Rouge, LA. December 8, 2008.
62. Plenary Speaker at the Mid-Atlantic Diabetes Research Symposium, National Institutes of Health, Bethesda, MD. October 3, 2008.
63. Plenary Speaker at the Workshop on Mathematical Modeling of Human Metabolism and Body Weight Regulation, Bethesda, MD. September 27, 2008.
64. Mini-symposium Speaker at the SIAM Conference on the Life Sciences, Montreal, Canada, August 4, 2008.
65. Mini-symposium Speaker at the Energy and Macronutrient Metabolism session of the Experimental Biology 2008 Conference, San Diego, CA. April 7, 2008.
66. Mini-symposium Speaker at the Recent Advances and Controversies in the Measurement of Energy Metabolism 2008 Conference, Denver CO. February 7, 2008.
67. Plenary Speaker at the 2007 Nutritional Systems Biology Modeling Workshop, Amsterdam, Netherlands. November 26-28, 2007.
68. Symposium Speaker at the CMS-MITACS Annual Conference, Mathematical Biology, Winnipeg, Manitoba. June 3, 2007.
69. Symposium Speaker at the CAIMS-MITACS Annual Conference, Nonlinear Dynamics in the Health Sciences, Toronto, Ontario. June 17, 2006.
70. Symposium Speaker at Joint NSF/NIH Workshop on Engineering Approaches to Energy Balance and Obesity, Arlington, Virginia. June 6, 2006.
71. Plenary Speaker at the Mid-Atlantic Diabetes Research Symposium, National Institutes of Health, Bethesda, Maryland. October 1, 2005.

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72. Plenary Speaker at the Duke/UNC Chapel Hill Metabolomics Workshop. Duke University, Durham, North Carolina. December 15, 2004.
73. Plenary Speaker at the IBC Life Science Summit on Systems Biology, Boston, Massachusetts. September 19-22, 2004.
74. Mini-symposium Speaker at the SIAM Symposium on Computational Models and Simulation for Intra-Cellular Processes. Washington D.C. October 4-5, 2002.
75. Speaker and Chair of the mini-symposium 'Mathematical Models and Pharmaceuticals', 1<sup>st</sup> SIAM Life Sciences Conference. Boston, Massachusetts. March 6-8, 2002.
76. Plenary Speaker at the Symposium on Biosimulation: A Tool to Examine Biological Function and Predict Drug Action. Copenhagen, Denmark. March 1-2, 2002.
77. Mini-symposium Speaker at the Biomedical Engineering Society Annual Meeting. Durham, North Carolina. October 7, 2001.
78. Mini-symposium Speaker at the Society for Mathematical Biology Annual Meeting. Salt Lake City, Utah. August 4, 2000.
79. Mini-symposium Speaker on Dynamical Data Analysis in Biology at the SIAM Conference on Applications of Dynamical Systems. Snowbird, Utah. May 23-27, 1999.
80. Plenary Speaker at the International Workshop on Dynamical Roles of Feedback Circuits. Cuernavaca, Mexico. Nov. 30 - Dec. 4, 1998.
81. Mini-symposium Speaker at the Society for Mathematical Biology Annual Meeting. Raleigh, North Carolina. August 1997.
82. Featured Symposium Speaker at the NASPE Annual Scientific Sessions. Seattle, Washington. May 1996.

## **ACADEMIC SEMINARS**

1. Johns Hopkins University School of Medicine, Grand Rounds at the Division of Endocrinology, Diabetes, and Metabolism, Baltimore, MD. September 6, 2017.
2. University of Pennsylvania, Institute of Diabetes, Obesity and Metabolism, Philadelphia, PA. May 17, 2017.
3. University of Iowa, Fraternal Order of Eagles Diabetes Research Center, Iowa City, IA. May 15, 2017.
4. University of Maryland School of Medicine, Mid-Atlantic Nutrition Obesity Research Center, Baltimore, MD. March 13, 2017.
5. New York University School of Medicine, Grand Rounds presentation hosted by the Department of Medicine and the Comprehensive Obesity Initiative, New York, NY. November 30, 2016.
6. Howard Hughes Medical Institute Janelia Research Campus, Ashburn, VA. October 12, 2016.
7. George Mason University, Department of Mathematical Sciences, Fairfax, VA. April 22, 2016.
8. Cornell University, Division of Nutritional Sciences, Ithaca, NY. April 11, 2016.
9. Washington University School of Medicine, Epidemiology and Clinical Outcomes Research Seminar Series, St. Louis, MO. March 24, 2016.
10. Harvard School of Public Health, Boston, MA. February 9, 2016.

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11. National Institutes of Health, Clinical Center Grand Rounds, Bethesda, MD. January 6, 2016.
12. Columbia University, New York Obesity Research Center, DeWitt Goodman Seminar Series, New York, NY. October 21, 2015.
13. Pennington Biomedical Research Center, William Hansel Visiting Scientist Seminar Series, Baton Rouge, LA. March 26, 2015.
14. Molecular & Integrative Physiology Seminar Series at the University of Michigan Medical School, Ann Arbor, MI. March 12, 2015.
15. Harvard School of Public Health, Boston, MA. February 17, 2015.
16. Mayo Clinic KROC Visiting Professor in the Division of Endocrinology, Diabetes, Metabolism and Nutrition, Rochester, MN. September 8-10, 2014.
17. USDA Beltsville Human Nutrition Research Center, Beltsville, MD. May 20, 2014.
18. University of Mississippi Medical Center, Department of Physiology and Biophysics, Jackson, MS. March 19, 2014.
19. National Institutes of Health, Clinical Center Grand Rounds, Bethesda, MD. February 26, 2014.
20. Harvard School of Public Health, Boston, MA. February 18, 2014.
21. National Institutes of Health, Demystifying Medicine session on Obesity: Etiology, Pathogenesis and Why Weight Loss is Difficult, Bethesda, MD. February 4, 2014.
22. University of Copenhagen, Faculty of Health and Medical Sciences, Copenhagen, Denmark. September 9, 2013.
23. New Jersey Institute of Technology, Newark, NJ. May 3, 2013.
24. Columbia University Mailman School of Public Health, New York, NY. May 2, 2013.
25. Harvard School of Public Health, Boston, MA. February 28, 2013.
26. Mid-Atlantic Nutrition and Obesity Research Center, University of Maryland, Baltimore, MD. January 3, 2013.
27. Sanford Burnham Medical Research Institute, Orlando, FL. April 5, 2012.
28. Pew Health Group, Washington DC. March 28, 2012.
29. National Institute on Aging, Baltimore, MD. February 10, 2012.
30. Harvard School of Public Health, Boston, MA. January 31, 2012.
31. McGill University Health Center's Research Institute, Montreal, Quebec. April 28, 2011.
32. McGill University, Department of Physiology, Montreal, Quebec. April 27, 2011.
33. Harvard School of Public Health, Boston, MA. February 9, 2011.
34. Interdepartmental Nutrition Program & Ingestive Behavior Research Center, Purdue University, West Lafayette, IN. December 10, 2010.
35. Physical Activity and Nutrition Seminar Series sponsored by the Schools of Kinesiology, Public Health, and Medicine, University of Michigan, Ann Arbor, MI. October 29, 2010.
36. Graduate Program in Nutrition Colloquium, Penn State University, University Park, PA. September 27, 2010.
37. University of Aberdeen Rowett Institute of Nutrition and Health, Aberdeen, Scotland. August 27, 2010.
38. U.S.D.A. Economic Research Service, Washington D.C. July 19, 2010.
39. W.K. Warren Frontiers in Neuroscience Conference, Tulsa, OK. May 4, 2010.

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40. Molecular Nutrition Unit, Technical University of Munich, Freising, Germany. December 17, 2009.
41. Clinical Nutrition Research Center, University of Alabama at Birmingham, Birmingham, AL. November 24, 2009.
42. Department of Bioinformatics and Computational Biology, George Mason University, Manassas, VA. March 24, 2009.
43. Department of Human Nutrition, Foods and Exercise, Virginia Polytechnic Institute and State University, Blacksburg, VA. November 3, 2008.
44. Clinical Nutrition Research Unit of Maryland, University of Maryland, Baltimore, MD. October 2, 2008.
45. MRC Human Nutrition Research, Elsie Widdowson Laboratory, Cambridge University, Cambridge, U.K. November 30, 2007.
46. New York Obesity Research Center, New York, NY. December 8, 2006.
47. NIH Nutrition Coordinating Committee, Bethesda, MD. October 5, 2006.
48. Cornell Weill Medical Center, Department of Physiology, New York, NY. October 2, 2006.
49. Pennington Biomedical Research Center, Division of Clinical Obesity & Metabolic Syndrome, Baton Rouge, LA. July 26, 2006.
50. U.S. Army Research Institute of Environmental Medicine, Natick, MA. July 18, 2006.
51. Diet & Human Performance Laboratory Seminar Series, USDA, Beltsville, Maryland. May 17, 2006.
52. New Jersey Institute of Technology Mathematical Biology Seminar Series, Newark, New Jersey. April 11, 2006.
53. Human Nutrition Research Centre Seminar Series, University of Alberta. Edmonton, Alberta. February 15, 2006.
54. Department of Human Nutrition Seminar Series, University of Colorado Health Sciences Center. Denver, Colorado. June 16, 2005.
55. Mathematical Biology Seminar Series, University of Alberta. Edmonton, Alberta. January 17, 2005.
56. CIIT Centers for Health Research. Durham, North Carolina. December 17, 2004.
57. Cardiovascular Research Group Seminar Series, University of Alberta. Edmonton, Alberta. November 4, 2004.
58. Human Nutrition Research Centre Seminar Series, University of Alberta. Edmonton, Alberta. October 20, 2004.
59. Metabolism Research Forum, Sarah W. Stedman Nutrition and Metabolism Center, Duke University. Durham, North Carolina, September 28, 2004.
60. Mathematical Biology Seminar Series, University of Alberta. Edmonton, Alberta. January 21, 2002.

## **OTHER PROFESSIONAL ACTIVITIES**

1. I am a member of the Scientific Advisory Board of the [Well Living Lab](#), a facility to measure the impact of the indoor environment on human health that was developed by the Mayo Clinic and the design and technology company Delos.

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2. I was an academic advisor for the McKinsey Global Institute who used our mathematical models of body weight dynamics to investigate the potential impact of a variety of obesity interventions. The results are documented in a November 2014 report entitled "[Overcoming obesity: An initial economic analysis](#)".
3. I was the first Visiting Scholar at the Ingestive Behavior Research Center (IBRC) at Purdue University in 2011 where I give lectures to undergraduate and graduate students and collaborated with various IBRC faculty members.
4. I was an Advisor for the [Mouse Metabolic Phenotyping Centers](#) project which is composed of 6 Centers across the US funded by NIDDK and NHLBI to act as a resource to provide services to the community of scientists who use mice to study diabetes, obesity, diabetic complications, and other metabolic diseases.
5. I organized the Workshop on Mathematical Modeling of Metabolism and Body Weight Regulation which was held July 13-16, 2011 at the National Institute for Mathematical and Biological Synthesis in Knoxville, TN. This workshop brought together researchers in the fields of obesity and metabolism with investigators expert in mathematical and computational modeling to facilitate communication and collaboration. The workshop featured some of the recent progress applying mathematical methods to modeling human metabolism, food intake, and body composition regulation.
6. I was the lead organizer of The Food Waste Forum which was held on May 6, 2010 in Toronto, Canada. The forum gathered a small group of experts in the area of food waste to facilitate collaboration with researchers in mathematics, statistics, agriculture, economics, and food policy that were interested in pursuing research in the understudied area of food waste.
7. I was the lead organizer of an International Workshop on Mathematical Modeling of Human Metabolism and Body Weight Regulation which was held on September 27-28, 2008 in Bethesda, MD. The workshop attracted more than 100 participants from all over the world including: Australia, Belgium, Canada, Denmark, Germany, Ghana, Italy, Switzerland, the Netherlands, and the United Kingdom.
8. I organized a Mini-Symposium on Mathematical Modeling of Metabolism and Body Weight Regulation at the SIAM Conference on the Life Sciences, Montreal, Canada, August 4, 2008.
9. I was a member of the Research Management Committee of [MITACS](#) – the Mathematics of Information Technology and Complex Systems, a Canadian Network of Excellence. I was an expert representative for the Biomedical Sector and my role on the Research Management Committee was to help establish the scientific vision and goals for MITACS, determine appropriate research themes, review new and existing research proposals and associated peer review reports and recommend which projects to fund.
10. I was a member of the organizing committee for the first SIAM Conference on the Life Sciences held in Boston in March 2002.

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11. I have been a reviewer for the following journals: *American Journal of Clinical Nutrition*, *American Journal of Public Health*, *American Journal of Physiology*, *Appetite*, *British Journal of Nutrition*, *British Medical Journal*, *Cell Metabolism*, *Diabetes*, *Environmental Science & Technology*, *International Journal of Obesity*, *Journal of Clinical Endocrinology and Metabolism*, *Journal of Pharmacokinetics and Pharmacodynamics*, *Physiology & Behavior*, *Lancet*, *Lancet Diabetes & Endocrinology*, *Nature*, *Obesity*, *Obesity Reviews*, *Physical Review E*, and *Physical Review Letters*, *PLoS Computational Biology*, *PLoS ONE*, *Science*.