Diana M. Thomas
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EDUCATION

Ph.D.	Mathematics	Georgia Tech Atlanta, GA	June 1996
B.A.	Mathematics	University of Montana Missoula, MT	June 1991

PROFESSIONAL EXPERIENCE

Director, Center for Quantitative Obesity Research	November 2011 – Present
Research Associate New York Obesity Research Center	December 2010 - Present
Adjunct Faculty, Pennington Biomedical Research Center	July 2010 - Present
Director of Undergraduate Research, Montclair	September 2004 - June 2010
Professor, Montclair	September 2012 - Present
Associate Professor, Montclair	September 2005 – Aug 2012
Assistant Professor, Montclair	September 2000 - Aug 2005
Assistant Professor, New Jersey City University	September 1998 - May 2000
Davies Postdoctoral Fellow United State Military Academy/Army Research Laboratory	September 1996 - June 1998

PUBLICATIONS

1. Schoeller DA, **Thomas D.** Energy balance and body composition. World Rev Nutr Diet. 2015;111:13-8.
2. **Thomas DM**, Ivanescu AE, Martin CK, Heymsfield SB, Marshall K, Bodrato VE, Williamson DA, Anton SD, Sacks FM, Ryan D, Bray GA. Predicting successful long-term weight loss from short-term weight-loss outcomes: new insights from a dynamic

energy balance model (The POUNDS Lost study). First online December 24, 2014, doi: 10.3945/ajcn.114.091520 Am J Clin Nutr February 2015 ajcn.091520.
3. Kyle TK, **Thomas DM**. Consumers believe nutrition facts labeling for added sugar will be more helpful than confusing. *Obesity* (Silver Spring). 2014 Dec; 22(12):2481-2484. doi: 10.1002/oby.20887.
4. Dhurandhar N, Schoeller D, Brown A, Heymsfield S, **Thomas D**, Sorensen T, Speakman J, Jeansonne M, Allison D. Energy Balance Measurement: When Something is Not Better than Nothing, *Int J Obes* (Lond). 2014 Nov 13. doi: 10.1038/ijo.2014.199.
5. Schuna JM Jr, Peterson CM, **Thomas DM**, Heo M, Hong S, Choi W, Heymsfield SB.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.* 2014 Nov 8. doi: 10.1002/ajhb.22653.
6. Heymsfield SB, **Thomas D**, Peterson C, Schuna J, Heo M, Hong S, Choi W. Scaling of Adult Body Weight to Height across Sex and Race/Ethnic Groups: Relevance to Body Mass Index, *AJCN*, in press 2014.
7. Casazza K, Brown A, Astrup A, Bertz F, Baum C, Bohan Brown M, Dawson J, Durant N, Dutton G, Fields DA, Fontaine KR, Levitsky D, Mehta T, Menachemi N, Newby PK, Pate R, Raynor H, Rolls BJ, Sen B, Smith, Jr. DL, **Thomas D**, Wansink B, Allison DB.Weighing the Evidence of Common Beliefs in Obesity Research, *Critical Reviews in Food Science and Nutrition*, In Press 2014.
8. **Thomas DM**, Martin CK, Redman LM, Heymsfield SB, Lettieri S, Levine JA, Bouchard C, Schoeller DA, The effect of dietary adherence on the body weight plateau: a mathematical model incorporating intermittent compliance with energy intake prescription. In press, *American Journal of Clinical Nutrition* 2014.
9. **Thomas DM**, Gonzalez MC, Pereira AZ, Redman LM, Heymsfield SB. Time to Correctly Predict the Amount of Weight Loss with Dieting, *Journal of the Academy of Nutrition and Dietetics*, J Acad Nutr Diet. 2014 Mar 31. pii: S2212-2672(14)00111-7. doi: 10.1016/j.jand.2014.02.003.
10. Heymsfield SB, Adamek M, Gonzalez MC, Guang J, **Thomas, D**, Assessing Skeletal Muscle Mass: Historical Overview and State of the Art, in press *Journal of Cachexia, Sarcopenia and Muscle*, 2014.
11. Heymsfield SB, Gonzalez MC, Shen W, Leanne Redman L, **Thomas D**, Weight Loss Composition is One-Fourth Fat-Free Mass: A Critique of This Widely Cited Rule in press *Obes. Rev.* 2014.
12. Archer E, Lavie C, McDonald SM, **Thomas DM**, Hébert JR, Taverno-Ross SE, McIver K, Malina RM, Blair SN. Maternal inactivity: 45-year trends in mother's use of time. Mayo Clinic ProceedingsMayo Clin Proc. 2013 Dec;88(12):1368-77. doi: 10.1016/j.mayocp.2013.09.009.
13. Silva AM, Fields DA, **Thomas D**, Strauss BJ. Body composition: assessment, regulation, and emerging techniques. J Obes. 2013; doi: 10.1155/2013/125068. Epub 2013 Jun 13.
14. **Thomas DM**, Weedermann M, Fuemmeler BF, Martin CK, Dhurandhar NV, Carl Bredlau C, Heymsfield SB, Eric Ravussin E, Bouchard C. Dynamic Model Predicting Overweight, Obesity, and Extreme Obesity Prevalence Trends. *Obesity* (Silver Spring). 2013 Jun 26. doi: 10.1002/oby.20520

15. **Thomas D**, Martin C, Lettieri S, Bredlau C, Kaiser K, Church T, Bouchard C, Heymsfield S., Can a Weight Loss of One Pound a Week be Achieved With a 3,500 kcal Deficit? Commentary on a Commonly Accepted Rule. *Int. J. Obes*., 2013 Apr 8. doi: 10.1038/ijo.2013.51.
16. **Thomas D.** Modelling in clinical nutrition - does it add to patient care? *Eur J Clin Nutr.* 2013 Feb 13. doi: 10.1038/ejcn.2013.16.
17. **Thomas D**, Bredlau C, Bosy-Westphal A, Muller M, Gallagher D, Shen W, Maeda Y, McDougall A, Peterson C, Ravussin E, Heymsfield S. Relationships between body roundness with body fat and visceral adipose tissue emerging from a new geometrical model. *Obesity* 2013 Mar 21. doi: 10.1002/oby.20408.
18. Archer E, Shook RP, **Thomas DM**, Church TS, Katzmarzyk PT, James R. Hébert JR, McIver KL, Hand GA, Lavie CJ, Blair SN. 45-Year Trends in Women's Use of Time and Household Management Energy Expenditure, *PLoS One*. 2013;8(2):e56620. doi: 10.1371
19. Casazza K, Fontaine KR, Astrup A, Birch LL, Brown AW, Bohan Brown MM, Durant N, Dutton G, Foster ME, Heymsfield SB, McIver K, Mehta, T, Menachemi N, Newby, PK, Pate R, Rolls BJ, Sen B, Smith DL, **Thomas DM**, Allison DB, Myths, Presumptions, and Facts about Obesity, *NEJM* 368;5 pp446-454 , January 31, 2013.
20. Heymsfield SB, **Thomas D**, Bosy-Westphal A, Shen W, Peterson CM, Müller MJ. Evolving concepts on adjusting human resting energy expenditure measurements for body size. *Obes Rev.* 2012 Aug 2. doi: 10.1111/j.1467-789X.2012.01019.x.
21. **Thomas DM**, Bouchard C, Church T, Slentz C, Kraus WE, Redman LM, Martin CK,Silva AM,Vossen M,Westerterp K, Heymsfield SB.Why do individuals not lose more weight from an aerobic exercise intervention at a defined dose? An energy balance analysis. *Obes Rev.* 2012 Jun 11. doi: 10.1111/j.1467-789X.2012.01012.x.
22. Dong Y, Rivera DE, **Thomas D**, Navarro-Barrientos JE, Downs D, Savage J, Collins LM, A Dynamical Systems Model for Gestational Weight Gain Behavioral Interventions, *Proceedings of the American Conference on Montréal*, Canada, June 27-29, 2012, pp. 4059-4064.
23. Heymsfield SB, Müller MJ, Bosy-Westphal A, **Thomas D**, Shen W, Human Brain Mass: Similar Body Composition Associations as Observed Across Mammals, to appear, *American Journal of Human Biology*, Am J Hum Biol. 2012 Jul-Aug; 24(4):479-85. doi: 10.1002/ajhb.22249. Epub 2012 Feb 23.
24. Heymsfield SB, **Thomas DM**, Martin CK, Redman L, Strauss B, Bosy-Westphal A, Müller MJ, Shen W, Ngyuen AM, Energy Content of Weight Loss: Kinetic Features During Voluntary Caloric Restriction, *Metabolism*, 2012 Jul;61(7):937-43. Epub 2012 Jan 16.
25. **Thomas DM**, Navarro-Barrientos JE, Rivera DE, Heymsfield SB, Bredlau C, Redman LM, Martin CK, Lederman SA, Collins L, Butte NF, A dynamic energy balance model predicting gestational weight gain, *Am J Clin Nutr* 95: 1 115-122, 2012.
26. Baracos V, Caserotti P, Earthman CP, Fields D, Gallagher D, Hall K, Heymsfield SB, Müller MJ, Napolitano A, Pichard C, Redman LM, Shen W, Shephard JA, **Thomas D.** Advances in the Science and Application of Body Composition Measurement. *J Parenter Enteral Nutr. 2012 Jan;36(1):96-107.*

27. Church TS, **Thomas DM**, Tudor-Locke C, Katzmarzyk, PT, Earnest CP, Rodarte RQ, Martin CK, Blair, SN, Bouchard C, Trends Over 5 Decades in U.S. Occupation-Related Physical Activity and their Associations with Obesity, *PLoS ONE* 6, 1-7. 2011.
28. Heymsfield S.B., **Thomas, D.M.**, Ngyuen, A.M., Peng J.Z., Martin C.K., Shen W. Strauss BJ, Bosy-Westphal A., Muller M., Voluntary weight loss: systematic review of early phase body composition changes. *Obes Rev.* 2011 May;12(5):e348-61. doi: 10.1111/j.1467-789X.2010.00767.x.
29. Heymsfield, S.B., Heo, M., **Thomas, D.** Pietrobelli, A., Scaling of Body Composition to Height: Revelance to Height Normalized Indices, *Am. J. Clin. Nutr. 2011* 93(4):736-40. *Epub 2011*
30. **Thomas, D.M.**, Martin C.K., Heymsfield S.B., Redman L.M., Schoeller D.A., Levine J.A. A simple model predicting individual weight change in humans, *Journal of Biological Dynamics*. 1:1-7, Feb. 2011.
31. **Thomas, D.**, Schoeller, D., Redman, L., Martin, C., Levine, J., Heymsfield, S., A computational model to determine energy intake during weight loss, *Am J Clin Nutr. 2010* Dec;92(6):1326-31. *Epub 2010*
32. **Thomas, D.M.**, Das S., Levine J., Martin C.K., Mayer L., McDougall A., Strauss B.J., Heymsfield S.B., 2010 New Fat Free Mass – Fat Mass Model for use in a Physiological Energy Balance Equation *Nutrition & Metabolism* 2010, **7**:39 (9 May 2010).
33. **Thomas, D.M.**, Ciesla A., Levine J.A., Stevens J.G., Martin C.K.2009. A mathematical model of weight change with adaptation. *Math Biosci Eng.* 6(4):873-887.
34. **Thomas, D**., M. Weedermann, L. Billings, J. Hoffacker, and R. A. Washington-Allen. 2009. When to spray: a time-scale calculus approach to controlling the impact of West Nile virus. *Ecology and Society* 14(2): 21.
35. **Thomas, D.M.**, Clapp, J.F., Shernce, S. 2008. A foetal energy balance equation based on maternal exercise and diet *Journal of the Royal Society Interfaces,* 5(21): 449-455.
36. Song, B., **Thomas, D.M.** 2007. Dynamics of Starvation in Humans *Journal of Mathematical Biology* 54(1):,27-43.
37. **Thomas, D.M.**, Lidman, L. 2007. Algebraic Dynamics of a One Parameter Class of Maps over Z2. *Atlantic Electronic Journal of Mathematics* 2(1): 55-63.
38. **Thomas, D.M.** and S. Lettieri and J.G. Stevens. 2006. Characteristic and Minimal Polynomials of Linear Cellular Automata. *Rocky Mountain Journal of Mathematics*. 36(3): 1077-1092
39. M. Misiurewicz and J.G. Stevens. **Thomas, D.M.** Feb. 2006. Iterations of Linear Maps over Finite Fields, *Linear Algebra and its Applications* 413(1): 218-234.
40. M.A. Jones. **Thomas, D.M.** Aug. 2005. Nim Induced Dynamical Systems, *Discrete and Continuous Dynamical Systems* Supplemental Volume, 453 – 462.
41. **Thomas, D.M.** and L. Vandemuelebroeke and K. Yamaguchi. May 2005. A Mathematical Evolution Model for Phyto-remediation of Metals. *Discrete and Continuous Dynamical Systems Series B*, 5(2):411-422.

42. N. Calkin and J.G. Stevens. **Thomas, D.M.** and Feb. 2005. A Characterization for the Length of Cycles of the N- Number Ducci Game. *Fibonacci Quarterly* 43(1):53-59.
43. Chamberland M. **Thomas, D.M.** March 2004. Open Conjectures on the Number Ducci Game. *Journal of Difference Equations and Applications* 10:339-342.
44. M.A. Jones, B. Song, **Thomas, D.M.**, Nov. 2004. A Mathematical Model for Debriding a Wound, *Math and Computer Modelling* 40(9-10):1057-64.
45. **Thomas, D.M.** and B. Urena. 2001. A Mathematical Model Describing the Evolution of Encephalitis in New York City. *Mathematical and Computer Modelling* 34:771-781.
46. **Thomas, D.M.** and F. Wasserstein-Robbins. 1999. Analysis of a Nonautonomous Nicholson Blowfly Model. *Physica A* 273(1-2):198-211.
47. **Thomas, D.M.** and M.A. Jones. 1999. Mathematical Control of Sleep/Wake Cycles. *Proc. 2nd Regional Conference on Quantative Reasoning across the Disciplines*.
48. **Thomas, D.M.** and T. Hull and M.A. Jones. Nov. 1998. Interviewing for a Job Academia. *American Mathematical Society Notices* 1353-57.
49. **Thomas, D.M.** and T. Snell and S. Jaffar. April 1996. A Control Problem in a Polluted Environment. *Mathematical Biosciences* 133:139-163.

LETTERS

1. Allison DB, **Thomas DM**, Heymsfield SB. Energy intake and weight loss. JAMA. 2014 Dec 24-31;312(24):2687-8. doi: 10.1001/jama.2014.15513.
2. Brown AW, Hall KD, **Thomas D**, Dhurandhar NV, Heymsfield SB, Allison DB. Order of Magnitude Misestimation of Weight Effects of Children's Meal Policy Proposal. Childhood Obesity. 12/2014; 10(6):542.
3. **Thomas DM,** Martin CK, Lettieri S, Bredlau C, Kaiser K, Church T, Bouchard C, Heymsfield SB. Response to 'Why is the 3500 kcal per pound weight loss rule wrong?' *Int J Obes* (Lond). 2013 Jun 18. doi: 10.1038/ijo.2013.113. [Epub ahead of print]
4. Schoeller DA, **Thomas D**, Archer E, Heymsfield SB, Blair SN, Goran MI, Hill JO, Atkinson RL, Corkey BE, Foreyt J, Dhurandhar NV, Kral JG, Hall KD, Hansen BC, Heitmann BL, Ravussin E, Allison DB. Self-report-based estimates of energy intake offer an inadequate basis for scientific conclusions. Am J Clin Nutr. 2013 Jun;97(6):1413-5. doi: 10.3945/ajcn.113.062125.

HONORS AND AWARDS

1. Mathematical Association of America NJ Section 2012 Distinguished College or University Teaching Award
2. Excellence in Teaching Award 2010 College of Science and Mathematics, Montclair State University
3. Excellence in Teaching Award – February 1995, Georgia Tech, Atlanta, GA
4. American Women in Math Schafer Prize Honorable Mention, - 1991

MEDIA COVERAGE

1. Todays Dietitian http://www.todaysdietitian.com/newarchives/111114p36.shtml
2. Men's Health http://www.menshealth.com/weight-loss/drop-pounds-fast

3. NY Times http://well.blogs.nytimes.com/2012/08/01/dieting-vs-exercise-for-weight-loss/?_r=0
4. WSJ http://blogs.wsj.com/numbersguy/calorie-cutters-1227/
5. FITNESS http://www.fitnessmagazine.com/health/body/head-to-toe/fat-but-fit/?page=2
6. ABC NEWS http://abcnews.go.com/Health/weight-loss-myths-debunked/story?id=19548576
7. CBS NEWS http://www.wcax.com/story/20876305/experts-debunk-obesity-myths
8. GOOD HOUSEKEEPING http://www.goodhousekeeping.com/health/diet-plans/lose-weight-faster-exercise#slide-5

PROFESSIONAL PRESENTATIONS/ABSTRACTS (Select Recent Presentations)

1. Application of mathematical models to guide patient weight loss through a smart phone intervention, 10th International Symposium on Body Composition, Caiscas, Portugal, May 2014.
2. Mathematical models for predicting individual weight loss. Diana Thomas, PhD, Montclair State University, Montclair, NJ, Experimental Biology San Diego, CA April 2014
3. Dynamic Model Predicting Overweight, Obesity, and Extreme Obesity Prevalence Trends Experimental Biology Boston, MA April 2013
4. Why Do Individuals Not Lose More Weight From an Aerobic Exercise Intervention at a Defined
5. Dose? An Energy Balance Analysis San Antonio, TX, October 2012
6. The Mathematics of Losing Weight: Translating Mathematical Modeling to a Patient's Bedside, Mathematical Association of America-NJ November 2011.
7. Weight Loss and Energy Balance, UMDNJ October 2011.
8. A dynamic model for gestational weight gain, International Body Composition Conference, Hangzhou, China, May 2011
9. Sticking to Your Diet: A Mathematical Approach, National Council of Supervisors in Mathematics, Indianapolis, IN, March 2011.
10. Dynamic models of weight change and their applications, Nutrition & Obesity Research Center, University of Alabama, February 2011.
11. Dynamic Energy Balance Models: Health, Vancouver, CA, A.S.P.E.N, January 2011.
12. Determining Dietary Adherence a Mathematical Approach, New York Obesity Research Center, October, 2010.
13. New Fat Free Mass Model, International Conference on Obesity, Stockholm, Sweden, July 2010.
14. Weight Loss Prediction Models, Energy Metabolism Laboratory, Tufts University, May 2010.

GRANT AWARDS

1. *The Mathematical Sciences in Obesity Research* **Award Number:** NIH R25DK099080 **Description:** Obesity affects more than one-third of the US population generating a need for novel interdisciplinary strategies to resolve growing obesity related negative health outcomes. Advanced mathematical methods play a critical role on numerous fronts in obesity research from evaluating the effect of population wide obesity prevention policy measures to monitoring patients during lifestyle interventions. The proposed course will develop

connections between mathematical scientists and obesity researchers to address research challenges with novel approaches.

2. *Expecting Success: Personalized management of body weight during pregnancy* **Award Number:** NIH1U01 DK094418-01 **Description:** This project is a smart phone intervention that will guide a cohort of pregnant women to maintain recommended gestational weight gain targets. A predictive model of expected weight gain will be applied to objectively monitor and counsel subjects during the intervention. **Role:** Co-I **Year** 2011.
3. *A computational model to determine energy intake during weight loss.* **Award Number:** NIH 1R15DK090739-01A1 **Description:** This project applies an energy balance model and the shooting method to determine an objective measure of energy intake during weight loss. The model will be applied to quantify markers of adherence in several longitudinal datasets., **Role:** PI **Year:** 2011.
4. *NIMBioS Investigative Workshop Mathematical Models of Metabolism and Body Weight Regulation* **Description:** The goal of this workshop is to bring together researchers in the fields of obesity and metabolism with investigators expert in mathematical and computational modeling to facilitate communication and collaboration between these researchers. The workshop will provide background on the physiology of human body weight regulation, highlight some of the recent progress applying such methods to modeling human metabolism, food intake, and body composition, and pose open mathematical modeling problems originating from metabolism and body weight regulation research. **Role:** PI **Year:** 2011
5. *Conference on Innovation in Undergraduate Research and Teaching.* NSF Mathematics Program, **Award number** DMS-0806218 **Description**: This conference brought together mathematicians who are world renowned for their teaching and/or undergraduate research records. **Role:** Co-PI **Year:** 2008.
6. *A computational model of weight change resulting from reduced physical activity,* Magaret and Herman Sokol Fellowship, **Description**: This project aims to quantify body composition changes when college athletes reduce physical activity. The goal is to develop a physical inactivity term for use within an energy balance equation. **Role:** PI **Year:** 2010
7. *Mathematical Modeling of Metabolism and Body Weight Regulation* National Institute for Mathematical and Biological Synthesis Investigative Workshop **Role:** PI **Year:** 2010
8. *Analysis of Henon Map via Homotopy Theory.* Army Research Office, **Role:** Co-PI **Year:** 1997-1998.
9. *Optimization of the Cost Associated with Controlling a Polluted Environment.* Army Research Office, Role: Co-PI. **Year:** 1997-98.
10. 1996-1999 Davies Postdoctoral Fellowship. National Research Council

PROFESSIONAL SERVICE (selected list)

University service

2010-present Institutional Review Board
2010-present Committee on University Effectiveness

2003-2005 Resource Mentor New Faculty Program
2002-2003 EdTex Committee

College service
2005-2010 Director of Undergraduate Research
2004-2005 Search Committee Passaic River Institute Director
2001-2004 Science Informatics Committees

Department service
2007-Present Calculus Coordinator
2005 – 2010 Departmental Personal Action Committee
2003 – 2004 Departmental Search Committee
2003 – 2005 Graduate Committees
2000 – 2003 Steering Committee
2000 – 2002 Newsletter Committee
2000 – 2002 Freshman Welcome Committee
2000 - Departmental Seminar Committee

Discipline-based

2006-2010 Organizer Mathematical Association of America Undergraduate Poster Session
2006-2010 Mathematical Association of America Committee on Undergraduate Student Activities
2005-2013 Editor International Journal of Differential and Difference Equations
2011-Present Editor European Journal of Clinical Nutrition
2011-Present The Obesity Society Public Affairs Committee
2013-Present Editor Journal of Obesity and Metabolic Research
2014-Present Chair-Elect Basic Science Section, The Obesity Society

ASSOCIATION MEMBERSHIPS

1996 American Mathematical Society
1996 Mathematical Association of America
2002 American Women in Mathematics
2005 Council for Undergraduate Research
2009 The Obesity Society
2011 The American Society of Nutrition