

Melissa C. Kay, PhD, MS, MPH, RD

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CURRENT POSITIONS

REACH Equity Career Development Program Awardee

The Duke REACH Equity Center
Duke University, Durham, NC
2020-present

Research Scholar

Duke Global Digital Health Science Center
Duke Global Health Institute
Duke University, Durham, NC
2019-present

Duke Center for Childhood Obesity Research
Duke University, Durham, NC
2019-present

EDUCATION/TRAINING

Postdoctoral Fellowship, 2017-2019

Duke Global Digital Health Science Center
Duke Global Health Institute
Duke University, Durham, NC

Duke Center for Childhood Obesity Research
Duke University, Durham, NC

Ph.D. Nutrition Interventions and Policy, Epidemiology minor, 2017

University of North Carolina, Chapel Hill
Gillings School of Global Public Health

Dissertation: Examining the association between maternal and infant diet as a basis for early life obesity prevention.

Advisor: Peggy Bentley, PhD

Dietetic Internship, 2008-2009

Brigham and Women's Hospital, Boston, MA

M.S. Food Policy and Applied Nutrition, 2008

The Gerald J. and Dorothy R. Friedman School of Nutrition Science and Policy
Tufts University, Boston, MA

M.P.H. Nutrition, 2008

School of Medicine
Tufts University, Boston, MA

B.A. Biology, 2001

College of the Holy Cross, Worcester, MA

CERTIFICATIONS

Registered Dietitian (RD), 2009

Didactic Program in Dietetics

Simmons College, Boston, MA

PEER REVIEWED PUBLICATIONS

1. **Kay M.**, Carroll D., Fulton J. Awareness and Knowledge of the 2008 Physical Activity Guidelines for Americans. *J Phys Act Health* 2014 May;11(4):693-8.
2. DeBastiani SD, Carroll DD, **Cunningham M**, Lee SM, Fulton JE. Awareness and Knowledge of the Youth 2008 Physical Activity Guidelines for Americans. *J Phys Act Health* 2014. Mar;11(3):495.
3. Bentley ME, Johnson SL, Wasser H, **Cunningham M**. Formative research methods for designing culturally appropriate, integrated child nutrition and development interventions: An overview. *Annals of the New York Academy of Sciences* 2014 Jan;1308:54-67.
4. Tzioumis E., **Kay M.**, Bentley M.E., Adair L. Prevalence and trends in the childhood dual burden of malnutrition in low- and middle- income countries, 1990-2012. *Public Health Nutrition*, 2016. Jun;19(8):1375-88.
5. **Kay M.**, Wasser H., Adair L.S., Thompson A.L., Siega-Riz A.M., Suchindran C.M., Bentley M.E. Consumption of obesogenic foods in non-Hispanic black mother-infant dyads. *Maternal and Child Nutrition* 2017 Jun 18.
6. **Kay M.**, Wasser H., Adair L.S., Thompson A.L., Siega-Riz A.M., Suchindran C.M., Bentley M.E. Consumption of key food groups during the postpartum period in low-income, non-Hispanic black mothers. *Appetite* 2017. Oct;117(1):161-167.
7. **Kay M**, Burroughs J, Askew S, Bennett G, Armstrong S, Steinberg D. Digital Weight Loss Intervention (Track) for Parents of Children Being Treated for Obesity: A Feasibility Trial. *J Med Internet Res* 2018; *J Med Internet Res* 2018; 20(12):e11093.
8. **Kay MC**, Welker EB, Jacquier EF, Story M. Beverage consumption patterns among infants and young children (0-47.9 months): data from the Feeding Infants and Toddlers Study, 2016. *Nutrients* 2018; 10(7):825.
9. Steinberg DM, **Kay MC**, Burroughs JN, Svetkey LP, Bennett GG. The effect of a digital behavioral weight loss intervention on DASH diet adherence in medical vulnerable primary care patients: Results from a randomized controlled trial. *Journal of the Academy of Nutrition and Dietetics* 2019; 119(4):574-584
10. Berger MB, Steinberg DM, Askew S, Gallis JA, Treadway CC, Egger JR, **Kay MC**, Batch BC, Finkelstein EA, DeVries A, Brewer A, Bennett GG. The Balance protocol: a pragmatic weight gain prevention randomized controlled trial for medically vulnerable patients within primary care. *BMC Public Health* 2019; 19:596.
11. Duffy EW, **Kay MC**, Jacquier E, Catellier D, Hampton J, Anater AS, Story M. Trends in Food Consumption Patterns of US Infants and Toddlers from Feeding Infants and Toddlers Studies (FITS) in 2002, 2008, 2016. *Nutrients* 2019; 11(11):2807.
12. White MJ, Armstrong SC, **Kay MC**, Perrin EM, Skinner A. Associations between milk fat content and obesity, 1999 to 2016. *Pediatric Obesity*. 2020;e12612.<https://doi.org/10.1111/ijpo.12612>
13. **Kay MC**, Cholera R, Yin HS, Flower KB, Rothman RL, Sanders LM, Delamater AM, Perrin EM. Intended Versus Actual Breastfeeding Duration Among Low-income Breastfeeding Mothers. *Breastfeeding Medicine*. Accepted April 6, 2020.
14. **Kay MC**, Silver HJ, Yin HS, Flower KB, Rothman RL, Sanders LM, Delamater AM, Perrin EM. Assessing diet quality in a racially and ethnically diverse cohort of low-income toddlers. *Journal of Pediatric Gastroenterology and Nutrition*. Accepted June 8, 2020.

OTHER PUBLICATIONS

1. Tzioumis, E., **Kay, M.**, Wright, M., Adair, L. Health effects of commercially-available complementary foods: a systematic review. Report to the World Health Organization, 2015. http://www.who.int/nutrition/topics/CF_health_effects_commercially_systematicreview.pdf
2. Thayer, L., De Marco, M., Calancie, L., **Cunningham-Kay, M.**, & Ammerman, A. (2015). Intervening to Change Eating Patterns: How can individuals and societies effect lasting change through their eating patterns? In R. Neff (Ed.), *Introduction to the U.S. Food System: Public Health, Environment, and Equity* (pp. 457-482). San Francisco, CA: Jossey-Bass

Under Review

1. Steinberg DM, **Kay MC**, Svetkey LP, Askew S, Christy J, Burroughs JB, Ahmed H, Bennett GG. Feasibility of a digital behavioral intervention to improve diet quality among women with high blood pressure. *Preventing Chronic Disease*. (under review)
2. Wood C, Witt WP, Yin S, Rothman RL, Sanders LM, Delamater AM, Flower KB, **Kay MC**, Perrin EM. Effects of Breastfeeding, Bottle Feeding, and Complementary Feeding on Rapid Weight Gain. *Journal of Pediatrics*. (submitted)
3. Maradiaga Panayotti GM, Miner DS, Hannon EA, **Kay MC**, Shaikh SK, Jooste KR, Erickson E, Kovarik T, Wood CT. Implementation of a Novel Tool to Collect Milk Feeding Data on Infants in Primary Care Clinics. *Pediatrics* (submitted)

RESEARCH SUPPORT

Current

Feasibility of delivering a digital behavioral intervention to increase diet quality among women receiving WIC benefits. The National Institute on Minority Health and Health Disparities (PI Kay; 5U54MD012530-03)

01/01/20-12/31/21

This career development grant is administered through Duke University REACH Equity Career Development Awards program. The Career Development Awards are intended to provide career development support to early-stage investigators proposing rigorous research to develop or test interventions which address the REACH Equity Theme and provide training, mentoring and career guidance for junior faculty advancing to an independent scientific career. The study in this award aims to reduce disparities in obesity by implementing obesity prevention interventions in vulnerable populations using digital technology.

Role: Principal Investigator

Greenlight Plus Study: A Randomized Study of Approaches to Early Childhood Obesity Prevention, Patient-Centered Outcomes Research Institute (PCORI) (Duke University PI: Perrin)

03/01/2019-02/28/2022

This project is a randomized trial taking place at six academic pediatric primary care clinics to assess the efficacy of a low-literacy/numeracy-oriented intervention taught by pediatric resident physicians to promote healthy behaviors and to prevent early childhood obesity among children age 0-2. Caregiver-child dyads will be randomized to receive the resident-delivered intervention or receive the same intervention plus a health information technology intervention to add support for family behavior change and goal setting.

Role: Co-Investigator

Using digital health to improve diet quality among adults at risk for cardiovascular disease, The National Heart, Lung, and Blood Institute (PI Steinberg: R01HL146768-01)

07/01/19-06/30/24

The proposed project aims to test the efficacy of a scalable and responsive intervention designed to deliver coaching based on diet data received through a commercial app. The fully powered 12-month randomized controlled trial will examine the efficacy of the intervention on changes in dietary quality and blood pressure among men and women with high blood pressure using the new blood pressure guidelines for nonpharmacological treatment. The primary outcome is 6-month change in DASH adherence, as measured by 24-hour recalls.

Role: Co-Investigator

Hearts and Parks. American Heart Association: Strategically Focused Research Network Center Award (PI Armstrong)

06/01/17-05/31/21

This project focuses on the effectiveness of Bull City Fit and Healthy Lifestyles, aiming to comprehensively study the program's impact on weight, physical fitness, quality of life, family engagement and more.

Role: Co-investigator

Optimizing a standalone text messaging-based weight loss intervention, The National Institute of Diabetes and Digestive and Kidney Diseases (PI Bennett; R01DK109696)

02/01/17-01/31/2021

All study participants will receive a core 6-month weight loss texting intervention that includes tailored behavior change goals, interactive self-monitoring, automated feedback, and skills training. Using a fractional factorial design, we will randomize participants (n=592) to one of 16 experimental conditions that will test the text messaging components.

Role: Co-investigator

A Pragmatic Trial of a Digital Health Intervention to Prevent Weight Gain in Primary Care.

The National Institute of Diabetes and Digestive and Kidney Diseases (PI Bennett; R18DK109518);

05/15/16-05/14/21

This will be a pragmatic, patient-randomized controlled effectiveness trial, randomizing 442 overweight and obese adult community health center patients to a 12-month weight gain prevention intervention or to usual care.

Role: Co-investigator

Previous

Mothers and Others: family-based obesity prevention for infants and toddlers. The Eunice Kennedy Shriver National Institute of Child Health and Human Development (PI Bentley; 4R01HD073237-05)

09/01/12 – 06/01/18

A family-based, multi-component intervention focused on infants of African-American (AA) mothers and families, a minority population at elevated risk for pediatric obesity, versus a child safety attention-control group to promote healthy weight gain patterns during the first two years of life.

Role: Research Trainee

Infant Care, Feeding and Risk of Obesity. The Eunice Kennedy Shriver National Institute of Child Health and Human Development (PI Bentley; 3R01HD042219-05S2)

04/05/02 – 03/31/09

A cohort study of 217 low-income, first-time mothers and infants followed from 3 to 18 months of age examining the sociodemographic, household factors, feeding beliefs and infant characteristics associated with age-inappropriate feeding of liquids and solids (inappropriate feeding).

Role: Research Trainee

AWARDS & HONORS

- National Institute of Health Loan Repayment Award, National Institute of Minority Health and Disparities, 2019-2021
- Duke University, Duke Postdoctoral Professional Development Award, 2018
- Duke University, Duke Global Health Institute Postdoctoral Conference Grant, 2018
- Duke University, Duke Emerging Leaders Institute, Duke University, 2018
- University of North Carolina, Chapel Hill, Department of Nutrition, Delta Omega Honor Society, Theta Chapter, 2017
- Frank Porter Graham Child Development Institute, University of North Carolina, James J. Gallagher Dissertation Award, 2016
- University of North Carolina, Chapel Hill, Dissertation Completion Fellowship, 2016
- The Gerald J. and Dorothy R. Friedman School of Nutrition Science and Policy, Tufts University, Tuition Award, 2006
- College of the Holy Cross, Patriot League Track and Field Academic Honor Roll, 1999, 2000, 2001

CONFERENCE PRESENTATIONS

Cavallo, D, **Cunningham, M**, et al. School Lunch Decisional Factors and Technology Use In A Sample of High School Students. Poster Presentation, Society of Behavioral Medicine, New Orleans, LA, 2012. Poster presentation

Vodicka, S, **Cunningham, M**, et al. Aisle by Aisle: Teaching consumers to choose foods wisely in the grocery store. Weight of the Nation, Baltimore, MD, 2012. Oral presentation

Beth, D and **Cunningham, M**. NC Farmers' Markets Nutrition Programs Integration Pilot Project. Poster Presentation, Weight of the Nation, Baltimore, MD, 2012. Poster presentation

Kay, MC, Bentley, M, Adair, LS. Global trends in breastfeeding duration. The Journal of the Federation of American Societies for Experimental Biology, 28:1015.1, 2014. Poster presentation

Kay, MC, Bentley, M, Adair, LS. Global Prevalence and Differentials of Continued Breastfeeding at 1 and 2 Years. The Journal of the Federation of American Societies for Experimental Biology, 28:1015.1, 2015. Poster presentation

Kay, MC, Yin, HS, Flower, KB, Rothman, RL, Sanders, LM, Delamater, AM, Ravanbakht, S, Silver, HJ, Perrin, EM. Toddler dietary intake: Results from a multi-site study of low-income families. Academy of Pediatrics Regional Meeting, February 2018. Poster Presentation.

Steinberg, DM, **Kay, MC**, Bennett, GB. Who are the supertrackers? Understanding predictors and outcomes of engagement within a digital health weight loss intervention. The Society of Behavioral Medicine, April, 2018. Poster Presentation.

Kay, MC, Wasser, H, Adair, LS, Thompson, A.L., Siega-Riz, A.M., Suchindran, C.M., Bentley, M.E. Barriers and Facilitators to Healthy Eating Postpartum Among Non-Hispanic Black Mothers. The Society of Behavioral Medicine, April, 2018. Poster Presentation.

Kay MC, Steinberg D, Burrows J, Askew S, Bennett GG, Armstrong S. Families on Track: Feasibility and engagement with a digital health behavioral intervention for parents of children being treated for obesity. Pediatric Academic Societies Meeting, May 2018. Poster Presentation.

Kay, MC, Yin, HS, Flower, KB, Rothman, RL, Sanders, LM, Delamater, AM, Ravanbakht, S, Silver, HJ, Perrin, EM. Toddler dietary intake: Results from a multi-site study of low-income families. Pediatric Academic Societies Meeting, May 2018. Platform Presentation.

Cholera, R, **Kay, MC**, Yin, HS, Flower, KB, Rothman, RL, Sanders, LM, Delamater, AM, Perrin, EM. Mothers' breastfeeding durations fall shorter than expected in a diverse sample. Pediatric Academic Societies Meeting, May 2018. Poster Presentation.

Kay MC, Steinberg D, Askew S, Bennett GG. The Effects of a Digital Health Behavioral Weight Loss Program on Changes in Physical Activity. The Obesity Society, November 2018. Poster Presentation.

Hopkins CM, **Kay MC**, Bennett, GG. Efficacy of Standalone Digital Weight Loss Interventions: A Systematic Review. The Obesity Society, November 2018. Poster Presentation.

Hannon EA, Shaikh SK, Stewart AB, **Kay MC**, Erickson ES, Panayotti GM, Wood CT. The provider matters: Variation of patient breast milk feeding rates. Academic Pediatrics Association, Regional Meeting, February 2019. Platform Presentation.

Kay MC, Askew S, Bennett GG, Armstrong S, Steinberg DM. Assessing the feasibility of changing parent diet using a digital weight loss intervention. The Society for Behavioral Medicine, March 2019. Poster Presentation.

Berger MB, Steinberg DM, Askew S, Treadway CC, **Kay MC**, Bolton-Cubilan J, Bennett GG. Challenges and successes with recruitment for a pragmatic randomized controlled digital weight gain prevention trial. The Society for Behavioral Medicine, March 2019. Platform Presentation.

Kay MC, Hannon EA, Shaikh SK, Erickson ES, Panayotti GM, Wood CT. Breastfeeding rates among a diverse set of primary care patients 0-12 months old using a novel, real-time EMR tool. Department of Pediatrics Research Retreat, Duke University 2019. Poster Presentation.

Panayotti GM, Hannon E, Jooste K, **Kay MC**, Erickson E, Miner D, Shaikh S, Wood C. Design and implementation of a novel tool to collect milk feeding type in children 0-2 years. Pediatric Academic Societies, April 2019. Poster Presentation.

INVITED LECTURES

Guest Lecturer, Duke University, Fall 2017

GLHLTH 670: Global Health Nutrition

Topic: Maternal and Child Nutrition

Guest Lecturer, University of North Carolina, Greensboro, Fall 2018

NTR 213: Introductory Nutrition

Topic: Weight Management and Exercise & Physical Fitness

Guest Lecturer, University of North Carolina, Chapel Hill, Fall 2015

NUTR 801: Introduction to Advanced Nutrition Intervention and Policy Research Methods I.

Topic: Process Evaluation

Guest Lecturer, University of North Carolina, Chapel Hill, Fall 2015

NUTR 801: Introduction to Advanced Nutrition Intervention and Policy Research Methods I.

Topic: Recruitment and Retention

Guest Lecturer, University of North Carolina, Chapel Hill, Fall 2014

NUTR 611: Nutrition Across the Lifecycle.

Topic: Nutrient Needs & Recommendations for Children

Guest Lecturer, University of North Carolina, Chapel Hill, Fall 2014

NUTR 611: Nutrition Across the Lifecycle.

Topic: Nutrition Epidemiology Overview

SERVICE

University of North Carolina, Chapel Hill

- Preceptor for Master's level dietetic students; assisted in counseling and patient documentation for diabetic patients at the UNC School of Dentistry clinic, 2013-2017
- Thesis Advisor, Courtney Lussier, UNC BSPH Honors Thesis, 2016

- Coordinator, Department of Nutrition, Interventions and Policy Division Student Brown Bag Lunch Series, 2016-2017
- Co-coordinator, Department of Nutrition, Student Professional Development, Obesity Journal Club, 2015-2017

Duke University

- Duke Engage Independent Project Mentor, Kate Kutzer, 2019
- Duke Global Health Institute Peer Reviewer

ADDITIONAL WORK EXPERIENCE

Center for Women's Health Research, University of North Carolina, Chapel Hill, NC

Graduate Research Assistant
2012-2017

Carolina Population Center, University of North Carolina, Chapel Hill, NC

Graduate Research Assistant
2012-2017

Center for Health Promotion and Disease Prevention, University of North Carolina, Chapel Hill, NC

Nutrition education coordinator, UNC SNAP-Ed program
2016-2017

Centers for Disease Control and Prevention Atlanta, GA

Public Health Prevention Specialist
2009-2012

*Division of Nutrition, Physical Activity and Obesity, Physical Activity and Health Branch
Center for Global Health, Division of Public Health Systems and Workforce Development,
Sustainable Management Development Program
2009-2010*

*Center for Health Promotion and Disease Prevention, University of North Carolina, Chapel Hill, NC
Physical Activity and Nutrition Branch, North Carolina Division of Public Health
2010-2012*

PROFESSIONAL EXPERIENCE

Memberships

Society of Behavioral Medicine
The Obesity Society

Ad-hoc Reviewer

Current Developments in Nutrition
The American Journal of Public Health
Nutrients
BMJ Open
BMC Public Health
Journal of Medical Internet Research