

Janine Anne Higgins, PhD

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Current Position

Professor, School of Medicine, Department of Pediatrics (Endocrinology). University of Colorado Anschutz Medical Campus

Director of Operations and Nutrition Research Director, Colorado Clinical and Translational Sciences Institute (CCTSI)

Education

University of Sydney	Bachelor of Science (Honours Class I)	1991
University of Sydney	Doctor of Philosophy in Biochemistry	1995

Academic Appointments

University of Sydney, Department of Biochemistry	Lecturer	1992 - 1995
University of Wollongong, Biomedical & Life Sciences	Lecturer	1996 - 1999
University of Colorado Denver, Department of Pediatrics	Instructor	2000 - 2006
University of Colorado Denver, Department of Pediatrics	Assistant Professor	2006 - 2012
University of Colorado Denver, Department of Pediatrics	Associate Professor	2012 - 2018
University of Colorado Denver, Department of Pediatrics	Professor	2018 - present

Professional Positions

University of Sydney	Laboratory Demonstrator	1992 - 1995
University of Sydney	Research Assistant	1995 - 1996
University of Wollongong	Laboratory Manager	1996 - 1999
Pediatric Clinical and Translational Research Center	Manager, Nutrition Core	2003 - 2007
Gelesis Inc.	Scientific Advisory Board	2009 - 2012
Colorado Clinical and Translational Sciences Institute	Nutrition Research Director	2007 - present
Colorado Clinical and Translational Sciences Institute	Director of Operations	2014 - present
Vital Start	Board Member	2017 - present
Colorado Nutrition and Obesity Research Center	Associate Director, CIT Core	2019 - present

Honors, Special Recognition, and Awards

- Australian Diabetes Society/Rhône Poulenc Rorer Career Development Award 1995
- Pharmacia Award for Excellence in Molecular Biology 1995
- Department of Education, Employment and Workplace Relations Australian Postgraduate Award 1992
- Colorado National Obesity Research Center (NORC) Outstanding Faculty Member Award 2016

Membership in Professional Organizations

- Member of the Obesity Society (formerly NAASO)
- Member of the American Diabetes Association
- Member of the Pediatric Obesity special interest group of the Obesity Society
- Member of the National Association of Bionutritionists

Major Committee and Service Responsibilities

Departmental

- Department of Pediatrics Mentorship Committee
- Department of Medicine Early Career Scholars Award reviewer 2016
- CCTSI Director of Operations
 - Development and tracking of unit-specific metrics
 - Coordination and rationalization of services, process improvement
 - Budget tracking across multiple institutions and systems
 - Implementation of processes and systems to improve CTRC user satisfaction scores, for example:
 - * Provision of research coordinator services across departments at UCH by the Clinical Research Support Team (CreST); recent feasibility study of overnight coordinator coverage at UCH
 - * Introduction of a unified scheduling system across all UCH CTRC services and Cores that facilitates real time scheduling for all appointments. I hired the staff for this program, ran data entry tests, and developed reports for all CTRC metrics. This system is now fully operational containing 619 protocols, encompassing over 1,200 workflows for individual study visits, and has 703 unique users.
 - * Introduction of charge nurses at UCH and CHCO CTRCs to accommodate consistency of communication between nursing staff and investigators and rationalization of manager roles
 - * Built a unified database for monthly collection and tracking of CTRC metrics
 - Participate in the development and implementation of strategic, integrated communications plans, including all information available on the CCTSI website
 - Preparation of NIH- and University-requested reports & materials for University/Hospital publications
 - Assist in the preparation of CTSA grant submissions and annual reports
 - Gather key data and prepare business plans for new endeavors/services
- CCTSI Nutrition Research Director
 - Oversight of all adult and pediatric CTRC Nutrition Core services & data collection for > 65 protocols
 - Responsible for team building, dispute resolution, and staff disciplinary action
 - Provide expert Nutrition advice for investigators submitting grant applications or requesting CTRC support
 - Budget management and productivity, setting/tracking metrics for program success
 - Process improvement: in two years, 50% increase in productivity with no budget increase, 14% increase in customer satisfaction ratings across all client types (investigators, subjects, etc.)
 - Establishment/maintenance of Standard Operating Procedures (SOP), adopted nationally by the National Association of Bionutritionists (NAB)
- Colorado Nutrition and Obesity Research Center (NORC) Associate Director, Clinical Intervention and Translation Core
 - oversight of NORC metabolic kitchen activities
 - integration of NORC and CCTSI metabolic kitchens and dietary intake measurement services, elimination of duplication
 - introduction of new services, such as ad libitum feeding and hunger/satiety assessment
- Member, selection committee for CHCO Academy of Nutrition and Dietetics Dietetic Internship Program

Institutional

- Department of Pediatrics representative to the Faculty Senate 2011-2014
- Member, CCTSI MicroGrant committee

- Member, Scientific Advisory and Review Committee (SARC)
- Member, Children's Hospital Colorado ONA Committee (to assess feasibility of research applications)
- Member, Children's Hospital Colorado Healthy Hospital Initiative (HHI) 2013-2018
CHCO became the first hospital in Colorado to reach CDPHE Healthy Hospital Compact Platinum status in 2017
- Standing Reviewer; CCTSI CO-pilot award program
- Standing reviewer, CCTSI Pre-K program
- Reviewer; CCTSI K to R program
- Member of Children's Hospital Colorado Obesity Committee
- Panel member, CHCO 2nd Annual Research Symposium (2016)

National

- Scientific Expert, American Association of Cereal Chemists International (AACC Int) Expert Committee for Recommendations on Glycemic Carbohydrate Definition
- National training on anthropometric measurements and form completion for the NIH-funded multi-center Treatment Options for Type 2 Diabetes in Adolescents and Youth (TODAY) study, Washington, DC, in 2002 and Denver, CO, in 2006
- Chair, TODAY Ancillary Studies Committee 2013 - 2017
- Chair, TODAY Publications and Presentations Committee 2017 - present
- National training on completion and analysis of 3d food records for the NIH-funded multi-center Study to Explore Early Development (SEED) of Autism study, Atlanta 2004
- Software training and statistical certification of NDS operators for central analysis of SEED dietary data.
- Committee member, TODAY Recruitment and Retention Committee
- Committee member, TODAY Forms and Manuals of Procedure (MOP) Committee
- Co-chair, New Treatment Paradigms Session at FASEB Summer Research Conference: The Physiological Basis for Obesity Therapeutics (2009). Snowmass, Colorado.
- Chair, Exercise as a perturbation to energy balance session at Recent Advances and Controversies in the Measurement of Energy Metabolism (RACMEM; 2008)
- Chair, Added Sugars and Carbohydrate Quality - Who, What, When, Where, Why, and What Happens Next? (The Obesity Society's Obesity Week; 2019). Las Vegas, Nevada.
- Member of the Pediatric Obesity special interest group of the Obesity Society
- Member of the National Association of Bionutritionists
- National contact for several newspaper and magazine agencies as a resistant starch and dietary fiber expert (eg. LA Times, Women's Health, Prevention magazine)

International

- Grant reviews for the Diabetes UK (United Kingdom). Expert external reviewer for grant subjects of fiber and resistant starch.
- Grant Reviews for the Scottish Executive (United Kingdom). Expert external reviewer for grant subjects of glycemic index/load, fiber, and resistant starch.
- Program Committee Member, "Innovative Technologies for Dietary Intakes Measurements" conference (2018) London, UK.
- International PhD and MSc candidate thesis reviews for the University of Sydney, Australia.
- Chair, Diet and Energy Balance Session: International Conference on Obesity (2006) Sydney, Australia.

- Panelist, International Life Sciences Institute (ILSI), North America chapter, Future Research Needs (FRN) Assessment for Fructose/Sugar and Health Outcomes
- Ad hoc reviewer for international peer-reviewed journals including, but not limited to, Journal of Nutrition, British Journal of Nutrition, International Journal of Food Chemistry, Journal of Nutritional Biochemistry, Diabetes, Obesity Research, Nutrition & Metabolism
- International scientific expert on resistant starch with press coverage in the USA and abroad linked with my faculty position at UCD

Review and Referee Work

- Grant reviews for Diabetes UK, United Kingdom. Expert external reviewer for grant subjects of fiber and resistant starch. Grants reviewed since 2008.
- Grant reviews for the Scottish Executive (United Kingdom). Expert external reviewer for grant subjects of glycemic index/load, fiber, and resistant starch. Grants reviewed 2006-2010.
- International Masters and PhD thesis reviews for the University of Sydney, Australia.
- Ad hoc reviewer for international peer-reviewed journals including, but not limited to, Journal of Nutrition, British Journal of Nutrition, International Journal of Food Chemistry, Journal of Nutrition Education and Behavior, Journal of Nutritional Biochemistry, Diabetes, Obesity Research, Nutrition & Metabolism

Invited Extramural Lectures, Presentations and Visiting Professorships

International

1. J Higgins (2002) The Role of Resistant Starch in Energy metabolism. Australian Institute of Food science Technology Annual Meeting, Sydney, Australia.
2. J Higgins (2004) Glycemic and insulinemic responses to resistant starch ingestion: effect of cooking and metabolic ramifications. International Food Technology Annual Meeting, Las Vegas NV.
3. J Higgins (2005) Resistant starch and fat oxidation – a new dimension emerges. International Focus on Resistant Starch Meeting, Sydney and Melbourne, Australia.
4. J Higgins (2006) Resistant Starch: a novel approach to improving food quality. International Food Technology Annual Meeting, Orlando FL.
5. J Higgins & I Brown (2008) The effects of resistant starch on energy metabolism. STARCH 2008, Nottingham, England.
6. J Higgins (2009) Carbohydrates: Impact on human health and weight. International Food Technology Annual Meeting, Anaheim CA.
7. J Higgins (2011) Metabolism of sugars versus starches: Are Dietary Guidelines for Added Sugar Warranted? Boden Institute of Obesity, Nutrition and Exercise Symposium Sydney, Australia.
8. J Higgins (2018) A Cautionary Tale for AI Processing: Extraneous foods and images on serveware can cause overestimation of intake from visual dietary analysis. Innovative Technologies for Dietary Intakes Measurements Conference, London UK.
9. J Higgins (2018) Simplified Methods for Estimating Energy Density From Food Images. Innovative Technologies for Dietary Intakes Measurements Conference, London UK.

National

10. J Higgins (2000) The metabolic effects of resistant starch consumption. American Dietetic Association Annual Meeting, Denver, CO.
11. J Higgins (2004) Glycemic and insulinemic responses to resistant starch ingestion: effect of cooking and metabolic ramifications. International Food Technology Annual Meeting, Las Vegas NV.
12. J Higgins (2004) Carbohydrates: Are they all evil? ICI Annual Science & Technology Meeting, NJ.

13. J Higgins (2005) Burn fat the easy way: eat more resistant starch. Nutracon Annual Meeting, Anaheim, CA.
14. J Higgins (2005) Health benefits of resistant starch. National Symposium on Dietary Fiber, Chicago, IL.
15. J Higgins (2007) Metabolic Effects of Resistant Starch: Impact on fat oxidation, satiety, and weight gain. American Dietetics Association Annual Meeting, Philadelphia.
16. J Higgins (2007) Resistant Starch: Improving quality of life through food quality. Inaugural Symposium on Functional Foods and Health, Iowa State University, Ames, IA.
17. J Higgins (2008) Carbohydrates: Glycemic impact and implications for weight management. American Diabetes Association Annual meeting, San Francisco CA.
18. J Higgins (2008) Radioactive tracers in energy balance studies. Recent Advances and Controversies in Metabolism and Energy Measurement, Denver, CO.
19. J Higgins (2012) Novel Anorexia Nervosa Refeeding Strategies: From Human to Rat and Back Again. Development Psychobiology Research Group Biennial Meeting, Morrison, CO.
20. J Higgins (2009) Carbohydrate quality in health and disease: Using research data in clinical care. American Dietetics Association Annual Meeting. Denver, Colorado.
21. J Higgins and I Brown (2009) Resistant starch and obesity: Obesity treatment and prevention via food design. FASEB Summer Research Conference: The Physiological Basis for Obesity Therapeutics. Snowmass, CO.
22. J Higgins (2011) Resistant Starch and the "Second Meal Effect": Why is it so hard to predict blood glucose readings? Rocky Association of Diabetes Educators Annual Meeting, Denver, CO.
23. J Higgins (2013) The Skinny on Resistant Starch: Is it Really a Weight Loss Wonder Food? Colorado State University College of Health and Human Science Seminar series, Fort Collins CO.
24. J Higgins (2014) Resistant starch and inflammation: systemic effects Iowa State University Nutrition Conference: Integrating Resistant Starch, Microbiome, and Disease Risk Reduction. Ames, Iowa.
25. J Higgins (2015) Resistant starch and inflammation: a role in the treatment of inflammatory bowel disease? Experimental Biology 2015, "Resistant Starch, Microbiota and Gut Health" symposium, Boston MA.
26. J Higgins (2015) Assessment of scientific literature: tips to make you an expert in any field, no matter how much data is out there. Colorado Academy of Nutrition and Dietetics Annual Meeting, Broomfield CO.
27. J Higgins (2017) Resistant Starch: Fermentation and Health Outcomes. American Society for Nutrition Annual meeting, Chicago IL.

Teaching Record

Postgraduate Didactic Teaching

- Biochemistry for Pediatric Dental Residents 2005 – 2017
- Course Director; developed course curriculum
- Nutrition Assessment Methods lecture for CLSC 7400: Theory and application of techniques for the study of human metabolism *in vivo* 2009 – 2014
- Assessing Scientific Literature and Minimizing Bias 2012 – present
Invited lecture at meetings/courses across campus
- Nutrition Research 101 2013 – present
CHCO and TriCounty Health Department Dietetic Internship Programs
- Course Director; developed course curriculum

- Carbohydrate Biochemistry: Everything you never wanted know 2013 – present
Core Lecture for CHCO and TriCounty Health Department Dietetic Internship programs
- Lab Management Skills Workshop (Office of Postgraduate Education) 2013 – 2017
- Course Director; developed course curriculum

Mentorship

- Director, CCTSI Nutrition Internship; mentoring 7 - 12 interns per year (101 since 2007) and developing core and student-specific curricula and materials
- 75% of CCTSI Nutrition trainees who applied to an American Academy of Nutrition and Dietetics Accredited Dietetic Internship Program were accepted into the most challenging and highly ranked programs in the country (average acceptance <50%). 80% of all CCTSI Nutrition trainees are currently actively employed or training in the field.
- Mentor to 15 trainees
 - Currently two Post-Doctoral Fellows, one PhD candidate, one external Post-Doctoral Fellow (Harvard/Joslin Diabetes Center), one junior faculty at Colorado State University.
 - 73% of all former post-graduate trainees currently have NIH or other external funding.
 - The research publication rate for these trainees averages >3.5 during their training and immediate post-training (+ 2 years) period.
- Chair, Nutrition journal club which meets weekly to discuss and promote evidence-based best practices

Grant Support

Ongoing Research Support

1UL1 TR002535 (PI Sokol) NIH/NCATS 05/01/2018 – 4/30/2023
Colorado Clinical Translational Research Institute (CCTSI)

The objective is to provide education and translational research training to new and established investigators, invest in novel research methodology/equipment, and provide the infrastructure for performance of clinical (patient-oriented) investigation in infants, children and adolescents, and adults.

Role: Director of Operations and Nutrition Research Director.

I am responsible for day-to-day operations and financial/metrics tracking for the nursing, lab, and nutrition Cores at all affiliated Clinical and Translational Research Centers (CTRCs). As CCTSI funding changes focus over the grant cycle, it is my responsibility to introduce process improvements to increase the efficiency of all units and maintain value-added services with financial transparency. As Nutrition Research Director, I assist investigators and trainees with preparation of the nutrition component of grant and protocol applications and oversee Nutrition Core staff as they design and prepare metabolic diets; conduct dietary counseling, dietary intake, and anthropometric assessments; and perform indirect calorimetry.

U01 DK61242 (PI Zeitler) NIH/NIDDK 03/01/2016 - 02/28/2021

TODAY (Treatment Options for Type 2 Diabetes in Adolescents and Youth)

This is a multi-center clinical trial to assess the efficacy and safety of potential treatment options for Type 2 diabetes mellitus in adolescents.

Role: Co-Investigator.

I am Chair of the Publications and Presentations Committee for the TODAY study. I have been a co-investigator from the UCD site since study inception and have been on committees for data collection and development of MOPs. I was the secondary Physical Activity and Lifestyle Coach (PAL) for the duration of the lifestyle intervention which was based on weight loss via dietary and physical activity changes.

P30 DK48520

07/01/2015 - 06/30/2020

NIH/NIDDK (PI MacLean)

Nutrition and Obesity Research Center (NORC)

The major goal is to create an environment in which researchers are able to work together to conduct high-quality research in nutrition and obesity. The NORC helps create that environment by facilitating interaction and collaboration among investigators working at different levels of basic and clinical investigation, from gene to cell to organ to animal model to human to clinical to community intervention.

Role: Associate Director.

I am responsible for design and delivery of intervention diets, nutritional data collection and analysis, and study design consultation.

1P50 HD073063 (PI Kohrt)

NIH/NIDDK

10/1/2018 – 9/30/2023

Bioenergetic and Metabolic Consequences of the Loss of Gonadal Function

The long term goal of this project is understand how the development of obesity prior to menopause alters the menopausal impact on disease. In this sub-clinical aim of the project, we use rodent models of obesity and menopause to examine the hypothesis that premenopausal obesity pits the protective effects of extra-ovarian estrogen production against the detrimental consequences of pre-existing metabolic dysfunction.

Role: Co-Investigator.

I am responsible for study design and implementation, co-mentoring post-doctoral Fellows working on this project, data analysis and interpretation, and manuscript preparation.

1R01 DK100796-01A1A (PI Sazonov)

NIH/NIDDK

09/26/2014 – 12/30/2019

Assessing Food Intake with the Automatic Ingestion Monitor (AIM)

The goal of this award is validate the use of a small wearable ingestion monitor that estimates the mass of food intake from chews and swallows in free living adults. We have previously validated a prototype in a laboratory environment. The current work focuses on performance and accuracy in free living adults using doubly labeled water as the gold standard for energy expenditure measurement.

Role: Co-Investigator.

I am responsible for study design, nutritional data collection and analysis, and manuscript preparation.

R01 DK108366 (PI Palmer)

NIH/NIDDK

12/01/15 - 11/30/2020

Diet/Gut Microbiome Interaction Influence Inflammatory Disease In HIV Patients

This study will determine the effects of a Western high fat diet (HFD) on the HIV-associated gut microbiome and inflammatory/metabolic co-morbidities, by studying individuals in rural and urban Zimbabwe who are expected to consume relatively Agrarian versus Western diets, and in US individuals who are consuming controlled Agrarian versus Western-type diets during a 4 week dietary intervention.

Role: Co-Investigator.

I am responsible for study design, design and delivery of intervention diets, nutritional data collection and analysis, and manuscript preparation.

R01 HL134887 (PI Seals)

NIH/NHLBI

12/01/2016 - 11/30/2021

Translational Studies of Age-Associated Arterial Dysfunction, Western Diet and Aerobic Exercise: Role Of The Gut Microbiome

This award will investigate the potential causal role of the gut microbiome in the effects of aging, western diet and exercise on arterial function, and gain insight into the underlying metabolomic and inflammatory mechanisms. Studies will assess the time course of diet-induced changes in the gut microbiome and arterial function in healthy adults using a randomized, controlled feeding crossover design.

Role: Co-Investigator.

I am responsible for design and delivery of intervention diets, nutritional data collection and analysis, and manuscript preparation.

Bill and Melinda Gates Foundation

07/01/2017 – 12/31/2019

This project aims to develop, test, and validate a comprehensive dietary monitoring system, which requires no self-report, to assess dietary intake across the age range (elderly, adults, children and young children 0-5yo) in developing countries.

Role: PI

I am responsible for study design, development of training materials and SOPs for lab studies in the USA and field sites in Africa, overseeing nutritional data entry and analysis, and manuscript preparation.

R01DK122473 (PI Sazonov)

NIH/NIDDK

09/01/2019 – 05/31/2023

Sensor-based Just-in Time Adaptive Interventions (JITAs) Targeting Eating Behavior

This project relies on the synergy of wearable sensor technology, machine learning, behavioral science, personalized medicine, and nutrition to deliver and test just in time adaptive interventions (JITAs) for weight loss. The proposed intervention uses technology to continuously monitor objective eating behavior to provide personalized intervention in the times, locations, and situations where it will have greatest impact on eating and weight using mHealth technology.

Role: Co-Investigator.

I am responsible for study design, nutritional data collection and analysis, and manuscript preparation.

Publications (*all last author publications in this list represent senior author status*)

64 publications

*60 Papers published in peer reviewed journals: 12 first author, 11 second author, 11 senior author
4 textbook chapters: One first author, two senior author*

NOTE: *Of the dozens of TODAY publications, I have only listed those which I directly contributed to as a main author. Those which I edited/reviewed or did not contribute substantively to, I have not included here.*

1. Higgins JA, Brand Miller J, and Denyer G (1996) Long-term consequences of amylose, amylopectin and glucose feeding in the rat. *J. Nutr.* **126**: 596-602. PMID: 8598543
2. Colwell D, Higgins JA, and Denyer G (1996) Incorporation of 2-deoxy-D-glucose into glycogen. Implications for measurement of tissue-specific glucose uptake and utilization. *Int. J. Biochem. Mol. Biol.* **28**: 115-121. PMID: 8624840
3. Wiseman C, Higgins JA, Denyer G, and Brand Miller J (1996) Amylopectin starch induces non-reversible insulin resistance in rats. *J. Nutr.* **126**: 410-415. PMID: 8632213
4. Higgins JA, Proctor D, and Denyer GS (1999) Aging changes tissue-specific glucose metabolism in rats. *Metab.* **48**: 1445-1449. PMID: 10582555
5. Storlien, L, Higgins, JA, Thomas, T, Brown, M, Wang, H.Q, Wang, X.F, and Else, P. (2000) Diet composition and insulin action in animal models. *Br. J. Nutr.* **83**: S85-S90. PMID: 10889797
6. Storlien LH, Tapsell LC, Fraser A, Leslie E, Ball K, Higgins JA, Helge JW, Owen N (2001) Insulin resistance. Influence of diet and physical activity. *World Rev Nutr Diet.* **90**:26-43. PMID: 11545043

7. Brown, MA, Storlien, LH, Brown, IL, Higgins, JA (2003) Cooking attenuates the ability of high-amylose meals to reduce plasma insulin concentrations in rats. *Br J Nutr.* **90**:823-7. PMID: 13129452
8. Higgins, JA (2004) The role of resistant starch consumption in weight loss. *Agro FOOD Industry HiTech. Jan/Feb*: 45-47.
9. Higgins JA, Higbee DR, Donahoo WT, Brown IL, Bell ML, Bessesen DH (2004) Resistant starch consumption promotes lipid oxidation. *Nutr. Metab.* **1**:8. PMID: 15507129
10. Higgins, JA (2004) Resistant starch: metabolic effects and potential health benefits. *J. AOAC Int.* **87**: 761-8. PMID: 15287677
11. Donahoo WT, Bessesen DH, Higbee DR, Lei S, Grunwald GK, Higgins JA (2004) Assessment of Dietary Compliance Using Serum Lithium. *J. Nutr.* **134** : 3133-3136. PMID: 15514287
12. MacLean PS, Higgins JA, Johnson GC, Fleming-Elder BK, Donahoo WT, Melanson EL, Hill JO. (2004) Enhanced metabolic efficiency contributes to weight regain after weight loss in obesity-prone rats. *Am J Physiol Regul Integr Comp Physiol.* **287**: R1306-15. PMID: 15331386
13. MacLean PS, Higgins JA, Johnson GC, Fleming-Elder BK, Peters JC, Hill JO. (2004) Metabolic adjustments with the development, treatment, and recurrence of obesity in obesity-prone rats. *Am J Physiol Regul Integr Comp Physiol.* **287**:R288-97. PMID: 1504418
14. Higgins JA, Brown MA, Storlien LH (2006) Consumption of resistant starch decreases postprandial lipogenesis in white adipose tissue of the rat. *Nutr J.* **20**:25. PMID: 16987425
15. Maclean PS, Higgins JA, Jackman MR, Johnson GC, Fleming-Elder BK, Wyatt HR, Melanson EL, Hill JO (2006) Peripheral Metabolic Responses to Prolonged Weight Reduction that Promote Rapid, Efficient Regain in Obesity-Prone Rats. *Am J Physiol Regul Integr Comp Physiol.* **290**:R1577-88. PMID: 16455763
16. The TODAY Study Group (2007) Treatment Options for Type 2 Diabetes in Adolescents and Youth (TODAY): a study of the comparative efficacy of metformin alone or in combination with rosiglitazone or lifestyle intervention in adolescents with type 2 diabetes. *Pediatric Diabetes* **8**: 74–87. PMID: 19823189
17. Jackman MR, Steig A, Higgins JA, Johnson GC, Fleming-Elder BK, Bessesen DH, MacLean PS. (2008) Weight Regain After Sustained Weight Reduction is Accompanied by Suppressed Oxidation of Dietary Fat and Adipocyte Hyperplasia. *Am J Physiol Regul Integr Comp Physiol* **294**: R1117-R1129. PMID: 18287221
18. Higgins JA, LaSalle AL, Zhaoxing P, Kasten MY, Bing KN, Ridzon SE, and Witten TL (2009) Validation of photographic food records in children: are pictures really worth a thousand words? *Eur J Clin Nutr* **63** (8):1025-33. PMID: 19259111
19. MacLean PS, Higgins JA, Wyatt HR, Melanson EL, Johnson GC, Jackman MR, Giles ED, Brown IE, Hill JO (2009) Regular exercise attenuates the metabolic drive to regain weight after long-term weight loss. *Am J Physiol Regul Integr Comp Physiol.* **297**(3):R793-802. PMID: 19587114
20. Margaret Grey, Barbara Schreiner, Laura Pyle, and the TODAY Study Group (2009) Development of a Diabetes Education Program for Youth With Type 2 Diabetes. *The Diabetes Educator* **35**: 108-115. PMID: 19244566
21. TODAY Study Group (2010) Design of a family-based lifestyle intervention for youth with type 2 diabetes: the TODAY study. *Int J Obesity* **349**(5): 946-946. PMID: 19823189
22. Higgins JA, Jackman MR, Brown IL, Johnson GC, Steig A, Wyatt HR, Hill JO, and MacLean PS (2011) Resistant starch and exercise independently attenuate weight regain on a high fat diet in a rat model of obesity. *Nutr Metab* **8**:49 PMID: 21736742 <http://www.nutritionandmetabolism.com/content/8/1/49>

23. Steig AJ, Jackman MR, Giles ED, [Higgins JA](#), Johnson GC, Mahan C, Melanson EL, Wyatt HR, Eckel RH, Hill JO, Maclean PS (2011) Exercise reduces appetite and traffics excess nutrients away from energetically efficient pathways of lipid deposition during the early stages of weight regain. *Am J Physiol Regul Integr Comp Physiol.* **301**: R656-667 PMID: 21715696
24. Copeland KC, Zeitler P, Geffner M, Guandalini C, [Higgins JA](#), Hirst K, Kaufman FR, Linder B, Marcovina S, McGuigan P, Pyle L, Tamborlane W, Willi S; TODAY Study Group (2011) Characteristics of adolescents and youth with recent-onset type 2 diabetes: the TODAY cohort at baseline. *J Clin Endocrinol Metab.* **96**(1):159-67. PMID: 20962021
25. [Higgins JA](#) (2012) Whole grains, legumes, and the subsequent meal effect: implications for blood glucose control and the role of fermentation. *J Nutr Metab.* 2012:829238. PMID: 22132324
26. TODAY Study Group (2012) A Clinical Trial to Maintain Glycemic Control in Youth with Type 2 Diabetes. *N Engl J Med* 366:2247-2256 PMID: 22540912
27. Maahs DM and [Higgins JA](#) (2012) Is Carbohydrate Counting Enough? Towards Perfection or Unwanted Complexity? *Diabetes Tech & Therap*, **14** (1): 3-5. PMID: 22066526
28. TODAY Study Group. (2013) Treatment effects on measures of body composition in the TODAY clinical trial. *Diabetes Care.* **36** (6):1742-8. doi: 10.2337/dc12-2534. PMID: 23704673
29. Markwald RR, Melanson EL, Smith MR, [Higgins J](#), Perreault L, Eckel RH, Wright KP Jr. (2013) Impact of insufficient sleep on total daily energy expenditure, food intake, and weight gain. *Proc Natl Acad Sci U S A.* **110**(14):5695-700. PMID: 23479616
30. [Higgins JA](#), Hagman J, Pan Z, Maclean P. (2013) Increased physical activity not decreased energy intake is associated with inpatient medical treatment for anorexia nervosa in adolescent females. *PLoS One.* **8**(4): e61559. PMID:23637854
31. [Higgins JA](#) and Brown I (2013) Resistant Starch: a promising dietary agent for the prevention/ treatment of inflammatory bowel disease and bowel cancer. *Curr Opin Gastro.* **29**: 190-194. PMID: 23385525
32. [Higgins JA](#) (2014) Resistant starch and energy balance: impact on weight loss and maintenance. *Crit Rev Food Sci Nutr.* **54**(9):1158-66. PMID: 24499148
33. McHill AW, Melanson EL, [Higgins JA](#), Connick E, Moehlman TM, Stothard ER, Wright KP Jr. (2014) Impact of circadian misalignment on energy metabolism during simulated nightshift work. *Proc Natl Acad Sci U S A.* 111(48):17302-7. PMID: 25404342; PubMed Central PMCID: PMC4260578.
34. Eckel RH, Depner CM, Perreault L, Markwald RR, Smith MR, McHill AW, [Higgins JA](#), Melanson EL, Wright KP Jr. (2015) Morning Circadian Misalignment during Short Sleep Duration Impacts Insulin Sensitivity. *Curr Biol.* **25** (22):3004-10. PMID: 26549253.
35. Thomas EA, [Higgins JA](#), Bessesen DH, McNair B, Cornier MA. (2015) Usual breakfast eating habits affect response to breakfast skipping in overweight women. *Obesity (Silver Spring).* **23** (4):750-9. PMID: 25755093
36. Fontana JM, [Higgins JA](#), Schuckers SC, Bellisle F, Pan Z, Melanson EL, Neuman MR, Sazonov E. (2015) Energy intake estimation from counts of chews and swallows. *Appetite.* **85**:14-21. PMID: 25447016
37. MacLean PS, [Higgins JA](#), Giles ED, Sherk VD, Jackman MR. (2015) The role for adipose tissue in weight regain after weight loss. *Obes Rev. Suppl* **1**:45-54. PMID: 25614203
38. Giles ED, Hagman J, Pan Z, MacLean PS, [Higgins JA](#). (2016) Weight restoration on a high carbohydrate refeeding diet promotes rapid weight regain and hepatic lipid accumulation in female anorexic rats. *Nutr Metab (Lond).* Mar 1;13:18. PMID: 26937246

39. Giles ED, Steig AJ, Jackman MR, [Higgins JA](#), Johnson GC, Lindstrom RC, MacLean PS (2016) Exercise Decreases Lipogenic Gene Expression in Adipose Tissue and Alters Adipocyte Cellularity during Weight Regain After Weight Loss. *Front Physiol.* **10**;7:32. PMID: 26903882
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