James L. Casey, Jr.

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| Phone: (847) 942-7950jlcasey@umich.edu | 3886 Highlander Way WestAnn Arbor, MI 48108 |

# Education

**PhD** University of Michigan – School of Public Health August 2020

Nutritional Sciences

Dissertation: “Dietary Analysis with Lipidomics: First Steps toward Objective

 Dietary Analysis of Macronutrient Intake Using Lipidomics”

 (Defense date 2/19/2020)

Committee: Karen Peterson, DSc. (co-chair), Charles Burant, MD, PhD. (co-chair),

 Dana Dolinoy, PhD., Ana Baylin, PhD., Tom Braun, PhD.

**MS** Eastern Michigan University, Exercise Physiology May 2013

 Thesis: “Vertical Accelerations are Associated with Gender Differences in Running

 Economy among Intercollegiate Runners”

 Advisor: Stephen McGregor, PhD.

**MS** University of Kansas, Curriculum and Instruction May 2004

 Thesis: “The Use of the Case Study in the High School Biology Classroom”

 Advisor: William LaShier, PhD.

**BSEd.** University of Kansas, Secondary Science Education (Biology) May 1997

 Graduated from the University of Kansas Honors Program

 Member of the varsity Cheer Squad 1993-1995

 School of Education Senior Leadership Award

 Certified to teach Biology, Chemistry, and General Science

# Research Experience

It is well documented that dietary recall by humans is very poor, with many people under-reporting both energy and macronutrient intake. The focus of my research is to use the tools of metabolomics to develop an objective measure of dietary intake.

**Dissertation**, University of Michigan, Ann Arbor, Michigan

Title: “Dietary Analysis with Lipidomics: First Steps toward Objective Dietary Analysis of Macronutrient Intake Using Lipidomics”

Advisors: Karen Peterson D.Sc., Charles Burant, MD, PhD.

* Planned, Recruited, Organized, & Ran a 1 ½ year high fat & high carbohydrate feeding study called the MEAL Study
* Collected, Extracted & Analyzed >160 plasma samples on LC/MS & MS/MS for targeted and untargeted metabolomic and lipidomic analysis
* Collected & Analyzed metabolomic and lipidomic data to compare subjects from the MEAL study
* Extracted & Analyzed plasma samples using LC/MS comparing more or less insulin sensitive obese, healthy individuals during a hyperinsulinemic/euglycemic clamp identifying dynamic
* Used machine learning to identify discriminating lipids which were used to successfully identify experimental and real-world plasma samples as either high carbohydrate or high fat diets
* In an unrelated metabolomic study, compared plasma samples of lean and obese, healthy individuals during a hyperinsulinemic/euglycemic clamp. A novel finding concerning the clearance rate of long chained acylcarnitines was identified from this study.

**Physical Activity Lab**, University of Michigan 2013 to 2014

Michigan Nutrition Obesity Research Center – Human Phenotyping Lab

**Position**, Exercise Physiologist

* Conducted human phenotyping and exercise research
* RMR, VO2max, BODPOD, body composition, exercise testing, exercise training
* Conducted hyperinsulinemic/euglycemic clamps, OGTT, and IVGTT tests

**Substrate Metabolism Lab**, University of Michigan 2011 to 2013

Laboratory of Dr. Jeffrey Horowitz in the School of Kinesiology

**Position**

* Volunteer Assistant
* Assisted with muscle and fat biopsies and sample extraction
* Preparation, tended, grew, and tested human primary cell cultures of satellite cells
* Prepared, tended, grew, and tested C2C12 mouse culture satellite cells
* Took part and presented in weekly lab meetings and journal clubs
* Became proficient in western blotting, cell culture, & plate assays

**Performance Exercise Physiology Lab,** Eastern Michigan University 2011 to 2013

* Volunteer assistant in lab or Dr. Stephen McGregor
* Assisted with metabolic testing of athletes – motion capture, VO2max, 3D accelerometry

# Teaching Experience

**University of Michigan, School of Kinesiology**

Ann Arbor, MI Fall 2012 – Winter 2013

**LEO Lecturer I**

* MVS 340 – undergraduate exercise physiology course

Taught 6 sections with a total of 63 students

* Developed and conducted quizzes, laboratory experiences, exams, and homework
* Coordinated grading and labs with a team of 3 teaching assistants

**University of Michigan**, Ann Arbor, MI Fall 2015 – Winter 2016

**Invited Lecturer/Instructor**

* Biology 173 – Dr. Tom Schmidt’s course funded by Howard Hughes Medical Institute Grant as part of the Authentic Research Connection program at the University of Michigan.
* 4 sections of students with >80 students per course
* Wrote curriculum, presented lecture, wrote laboratory curriculum and conducted

all of the Human Nutrition & Anthropometry portion of this course

* Collected and graded all quizzes and labs for these sections
* Wrote all test questions for the Nutrition and Anthropometry portions

**New Trier Township High School,** Winnetka, IL Fall 1997 – Spring 2011

* Biology, Chemistry, Anatomy & Physiology, and Exercise Physiology teacher
* Taught 5-6 sections each year with ~30 students per section
* Wrote curriculum, advised students, taught courses, taught laboratory experiences
* Developed & Taught a new course “Biomechanics and Exercise Physiology” which is still being taught
* Head Boy’s Track and Field Coach 2004-2008 (9 assistant coaches, 250 athletes)
* Assistant Boys’ Track and Field Coach 1997-2004 – sprints/pole-vault
* Assistant Boys’ Soccer Coach 1997-2004
* Advisor 1998-2009
* Curriculum Council 2007-2009
* New Trier Educational Association department representative
* Assistant Radio Station Sponsor – in charge of annual citrus sale fundraiser
* Science Olympiad sponsor 1997-1999

**Oakton Community College,** Skokie, IL Summer 2001

* Taught a summer course “Science at Work” for 15 talented high school science students designed to experience science careers
* Organized and supervised summer internships for these students

# Publications

## Journal Papers in Process

Casey, J.L., Iglay-Reger, H.B., LaBarre, J.L., Ball, S.C, Han-Markey, T.L., Braun, T.M., Burant, C.F., Peterson, K.E., “*Comparison of Actual and Reported Macronutrient Intake in a Well-Controlled Human Feeding Study”*, (manuscript under review)

Casey, J.L., Van Pelt, D.W, Evans, C., Horowitz, J.F., Burant, C.F., “*A Comparison of Obese Healthy Patients using Metabolomics during a Hyperinsulinemic/Euglycemic Clamp”*, (manuscript in print)

Casey, J.L., Iglay-Reger, H.B., LaBarre, J.L., Ball, S.C, Han-Markey, T.L., Braun, T.M., Burant, C.F., Peterson, K.E., “*Using Lipidomics as Dietary Analysis of High Fat and High Carbohydrate Diets”*, (manuscript in print)

# Presentations and Invited Lectures

**Poster Presentation, “***Dynamic Response of Lipidome in Humans Revealed on High Fat and High Carbohydrate Diets”,* 2019 Taubman Institute Symposium, University of Michigan. October 22nd, 2019 – 3rd place prize for excellence

**Invited Lecture,** “Dietary macronutrient analysis using plasma lipidomics”, Nutrition 688 nutrition class symposium, University of Michigan, September 25th, 2019

**Poster Presentation, “***Comparison of Actual and Reported Energy and Macronutrient Intake in a Well-Controlled Human Feeding Study”,* American Society for Nutrition Annual Conference, Baltimore, MD. June, 2019

**Presentation**, “Dietary Recall through Metabolomics”, Michigan Academy of Nutrition and Dietetics, 2019

**Poster Presentation, “***Comparison of Actual and Reported Energy and Macronutrient Intake in a Well-Controlled Human Feeding Study”,* Michigan Nutrition Obesity Research Center Annual Symposium, Ann Arbor, MI, March 2019

**Poster Presentation, “***Identifying Differences in Metabolite Patterns Due to High Fat vs High Carbohydrate Diet using Metabolomics in Humans”,* Michigan Nutrition Obesity Research Center Annual Symposium, Ann Arbor, MI, March 2019

**Poster Presentation, “***Identifying Differences in Metabolite Patterns Due to High Fat vs High Carbohydrate Diet using Metabolomics in Humans”,* American Society for Nutrition Annual Conference, Boston, MA. May, 2018

**Poster Presentation,** “*Difference in Plasma Metabolites in Insulin Resistant and Insulin Sensitive Obese Individuals during a Hyperinsulinemic/Euglycemic Clamp”,* Experimental Biology International Meeting, San Diego, CA, March 2016

Citation: Casey JL, Pelt DWV, Burant C, Horowitz J, Evans C. Differences in Plasma Metabolites in Insulin Resistant and Insulin Sensitive Obese Individuals during a Hyperinsulinemic/Euglycemic Clamp. The

FASEB Journal. 2016;30(1\_supplement):889.3-.3.

**Poster Presentation and Talk,** “*Vertical Accelerations are Associated with Gender Differences in Running Economy among Intercollegiate Runners”,* American College of Sports Medicine Annual Conference, Indianapolis, IN. May 2013

**Invited Talk:** “*An Introduction to TI Interactive!”* presented with Dr. Stephanie A. Casey, at the Metropolitan Mathematics Club of Chicago, Chicago, IL November 2001

**Presentation:** “Surfin’ Safari! Internet Use in Math and Science”, presented with Dr. Stephanie A. Casey at the Annual Meeting of the National Council of teachers of Mathematics, Orlando, FL, April 2001

# Certifications

**ACSM Certification**

**State of Illinois Teaching Certification –** Biology, Chemistry, Anatomy, Zoology, Botany (grades 9-12)

**USATF Level 1 Coaching Certificate**

# Professional Affiliations

American College of Sports Medicine, 2013 - 2015

American Society for Nutrition, 2014 – Present

National Science Teachers Association, 1995-2011

# Community Service

**Organization**

First United Methodist Church, Ann Arbor, MI 2012-present

* 6th grade Sunday School teacher
* Sponsor/counselor for annual Zeba mission trip to the Upper Peninsula in Michigan

**Coaching**

Coaching of my Sons and Daughters grade/middle school soccer and track and 2007-present

field teams

* Tappan Middle School, Ann Arbor, Michigan
* Ann Arbor, Michigan Rec & Ed
* Evanston, Illinois AYSO

**Brownie Troop Leader**

I served as a co-leader for my daughters Brownie Troop at Dawes Elementary School, Evanston, Illinois 2007-2008

# Languages

**English**: Native Language

**Spanish**: Intermediate Listener, Novice Speaker

**Dutch:** Advanced Listener & Intermediate Speaker

**French:** Novice Listener & Speaker

# Skills

**Applications**: Microsoft Office, Prism, SAS, R, SPSS, Filemaker Pro, HyTek Meet runner

**Laboratory Skills:** cell culture, exercise testing, RMR, hyperinsulinemic/euglycemic clamp

Clinical research coordination, metabolomics/lipidomics research, body composition testing (BODPOD, DXA, skin folds), anthropometry, exercise testing

# Other

Interests: hiking, gardening, running, spending time with my family, biking, music, guitar

# Professional References

1. Charles Burant, MD, PhD. – Co-Mentor for PhD. Program

Core Director, Michigan Regional Comprehensive Metabolomics Resource Core

Dr. Robert C. and Veronica Atkins Professor of Metabolism

Professor, Nutritional Sciences

WK Kellogg Eye Center, Brehm Tower

1000 Wall Street, Room 6309

Ann Arbor, Michigan 48105-5714

(734)615-3481

burantc@umich.edu

1. Karen E. Peterson, ScD – Co-Mentor for PhD. Program

Stanley M. Garn Collegiate Professor of Nutritional Sciences

Professor of Global Public Health

Chair, Department of Nutritional Sciences

University of Michigan School of Public Health

1415 Washington Heights, I-1867

Ann Arbor, MI 48109-2029

(734) 647-1923

karenep@umich.edu

1. Jeffrey F. Horowitz, PhD.

Professor, Movement Science

Director, Substrate Metabolism Laboratory

CCRB 4745C

401 Washtenaw Ave.

Ann Arbor, Michigan 48109-2214

(734)647-1076

jeffhoro@umich.edu

1. Mike Lee, MS – former teaching colleague and department chair

Assistant Principal for Administrative Services – Winnetka Campus

New Trier Township High School

385 Winnetka Ave.

Winnetka, Illinois 60093

(847)784-2215

leemi@newtrier.k12.il.us