Patrick Solverson, Ph.D.

Curriculum vitae

Health Education and Research Building, Room 418 patrick.solverson@wsu.edu
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https://scholar.google.com/citations?user=dAtrTYQAAAAJ&hl=en

EDUCATION/TRAINING

University of Maryland-College Park, College Park, MD 2014-2017
PhD, Nutrition and Food Science
Dissertation: *Bioactive Components from Blackberries to Augment Dietary Approaches to Obesity Treatment or Prevention: Indirect Calorimetry Studies in Man and Tissue*
Advisor: Dr. Thomas Castonguay

University of Wisconsin-Madison, Madison, WI 2010-2012
MS, Human Nutrition
Thesis: *Growth, Energy Balance, and Bone Health in the PKU Mouse and the Beneficial Effects of a New Dietary Treatment*
Advisor: Dr. Denise Ney

University of Wisconsin-Madison, Madison, WI 2007-2009
BS, Dietetics

RESEARCH AND PROFESSIONAL EXPERIENCE

Assistant Professor 2020-present
Washington State University
Health Sciences Spokane
Dept. of Nutrition and Exercise Physiology

Assistant Professor 2019-2020
University of Vermont Dept. of Nutrition and Food Science, Burlington, VT

Postdoctoral Research Associate 2017-2019
University of Maryland Dept. of Nutrition and Food Science
Beltsville HNRC USDA
Advisor: Dr. Janet Novotny

Faculty Research Assistant 2013-2017
University of Maryland Dept. of Nutrition and Food Science, College Park, MD
Beltsville HNRC USDA
Advisors: Drs. Janet Novotny and Thomas Castonguay

Research Assistant 2010-2012
University of Wisconsin-Madison, Madison, WI
Advisor: Dr. Denise Ney

Undergraduate Research Assistant 2008-2009
University of Wisconsin-Madison, Madison, WI
Advisor: Dr. Denise Ney

PUBLICATIONS

Published

Solverson PM, Henderson TR, Debelo H, Ferruzzi, MG, Baer DJ, and Novotny JA. An Anthocyanin-Rich Mixed-Berry Intervention May Improve Insulin Sensitivity in a Randomized Trial of Overweight and Obese Adults. Nutrients. 2019 Nov 25.

Solverson PM, Rumpler WV, Leger JL, Redan BW, Ferruzzi, MG, Baer DJ, Castonguay TW, and Novotny JA. Blackberry Feeding Increases Fat Oxidation and Improves Insulin Sensitivity in Overweight and Obese Males. Nutrients 2018, 10(8), 1048.

P Solverson, J A Novotny, and T Castonguay. Resveratrol and Metabolic Syndrome in Obese Men – a Review. Handbook of Nutrition in Heart Health. Published by Wageningen Academics, RR Watson and S. Zibadi, (eds). 2017 Sep 12; 415-441.

Solverson P, Murali SG, Litscher SJ, Blank RD, Ney DM. Low Bone Strength Is a Manifestation of Phenylketonuria in Mice and Is Attenuated by a Glycomacropeptide Diet. PLoS One. 2012;7(9):e45165. Epub 2012 Sep 18.

Solverson P, Murali SG, Brinkman AS, Nelson DW, Clayton MK, Eric Yen CL, Ney DM. Glycomacropeptide, a low-phenylalanine protein isolated from cheese whey, supports growth and attenuates metabolic stress in the murine model of phenylketonuria. Am J Physiol Endocrinol Metab. 2012 Apr;302(7):E885-95. Epub 2012 Jan 31.

Charron CS, Dawson HD, Albaugh GP, **Solverson PM**, Vinyard BT, Solano-Aguilar GI, Molokin A, Novotny JA. A Single Meal Containing Raw, Crushed Garlic Influences Expression of Immunity- and Cancer-Related Genes in Whole Blood of Humans. The Journal of Nutrition. 2015 Nov ;145(11):2448-55.

Murali SG, Brinkman AS, **Solverson P**, Pun W, Pintar JE, Ney DM. Exogenous GLP-2 and IGF-I induce a differential intestinal response in IGF binding protein-3 and -5 double knockout mice. Am J Physiol Gastrointest Liver Physiol. 2012 Apr 15;302(8):G794-804. Epub 2012 Jan 26.

Brinkman A, Murali S, Hitt S, **Solverson PM**, Holst J, Ney D. Enteral nutrients potentiate glucagon-like peptide-2 action and reduce dependence on parenteral nutrition in a rat model of human intestinal failure. Am J Physiol Gastrointest Liver Physiol. 2012 Jun 28.

In preparation

Solverson PM, Albaugh GP, Debelo H, Ferruzzi MG, Baer DJ, and Novotny JA. Obesity and Sex Influence Cellular Respiration of Peripheral Blood Mononuclear Cells with Marginal Effects of a Mixed Berry Juice Intervention. To be submitted to *Molecular Nutrition and Food Research.*

ABSTRACTS and PRESENTATIONS

P Solverson. "Intro to Solverson Lab and Human Feeding Studies with Berries". University of Vermont Animal and Veterinary Medicine Department seminar series, March 6th, 2020.

P Solverson. "Personal Journey: How I Became a Clinical Nutrition Scientist at UVM". University of Vermont Biology Department freshman seminar series, February 24th, 2020.

P Solverson, GP Albaugh, DJ Harrison, DL Luthria, DJ Baer, and JA Novotny. "Administration of Purified Cyanidin-3-Glucoside or a Blackberry Extract Causes Improved Mitochondrial Function but Reduced Content in 3T3-L1 Adipocytes". Poster presented at Nutrition 2018 in Boston, MA, June 11th, 2018.

P Solverson, WV Rumpler, JL Leger, B Redan, MG Ferruzzi, DJ Baer, TW Castonguay, and JA Novotny. "Seven Day Blackberry Feeding Lowers the Respiratory Quotient in Males and Improves Insulin Sensitivity". Oral and poster presentations presented at Experimental Biology in Chicago, IL, April 22nd, 2017. Also presented at the Nutrition and Food Science department's "Graduate Student Research Day" on May 5th, and the Beltsville Human Nutrition Research Center's "Poster Day" on May 9th, 2017. Award listed above.

P Solverson, W V Rumpler, J L Leger, S K Gebauer, B Redan, M Ferruzzi, D J Baer, and J A Novotny. Seven Day Blackberry Feeding Affects the Energy Substrate Profile in Males And Improves Insulin Sensitivity. Poster presented at Experimental Biology. San Diego, CA, April 3, 2016.

Solverson P, Castonguay TW, Novotny JA. Resveratrol As An Alternative To Caloric Restriction: Let Them Eat Cake? Poster presented at the Nutrition and Food Science Department's Graduate Student Poster Day Symposium in spring of 2015.

Solverson P, Castonguay TW, Novotny JA. Seven Day Blackberry Feeding Affects The Energy Substrate Profile In Younger Adults And Improves Insulin Sensitivity. Poster presented at the Graduate Reasearch Interaction Day competition at UMD as well as the Nutrition and Food Science Department's Graduate Student Poster Day Symposium in spring of 2014.

Solverson P, Murali SG, Litscher SJ, Blank RD, and Ney DM. Demonstration of a Bone Phenotype in a Murine PKU Model and its Attenuation with an Improved Low-Phenylalanine Diet. Poster presented at the American Society for Bone and Mineral Research at their annual meeting in St. Paul, Minnesota, on October 13, 2012. The poster was also presented at the Department of Medicine's Research Day on June 1, 2012 at the University of Wisconsin Hospital.

Solverson P, Murali SG, Pun W, Nelson DW, Eric Yen CL, Ney DM. Energy Balance and Plasma Phenylalanine Concentration in Phenylketonuria Mice (Pahenu2) Fed Glycomacropeptide, Amino Acid or Casein Diets. Poster presented at Experimental Biology. Washington DC, April 12, 2011.

PATENTS

Ney DM, Yen EC, Nelson DW, **Solverson P**. Use of glycomacropeptide to improve women's health. U.S. Patent 20,160,022,770, January 28, 2016.

EXTRAMURAL COMPETITIVE FUNDING

Title: Supporting Local Agriculture via Clinical Research: Human Studies with Elderberries to Improve Biomarkers of Obesity
Submitted to: Northeast Sustainable Agriculture Research & Education (SARE) of USDA NIFA in April of 2019
Status: **Funded**, active, IRB approved, advertising and subject recruitment delayed indefinitely due to COVID-19, **award approved for transfer to WSU**
Amount: $29,998.00

Title: Elderberry consumption and human health: a preliminary investigation into effects on indirect calorimetry, insulin sensitivity, and microbiome
Submitted to: USDA NIFA Agriculture and Food Research Initiative's Foundational and Applied Science Program under the "Food and Human Health" priority area in July of 2019
Status: **Funded**, projected initiated through the REEport system –**pending award transfer to WSU**
Amount: $194,003.00

INTRAMURAL COMPETITIVE FUNDING

Title: Cellular Respiration of Adipocyte and Skeletal Muscle Cultures following Treatment with an Elderberry Extract: Translational Projects to Complement Clinical Research
Submitted to: The Vermont Agricultural Experiment Station Competitive Hatch Program on May 21st, 2020
Status: **Recommended for full funding**, award not disbursed due to relocation to WSU
Amount: $60,000.00 ($20,000 per year for 3 years)

Title: Postdoctoral Funding Support
Submitted to: Office of the Vice President for Research "Postdoctoral Associate Program" in February of 2020
Status: Not funded
Amount: $150,000.00 ($75,000 per year for 2 years)

Title: Equipment grant – Cryogenic Freezer
Submitted to: Office of the Vice President for Research "Express Grant" in October of 2019
Status: **Funded**, expended
Amount: $3,000.00

FELLOWSHIPS and AWARDS

2017 First place, Emerging Leaders poster competition, in the Dietary Bioactive Components section at Experimental Biology meeting in Chicago, IL (out of 197 abstract submissions)

2015 Fellowship - UMD Department of Nutrition and Food Science - $5000 award

INVITED TALKS

2019 "Berry Anthocyanins to Enhance Obesity Treatment: A Pathway for "Fruitful" Collaborations" Presented to The Department of Nutrition and Food Sciences at the University of Vermont on February 6th, 2019. Also presented at The John Milner Nutrition and Cancer Prevention Research Practicum, Beltsville, MD, March 14th, 2019.

2017 "Bioactive Components from Blackberries to Augment Dietary Approaches to Obesity Treatment or Prevention: Indirect Calorimetry Studies in Man and Tissue" University of Missouri-Columbia Nutrition and Exercise Physiology Department seminar series, September 7th, 2017.

PROFESSIONAL ACTIVITIES

Teaching and Mentorship

<u>UVM</u>
NFS 295: Experimental Research and Nutrition, 3 credits. Spring 2020 –
Advisees: 4
PhD students: 1
Honors College Undergraduate researchers: 2
<u>Elsewhere</u>
Guest speaker: "NFSC380: Methods of Nutritional Assessment" October 22nd and 24th, 2018.
Trained and supervised a USDA sponsored undergraduate intern during the summer of 2018.
Laboratory research regularly involved the training and supervision of both older and younger scientists or support personnel.

Collaboration

Principal Investigator projects include collaboration with physicians, chemists, horticulturalists, microbiologists, and bioinformaticians.
Postdoctoral projects included collaboration with experts in food science and molecular biology.
Dissertation projects involved working with experts in neuropsychology, physiology, biophysics, kinesiology, as well as dieticians and nurses. Master's work involved collaboration with a bone endocrinologist and mechanical engineer.

Outreach and Informal Teaching

Organizer and emcee of The Beltsville Human Nutrition Research Center Research Symposium on May 9th, 2017.

Service

Abstract reviewer for The American Society for Nutrition's "Nutrition 2020"
Committee member for the joint UVM-USDA Center for Food Systems Research (2019–2020)
Hiring committee chair for two non-tenured contract faculty appointments at UMD (2019).
Beltsville seminar committee member (2015–2016) and chair (2016–2017).
Hiring committee member for two contract appointments at UMD (2015-2016).

PROFESSIONAL ORGANIZATIONS

American Society for Nutrition: 2011-Present

TECHNICAL SKILLS

Laboratory

- Includes cell culture, high-resolution respirometry, HPCL, RT-PCR, Meso-scale Discovery, Protein simple, clinical chemistry, and automated plating systems.

Human Studies

- Leadership of 4 human feeding studies, and technical support of 8 others.
- From study design and execution to statistical analysis and manuscript preparation in projects exploring nutritional approaches to combat obesity, diabetes, and related comorbidities.

Cellular Studies

- Appointments at the USDA included work in several different tissues (monomac-6 cells, jurkats, skeletal muscle cells, PBMCs, and 3T3-L1 adipocytes) to study cellular responses (inflammatory gene or protein expression, cellular respiration, mitochondrial density, and protein targets) to several different types and modes of nutritional interventions (garlic extract, blackberry extract, excitation of donor PBMCs with fecal samples from diet treated human subjects, and respiration phenotyping in subject PBMCs after different diet treatments).

Animal Studies

- Includes feeding, pharmacological, and surgical interventions (see publications) designed to nutritionally treat genetic/metabolic (PKU) and gastrointestinal (short bowel syndrome) diseases.