

Diego Hernández-Saavedra, PhD

Assistant Professor

Department of Health and Kinesiology

College of Applied Health Sciences

Division of Nutritional Sciences

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ACADEMIC FORMATION

- 2018 to 2021- Postdoctoral Fellow within the Department of Physiology and Cell Biology at The Ohio State University Wexner Medical Center, Columbus, OH.
- 2013 to 2018 - PhD in Nutritional Sciences at the University of Illinois at Urbana-Champaign (UIUC), Urbana-Champaign, IL.
- 2012 to 2013- Research Assistant at the Molecular Biochemistry Laboratory. Autonomous University of Querétaro, QRO, Mexico.
- 2006 to 2012 - Bachelor's degree in Pharmaceutical and Biological Chemistry. Autonomous University of Querétaro, QRO, Mexico.

PROFESSIONAL MEMBERSHIP

- 2023 - Present – Faculty affiliate of the Personalized Nutrition Initiative (PNI) at UIUC.
- 2022 – Present – Faculty member of the Division of Nutritional Sciences (DNS) at UIUC.
- 2013 to present – American Society for Biochemistry and Molecular Biology (ASBMB).
- 2013 to present – American Society for Nutrition (ASN).
- 2017 to 2019 - Graduate Student Representative for Nutrient-Gene Interaction Research Interest Section's Steering Committee of the American Society for Nutrition.
- 2019 to present – American Heart Association (AHA).

DISTINCTIONS AND AWARDS

- American Heart Association Postdoctoral Fellowship 2021-2023; Effect of Paternal Exercise on Cardiovascular Function.
- Keystone Symposia New Insights into the Biology of Exercise 2020 Postdoctoral Travel award.
- William Rose Memorial Award 2015, Division of Nutritional Sciences, University of Illinois at Urbana-Champaign.
- Frank W. Kari Memorial Award 2014, Division of Nutritional Sciences, University of Illinois at Urbana-Champaign.
- American Society for Biochemistry and Molecular Biology (ASBMB) Graduate travel award 2014.
- Full scholarship from the “Consejo Nacional en Ciencia y Tecnología”- CONACyT (the Mexican National Council for Science and Technology) from 2013-2018.
- National Award in Food Science and Technology 2012 36th edition sponsored by CONACyT and Coca-Cola Mexico, with the project: “Plants used in Mexico as infusions: Alternatives for the preparation of functional beverages with anti-obesity effects”.

REVIEWER FOR INTERNATIONAL JOURNALS AND CONFERENCES

- Journal of Applied Physiology.
- Frontiers in Immunology.
- iScience
- Scientific Reports.
- Advances in Nutrition
- Toxicology and Applied Pharmacology
- PlosOne
- Life Sciences.
- Obesity (The Obesity Society)
- Liver International
- American Society for Nutrition (Abstract/Presentation)

PEER-REVIEWED PUBLICATIONS

Accepted manuscripts:

1. Kasperek, M, Mailing, L, Piccolo, B, Moody, B, Lan, R, Gao, X, **Hernandez-Saavedra, D**, Woods, J, Adams, S, Allen, J. 2023. *Physiological Reports*. Exercise training modifies xenometabolites in gut and circulation of lean and obese adults. *In Press*.
2. **Hernández-Saavedra, D**, Markunas, C, Harris, JE, Baer, LA, Takahashi, H, Hirshman, MF, Newgard, CB, Stanford, KI, Goodyear, LJ. 2022. *Diabetes*. Maternal and Paternal Exercise Induce Distinct Metabolite Signatures in Offspring Tissues. DOI: 10.2337/db22-0341.
3. Escobar Ortiz, A; **Hernandez-Saavedra, D**, Lizardi-Mendoza, J, Pérez Ramírez, I, Mora Izaguirre, O, Ramos, M, Reynoso-Camacho, R. 2022. *Journal of Food Biochemistry*. Consumption of cricket *Acheta domesticus* powder decreases insulin resistance and fat accumulation in rats fed with high fat and fructose diet. DOI: 10.1111/jfbc.14269.
4. Peres Valgas da Silva, C, Shettigar, VK, Baer, LA, Abay, E, Madaris, KL, Mehling, MK, **Hernandez-Saavedra, D**, Pinckard, KM, Seculov, NK, Ziolo, MT, Stanford, KI. 2021. *International Journal of Obesity*. Brown Adipose Tissue transplantation prevents glucose intolerance and cardiac remodeling in high-fat fed mice after a mild myocardial infarction. DOI: 10.1038/s41366-021-00999-9
5. Roubos, S, D'Souza, D, **Hernández-Saavedra, D**, Xu, B, Collao, N, Emmons, R, Larkin, J, Lloyd, J, Vanhie, JJ, Pan, YX, Chen, H, De Lisio, M. 2021. *Applied Physiology, Nutrition, and Metabolism*. Weight loss with exercise improves muscle architecture and progenitor cell populations compared to weight loss alone in mice with preneoplastic colorectal lesions. DOI: 10.1139/apnm-2020-0956.
6. **Hernández-Saavedra, D**, Moody, L, Tang, X, Goldberg, ZJ, Wang, AP, Chen, H Pan, Y-X. 2021. 108598. *Journal of Nutritional Biochemistry*. Caloric Restriction Following Early-Life High Fat-Diet Feeding Represses Skeletal Muscle TNF in Male Rats. DOI: 10.1016/j.jnutbio.2021.
7. Dewal, RS, Greer-Short, A, Lane, C, Acosta Manzano, P, **Hernandez-Saavedra, D**, Nassal, D, Baer, LA, Mohler, PJ, Hund, TJ, Stanford, KI. 2021. *International Journal of Obesity*. Phospho-ablation of cardiac sodium channel Nav1.5 mitigates susceptibility to atrial fibrillation and improves glucose homeostasis under conditions of diet-induced obesity. DOI: 10.1038/s41366-021-00742-4.
8. Pinckard, KM, Shettigar, VK, Wright, KR, Abay, E, Baer, LA, Vidal Souza, P, Dewal, RS, Das, D, Duarte-Sanmiguel, S, **Hernández-Saavedra, D**, Arts, PJ, Lehnig, AC, Bussberg, V, Narain, N, Kiebish, MA, Sparks, LM, Goodpaster, BH, Smith, SR, Pratley, RE, Lewandowski, ED, Raman, SV, Wold, LE, Gallego Perez, D, Coen, PM, Ziolo, MT, Stanford, KI. 2020. *Circulation*. A novel endocrine role for brown adipose tissue to mediate cardiac function. DOI: 10.1161/CIRCULATIONAHA.120.049813.
9. Wang, H, Xu, GB, **Hernández-Saavedra, D**, Chen, H, Pan, YX. 2020. *Am J Physiol Endocrinology & Metabolism*. A Low Protein Diet during Gestation and Lactation Increases Hepatic Lipid Accumulation through Autophagy and Histone Deacetylase. DOI: 10.1152/ajpendo.00263.2019.
10. **Hernández-Saavedra, D**, Stanford, KI. 2019. *Nutrients*. The Regulation of Lipokines by Environmental Factors. DOI: 10.3390/nu11102422.

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11. Moody, L, **Hernández-Saavedra, D**, Kougiyas, D, Chen, H, Juraska, J, Pan, Y-X. 2019. *Environmental Epigenetics*. Perinatal phthalate exposure induces tissue-specific changes in *Srebf1* and *Srebf2* expression and DNA methylation. DOI: 10.1093/eep/dvz009.
12. **Hernández-Saavedra, D**, Xu, GB, Moody, L, Chen, H, Pan, Y-X. 2019. *Advances in Nutrition*. Epigenetic Regulation of Metabolism and Inflammation by Calorie Restriction. DOI: 10.1093/advances/nmy129.
13. Peres Valgas da Silva, C, **Hernández-Saavedra, D**, White, JD, Stanford, KI. 2019. *Biology MDPI*. Cold and Exercise: Therapeutic tools to Activate BAT and Combat Obesity. DOI: 10.3390/biology8010009
14. Emmons, R, Ngu, M, **Hernández-Saavedra, D**, Chen, H, De Lisio, M. 2019. *Medicine and Science in Sports and Exercise*. Effects of Obesity and Exercise on Bone Marrow Progenitor Cells following Radiation. DOI: 10.1249/MSS.0000000000001894.
15. Emmons, R, Xu, GB, **Hernández-Saavedra, D**, Park, Z, Chen, H, De Lisio, M. 2019. *Am J Physiol Endocrinology & Metabolism*. Diet Induced Obesity Increases the Progression of Colon Cancer and Induces Long-Term Changes to the Bone Marrow that is Attenuated by Exercise. DOI: 10.1152/ajpendo.00237.2018
16. Loman*, B, **Hernández-Saavedra, D***, An, R, Rector, RS. 2018. *Nutrition Reviews*. Prebiotic and Probiotic Treatment of Non-Alcoholic Fatty Liver Disease: A Systematic Review and Meta-analysis. DOI: 10.1093/nutrit/nuy03. *Contributed equally.
17. Wise, L, **Hernández-Saavedra, D**, Boas, SM, Pan, Y-X, Juraska, J. 2018. *Developmental Neuroscience*. Perinatal high-fat diet and bisphenol A: Effects on behavior and gene expression in the medial prefrontal cortex. DOI: 10.1159/000494879.
18. **Hernández-Saavedra, D**, Strakovsky, RS, Ostrosky-Wegman, P, Pan, Y-X. 2017. *Advances in Nutrition*. Epigenetic regulation of centromere chromatin stability by environmental factors. Nov (8): 889-904. DOI:10.3945/an.117.016402.
19. **Hernández-Saavedra, D**, Pérez-Ramírez, IF, Ramos-Gomez, M, Mendoza, S, Loarca-Piña, GF, Reynoso-Camacho, R. 2015. *Medicinal Chemical Research*. Phytochemical characterization and effect of *calendula officinalis*, *hypericum perforatum* and *salvia officinalis* infusions on obesity-associated cardiovascular risk. Vol.25 (1), pp 163–172. DOI: 10.1007/s00044-015-1454-1
20. **Hernández-Saavedra, D**, Salgado, LM, Hernández-Montiel, HL, Gamboa-Gómez, CI, Reynoso-Camacho, R. 2013. *Nutrafoods*. The Effect of mexican herbal infusions on diet-induced insulin resistance. Vol.12 (2), pp 55–63 DOI: 10.1007/s13749-013-0015-9
21. Gamboa-Gómez, CI, **Hernández-Saavedra, D**, Gallegos-Infante, JA, Rocha-Guzmán, NE. 2013. *J Medicinal Plant Research*. Polyphenolic content and antioxidant activity of leaf extracts from *Quercus durifolia*, *Quercus eduardii*, *Quercus sideroxyla* and *Quercus resinosa*. Vol.4 (35), pp. 2564-2573. DOI: 10.5897/JMPR12.997
22. **Hernández-Saavedra, D**, Mendoza-Sánchez, M, Hernández-Montiel, HL, Guzmán-Maldonado, HS, Loarca-Piña, GF, Salgado, LM, Reynoso-Camacho, R. 2013. *Plant Foods for Human Nutrition*. Cooked common beans (*Phaseolus vulgaris*) protect against beta-cell damage in streptozotocin-induced diabetic rats. Vol. 68 (2), pp 207–212. DOI: 10.1007/s11130-013-0353-1

Invited Book Chapters:

- **Hernandez-Saavedra, D**, Stanford KI. 2022. *Cardiovascular Signaling in Health and Disease*. Lipid Mediators in Cardiovascular Physiology and Disease. DOI: 10.1007/978-3-031-08309-9_8.

Submitted/In Review:

- Porras-Gómez, M, Kambar, N, Parry, C, Gluck, S, Ruiz Le-Bert, C, **Hernández-Saavedra, D***, Leal, C*. Lung pathology impairs composition, morphology, and mechanics of pulmonary surfactant membranes. *In review Proceedings of the National Academy of Sciences*. *Corresponding author
- Zhou, W, Bandara, SR, Ko, K, **Hernández-Saavedra, D**, Leal, C, Anakk, S. Adipocyte-specific bile acid receptor Fxr regulates adipocyte expansion and structural organization. *In review PNAS Nexus*.
- Bandara, SR, Zhou, W, Ko, K, **Hernández-Saavedra, D**, Leal, C, Anakk, S. Biophysical cues regulate adipocyte expansion and structural organization of fat upon caloric excess. *In review PNAS Nexus*.

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- Roland, CB, **Hernandez-Saavedra, D**, Khan, A, Trost, K, Moritz, T, Brændstrup, N, dP. Knudsen, S, Jessen, AD, Molsted, Clausen, TD, Alomairah, SA, Løkkegaard, E, Stallknecht, B, Stanford, KI, Bendix, JM. The effects of maternal exercise interventions during pregnancy on breast milk composition 7-14 days postpartum. *In review American Journal of Clinical Nutrition*.
- **Hernández-Saavedra, D**, Baer, L, Pinckard, K, Markunas, C, Newgard, CB, Coen, PM, Goodyear, LJ, Stanford, KI. Chronic Exercise Negates Concurrent High-Fat Diet to Improve Hepatic Metabolism and Acylcarnitine Handling. *In review Cell Reports*.
- Dewal, RS, **Hernandez-Saavedra, D**, Baer, LA, Vidal, P, Seculov, NP, Hughes, L, DeBari, M, Abbott, R, Stanford, KI. Transplantation of Committed Pre-adipocytes from Brown Adipose Tissue improves Whole-body Glucose Homeostasis. *In Review Molecular Metabolism*.
- **Hernández-Saavedra, D**, Peres Valgas da Silva, C, Dewal, RS, Seculov, N, Baer, LA, Bussberg, V, Narain, NR, Kiebish, MA, Lynes, MD, Raman, SV, Coen, PM, Stanford KI. Distinct Metabolite Signatures Define Type 2 Diabetes and Heart Disease. *In preparation*.
- **Hernández-Saavedra, D**, Peres Valgas da Silva, C, Dewal, RS, Seculov, N, Baer, LA, Bussberg, V, Narain, NR, Kiebish, MA, Lynes, MD, Raman, SV, Coen, PM, Stanford KI. Distinct Lipid Signatures Define Type 2 Diabetes and Heart Disease. *In preparation*.
- **Hernández-Saavedra, D**, LA, Bussberg, V, Narain, NR, Kiebish, MA, Raman, SV, Lynes, MD, Coen, PM, Stanford KI. Cross-Cohort Lipidomic Associations Identify Inverse Relationship of 12,13-diHOME with Type 2 Diabetes and Cardiovascular Disease. *In preparation*.
- **Hernandez-Saavedra, D**, Das, D, Duarte Sanmiguel, S, Houle, SE, Yang, F, Baer, LA, Fitzgerald, J, Seculov, NP, Hughes, LD, Bussberg, V, Narain, NR, Kiebish, MA, Kokiko-Cochran, ON, Gallego-Perez, D, Stanford, KI. Brown adipose tissue protects a mouse model of Alzheimer's disease against glucose intolerance and improves spatial learning and memory. *In preparation*.

CONFERENCE PRESENTATION

Oral presentations

- **Hernández-Saavedra, D**, Baer, L, Vidal, P, Markunas, C, Newgard, CB, Coen, PM, Goodyear, LJ, Stanford, KI. Chronic Exercise Negates Concurrent High-Fat Diet to Improve Hepatic Metabolism and Acylcarnitine Handling. Keystone Symposia New Insights into the Biology of Exercise 2020.
- **Hernández-Saavedra, D**, Wise, L, Juraska, J, Pan, Y-X. Epigenetic Control of Cortical Estrogen Receptor (Er)- α is Altered by Early-life BPA and High-Fat Diet Exposure Differentially by Sex. ASN Nutrition 2018.

Poster presentations

- **Hernandez-Saavedra, D**, Baer, LA, Seculov, NP, Hughes, LD, Houle, SE, Kokiko-Cochran, ON, Stanford, KI. Brown adipose tissue protects a mouse model of Alzheimer's disease against glucose intolerance and improves spatial learning and memory. Metabolism Month Novo Nordisk Foundation Center for Basic Metabolic Research (CBMR) 2021.
- **Hernández-Saavedra, D**, Baer, L, Vidal, P, Markunas, C, Newgard, CB, Coen, PM, Goodyear, LJ, Stanford, KI. Chronic Exercise Negates Concurrent High-Fat Diet to Improve Hepatic Metabolism and Acylcarnitine Handling. Keystone Symposia New Insights into the Biology of Exercise 2020.
- **Hernández-Saavedra, D**, Markunas, C, Harris, JE, Takahashi, H, Hirshman, MF, Newgard, CB, Goodyear, LJ, Stanford, KI. Parental exercise improves glucose tolerance and differentially affects inter-tissue metabolite handling in male offspring. Keystone Symposia Lipidomics and Functional Metabolic Pathways in Disease. 2019.
- Loman, BR, **Hernández-Saavedra, D**, An, R, Rector, RS. Prebiotic and Probiotic Treatment of Non-Alcoholic Fatty Liver Disease: A Systematic Review and Meta-analysis. ASN Nutrition 2018.

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- D'souza, DM, Emmons, R, **Hernández-Saavedra, D**, Roubos, S, Larkin, J, Lloyd, J, Chen, H, De Lisio, M. Effect of Diet and Exercise on Skeletal Muscle Morphology Following Radiation Therapy. American College of Sports Medicine 2018.
- Ngu, M, Emmons, R, **Hernández-Saavedra, D**, Chen, H, De Lisio, M. Differential effects of obesity and exercise training on the bone marrow niche and leukemia cell viability in irradiated mice. American College of Sports Medicine 2018.
- **Hernández-Saavedra, D**, Goldberg, ZJ, Wang, AP, Chen, H, Pan, Y-X. (2017). Epigenetic regulation of *Tnf* in skeletal muscle by chronic caloric restriction. Experimental Biology 2017.
- Emmons, R, **Hernández-Saavedra, D**, Park, Z, Chen, H, De Lisio, M. (2017). The effects of high fat diet-induced obesity and exercise training on hematopoietic stem and progenitor cells following sub-lethal radiation. Experimental Biology 2017.
- Xu, GB, Emmons, R, **Hernández-Saavedra, D**, Kriska, A, Pan, Y-X, Chen, H. (2017). Regulation of gene expression of *Wnt* signaling pathway by dietary high fat in its effect on colon epithelia of male mice. Experimental Biology 2017.
- **Hernández-Saavedra, D**, Chen, H, & Pan, Y-X. (2016). Chronic caloric restriction alters nutrient sensing in skeletal muscle in high-fat diet fed rats. The FASEB Journal, 30(1 Supplement), 850-10. Experimental Biology 2016.
- **Hernández-Saavedra, D**, Zhou, D, & Pan, Y-X. (2015). Maternal high fat diet-induced *Il-12b* overexpression in male offspring rats is associated with dna hypomethylation. The FASEB Journal, 29(1 Supplement), 728-40. Experimental Biology 2015. Journal, 28(1 Supplement), 800-7. Experimental Biology 2015.
- **Hernández-Saavedra, D**, Zhou, D, Liu, D, Chen, H, Pan, Y-X. "High fat diet induces aberrant COX-2 gene expression through demethylation of a transcriptional enhancer at a 5' upstream region of the gene". The FASEB Journal, (28): (1 Supplement 800.7. Experimental Biology 2014.
- **Hernández-Saavedra, D**, Gamboa-Gómez, CI, Ramos-Gómez, M, Reynoso-Camacho, R. (2012). Biological effect of marigold, St. John's wort and sage infusions on a diet induced obesity model. 5th International Congress on Food Science and Food Biotechnology in Developing Countries 2012.

TEACHING EXPERIENCE

2022 – Present

- Integrative Biology of Exercise (KIN 594), Department of Kinesiology and Community Health, UIUC.

2018 – 2021

- Discussion Leader for the department of Physiology and Cell Biology (OSU Wexner Medical Center) for Graduate student journal club and Postdoctoral seminar.

2014 - 2018

- Teaching Assistant for Contemporary Nutrition (FSHN 120), UIUC; Moderator of a Nutritional discussion board, Exam manager, Student advisory committee representative and Honors Program coordinator for Undergraduate course.

2015 - 2016

- Teaching Assistant for Biochemical Nutrition (FSHN 426), UIUC; Imparted module on biochemical pathways related to nutrition for Undergraduate and Graduate Students.

o Mentioned in the list of teachers ranked as excellent by their students (2017).

2014

- Discussion Leader for Nutritional Aspects of Disease (NUTR 420), UIUC; for Evidence based Nutritional Recommendations of a 3rd year Undergraduate and Graduate course.

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COMMUNITY OUTREACH

- 2019 to 2021 – Judge at the Ohio State Science Day Fair organized by The Ohio Academy of Sciences.
- 2018 to 2021 – Abstract and presentation judge at the Edward F. Hayes Graduate Research Forum at The Ohio State University.
- 2015 to 2018 – Group Leader for “Cena y ciencias” (Science and supper) Science outreach with the Urbana School District Dual Language Program in collaboration with University of Illinois at Urbana-Champaign (UIUC), the UIUC Society of the Advancement of Chicanos and Native American Scientists (SACNAS), and U of I Extension 4-H Youth Development Program, National Science Foundation (NSF), and the National Center for Supercomputing Applications (NCSA).