CV date	29/07/2024

Part A. PERSONAL INFORMATION

First name	Guillermo		
Family name	Sánchez Delgado		
Gender	Male	Birth date (dd/mm/yyyy)	20/11/1989
National ID number	75135150-S		
e-mail	gsanchezdelgado@ugr.es		
Open Researcher and Contributor ID (ORCID)		0000-0003-4455-2483	

A.1. Current position

Position	Postdoctoral Researcher (Marie S Curie Actions Fellow)		
Initial date	2024		
Institution	University of Granada		
Department/Center	"José Mataix Verdú" Institute of Nutrition and Food Technology (INYTA) / Instituto Mixto Universitario Deporte y Salud		
Country	Spain	Teleph. number	+34650372135
Key words	Human energy balance; Obesity; Energy expenditure; Energy metabolism; human nutrition; human physiology; exercise physiology		

A.2. Previous positions

Period	Position/Institution/Country/Interruption cause
2022-2024	Postdoctoral Researcher / Université de Sherbrooke / Department of Medicine, Division of Endocrinology / Canada
2019-2022	Postdoctoral researcher / Pennington Biomedical Research Center / United States of America
2018-2019	Postdoctoral researcher / University of Granada / Spain
2014-2018	Predoctoral researcher / University of Granada / Spain

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
PhD in Biomedicine	University of Granada / Spain	2018
Master in Research in Physical Activity and Sports	University of Granada / Spain	2013
Master in Personal Training	University of Granada / Spain	2013
Bachelor in Physical Activity and Sports Sciences	University of Granada / Spain	2012

Part B. CV SUMMARY

Besides being a postdoctoral researcher at the University of Granada and the Univeristé de Sherbrooke, Guillermo is a researcher member of the *Centro de Investigación Biomédica en Red de Fisiopatología de la Obesidad y Nutrición* (CIBEROBN) and an adjunct instructor at *Pennington Biomedical Research* Center. Guillermo is the author of 94 articles published in journals included in the journal of citation report, being first author in 17, second author in 32, and last author in 6 articles. Guillermo's h-index according to Web of Science is 23, with a total of 1697 citations (1416 without self-citations) and an average of 15.71 citations per article. His h-index according to Google Scholar is 31, with a total of 3000 citations. Guillermo is also the author of 115 communications at national and international conferences, including 9 invited presentations.

Dr. Sanchez-Delgado has contributed with significant advancements in knowledge. For instance, coordinating a large randomized controlled trial, he observed that human brown adipose tissue (BAT) volume and activity are not altered by exercise. Contrary to earlier expectations, BAT was not found to be associated with energy expenditure, energy intake, or bone mineral density. However, he discovered an intriguing positive correlation between BAT volume and whole-body adiposity in men and found that individuals with overweight or obesity maintaining a metabolically healthy phenotype exhibit higher BAT volume. Dr. Sanchez-Delgado has also made important contributions to the indirect calorimetry methodology in humans, identifying a new reference metabolic cart for measuring human

energy expenditure, and making advances on data treatment methods for improving the reproducibility of resting metabolic rate assessments. Dr. Sanchez-Delgado's research extended to exploring metabolic flexibility, especially the capacity for fat oxidation during exercise. Through systematic reviews and experimental approaches, he provided recommendations for assessing maximal fat oxidation in human adults. His investigations also delved into the effects of intermittent fasting on metabolic flexibility and cardiometabolic health.

In recent work, Dr. Sanchez-Delgado conducted a clinical trial on the newer generation drug for obesity treatment, tirzepatide, revealing its effects on metabolic adaptation, fat oxidation, and appetite suppression (manuscript under review in *Cell Metabolism*). Furthermore, he has developed a novel method for assessing insulin sensitivity in non-diabetic individuals, utilizing the urinary excretion rate of C-peptide and continuous glucose monitoring, providing a highly correlated marker for insulin sensitivity compared to the gold standard technique (manuscript under review). Also in recent research, Dr. Sanchez-Delgado has pioneered the study of time-restricted eating as a potential treatment for pediatric obesity, establishing its feasibility and safety (manuscript in preparation).

Dr. Sanchez-Delgado career has been supported by many funding sources including prestigious grants such as FPU, Fulbright Ruth Lee Kennedy, EFSD Albert Renold, Ramon Areces Foundation, Martin Escudero Foundation, Fonds de Recherche Santé-Québec, and a Marie Sklodowska Curie Actions-Individual Fellowship grant. Guillermo has participated in 18 research projects funded through competitive calls and in 5 research projects funded by private entities. While completing his postdoctoral training in Canada, he obtained funding as principal investigator of project funded by the of the Spanish State Research Agency and others, which enabled him to establish his own research laboratory in 2023.

As a result of an intense mentoring activity, Guillermo has supervised 8 Master's Theses, 3 Doctoral Theses, and is currently supervising 3 Doctoral Theses and 3 Master's Theses. In addition, he combines his research activity with teaching in several Master programs in Spain and Chile.

Guillermo has served as a peer reviewer for articles in numerous journals in his field (Science, Diabetes, Obesity, Journal of Physiology, Scientific Reports, Frontiers in Physiology, Clinical Sciences, British Journal of Nutrition, etc.) and as a project reviewer at the Evaluation and Accreditation Directorate of the Andalusian Agency of Knowledge, the Translational Health Research Panel of the French National Research Agency, and the state scientific funding agency of Austria. Dr. Sanchez-Delgado's maintains active collaborations with researchers from of the USA, Canada, Chile, UK, France, the Netherlands, Denmark, Sweden, Finland, Switzerland and Singapore.

Dr. Sanchez-Delgado's career has also been prolific in knowledge transfer. Besides being coauthor of 2 Safe Creative licenses, he co-founded a company (*BuenaVida Centro de Salud y Deporte*) offering lifestyle-related health care in Granada, as a platform to bring the scientific knowledge and methods to clinical care, ultimately benefiting the local community. Four years after being launched, the company employees 12 health care providers and serves more than 250 clients in the Granada area.

Part C. RELEVANT MERITS

C.1. Publications (CA=Corresponding author)

1. **Scientific article** (2*/9). Jurado-Fasoli L*; *Sanchez-Delgado G**; Alcantara JMA; et al; Ruiz JR. 2024. Adults with metabolically healthy overweight or obesity present more brown adipose tissue and higher thermogenesis than their metabolically unhealthy counterparts. EBioMedicine. in press. *shared first authorship. https://doi.org/10.1016/j.ebiom.2023.104948

2. **Scientific article** (10/10*). Mendez-Gutierrez A; Aguilera CM; Cereijo R; et al; Ruiz JR*; *Sanchez-Delgado G**. 2024. Cold exposure modulates potential brown adipokines in humans, but only FGF21 is associated with brown adipose tissue volume. Obesity. in press. *shared last authorship. https://doi.org/10.1002/oby.23970

3. **Scientific article** (9/9). Mendez-Gutierrez A; Aguilera CM; Osuna-Prieto FJ; et al; *Sanchez-Delgado G*. 2023. Exercise-induced changes on exerkines that might influence brown adipose tissue metabolism in young sedentary adults. European Journal of Sport Science. 23-4, pp.625-636. https://doi.org/10.1080/17461391.2022.2040597

4. **Scientific article** (2*/22). Martinez-Tellez B*; *Sanchez-Delgado G**; Acosta FM; et al; Ruiz JR (CA). 2022. No evidence of brown adipose tissue activation after 24 weeks of supervised exercise training in young sedentary adults: The ACTIBATE randomized controlled trial. Nature

Communications. 13-1, pp.5259. *shared first authorship. https://doi.org/10.1038/s41467-022-32502-x

5. **Scientific article** (8/8*). Alcantara JMA (CA); Galgani JE; Jurado-Fasoli L; Dote-Montero M; Merchan-Ramirez E; Ravussin E; Ruiz JR*; *Sanchez-Delgado G**. 2022. Validity of four commercially available metabolic carts for assessing resting metabolic rate and respiratory exchange ratio in non-ventilated humans. Clinical Nutrition. 41-3, pp.746-754. *shared last authorship. https://doi.org/10.1016/j.clnu.2022.01.031

6. **Scientific article** (1/8). *Sanchez-Delgado G* (CA); Martinez-Tellez B; Acosta FM; Virtue S; Vidal-Puig A; Gil A; Llamas-Elvira JM; Ruiz JR. 2021. Brown adipose tissue volume and fat content are positively associated with whole-body adiposity in young men, not in women. Diabetes. 70-7, pp.1473-1485. https://doi.org/10.2337/db21-0011

7. **Scientific article** (1/10). *Sanchez-Delgado G* (CA); Alcantara JMA; Acosta FM; et al; Ruiz JR. 2020. Energy expenditure and macronutrient oxidation in response to an individualized non-shivering cooling protocol. Obesity. 28-11, pp.2175-2183. https://doi.org/10.1002/oby.22972

8. **Scientific article** (1/10). *Sanchez-Delgado G* (CA); Acosta FM; Martinez-Tellez B; et al; Ruiz JR. 2020. Brown adipose tissue volume and 18F-fluorodeoxyglucose uptake are not associated with energy intake in young human adults. American Journal of Clinical Nutrition. 111-2, pp.329-339. https://doi.org/10.1093/ajcn/nqz300

9. **Scientific article** (1/9). *Sanchez-Delgado G* (CA); Martinez-Tellez B; Garcia-Rivero Y; et al; Ruiz JR. 2019. Association between brown adipose tissue and bone mineral density in humans. International journal of obesity. 43-8, pp.1516-1525. https://doi.org/10.1038/s41366-018-0261-4

10. **Scientific article** (1/7). *Sanchez-Delgado G* (CA); Alcantara JMA; Ortiz-Alvarez L; Xu H; Martinez-Tellez B; Labayen I; Ruiz JR. 2018. Reliability of resting metabolic rate measurements in young adults: Impact of methods for data analysis. Clinical nutrition. 37-5, pp.1618-1624. https://doi.org/10.1016/j.clnu.2017.07.026

C.2. Congress

1. **Invited conference.** *Sanchez-Delgado G*. Tejido adiposo pardo en humanos: Actualización sobre su papel en el balance energético y estrategias para su activación. XIX Congreso Nacional SEEDO. Sociedad Española para el Estudio de la Obesidad. 2023. Spain.

2. **Oral Presentation.** Ravussin E; *Sanchez-Delgado G*; Martin CK; et al; Haupt A. The Effect of Tirzepatide during Weight Loss on Metabolic Adaption, Fat Oxidation, and Food Intake in People with Obesity. 83rd Scientific Sessions American Diabetes Association. American Diabetes Association. 2023. United States of America.

3. **Poster.** Martin-Masot R; Herrador-Lopez M; Merchan-Ramirez ME; Rivera Cuello M; Navas-Lopez VM; *Sanchez-Delgado G*. A crossover randomized controlled trial investigating time restricted eating as a potential treatment for paediatric obesity: the TREPO study. 30th European Congress on Obesity. European association for the study of obesity. 2023. Ireland.

4. **Invited conference.** *Sanchez-Delgado G*; Roell WC; Beyl R; O'Farrell L; Coskun T. Tirzepatide modulates caloric intake and energy expenditure in diet induced obese mice. ObesityWeek 2022. The Obesity Society. 2022. United States of America.

5. **Poster.** *Sanchez-Delgado G*; Marlatt K; Sparks JR; Flanagan EW; Greenway F; Beyl R; Ravussin E. Assessment of insulin sensitivity by continuous glucose monitoring and 24-h urinary C-peptide excretion in non-diabetic individuals. Recent Advances and Controversies in Measurement of Energy Metabolism (RACMEM) 2022. 2022. Canada.

6. **Poster.** *Sanchez-Delgado G*; Dote-Montero M; Reed I; Ravussin E. Reproducibility of resting metabolic rate and respiratory exchange ratio measurements provided by four commercially available metabolic carts and the Deltatrac II. Recent Advances and Controversies in Measurement of Energy Metabolism (RACMEM) 2022. 2022. Canada.

7. **Poster.** Sanchez-Delgado G; McDougal DH; Dote-Montero, M; Ravussin. Novel Assessments of Metabolic Flexibility using Whole-Body Room Indirect Calorimetry. ObesityWeek 2021. The Obesity Society. 2021. United States of America.

8. **Oral Presentation.** Sanchez-Delgado, G.; Garcia-Rivero, Y.; Rodríguez-Pérez, L.; et al; Ruiz, JR. Association of brown adipose tissue, skeletal muscle glucose uptake and supraclavicular skin temperature, with cold-induced thermogenesis and nutrient oxidation rates. 25th European Congress on Obesity. European association for the study of obesity. 2018. Austria.

9. **Oral Presentation.** Sanchez-Delgado, G.; Martinez-Tellez, B.; Alcántara, JMA.; et al; Ruiz, JR. Associations of shivering threshold with cardiorespiratory fitness, physical activity and body composition in young adults: preliminary results of the ACTIBATE Study. European Obesity Summit. European Association for the Study of Obesity. 2016. Sweden.

C.3. Research projects

1. **Project**. Addressing the problem of weight regain after caloric restriction in people with obesity: new therapeutic approaches and potential mechanisms. Spanish Ministry of Science, Innovation and Universities. PI: Guillermo Sanchez Delgado, University of Granada. 01/09/2024-31/08/2027. 262,500 €. Role: Principal Investigator.

2. **Project**. Molecular adaptations of human brown adipose tissue to overnutrition (BATON-MOL). Proyectos intramurales CIBEROBN 2024; Centro de Investigación Biomédica en Red en Fisiopatología de la obesidad y Nutrición. PI: Guillermo Sanchez Delgado, University of Granada. 01/04/2024-31/03/2026. 50,000 €. Role: Principal Investigator.

3. **Project**. ID-101028941. Adaptation of human brown adipose tissue to overnutrition. European Union-Marie Sklodowska Curie Actions-Individual Fellowships H2020. PI: Guillermo Sanchez Delgado, University of Granada. 01/04/2022-31/03/2025. 250,498 €. Role: Principal Investigator.

4. **Project**. PID2021-127582OA-I0. Adaptation of human brown adipose tissue to overnutrition: Molecular mechanisms and contribution to whole-body thermogenesis. Spanish Ministry of Science and Innovation. PI: Guillermo Sanchez Delgado, University of Granada. 01/09/2022-31/08/2024. 121,000 €. Role: Principal Investigator.

5. **Project**. Análisis de la respuesta fisiológica al ayuno de niños y adolescentes con obesidad, en comparación con adultos, y tras una intervención de restricción temporal de la ingesta de alimentos. Sociedad de Pediatría de Andalucía Oriental and Sociedad Española de Gastroenterología, Hepatología y Nutrición Pediátrica. PI: Rafael Martín Masot, Hospital Regional Universitario Málaga. 01/07/2022-30/06/2024. 10,000 €. Role: Co-Investigator.

6. **Project**. Intercenter Structuring Initiatives: Exploring the use of ^{11}C-acetate positron emission tomography to advance the understanding of adaptive thermogenesis: A method-developing study. Cardiometabolic Health, Diabetes and Obesity (CMDO) Research Network. PI: André Carpentier, Université de Sherbrooke. 01/04/2023-31/03/2024. CAD $40,000. Role: Co-Investigator.

7. **Project**. Restricción horaria de la ingesta de alimentos en niños y adolescentes con obesidad y comorbilidades metabólicas: estudio piloto. Sociedad Española de Gastroenterología, Hepatología y Nutrición Pediátrica. PI: Rafael Martín Masot, Hospital Regional Universitario Málaga. 01/07/2021-30/06/2023. 7,000 €. Role: Co-Investigator.

C.4. Contracts, technological or transfer merits

1. **Contract**. Exploration of the molecular mechanisms underlying inter-individual differences in energy expenditure in a unique human cohort. Novo Nordisk Pharma, S.A. PI: Eric Ravussin, Pennington Biomedical Research Center. 01/01/2023-01/01/2025. US $435,756. Role: Co-Investigator.

2. **Contract**. Pilot study to evaluate deep brain stimulation (DBS) of the lateral hypothalamic area (LHA) on energy balance and feeding behavior in patients with chronic refractory obesity. Boston Scientific. PI: Eric Ravussin, Pennington Biomedical Research Center. 01/01/2021-31/12/2025. US $250,000. Role: Co-Investigator.

3. **Contract**. Development of a Novel Method to Measure Insulin Sensitivity in Humans: A Pilot Study Dore Foundation. PI: Eric Ravussin, Pennington Biomedical Research Center. 01/01/2020-31/12/2022. US $43,561. Role: Co-Investigator.

4. **Contract**. A Randomized, Placebo-Controlled, Parallel-Arm Study to Investigate the Effect of Once-Weekly Tirzepatide on Energy Expenditure and Food Intake in Obese Subjects. Elly Lilly. PI: Eric Ravussin, Pennington Biomedical Research Center. 01/10/2019-31/12/2022. US $3,037,443. Role: Co-Investigator.