

Part A. PERSONAL INFORMATION

First name	Irene		
Family name	Esteban-Cornejo		
Gender (*)	Female	Date of Birth	----
ID number	----		
e-mail	ireneesteban@ugr.es	URL Web	Google scholar
Open Researcher and Contributor ID (ORCID) (*)	0000-0002-0027-1770		

A.1. Current position

Position	Ramón y Cajal		
Initial date	01/01/2021		
Institution	University of Granada		
Department/Centre	Dep. Physical Education & Sports / Health University Research Institute (iMUDS),		
Country	Spain	Phone number	635158856
Keywords	Exercise, physical fitness, brain health, cognition and aging.		

A.2. Previous positions (research activity interruptions)

Period	Position/Institution/Country/Cause of the interruption
01/01/2020 to 31/12/2020	JIN/University of Granada/Spain
01/01/2019 to 31/12/2019	Juan de la Cierva-Incorporación/ University of Granada/Spain
01/01/2018 to 31/12/2018	Postdoctoral researcher, Northeastern University (Boston, USA).
01/11/2015 to 01/11/2017	Juan de la Cierva-Formación/ University of Granada/Spain
15/07/2014 to 15/10/2015	Postdoctoral researcher/ Autonomous University of Madrid/ Spain

A.3. Education

PhD, Graduate Degree	University/Country	Year
Bachelor of Psychology	National Distance Education University, Spain	Ongoing (last year-95%)
Posgraduate in Advance Neuroimage	Spanish Society of Neuroimage, Barcelona, Spain.	2016
International PhD in Physical Activity and Sport Sciences	Autonomous University of Madrid, Madrid, Spain	2014
Master in Training for Secondary, Professional Training Physical Education teachers	Autonomous University of Madrid, Madrid, Spain	2011
Bachelor of Exercise Sciences	Autonomous University of Madrid, Madrid, Spain	2010

Part B. CV SUMMARY (max. 5000 characters, including spaces)

Irene Esteban-Cornejo got her Bachelor in Physical Activity Sciences and Sport (2010) and she is currently studying the Bachelor in Psychology (95% completed). During her **predoctoral research (PhD,2014)**, she was focused on examining the influence of **lifestyle behaviors and health-related markers** on **academic and cognitive performance** in **children and adolescents**. She initiated her **postdoctoral training** in the Autonomous University of Madrid (2014-2015). At that time, the candidate expanded her research line **from children and adolescents to older adults**, and she **started to work with aging**, mainly involved in the IMPACT65+ project, a cross-sectional study to examine the influence of physical activity and sedentary behaviors on **physical and cognitive frailty** in older adults. The applicant continued as **Juan de la Cierva-Formación** postdoctoral fellow at the University of Granada (2015-2017) and was involved in the ActiveBrains Project, an exercise-based randomized controlled trial to examine the effect of **exercise on cognition, brain structure and brain function** in overweight preadolescent children.

During 2018, Irene Esteban worked as a postdoctoral fellow in the **Center for Cognitive and Brain Health** at Northeastern University (Boston, USA). She was mainly involved in the IGNITE project, a randomized clinical trial to examine the effects of exercise on cognitive and brain function in late adulthood; the candidate **expanded her research line** from observational **to intervention design**, as well as **from behavioral to neuroimaging data**, which both allows to better understand the interactions between exercise, brain and cognition. After that, she continued as **Juan de la Cierva-**



Incorporación at the University of Granada (2019-2020). Currently, she is **Ramon y Cajal Fellow** (2021-2026), she got the **first position** in the ranking (only 4 positions for all applicants from Spain and abroad) in the Psychology area (2020 call) and got a i+d+i project as **Principal investigator**, AGUEDA project (**Active Gains in brain Using Exercise During Aging**, 2019-2021). She became an **independent researcher and group leader** in the area of **exercise neuroscience and aging** and showed **independent thinking, project management skills and leaderships qualities** all along her research career. More specifically, she wants to explore the effectiveness of different exercise intervention and other environmental factors in the prevention of Alzheimer Disease, using cutting-edge **MRI sequences, PET imaging** and **new** analytical approaches.

In addition, Irene Esteban did **many short research stays**: In 2016 and later in 2017 she went to **Monash Institute of Cognitive and Clinical Neuroscience**, Melbourne, Australia with Antonio Verdejo-García. In 2015, she went to the **Research Center in Physical Activity, Health and Leisure**, Porto, Portugal. In 2014, she went to the **WHO Center for Epidemiological Research**, Brazil, USA and also to the **Department of Family and Preventive Medicine**, Active Living research in the University of California San Diego with James F. Sallis. In addition, she received in 2014 the International Young Investigator Award by the *Acta Paediatrica* Journal and in 2016 the Research Quarterly for Exercise and Sport Writing Award by the Society of Health and Physical Educators or the 1st **National Research award** on Exercise Medicine. The applicant participated in more than **20 research projects (more than 35 million €)** and currently acts as principal investigator in a recent funded project (AGUEDA project, 210000€). She participated such as speaker in more than **23 international and national congresses**. Moreover, she participated in congress, symposium and national and international scientific meetings with more than **100 contributions** (communications/posters). She is **external reviewer** in different JCR journals and I+D+I project international call. Finally, she has supervised **13 Master's Theses** and **4 PhD Thesis** already defended and is currently supervising **4 PhD Theses**. In summary, I have **the expertise, leadership, training, and motivation necessary to successfully** carry out this proposed novel project.

Part C. RELEVANT MERITS (*sorted by typology*)

C.1. Publications

Irene Esteban has published more than 115 **scientific articles** in Journals indexed in the **JCR/Pubmed**), **75 % in the area of cognitive and brain health**. To see the full list of publications click [HERE](#). To see Google Scholar profile click [HERE \(H.-index: 31 and more than 3700\)](#). Below detailed the top-10 publications as key author:

1. **Esteban-Cornejo I**, ..., Celis-Morales C. **(1/13)** Handgrip strength and all-cause dementia incidence and mortality: findings from the UK Biobank prospective cohort study. *J Cachexia Sarcopenia Muscle*. 2022 Jun;13(3):1514-1525.. PMID: 35445560. **Impact factor:12.910**
2. **Esteban-Cornejo I**, Stillman CM, Rodriguez-Ayllon M, Kramer AF, Hillman CH, Catena A, Erickson KI, Ortega FB **(CA)**. Physical fitness, hippocampal functional connectivity and academic performance in children with overweight/obesity: The ActiveBrains project. *Brain Behav Immun*. 2021;91: 284-95. **Impact factor: 19.22**
3. Stillman CM, **Esteban-Cornejo I**, Brown B, Bender CM, Erickson KI. Effects of Exercise on Brain and Cognition Across Age Groups and Health States [published online ahead of print, 2020 May 11]. *Trends Neurosci*. 2020;S0166-2236(20)30101-6. **Impact Factor: 12.2**.
4. **Esteban-Cornejo I**, Rodriguez-Ayllon M, Verdejo-Román J..., Hillman CH **(CA)** **(1/16)**. Physical fitness, white matter volume and academic performance in children: findings from the ActiveBrains and FITKids2 projects. *Front Psychol*. 2019 Feb 12;10:208. **Invited manuscript** to a Special Issue of Neuromodulation of Exercise: Impact on Different Kinds of Behavior.
5. **Esteban-Cornejo I**, Cabanas-Sánchez V, Higuera-Fresnillo S, Ortega FB, Kramer AF, Rodriguez-Artalejo F, Martinez-Gomez D. **(CA)**. Cognitive frailty and mortality in a national cohort of older adults: the role of physical activity. *Mayo Clin Proc*. 2019 Jul;94(7):1180-1189 PMID: 30871783. **IF: 7.199**
6. **Esteban-Cornejo I**, Mora-Gonzalez J, Cadenas-Sanchez C..., A,Ortega FB **(CA)** **(1/16)** Fitness, cortical thickness and surface area in overweight/obese children: the mediating role of body composition and relationship with intelligence. *Neuroimage*. 2018 Nov 27. pii: S1053-8119(18)32128-1. **Impact factor: 5.835**. Neuroimage is the first journal in the Journal Titles Ranked by Impact Factor in the area of Neuroimaging.
7. **Esteban-Cornejo I**, Cadenas-Sanchez C, Contreras-Rodriguez O, ... Ortega FB **(CA)** **(1/10)**. A whole brain volumetric approach in overweight/obese children: Examining the association with



- different physical fitness components and academic performance. The ActiveBrains project. **Neuroimage**. 2017 Aug 5; 159:346-354. **Impact factor: 5.835**. This study had a large dissemination with press notes published as well as radio and TV interviews.
8. **Esteban-Cornejo I**, Catena A, Hillman CH, Kramer AF, Erickson KI, Ortega FB. Commentary: At least eighty percent of brain grey matter is modifiable by physical activity: a review study. **Front Hum Neurosci**. 2018 May 8. **Impact factor: 2.871**.
 9. Martinez-Gomez D, **Esteban-Cornejo I**, Lopez-Garcia E, García-Esquinas E, Sadarangani KP, Veiga OL, Rodriguez-Artalejo F (2/7). Physical activity less than the recommended amount may prevent the onset of major biological risk factors for cardiovascular disease: a cohort study of 198 919 adults. **Br J Sports Med**. 2020 Feb;54(4):238-244.PMID: 30554146. **Impact factor: 11.645**:
 10. Rodriguez-Ayllon M, Cadenas-Sánchez C, Estévez-López F, ..., **Esteban-Cornejo I. (14/14)**. Role of Physical Activity and Sedentary Behavior in the Mental Health of Preschoolers, Children and Adolescents: A Systematic Review and Meta-Analysis. **Sports Med**. 2019 Sep;49(9):1383-1410. **Impact factor: 7.853**.

C.2. Congresses: invited lectures on exercise neuroscience:

1. 2022—Invited speaker at the *Neurounus 2022 Neuroscience Forum Conference, 15-17th Oct, Poland*. Talk on “*The role of physical fitness on brain structure and function during childhood*”.
2. 2022—Invited speaker at the 27th Annual Congress of European College of Sport Science, 30th Aug - 2nd Sep, Spain. Talk on “*Selective associations of physical fitness components with brain structure and function in childhood obesity: Implications for academic performance*”.
3. 2020—Invited speaker at the 4th International Congress of Sport Sciences in Children and Adolescents”, 11-12 Nov 2020, Chile. Talk on “*Exercise, fitness and brain health in children with overweight/obesity*”.
4. 2019—Invited speaker at the 29th Annual Congress of European Childhood Obesity Group, 13-16th Nov 2019, Poland. Talk on “*Do physical activity and fitness influence brain health in overweight/obese children?*”.
5. 2019—Invited speaker at the 25th Congress of Brazilian Behavioral and Neuroscience Society, 1-4th Oct 2019, Brazil. Talk on “*Physical fitness, physical activity and brain health during childhood: the ActiveBrains randomized controlled trial*”.
6. 2019—Invited speaker at the 1s Conference International Conference on Neuroprotection by Drugs, Nutraceuticals and Physical Activity, 6-7th June 2019, Italy. Talk on “*Biological bases of physical activity effects at brain level*”.

C.3. Research projects and grants:

A) Research Projects: Irene Esteban is **principal investigator in one ongoing project (Agueda project)**. Due to the applicant’s youth and the maximum duration of her previous postdoctoral contracts (2-years), she couldn’t have the opportunity to apply for funding as principal investigator to date. As soon as she had the chance to apply for the I+D+I national Plan, she submitted a proposal and got it in her 1st attempt:

1. **AGUEDA PROJECT- Active Gains in brain Using Exercise During Aging**. Minister of Economy and Competitiveness. **Esteban-Cornejo I** (University of Granada). 2019-2021. 210000€.
In addition, Irene Esteban has participated in more than **20 research projects, with a total of more than 35million€), 80% related to exercise neuroscience**. Below detailed the more related project to her main research line:
2. **Hearty-Brain** - Effects of Exercise on Brain in Patients with Coronary Heart Disease: The Heart-Brain Connection. Plan Andaluz de Investigación (PAIDI) (Convocatoria 2020, Ref: P20_00124). Ortega-Porcel FB (University of Granada). 2021-2022. 116000€. Investigator.
3. **VasculActive**. Effects of exercise on brain vascularization in coronary heart disease patients. Minister of Economy and Competitiveness-(Ref: PID2020-120249RB-I00). Ortega-Porcel FB (University of Granada). 2021-2023. 121000€. Investigator.
4. **GESTAFITOS** - Influencia de un programa de ejercicio físico concurrente durante el embarazo sobre la composición corporal, condición física y desarrollo motor, cognitivo y del lenguaje de la descendencia. Andalusian Government. Aparicio V (University of Granada). 2020-2022. 10.400 EUR. Investigator.
5. **ATENTO-** Adjusting the dose of therapeutic exercise to prevent neurotoxicity due to anticancer treatment. Fundación AECC. Cantarero-Villanueva I (University of Granada). 2020-2022. 30.000 EUR. Investigator.



6. **IGNITE PROJECT**- Investigating **Gains in Neurocognition in an Intervention Trial of Exercise**). NIH Erickson KI (University of Pittsburgh, Northeastern University). 2016-2022. 23,000,000 \$. Collaborator.
7. **Genobex** - Genes, Obesity And Exercise. Andalusian Government. Ortega-Porcel FB (University of Granada). 2020-2022. 33.400 EUR. Investigator.
8. **MECABRAIN** - Peripheral mechanisms inducing neurogenesis, hippocampal function and mental health in children: The role of exercise. Minister of Economy and Competitiveness. Ortega-Porcel FB (University of Granada). 2018-2020. 48400€. Investigator.
9. **SMARTMOVE** - Exercise in the prevention and treatment of obesity and insulin resistance: smart analysis-smart interventions. Minister of Economy and Competitiveness. Ortega-Porcel FB (University of Granada). 2016-2020. 121000€. Investigator.
10. **VALLECAS** - A cohort to identify early markers and mechanisms of Alzheimer's disease. Institute of Health Carlos III. Medina M (CIEN Foundation) 2011-2019. 500000€. Collaborator.
11. **ACTIVEBRAINS** - Effects of an exercise-based randomized controlled trial on cognition, brain structure and brain function in overweight preadolescent children. Minister of Economy and Competitiveness. Ortega-Porcel FB (University of Granada). 2014-2017. 145200€. Investigator.
12. **IMPACT 65+**: - Objectively assessed physical activity and its impact on the frailty syndrome, quality of life and health in population aged 65 and older. Minister of Economy and Competitiveness. Martinez-Gomez D (Autonomous University of Madrid). 2014-2017. 80000 €. Investigator.
13. **ENRICA** - project: Study of Nutrition and Cardiovascular Risk in older adults from Spain. Institute of Health Carlos III (FIS PI08-0166 y PI09-1626) & Sanofi-aventis. Rodriguez-Artalejo F (Autonomous University of Madrid). 2008-20. 500000€. Collaborator.
14. **UP&DOWN**: Follow-up in healthy schoolchildren and in adolescents with Down syndrome: psycho environmental and genetic determinants of PA and its impact on fitness, cardiovascular diseases, inflammatory biomarkers and mental health. Minister of Economy and Competitiveness. Marcos A (Autonomous University of Madrid). 2010-2014. 500000€. Investigator.

B) Grants for brief stays:

The applicant got 8 grants for **research stays** to work with top leaders in the topic of exercise, brain and/or cognition around the world (i.e., Europe, USA and Australia):

1. 2019 June / 2019 July: — School of Psychology, University of Pittsburgh, Pittsburgh, PA. Advisor: **Kirk I. Erickson**, PhD.; **Visiting scholar UGR**.
2. 2018 Jan / 2019 Jan: — Cognitive and Brain Health Center, Northeastern University, MA, Boston. Advisor: **Charles Hillman**, PhD.; **2017 Fundación Alicia Koplowitz Grant**.
3. 2017 July/Sep — **Monash Institute of Cognitive and Clinical Neuroscience**, Melbourne, Australia. Advisor: **Antonio Verdejo-García**, PhD.; **2016 Jose Castillejo Grant**.
4. 2016 July/Sep — **Monash Institute of Cognitive and Clinical Neuroscience**, Melbourne, Australia. Advisor: **Antonio Verdejo-García**, PhD.; **2016 Fundación Alicia Koplowitz Grant**.
5. 2015 July/Sep — **Research Center in Physical Activity, Health and Leisure**, Porto, Portugal. Advisor: **Jorge Mota**, PhD.; **2015 Banco Santander Grant**.
6. 2014 Oct/Dec — **WHO Center for Epidemiological Research**. Brazil, USA. Advisor: **Pedro Hallal**, PhD.; **2014 Banco Santander Grant**.
7. 2014 May —Dept. of Family and Preventive Medicine, Active Living research. **University of California San Diego**. San Diego, CA, USA. Advisor: **James F. Sallis** PhD. **2014 Plan propio Autonomous University of Madrid Grants**.
8. 2013 June / Sep —Dept. of Family and Preventive Medicine, Active Living research. **University of California San Diego**. San Diego, CA, USA. Advisor: **James F. Sallis** PhD. **2013 Plan propio Autonomous University of Madrid Grants**.

C.4. Technology/Knowledge transfer and other relevant contributions:

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| 2014-2022 | Irene Esteban disseminated her research in schools, press releases (Reuters, ABC, El Universal, Antena 3, Agencia EF Salud...), radio interviews (Onda Cero, Kitaro...) and television interviews (Televisión Internacional NTN24 and Canal Sur). |
| 2021 | She has recently led an <u>international congress</u> on “promoting brain health through exercise across the lifespan” to gather researchers from all around the world who presented advances in the exercise neuroscience area. |
| 2021 | Editor of a special issue entitled “ <u>The Role of the Brain in Health and Disease Across the Lifespan</u> ” in <i>Frontiers in Human Neuroscience</i> |
| 2019 & 2020 | 1 st and 3 rd National Research award on Exercise Medicine. |