

**Part A. PERSONAL INFORMATION**

First name	Irene		
Family name	Esteban-Cornejo		
Gender (*)	Female	Date of Birth	26/02/1988
ID number			
e-mail	ireneesteban@ugr.es	URL Web	<a href="#">Google scholar</a>
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's 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)

I am **Ramon y Cajal Research Assistant Professor**. I got the **First position** in the **most prestigious Research Assistant Professor call** (2019 Ramón y Cajal, **Psychology area**) in Spain (only 4 positions for all applicants from **Spain and abroad**), and also in other prestigious national calls (2015 JdC-Formación & 2018 JdC-Incorporación). I have published **more than 120 papers**, **75 %** in the area of **cognitive and brain health**. **H-index: 33** in **Google Scholar** and **23** in **WOS**, with more than **4100** in **Google Scholar total citations** and **1931** in **WOS**.

I have a wide **international presence** in the field of **exercise, cognition, and neuroimaging**, as shown in the CV. I actively collaborate with worldwide leaders in exercise neuroscience, such as Kirk. I Erickson, Charles H. Hillman, Arthur F. Kramer, as shown in my scientific records. I have dedicated myself to creating and advancing knowledge to **improve cognitive and brain health** across the **lifespan**. My **expertise** is expanded from **observational** (e.g., UP&DOWN, IMPACT65+, ENRICA) to **intervention studies** (ACTIVEBRAINS, IGNITE, AGUEDA, HEARTY-BRAIN), as well as from **behavioral** to **neuroimaging** data, allowing a deep understanding of the interactions between exercise, brain, and cognition in clinical and **aging population**. The overall **messages** from **previous** research are that **physical fitness** is a **powerful indicator** of **child's brain health**. Academic and cognitive function can be changed during childhood, and **exercise** is an important factor that may **contribute** to **enhancing** optimal **brain health**. I **identified** several novel **molecular mechanisms**, however I failed to discover brain and behavioral mechanisms **underlying the effect** of **exercise** on cognition in children. I am **still testing** alternative **pathways** at the three (**molecular, brain,**



**and behavior) levels** of analysis and **examining** which **mechanisms** of **exercise** may be universal across age groups and populations versus those that might be distinct to specific age ranges or populations, as we proposed in a recent review published together with Erickson KI and collaborators. Remarkably, I **want to explore** the effectiveness of different **exercise intervention** (high-intensity exercise, moderate aerobic exercise, muscular exercise, and concurrent exercise interventions) in the **prevention** of **Alzheimer** Disease, using **cutting-edge MRI** sequences, **PET imaging** and **new analytical approaches**. I am the **PI** on a recently completed **randomized controlled trial**, the Active Gains in brain Using Exercise During Aging (**AGUEDA**, 2019-2022, RTI2018-095284-J-100, 210,000€), a single-site two-arm intervention trial **examining** the role of **resistance exercise** in enhancing **cognition** and **brain health** in cognitively healthy **older adults**. **Six** doctoral **theses** are officially ongoing within the AGUEDA project, and despite the trial has been recently completed, there are **2 papers submitted** and **5 in progress**, and much more are expecting as part of the PhD theses. I am **passionate** about **mentoring** the researchers of the future. To date I have supervised **13 Master's** students, **4 PhD** students to **completion**, and **currently** supervise **4 PhD** students. I **co-lead** the research **team** on "**exercise, cognition and brain health across the lifespan**", which brings together **~15 members** (undergraduate, postgraduate, traineeship students and post-doctoral research fellows) from Spain and abroad.

I recently got the **i3 certificate** as an **established researcher**. In addition, I did **many short research stays**: In 2016 and later in 2017 I went to Monash Institute of Cognitive and Clinical Neuroscience, **Melbourne, Australia** with Antonio Verdejo-García. In 2015, I went to the Research Center in Physical Activity, Health and Leisure, **Porto, Portugal**. In 2014, I went to the WHO Center for Epidemiological Research, **Brazil, USA** and to the Department of Family and Preventive Medicine, Active Living research in the University of **California San Diego** with James F. Sallis. I 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 1<sup>st</sup> National Research award on Exercise Medicine. I have **participated** in **more than 20 research projects (>35 mill€)**, 80% related to exercise neuroscience. I have participated as **speaker** in **>23** international and national **congresses**. Moreover, I have participated in congress, symposium, and national and international scientific meetings with **>120 contributions** (communications/posters). I act as **external reviewer** in different **JCR** journals and **I+D+I project international calls**.

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

#### **C.1. Publications**

I have published more than 120 **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: 33 and more than 4100). Below detailed the top-10 relevant publications:

1. Plaza-Flórida, A., ..., **Esteban-Cornejo, I. (5/5)**. Cardiorespiratory fitness and targeted proteomics involved in brain and cardiovascular health in children with overweight/obesity [Online ahead of print]. **Eur J Sport Sci**. 2023 Jan 9: 1-47. **IF:4.05**.
2. Rodríguez-Ayllón, ..., **Esteban-Cornejo, I. (9/9)**. The effects of a 20-week exercise program on blood-circulating biomarkers related to brain health in overweight or obese children: The ActiveBrains project. **J Sport Health Sci**. 2022. Dec; S2095-2546(22)00121-1. **IF: 13.07**. (Ranked 2<sup>nd</sup> in Sport Sciences, 2021).
3. **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. **IF:12.06**. (Ranked 2<sup>nd</sup> in Geriatrics & Gerontology, 2021).
4. Muntaner-Mas, A, ..., **Esteban-Cornejo, I. (7/7)**. Objectively measured physical activity and academic performance in school-aged youth: The UP&DOWN longitudinal study. **Scand J Med Sci Sports**. 2021, 31(12), 2230–2240. **IF: 4.64**. (Ranked in 1<sup>st</sup> quartile in Sport Sciences, 2021).
5. **Esteban-Cornejo I, ..., Ortega FB (CA) (1/8)**. Physical fitness, hippocampal functional connectivity and academic performance in children with overweight/obesity: The ActiveBrains project. **Brain Behav Immun**. 2021;91: 284-95. **IF: 19.22**. (Ranked in the 1<sup>st</sup> decile in Neurosciences and Psychiatry, 2021).



6. 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. **IF: 13.83.** (Ranked in the 1<sup>st</sup> decile in Neurosciences, 2020).
7. Martinez-Gomez D, **Esteban-Cornejo I**, ..., 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. **IF: 13.80.** (Ranked 1<sup>st</sup> in Sport Sciences, 2020).
8. **Esteban-Cornejo I**, ..., 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.
9. **Esteban-Cornejo I**, ..., Martinez-Gomez D. (**CA**) (**1/7**). 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. **IF: 6.94.**
10. Rodriguez-Ayllon M, ..., **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. **IF: 8.55.** (Ranked 2<sup>nd</sup> in Sport Sciences, 2019).

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

1. 2022—Invited speaker at Neurounus 2022 Neuroscience Forum Conference, 15-17<sup>th</sup> Oct, Poland. Talk on *“The role of physical fitness on brain structure and function during childhood”*.
2. 2022—Invited speaker at the 27<sup>th</sup> Annual Congress of European College of Sport Science, 30<sup>th</sup> Aug – 2<sup>nd</sup> 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 4<sup>th</sup> 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 29<sup>th</sup> Annual Congress of European Childhood Obesity Group, 13-16<sup>th</sup> Nov 2019, Poland. Talk on *“Do physical activity and fitness influence brain health in overweight/obese children?”*.
5. 2019—Invited speaker at the 25<sup>th</sup> Congress of Brazilian Behavioral and Neuroscience Society, 1-4<sup>th</sup> 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, 6-7<sup>th</sup> June 2019, Italy. Talk on *“Biological bases of physical activity effects at brain level”*.

### **C.3. Research projects and grants:**

#### **A) Research Projects:**

In addition, I have participated in more than **20 research projects, with a total of more than 35million€), 80% related to exercise neuroscience.** Below detailed the more related projects to her main research line:

1. **fIADex**-Understanding cerebral blood Flow dynamics for **Alzheimer's Disease** prevention through **exercise.** **Esteban-Cornejo I** (Uni. Granada). 2023-2026. 120000€.
2. **AGUEDA PROJECT-** Active **G**ains in brain **U**sing **E**xercise **D**uring **A**ging. Minister of Economy and Competitiveness. **Esteban-Cornejo I** (Uni. of Granada). 2019-2022. 210000€.
3. **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 FB (University of Granada). 2021-2022. 116000€. Investigator.
4. **VasculActive.** Effects of exercise on brain vascularization in coronary heart disease patients. Minister of Economy and Competitiveness-(Ref: PID2020-120249RB-I00). Ortega FB (University of Granada). 2021-2023. 121000€. Investigator.
5. **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.



6. **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 **G**ains in **N**eurocognition in an Intervention Trial of Exercise).-NIH Erickson KI (Uni. of Pittsburgh, USA). 2016-2022. 23,000,000 \$. Collaborator.
7. **Genobex** - Genes, Obesity And Exercise. Andalusian Government. Ortega 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 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 FB (University of Granada). 2016-2020. 121000€. Investigator.
10. **VALLECAS** - A cohort to identify early markers and mechanisms of Alzheimer's disease. Institut 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 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. MINECO. 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. MINECO. Marcos A (Autonomous University of Madrid). 2010-2014. 500000€. Investigator.

#### **B) Grants for brief stays:**

I 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:**

- 2014-2022 I have **disseminated my research** in schools, press releases (Reuters, ABC, El Universal, Antena 3, Agencia EF Salud...), radio interviews (Onda Cero, Kitaro...) and tv interviews (Tv Internacional NTN24 and Canal Sur).
- 2021 I have recently **led an international congress** 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 "*The Role of the Brain in Health and Disease Across the Lifespan*" in *Frontiers in Human Neuroscience*.
- 2019 & 2020 1<sup>st</sup> and 3<sup>rd</sup> National **Research award on Exercise Medicine**.