

## EXPRESSION OF INTEREST – CANDIDATE FOR PF GLOBAL

### Researcher Profile:

---

**Name and Surname:** Aldo Alfonso Vasquez-Bonilla

**Position:** Postdoctoral Researcher / Lecturer in Sport Sciences

**Department/Unit/Centre:** Faculty of Sport Sciences, University of Extremadura (GAEDAF Research Group)

- a) Describe your qualifications and experience. Provide information regarding your level of experience on the research topic proposed and your track record of publications, invited talks, and conference participation relative to your career stage (e.g., papers, projects, main international collaborations, patent etc.), highlighting which scientific, technical and soft skills you will transfer to the TC Hosting Institution during the implementation of the Outgoing Phase in your research project.

I hold a PhD in Sport Sciences from the University of Extremadura (Spain), awarded with the distinctions Cum Laude and International Doctorate. My academic and research career has focused on exercise physiology, muscle oxygenation monitoring using near-infrared spectroscopy (NIRS), health and sports performance, injury prevention, hypoxia-based training, and applied technologies in sport sciences.

Throughout my research career, I have developed an international scientific profile through collaborations with institutions in Spain, Costa Rica, Mexico, Portugal, Uruguay, Honduras, and other international partners. My experience combines academic research, applied sport science, and interdisciplinary collaboration with both universities and professional sports organizations.

To date, I have authored and co-authored more than 50 peer-reviewed scientific publications, including articles published in high-impact international journals indexed in JCR Q1 and Q2 categories such as Biology of Sport, Scientific Reports, Journal of Thermal Biology, Medicine and Science in Sports and Exercise, International Journal of Sports Physiology and Performance and Sports Medicine Open. My research has mainly focused on physiological adaptations to exercise, monitoring technologies in team sports, and innovative approaches for improving performance and health of athletes and people with chronic diseases.

In addition, I have actively participated in numerous international scientific conferences and invited presentations in Spain, the United States, Mexico, Honduras, and Costa Rica, including participation at the American College of Sports Medicine (ACSM) Annual Meeting in Orlando, USA. I have also delivered invited seminars and workshops related to NIRS technology, fatigue monitoring, performance analysis, and injury prevention in football and other sports. My international research experience includes academic and postdoctoral stays at the University of Évora (Portugal), Universidad de la República (Uruguay), Universidad Nacional de Costa Rica, Universidad de Costa Rica, Universidad Autónoma de Nuevo León (Mexico), and Universidad Autónoma de Madrid (Spain). These experiences have allowed me to strengthen international scientific collaborations and interdisciplinary research networks between Europe and Latin America.

Regarding transferable soft skills, I will contribute leadership in multicultural environments, scientific communication abilities, mentoring and teaching experience, teamwork, project coordination, and the capacity to establish collaborative international research networks. My academic background and professional trajectory demonstrate a strong commitment to knowledge transfer, innovation, and the development of collaborative research initiatives between Europe and Latin America.

- b) Show your level of independence and demonstrated capacity for leading projects, for example by securing funding, and mentoring students.

My academic trajectory demonstrates progressive scientific independence and active participation in competitive research projects at both national and international levels. I have contributed to several funded research projects related to sports performance, hypoxia-based training, physiological monitoring, and innovative technologies in exercise sciences.

Among the most relevant projects, I have participated in research funded by the Government of Extremadura and the European Regional Development Fund (ERDF), as well as collaborative postdoctoral research initiatives developed jointly between the University of Extremadura and the Universidad Nacional de Costa Rica. Recently, I have also been involved in a funded international project focused on the application of normobaric hypoxia systems for sports performance enhancement, rehabilitation, and health-related outcomes.

My scientific independence is further demonstrated through my role as coordinator and guest editor of the *Frontiers in Physiology Research Topic* entitled “Muscle Oxygenation and Vascular Adaptations in Sports Performance and Rehabilitation”, where I collaborated with international experts in exercise physiology and sport sciences. Currently, I lead a research group on the effects of altitude on the performance and health of soccer players in collaboration with South America.

In addition to my research activities, I have extensive international teaching and mentoring experience at undergraduate and postgraduate levels in Spain, Costa Rica, Honduras, and Mexico. I have taught courses related to exercise physiology, sports performance, fatigue management, biomechanics, training theory, and injury prevention. Through these academic activities, I have supervised student projects, collaborated in research training activities, and contributed to the scientific development of young researchers and sport science professionals.

My profile reflects the ability to integrate scientific research, applied sports science, international collaboration, and academic leadership, and therefore I would like to position myself as a candidate for the MSCA Postdoctoral Fellowships 2026.

## **Project idea, if any (scientific requirements, topic, discipline):**

---

**Possible idea:**

**Topic:** Osteoarthritis, healthy ageing

**Discipline:** Sport sciences and rehabilitation

**Scientific requirements:** Physiological monitoring, AI, exercise prescription

**Title:** Digital and Personalized Exercise Medicine Approaches for Musculoskeletal Health and Healthy Ageing

Osteoarthritis is one of the most prevalent musculoskeletal disorders in Europe and Spain, affecting approximately 29% of the Spanish adult population and significantly impacting physical function, mobility, chronic pain, and quality of life, particularly in ageing populations. The proposed research project aims to develop and evaluate personalized strength-based exercise interventions for improving musculoskeletal health, physical function, and quality of life in ageing populations and individuals with osteoarthritis.



# MSCA Postdoctoral Fellowships 2026

The project will investigate how individualized exercise prescription, supported by advanced physiological monitoring technologies, can optimize adaptations to exercise and improve symptoms caused by osteoarthritis. The intervention will integrate innovative tools such as cardiovascular assessment, thermography, and wearable devices to evaluate physiological responses and optimize individualized exercise prescriptions based on each participant's clinical needs.

In addition, the project will explore the application of artificial intelligence (AI) and machine learning approaches to improve exercise monitoring, patient adherence, and personalized rehabilitation strategies through digital health interventions. The project also aims to strengthen collaborative models between physicians, physiotherapists, and sport scientists in both European and Latin American institutions, promoting exercise-based medicine as a complementary strategy for the prevention and management of musculoskeletal disorders associated with ageing.

A secondary exploratory component of the project will evaluate the potential application of normobaric hypoxia as an innovative strategy to optimize exercise adaptations while reducing mechanical stress during strength-training interventions. Finally, this multidisciplinary project combines expertise in sport sciences, exercise physiology, rehabilitation sciences, healthy ageing research, digital health, and applied artificial intelligence. The proposed research aligns with current European priorities related to healthy ageing, preventive healthcare, personalized medicine, and technology-driven health interventions.