

# SERGI GARCIA RETORTILLO, PhD, MSc, BSc, PT

## Curriculum Vitae



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**GOOGLE:** <https://scholar.google.com/citations?user=E59Ae50AAAAJ&hl=en>

### 1- SHORT BIO

*Dr. Garcia-Retortillo received his BS from University of Barcelona (Spain) in Exercise Science; BS from University Ramon Llull (Spain) in Physical Therapy; MSc Physical Activity and Health; and PhD from University of Barcelona in Exercise Science. He is currently serving as an Assistant Teaching Professor in the College of Nursing at University of Central Florida. Dr. Garcia-Retortillo is also a member of the Complex Systems in Sport Research Group at the University of Barcelona (Spain).*

*Dr. Garcia-Retortillo's research program focuses on the emerging field of Network Physiology. He investigates the basic laws of interactions and principles of integration between skeletal muscles and diverse physiological systems. Currently, he is working on the assessment of inter-muscular and muscle-organ network interactions during exercise. Dr. Garcia-Retortillo is developing new **fitness assessment systems using novel network-based markers, with the potential to open new and exciting horizons in exercise testing and rehabilitation.** The most relevant network-based markers of his research agenda are: (i) inter- and intra-muscular coordination (muscle-muscle sEMG); (ii) cardio-muscular coordination (heart EKG-muscle sEMG), and (iii) cardio-respiratory coordination.*

*Dr. Garcia-Retortillo has more than a decade of experience in the Fitness and Wellness industry. He has worked as both a strength and conditioning coach and a physical therapist, serving a diverse range of athletes and patients.*

## 2- UNIVERSITY EDUCATION

- PhD in Exercise Science (INEFC University of Barcelona, 2016).
- Master's in Physical Exercise and Health (INEFC University of Barcelona, 2012-2013).
- Postgraduate in Integrative Training (INEFC University of Barcelona, 2012-2013).
- Degree in Exercise Science (INEFC – University of Barcelona, 2008-2012).
- Diploma in Physical Therapy (Ramón Llull University, 2007-2010).
- Diploma in Teaching in Physical Education (University of Barcelona, 2004-2007).

## 3- PUBLICATIONS (Peer Reviewed)

- Balague, N., **Garcia-Retortillo, S.**, Montull, Ll., Abenza, O., & Hristovski, R. (2024—Submitted). Health and sports monitoring. *A Network Physiology of Exercise approach. Frontiers in Network Physiology*.
- Abenza, O., **Garcia-Retortillo, S.**, Vasileva, F., Balague, N., Hristovski, R., & Ivanov, PCh. (2024—Accepted). Networks of inter-muscular coordination distinguish male and female responses to exercise. *Scientific Reports*.
- **Garcia-Retortillo, S.** & Ivanov, P.C. (2024). Dynamics of cardio-muscular networks in exercise and fatigue. *The Journal of Physiology*.
- **Garcia-Retortillo, S.**, Abenza, O., Vasileva, F., Balague, N., Hristovski, R., Wells, A., Fannings, J., Kattula, J., & Ivanov, PCh. (2024). Age-related breakdown in networks of inter-muscular coordination. *Geroscience*.
- **Garcia-Retortillo, S.**, Romero-Gonzalez, C., & Ivanov, P.C. (2023). Network of muscle fibers activation facilitates inter-muscular coordination, adapts to fatigue, and reflects muscle function. *Communications Biology-Nature*, 6: 891
- Stamatis, A., **Garcia-Retortillo, S.\***, Morgan, G., Sanchez-Moreno, A. (2022). Cortico-ocular Interaction Networks in eSports: A Brief Research Report in NBA2K. *Frontiers in Network Physiology*, 3:1151832. **\*Co-first author**
- **Garcia-Retortillo, S.** & Ivanov, P.C. (2022). Inter-muscular networks of synchronous muscle fiber activation. *Frontiers in Network Physiology*, 2: 1059793.
- Papadakis, Z., Etchebaster, M, and **Garcia-Retortillo, S.** (2022). Cardiorespiratory Coordination in Collegiate Rowing: A Network Approach to Cardiorespiratory Exercise Testing. *International Journal of Environmental Research and Public Health*, 20: 13250.
- Balagué, N., Hristovski, R., **Garcia-Retortillo, S.**, Almarcha, M.C., & Ivanov, P.Ch. (2022). Network Physiology of Exercise: Beyond molecular and omics perspectives in Exercise Physiology. *Sports Medicine-Open*, 8: 119.
- Rizzo, R., **Garcia-Retortillo, S.**, & Ivanov, P. C. (2022). Dynamic networks of physiologic interactions of brain waves and rhythms in muscle activity. *Human Movement Sciences*, 84: 102971.

- Papadakis, Z., **Garcia-Retortillo, S.**, Koutakis, P. (2022). Effects of acute partial sleep deprivation and high-intensity interval exercise on postprandial network interactions. *Frontiers in Network Physiology*, 2: 869787.
- **Garcia-Retortillo, S.**, Rizzo, R., & Ivanov, P.C. (2021). Spectral dynamics of muscle fiber activation in response to exercise and acute fatigue. *IEEE EMBS International Conference of Biomedical and Health Informatics (BHI)*, 1-4. doi: 10.1109/BHI50953.2021.9508556.
- Oviedo, G., **Garcia-Retortillo, S\***, Carbó-Carreté, M., Guerra-Balic, M., Balagué, N., Javierre, C. & Guardia, J. (2021). Cardiorespiratory coordination during exercise in Down Syndrome. *Frontiers in Physiology*, 12:704062. doi: 10.3389/fphys.2021.704062  
**\*Corresponding author and co-first author.**
- Balagué, N., Hristovski, R., Almarcha, M., **Garcia-Retortillo, S.**, & Ivanov, P.C. (2020). Network Physiology of Exercise: Vision and Perspectives. *Frontiers in Physiology*. doi: 10.3389/fphys.2020.611550
- **Garcia-Retortillo, S.**, Rizzo, R., Wang, J., Sitges, C., & Ivanov, P.C. (2020). Universal spectral profile and dynamic evolution of muscle activation: a hallmark of muscle type and physiological state. *Journal of Applied Physiology*, 129(1). doi:10.1152/jappphysiol.00385.2020
- Zebrowska, M., **Garcia-Retortillo, S.**, Sikorski, K., Balagué, N., Hristovski, R., Javierre, C., & Petelzik, M. (2020). Decreased coupling among respiratory variables with effort accumulation. *Europhysics Letters*, 132:28001. doi: 10.1209/0295-5075/132/28001
- Prats-Puig, A., **Garcia-Retortillo, S.\***, Puig-Parnau, M., Vasileva, F., Font-Lladó, R., Xargay-Torrent, S., Carreras-Badosa G., Mas-Parés, B., Bassols, J., & López-Bermejo, A. (2020). DNA methylation reorganization of skeletal muscle-specific genes in response to gestations obesity. *Frontiers in Physiology*, 11:938. doi: 10.3389/fphys.2020.00938  
**\*Co-first author**
- **Garcia-Retortillo, S.**, Gacto, M., O'Leary, T., Noon, M., Hristovski, R., Balagué, N., & Morris, M. Cardiorespiratory coordination reveals training-specific physiological adaptations. *European Journal of Applied Physiology*, 119, 1701-1709. doi: 10.1007/s00421-019-04160-3
- **Garcia-Retortillo, S.**, Javierre, C., Hristovski, R., Ventura, J.L., & Balagué, N. A novel approach for cardiorespiratory testing evaluation. *Physiological Measurement*. doi: 10.1088/1361-6579/ab2ca0.
- Esquius, L., **Garcia-Retortillo\***, S., Balagué, N., Hristovski, R., & Javierre, C. Physiological- and performance-related effects of acute olive oil supplementation on moderate exercise intensity. *Journal of International Society of Sports Nutrition*, 16. Doi: 10.1186/s12970-019-0279-6 (cardiorespiratory coordination)  
**\*Corresponding author and co-first author.**
- **Garcia-Retortillo, S.**, Javierre, C., Hristovski, R., Ventura, J.L., & Balagué, N. Cardiorespiratory coordination in repeated maximal exercise (2017). *Frontiers in Physiology-Exercise Physiology*, 8. doi: 10.3389/fphys.2017.00387

- Slapšinskaitė, A., **Garcia-Retortillo\***, S., Razon, R., Balagué, N., Hristovski, R., & Tenenbaum, G (2016). Cycling outdoors improves the adherence to dissociative focus and endurance. *Psychology of Sport and Exercise*, 27, 78-84.

**\*Corresponding author**

- **Garcia, S.**, Slapsinskaite, A., Vázquez, P., Balagué, N., Hristovski, R., Razon, S., & Tenenbaum, G. (2015). Thoughts emerge from task, personal, and environmental constraints during exercise. *Short paper – European Congress of Complex Systems*.

- Balagué, N., Hristovski, R., **García, S.**, Aguirre, C., Razon, S., & Tenenbaum, G. (2015). Dynamics of perceived exertion in constant power cycling: time and workload- dependent thresholds. *Research Quarterly for Exercise and Sport*, 86, 371-378. doi:10.1080/02701367.2015.1078870

- **García, S.**, Razon, R., Hristovski, R., Balagué, N., & Tenenbaum, G. (2015). Task-related thought contents dynamics during incremental exercise in trained runners. *The Sport Psychologist*. 29, 302–309. doi:10.1123/tsp.2014-0094

- Balagué, N., Hristovski, R., Aragonés, D., **García, S.**, Razon, S., & Tenenbaum, G. (2014). Intentional thought dynamics during exercise until volitional exhaustion. *The Journal of Sport Sciences*, 33, 48-57 doi: 10.1080/02640414.2014.92183

- Balagué, N., Aragonés, D., Hristovski, R., **García, S.**, & Tenenbaum, G. (2014). Attention focus emerges spontaneously during progressive and maximal exercise. *Revista de Psicología del Deporte*, 1, 57-63

### Book Chapters

- Balagué, N., Hristovski, R., **Garcia-Retortillo, S.**, & Ivanov, P.C. (2022). From Exercise Physiology to Network Physiology of Exercise. In R. Ferraz, D. Almeida & H.P. Neiva (Eds.), *Exercise Physiology* (1<sup>st</sup> ed.)

- Balagué, N., Hristovski, R., & **Garcia-Retortillo, S.** (2019). Perceived exertion – Dynamic psychobiological model of exercise-induced fatigue. In G. Tenenbaum & R.C. Eklund (Eds.), *Handbook of Sport Psychology* (4<sup>th</sup> ed.). New York, NY: Wiley.

## 4- FUNDING AND GRANTS

Title: The Human Physiology of Aging

- Funder: Translational Research Center (Wake Forest University, NC, USA).
- Amount: \$8,500.
- Period: 2023-2024.
- PI: Sergi Garcia-Retortillo.

Title: Performance, genetics and epigenetics in young basketball players.

- Funder: Agencia Estatal de Investigación de Proyectos de Generación del Conocimiento. Gobierno de España (Spanish Government).
- Amount: 120,000 eur.
- Period: 2023-2026
- PI: Dr. Anna Prats-Puig.
- \*Member of the Research Team.*

Title: Atlas of Dynamic Interactions among Organ Systems.

- Funder: W.M. Keck Foundation.
- Amount: \$1,000,000.
- Period: 2016-2021.
- PI: Prof. Plamen Ch. Ivanov.
- \*Member of the Research Team.*

Title: Training and Functional Evaluation: K-Load System.

- Funder: Runner's Care.
- Amount: 3,000 eur.
- Period: 2016.
- PI: Prof. Natàlia Balagué.
- \*Member of the Research Team.*

Title: Psycho-physiological integration and exercise-induced fatigue.

- Funder: University of Barcelona (2016-PARINEFC-0022).
- Amount: 2,500 eur.
- Period: 2012-2016.
- PI: Prof. Natàlia Balagué.
- \*Member of the Research Team.*

## 5- EMPLOYMENT HISTORY – ACADEMIA (*Full-time appointment*)

-(Starting from August 2025)

**Assistant Professor – Tenure Track. Department of Nursing Systems, College of Nursing, University of Central Florida (Orlando, FL, USA)**

-(July 2022 – June 2025)

**Assistant Teaching Professor. Department of Health and Exercise Science, Wake Forest University (Winston-Salem, NC, USA).**

### **(1) Courses:**

Development new classes: **HES 350L Human Physiology Lab**, HES 150 Introduction to Health and Exercise Science.

Others: HES 353 Physiology of Exercise, HES 354 Assessment Techniques in Health and Exercise Science, HES 265 Medical Terminology (online).

**(2) Academic Mentoring:** HES Honors Research (4 students), and HES undergraduate students academic (35 students).

**(3) Teaching assistants training and mentoring:** HES 350L Human Physiology Labs, HES 354 Assessment Techniques in Health and Exercise Science

**(4) Research Mentoring:** Engage undergraduate and graduate students in collaborative research, involving them in diverse aspects such as data collection, analysis, abstract preparation, and presentation at student-centered conferences (e.g., Southeast ACSM) (8 students). **Student Awards:**

HES Award best student presentation. SEACSM February 2023 (Maddie Sayre; HES Junior)

SEACSM Undergraduate Student Award-1<sup>st</sup> Position): February 2024 (Maddie Davis; HES Junior).

**(5) Coordinator HES Teaching Lab:** setup and maintenance of advanced electrophysiology units, as well as metabolic carts. Managing software updates, ensuring that our technology remains cutting-edge and fully functional. Procurement of any time of class lab supplies (e.g., electrodes, masks, etc.), ensuring that students have access to the resources they need for their classes. Capital Funds Requests, advocating for the necessary investments to support our educational initiatives and enhance our teaching environment. Experience with the following lab equipment (most relevant):

- Electrophysiology (EMG, EKG, EEG, PPG, respiration signals): Biopac MP36, Biopac MP160, iWorx TA 220, iWorx TA Roam, Delsys, Avante.
- Metabolic cards: Parvo, Brainware (Metasys), Cosmed.
- Cardiac Output: Physioflow Cosmed, Biopac BN-NICO.
- Body Composition: Quantum V Segmental BIA, DEXA.
- Linear encoders and contact platforms: ChronoJump BoscoSystem.

**(6) Other University/Departmental Service:** Research Advisory Committee, Facilities Committee, others.

- (February 2016 - January 2022)

**Assistant Professor and Academic Coordinator—EUSES (University of Girona, Spain)**

**(1) Coordinator for International Relations (2018-July 2022) Main tasks:**

- Consolidation and creation of new Academic Agreements:
  - Coventry University (United Kingdom).
  - West Chester University (PA, USA).
- Study abroad trips/programs:
  - Coventry University (UK): International Exchange seminar: Girona 2017, Girona 2018, Coventry 2019.
  - West Chester University (USA): Study abroad March 2020 (cancelled COVID).
  - Slippery Rock University (USA): Internship-Study program 2019.
  - James Cook University (Australia): Internship program 2017, 2018, 2019.
- Student exchange programs: Erasmus+, Erasmus+ for Traineeships, Prometeus.
- Management of Students Excellence Grants.

**(2) Coordinator Double Degree Sports Science + Physical Therapy (2017-2020) Main tasks:**

- Mentorship and academic coaching.
- Organization of “General Education” courses for undergraduate students: Microsoft Office, Writing, Leadership, Self-management, Job search.
- Community service: Social Work and Diversity Volunteer Programs.
- Faculty search committee.
- Tutoring for elite athletes.
- Curriculum development.
- Student with special education needs.
- Devising strategies for growing and improving the program.
- Engage in professional development.
- Internship coordination
- Other Service activities.

**(3) Assistant Professor – Exercise Science Program (2016-July 2022)**

Courses: Exercise Physiology, Strength & Conditioning, Training Methodology, Fitness Assessment, Exercise Prescription, Recovery Methods, First Aids, Mentoring Capstone Project (total: 20 undergraduate students).

**(4) Assistant Professor – Physical Therapy Program (2016-July 2022)**

Courses: Exercise Physiology, Therapeutic Exercise, Sports Therapy, Basics of Physiotherapy, Mentoring Capstone Project (total: 7 undergraduate students).

## 6- EMPLOYMENT HISTORY – ACADEMIA (*Part-time appointments*)

- (January 2024 - **Present**)

Assistant Professor — Master's Complex Systems in Sport (online) (INEFC University of Barcelona, Spain)

Courses: Module 3 - **Network Physiology: Analysis of Intra-individual variability**, Capstone Project mentoring (total: 1 graduate student).

- (October 2017 - **Present**)

Assistant Professor – Master's Physical Activity and Health (INEFC University of Barcelona, Spain).

Courses: **Advanced Exercise Physiology**, Capstone Project mentoring (total: 3 graduate students).

- (January 2022- May 2022)

Adjunct Instructor—Exercise Science Undergraduate Program, School of Health Science (Lasell University, Newton, USA).

Courses: Exercise Science Capstone Research Course (EXSC 430).

- (January 2020-January 2022)

Assistant Professor – Master's in Pediatric Physiotherapy (International University of Catalonia, Spain).

Courses: **Therapeutic Intervention- Exercise Prescription**, **Capstone Project mentoring** (total: 2 graduate students).

- (October 2020-November 2021)

Assistant Professor — Master's Return to Play after Sport Injuries (EUSES University of Girona)

Courses: Exercise Physiology and Physical Activity, Capstone Project mentoring (total: 5 graduate students).

- (October 2020-November 2021)

Assistant Professor – Master's Physiotherapy Applied to Team Sports (F.C. Barcelona Innovation Hub Universitas & Blanquerna-Ramón Llull University), Spain. Courses: **Exercise Physiology - Strength Training**.

## 7- POSTDOCTORAL EXPERIENCE & RESEARCH STAYS

-(January 2022 - July 2022):

Keck Laboratory for Network Physiology. Department of Physics, Boston University (USA).

- (February 2021 - September 2021):

Keck Laboratory for Network Physiology. Department of Physics, Boston University (USA).



- (April-May 2019):  
Keck Laboratory for Network Physiology. Department of Physics, Boston University (USA).
- (May 2018):  
Faculty of Physical Education, Sport and Health, Ss Cyril and Methodius University of Skopje (Rep. Macedonia).

## 8- EDITORIAL/REVIEWER

### Scientific Journals

- Associate Guest Editor – Frontiers in Network Physiology: "*Understanding Exercise, Fitness and Health through Dynamic Networks of Physiologic Systems Interactions*".
- Associate Guest Editor – International Journal of Environmental Research and Public Health. Special Issue: "*Tissue Crosstalk Adaptations to Physical Exercise*".
- Associate Guest Editor — Frontiers in Aging Neuroscience: "Lifestyle and Self- management of Chronic Pain across the Lifespan".
- Member of the Review Editorial Board for the journals:
  - Frontiers in Network Physiology: Section Network Physiology of Exercise.
  - Frontiers in Network Physiology: Section Fractal Physiology.
  - *Isokinetics and Exercise Science*.
- Guest Reviewer for the journals: Sports Medicine Open, Reviews in Endocrine and Metabolic Disorders, Scientific Reports, Frontiers in Physiology, New Journal of Physics, European Journal of Applied Physiology, European Journal of Pain, Journal of Men's Health, Musculoskeletal Science and Practice, Physiological Measurement, Plos Computational Biology.
- Organizing Committee: *V Catalan Research Conference in Exercise and Sport 2018* and 2020.
- Abstract Reviewer: *International Congress of Complex Systems in Sport 2017: Linking theory and practice*.

### PhD/Others

- Reviewer and Committee Member for the PhD thesis "Exercise responses in adults with cardiometabolic risk". PhD Student: Leo Machado Da Silva. (July 2023). University of Lleida (Spain).
- Reviewer for the PhD thesis "Physical Activity Questionnaires in Pre-school and School-Aged Children: A Study on the Design, Validity, and Reliability of the Physical Activity Questionnaire-Young Children (PAQ-YC).

## 9- INVITED TALKS

- (July 2025): 4<sup>th</sup> International Summer Institute on Network Physiology (ISINP 2025). Como Lake (Italy) — *Network Physiology of exercise: Inter-muscular networks in rest, exercise, fatigue and aging*. Como (Italy). 27<sup>th</sup> July 2025.
- (July 2025): 4<sup>th</sup> International Summer Institute on Network Physiology (ISINP 2025). Como Lake (Italy) — *Networks of cardio-Muscular Coordination — Evolution with exercise and fatigue*. Como (Italy). 27<sup>th</sup> July 2025.
- (April 2024): I International Seminar Training Methodologies for debate: A Systems Approach (Venezia F.C.) — *Exploring Cardio-muscular interactions during exercise*. Venice (Italy). 28<sup>th</sup> April 2024.
- (December 2022):  
World Conference of the Physical Activity Network of the Americas (RAFA-PANA)  
— *Network Physiology of Inter-muscular Interactions*. 2<sup>nd</sup> December 2022.
- (November 2022):  
Physical Activity Network of the Americas (RAFA-PANA) — *Network Physiology of Exercise: how organ systems interact. New horizons in fitness and performance assessment*. 17<sup>th</sup> November 2022.
- (April 2022):  
*Greater New York ACSM Chapter – Applied Technology in Fitness and Health*. Network Physiology of Exercise: novel computational tool to assess fitness and performance. New York (USA). 9<sup>th</sup> April 2022.  
Judge GNYACSM Abstract Research Competition.
- (November 2021):  
*Institute for Sport and Physical Activity Research (ISPAR) – Seminar Series 2021*. Network Physiology of Exercise: how organ systems interact. New horizons in fitness and performance assessment. University of Bedfordshire. Luton (United Kingdom). 24<sup>th</sup> November 2021.
- (April 2021):  
*Càtedra d'Esport – Centre d'Estudis Olímpics, Universitat de Girona*. Network Physiology of Exercise: ¿Cómo se comunican nuestros órganos? Nuevos horizontes en la valoración de la condición física — 21st April 2021
- (December 2020):  
*6th Exercise for Health and Rehabilitation Conference*. Network Physiology of Exercise. Kaunas (Lithuania) – 2nd May December 2020.
- (May 2020):  
*May 4-Physiotherapy Experience*. Fatigue-related effects on inter-muscular connectivity. Kaunas (Lithuania) – 4th May 2020

- (May 2019):  
Cardiorespiratory coordination: A novel variable for testing training and fatigue effects.  
West Chester University. West Chester (PA, USA) – 21<sup>st</sup> May 2019

## 10- CONFERENCES

### Chair Symposiums and Organization

- ACSM 2023 Annual Meeting and World Congresses. **Chair Symposium Network Physiology of Cortico-muscular, Cortico-ocular and Inter-muscular Interactions.** Denver, CO (UA), 30<sup>th</sup> May — 3<sup>rd</sup> June 2023 (Online).
- 3<sup>rd</sup> International Summer Institute on Network Physiology. **Organizing Committee and Speaker.** Como Lake (Italy), 24<sup>th</sup> – 29<sup>th</sup> July 2022.
- 6<sup>th</sup> International Congress of Complex Systems in Sport: Moving boundaries in Sport Science. **Chair and organizer of the Exercise Physiology Symposium.** Mainz (Germany), 15<sup>th</sup>-17<sup>th</sup> September 2021.

### Abstracts and Oral Communications

- (February 2025):  
*Southeast American College of Sports Medicine (ACSM).* Sex-differences in inter-muscular coordination. Greenville, SC (USA).
- (July 2024):  
Congress of the European College of Sports Science. *Sex differences in inter-muscular coordination.* Glasgow (United Kingdom) — 2<sup>nd</sup>-5<sup>th</sup> July 2024
- (June 2024):  
XXIV Conference of the International Society of Electrophysiology and Kinesiology. *Dynamics of cardio-muscular networks in exercise and fatigue.* Nagoya (Japan) — 26<sup>th</sup>-29<sup>th</sup> June 2024.
- (February 2024):  
*Southeast American College of Sports Medicine (ACSM).* Exploring cardio-muscular coordination during exercise. Greenville, SC (USA).
- (February 2024):  
*Southeast American College of Sports Medicine (ACSM).* Age-related breakdown of cardio-muscular coordination. Greenville, SC (USA).  
**ACSM AWARD: Undergraduate student award (1<sup>st</sup> Position).**

- (July 2023):  
*4T/Phys BIOPAC Human Physiology Conference*. Network Physiology of inter-muscular interactions during distinct basic movements. Santa Barbara (CA, USA)  
—14<sup>th</sup> July-19<sup>th</sup> July 2023.
- (July 2023):  
*28th Annual Congress of the ECSS*. Sprint interval training improves cardio- respiratory coordination in older adults with intellectual disabilities. Paris (France) —4<sup>th</sup> July-7<sup>th</sup> July 2023.
- (May 2023):  
*2023 ACSM Annual Meeting and World Congresses*. Cervical erector spinae intermuscular coordination while using noise cancellation headphones during walking. Denver, CO (USA) —30<sup>th</sup> May-2<sup>nd</sup> June 2023.
- (April 2023):  
*Greater New York ACSM 2023*. Pupil Dilation Differences When Playing Valorant Under Practice and Competition Conditions: A Case Study. New York (NY, USA) — 30<sup>th</sup> April 2023.
- (March 2023):  
*TechX WFU*. Cultivating student creativity with Adobe Express. Winston-Salem (NC, USA) —28<sup>th</sup> March-30<sup>th</sup> March 2023.
- (February 2023):  
*South East ACSM 2023*. Cervical erector spinae intermuscular coordination while using noise cancellation headphones during walking. Greenville (NC, USA) - 23<sup>st</sup> February-25<sup>th</sup> 2023.
- (February 2023):  
*South East ACSM 2023*. Network Physiology of Inter-muscular Interactions. Greenville (NC, USA) - 23<sup>st</sup> February-25<sup>th</sup> 2023.
- (September 2022):  
*27th Annual Congress of the ECSS*. Inter-muscular Coordination in Adults with Down Syndrome. A network analysis. Sevilla (Spain).
- (May 2022):  
*2022 ACSM Annual Meeting and World Congresses*. Cardiorespiratory coordination among intermediate and novice female collegiate rowers. San Diego, CA (USA) —31<sup>st</sup> May-4<sup>th</sup> July 2022.
- (May 2022):  
*2022 ACSM Annual Meeting and World Congresses*. Effects of acute partial sleep deprivation and HIIT on physiological network interactions. San Diego, CA (USA) —31<sup>st</sup> May-4<sup>th</sup> July 2022.

- (September 2021):  
6th International Conference of Complex Systems in Sport. Network Physiology of Exercise: Bridging the gap. – Mainz, Germany. 17<sup>th</sup> -20<sup>th</sup> September 2021.
- (July 2021):  
Online. *BHI Biomedical and Health Informatics*. Profiles of muscle fiber activation in response to exercise and fatigue — 27th-30th July 2021.
- (July 2021)  
Online. *BHI Biomedical and Health Informatics*. Dynamic networks of physiologic interactions of brain waves and rhythms in muscle activity — 27th-30th July 2021.
- (June 2021):  
*Seminar Complex Systems in Sport Research Group*. Network Physiology of Exercise. Binaced (Spain) — 19th June 2020.
- (November 2020):  
Online. *Integrative Exercise Physiology*. American Physiological Society. 9th – 13th November 2020.
- (July 2019):  
*2nd International Summer Institute on Network Physiology*. Cardiorespiratory coordination: A novel variable for testing training and fatigue effects. Lake Como School of Advanced Studies (Italy). 28th July – 5th August 2019.  
**AWARD: 3rd Best Poster – Publication Europhysics Letters.**
- (January 2019):  
*V International JAM Sports Conference*. Physiological- and performance-related effects of acute olive oil supplementation at moderate exercise intensity. Valencia (Spain). 25-26th January 2019.
- (October 2018):  
*II Jornada Catalana de recerca*. Cardiorespiratory coordination reveals specific endurance effects after high-intensity interval trianing. INEFC-Barcelona (Spain). 21st October 2018.
- (May 2018):  
Workshop Internacional Dones i Esport. Dynamic approaches reduce gender segregation in sports sciences. INEFC-Barcelona (Spain).
- (October 2017):  
*International Congress of Complex Systems in Sport*. Cardiorespiratory coordination: a new variable for testing training and fatigue effects. Camp Nou – Barcelona (Spain). 5-6h October 2017.
- (May 2016):  
*V Jornada Complexitat.cat - Unifying Science*, INEFC Barcelona (Spain), 19th May 2016.

- (August 2015):  
Abstract - Balagué, N., Vázquez, P., García, S., Slapsinskaite, A., Aragonés, D., & Hristovski, R. Exercising until exhaustion: dynamic integration of brain, muscle, and cardiorespiratory functions. *Meeting of Federation of European Physiological Societies (FEPS) and the Baltic Physiological Societies*. Kaunas (Luthenia), 26-29th August 2015.
- (May 2015):  
Abstract - Garcia, S., Slapšinskaitė, A., Vazquez, P., Hristovski, R., Balagué N. (2015). Thought Dynamics during exhausting exercise. *IV Jornada Complexitat.cat*. Tarragona (Spain), 25th May 2015
- (March 2015):  
Conference presentation - Control de l'entrenament basat en la percepció de l'esforç i del focus d'atenció. *V Seminari del Grup de Recerca Complex Systems in Sport*, Menorca (Spain), 27th March 2015.
- (January 2015):  
Conference presentation - Estratègies cognitives a l'esport de resistència – Control i valoració de l'entrenament. *II Seminari del Grup de Recerca Complex Systems in Sport*, Barcelona (Spain), 30th January 2015.
- (July 2014):  
Abstract - García, S., López, A., Domènec, M., Hernández, G., Fernández, M., Balagué, N., Hristovski, R., Tenenbaum, G. Associative thought content dynamics during exercise in trained runners. *19th Annual Congress of the ECSS*, Amsterdam (Netherlands), 1-5th July 2014.
- (June 2014):  
Abstract - Balagué, N., Hristovski, R., Aragonés, D., García, S., Slapsinskaite, A., Pol, R., Vázquez, P. Psychobiology of Endurance. A Nonlinear Dynamic Approach. *III Jornada Complexitat.cat*, Barcelona (Spain), 19th June 2014.
- (June 2013):  
Abstract - García, S., Montesinos, E., Anguita, A., Morales, J., Hristovski, R., Balagué, N. Task-related thoughts emerge spontaneously during progressive maximum exercise. *18th Annual Congress of the ECSS*, Barcelona (Spain), 26- 29th July 2013.
- (July 2012):  
Abstract - Balagué, N.; Aragonés, D.; Hristovski, R.; Tenenbaum, G.; Garcia, S. (2012). Rate of perceived exertion changes non-monotonically in constant- power exercise until exhaustion. *17th Annual Congress of the ECSS*, Bruges, 4- 7th July 2012.
- (July 2011):  
Abstract - Balagué, N.; Aragonés, D.; Pol, R.; García, S.; Cruz, D.; Marín, A.; Díez, M.; Hristovski, R. (2011). Fluctuating dynamics of perceived effort in continuous exercise performed until exhaustion. *16th Annual Congress of the ECSS*, Liverpool (UK), 6-9th July 2011.

- (June 2011):

Aragonés, D.; García, S.; Pol, R.; Balagué, N. (2011). Parámetros coordinativos para el control del entrenamiento. La percepción subjetiva del esfuerzo. *1er Congrés de futbol RCD Espanyol – INEFC*, Barcelona, 3-4th July 2011.

## 11-PHD STUDENTS

- *Inter-muscular networks during exercise. Age and sex differences*. Oscar Abenza (School of Medicine, University of Barcelona, Spain). PhD Defense Fall 2025.

PhD Supervisors: Dr. Natalia Balague and **Dr. Sergi Garcia-Retortillo**.

- *Effects of crawling before walking on physiologic network interactions in children*. Dr. Jorge Cazorla (University of Girona, Spain). PhD Defense 16 June 2024.

PhD Supervisors: Dra. Ana Prats-Puig, Dra. Raquel Font-Llado, **Dr. Sergi Garcia-Retortillo**.

## 12-AWARDS

- (February 2024):

*Southeast American College of Sports Medicine (ACSM)*. Age-related breakdown of cardio-muscular coordination. Greenville, SC (USA).

**ACSM AWARD: Maddie Davis—Undergraduate student award (1<sup>st</sup> Position).**

- (February 2023):

*Southeast American College of Sports Medicine (ACSM)*. Network Physiology of inter-muscular interactions. Greenville, SC (USA).

**Wake Forest University Internal AWARD: Maddie Sayre—Best student presentation in the Health and Exercise Science Department (WFU).**

-(September 2020):

The American Physiological Society (APS) selected our work “Universal spectral profile and dynamic evolution of muscle activation: a hallmark of muscle type and physiological state” for **APS-Select**, a collection from the APS that showcases some of the best recently published articles in physiological research.  
<https://journals.physiology.org/apsselect/archive>

- (July 2019):

*2nd International Summer Institute on Network Physiology*. Cardiorespiratory coordination: A novel variable for testing training and fatigue effects. Lake Como School of Advanced Studies (Italy). 28th July – 5th August 2019.

**AWARD: 3rd Best Poster – *Publication Europhysics Letters*.**

**Orlando, FL, July 2025**