

Adrien Robin, Ph.D

Bioastronautics and Human Performance Lab | Department of Aerospace Engineering
Texas A&M University, College Station, TX
Phone: +1 979-326-2036 | adrien.robin@tamu.edu | ORCID: 0000-0001-7879-3715

EDUCATION

- Doctor of Philosophy (Ph.D.) in Integrative Physiology Sept 2023
University of Angers / Angers Hospital / MitoVasc Lab (Inserm U1083 – CNRS 6015) – Angers, France
Thesis: *Integrative approach to deconditioning induced by dry immersion and prolonged bedrest as models of microgravity.*
Advisors: Nastassia Navasiolava & Marc-Antoine Custaud
Committee members: Ana Diaz Artiles, Alexander Choukér, Guillemette Gauquelin-Koch, Claude Gharib, Nicolas Peyrot, Daniel Henrion, Nastassia Navasiolava & Marc-Antoine Custaud
- Master of Science (M.Sc.) in Cardiovascular Pathophysiology and Pharmacology June 2020
University of Angers / Angers Hospital - France
Thesis: *Cardiovascular deconditioning induced by simulated microgravity, with the SOMNOtouch™ device*
Advisor: Marc-Antoine Custaud
- Bachelor of Science (B.Sc.) in Cellular and Molecular Biology, Physiology June 2018
University of Angers – France

PROFESSIONAL EXPERIENCE

- Texas A&M University - College Station, TX Oct 2025
Assistant Professor – Health Science Center, College of Nursing
- Qualification for Assistant Professor (Maître de Conférence Universitaire) – France Feb 2024
Status: Qualified in Physiology (section 66)
- Texas A&M University - College Station, TX Nov 2023-present
Postdoctoral Researcher – Bioastronautics and Human Performance Lab, Dept. Aerospace Engineering
Advisor: Ana Diaz Artiles
- Conducted human research in altered gravity (tilt table) to generate gravitational dose-response curves of cardiovascular and ocular parameters in men and women.
 - Set up a 48h bedrest and drug-induced (furosemide) hypovolemia clinical trial to induce deconditioning.
- MEDES space clinic – Toulouse, France 2019-present
As Postdoctoral Researcher – space clinic facility
Dry-immersion vs. bedrest simulations - ESA VIVALDI III (2025)
- Member of ESA dry immersion expert group. Collecting baseline core data during a comparison of 10-day dry-immersion and bedrest as microgravity simulations in 20 men.
 - Led the vascular ultrasounds protocol (carotid and jugular vein morphology, flow, and pressure) during simulation and orthostatic tolerance test (LBNP).
 - Performed the “First 4h dynamic study” to quantify the kinetics of early adaptation to microgravity simulation (central hemodynamics, fluids redistribution, plasma volume evolution, muscle and cerebral and skin blood flow with NIRS and laser doppler, vascular ultrasounds, muscle activity with EMG).
 - Performed lower limbs venous function assessment (by strain gauge plethysmography and laser doppler).
- As Research Assistant* – space clinic facility
Dry-immersion simulations - ESA VIVALDI I & II studies (2021, 2022): **3 publications**
- Performed leg venous functions assessment by air plethysmography and laser doppler (filling/emptying, compliance, superficial venous network, veno-arteriolar reflex), circadian rhythms (hemodynamic, core body

temperature), and metabolism changes during the two 5-day dry-immersion microgravity simulations (n=19 men / 18 women). Funded by the European Space Agency (ESA)

This work resulted in a publication in **Nature Communications** as **1st author**. This work was funded through a doctoral fellowship by CNES (French space agency) and Région Pays de la Loire (French county)

Dry-immersion simulation - CNES DI-5-CUFFS study (2019): **2 publications**

- Investigated fluid shift effects (volemia hormonal regulation, body water content) and spinal deconditioning (intervertebral disc MRI) after a 5-day dry-immersion microgravity simulation (n=18 men).
- Assessment of a mechanical countermeasure (venoconstrictive thigh cuffs) to mitigate cardiovascular deconditioning (orthostatic intolerance, tachycardia) after dry-immersion.

Space Institute of Southern China (SISC) - Shenzhen, China

Oct 2019

Graduate Researcher (M.Sc. student internship)

Bedrest simulation – Astronaut Center of China (ACC) 90d HDBR study (2019): **1 publication**

- Assessment of cardiovascular and muscle deconditioning after a 90-day bedrest (n=24 men).
- Assessment of physical exercises countermeasures (aerobic and resistance) to mitigate deconditioning.

University Hospital of Angers - Angers, France

2018-2023

Research Assistant - MitoVasc Laboratory, Dept. of Health-Biology

Advisors: Marc-Antoine Custaud & Nastassia Navasolava

- Mentoring Master students, teaching classes, performed tilt test

GRANT – FELLOWSHIP AWARD

Translational Research Institute for Space Health (TRISH) Postdoctoral Fellowship Award

2023-2025

NASA – Baylor College of Medicine Cooperative Agreement NNX16AO69A

Role: PI - Postdoctoral Fellow (2 years grant)

Total award amount: **\$180,000**

url: <https://www.bcm.edu/news/trish-selects-2023-class-of-space-health-postdoctoral-fellows>

Doctoral fellowship: CNES (French space agency) and Région Pays de la Loire (French county)

2020-2023

Role: Ph.D. student (3 years grant)

Total grant amount: **100,500€**

RESEARCH PROPOSALS

ESA Parabolic Flight Experiment - Selected

2024

Title: Dose-response curves of cardiovascular, autonomic, and ocular variables during graded Lower Body Negative Pressure (LBNP) in microgravity conditions

Role: Co-I, scientific team member (PI: Ana Diaz Artiles)

TEACHING EXPERIENCE

Lecture – Aerospace Engineering Department - Texas A&M University, TX

2025

Lecture on experimental approach of physiological changes in altered gravity.

Lecture – Master Biology-Health - University of Angers, France

2024

Lectures on experimental approach of the relationship gravity-cardiovascular regulation.

Teaching doctoral contract (32h) - University of Angers, France

2022-2023

Lectures on research work and space physiology to Master-level students (science, medicine and pharmacy students).

Classes:

- Human physiology in microgravity / Scientific research article analysis
- Practical activities: Integrated cardiovascular system data acquisition devices

MENTORING EXPERIENCE

- Mentor for **Anna Monsó Rodriguez** (engineer student), Texas A&M University 2024
Mentoring a student in engineering in her 6-month research internship.
Cardiovascular and ophthalmic data acquisition during graded tilt test, before and after deconditioning.
- Mentor for **Abigail Rajagopal** (undergrad student), Texas A&M University 2024
Mentoring an undergraduate student for a fluidshift assessment by bioimpedance during a parabolic flight.
- Mentor for **Baptiste Chupin** (M.Sc.), University of Angers, France 2022
Mentoring a Master student in his 6-month research internship and thesis writing.
Thesis: *Integrative approach of venous function in women after simulated microgravity by dry immersion*
- Mentor for **Carla Bariot** (engineer student) ESEO engineering school, Angers, France 2022
Mentoring a student in biomedical engineering in her 6-month research internship and thesis writing.
Thesis: *Venous compliance assessment by video tracking after simulated microgravity by dry immersion*

PUBLICATIONS

Published in peer-reviewed journals

1. Jacob P, **Robin A**, Navasiolava N, Custaud MA, Ghislin S, Bareille MP, De Villemeur RB, Antunes I, Van Ombergen A, Gauquelin-Koch G, Fripiat JP. ESA VIVALDI Dry Immersion Microgravity Simulations Induce Increases in Immune Biomarkers Associated With Physical and Psychological Stress, and Sex-Specific Factors. *FASEB J*. 2025 Sep 15;39(17):e70993.
2. Horeau M, Navasiolava N, Van Ombergen A, Custaud MA, **Robin A**, Ropert M, Antunes I, Bareille MP, Billette De Villemeur R, Gauquelin-Koch G, Derbré F, & Loréal O. Dry immersion rapidly disturbs iron metabolism in men and women: Results from the VIVALDI studies. *Npj Microgravity*, 2024 June 15; 10(1), 1-6.
3. **Robin A**, Van Ombergen A, Laurens C, Bergouignan A, Vico L, Linossier MT, Pavy-Le Traon A, Kermorgant M, Chopard A, Py G, Green DA, Tipton M, Choukér A, Denise P, Normand H, Blanc S, Simon C, Rosnet E, Larcher F, Fernandez P, de Glisezinski I, Larrouy D, Harant-Farrugia I, Gauquelin-Koch G, Antunes I, Bareille MP, Billette De Villemeur R, Custaud MA, Navasiolava N. Comprehensive assessment of physiological responses in women during a 5-day dry immersion microgravity simulation: Insights from the ESA VIVALDI Study. *Nature Communications*. 2023 Oct 9; 14(1), 6311.
4. **Robin A**, Wang L, Custaud MA, Liu J, Yuan M, Li Z, Lloret JC, Liu S, Dai X, Zhang J, Lv K, Li W, Gauquelin-Koch G, Wang H, Li K, Li X, Qu L, Navasiolava N, Li Y. Running vs. resistance exercise to counteract deconditioning induced by 90-day head-down bedrest. *Front Physiol*. 2022 Aug 31;13:902983.
5. **Robin A**, Navasiolava N, Gauquelin-Koch G, Gharib C, Custaud MA, Treffel L. Spinal changes after 5-day dry immersion as shown by magnetic resonance imaging (DI-5-CUFFS). *American Journal of Physiology - Regul Integr Comp Physiol*. 2022 Sep 1;323(3):R310-R318.
6. Twomey L, Navasiolava N, **Robin A**, Bareille MP, Gauquelin-Koch G, Beck A, Larcher F, Meade-Murphy G, Sheridan S, Maguire PB, Harrison M, Degryse B, Moyna NM, Gharib C, Custaud MA, Murphy RP. A dry immersion model of microgravity modulates platelet phenotype, miRNA signature, and circulating plasma protein biomarker profile. *Scientific Reports*. 2021 Nov 9;11(1):21906.
7. **Robin A**, Auvinet A, Degryse B, Murphy R, Bareille MP, Beck A, Gharib C, Gauquelin Koch G, Daviet A, Larcher F, Custaud MA, Navasiolava N. DI-5-CUFFS: Venoconstrictive Thigh Cuffs Limit Body Fluid Changes but Not Orthostatic Intolerance Induced by a 5-Day Dry Immersion. *Front Physiol*. 2020 May 5;11:383.
8. Navasiolava N, Yuan M, Murphy R, **Robin A**, Coupé M, Wang L, Alameddine A, Gauquelin Koch G, Gharib C, Li Y, Custaud MA. Vascular and Microvascular Dysfunction Induced by Microgravity and Its Analogs in Humans: Mechanisms and Countermeasures. *Front Physiol*. 2020 Aug 20;11:952.

Manuscripts submitted, in review

1. **Robin A**, Van Ombergen A, Laurens C, Bergouignan A, Vico L, Linossier MT, Pavy-Le Traon A, Kermorgant M, Chopard A, Py G, Green DA, Tipton M, Choukér A, Denise P, Normand H, Blanc S, Simon C, Rosnet E, Larcher F, Fernandez P, de Glisezinski I, Larrouy D, Harant-Farrugia I, Gauquelin-Koch G, Antunes I, Bareille MP, Billette De Villemeur R, Custaud MA, Navasiolava N. Cardiovascular and Metabolic Sex-Specific Responses during Microgravity Simulation from the ESA Dry Immersion VIVALDI 1 and 2 Studies. *Communications Medicine*.

2. **Robin A**, Whittle R, Diaz-Artilles A. Similar Cardiovascular Response To Altered Gravity In Men And Women: Insight From Graded Tilt Testing. *Experimental Physiology*.

Book chapter

1. Custaud MA, **Robin A**, Navasiolava N, Gharib C, Boutigny A, Mohamedi N, Amah G, Bonnin P. Physiologie de la circulation artérielle. *Traité EMC Cardiologie*, Elsevier. Doi: 10.1016/S1166-4568(24)79092-5

International conference oral communications

1. Custaud MA, **Robin A**, Navasiolava N, Bruno RM, Luton D, Tsatsaris V, Boutouyrie P. Characterizing Sex-Specific Responses to Spaceflight-Induced Deconditioning. Women's Health Conference, Paris, France, 2025.
2. **Robin A**. Cardiovascular deconditioning in altered gravity. Texas Institute of Musculoskeletal Science Research Summit (TIMS), Texas A&M University, TX, USA, 2025.
3. Fortrat JO, **Robin A**, Custaud MA, Navasiolava N. Self-Organized Criticality as a Predictor of Cardiovascular Deconditioning. International Society for Gravitational Physiology (ISGP) meeting, Sapporo, Japan 2025.
4. Diaz-Artilles A, Zaman SY, Cort Reinartz C, Pentinat Llurba H, Lawson K, McKnight J, Navasiolava N, Custaud MA, Dunbar B, Haddad L, Zawieja D, **Robin A**. Cardiovascular adaptation during drug-induced hypovolemia and 48-h bed rest. International Society for Gravitational Physiology (ISGP) meeting, Sapporo, Japan 2025.
5. **Robin A**, Zaman SY, Reinartz C, Lawson Kami, McKnight J, Navasiolava N, Custaud MA, Haddad L, Zawieja D, Diaz-Artilles A. Ocular and jugular gravitational dose-response curves during hypovolemia: preliminary results. American Physiology Summit (APS), Baltimore, MD, USA, 2025.
6. **Robin A**, Zaman SY, Reinartz C, Lawson Kami, McKnight J, Navasiolava N, Custaud MA, Haddad L, Zawieja D, Diaz-Artilles A. Cardiovascular and ocular gravitational dose-responses during graded tilt after hypovolemia: preliminary results. Aerospace Medical Association (AsMA) meeting, Atlanta, GA, USA, 2025.
7. Zaman SY, **Robin A**, Monsó A, Fois M, Scarsoglio S, Ridolfi L, Diaz-Artilles A. Characterizing physiological adaptation to fluid redistribution caused by 60-minute head down tilt. NASA HRP Investigator's Workshop, Galveston, TX, USA, 2025.
8. Custaud MA, Navasiolava N, Billette de Villemeure R, Bareille MP, **Robin A**. Comparison of the cardiovascular response to progressive LBNP in men and women after 5 days of dry immersion (Vivaldi I and II). ESA Science Exploration Workshop, Final IWG for Vivaldi studies, Warsaw, Poland, 2024.
9. Fortrat JO, Navasiolava N, **Robin A**, Custaud MA. The Catastrophic nature of Vasovagal syncope in Cardiovascular Self-organized criticality. European Federation of Autonomic Societies Meeting, Helsinki, Finland, 2024.
10. **Robin A**, Zaman SY, Navasiolava N, Custaud MA, Zawieja D, Diaz-Artilles A. Gravitational dose-response curves for cardiovascular and ocular variables after 24h bedrest or drug-induced hypovolemia. International Society for Gravitational Physiology (ISGP) meeting, Dubai, UAE 2024.
11. **Robin A**, Navasiolava N, Custaud MA. Venous functions and leg volume changes during the two ESA Vivaldi dry-immersion studies in men and women. International Society for Gravitational Physiology (ISGP) meeting, Dubai, UAE 2024.
12. Thomas W, Fortrat JO, Navasiolava N, Custaud MA, **Robin A**. Self-organized criticality of Heart rate variability During Actual and Simulated Weightlessness: insights from Lower Body Negative Pressure. International Society for Gravitational Physiology (ISGP) meeting, Dubai, UAE 2024.
13. Navasiolava N, **Robin A**, Van Ombergen A, Bareille MP, Billette de Villemeur R, Tipton M, Custaud MA. Dry immersion effects on circadian rhythms and day-night variability of core temperature, heart rate, and blood pressure. International Society for Gravitational Physiology (ISGP) meeting, Dubai, UAE 2024.
14. **Robin A**, Navasiolava N, Bariot C, Chupin B, Custaud MA. Venous filling and emptying properties during 5-day strict dry immersion microgravity simulation. International Society for Gravitational Physiology (ISGP) meeting, Anvers, Belgium, 2023.
15. Navasiolava N, **Robin A**, Gauquelin-Koch G, Gharib C, Custaud MA, Fortrat JO. Increased Cardiovascular Self-Organized Criticality After Prolonged Head-Down Bed Rest. International Society for Gravitational Physiology (ISGP) meeting, Anvers, Belgium, 2023.
16. **Robin A**, Navasiolava N, Larina I, Pastushkova L, Tomilovskaya, Custaud MA. Effect of 3-day exposure to dry immersion on veno-arteriolar reflex. 27th ELGRA symposium (ISGP session) – Lisbon, Portugal, 2022.
17. **Robin A**, Degryse B, Murphy R, Larcher F, Bareille MP, Gharib C, Gauquelin-Koch G, Custaud MA, Navasiolava N. Cardiovascular and fluid changes induced by the acute phase of dry-immersion. International Society for Gravitational Physiology (ISGP) meeting, Texas A&M University, TX, USA, pp. 175-181, 2021.

Conference posters

1. **Robin A**, Navasiolava N, Bareille MP, Billette de Villemeur R, Antunes I, Van Ombergen A, Custaud MA. Comparison of cardiovascular and metabolic changes induced by simulated microgravity in women and men: results from the ESA VIVALDI dry-immersion studies. NASA HRP Investigator's Workshop, Galveston, TX, USA, 2025.
2. **Robin A**, Reinarz C, Zaman SY, Monsó A, Navasiolava N, Custaud MA, Zawieja D, Diaz-Artiles A. Cardiovascular and ocular gravitational dose-response curves in hypovolemic state: preliminary results. NASA HRP Investigator's Workshop, Galveston, TX, USA, 2025.
3. **Robin A**, Zaman SY, Navasiolava N, Custaud MA, Zawieja D, Diaz-Artiles A. Effect of deconditioning on gravitational dose-response curves for cardiovascular and ocular variables in a tilt paradigm. NASA HRP Investigator's Workshop, Galveston, TX, USA, 2024.
4. **Robin A**, Navasiolava N, Van Ombergen A, Gauquelin-Koch G, Gharib C, Kermorgant M, Pavy Le-Traon A, Bareille MP, Billette de Villemeur R, ESA DI Expert Group, Custaud MA. Fluidshift in dry immersion microgravity model. NASA HRP Investigator's Workshop, Galveston, TX, USA, 2023.
5. Fortrat JO, **Robin A**, Navasiolava N, Custaud MA. Self-organized criticality assessed on Holter heart rate variability during spaceflight simulation by dry immersion. 27th ELGRA symposium (ISGP session) – Lisbon, Portugal, 2022.
6. **Robin A**, Kermorgant M, Pavy Le-Traon A, Gharib C, Gauquelin-Koch G, Billette de Villemeur R, Bareille MP, Custaud MA, Navasiolava N. Fluidshift in dry immersion microgravity model. Journées Scientifiques de l'École Doctorale Biologie-Santé, Nantes, France, 2023.
7. Navasiolava N, **Robin A**, Gharib C, Custaud MA. Chronic increase in renin-angiotensin-aldosterone activity at steady state of microgravity simulated by dry immersion: why and by which mechanisms? International Society for Gravitational Physiology (ISGP) meeting, Anvers, Belgium, 2023.
8. **Robin A**, Navasiolava N, Gauquelin-Koch G, Gharib C, Custaud MA, Treffel L. Spinal changes after 5-day dry immersion as shown by magnetic resonance imaging (DI-5-CUFFS). CNES journées jeunes chercheurs, Toulouse, France, 2022.

SCIENTIFIC AWARDS

Walter B. Cannon Lecture Abstracts of Distinction

April 2025

Top scoring translational abstracts and the 2nd annual Gutterman Award Presentation

Awarded at the American Physiology Summit (APS) 2025

SERVICE

Membership

ESA (European Space Agency) expert group for dry-immersion	2024-Present
• Science team member	
Academy of Bioastronautics (TRISH's AoB)	2023-Present
• Active member – organizing and attending monthly meetings	
• Mentor: Jeffrey S. Willey (Wake Forest University, Winston-Salem, NC)	
American Physiological Society (APS) – postdoctoral member	2022-Present
International Society for Gravitational Physiology (ISGP)	2021-Present

Peer reviewer activity

Reviewing activity for original research papers in:

- npj Microgravity (Nature Partner Journal)
- AJP Applied Physiology (American Journal of Physiology)

SCIENTIFIC OUTREACH

Scientific communication to the general public

ISU summer training camp (International Space University) - Texas A&M University

July 2024

- Tilt test and hemodynamic presentation to ISU trainees
url: <https://engineering.tamu.edu/news/2024/07/space-studies-program-participants-explore-research-tackle-challenges-at-texas-am.html>

- Camp SOAR (Summer Opportunities in Aerospace Research) – Texas A&M University June 2024
- Human in space lecture
 - Tilt test experiment with highschooler students to mimic space, Mars, and Moon gravity
- Physics & Engineering Festival – Texas A&M University April 2024
- Science demonstration to children with a tilt table to mimic an altered-gravity environment
- European Researchers Night – European event Sept 2022
- Promotion of scientific research to the general public and children.
 - Presentation of the academic scientific sector, and research work about human in space
- Cosmofestival - Angers, France March 2022
- Participated to the Cosmofestival (regional event, organized by Terre des Sciences) and hosted a round table with the general public around the theme of research in space physiology

University communication

- Interview article Oct 2023
- Interview for the research journal of the University of Angers (article in French) about my research work and the TRISH postdoctoral fellowship
url: <https://www.univ-angers.fr/fr/recherche/actualites/actus-2023/objectif-lune.html>

Photo competition

- Exposition “La recherche en grand format » - Université d’Angers, France May 2022
- Selected by the jury for exposition at the University 50th anniversary
 - Photo illustrating the foot superficial venous network, during the ESA dry-immersion campaign
url: <https://www.univ-angers.fr/fr/recherche/actualites/actus-2022/exposition-itinerante.html>