



Human Physiology Workshop

8th of December 2023

Venue: DLR
:enviHab
Forum
51147 Cologne
Germany
Planitzweg



Human Physiology Workshop 2023

We are pleased to welcome you to the 8th German Human Physiology Workshop 2023. The workshop shall provide a forum for researchers at all stages (student to professor) to meet and discuss their latest findings in human physiological research and space research and give room for mutual exchange and benefit between space and non-space scientists.

Organizers

Jörn Rittweger, Claudia Kaiser-Stolz, Alexandra Noll, Willi Pustowalow, Friederike Wütscher (German Aerospace Center (DLR), Institute of Aerospace Medicine, Cologne)

Katrin Stang, Michaela Girgenrath, Christian Rogon (German Space Agency at DLR, Bonn)

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Jury

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Bruno Grassi	University of Udine, Department of Medicine, Italy
Markus Gruber	University of Constance, Sensorimotor Performance Lab, Germany
Peter Hodgkinson	King's College London, Centre for Human & Applied Physiological Sciences, UK
Ylva Hellsten	University of Copenhagen, Department of Nutrition Exercise and Sports, Denmark
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Tobias Kammerer	University Hospital Cologne, Germany
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Oliver Opatz	Charité Medical University, Center for Space Medicine and Extreme Environments, Institute of Physiology, Berlin, Germany
Barbara Pospieszna	Poznan University of Physical Education, Department of Athletics, Strength and Conditioning, Poland
Jörn Rittweger	German Aerospace Center (DLR), Institute of Aerospace Medicine, Space Physiology, Cologne, Germany
Stefan Sammito	Oberfeldarzt, Zentrum für Luft- und Raumfahrtmedizin der Luftwaffe, Cologne, Germany
Tobias Weber	ESA, Cologne, Germany
Rob C. I. Wüst	Vrije Universiteit Amsterdam, Faculty of Behavioural and Movement Sciences, the Netherlands

Program

Friday, December 8, 2023

08:00 **Registration**

08:30 **Welcome (DLR)**

Session 1:

Chair: Reinhold Ewald & Alberto Minetti

08:45 **(1) Ebner, Ines:** Changes in physical activity levels and gait parameters after 60-days of 6°Head-Down-Tilt Bed Rest (HDT-BR) – a preliminary data analysis

09:00 **(2) Luciano, Francesco:** Runners inside an emulated Lunar ‘Wall-of-Death’ self-generate high enough artificial gravity to potentially fight muscle/bone/neurocontrol/cardiovascular deconditioning

09:15 **(3) Bothe, Tomas L.:** COOLFLY – cooling counters cardiovascular instability during parabolic flights: A first look at the final results

09:30 **(4) Henkel, Sara:** Influence of ambient temperature on resting energy expenditure in metabolically healthy women and men

09:45 **(5) Böcker, Jonas:** Quantification of acceptance and feasibility for implementation of a training algorithm in a nursing home environment

10:00–10:30 Coffee break

Session 2:

Chairs: Joachim Fandrey & Anja Niehoff

10:30 **(6) Burger, Nicole:** Assessing immune function in space: Validation of an in-vitro CR-assay setup for astronaut immune monitoring

10:45 **(7) Kowalski, Tomasz:** Respiratory muscle training induces additional stress and training load in well-trained athletes – randomized controlled trial

11:00 **(8) Son, Yuliya:** Investigating the immune status of cosmonauts after a long-term spaceflight: Implications for wound healing

11:15 **(9) Badali, Constance:** SpaceBike – The influence of immobilisation on neuromuscular performance (preliminary data)

11:30 **(10) Tang, Ge:** Longitudinal brain-age predictions encompassing long-duration spaceflight missions

11:45–12:45 Lunch break

Session 3:

Chairs: Isabelle Mack & Stefan Schneider

- 12:45 **(11) Possnig, Carmen:** Low level lower body negative pressure attenuates the decrease in cerebral blood flow during bed rest
- 13:00 **(12) Fisher, Jason T.:** Haemodynamic and microvascular responses to Combined hypergravity, heat stress and hypoxia
- 13:15 **(13) Michno, Manuel:** Effect of acute hypoxia exposure on the availability of A1 adenosine receptors in the human brain measured with [F-18]CPFPX PET
- 13:30 **(14) Möller, Fabian:** Ground-based validation of transcutaneous PCO₂ measurements by blood gas analysis
- 13:45 **(15) Calà, Edoardo:** Influence of Muscle Architecture on Muscle Perfusion in Bed Rest

14:00–14:30 Coffee break

Session 4:

Chairs: Rob Wüst & Kirsten Albracht

- 14:30 **(16) Faivre-Rampant, Victorien:** The effect of reduced rostrocaudal gravitational load on cardiac function
- 14:45 **(17) Meinhold, Marius:** Exploring the role of the Hippo pathway member Yap in a model of Duchenne Muscular Dystrophy
- 15:00 **(18) Charlton, Braeden T.:** Physical inactivity does not explain exercise intolerance and skeletal muscle adaptations in long COVID
- 15:15 **(19) Klos, Bea:** The effects of a one-year antarctic sojourn at the Concordia Research Station on olfactory and gustatory functions
- 15:30 **(20) Jacko, Daniel:** Resistance exercise and training alters desmin phosphorylation in human skeletal muscle and makes it less prone to degradation

<p>15.45–16:45 Andrea Casini: <i>How the LUNA facility enables research for a human presence on Moon</i></p>

16.45–17.00 Awards

17:00 Adjourn