

## General Overview of the Program

### ISGP 2024 in Dubai

	Sunday, May 26th	Monday, May 27th	Tuesday, May 28th	Wednesday, May 29th	Thursday, May 30th	Friday, May 31st
09:00						
09:30						
10:00		Opening Ceremony Plenary 1 – CURRENT CONCEPTS <i>Alamda Sundaresan "The Lunar Challenge: Lunar dust and the human Billig in moon missions"</i> <i>Ave Bergesen "Insects as food for space travel and planetary colonisation"</i>	Plenary 2 Session dedicated to MBRSC	Plenary 3 Rodents in Altered Gravity: Advances in Space Biology Research	Coffee break available Plenary 4 LBNP as countermeasure	
10:30		Coffee break		Coffee break		
11:00		Young Investigators Session (1)	Young Investigators Session (2)	Young Investigators Session (3)		
12:00		Lunch Break	Lunch Break	Lunch Break	Lunch Break	
12:30						
13:00		Lunch & Poster	Lunch & Poster	Institutional session (1)		
13:30						
14:00						
14:30			Muscle and movements		Institutional session (2)	
15:00		Moon Exploration	Medical issues for exploration	VIVALDI dry immersion study	Closing Ceremony	
15:30		Studies with gender differences		Animal Models		
16:00	Welcome of participants for registration	Coffee break	Coffee break	Coffee break	ISGP General Assembly	
16:30		Space Exploration and extreme environments	SIRIUS Isolation study	Immunology and inflammation		
17:00		Cells and plants	Cardiovascular system	Hypergravity		
17:30						
18:00		Welcome party (18:30 - 20:00)	Young Investigator event : Ghawa & Career (18:30 - 20:00)	Gala Dinner and Young Investigators Award Ceremony (18:30 - 22:45)		
18:30						
19:00						
19:30						

## Detailed Scientific Program

### ISGP 2024 in Dubai

Monday, May 27<sup>th</sup>

#### Opening Ceremony

#### Plenary 1 - Current Concepts (9:30 – 11:00)

**Alamelu Sundaresan**

*The Lunar Challenge- Lunar dust and the human being in moon missions*

**Asa Berggeen**

*Insects as food for space travel and planetary colonisations*

#### Young Investigator session – 1 (11:30 – 12:30)

**Khulood Ahrari**

*Effect of Space Flight on Sperm Function and Integrity: A Systematic Review*

**Damien Lanéelle**

*Orthostatic tolerance according to cerebral arterial pattern variations during hemodynamic stress combining lower body negative pressure and head-up-Tilt*

**Victorien Faivre-Rampant**

*Does gravity affect intrinsic cardiac function? Effects of different gravitational loads on the cardiac performance independent of the preload*

**D.A. Sidorenko**

*The ryanodine receptor stabilizer S107 prevented the increase in fatigue and the decrease in strength of rat soleus muscle after simulated gravitational unloading*

#### Parallel Session (a) “Moon Exploration” (14:00 – 15h30)

**Salma Subhi**

*Chondrites: Understanding the Origins of the Solar System*

**Chiara Pucciariello**

*The REGOLIFE project: Bio-Engineering Lunar Regolith for Moon Crop Cultivation*

**Jay Bookbinder**

*SpinSat: a Novel Mission Architecture for Deep Space Radiation and Gravitational Studies*

**Shannon Marchal**

*Research into “Lunar Hay Fever” on Earth – Finding Answers in an in Vitro Airway Model?*

**Fawzan Mohamed Kareem Navaz**

*Utilizing bio-inspired hierarchical multi-shell structures (BHMSS) for radiation shielding in space exploration*

### Parallel Session (a) “Studies with gender differences” (14:00 – 15h30)

**Asrar Abdi**

*Effects of Menstrual Cycle on Hemodynamic and Autonomic Responses to Central Hypovolemia*

**Vishwajeet Shankhwar**

*Does Gender Influence Cardiovascular and Autonomic Responses to Central Hypovolemia?*

**Kunihiko Tanaka**

*Galvanic Vestibular Stimulation Decreases Parathyroid Hormone in Menopausal Women.*

**Ivan Vasilev**

*Parameters Of Venous Hemodynamics In Female Volunteers During Their Stay In A 5-day “Dry” Immersion*

**Galina Vassilieva**

*Five-day “Dry” Immersion With Female Subjects (“Immersion-5F-LF”): Main Objectives And Results*

### Parallel Session (b) “Space exploration and extreme environment” (16:30 – 18h00)

**Yasmin Halawani**

*AstroBEAT: Cardiovascular Variability Analysis and Lunar Microgravity Twin*

**Monica Monici**

*Mechanisms of Adaptation to Extreme Environments The Exposome Signature Project*

**Elena Fomina**

*Methods for the prevention of monotony in interplanetary spaceflight*

**Leonardo Surdo**

*Crew-interactive AI-powered Health Applications via the ICE Cubes Media Set*

**Judith-Irina Buchheim**

*Support of a Crew Activity with the Crew Interactive Mobile Companion (CIMON)*

**Sandeep Sureh Babu**

*Potential of Bioprinting in Space Missions: Challenges on the way forward*

### Parallel Session (b) “Cells and plants” (16:30 – 18h00)

**Mahamed Ashiq**

*Hypergravity Confers Abiotic Stress Tolerance In Bread Wheat (*Triticum aestivum* L.)*

**Irina Ogneva**

*The *Drosophila Melanogaster* Oocytes Demonstrate The Mechanoreception Under Short-Term Modelling Micro- and Hypergravity*

**Devjoy Dev**

*The effect of short-term exposure to simulated microgravity on circadian clock gene expression in mouse embryonic fibroblasts*

**Mohamed Jamal**

*Oral tissues and neural crest derived stem cells as a model to study oral health in microgravity environment*

**Osman Patel**

*Impact of microgravity exposure on genes regulating cell turnover in rat mammary gland*

**Mauro Maccarrone**

*Simulated Microgravity Affects Specialized Pro-Resolving Mediators and Human Inflammatory Homeostasis in a Cell-Specific Manner*

**Tuesday, May 28<sup>th</sup>**

**Plenary 2 - Session dedicated to MBRSC (9:00 – 11:00)**

**Young Investigator session – 2 (11:30 – 12:30)**

**Anas El-Gneidy**

*Spaceflight associated neuro-ocular syndrome (SANS): a systematic review, implications for the SANS case definition*

**E. Yu. Gorbacheva**

*The Ovarian-Pituitary Axis Of Mice After Antiorthostatic Suspension During The Full Estrous Cycle*

**Ines Ebner**

*Changes in physical activity levels during 60-days of 6°head-down-tilt bed rest - a preliminary data analysis of the BRACE study*

**T.J. Pereira**

*Does an N95 mask improve Orthostatic Tolerance?*

**Parallel Session (a) “Muscle and movements” (14:00 – 15h30)**

**Elena Tomilovskaya**

*Perspectives of electromyostimulation approaches for muscle strength and endurance maintenance under motor unloading conditions: from Space to Earth*

**Ivan Ponomarev**

*Effect of 7-day course of electromyostimulation on the contractile and viscoelastic properties of the muscles of the lower extremities under conditions of support unloading*

**Karolina Biszczad**

*Space Tourism- MyotonPRO experiment on Muscle Tone*

**Tatiana Shigueva**

*Effects of Electromyostimulation on Characteristics of Reflex Excitability of Calf Extensor Muscles Under Dry Immersion Conditions*

**Nelly Abu Sheli**

*Maximal Voluntary Muscle Force And Muscle Tone Of The Lower Extremities In Patients With Chronic Cerebrovascular Insufficiency And Deficit Of Physical Activity After A Course Of Modulated Electrical Myostimulation (“Russian Currents”)*

**Anna Ganicheva**

*The Role Of Spaceflight Experience And Mission Duration In The Success Of Completing Model Tasks On The Planet Surface*

### Parallel Session (b) “Medical issues for exploration” (14:00 – 15h30)

**Ahmed Bakri**

*The impact of Microgravity on Experimental Periodontitis: An In Vivo Study*

**Monica Monici**

*Wound Healing and Tissue Regeneration in Space The SUTURE in SPACE Experiment*

**Elias A**

*Risk of Thromboembolism in Space: Current Evidence and Perspectives*

**Ilya Rukavishnikov**

*Analysis Of The Possibility Of Using Ground-Based Space Flight Models In Studying The Effects Of Stress, Accompanied By A Decrease In Motor Activity Of Various Duration, On Hemostasis Parameters And The State Of The Human Vascular Bed*

**Philippe Arbeille**

*Liver tissue changes during 6-month space flight measured by ultrasound RF signal processing*

### Parallel Session (a) “SIRIUS & Isolation studies” (16:30 – 18h00)

**Tatiana Agaptseva**

*Evaluation of individualized physical training protocols in experiments SIRIUS-21 and SIRIUS-23*

**Asma Parveen**

*Effects of an 8-months isolation on Body Composition and Cardiopulmonary Exercise Testing.*

**Carine Platat**

*Body composition and glucose homeostasis during a 8-month ground-based isolation study*

**Stefan Du Plessis**

*Effects of Isolation on Cardiovascular and Autonomic systems*

**Nandu Goswami**

*Effects of Prolonged Isolation on Human Health: From Ground-based Analogs to Spaceflight Environments*

### Parallel Session (b) “Cardiovascular system” (16:30 – 18h00)

**Andrew Blaber**

*Altered Cardiorespiratory Interactions with Spaceflight: Preliminary Results from CARDIOBREATH*

**Carmen Possnig**

*Understanding mechanisms and unveiling countermeasures for the bedrest- induced decrease in cerebral blood flow: Preliminary data*

**Adrien Robin**

*Gravitational dose-response curves for cardiovascular and ocular variables after 24h bedrest or drug-induced hypovolemia*

**Jacques-Olivier Fortrat**

*Self-organized criticality of Heart rate variability During Actual and Simulated Weightlessness: insights from Lower Body Negative Pressure*

**Olga Vinogradova**

*Synchronization Of Blood Pressure And Heart Rate Oscillations In Different Frequency Ranges As A Measure Of Disturbances In The Regulation Of Systemic Hemodynamics During Tilt Test*

**Sami Alghayath**

*Assessment of Hemodynamic and Autonomic Responses to Changes in Posture in Diabetics in Dubai: A Prospective Cohort Study*

Wednesday, May 29<sup>th</sup>

### Plenary 3 - Rodents in altered gravity: Advances in Space Biology Research (9:00 – 11:00)

Chaired by S. Tavella & J. van Loon

### Young Investigator session – 2 (11:30 – 12:30)

**Victoria Ly**

*Self-Generated Lower Body Negative Pressure Exercise, a Low Power Countermeasure for Deep-Space Missions*

**Zhiyao Ma**

*Exploring the Impact of Simulated Microgravity on Osteoarthritis Development: The Role of CD36 and Sex-Specific Responses in a Mouse Model*

**Constance Badali**

*SpaceBike – Preliminary Insights into Neuromuscular Adaptation through Bed Rest*

**R. Yu. Zhedyaev**

*Direct Comparison of Head-Down Bed Rest and Dry Immersion Effects on Human Cardiac Baroreflex During Orthostatic Stress*

### Plenary session “Institutional session - 1” (13:30 – 15h00)

*During this session, a presentation of roadmaps and perspectives on life sciences in space will be presented by a panel of representatives from academic institutions and space agencies.*

### Parallel Session (a) “VIVALDI dry immersion study” (15:00 – 16h30)

**Rebecca Billette de Villemeur**

*Of The Dry Immersion Model For ESA: Description Of The VIVALDI I And II Studies*

**RK. Vergos**

*VIVALDI I And II: General Tolerance To 5 Days Of Dry Immersion In 38 Healthy Men And Women*

**Nastassia Navasiolava**

*Dry immersion effects on circadian rhythms and day-night variability of core temperature, heart rate, and blood pressure*

**Peter Fernandez**

*Exploring Bone Adaptation and Energy Metabolism Between Males and Females Under Dry Immersion Conditions*

**Adrien Robin**

*Venous functions and leg volume changes during the two ESA Vivaldi dry-immersion studies in men and women*

**Marc Kermorgant**

*Gender Related Differences On Dry Immersion-Induced Ophthalmological Changes*

## Parallel Session (b) “Immunology and inflammation” (17:00 – 18h15)

**Pauline Jacob**

*Hindlimb unloading, a physiological model of microgravity, modifies the murine bone marrow IgM repertoire in a similar manner as aging but less strongly*

**Naim A. Khan**

*Inflammation and spaceflights: the neuroprotective effect of dietary fatty acid and its derivative.*

**Mei ElGindi**

*Effects of Simulated Microgravity on Immune System Potency in 3D Microenvironment*

## Parallel Session (a) “Animal models” (15:00 – 16h30)

**Theo Fovet**

*The NEBULA Project: Effect Of Pre-Flight Physical Training On Bone And Muscle In A Mouse Microgravity Analog Model.*

**Zeinab Ibrahim**

*Exploring Novel Therapeutics Targets Against Cardiovascular and Skeletal Muscle Deconditioning in Hindlimb Unloading Model*

**Jack J.W.A. van Loon**

*Fetal mouse long bones under continuous microgravity or in-flight periods of 1×g centrifugation as countermeasure.*

**Timur Mirzoev**

*Spinal mechanisms triggering the spontaneous tonic activity of the postural soleus muscle under hindlimb unloading*

**Ameneh Ghadiri**

*Femurs of Mice Exposed to Hypergravity Show Deregulation of Genes Mainly Associated with ECM-receptor Interactions and Protein Digestion and Absorption*

**Angela Maria Rizzo**

*Hypergravity Exposure Induces Alterations Of Erythrocyte Membrane And Antioxidant Potential Of Mice Housed In The MDS Facility*

## Parallel Session (b) “Hypergravity” (17:00 – 18h15)

**Rebecca Billette de Villemeur**

*A 60-Day Bed Rest With Artificial Gravity And Cycling Exercise: The BRACE Study – Description Of The Study Method.*

**Jan Millek**

*Does Artificial Gravity Tolerance Change Across seasons?*

**Maryam Almarzooqi**

*Comprehensive exploration of artificial gravity solutions for optimizing long-term space exploration missions*

**Alina Saveko**

*Effect of different short-radius centrifugation interval training modes on vertical stability (presentation modalities to be confirmed)*

**Thursday, May 29<sup>th</sup>**

**Plenary 4- LBNP as countermeasure (10:00 – 12:00)**

Chaired by N. Goswami & A. Blaber

**Plenary session “Institutional session - 2” (13:30 – 15h00)**

**Pierre Denise**

*SPACEMED Erasmus Mundus Joint MSc: The first European Master’s program in Physiology and Medicine of Humans in Space and Extreme Environments*

**Pauline Jacob**

*Gravitational Experimental Platform for Animal Models, a New Platform at ESA's Terrestrial Facilities to Study the Effects of Micro- and Hypergravity on Aquatic and Rodent Animal Models*

**Neil Melville**

*ESA's Parabolic Flight Activities: An overview of our campaigns, capabilities, and new application routes for Technological and Commercial proposals*

**Marisa Covington**

*Navigating the NASA IRB and human research multilateral review board (HRMRB): an ethics perspective*

**Cyndi Roman**

*ClinicalTrials.gov: Understanding the Clinical Trials Requirements at NASA*

**Closing ceremony**

**Posters Session**

*Poster will be printed. Recommended as maximum size A0.*

**Tatiana Kostrominova**

*Role of Inositol-trisphosphate Receptors in the Regulation of Signaling Pathways During Unloading-induced Rat Soleus Muscle Atrophy*

**Monica Christova**

*Activating Orthostatic Response with Motor Imagery: Potential Application in Returning Astronauts and Older Adults*

**Amira Sayed Khan**

*Novel GPR120 agonist modulates systemic and neuroinflammation*

**Aya Hesham**

*Space-Fit Far Infrared Suit for Back Pain Mitigation onboard the International Space Station (ISS)*

**Alexandru Nistorescu**

*Assessing Achilles Tendon Mechanics With MusTone Device: A Myotonometric Approach To Understanding Tissue Dynamics*



**Abdulrahman Alblooshi**

*Exploring the Therapeutic Potential of Gravitational Psychology in Disease Understanding*

**Pauline Jacob**

*Long-duration head-down tilt bed rest confirms the relevance of the neutrophil to lymphocyte ratio and suggests coupling it with the platelet to lymphocyte ratio to monitor the immune health of astronauts*

**Adel Elmoselhi**

*Effects of Isolation and Confinement on Vascular Health during Space Travel: Insights from a SIRIUS-21 Analog Mission*

**Andreas Rössler**

*Effects of hemodynamic responses during stand test following 15 minutes of sinusoidal vibration of varying intensity*

**Masahiro Terada**

*Performing the bedrest study for the space medicine educational programs*

**Devjoy Dev**

*Exploration of the biomechanical stress on the body while performing functional and operationally relevant movement patterns under variable gravitational stress*

**Kristina Sharlo**

*Effects of Muscle Electrical Stimulation under 6-day Dry Immersion on Soleus Muscle Signaling*

**Natalia Vilchinskaya**

*Time-course of alterations in the expression of mechanosensitive ion channels in rat soleus muscle under simulated microgravity*

**Ameline Saouli**

*Effects of Simulated Microgravity on Sperm Function: An In Vitro Study Evaluating Sperm Quality and Function-Specific Genes*

**Tiffany Stead**

*Examining Hypercoagulability in Females Exposed to Dry Immersion: a mechanism for Development of Venous Thromboembolism in Microgravity?*

**Irina Bryndina**

*Sphingolipids as regulators of skeletal muscle phenotype at gravitational unloading*

**Victoria Gulimova**

*X-Ray Phase Contrast Microtomography Investigation Of Thick-Toed Geckos Caudal Vertebrae After A Long-Term Space Flight Using Machine Learning*

**Andrew Blaber**

*Exploring Cardio-postural Interactions in relation to Prolonged Space Missions*

**Andréa Bertona**

*Evaluation of Short-Term Simulated Microgravity and Cognitive Task Effects on Central and Regional Hemodynamic Vascular Parameters during Progressive Head Down Tilt (HDT) Inclination*

**Mariia Kokueva**

*Evaluation of individualized physical training protocols in experiments SIRIUS-21 and SIRIUS-23 (to be confirmed)*