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MEETING REPORT

REPORT ON THE 93RD ANNUAL SCIENTIFIC MEETING OF THE AEROSPACE MEDICINE ASSOCIATION

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Abstract: The following report provides an overview of our attendance at the 93rd Annual Scientific Meeting of the Aerospace Medicine Association (AsMA) held in New Orleans, LA, U.S. The conference took place from 21 to 26 May, 2023 and aimed to bring together experts and professionals in the field of aerospace medicine to discuss the latest research, advancements, and challenges in science, medicine and industry.

Keywords: aerospace medicine, AsMA, scientific meeting

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INTRODUCTION

The following report provides an overview of our attendance at the 93rd Annual Scientific Meeting of the Aerospace Medicine Association (AsMA) held in New Orleans, LA, U.S. The conference took place from 21 to 26 May, 2023 and aimed to bring together experts and professionals in the field of aerospace medicine to discuss the latest research, advancements, and challenges in science, medicine, and industry.

Keynote presentations

The conference commenced with a series of captivating keynote presentations by renowned experts in aerospace medicine. Driven by their extensive experience, they shared valuable insights on emerging trends, cutting-edge technologies, and the future of aerospace medicine. Notably, Dr. Ansa Jordaan delivered a thought-provoking keynote on the impact of extended space missions on human physiology and the challenges faced by astronauts.

Scientific sessions

The conference featured an array of scientific sessions covering a wide range of topics within aerospace medicine. The meeting showcased groundbreaking research and discussions across various fields, with particular emphasis on:

Clinical medicine - presentations and workshops focusing on advancements in clinical medicine, including:

- current trends in vision screening and surgery for pilot selection,
- clinical aerospace neurology,
- mental health & certification,
- risk management in aviation medicine,
- selected cases and novel solutions from junior flight surgeons,
- evolving science surrounding pilot healthcare seeking behavior, disclosure and avoidance,
- COVID-19 and healthcare integration,
- aerospace toxicology,
- planning a comprehensive medical readiness program for flight surgeons,
- clinical practice guidelines-aeromedical risk analysis,
- self-reported impacts of COVID-19 on the psychological health of USAF personnel,
- cardiac technology - using new techniques to support aviation.

Space medicine and exploration - discussions on the physiological and psychological effects of space travel, countermeasures for microgravity-induced bone and muscle loss, and strategies to mitigate long-term health risks for astronauts. This panel especially included:

- approach to human spaceflight medical support,
- medical devices in space,
- layperson performance in centrifuge-simulated spaceflight,
- SpaceX Inspiration mission: results of multiscale omics profiling short-duration spaceflight
- clinical considerations for commercial spaceflight & analog environments,
- clinical and research insights into Spaceflight Associated Neuroocular Syndrome (SANS),
- NASA exploration atmosphere - the path to the Moon and Mars,
- impacting exploration spaceflight risk prediction and medical system design,
- NASA's approach for developing medical capabilities and technologies for deep space exploration,
- herniated disc on ISS: diagnosis, treatment, and operational mission impacts,
- commercial spaceflight applications for space medicine: a multi-carrier & mission agnostic standardized approach,
- education in space medicine,
- Nascent space medicine challenges,
- environmental health and space habitats – effects of prolonged exposure to space radiation, microorganisms in closed habitats, and the development of sustainable life support systems for future space missions.

Aviation safety and human factors – exploration of human performance, fatigue management, cockpit automation, crew resource management, and the impact of human factors on aviation safety. There were discussions on the health and safety aspects of air travel, as well as innovations in aviation technology. The following panels were of particular concern:

- safety considerations of reduced crew operations on long-haul flights,
- safety culture in aviation and medicine: assessment and interventions,
- safety centers year-in-review.

Human performance: this session covered various aspects of physical and cognitive performance optimization, with applications ranging from aviation and aerospace to occupational settings. The session's thematic panels addressed:

- changes in medical standards & system capabilities & new technologies,
- human performance under aerospace stress,

- operational vision: color and vision standards, operational vision ii: visual performance,
- physiologic events in high-performance aviation: a NATO Working Group,
- does science support using UV-C lighting to reduce disease transmission on aircraft?
- fatigue countermeasures – performance,
- spatial disorientation research, modeling, and mitigation,
- technician perspective on physiological advancements,
- in-flight environmental & physiological data from a joint perspective,
- improving the future today: aeromedical research and pilot-physicians,
- taking sensorimotor studies for a spin.

Poster presentations

The conference included a poster session where researchers and practitioners showcased their work. The posters covered a diverse range of topics, including aerospace physiology, aviation medicine, and space psychology applications in aerospace settings.

Networking and collaboration opportunities

The AsMA conference fostered an environment conducive to networking and collaboration among attendees. Throughout the event, numerous formal and informal networking sessions allowed participants to connect with experts in the field, exchange ideas, and establish potential collaborations. The conference also facilitated interactions with industry representatives, government agencies, and research organizations, providing a platform for knowledge sharing and partnership development.

Industry exhibition

A dedicated exhibition area housed industry-leading companies, research and educational institutions, and technology providers. Exhibitors showcased their latest advancements in aerospace medicine, medical equipment, and aviation safety tools (i.a., flight simulators). This exhibition provided attendees with valuable insights into emerging technologies and opportunities for collaboration between academia and industry.

CONCLUSION

The Annual Scientific Meeting of the Aerospace Medicine Association in New Orleans proved to be an enlightening and engaging event. It offered a platform for researchers, practitioners, and industry professionals to exchange knowledge, discuss advancements, and address challenges in the field of aerospace medicine. The conference successfully contributed to the overall development and promotion of aerospace medicine, paving the way for future research collaborations and advancements in the industry. Abstracts from the presentation and poster sessions have been published in the open-access issue of the Aerospace Medicine and Human Performance journal [1]. This issue is available on the website [2] and in the Military Institute of Aviation Medicine (Poland) library collection (in paper form).

AUTHORS' DECLARATION

Manuscript preparation: Rafał Lewkowicz, Katarzyna Sowa. The Authors declare that there is no conflict of interest.

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