MEETING REPORT

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REPORT FROM THE CONFERENCE ON THE HEALTH OF PILOTS OF THE FUTURE AND ON THE FUTURE OF PILOT HEALTH

Magdalena ROLA[1,2], Michał KUREK[2]

1 Military Aviation Medical Board, Warsaw, Poland

2 Department of Internal Diseases, Cardiology and Metabolic Disorders, Military Institute of Aviation Medicine, Warsaw, Poland

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Author's address: Magdalena ROLA, Military Institute of Aviation Medicine, Krasińskiego 54/56 Street, 01-755 Warsaw, Poland, e-mail: mrola@wiml.waw.pl

REPORT

On February 24–28, 2025, a conference organized by the Air Force Inspectorate in cooperation with the Military Institute of Aviation Medicine and the Military Aviation Medical Board was held at the Military Training and Conditioning Center in Zakopane. The meeting brought together many specialists in the field of military aviation medicine, air force commanders, and military pilots. The aim of the event was to exchange experiences in the field of aviation and aviation medicine, and to identify the challenges facing this field in the context of the needs of the Polish Air Force. The health of pilots and all flight personnel is one of the key pillars of flight safety, which is why planned investments in the modernization of the Air Force should be balanced by an adequately developed healthcare system for aviation personnel.

The course of the congress

The first day of the conference began with a ceremonial opening conducted by the Inspector of the Air Force, Major General Ireneusz Nowak, Pilot, who welcomed all participants. Introductory remarks were also delivered by the Director of the Military Institute of Aviation Medicine (WIML), Colonel (Ret.) Grzegorz Kade, MD, PhD. This was followed by a debate devoted to the role of the Military Institute of Aviation Medicine within the healthcare system for Air Force pilots. Later in the day, issues related to the recruitment of pilot candidates were also discussed, as well as the importance of the Military Aviation Medical Board (RWKL-L) in this process. The perspective on health burdens and risks associated with the type of aircraft operated was presented by military pilots, drawing on their own operational experience.

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The second day of the conference opened with a lecture by Major General Ireneusz Nowak, Pilot, who presented the current status and development prospects of the Polish Air Force (PAF). He discussed modernization plans for the coming years, including the acquisition of new aircraft and challenges related to the training of aircrew. Subsequent presentations focused on the qualification process and medical requirements imposed on candidates for flying personnel. Changes to aeromedical certification regulations were also presented by a certifying physician from the Military Aviation Medical Board (RWKL-L). One of the key topics addressed that day was spatial disorientation—a phenomenon that significantly affects pilots' decision-making abilities and, consequently, the safety of flight operations. It was indicated that this factor is responsible for many aviation incidents and accidents. The importance of simulator-based training was emphasized, as it enables pilots to recognize the mechanisms of disorientation and to develop effective response skills in hazardous situations. This was followed by presentations on ophthalmological innovations in aviation and issues related to exposure to laser radiation. These topics were discussed by a team of physicians from the Department of Simulator Research, Training, and Aeromedical Flight Training of the Military Institute of Aviation Medicine (WIML), led by Krzysztof Kowalczuk, MD, PhD, the National Consultant in Aviation Medicine. The next panel addressed issues in orthopedics, neurology, and physiotherapy. Particular attention was paid to the prevention of musculoskeletal disorders, the occurrence of which among aircrew is linked to the specific nature of the profession—prolonged sitting, exposure to high gravitational loads, and vibrations accompanying flight operations. Modern minimally invasive methods for the treatment of spinal disc disease were also discussed. Owing to interdisciplinary care and rehabilitation, these methods enable a rapid return to full fitness and continuation of active service. Within the framework of primary prevention, the importance of stabilization training was emphasized, as it allows the musculoskeletal system to adapt to aviation-specific conditions, reducing the risk of overload and injury.

The third day of the conference began with presentations devoted to the aviation training system in the context of the human factor. The contemporary approach to training assumes not only the improvement of technical skills but also the shaping of attitudes and behaviors that enhance the safety of flight operations. Attention was drawn to the importance of deepening knowledge of the human factor, which translates into a reduction in errors and an increase in safety levels. The role of the psychologist in the context of an aviation accident was also discussed, including responsibilities such as supporting flight crews, victims' families, and personnel involved in rescue operations. The need for coordinated action was emphasized, along with the establishment of a Post-Aviation Accident Support Center, whose purpose would be to organize assistance activities, provide legal support, and ensure regular supervision for psychologists. Further discussions addressed traumatic brain injury (TBI), highlighting the need for interdisciplinary care in the treatment of such conditions.

The subsequent panel focused on the clinical aspects of aviation medicine. Topics included otolaryngological conditions, such as obstructive sleep apnea, and their impact on pilots' operational readiness. Later presentations were devoted to cardiology, seeking answers to the question of how to effectively protect a pilot's heart. Given the high prevalence of cardiovascular diseases in the general population and their significant impact on professional activity and life expectancy, it was emphasized that these conditions are also highly relevant among military pilots. Attention was drawn to the necessity of early detection of heart disease, which can significantly reduce the risk of developing advanced coronary artery disease or experiencing myocardial infarction—common causes of premature termination of aviation careers. Another presentation discussed the activities of the General Surgery Clinic of WIML, with particular emphasis on minimally invasive treatment of abdominal hernias among soldiers. The development directions of the clinic were also presented. It was noted that minimally invasive techniques significantly shorten recovery time, directly contributing to a faster return to service and increased combat readiness of military units. An important part of the panel was the analysis of pharmacological issues. The use of medications in the aviation environment was discussed, including lists of prohibited substances and their potential impact on flight safety. A proposal was put forward to develop and implement an updated list of medications prohibited in military aviation, approved by the National Consultant in Aviation Medicine. The concluding presentations of the panel addressed metabolic disorders such as diabetes, prediabetes, and the issues of overweight and obesity among soldiers. It was

emphasized that these conditions—considered diseases of civilization—are increasingly prevalent in the military environment as well. The latest data on their prevalence were presented, including a breakdown by individual aviation units.

The fourth day of the conference began with topics related to the psychophysical training of pilots at the Military University of Aviation and health prevention at various stages of an aviation career. This was followed by a continuation of discussions on the clinical aspects of aviation medicine. A dental perspective on oral health was also presented as an important element of the combat readiness of flying personnel. Later in the session, the topic of gynecological care for women serving in the military was addressed. It was noted that in recent years the number of women joining the Armed Forces, including aviation units, has been steadily increasing. Selected aspects of women's health in the context of aviation medicine were discussed, including the impact of specific environmental factors on the reproductive system, as well as modern treatment options for urinary incontinence and pelvic floor disorders—common postpartum complications. In the context of care for male aviation personnel, current recommendations for the diagnosis and prevention of urological conditions were presented.

The final day of the conference was devoted to discussing opportunities for cooperation with the Air Force Institute of Technology and to summarizing the overall outcomes of the event.

CONCLUSIONS AND RECOMMENDATIONS

A panel of experts, led by the Director of the Military Institute of Aviation Medicine, presented a series of recommendations aimed at improving the system of medical care for flying personnel. It was proposed to expand preventive measures and introduce additional forms of physiotherapeutic support focused on improving pilots' overall health and physical condition.

Given the particularly high physical and psychological demands placed on aircrew by aviation service, comprehensive and well-coordinated healthcare should constitute one of the key priorities of the Air Force. The importance of preventive actions, risk factor identification, and early diagnostics was emphasized as critical elements in ensuring the safety of flight operations.

The need to take into account the specific nature of military service and environmental hazards in the planning and delivery of healthcare services for flying personnel was also highlighted.

The Director of WIML and the Inspector of the Air Force announced the continuation of work in the areas discussed and the presentation of concrete, system-level solutions. It was also declared that an annual conference dedicated to issues related to aviators' health would be organized.

AUTHORS' DECLARATION

Manuscript preparation: Magdalena ROLA, Michał KUREK. The Authors declare that there is no conflict of interest.