

## HUMAN SPACEFLIGHT SYMPOSIUM (B3) Commercial Human Spaceflight Programs (2)

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### MODERN VISION OF BIOMEDICAL SUPPORT OF SPACE TOURIST FLIGHTS

#### Abstract

Institute of Biomedical Problems (IBMP), Moscow, has accumulated more than 50-year experience of organization of medical support of human health during space flights (SF). At this, medical aspects of space tourists' safety in space missions (suborbital, orbital, of different duration) are very important. Back in 2002 multilateral medical boards of the International Space Station (ISS) developed the standards and procedures of health certification allowing space flight participants (SFP – non-professionals) to participate in short-term (up to 7-10 days) flights as part of ISS crews ("Medical Standards and Certification Procedures for Space Flight Participants"). The main principles of the medical selection of SFP were not only absence of evident somatic diseases, but also maintaining of functional organism reserves to minimize medical risks connected with the effect of space flight factors like accelerations at the stage of launch and descent or sensorimotor disorders under microgravity. Possible restrictions are connected first of all with cardiovascular diseases, cerebrovascular pathology, diseases of motor system, ophthalmic problems, consequences of surgery and hemorrhage, and so on, including pregnancy. There is a risk of breakdown and recurrence of earlier existing diseases in orbital flights under the effect of ecological and working risk factors. It is important that SFP will not only sustain short space flight and maintain his/her health, but also he/she should not be a source of danger for other crewmembers and for flight program in total, and should be able to take adequate care in off-nominal and emergency situations. 8 SFPs have already performed successful short-term flights on board the Russian Segment of ISS. This was implemented due to thorough pre-flight training including familiarization with all flight factors, sometimes special sanitizing actions (including even surgery), special individual actions in flight (specific countermeasures program, medicated correction). SFP was informed in detail about all flight risks and methods of their prevention. At this, ground services of medical support and authorized flight physician were responsible for SFP's health. Under Roscosmos auspices and based on the contract with Space Adventures company, USA, the Institute has directly participated in medical selection, medical support of the flight and space tourists' training for their flight on the Russian segment of ISS. At the same time safety, health support and ability to professional and symbolic (including tourists) activity during performance of space missions have always been and will be one of the most important priorities of modern space medicine.