

34th IAA SYMPOSIUM ON SPACE AND SOCIETY (E5)  
Is Space R&D Truly Fostering A Better World For Our Future? (2)

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DEVELOPMENT AND IMPLEMENTATION OF SPACE ELECTROMYOSTIMULATION  
TECHNOLOGIES IN TERRESTRIAL MEDICINE: PRESENT AND FUTURE

**Abstract**

The Institute of Biomedical Problems (IBMP) is the leading organization in Russia for conducting fundamental research in the field of medical and biological support of crewed space flights; development of methods and means of ensuring safety and life, preserving health, and maintaining human performance in extreme conditions. Space developments from IBMP are already helping many patients to restore the ability to walk after a stroke (CORVIT device, Regent suit), and treat children with physical disabilities resulting from cerebral palsy, other neurological conditions originating from brain damage or spinal cord injury (Adeli suit, MedSim immersion bath). High- and low-frequency modes of electromyostimulation (EMS) developed for space flights have already shown their effectiveness in patients with chronic heart failure in collaboration with Sechenov University Cardiology Clinic (Russia; Politavskaya M.G. et al., 2021), in patients with balance and walking disorders in collaboration with Scientific and practical psychoneurological center named after Z. P. Solovyov (Russia; Amirova L. et al., 2022), in patients with cardiovascular diseases and elderly sarcopenia in collaboration with University in Bern (Switzerland; Arenja N. et al., 2021). This report is devoted to highlighting the current results of the implementation of space EMS modes into terrestrial medical practice, and also to the new development of IBMP - the electrostimulator combining both high- and low-frequency space EMS protocols. It will also highlight the features of the new development and its impact on the current urgent problem of society – a decrease in motor activity. The study was supported by the Ministry of Science and Higher Education of the Russian

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