

SPACE LIFE SCIENCES SYMPOSIUM (A1)
Medical Care for Humans in Space (3)

Author: Dr. Elena Fomina
FSC RF-IMBP, Russian Federation, fomin-fomin@yandex.ru

Mrs. Maria Chernova
FSC RF-IMBP, Russian Federation, fomin-fomin@yandex.ru

Mrs. Natalya Lysova
FSC RF-IMBP, Russian Federation, fomin-fomin@yandex.ru

Mr. Konstantin Uskov
FSC RF-IMBP, Russian Federation, marcelproust@rambler.ru

Prof. Inesa Kozlovskaya
Institute for Biomedical Problems, Russian Federation, ikozlovs@mail.ru

EFFICACY OF DIFFERENT KINDS OF PHYSICAL EXERCISES IN MAINTENANCE OF
PHYSICAL PERFORMANCE UNDER CONDITIONS OF LOW LEVEL MOTOR ACTIVITY**Abstract**

The purpose of the study consisted of the analysis of the efficacy of physical exercise of different kinds to counteract the negative effects of the motor activity deficit. **Methods.** 6 subjects have been isolated for 520 days in the onground mock up of the interplanetary space ship under conditions of simulated interplanetary travel. The different kind of physical training regimens and means including resistive and cycling exercises have been used to maintain a high level of physical performance. The first ones were provided with expanders, strength training (MDS) and vibrotraining device (Galileo). The cycling exercises were performed with the bicycle (VB-3) and locomotor - with the treadmill used in an active and a passive regimens. To study the effects of long intervals in trainings on subjects' physical performance the pauses of one month duration, during which the exercises were not used, were provided twice in the middle and at the end of isolation. The locomotor and bicycle step tests were used in the different stages of experiment to assess the physical training level. **Results and discussion.** The results of the studies have shown that the recommended regimens of exercises maintained effectively the level of physical performance under conditions of lowered level of motor activities. The analysis of data that were provided by locomotor testing revealed in the course of isolation significant increase of locomotions' velocities and a significant decline of the physiological cost of locomotor loads (heart rate/velocity of locomotions), that pointed out to the increase of the level of physical performance. After intervals in training a significant decrease of subjects' selected locomotion velocities as well as a significant increase of physiological costs of locomotor loading have been found. The analysis of locomotor tests data revealed that the locomotor training in passive treadmill regimen is the most effective regimen to maintain the physical performance under conditions of low level motor activity.