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THE EFFECTS OF MEDITATION ON HUMAN BASIC PHYSIOLOGICAL NEEDS FOR FUTURE HUMAN SPACE FLIGHT MISSIONS

Abstract

The research described here is a minor portion of the human factors research conducted during the fourth EuroMoonMars - IMA - HI-SEAS (EMMIHS) mission took place between February 1st - 15th 2020 at the Hawaii - Space Exploration Analog and Simulation (HI-SEAS) habitat in Hawai'i, USA. This mission was part of the EMMIHS campaign, which is part of the EuroMoonMars initiative by ILWEG, the International Moonbase Alliance (IMA) and HI-SEAS. The EMMIHS IV mission consisted of a crew of six (four females and two males). The major part of the conducted research was to study the effects of physical training on human behaviour in an extreme environment, about which a separate abstract has been submitted to the IAC-2020. This part of the research focused on the crew physical training: yoga, meditation, breathing techniques and hula (Hawaiian dance). It was partially inspired by an IAC-2015 paper titled "An initiative to nature Brahmanauts for future human space flight". The paper was on how the training of explorers by advanced physical, mental and technical aptitudes, gained through ancient Vedic practices, could tackle the challenges of future space exploration. This research was further developed by studying a variety of yoga and breathing techniques. As a result during the EMMIHS IV mission, three of the six astronauts conducted daily hula, yoga and breathing techniques twice or more per day. Multiple tests, questionnaires and visual observations were performed to evaluate those astronauts daily throughout the mission on how much their basic physiological needs like food, water, breathing, sleep and health were affected. Each day, the amount of their consumed food and water were analysed, along with the amount of their average intake air particle in a minute. This is particularly relevant to human spaceflight, since one of the main challenges of sending humans to space will be the great mission costs and the weight of all mission materials. Lowering the material weight by decreasing basic human physiological needs could lead us closer to more affordable future human space flight missions.