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BENEFITS BEYOND: MINDFUL MISSIONS THROUGH AUTONOMOUS MOVEMENT THAT
CREATE AN ADAPTIVE EXPERIENCE

Abstract

As research on the health and safety of humans in long duration space missions supporting exploration continues, new ways to mitigate space sickness to support crew well being and mission success are essential. This paper examines the physiological cost of space travel, as well as adaptation techniques to mitigate the negative impacts on humans for long term, sustainable spaceflight for planned lunar and Mars missions. The research was inspired by cooperation of international efforts to benefit those on Earth and beyond, to increase the ability to live and work sustainably in space. Developing and emerging space nations are encouraged to support the partnership through collaboration on the topic of increasing individual and crew performance through astronaut/cosmonauts physical and mental health. Behavioral science assessments and adaptation techniques are discussed to highlight the link between physiological states and the performance of crew tasks. By evolving latent natural human potential through exercise, timely autonomous decision making becomes a major component of mitigating risks in challenging situations. Innovative concepts on emotional regulation, isolation, reduction in depression and anxiety are described to include VYT (Vestibular Yoga Training), ACT (Acceptance and Commitment Therapy), DBT (Dialectical Behavioral Therapy) and other CBT (Cognitive Behavioral Therapies) by themselves and in combination. Stabilization of vital signs through mindful movements and breathing techniques define the parameters of progress, underlining the importance of cognitive performance insight. Results of Earth-based experimental exercises and countermeasures for interplanetary missions are discussed. The paper concludes with an outline for future research areas to include developing crew autonomy for greater mission success.