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Abstract Title	Developing new technological paradigm for psychological and neuro-behavioral countermeasures for analog astronauts living in austere, isolated and confined environments
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Abstract

Psychological and behavioral aspects play a significant role in any human interaction. Space flight operation safety, with its unique risk factors, would be greatly influenced by the well-being of the crew members. Along with physiological, biomedical, and environmental stressors, psychological factors can become an additional group of stressors that impact crew performance and health during long-duration space flight and simulation missions. Psychological factors are proven to influence astronaut performances and significantly impact the outcomes of long-duration missions in space. We will discuss the research conducted by medical experts from MMARS, IMC., pioneering the Mars Medics Training Program, a 21st Century Academy creating a new paradigm in learning utilizing exponential technologies and simulation-based learning. We will provide the basic understanding of psychological aspects related to teams living in austere, isolated, and confined environments (I.C.E) during low-fidelity(Mojave Desert), mid-fidelity (Nepal), and future high-fidelity (Everest) missions and developing new countermeasures to maintain crew mental health and wellbeing for future long-duration space flight including evaluation protocols and procedures that are implemented to ensure the psychological well-being and crew health during analog missions. Current research and data collected during the simulation will also focus on space medicine, group dynamics, and crew challenges such as individual issues, interpersonal issues, environmental challenges, and all possible psychological implications of those stressors. We will examine neuro-behavioral problems, e.g, fatigue, depression, and anxiety, as well as the assessment tools used to exclude certain risks during pre-sim days, throughout mission duration, and post-sim period.

A short bio

Dr. Maria Harney, MD is a psychiatrist, analog astronaut, scientist, speaker, and founder of S.T.E.A.M. for Humanity Foundation. Dr. Harney’s dedication to science and research led her, a to obtain her M.D. from First Pavlov State Medical University in Saint-Petersburg, Russia, the first University in Europe to offer higher medical education to women. During her advanced studies in adult Psychiatry, she became interested in Psychoneurology and Genetics. After relocating to the United States she became an active collaborator with MMAARS (Mars-Moon Astronautics Academy & Research Sciences) working on various research programs in the field of Space Medicine. Background in medicine (psychiatry, neurology), research (genetics) and creative arts (videography, directing), made Dr. Maria Harney is a trans-disciplinary collaborator working with inter-cultural and diverse teams.