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Behaviour, Performance and Psychosocial Issues in Space (1)

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NEUROPSYCHOLOGICAL AND NEUROBIOLOGICAL ASPECTS OF CULTURE AND SOCIAL BEHAVIOUR IN HUMAN SPACEFLIGHT ANALOGS.

Abstract

NASA's Human Research Program Roadmap includes the risk of Adverse Cognitive or Behavioral Conditions and Psychiatric Disorders, which states that "given the extended duration of current and future missions and the isolated, confined and extreme environments, there is a possibility that (a) adverse cognitive or behavioral conditions will occur affecting crew health and performance; and (b) mental disorders could develop should adverse behavioral conditions be undetected and unmitigated. This work presents preliminary data and basis of multi-center space analog study carried out in three different environments. The three environments are Icarus installation at University of Pennsylvania, HERA at NASA Johnson Space Center and German Antarctic Station Neumayer III, as part of a broader NASA NSCOR. This three environments represent three different levels of complexity, environmental and duration demand. In this particular study we wanted to see inter-individual differences and individual profiles regarding cultural and psychosocial aspects within the framework of Neuroscience. If we agree that living in Space under the high demanding environmental conditions may affect the brain and the psychology of astronauts, it is interesting to study these aspects in space analogs here on Earth, before real missions, especially long duration missions such as a mission to Mars or asteroids. Historically neuroscientific studies of human spaceflight have focused in physiological, neuromuscular and even cognitive aspects. In this case we merged neuroscience with social aspects to try to define profiles of individuals and group dynamics in space analogs to better help in future selection of candidates for long distance manned space missions. For the purpose of this study we used different psychological and neuropsychological measures, later this data could be correlated with biological data to better help to classify the different psychological profiles.