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SURVIVING SOLITUDE: THE ELPIS MISSION - A CASE STUDY ON ASTRONAUT RESILIENCE,
RESOURCE MANAGEMENT, AND TRAINING FOR ISOLATION IN EXOSPACEHAB-XHABITAT

Abstract

From an early time, civilizations have developed and functioned through active participation and teamwork of humans. A similar trend was observed in designing space missions where a group of astronauts were sent to missions like ISS and Apollo to perform some specific tasks. Development of this notion can be explained with the help of primitive need to seek active participation in social groups, leading to development of the requirement for each unit of social group to perform specific tasks. Owing to this, a number of missions have been sent to space over the years where humans perform tasks in social groups. However, owing to the complexity and dangers of space missions, there exists a reasonable choice for the majority of the crew members to not be able to function or even die in such situations. This research study focuses on designing a case study scenario where a single astronaut would be stuck in space with limited resources. The study focuses on the ELPIS mission campaign, whose aim was to simulate this type of mission in ExoSpaceHab-X Habitat made by EuroMoonMars. Appropriate knowledge and resources were used to train and help astronauts cope with self-isolation in such unfavorable circumstances and successfully perform missions.