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CELLE: EVALUATION CAPSULE FOR THE HEALTH OF ASTRONAUTS AND FUTURE LUNAR
MISSIONS

Abstract

Recent studies and missions like Artemis will take humans to our natural satellite, not only to travel, but with the intention of making life there, of staying there. However, it is known that astronauts have physical problems when they return from a space mission, which urgently calls for ways to adapt the human body to a low-gravity environment like the moon. How will we survive there? To begin with, a series of samplings and study profiles of different astronauts are needed to verify data. CELLE is an ongoing research that seeks to create a database collected thanks to the function of the device "Antares", which will be installed in 3 profiles of three different phases: pre-mission, during mission, and post-mission. It is divided in this way to be able to create comparisons and understand what we are missing to be able to live for an indefinite time in an extreme environment like the Moon. Antares will be a sensory monitoring device that we will use to work during the research that will collect data on cardiovascular function, bone and muscle system, where the functioning in daily life of each of the profiles will be analyzed, which will be evaluated under their own conditions. It is expected that this data collection will serve as a basis for the creation of training and maintenance machines for the human body living on the moon, which will be the practical part of this research. In addition, we are pioneers in this area in the Central American region. The little development of the space area in the region and the realization of projects like this drives us to bring more job opportunities and foreign capital injection. In addition to inspiring many people. This, coupled with the benefits of the data collected for the possible cures of different diseases here on Earth, since the positive results before certain cures that involve the same microgravity are not ruled out. The device will be developed with the support of the entire Costa Rican space industry first and then the sale of the data to space agencies and international entities that require it. This generates a connection with the outside world and the creation of an academy in these new areas of STEAM.