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The human body in different spaces

Abstract

Space Medicine has revolutionized the way of understanding human physiology in extra-terrestrial environments, such as microgravity. Research in this field attempts to maintain synchrony between scientific and medical development, with the goal of improving the overall health and performance of astronauts. Engineering also plays a crucial role in the design of spacecraft and spacesuits to ensure the safety and health of astronauts on extended missions to the Moon and Mars. Radiation exposure in space poses health concerns, but strategies such as radiation control and shielding are being implemented to mitigate these risks. NASA is actively investigating how the human body reacts to long-duration spaceflight, with the goal of preparing for future extended space missions.

Keywords: space industry, aerospace medicine, engineering, NASA, radiation, physiology, metabolic response, space adaptation syndrome

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Introduction

The human body in different spaces

The revolution of General Medicine, as time goes by, is more intervened with the advance of the space industry, specifically Space Medicine. In the last decades, different recognized stays have focused their research on the study of human physiology, adaptation, metabolic response of different organs and systems, to the various environmental conditions extra-terrestrial, such as microgravity. The study of the human body in different spaces is an important milestone for the research of Space Adaptation Syndrome. From a key point, it is sought that medicine keeps in sync its research scientific development at the forefront, with the commitment in the development, evaluation of medical standards, fitness programs and standards, physiological and psychological adaptation training, sensory-motor training, and nutritional health protocols, with the objective of developing the space industry and thus, achieving an improvement to the global health system.[1]

The human body in different spaces, not only is intervened by medicine, engineering has a key role in the development of the same, for its part, has achieved immense advances, which have been focused on improving the design of spacecraft, the fit and function of spacesuits. The employment - use of innovative technologies is one of its great objectives, because these together with the human could bring an exponential and promising growth for the different researches of exploration in surfaces; lunar, Martian, as never before. It is expected that this collection of new data will keep astronauts healthy, safe and prepared in the future. Different specialists are developing new radiation detectors to monitor and characterize the radiation environment, which will provide better estimates of the dose and type of radiation to which the crews are exposed. Scientists and engineers are optimizing and implementing operating procedures that utilize vehicle storage space and available materials to effectively reduce radiation exposure.[2]

Currently, NASA (National Aeronautics and Space Administration) is particularly interested in investigating how the body reacts to long-duration spaceflight, as it plans to conduct extended missions on the Moon and Mars. So far, data from official NASA sites tell us that Scott Kelly and Christina Koch were the first American astronauts to spend almost a year in space aboard the space station, double the previous average. Scott, Christina and six other astronauts have spent more than 200 days in space during a single spaceflight. The same corporation intends to continue long-term research on the Space Station, with the goal that the same studies will provide us with information and data on how the human body adapts to living in a different environment, particularly in spaceflight for extended periods of time (Figure 1).

Figure 1 NASA astronaut Christina Koch pauses while helping replace equipment on the International Space Station. She and her fellow astronauts face a number of health effects while in space.

Conclusion

In space, the exposure to different compounds is different, and astronauts are exposed to varied and high levels of radiation. This high exposure is associated with various health problems that may occur in the short, medium or long term. The radiation to which astronauts are exposed is proportional to the consequences they may present. It has been documented that as a consequence of this factor there is a significant increase in the risk of cancer, development of chronic degenerative diseases, heart disease and eye diseases. Therefore, different strategies are planned for the reduction of health risks. The implementation of shielding and radiation monitoring is a fundamental measure to obtain favorable results for subsequent planned missions to the Moon and Mars.

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Conflicts of interest

The author declares that there is no conflict of interest.

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