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Medical Care for Humans in Space (3)

Author: Dr. Farhan M. Asrar
University of Toronto, Canada

Dr. David Saint-Jacques
Canadian Space Agency, Canada
Dr. David Williams
Canadian Space Agency (RETD), Canada
Dr. Jonathan Clark
Center for Space Medicine, Baylor College of Medicine, United States

ASSESSING CURRENT MEDICAL CARE IN SPACE, AND UPDATING MEDICAL TRAINING & MACHINE BASED LEARNING TO ADAPT TO THE NEEDS OF DEEP SPACE HUMAN MISSIONS

Abstract

To provide medical care in space, current human space missions have designated Crew Medical Officers who may not necessarily be a physician but have received training and are directed and guided by Earth based support.

Currently a number of medical residency programs exist that teach space medicine and enable one to look into careers as a space flight surgeon that supports the crew and mission from Earth. However, not all astronauts have undergone such training and experience. There are a number of astronauts who are also medical doctors and can utilize their medical skills to support medical care but at present not all crews may include a medical doctor. Additionally, a common concern brought up is what if the crew member needing medical attention happens to the physician themselves?.

We investigated and reviewed the current training options to provide medical support for the mission crew and assessed the differences between current human missions and future deep space missions. These differences included challenges include medical issues arising from the longer duration mission, unable to depend on ongoing Earth based support, and the medical care of the crew becoming significantly more autonomous or independent.

Another area that can assist in providing medical care and support maintaining existing skills and ongoing learning would be the utilization of machine based learning (Artificial Intelligence). Machine based learning entails the development of algorithms that can make clinical predictions and diagnosis

Our recommendations can assist educational and training programs, as well as support stakeholders and decision makers to take into consideration the unique challenges in providing medical care, as well as the specific training needed to assess such challenges when it comes to deep space human missions.