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DENTAL HEALTH FOR LONG-TERM HUMAN SPACE MISSIONS WITH REMOTE SUPPORT AND ADVANCED TECHNOLOGY

Abstract

Health issues of astronauts or cosmonauts are of high importance prior to launch and during the space mission. A wide range of medical examinations are carried out as part of the astronaut selection process and during training to ensure the best possible health status of each crewmember at the time of launch. For treating pain and dysfunction that could occur during a mission, a set of basic medication and medical equipment is available onboard. Astronauts are also trained to handle some of the most likely medical emergencies.

Although occurrences of dental injuries have been minimal so far, they are expected to rise significantly on long-term missions. Reasons for dental injuries accompanied by severe pain and dysfunction are manifold. A replacement of a lost dental restoration and/ or a stabilization of fractured teeth and jaws can be important to prevent further damage to human health, to limit the loss of manpower, and finally to ensure mission success.

As a follow up to the paper: Dental Treatment during a human Mars Mission, presented at ICES 2016, the authors will outline a possible scenario of detecting, diagnosing and treating a dental problem during a human mission, including advanced manufacturing methods for dental treatment. Furthermore, the authors will discuss future prospective in relevance to environmental, operational and technical constraints that govern all medical treatments in space.