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IMPACT OF SPACE ANALOGS ON ORAL IMMUNITY AND INFLAMMATION

Abstract

This study is designed to clarify altered immune functions and inflammation paralleled by changes in body fluid levels in extreme conditions with limited food supply and water, limited space to sleep, high workload due to experiments and extravehicular activities, multicultural and international environments and working in spacesuits as well as in Mars analog station, and the bed rest conditions. The study postulates that spaceflight analogs induce an imbalance in oral and systemic immunity and inflammation that can be measured using biomarkers. So, the project could be helpful to better define biomarkers for early detection and diagnosis of inflammation and immunity as well as at term for screening of large populations, which could further aid in prevention of different immune diseases. Furthermore, possible new mechanisms might lead to development of new drugs and effective treatment plans. Finally, this study would help to advance human exploration of space. To prepare for the complex and long-term space missions, we can rely on Earth-based space analogs—field activities set in remote locations with extreme characteristics that resemble the challenges of a space mission. In this study, a particular attention will be given to the bed-rest studies (simulating microgravity) and Antarctica platforms on inflammation and immunity.