

Descriptive abstract

Title: Assessment of Nutritional Intake During Space Flight and Space Flight Analogs

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Background: Maintaining adequate nutrient intake in microgravity is important not only to meet health maintenance needs of astronauts but also to help counteract the negative effects of space flight. Beyond this, food provides psychosocial benefits throughout a mission.

Objective: The purpose of this presentation is to discuss dietary intake data from multiple space programs, including Space Shuttle and the International Space Station.

Description: These data arise from medical monitoring of both dietary intake and crew health, as well as research protocols designed to assess the role of diet in counteracting bone loss and other health concerns. Ground-based studies are conducted to better understand some of the negative issues related to space flight. Examples of these analog studies are extended bed rest studies, vitamin D supplementation studies in Antarctica, and saturation diving missions on the floor of the ocean. Methods and findings will be presented describing the use of weighed records, diet diaries, and food frequency questionnaires in these various environments.

Provision of food and nutrients in spaceflight is important for many body systems including cardiovascular, musculoskeletal, endocrine, immune, and others. Some key areas of concern are loss of body mass, bone and muscle loss, radiation exposure, nutrient intakes during

spacewalks, depletion of nutrient stores, and inadequate dietary intake. Initial experimental research studies using food and nutrition as a countermeasure to aid in mitigating these concerns are underway.

Conclusion: Beyond their importance for the few individuals leaving the planet, these studies have significant implications for those remaining on Earth.