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ANOREXIA NERVOSA IN SPACE ENVIRONMENTS

Abstract

This abstract addresses research on anorexia nervosa in space environments, including how dietary practices and metabolism are impacted during extended space missions. To aid in the creation of solutions for astronaut health, the danger of anorexia resulting from a combination of poor diet, microgravity circumstances, and psychological stress will be examined. Depending on the length of the trip in microgravity, astronauts lose weight and body mass despite using more energy. the availability of food, anorexia in space can cause an astronaut weighing 70 kg per day to have a caloric deficit of 1330 kcal throughout a journey, which has a major negative influence on performance and adaptability. During spaceflight, many ecological stressors, including microgravity, altered light-dark cycles, and radiation exposure, can impact an individual's appetite, food consumption, and gastrointestinal system. Anorexia associated with microgravity and shifts in the circadian rhythm is significantly influenced by hypothalamic activity modulation involving serotonin (5-HT) and CRF. A study of data and research on mice in microgravity showed that the release of stress hormones, modification of hypothalamus activity, and changes in hormones and cytokines associated with feeding were among the many neuroendocrine and physiological changes that occurred. As a physiological reaction to stress, astronauts' diets have changed to include more carbs, which raises plasma concentrations of free tryptophan, a precursor of the powerful anorexic drug serotonin (5-HT). Stress responses are associated with modifications in other neuroendocrine mediators, such as corticotropin-releasing factor (CRF), which results in impaired gastrointestinal and appetite functions. Studies have also shown that changes in the light-dark cycle have a detrimental effect on body weight and food consumption. Given that radiation energy has been shown to reduce hunger, this may lower astronauts' calorie consumption. To attain effective practical solutions, it may be beneficial to address these pathophysiological problems with appetite, food intake, stomach emptying, and gastrointestinal function. This could improve physiological well-being and performance status, acting as a countermeasure in space. The purpose of this abstract is to address these physiological issues and offer an additional understanding of anorexia in space to improve nutrition guidelines for extended space missions in the future.