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IMPACT OF THE SPACE FLIGHTS IN NUTRITIONAL ADAPTATIONS AT BACK TO EARTH. REVIEW.

Abstract

The effects for zero gravity in human body physiology, are a topic very documented. However nutritional impact need more research. The effects for microgravity in the human body can divide in three times; begin the flight, in zero gravity (in the space) and back to earth (adaptation). In this finally step of flight, spacemen want re-adapted at earth gravity, but, all microgravity changes induce impossibility for this. The nutritional status before and during the space flight and is determinant for decreasing malnutrition factors when back to earth. In the space, a first issue in micro and zero gravity is the liquids distribution in the body. Nutritional requirements are specifically for this conditions, the basal energetically requirements are increasing because never stay in repose. For estimated this energy requirement before and after the space flight, must be done in a specialized laboratory by a nutriologist. They will evaluate and determine type of diet, ability of intake, effects of weightlessness, dietary habits, anthropometric data (weight, height, BMI, etc.), gender, activities that will be carried out during the mission, exercise on board, among others. These circumstances define the demand necessary to maintain adequate physiological conditions. To establish the custom caloric calculation a Harry-Benedict equation is the best option. Demineralization, hypertension, anemia, immune system alteration, reduction of pulmonary and cardiovascular functions, are a transitory health conditions needed critical attention when stay in earth. Macronutrients (carbohydrates, proteins and lipids) are basic, however, many alimentary supplement maybe can reduce the impact in this affectations. Calcium and vitamin D for demineralization bone. Capsules of probiotics in space are researched by a Japan Aerospace Exploration Agency (JAXA) for the keep an immune system status, recently found a Lactobacillus can survive in this conditions. All the same, need try by out bioavailability in humans. Also, for a hydric balance and kidney metabolism, the use of erythropoietin is a future research topic. Finally, the stress, isolation, close environments impact to psychological status, and can be reduce the food intake and can affect the nutritional status at back to earth.