Paper ID: 19851
student

SPACE LIFE SCIENCES SYMPOSIUM (A1)
Medical Care for Humans in Space (3)

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EFFECT OF MICROGRAVITY ON HUMANS ON EXTENDED SPACE MISSIONS AND THE CHALLENGES FOR LONG TERM MISSIONS

Abstract

2. The 21st has seen a great deal of talk about interstellar and intergalactic travel. One of the biggest problems of this concept besides the issue of the lack of technology to achieve the speeds required is the effect of microgravity on humans over extended time periods. Astronauts spending a very long time in space have been reported to have developed symptoms of Osteoporosis – a bone density disorder. Moreover, microgravity conditions are not suitable or comfortable for the general human population even if the people merely have to spend a lot of time in the near – Earth environment. As a result of this, there is a need to come up with artificial gravity systems and/ or better ways to induce gravitational effects in space stations and other spacecrafts of the near future. The main concept behind this paper is essentially the discussion of the current technologies being used to produce the above mentioned effects with the mention of case studies and specific examples along with the elaboration on new methods to induce the desired gravitational forces. The paper also discusses ways in which the onset of Osteoporosis is delayed or attempted to be avoided by using machines and techniques to keep the muscle of the body stressed and under constant use. The main advantage of the new, improved systems will be the ability to send humans into space under micro gravity conditions for extended time durations without having to worry about the ill effects of decrease in effective gravitational forces on them. Moreover, an added bonus to the enhanced survivability probability of the humans would be the ability to adapt the cost effective and versatile experimental techniques used on the Earth in outer space leading to greater accuracy and expansion of on board experiments. Hence, the results of this paper are of vital importance to the growth of the astronautics sector as a whole in the near future.