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SPACE SIMULATED MISSIONS AND IMMUNITY: SALIVARY BASED DIAGNOSTIC

Abstract

Space agencies are accountable for critical health issues especially on immunity that will be experienced by space personnel during short and long missions away from the Earth. Ground based activities are used to study space related issues and to prepare the astronauts as much as possible for the health burdens including compromised immunity associated with long duration space missions. Few studies were conducted on effects of space environments on immunity. So, This study was conducted to establish effect of a simulated microgravity (HDT bed rest) on immunity by using levels of Epstein Barr Virus , cortisol, norepinephrine, epinephrine, neuropeptide Y, Substance P and amylase.. The 10 healthy male volunteers were studied before, during, just after, and after 6 weeks of the simulated microgravity condition of -6 head-down-tilt (HDT) bed rest. Saliva samples were taken before, during, just after, and after 6 weeks. Epstein Barr Virus , cortisol, norepinephrine, epinephrine, neuropeptide Y, Substance P and amylase were measured in standardized ways. Levels of . Epstein Barr Virus , cortisol, norepinephrine, epinephrine, neuropeptide Y, Substance P and amylase were significantly changed after 6 weeks as compared to before mission. This pilot study indicates that an adverse health on human body in simulated microgravity due to an impaired immune system. So, proper maintaining immune system during long duration missions might be needed to make mission success.