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EFFECTS OF MICROGRAVITY ON THE HUMAN BIOME AND THE CHANGES IN MICROBIAL
ACTIVITY LEADING TO DISRUPTIONS IN THE CIRCADIAN RHYTHM

Abstract

In this day and age of space travel, where interplanetary colonisation seems like an achievable goal, it is important to note that whilst the technology might exist to breach the planetary barrier, the human body is still limited by evolutionary traits, which tie us down to the earth's ecosystem. Over time the human body has evolved to adapt in almost every environment on earth, but prolonged exposure to space conditions levies a heavy toll on it.

A common complaint among long-term space travellers is a general lack of sleep. While multiple hypotheses have been presented to explain this disruption in the Circadian Rhythm, this paper presents a new hypothesis.

Gravity, one of the most fundamental forces of the earth's ecosystem, plays a very significant role in the nominal functioning of the Human Biome. In space, where the effect of gravity is very negligible, there are multiple changes that occur in the Human Biome. This paper explores the changes and the challenges that they present on the nominal functioning of the human body. It discusses how microorganisms in the Human Biome undergo many physiological changes in space conditions, focusing on the disruptions that these changes may cause on the Circadian Rhythm of humans.