

IAF/IAA SPACE LIFE SCIENCES SYMPOSIUM (A1)
Interactive Presentations - IAF/IAA SPACE LIFE SCIENCES SYMPOSIUM (IP)

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HIBERNATION FOR DEEP SPACE TRAVEL: A STUDY OF ORGAN SYSTEMS

Abstract

Hibernation has been long observed in several species with the main aim of avoiding the seasons with the least amount of food, risking this way survival. This adaptation came by lowering the individual's temperature in order to be put to a seasonal "sleep", as to not risk not finding enough nutrients for its normal metabolism. Similarly, in a clinical and emergent setting, physicians recreate this, for patients who risk losing their lives due to either one or multiple organs failing before the medication reaches its target. In several situations, a medically-induced coma is the only option for the survival of a patient. As humanity progresses its exploration into the solar system and universe, the distances make it impossible for individuals to go on interplanetary voyages. To be able, therefore, to achieve such goals, the case of hibernation or sustained animation should be seriously considered. In this review, we attempt to assemble all known research to date, of how hibernation influences the direct organ systems of the human body. It is divided into direct discussion of specific organ systems: skeletal, muscular, respiratory, digestive, nervous, endocrine, integumentary, urinary and reproductive, as well as lymphatic systems. The ultimate goal is for this to be a reference guide for all those working on researching to make deep space exploration hibernation a reality.