

Review of: "A Case for Nature in Long-Haul Space Exploration"

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The well-being benefits of exposure to nature have long been postulated and more recently have been quantified in a number of experimental studies. Recognising our innate biophilia has increasing relevance in less-natural highly urbanised settings, especially where there are added limitations on the ability to access natural areas - whether through decreased mobility with ageing, or a "nature deficit disorder" postulated to affect children growing up with highly restricted independent home ranges. Biophilic design in office buildings, education facilities, and hospitals, is seen as a means to increase productivity, attention spans, and to reduce recovery times. Enhanced access to nature is also seen as desirable in highly restricted situations such as prisons. Jason Kaufman and co-authors here make the compelling case that future proposed long-haul space flights would impose a sort of nature-access deficit, and hence, that exposure to nature would be beneficial for the physical and mental well-being essential for the demands of space travel. They sensibly suggest that access to nature might be provided at minimal extra cost or payload through augmented or virtual reality (VR), whereby the immersive sounds and sights of nature can be accessed through suitable on-board technology. It would be good to cite research indicating that VR nature can indeed confer the same or similar benefits to that of direct nature exposure. It would be useful too to consider links between gut microbiome and brain function and the attendant suggestion that the mechanism for some of the benefits from exposure to nature might derive from exposure to odours and microorganisms - the latter certainly not readily reproducible through VR. I'd like also to see some early definition of "nature", perhaps in such a way as to encompass the later suggestions that "taking a hike" on the Moon or Mars "will provide ... ready access to nature". It does raise the question of whether walking on Lunar or Martian landscapes, while encapsulated in a life-support suit, would provide a sense of nature exposure relevant to our evolutionary origins. Kaplan's "attention restoration theory" might be applicable in this regard, setting out four necessary properties of the nature exposure setting: extent (scope for immersive experience); away (away from the stressors of everyday life) ; soft fascination (ability to comprehend the setting effortlessly); and compatibility (desire to have the experience). Perhaps strolling on a foreign landscape that lacks the means to support life might not lend itself to "effortless comprehension" or a sense of "being away from stressors"?