

SPACE LIFE SCIENCES SYMPOSIUM (A1)
Applications of Space Medicine to Earth-Related Health Issues (3)

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FROM ORBIT TO OR: SPACE SOLUTIONS FOR TERRESTRIAL CHALLENGES IN MEDICINE

Abstract

This presentation is based on the book chapter of the same name appearing in the 2009 anthology entitled, "Space Technologies for the Benefit of Human Society and Earth." Space missions have become increasingly ambitious, calling for ever-more rigorous technologies to ensure functionality, survival and safety. The necessity for highly accurate, reliable and advanced technologies in space science and manned spaceflight has resulted in impressive advances, which have in turn been spun-off for application in medicine, a field that similarly demands highly precise, durable equipment. This presentation explores medical advances that have benefited from specific space technologies in the areas of diagnostics, imaging, treatment, management and safety, as well as knowledge spawned from life sciences research aboard the ISS, and subsequently applied towards understanding disease processes, treatments and management strategies on Earth. Topics explored here include spinoffs as they relate to particular aspects of the space environment, specifically radiation exposure, physiological response to micro-gravity, pressure, temperature, atmosphere, nutrition, diet and psycho-social issues. Ultimately, space technologies are shown to be highly relevant and beneficial in day-to-day medicine on Earth, and continue to advance the limits of accuracy, efficiency and survival on Earth.