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Space radiation and cardiovascular disease risk

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Abstract

Future long-distance space missions will be associated with significant exposures to ionizing radiation, and the health risks of these radiation exposures during manned missions need to be assessed. Recent Earth-based epidemiological studies in survivors of atomic bombs and after occupational and medical low dose radiation exposures have indicated that the cardiovascular system may be more sensitive to ionizing radiation than was previously thought. This has raised the concern of a cardiovascular disease risk from exposure to space radiation during long-distance space travel. Ground-based studies with animal and cell culture models play an important role in estimating health risks from space radiation exposure. Charged particle space radiation has dense ionization characteristics and may induce unique biological responses, appropriate simulation of the space radiation environment and careful consideration of the choice of the experimental model are critical. Recent studies have addressed cardiovascular

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