

ALTEA-Visual perceptions studies on-board the ISS

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The foreseen prolonged human permanence in space either in the International Space Station, or during manned Mars missions, opens new questions about the health hazards in space environment. While attention has been given to the possible risk of cell damage due to the cosmic ray flux, and to the cumulative effects from long exposure to microgravity at skeleton or muscular level, studies on the functional anomalies of the Central Nervous System (CNS) caused by the combined effects of all space environmental parameters, has been almost totally neglected, probably due to the absence of clearly evident symptoms in the astronauts after the missions. However i) the large increase of the average human permanence in space in the near future, especially due to the operation of the International Space Station, ii) the quite important and sensitive issues connected with possible transient impairment of even limited parts of the CNS during flights and, iii) last but not least, the clear evidence of anomalous functioning of the visual system offered by the phosphene perceptions reported by dark adapted astronauts in orbit since Apollo missions, are demanding a most detailed investigation of the interaction of microgravity conditions and impinging particles with the CNS.