

IAF MICROGRAVITY SCIENCES AND PROCESSES SYMPOSIUM (A2)  
Science Results from Ground Based Research (4)

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THE EFFECT OF MICROGRAVITY ON THE STRUCTURE AND FUNCTION OF RETINA: A  
REVIEW

**Abstract**

Astronauts experience some visual impairments during the mission on the international space station (ISS) and after they return to Earth. Evidence shows that changes in vision includes alterations in ocular structure and function. These changes are collectively denoted by NASA as the spaceflight associated neuro-ocular syndrome (SANS). These changes as documented by clinical methods include optic disc oedema (ODE), optic nerve sheath distension, increased total retinal thickness, and choroid thickness, cotton wool spots, and posterior globe flattening with secondary hyperopic shift, accompanied by decreased near visual acuity (Lee AG, Microgravity review). These alterations are hypothesized to occur due to cephalad shift of body fluids, leading to changes in intracranial and intraocular pressures. Several studies have tried to systematically characterise these changes in the retina, both in human and in mice in order to benchmark the symptoms for medical intervention and possible prevention of damage to the retina. This review summaries both biophysical and biochemical studies carried out in a comprehensive manner.