Visual acuity

Visual acuity (VA) is acuteness or clearness of vision, which is dependent on optical and neural factors, i.e., (i) the sharpness of the retinal focus within the eye, (ii) the intactness and functioning of the retina, and (iii) the sensitivity of the interpretative faculty of the brain.

Astronauts are exposed to an austere and constantly changing environment during space travel. To respond to these rapid environmental changes, high levels of dynamic visual acuity (DVA) are required. DVA is the ability to visualize objects that are in motion, or with head movement and has previously been shown to decrease significantly following spaceflight. Decreased DVA can potentially impact astronauts while performing mission-critical tasks and drive space motion sickness. Waisberg et al. suggest that DVA assessment during spaceflight and during G-transitions should be considered to help further understand the vestibulo-ocular impacts of interplanetary spaceflight and ensure mission performance including potential manned missions to Mars [1].

1)
Waisberg E, Ong J, Paladugu P, Kamran SA, Zaman N, Lee AG, Tavakkoli A. Dynamic visual acuity as a biometric for astronaut performance and safety. Life Sci Space Res (Amst). 2023 May;37:3-6. doi: 10.1016/j.lssr.2023.01.002. Epub 2023 Jan 13. PMID: 37087177.