

# Potential Involvement of the Ocular Glymphatic System in Optic Disc Edema in Astronauts

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**INTRODUCTION:** A significant proportion of the astronauts who spend extended periods in microgravity develop ophthalmic abnormalities, including optic disc edema, optic nerve sheath distention, globe flattening, chorioretinal folds, hyperopic refractive error shifts, and nerve fiber layer infarcts. A constellation of these neuro-ophthalmic findings has been termed spaceflight-associated neuro-ocular syndrome. An increased understanding of factors contributing to this syndrome is one of the top priorities for ESA and NASA because the length of missions is expected to increase substantially in the future. As discussed in the present article, the very recent discovery of an ocular glymphatic clearance system can potentially help to unlock mechanisms underlying microgravity-induced optic disc edema. Observations pertaining to the ocular glymphatic pathway provide supporting evidence for the hypothesis, originally proposed by our group, suggesting that the glymphatic outflow from the eye into the optic nerve may be impeded under prolonged microgravity conditions, leading to optic disc edema. **Wostyn P, De Winne F, Stern C, Mader TH, Gibson CR, De Deyn PP. *Potential involvement of the ocular glymphatic system in optic disc edema in astronauts.* *Aerosp Med Hum Perform.* 2020; 91(12):975977.**