



第 417 回 つくば分子生命科学セミナー

TSUKUBA MOLECULAR LIFE SCIENCE SEMINAR

Title : Potential Vascular Mechanisms Underlying Spaceflight
-Induced Orthostatic Hypotension and Visual Impairment.

Speaker : Prof. Michael D. Delp

Department of Applied Physiology and Kinesiology and Center for
Exercise Science, University of Florida

Date : Oct 29, 2015 17:00-18:30

Venue : Seminar Room 483 (Igakukei-tou 4th floor)

Abstract :

Following short-term flight (2~3wk) on the Space Shuttle, 20~60% of astronauts exhibit orthostatic hypotension when re-exposed to normal gravitational stress, with the prevalence of orthostatic hypotension rising to nearly 100% after longer term (4~6mo) habitation on the International Space Station (ISS). In addition, approximately 29% of astronauts on Space Shuttle flights and 60% on long-duration missions to the ISS are reported to have experienced some impairment in visual acuity. Both orthostatic intolerance and impairments of visual acuity have been hypothesized to involve vascular mechanisms. The condition of orthostatic hypotension has been attributed in part to an inability to adequately elevate peripheral vascular resistance, whereas visual disturbances have been hypothesized to be related to increases in intracranial pressure and intraocular pressure resulting from vascular adaptations in the cerebral and ocular circulations. The purpose of this presentation is to 1) examine the evidence for vascular alterations induced by spaceflight, 2) compare and contrast vascular results in rodents obtained following spaceflight with those obtained using ground-based animal models to simulate spaceflight, and 3) discuss further studies needed to elucidate possible vascular involvement in these conditions.

References:

1. Behnke et al. *FASEB J.* 27: 399-409, 2013.
2. Taylor et al. *FASEB J.* 27: 2282-2292, 2013.
3. Sofronova et al. *J. Appl. Physiol.* 118: 830-838, 2015.

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