

**Title:** Motion sickness and thermoregulation: from humans to rats and back

**by**

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Room NA 1.418, GTP building (Ground Floor),  
Deakin University, Waurin Ponds, Geelong, Australia

RSVP – <http://www.deakin.edu.au/research/cisr/workshops/ieee-smc-vic.php>  
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### **Abstract**

Principal symptoms of motion sickness in humans include facial pallor, nausea and vomiting, and sweating. It is less known that motion sickness also affects thermoregulation, and the purpose of this talk is to present and discuss existing data related to this subject. Hypothermia during seasickness was firstly noted nearly 150 years ago, but detailed studies of this phenomenon were conducted only during the last two decades. Motion sickness-induced hypothermia is phylogenetically quite broadly expressed as besides humans; it has been reported in rats, musk shrews and mice.

Evidence from human and animal experiments indicates that the physiological mechanisms responsible for the motion sickness-induced hypothermia include cutaneous vasodilation and sweating (leading to an increase of heat loss) and reduced thermogenesis. Together, these results suggest that motion sickness triggers highly coordinated physiological response aiming to reduce body temperature. This response has potential adaptive role during intoxication-induced nausea, and potentially is an accidental by-product of motion sickness. It can be accurately measured to quantify motion sickness.

I will describe our earlier studies of motion-induced hypothermia in animals, and will focus on our most recent studies of cybersickness in humans. We found that out of several physiological measures, sweating on the forehead (determined by measuring skin conductance) is the best correlate for nausea score.

### **Biography:**

A/Prof Nalivaiko is a head of the Neurocardiology Laboratory at the School of Biomedical Sciences and Pharmacy of the University of Newcastle. He obtained with MD (1981) and PhD (1986) in Ukraine, and conducted his post-doctoral training at CNRS (Paris), Strasbourg University (France), St. George's Hospital Medical School (London) and at the Research Centre of Sanofi (Montpellier, France). In 1997 he moved to Flinders University (Adelaide) where he have established his own group, and in 2008 accepted the Senior Lecturer position at the University of Newcastle (A/Prof from 2010). Eugene's expertise in in the brain-body interaction; he is currently involved in three projects: i) mechanisms of motion sickness; ii) biomarkers of resilience; iii) link between emotions and respirations. Eugene has co-authored 72 journal publications and 2 book chapters.