Intermittent Hypoxia and Spinal Motor Plasticity: Breathing and Walking after Spinal Cord Injury

# May 18

### Tuesday, 12:30pm

Live Webinar via Zoom Conference



**Speaker: Gordon S. Mitchell, Ph.D.** Preeminence Professor of Neuroscience and Physical Therapy McKnight Brain Institute University of Florida

Host: Rajiv R. Ratan, M.D., Ph.D.

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## Abstract

After decades of fundamental research investigating mechanisms giving rise to spinal motor plasticity following exposure to (low dose) acute intermittent hypoxia, we harnessed this plasticity to improve breathing and limb function in people with chronic incomplete spinal cord injury (as well as ALS). In this talk, I will review fundamental research guiding translation of this novel neurotherapeutic strategy, and then feature more recent efforts to optimize plasticity and functional gains by recognizing and controlling factors that constrain plasticity and therapeutic efficacy.



1. Gonzalez-Rothi, E.J., K.Z. Lee, E.A. Dale, P.J. Reier, G.S. Mitchell and D.D. Fuller (2015). Intermittent hypoxia and neurorehabilitation. J. Appl. Physiol. 119:1455-65. PMCID: PMC4683349

 Tadjalli A., Y.B. Seven, R.R. Perim and G.S. Mitchell (2021). Systemic inflammation suppresses spinal respiratory motor plasticity via mechanisms that require serine/threonine protein phosphatase activity. J. Neuroinflammation 18: 1-21.
Perim, R.R., E. Gonzalez-Rothi and G.S. Mitchell (2021). Spinal cord injury compromises spinal tissue oxygenation and undermines acute intermittent hypoxia-induced phrenic long-term facilitation. Experimental Neurology PMID: 33915165.



