

Neurotherapeutic Intermittent Hypoxia Workshop

February 9 – 12, 2020
One Ocean Spa & Resort
One Ocean Blvd, Atlantic Beach, Florida 32233

Sunday, February 9

6 - 8 p.m.: **Welcome Reception**, *Verandina* (beverages and heavy hors d'oeuvres)

- *David Nelson, President of UF Health and Senior Vice President of UF Health Affairs*
- *Gordon Mitchell, Preeminence Professor and Organizer, Department of Physical Therapy*

Monday, February 10

8 - 9 a.m. **Breakfast**, *Pristina*

Session I: Update of Ongoing Clinical Trials (*Solaria B*)

Moderator: Gillian Muir & Barbara Smith

- 9 a.m. **Gordon Mitchell:** *Introduction: Intermittent hypoxia and neurotherapeutics,*
- 9:15 a.m. **Zev Rymer:** *Acute Intermittent Hypoxia as a component of upper extremity rehabilitation in incomplete cervical cord injury: review of HANDS and DOD trials*
- 9:45 a.m. **Randy Trumbower:** *DOD RCT update: Intermittent hypoxia-induced recovery of overground walking in persons with subacute SCI*
- 10:15 a.m. **Emily Fox:** *DoD FLO2 update: Combined AIH and respiratory strength training to improve breathing function after SCI*
- 10:45 a.m. **Break**

Session II: Clinical Trials Design (*Solaria B*)

Moderator: Zev Rymer & Linda Jones

- 11 a.m. **Sam Wu:** *Two-stage Multi-Factor Adaptive Clinical Trial on Therapeutic Intermittent Hypoxia.*
- 11:30 a.m. **Linda Jones:** *Adaptive Trial Design in Spinal Cord Injury: The Good, The Bad and the Ugly based on spinal cord injury community feedback.*
- 11:50 a.m. **Group photo**
- 12:00 p.m. **Lunch**, *Pristina*

Session III: Mechanisms of AIH-induced Plasticity and Functional Recovery (*Solaria B*)

Moderators: Dave Fuller & Irene Solomon

- 1 p.m. **Gordon Mitchell:** *AIH-induced motor plasticity: mechanisms & constraints*
- 1:30 p.m. **Warren Alilain:** *Personalizing therapeutic strategies for spinal cord injury*
- 2 p.m. **Elisa Gonzalez-Rothi:** *Intermittent hypoxia exerts unique, protocol-dependent effects on spinal neurochemistry: the injured spinal cord is a “new spinal cord.”*
- 2:30 p.m. **David Fuller:** *Can we enhance the impact of therapeutic intermittent hypoxia using pharmacological strategies?*
- 3 p.m. **Break**

Session IV: New Findings in Therapeutic AIH Research I

Moderators: Safwan Badr & Sebastien Baillieul

3:15 p.m. **Jane Butler:** *Effects of AIH on motor cortical excitability and H reflexes in able-bodied participants*

3:45 p.m. (5 minute talks)

- **Andrew Tan:** *Is sleep apnea linked to hypoxia-induced motor recovery after SCI?*
- **Zev Rymer:** *An evaluation of safety considerations for AIH administration in Hemispheric Stroke*
- **Sebastien Baillieul:** *IH conditioning following stroke: rationale and experimental protocol of the PLASTIHC project.*
- **Ali Skalk:** *Determining the optimal AIH dosage to improve cardiovascular function in individuals with SCI*
- **Liisa Wainman:** *Investigating the influence of AIH on cardiovascular function among individuals with SCI*
- **Josh Lydon (Neurokinex):** *AIH in SCI: A plan to advance from clinical trials to the community.*
- **Joe Welch:** *Acute intermittent hypoxia and diaphragm evoked responses to TMS*
- **Tommy Sutor:** *Improvements in inspiratory function after AIH in adults with spinal cord injury.*
- **Mia Kelly:** *Will time of day alter the therapeutic response to AIH?*
- **Moe El Chami:** *Inflammation and AIH-induced pLTF following cervical spinal injury*

4:45 p.m. **Break until dinner**

6:30 p.m. **Group Dinner, Pristina**

Tuesday, February 11

8 - 9 a.m. **Breakfast, Pristina**

Session V: Therapeutic AIH in Other Clinical Disorders

Moderators: Alicia Vose & Alex Marciante

9 a.m. **Zoya Serebrovskaya:** *Intermittent hypoxia-hyperoxia training improves cognitive function and decreases circulating biomarkers of Alzheimer's disease in elderly patients with mild cognitive impairment*

9:30 a.m. **Barbara Smith:** *Acute intermittent hypoxia and breathing in human ALS*

10 a.m. **Milap Sandhu:** *A pilot study of AIH effects in relapsing remitting Multiple Sclerosis*

10:30 a.m. **Break**

10:45 a.m. **Safwan Badr:** *Sleep apnea in individuals with cervical SCI: mystery continues*

11:15 a.m. **Bing Chen:** *AIH Boosts Spinal Plasticity in Humans with Tetraplegia*

11:45 a.m. **Lunch, Verandina**

Session VI: New Findings in AIH research II

Moderators: Chris West & Michael Lane

12:45 p.m. **Gillian Muir:** *Acute intermittent hypoxia improves recovery of forelimb function in a rat model of chronic spinal injury.*

1:15 p.m. (5 minute talks)

- **Alex Marciante:** *Intermittent hypoxia modulates endogenous Tau phosphorylation*
- **Margo Randelman:** *Hypercapnia Respiratory Training to Enhance Plasticity Following Cervical SCI*

- **Kun-Ze Lee:** *Functional impact of IH on respiratory function in mid-cervical contused animals*
- **Breanna Arnold:** *Astrocytic response to AIH treatment after acute and chronic SCI*
- **Bill Collins:** *Acute intermittent hypoxia (AIH)-induced improvement in lower urinary tract function in preclinical rat models of neurological disease and injury*
- **Irene Solomon:** *AIH stimulates voiding in SCI rats with varied severities of lower urinary tract dysfunction*
- **Christine Wang:** *AIH as a therapy to improve bladder function after mid-thoracic spinal cord injury in rat*
- **Raphael Perim:** *Cervical SCI (C2) decreases oxygenation in the phrenic motor nucleus*
- **Andrew Tan:** *Automated pressure-swing absorption system to deliver low O₂ therapy to humans*
- **Chris West:** *The impact of AIH on cardiovascular physiology in experimental SCI*

2:15 p.m. **Break**

2:30 - 5 p.m. **Breakout discussion groups** (*Palmaro, Caretta & SolariaB*)

- **Group 1: Progress towards Phase 3 clinical trial in SCI** (Facilitators: Trumbower & Fox)
- **Group 2: Potential of AIH to treat other clinical disorders?** (Facilitators: Sandhu & Smith)
- **Group 3: Priorities for mechanistic understanding** (Facilitators: Gonzalez-Rothi & Kun-Ze Lee)
- **Group 4: Combinatorial therapies to enhance function** (Facilitators: Dale & Allain)

**Dinner on your own*

Wednesday, February 12

7:30 a.m. **Breakfast, Pristina**

8:30 a.m. **Reports from breakout group leaders** (*each group 20 min*)

9:50 a.m. **Group discussion and synthesis of group findings:** *what have we heard?*

10:50 a.m. **Planning:**

- Plans to review & update the “Road Map”
- *Experimental Neurology* Special Edition — what reviews we want to see published?
- Planning for next conference

12 p.m. **Departure**

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