Repetitive Intermittent Hypoxia and Locomotor Training Enhances Walking Function in Incomplete Spinal Cord Injury Subjects: A Randomized, Triple-Blind, Placebo-Controlled Clinical Trial

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 Incomplete spinal cord injuries (iSCI) leave spared synaptic pathways below the level of injury. Intermittent hypoxia (IH) elicits plasticity in the spinal cord and strengthens spared synaptic pathways, expressed as respiratory and somatic functional recovery in experimental animals and humans with iSCI. This study is a randomized, triple-blind, two-arm parallel clinical trial performed in Santiago, Chile. We compared the effects of a 4-week protocol of IH combined with body weight-supported treadmill training (BWSTT), with continuous normoxia (Nx) and BWSTT on 10-meter walk test (10MWT), 6-minute walk test (6MWT), and timed up and go (TUG) test in American Spinal Injury Association C and D individuals with iSCI. Subjects received daily IH (cycling 9%/21% O2 every 1.5 min, 15 cycles/day) or continuous Nx (21% O2) combined with 45 min BWSTT for 5 consecutive days, followed by IH/Nx 3 × per week (3 × wIH/Nx) for 3 additional weeks. Subjects