

March 26-28, 2018  
Vienna, AustriaWilliam J Rowe, Int J Anesth Pain Med 2018, Volume 4  
DOI: 10.21767/2471-982X-C1-001

## NEIL ARMSTRONG SYNDROME AND THERMOGENESIS

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**N**eil Armstrong syndrome applies both to earth with common magnesium (Mg) deficits and with Mg deficits invariably occurring in space (S); this can trigger acute temporary heart failure i.e., (catecholamine (C) cardiomyopathy). Whereas the normal CO<sub>2</sub> levels on earth are 0.03% in S, during the Euromir 94 missions, levels, over 10 times higher (0.5-0.7% CO<sub>2</sub>). It has been postulated that there is, with S flight, an intracellular shift of calcium (Ca) conducive to vasospasm and damage to mitochondria. Mg is a Ca blocker and strong antioxidant and is required for thermoregulation with loss of Mg in sweat and renal Mg loss and dehydration; this will increase potential for heart failure and hypertension. C levels in S are twice supine levels on earth. Armstrong, during his last 20 lunar minutes, notified Houston twice during a 4 minute interval that he was short of breath along with heart rates up to 160; tachycardia will intensify oxidative stress in S from Mg ion deficits, high C, high free fatty acids and vicious cycles. This syndrome: severe dyspnea, severe thirst, severe tachycardia corrected by fluid replenishment, applies to earth as well; it would be more likely to occur in post-menopausal women with 90% of cases of C cardiomyopathy reported in this group, marathoners particularly at the finish line

and those in the tropics, particularly with water shortages. It is likely to be corrected, relatively quickly either by intravenous fluids or a subcutaneous Mg injection.

### Biography

William J. Rowe M.D. FBIS ( Fellow British Interplanetary Society ), FACN ( Fellow American College of Nutrition ), is a board certified specialist in Internal Medicine. He received his M.D. at the University of Cincinnati and was in private practice in Toledo, Ohio for 34 years. During that time he supervised over 5000 symptom - limited maximum hospital-based treadmill stress tests. He is a former Assistant Clinical Professor of Medicine at the University of Ohio, School of Medicine at Toledo. He studied 3 world class extraordinary endurance athletes and published their exercise—related magnesium deficiencies. This triggered a 20 year pursuit of the cardiovascular complications of Space flight. He has published in LANCET that extraordinary, unremitting endurance exercise can injure a perfectly normal heart. Of only 4 space syndromes, he has published 2: "The Apollo 15 Space Syndrome" and "Neil Armstrong Syndrome." He published Neil Armstrong's probable lunar acute heart failure. He has been listed in the Marquis Whos Who of the World from 2002-2009, 2013, 2014, 2015, 2016, 2017

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