Growth Hormone Response Induced by a Respiratory Muscle Endurance Training in Healthy Subjects.

Sartorio A, Agosti F, Patrizi A, Compri E, Muller EE, Cella SG, Rigamonti AE.

Horm Metab Res. 2012 Feb 3. [Epub ahead of print]

Istituto Auxologico Italiano, IRCCS, Laboratorio Sperimentale di Ricerche Auxo-endocrinologiche, Milan and Verbania, Italy.

Abstract
To date, the large majority of studies evaluating growth hormone (GH) response to acute physical exercise has been performed involving gross muscle groups. To the best of our knowledge, none has evaluated the effects of a respiratory muscle endurance training (RMET) on hormonal secretions, particularly on GH release, though some respiratory devices have been widely used in athletes to train respiratory muscles and to improve cardiopulmonary function and physical performance. 8 healthy men underwent an incremental progressive RMET protocol of 11 daily sessions, obtained through the use of a specifically designed respiratory device (Spiro Tiger®). The 12th session of RMET (15 min duration: 1 min at a respiration rate of 28 acts/min, 5 min at 32 acts/min, 5 min at 34 acts/min, 4 min at 36 acts/min) was associated with blood samplings for determination of GH, cortisol, ghrelin, glucose, and lactate (LA) levels. GH and cortisol responses significantly increased after a 15-minute RMET session, which, in contrast, inhibited ghrelin secretion. There was a minimal, though significant, increase in LA levels with a significant elevation in glycemia. A 15-minute RMET session, administered after a 11-days incremental progressive RMET protocol, was capable of stimulating GH and cortisol release and suppressing ghrelin secretion. Optimization of incremental progressive RMET protocols would be important to maximize the positive chronic effects of this intervention on somatotropic function and muscle performance.

© Georg Thieme Verlag KG Stuttgart · New York.

PMID 22307889 [PubMed - as supplied by publisher]

Full text: Georg Thieme Verlag Stuttgart, New York

Related Citations  Show all

Exercise-induced effects on growth hormone levels are associated with ghrelin changes only in presence of prolonged exercise bouts in male athletes.

Effects of respiratory muscle endurance training on wheelchair racing performance in athletes with paraplegia: a pilot study.

Respiratory control, respiratory sensations and cycling endurance after respiratory muscle endurance training.

Exercise performance improves in patients with COPD due to respiratory muscle endurance training.