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

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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 somatotrophic function and muscle performance.

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