

Growth Hormone (hGH/GH)

Factsheet



Release of Growth hormone and Cortisol through SpiroTiger[®] training

15 minutes of SpiroTiger[®] training at a high respiratory rate triggers a significant increase in the release of anti-inflammatory cortisol and performance enhancing growth hormone in healthy people^[1].

Growth hormone – performance enhancing

Growth hormone (GH) or human growth hormone (hGH) is an endogenous anabolic (i.e. a bodybuilding) substance that is produced by a gland in the brain (the pituitary gland) and is secreted to the body in a circadian manner. The effective spectrum of hGH in the body is broad and it plays a central role in energy consuming processes in particular. Physical activity provides an additional stimulus for the production of hGH and has the effects among others, of increasing blood sugar levels, reducing the build-up of fat and promoting muscle growth by increasing protein synthesis. Although the physiological mechanisms are not fully understood, the positive correlation between hGH status and the physical activity or level of fitness of a healthy person provides a good indication of the important role played by hGH in regulating a person's state of health^[2, 3].

The maximum release and increase in hGH levels in the blood can be triggered by extended and intensive physical activity^[2, 3]. The release of hGH induced by SpiroTiger[®] training is comparable to the extent of anaerobic physical activities that are significantly more demanding and extended^[1]. The performance enhancing characteristics of hGH are primarily apparent for physical activity in the anaerobic range. They are misused in sports through the application of artificially produced hGH for accelerating muscle growth and muscle regeneration. The use of artificial growth hormone is prohibited, regardless of whether in competitions or not, and can cause very serious side effects.



Growth hormone

- Performance enhancing
- Muscle building
- Muscle regeneration
- Fat breakdown

Cortisol – anti-inflammatory

Cortisol is formed in the suprarenal gland and is released into the circulatory system in a circadian manner. In the case of stress reaction of physical activity cortisol is delivered to the body in increased quantities. A brief increase in the cortisol level has a positive effect upon a person's ability to generate energy quickly, to regulate blood pressure and, as a result of its anti-inflammatory properties, upon immune response.

Many studies have confirmed the positive effects of SpiroTiger[®] training on physical performance, decrease in breathlessness and better quality of life. The increased release of cortisol, with its anti-inflammatory properties, could support these effects additionally^[1].



Promoting the release of endogenous hGH and Cortisol

During SpiroTiger® training the forced regime of inhalation and exhalation causes the complete sequence of respiratory movements to become coordinated and consolidated in a functional manner. The respiratory muscles are specifically strengthened and the whole of the thorax mobilised. Endurance, strength and coordination of the whole respiratory system is effectively trained and improved.

Following 1-week SpiroTiger® training with sessions lasting 6-10 minutes, the length of the sessions can be increased to 15 minutes. The increase in training duration is based upon an individual's performance progress. A training session is commenced with a respiratory rate of approx. 28 breaths/min. The respiratory rate is increased every 2 minutes by 2 breaths/min until a respiratory rate of 36-38 breaths/min is achieved. Loading increment at 30-34 breaths/min can be extended up to 4 minutes and/or the initial levels shortened to 1 minute.

The scientifically proven increase in the release of hGH and cortisol already became evident after less than two weeks of SpiroTiger® training with continuous increase in training intensity. This was apparent after the following 15 minute session^[1]:

1 minute at 28 breaths/min
5 minutes at 32 breaths/min
5 minutes at 34 breaths/min
4 minutes at 36 breaths/min

Referenzen

1. Sartorio, A., et al., 2012, Horm Metab Res, 44:319-24.
2. Birzniece, V., et al., 2011, Trends Endocrinol Metab, 22: 171-8.
3. Birzniece, V., et al., 2010, Endocrinol Metab Clin North Am, 39:11-23.

Please contact us for further information about the device or about respiratory muscle training.