

Les Mills Lab: LES MILLS GRIT & overtraining study



Background

Although there are recommended weekly exercise guidelines from the American College of Sports Medicine (ACSM) for vigorous exercise (working out at between 70 and 80 percent heart rate intensity), there are currently no guidelines regarding the time and frequency of High-Intensity Interval Training, (HIIT), for the prevention of overreaching. HIIT involves working out at above 85 percent of the maximum heart rate.

Hypothesis

We set out to determine the relationship between volume of HIIT (the number of minutes per week), and a positive stress response. We hypothesized that a specific volume of weekly HIIT (more than 30-40 minutes), would result in a reduced positive stress response.

A positive stress response to exercise is a critical part of creating the bio-chemical changes in the body that help build new muscle and improve fitness. The stress response can be measured effectively by examining cortisol and testosterone concentrations in saliva.

Method

For the study, 35 active individuals who exercise more than 8 hours per week recorded their heart rate during every training session and completed surveys regarding their mood for three weeks.

Then on an experimental day, at the end of a typical three week training period, participants did two high-intensity workouts - in the form of LES MILLS GRIT™ - four hours apart. Saliva samples were collected 30 minutes prior to each exercise session, immediately following and 30 minutes post-exercise to assess cortisol and testosterone concentrations. This process enabled the team to track

the individual's stress response. Heart rate was also monitored throughout the experimental day using Polar A370 devices with H10 chest straps to determine exercise and recovery values.

Results

The results show a correlation between weekly time spent training at an intensity greater than 90 percent maximum heart rate and the symptoms of overreaching.

Recommendations

When it comes to HIIT, adding volume doesn't deliver better results, it actually hinders. To get the full benefits of HIIT and prevent overreaching, our recommendation is to maximize your weekly HIIT sessions that are above 90 percent maximum heart rate to 30-40 minutes and balance them with other, less demanding, workouts.

LES MILLS GRIT and LES MILLS SPRINT™ have been crafted to drive you to 85 percent plus of your maximum heart rate for 20 of the 30 minutes, which means your heart rate is likely to reach 90 percent maximum for a period of 15 minutes. This means that with two LES MILLS GRIT or SPRINT workouts a week you can reach the optimum weekly dose of HIIT.

If you exceed these limits, your body may not respond positively – as evident in the measurements taken in this study. Instead, the high demands of too much HIIT cause the body to become fatigued, reduce its positive response and potentially become more injury prone. This is overreaching.

It's also important to keep in mind that the recovery period after doing HIIT is when all the positive adaptations and developments take place.

A link to the published abstract is available [here](#)