Does High-Intensity Exercise Affect Endorphin Release?

August 31, 2017

While previous studies have shown that exercise helps release so-called feel-good hormones in the brain called endorphins, new findings published in the journal Neuropsychopharmacology suggest that the amount produced depends on the intensity of the exercise, reports Medical News Today.

For the assessment, researchers at the University of Turku in Finland enlisted 22 healthy men between ages 21 and 36 to determine differences in endorphin release after moderate-intensity exercise versus high-intensity interval training (HIIT).

On the first of two days, participants engaged in 60 minutes of moderate-intensity aerobic exercise and then performed HIIT for the same amount of time the next day. Scientists used a positron emission tomography (PET), an imaging test that examines organs in the body, to measure endorphins released after individuals exercised and also after periods of rest. In addition, researchers evaluated participants' moods after each workout.

Findings showed that HIIT exercises resulted in a significant boost in the release of endorphins in the study's participants. (This uptick occurred in areas of the brain associated with pain, reward and emotion.) However, scientists also observed that this form of exercise prompted negative feelings in the men (perhaps because of the emotional and physical demands of the workout). During moderate exercise, however, men had only feelings of pleasure and euphoria, which were also linked to endorphin release, though the amount was less than that seen among the individuals who did the HIIT exercises.

"Our results highlight that exercise intensity affects endorphin release and that the brain opioid system is involved in both positive and negative feelings caused by physical exercise performed at different intensities," said Tiina Saanijoki, a doctoral candidate at the University of Turku in Finland and the coauthor of the study.

Because the negative feelings linked with the release of endorphins associated with HIIT may discourage habitual exercise, Saanijoki suggested that folks should consider the intensity level of the activities before beginning new workout regimens.

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