

High-intensity interval training not worth the extra effort, study suggests

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Exercising at a moderate intensity produces almost the same physical outcomes as exercising at maximum intensity, according to a recent study by University of Alberta researchers looking at the differences in

intensity regulation during an interval training-style exercise program.

Functional fitness [training](#)—more commonly known as crossfit or [high-intensity interval training](#) (HIIT)—is a circuit-based [exercise program](#) in which participants complete a series of weightlifting and cardio-based exercises in four-minute sessions with two minutes of rest in between exercises for 20 to 30 minutes. Each session is traditionally done at a person's maximum [intensity](#) level where they are encouraged to complete the highest amount of work within a set time.

According to U of A [exercise](#) physiologist Michael Kennedy, this type of all-out exercising comes with a number of health risks.

"Physical injury is probably most associated with functional fitness training risks, because people ignore the pain signals in pursuit of going all out for prolonged periods of time," he said. "It is also known that intense-type exercise, like that done in this study, increases illness risk due to decreased immunity."

Kennedy noted that the extreme fatigue that can come with these types of all-out workouts can negatively affect people's emotional state, which is counterintuitive to the positive psychological benefits usually associated with [physical activity](#) and exercise.

For the study, Kennedy, PhD student Joao Falk Neto and colleagues at the Universidade Católica de Brasília had eight participants, who regularly engage in functional fitness training, repeat the same circuit-based workout program—once at maximum intensity and once at a more moderate intensity.

Moderate intensity is defined as a six out of 10 on the Rate of Perceived Exertion Scale (RPE), where a one is very light, six is on the higher end of strong and 10 is considered all-out.

The researchers found that while the overall repetitions in the all-out sessions were higher, the majority of the work was done in the first two four-minute sessions. By the time the all-out group got to the third and fourth sessions, they were completing nearly the same amount of reps as the lower-intensity group.

"The data showed exercising at an intensity level of six enabled you to still reap the positive benefits of the activity while not exhausting you so much that you are not able to sustain this level over the course of an individual session or over time with multiple sessions," said Falk Neto.

Kennedy also highlighted the large lactate response, which can increase acidity in muscle cells, found in the all-out intensity condition compared with the lower-intensity condition. The researchers noted that the levels participants were reporting is the sort of lactate concentration that can lead to dizziness, nausea and reduced muscle power, and can create conditions that counteract well-being and motivation to want to exercise.

"Thus, when we look at the lactate response in combination with the other known health risks of exercising at a maximum intensity, and compare it to the physiological responses during the lower-intensity sessions, the risks might outweigh the benefits," Kennedy said.

"Especially if you can achieve the same physical benefits from lesser-intensity exercise, which improves your long-term adherence to exercise and physical activity."

And though the study is preliminary, meant to inform larger ones looking at intensity regulation in functional fitness training, Falk Neto said it might behoove fitness trainers and coaches to think about ways to lessen intensity during training to see how well their clients and athletes respond.

"It's about working smarter, not harder," he noted. "If you can achieve

the same positive outcomes by exercising at an RPE of six and decrease the risks that are associated with maximum-intensity workouts, overall, you will feel healthier, happier and stronger, reaping the benefits of exercise and physical activity."

More information: Ramires Alsamir Tibana et al. Is Perceived Exertion a Useful Indicator of the Metabolic and Cardiovascular Responses to a Metabolic Conditioning Session of Functional Fitness?, *Sports* (2019). [DOI: 10.3390/sports7070161](https://doi.org/10.3390/sports7070161)

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