

**Brendon Gurd, Jacob Bonafiglia, and Nicholas Preobrazenski** examine the myth: Exercise, people liked to think, was a simple bargain: If you put in the work, you would reap the benefits.

*Jockology (snipped)*

## Speaking while exercising? Not if you want to get fitter

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A Queen's University study put 14 volunteers through a that involved cycling at 65 per cent of their peak work rate. For some people, 65 per cent of max was very hard, and they got much fitter; for others, it simply wasn't challenging.

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One of the fitness world's dirtiest little secrets was exposed by a study conceived at Laval University in the late 1980s. Exercise, people liked to think, was a simple bargain: If you put in the work, you would reap the benefits.

But the [Heritage Family Study](#), which put 750 people from 200 families through a rigorous 20-week exercise program, burst that bubble. Some people made massive fitness gains, while others barely improved. About [20 per cent of the volunteers didn't get fitter at all](#), despite exercising at the same assigned intensity, and the “non-responders” tended to cluster in families. Fitness, it turned out, wasn't fair after all.

That landmark finding continues to reverberate today, as scientists search for the genetic basis of how we respond to exercise. But its interpretation remains controversial. Are some people really “immune” to exercise, incapable of getting fitter no matter how hard they work? Or have experiments such as the Heritage study simply failed to push their subjects at the right intensity?

A new study from researchers at Queen's University's Muscle Physiology Lab, [published in the journal Applied Physiology, Nutrition, and Metabolism](#), offers a new twist on this debate. The Heritage study and others like it rely on the assumption that everyone is working equally hard – but perhaps the problem is how we prescribe exercise, rather than how we respond to it.

In the Heritage study, subjects first completed a treadmill test to exhaustion to determine their maximal aerobic capacity, or VO<sub>2</sub>max. They were then assigned to exercise at specific heart rates corresponding to a fraction of that maximum, starting at 55 per cent for the first two weeks and gradually progressing to 75 per cent. The underlying assumption, which continues to guide heart rate-based exercise recommendations, is that two people exercising at a given percentage of their max are working equally hard.

But the new study, **led by senior author Brendon Gurd and graduate students Nicholas Preobrazenski and Jacob Bonafiglia**, challenges this assumption.

The problem, Bonafiglia explained, is that when you tell a group of people to exercise at a given relative intensity – for example, 65 per cent of the maximum work rate they achieved in a cycling test to exhaustion – it's clear some people are working harder than others. You can quantify this by measuring levels of lactate in their blood, which serve as a marker of the “metabolic stress” your muscles are feeling, he said.

So Bonafiglia and his colleagues decided to see if those variations in metabolic stress after a single workout might explain why, in the longer term, some people get fitter and others don't. They put 14 volunteers through a four-week training program that involved cycling for 30 minutes four times a week at 65 per cent of their peak work rate.

Sure enough, blood lactate measurements after the very first workout successfully predicted who would gain the most (or least) fitness by the end of the four-week protocol. For some people, 65 per cent of max was very hard, and they got much fitter; for others, it simply wasn't challenging. The latter group weren't necessarily “exercise non-responders.” They just weren't being pushed as hard.

This finding will be reassuring for exercise scientists who have puzzled over the idea that exercise might not work for some people – but it also presents a conundrum. If the highly sophisticated tech-driven approach for prescribing workout speeds used in the study isn't reliable, then how do you get people exercising at the right intensity?

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The Queen's researchers have a surprisingly simple suggestion, which they tested in a separate experiment: "We also found that prescribing exercise at an intensity where participants could not speak comfortably resulted in consistently high blood lactate responses," Bonafiglia said.

This approach, known as the [Talk Test](#), involved asking participants to count to 30 at "a regular conversational pace and volume" while cycling. If they could do it comfortably, they were asked to speed up slightly until it began to get difficult.

And that's pretty much it.

In an age of pervasive fitness technology and self-monitoring, there's some irony in the triumph of mere conversation as a more sensitive barometer of exercise intensity than the expensive gold-standard laboratory approach. But it's also a reminder of an unvarnished truth that athletes have always known: To get fitter, you have to work hard, no matter what your wearable tech tells you.

*Alex Hutchinson is the author of Endure: Mind, Body, and the Curiously Elastic Limits of Human Performance. Follow him on Twitter [@sweatscience](#).*