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HEALTH & FITNESS

Less pain, more gain: How memory affects your workout



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This is not another article about the wonderful health benefits of exercise.

Yes, your workout is a stress-busting, heart-strengthening, age-defying elixir. You already knew that. In fact, surveys find that over 97 per cent of adults recognize the importance of exercise for health, according to **Dr. Panteleimon Ekkekakis**, an exercise psychologist at Iowa State University.

The problem is that when you

strap on portable accelerometers to monitor how much people actually exercise in the real world, you find that as few as 3 per cent get as much physical activity as public-health guidelines suggest. Knowing that exercise is good for you, in other words, doesn't make you do it.

"Of course, you can try fixing this problem by giving people even more information," **Ekkekakis** says, "but we believe that this is not the main problem."

Instead, **Ekkekakis** argues that your "affective response" to exercise, which is how your workout makes you feel, is a crucial factor that determines whether you'll stick to your fitness routine. So he and his colleagues are borrowing ideas from an unlikely source – behavioural economics – that take advantage of our predictably irrational decision-making processes to make workouts seem more pleasurable.

For most people, moderate exercise is inherently pleasant and invigorating. But beyond a certain level of intensity, typically around the point where you're no longer able to speak comfortably, it gets hard. You might still enjoy it for other reasons (top athletes often tend to be "benign masochists," as one researcher puts it), but the in-the-moment physical experience can be downright unpleasant. **Hutchinson, Page 3**

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Hutchinson: The best workout is one that keeps you coming back for more

» For anyone who has been sedentary for a long time, the problem is that virtually any level of exercise, even casual walking, quickly puts them into the unpleasant zone. As a result, **Ekkekakis** says, "an association forms between the notion of exercise and a feeling of displeasure or discomfort or exhaustion or even pain."

His primary advice, then, is to start out with very modest and achievable exercise goals, so that you can establish a routine that is sustainable rather than unpleasant.

But there's a further wrinkle. How the workout makes you feel is important; but how you remember it making you feel is even more important, and that's where insights from behavioural economics come into play.

Economists have long recognized that we're not totally rational when we make buying and selling decisions. In fact, we're irrational in ways that can be reliably predicted, such as the fact that we feel the pain of a loss more than the pleasure of an identical gain. Psychologist Daniel Kahneman earned the 2002 Nobel Prize in Economics for his role in identifying these patterns and pioneering the field of behavioural economics.

For example, one of Kahneman's studies, with University of Toronto researcher Donald Redelmeier, found that the pain remembered by colonoscopy patients didn't depend on the duration or total pain of the procedure. Instead, the peak pain and the pain levels in the final of moments of the procedure dom-



How a workout makes you feel is important, but research shows that how you remember the workout making you feel is even more so, and can affect your long-term motivation. SHRONOSOV/GETTY IMAGES/ISTOCKPHOTO

inated their memories – a phenomenon known as the "peak-end" effect.

Similarly, Duke University behavioural economist Dan Ariely has shown that the "slope" of pleasure matters. We have more favourable memories of experiences that start unpleasantly and get progressively more pleasant than those that start pleasantly and get worse – even if the overall amount of pleasure is the same in both cases.

That's the effect that **Ekkekakis**

and his student Zachary Zenko, working with Ariely, tested in a study published earlier this year in the *Journal of Sport & Exercise Psychology*. Forty-six volunteers completed a 15-minute recumbent cycling workout. Half started slowly and gradually accelerated, so that the workout became progressively less pleasant; the others did the same amount of overall work, but instead started fast then decelerated to produce a slope of increasing pleasure. The latter

group, the researchers predicted, would remember the experience more positively.

Sure enough, the fast-start group recorded higher ratings of "remembered pleasure" up to a week later, averaging +56 on a pleasure scale from -100 to +100 compared to +25 in the slow-start group. They also predicted higher levels of future pleasure from repeating the workout, with average scores of +52 compared to +31. These differences, **Ekkekakis** believes, raise the likeli-

hood that a new exerciser will decide to stick with a fitness regimen.

So does that mean every workout should start at a headlong sprint and then taper off? Not necessarily, says Katy Kennedy, a doctoral researcher in psychology at the University of Surrey in Britain, who also incorporates ideas from behavioural economics into her studies on affective responses to exercise.

"Behavioural economics often addresses the intention-behaviour gap," Kennedy says. "People want to exercise, they intend to exercise, but they don't."

In her field research with beginners' running groups, Kennedy has found that anticipation of the finish made a big difference in how pleasant or unpleasant people found the session. Knowing the route, or having clear instructions (such as a countdown) about when to stop, made people happier – and in some cases made them want to finish with a flourish by accelerating to a sprint.

In other words, there may be many different approaches to enhancing the remembered pleasure of workout, and different strategies may work for different people. The first step is simply to make enjoyment a priority – because the "best" workout has less to do with heart-rate zones or muscle groups than with the simple question of whether you'll do it again.

Alex Hutchinson's latest book is *Which Comes First, Cardio or Weights?* Follow him on Twitter @sweatscience.