The New York Times | http://nyti.ms/1zDLZJM

Edited by David Leonhardt

Follow Us:

Get the Upshot in your Inbox

The Upshot
EXERCISING JUDGMENT

No, More Running Probably Isn't Bad for You

FEB. 5, 2015

Justin Wolfers

Don't run less hard. Don't run less often. Don't run less distance. And don't be persuaded by underpowered medical studies — a habit that really could harm your health.

I say this in response to a recent study suggesting that too much strenuous jogging shortens your life. The conclusions, published in the Journal of the American College of Cardiology, have received wide attention this week.

In fact, the main thing the study shows is that small samples yield unreliable estimates that cannot be reliably discerned from the effects of chance. And the main thing the reaction shows is that perhaps we are all a bit too quick to believe medical studies that tell us what we want to hear.

The study doesn't change what the weight of the evidence shows: Most Americans need to worry about exercising too little, not too much, and it's not clear that any substantial number of people are harming their health by

running too much.

Let's start by taking a closer look at what the study actually says. The researchers asked Danish runners about the speed, frequency and duration of their workouts, categorizing 878 of them as light, moderate or strenuous joggers. Ten years later, the researchers checked government records to see how many of them had died.

Happily, only 17 had. While this was good news for the surviving runners, it was bad news for the researchers, because 17 was clearly too few deaths to discern whether the risk of death was related to running intensity.

Nonetheless, the study claimed that too much jogging was associated with a higher mortality rate. At a literal level, the mortality rate was highest among those who ran the most and at the highest intensity. But the evidentiary basis for this claim is weak. It is based on 40 people who were categorized as "strenuous joggers" — among whom only two died.

That's right: The conclusions that received so much attention were based on a grand total of two deaths among strenuous joggers. As Alex Hutchinson of Runner's World wrote, "Thank goodness a third person didn't die, or public health authorities would be banning jogging."

Needless to say, these two deaths do not add up to a statistically significant finding. Moreover, the researchers do not even report whether those two deaths were from causes that could plausibly be related to running.

The death rate among moderate joggers was also higher than that for light joggers, but given that there were fewer than 10 deaths among either category, this difference could not be reliably discerned from the effects of chance.

Indeed, none of the comparisons between those who run a lot versus a little, frequently versus infrequently, or fast versus slow, were statistically significant, even after adjusting for potential factors like age, gender, education, diabetes, smoking and drinking.

The researchers acknowledge this lack of significance, but confounded the issue by pointing to a different question. Instead of focusing on the differences between light, moderate and heavy joggers, they ask instead whether each group of runners had a lower death rate than an altogether different group, a

separate sample of 413 non-runners.

And indeed, both light and moderate joggers had a significantly lower death rate than the sedentary non-runners.

There is even less to these findings than meets the eye, as the researchers did not compare runners with non-runners, but rather with the subgroup of non-runners who lead the most sedentary lives. The usual concerns about correlation not implying causation are particularly relevant here, given that an extremely sedentary lifestyle may be both a cause and a consequence of poor health.

What then of the strenuous joggers? There are so few of them in the sample that their death rate cannot be reliably discerned to be different from any of these groups — the light joggers, the moderate joggers or the sedentary.

This led to perhaps the most egregious over-interpretation of the study, in which the British newspaper The Telegraph blared the headline that "Fast running is as deadly as sitting on couch, scientists find." The Telegraph was largely repeating the study's authors, who say that "strenuous joggers have a mortality rate not statistically different from that of the sedentary group." In fact, on every measure, those who run farther, faster or more frequently recorded a lower death rate than non-runners.

But because the sample size was so small, this difference is not statistically significant. It's an old statistical mistake to report the failure to disprove a hypothesis — that the death rates of the two groups might be the same — as leading to the implication that it's valid — that they are in fact the same. You may have heard the related phrase "absence of evidence does not equal evidence of absence," and it is particularly relevant here.

Just as important, other evidence suggests that running, like other forms of exercise, benefits health. There may be an amount of running so great as to damage health, but, if so, it's probably far greater than four hours per week.

If you feel there's a drumbeat of evidence accumulating about the risks of running too far, because you've heard similar conclusions before, it is worth putting the noise into context: It comes from the same place. As Runner's World has noted, these same data were already published a few years back in a

separate study. Moreover, other studies supporting this idea come from the same author.

But scientific progress is slower and less spectacular than it often appears. To get a sense of what we are learning, let me recommend a careful review of the literature, written by Mr. Hutchinson, a physicist-turned-writer.

His conclusion: "Running an hour a day is certainly no less healthy, and probably a bit healthier, than running less." Armed with that more accurate assessment of the science, I hope to see you on the running trails.

Justin Wolfers is a senior fellow at the Peterson Institute for International Economics and professor of economics and public policy at the University of Michigan. Follow him on Twitter at @justinwolfers

The Upshot provides news, analysis and graphics about politics, policy and everyday life. Follow us on Facebook and Twitter. Sign up for our weekly newsletter.
