

New article demonstrates reproducibility and rigor of epidemiologic research

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A recent article published in *Science Advances* demonstrates the rigor and substantial advancements that have occurred in the field of epidemiology over the past 27 years. Led by Rollins

researchers—including 33 Emory Ph.D. students in epidemiology—the article revisited an influential article authored by journalist Gary Taubes that questioned the utility of nonrandomized epidemiologic research. The new article, led by Lauren E. McCullough, Ph.D., MSPH, and Maret L. Maliniak, MPH, systematically evaluated the current evidence for 53 examples of associations Taubes claimed were doubtful in his 1995 *Science* article.

The researchers found that 25 percent of the associations Taubes deemed questionable are now widely viewed as causal, resting on a substantial body of epidemiologic research and tremendous innovation in the field over the past 27 years.

Among Taubes' list of questionable associations that are now viewed as causal, and with [public health policies](#) to address them, are the links between [alcohol consumption](#) and [breast cancer](#), residential radon exposure and [lung cancer](#), and the use of tanning devices and melanoma.

For 27 years, Taubes' paper has been cited more than 1,000 times and has been used to cast doubt on the value of epidemiologic research. Despite the article's influence, this new article—to the authors' knowledge—is the first to address all of Taubes' example assertions head-on, and serves to dismantle Taubes' argument while verifying the rigor and reproducibility of epidemiologic research results.

"Many of the associations selected by Taubes as examples to denigrate epidemiologic research have proven to have important public health implications—as evidenced by [policy recommendations](#) from reputable national and international agencies to reduce risks arising from the associations," says Timothy L. Lash, DSc, MPH, senior author on the article. "The utility of epidemiologic research in this regard is all the more impressive when one remembers that the associations were selected because Taubes thought they would prove to be false positives.

Twenty-seven years later, epidemiology has reached beyond its limits."

More information: Lauren E. McCullough, Epidemiology beyond its limits, *Science Advances* (2022). [DOI: 10.1126/sciadv.abn3328](https://doi.org/10.1126/sciadv.abn3328).
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