

PROFILES IN OPEN: DAVID S. LUDWIG, MD, PHD



DAVID S. LUDWIG, MD, PHD, is an endocrinologist, researcher, and professor at Harvard Medical School and Harvard School of Public Health. Dr. Ludwig also co-directs the New Balance Foundation Obesity Prevention Center at Boston Children's Hospital. His research focuses on how food affects hormones, metabolism, body weight, and well-being. As part of a recent project made possible, in part, by support from the Laura and John Arnold Foundation, Dr. Ludwig studies how the type of calories you consume may influence your likelihood of losing weight and keeping it off for the long

term. The project has real-world ramifications for public health planning, treatment of obesity, and health care systems. Dr. Ludwig and his colleagues chose to make the underlying data behind their work openly available for others to test, replicate, challenge, and build upon.

What did your funder ask of you with respect to making your research open?

The project's funder required that summary data be made available six months after first publication and the complete dataset be subsequently made available upon reasonable request. Our team elected to make the full database available immediately upon publication, exceeding standard professional practices. We did this because there are clear long-term advantages to this approach. It facilitates scholarly dialog and shows you have nothing to hide. From a professional development perspective, openly accessible data helps with impact. Others will cite the study when they use the data, even if they have a critical perspective.

How did you feel about sharing your data?

We expected the data to be carefully scrutinized and reanalyzed. Nutrition research, especially, can be wickedly difficult, in view of the many interacting components of diet and the challenges of behavior change. We welcome good-faith efforts to find oversights in the analyses, or alternative explanations for the findings. The downside of open data sharing is that scientific opponents have the opportunity to focus on inconsequential discrepancies, distracting from a balanced discourse, if that is their intent. Ultimately, though, putting the data out is the best protection. It demonstrates maximum transparency, and it implicitly calls on critics to do the same.

How did you make your research outputs available?

We made our full database available through the Open Science Framework (OSF). It is free to access for any interested party at <https://osf.io/rvbuy>.

How did making your research outputs available impact scientific discourse?

There was a small but vocal group of critics who challenged the findings on social media. However, having the data available makes it easier to debate

the scientific issues based on facts – a great antidote to the polarizing nature of social media.

Given that making your data open led to subsequent analysis and debate about your findings, does this experience make you more wary of open sharing?

Open sharing is the best way to go. Any open access study can be disparaged in a 280-character tweet; but such behavior will increasingly be frowned upon as researchers recognize the need to recalibrate the tone of scholarly debate in the era of open science. We need to focus on the legitimate strengths and weakness of studies, so that we can work together across polarized fields. Problems like obesity are far too complex for any one research team to solve alone.

What advice would you give to other researchers who are contemplating making their work more open?

Help set a standard for maximum transparency, especially when it comes to scientific questions related to major public health issues. Ultimately, the key question is whether the study is replicable. Will consistent data emerge in coming years and decades?

What would you like to tell funders who are thinking about embedding open science principles into their grants?

Make data sharing obligatory. Timelines should allow researchers priority to analyze their data without undue haste, and then make data publicly available in a relevant time frame.

