

# UCSF

## UC San Francisco Previously Published Works

### Title

The sugar industry's influence on policy

### Permalink

<https://escholarship.org/uc/item/8614s368>

### Journal

Science, 360(6388)

### ISSN

0036-8075

### Authors

Kearns, C  
Schmidt, L  
Apollonio, D  
[et al.](#)

### Publication Date

2018-05-04

### DOI

10.1126/science.aat3763

Peer reviewed

## LETTERS

Edited by Jennifer Sills

### The sugar industry's influence on policy

In the Policy Forum “Was there ever really a ‘sugar conspiracy?’” (16 February, p. 747), D. M. Johns and G. M. Oppenheimer based their criticism of our research on news stories, press releases, a podcast, and a commentary, not our peer-reviewed papers (1, 2). Contrary to their assertions, our publications do indeed “focus on the evidence” and “follow the data.”

Our *JAMA Internal Medicine* paper (1) demonstrated that Harvard nutrition researchers McGandy, Hegsted, and Stare used a double standard when critiquing the epidemiologic, experimental, and mechanistic evidence linking sugar to heart disease in their Sugar Research Foundation (SRF)–funded 1967 *New England Journal of Medicine* review (3, 4). Hegsted's beliefs and publications that were unfavorable to his meat and dairy industry sponsors have no bearing on our conclusions about the bias in his review on the health effects of sugar. Johns and Oppenheimer attempt to put the research in the context of the time, but “logic and tools” and “norms and standards” have always called upon scientists to apply objective criteria when evaluating evidence.

We did not conclude that McGandy *et al.*'s review “meaningfully shaped the course of dietary science and policy,” as asserted by Johns and Oppenheimer. Rather, we concluded that the sugar industry's sponsorship of this review, together with other historical and current evidence (5–8), suggests that the industry may have a long history of influence. Our recent *PLOS Biology* paper (2) further documented how SRF terminated funding for and failed to disclose or follow up on preliminary data in the 1970s that strengthened the emerging case—borne out by subsequent research (9)—that elevated triglycerides are a cardiometabolic risk factor and that sugar raises triglycerides.

Efforts to understand the impact of SRF's research program, which dates to 1943 (10), are hardly “ahistorical,” a “conspiratorial narrative,” or a “fallacy of emphasizing the machinations of one commodity sector.” Rather, they are a necessary step to providing critical context about these industries, which is currently missing from historical accounts and policy discussions.

**C. Kearns**,<sup>1,2\*</sup> **L. Schmidt**,<sup>1,3,4</sup>

**D. Apollonio**,<sup>1,5,6,7</sup> **S. Glantz**,<sup>1,3,6,7,8</sup>

<sup>1</sup>Philip R. Lee Institute for Health Policy Studies,



University of California, San Francisco, San Francisco, CA 94118, USA. <sup>2</sup>Department of Preventive and Restorative Dental Sciences, School of Dentistry, University of California, San Francisco, San Francisco, CA 94143, USA. <sup>3</sup>Department of Medicine, School of Medicine, University of California, San Francisco, San Francisco, CA 94131, USA. <sup>4</sup>Clinical and Translational Science Institute, University of California, San Francisco, San Francisco, CA 94143, USA. <sup>5</sup>Department of Clinical Pharmacy, School of Pharmacy, University of California, San Francisco, San Francisco, CA 94143, USA. <sup>6</sup>Center for Tobacco Control Research and Education, University of California, San Francisco, San Francisco, CA 94117, USA. <sup>7</sup>Helen Diller Family Comprehensive Cancer Center, University of California, San Francisco, San Francisco, CA 94115, USA. <sup>8</sup>Cardiovascular Research Institute, University of California, San Francisco, San Francisco, CA 94158, USA.

\*Corresponding author.

Email: cristin.kearns@ucsf.edu

#### REFERENCES

1. C. E. Kearns, L. A. Schmidt, S. A. Glantz, *JAMA Intern. Med.* **176**, 1680 (2016).
2. C. E. Kearns, D. Apollonio, S. A. Glantz, *PLOS Biol.* **15**, e2003460 (2017).
3. R. B. McGandy, D. M. Hegsted, F. J. Stare, *New Engl. J. Med.* **277**, 186 (1967).
4. R. B. McGandy, D. M. Hegsted, F. J. Stare, *New Engl. J. Med.* **277**, 242 (1967).
5. C. E. Kearns, S. A. Glantz, L. A. Schmidt, *PLOS Med.* **12**, e1001798 (2015).
6. G. Taubes, C. K. Couzens, “Big sugar's sweet little lies: How the industry kept scientists from asking, does sugar kill?,” *Mother Jones* (November/December, 2012).
7. The Sugar Association, “Sugar and heart health: What are the facts?” (2015); [www.sugar.org/sugar-heart-health-facts/](http://www.sugar.org/sugar-heart-health-facts/).
8. Office of Disease Prevention and Health Promotion, “Sugar Association comment ID #22978 submitted 05/07/2015” (2015); <https://health.gov/dietaryguidelines/dga2015/comments/readCommentDetails.aspx?CID=22978>.
9. Dietary Guidelines Advisory Committee, “Scientific report of the 2015 Dietary Guidelines Advisory Committee” (U.S. Department of Health and Human Services and U.S. Department of Agriculture, Washington, DC, 2015).
10. D. W. Cheek, *Sugar Research, 1943–1972* (International Sugar Research Foundation, 1974).

In 1961, when this photo was taken, the relative health risks of sugar and fat remained unclear.

#### Response

Kearns *et al.* suggest that our critique is based on news stories rather than their peer-reviewed papers, and they claim that they did not conclude that a sugar industry–backed review published by Harvard nutritionists in 1967 meaningfully shaped the course of dietary science and policy. Our Policy Forum is based on archival research, secondary sources, and oral history and is a response to a newly popular narrative suggesting that the low-fat campaign of the 1980s was shaped by corrupt industrial and scientific forces—a revisionist depiction to which the publications of Kearns *et al.* have notably contributed (1, 2). In interviews (3) and comments to journalists, Kearns *et al.* have suggested repeatedly that the Harvard scientists' “very influential review” (4) helped to “derail the discussion about sugar for decades” (5) and “delayed the development of a scientific consensus on sugar–heart disease for decades” (6). We think that authors are responsible for their own words, regardless of where they appear.

Kearns *et al.* argue that the Harvard nutritionists used a “double standard” when reviewing the evidence linking sugar and heart disease, and they assert that the beliefs and track records of the Harvard scientists have “no bearing” on their conclusion that the review was “biased.” But as our Policy Forum demonstrated, the sponsored review emerged directly from a landmark study the Harvard scientists had just completed, with support from the dairy industry, that confirmed their longstanding beliefs that

saturated fats were the central dietary risk factor in heart disease and that sugar had little effect. It was this data-driven perspective—which ran against the interests of their dairy industry sponsors—that subsequently attracted the attention of the sugar industry.

It would be surprising if the Harvard nutritionists' scientific perspective on the health risks of fat and sugar did not pervade their own narrative review. The Institute of Medicine has recognized that "intellectual preconceptions and previously stated positions" can shape expert analyses (7). The very rationale advanced by pioneers in the "evidence-based" movement for replacing narrative reviews with systematic reviews was that narrative reviews tended to reflect the intellectual commitments of their authors (8–10). A typical narrative review dating from the mid-1960s would combine findings from published research with expert opinion. Yet Kearns *et al.* have chosen to dismiss the expert beliefs, scientific track records, and other funders of the Harvard investigators as having no relevance, while narrating in detail any interactions with the sugar industry. Here is a double standard—a one-sided and ahistorical appraisal. Kearns *et al.* have presented no evidence showing that the Harvard group's review would have been different in the absence of sugar industry support, particularly in light of their previous documented willingness to produce findings unfavorable to their sponsors.

We agree with Kearns *et al.* that analyses of the legacy of the sugar industry's research program are needed. However, insights gained from archival documents that provide only a "narrow window" (1) into the activities of one commodity sector must be weighed alongside evidence from other commercial, nonprofit, and governmental actors and carefully contextualized within the period under study. Our analysis shows that industry-academy collaborations were normative in the mid-1960s. The American Heart Association had already told all Americans to limit intake of saturated fat, whereas the sugar theory had barely gotten off the ground. Cross-sectional analyses of narrow slices of the past do not provide an adequate basis for historical interpretation.

**D. M. Johns<sup>1\*</sup> and G. M. Oppenheimer<sup>2</sup>**

<sup>1</sup>Center for the History and Ethics of Public Health, Columbia University Mailman School of Public Health, New York, NY 10032, USA. <sup>2</sup>School of Public Health, City University of New York, New York, NY 10027, USA. \*Corresponding author. Email: dmj2119@columbia.edu

#### REFERENCES

1. C. E. Kearns, L. A. Schmidt, S. A. Glantz, *JAMA Intern. Med.* **176**, 1680 (2016).
2. C. E. Kearns, D. Apollonio, S. A. Glantz, *PLOS Biol.* **15**, e2003460 (2017).

3. S. A. Glantz, M. Nestle, "Podcast: Food industry funding of nutrition research," *JAMA Intern. Med.* (2016); <http://jamanetwork.com/learning/audio-player/13460555>.
4. K. McEvers, "Sugar industry manipulated research about health effects, study finds," *National Public Radio* (2016); [www.npr.org/2016/09/13/493801090/sugar-industry-manipulated-research-about-health-effects-study-finds](http://www.npr.org/2016/09/13/493801090/sugar-industry-manipulated-research-about-health-effects-study-finds).
5. A. O'Connor, "How the sugar industry shifted blame to fat," *New York Times* (2016); [www.nytimes.com/2016/09/13/well/eat/how-the-sugar-industry-shifted-blame-to-fat.html](http://www.nytimes.com/2016/09/13/well/eat/how-the-sugar-industry-shifted-blame-to-fat.html).
6. M. Bailey, "Sugar industry secretly paid for favorable Harvard research," *STAT* (2016); [www.statnews.com/2016/09/12/sugar-industry-harvard-research/](http://www.statnews.com/2016/09/12/sugar-industry-harvard-research/).
7. Institute of Medicine, *Conflict of Interest in Medical Research, Education, and Practice*, B. Lo, M. J. Field, Eds. (National Academies Press, 2009).
8. R. J. Light, D. B. Pillemer, *Summing Up: The Science of Reviewing Research* (Harvard University Press, 1984).
9. C. D. Mulrow, *Ann. Intern. Med.* **106**, 485 (1987).
10. G. V. Glass, *Educ. Res.* **5**, 3 (1976).

10.1126/science.aat5208

## Linguistics' role in the right to education

In primary schools across the world, 40% of students must learn all academic subjects, including how to read, in a language that they do not speak fluently (1). Excluding students' native languages from the classroom leads to academic failure for hundreds of millions of children throughout the world (1), contributes to their communities' socioeconomic underdevelopment (2), and violates their human rights (3).

Postcolonial communities in the Caribbean, Latin America, Africa, Asia, and the Pacific are most likely to subject their students to instruction in a non-native language (4). This correlation is no accident: The exclusion of noncolonial languages in education is one of the most insidious tools of class-based and geopolitical power struggles in colonial and postcolonial societies (5). In Haiti, for example, French is spoken fluently by no more than 5% of the population (6), whereas Haitian Creole ("Kreyòl") is spoken by virtually everyone. Yet French is the primary language of formal education. This language barrier has handicapped generations of students who speak only Kreyòl and has contributed to Haiti's status as one of three countries with the highest levels of inequity in the world (7).

Hawaii can serve as a model for a way forward. Hawaii has a successful language-immersion program with high enrollment of indigenous children whose first language is Hawaiian (8). The immersion schools have enhanced the students' learning gains, including the learning of second languages such as English (8). Through recent legislation that strengthens education in noncolonial languages (9), the United States is expanding language-immersion and dual-language education to include Native

American and other minority languages (10). These models should be extended to communities worldwide. One crucial step is to develop high-quality active-learning methods and resources for teaching in every student's native language [e.g., (11)].

Access to education in all languages, including those of disadvantaged communities whose languages have been excluded in education, will allow everyone to "enjoy the benefits of scientific progress and its applications," as provided by Article 15 of the International Covenant on Economic, Social, and Cultural Rights (12). To accomplish this goal, we need more research and international collaboration among linguists, scientists, mathematicians, engineers, and educators. Together, we can work to include noncolonial languages in the design of high-quality educational resources that enhance active learning and are anchored in local culture and local needs. Academic and government leaders, as well as granting agencies and international organizations, can help encourage and fund such research.

**Michel DeGraff**

Department of Linguistics and Philosophy, Massachusetts Institute of Technology, Cambridge, MA 02139, USA. Email: [degraff@mit.edu](mailto:degraff@mit.edu)

#### REFERENCES

1. UNESCO, "If you don't understand, how can you learn?" (Global Education Monitoring Report, Policy Paper 24, 2016); <http://unesdoc.unesco.org/images/0024/002437/243713E.pdf>.
2. S. L. Walter, in *The Handbook of Educational Linguistics*, B. Spolsky, F. M. Hult, Eds. (Blackwell Publishing, 2008), ch. 10.
3. R. Phillipson *et al.*, *Linguistic Human Rights: Overcoming Linguistic Discrimination* (De Gruyter Mouton, 1994); [www.worldcat.org/oclc/979913240](http://www.worldcat.org/oclc/979913240).
4. S. L. Walter, C. Benson, in *The Cambridge Handbook of Language Policy*, B. Spolsky, Ed. (Cambridge University Press, 2012), ch. 14.
5. M. DeGraff, *Lang. Soc.* **34**, 533 (2005).
6. M. Saint-Germain, *Rev. Sci. Educ.* **23**, 10.7202/031954ar (1997) [in French].
7. "Inequality index: where are the world's most unequal countries?" *The Guardian* (26 April 2017).
8. W. H. Wilson, K. Kamanā, in *Literacy in the Early Years*, Vol. 17, C. McLachlan, A. Arrow, Eds. (Springer, 2017), pp. 133–150.
9. S.1177: Every Student Succeeds Act (2015).
10. J. Vaznis, "A Haitian Creole program for preschoolers arrives in Mattapan," *Boston Globe* (7 September 2017).
11. The MIT-Haiti Initiative: An International Engagement (2016); <http://web.mit.edu/fnl/volume/291/miller.html>.
12. United Nations Human Rights, "International Covenant on Economic, Social and Cultural Rights" (1976); [www.ohchr.org/EN/ProfessionalInterest/Pages/CESCR.aspx](http://www.ohchr.org/EN/ProfessionalInterest/Pages/CESCR.aspx).

10.1126/science.aat5532

#### EDITOR'S NOTE

"Joint statement on EPA proposed rule and public availability of data" by J. Berg, P. Campbell, V. Kiermer, N. Raikhel, D. Sweet, *Science* **360**, eaau0116 (2018). Published online 4 May 2018 (First Release 30 April 2018); 10.1126/science.aau0116

## The sugar industry's influence on policy

C. Kearns, L. Schmidt, D. Apollonio and S. Glantz

*Science* **360** (6388), 501.

DOI: 10.1126/science.aat3763

### ARTICLE TOOLS

<http://science.sciencemag.org/content/360/6388/501.1>

### RELATED CONTENT

<http://science.sciencemag.org/content/sci/360/6388/501.2.full>  
<http://science.sciencemag.org/content/sci/359/6377/747.full>

### REFERENCES

This article cites 5 articles, 0 of which you can access for free  
<http://science.sciencemag.org/content/360/6388/501.1#BIBL>

### PERMISSIONS

<http://www.sciencemag.org/help/reprints-and-permissions>

Use of this article is subject to the [Terms of Service](#)

---

*Science* (print ISSN 0036-8075; online ISSN 1095-9203) is published by the American Association for the Advancement of Science, 1200 New York Avenue NW, Washington, DC 20005. 2017 © The Authors, some rights reserved; exclusive licensee American Association for the Advancement of Science. No claim to original U.S. Government Works. The title *Science* is a registered trademark of AAAS.