

Medical News & Perspectives

Backlash Over Meat Dietary Recommendations Raises Questions About Corporate Ties to Nutrition Scientists

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It's almost unheard of for medical journals to get blowback for studies before the data are published. But that's what happened to the *Annals of Internal Medicine* last fall as editors were about to post several studies showing that the evidence linking red meat consumption with cardiovascular disease and cancer is too weak to recommend that adults eat less of it.

Annals Editor-in-Chief Christine Laine, MD, MPH, saw her inbox flooded with roughly 2000 emails—most bore the same message, apparently generated by a bot—in a half hour. Laine's inbox had to be shut down, she said. Not only was the volume unprecedented in her decade at the helm of the respected journal, the tone of the emails was particularly caustic.

"We've published a lot on firearm injury prevention," Laine said. "The response from the NRA (National Rifle Association) was less vitriolic than the response from the True Health Initiative."

The True Health Initiative (THI) is a nonprofit founded and headed by David Katz, MD. The group's website describes its work as "fighting fake facts and combating false doubts to create a world free of preventable diseases, using the time-honored, evidence-based, fundamentals of lifestyle and medicine." Walter Willett, MD, DrPH, and Frank Hu, MD, PhD, Harvard nutrition researchers who are among the top names in their field, serve on the THI council of directors.

Katz, Willett, and Hu took the rare step of contacting Laine about retracting the studies prior to their publication, she recalled in an interview with *JAMA*. Perhaps that's not surprising. "Some of the researchers have built their careers on nutrition epidemiology," Laine said. "I can understand it's upsetting when the limitations of your work are uncovered and discussed in the open."

Subsequent news coverage criticized the methodology used in the meat papers and raised the specter that some of the authors had financial ties to the beef industry,



representing previously undisclosed conflicts of interest.

But what has for the most part been overlooked is that Katz and THI and many of its council members have numerous industry ties themselves. The difference is that their ties are primarily with companies and organizations that stand to profit if people eat less red meat and a more plant-based diet. Unlike the beef industry, these entities are surrounded by an aura of health and wellness, although that isn't necessarily evidence-based.

State of the Science

The *Annals* published 5 systematic reviews—4 that included results from randomized clinical trials (RCTs) and observational studies examining the relationship between red meat and health, and a fifth that looked at health-related values and preferences about eating meat. Based on the reviews, the authors produced a guideline that concluded adults needn't change their meat-eating habits.

In an accompanying editorial, coauthors Aaron Carroll, MD, and Tiffany Doherty, PhD, wrote that the guideline "is sure to be controversial, but it is based on the most comprehensive review of the evidence to date."

Carroll, a regular *JAMA* contributor who directs the Indiana University School of Medicine's Center for Pediatric and Adolescent Comparative Effectiveness Research, also wrote in the *New York Times* about the difficulties involved in conducting high-quality nutrition research.

"Even observational trials are hard to do well," Carroll wrote. In the short-term, it's difficult to find big differences in death and disease rates, even in large groups of people, he noted. "But quantifying what people are eating over long periods is challenging, too, because people don't remember."

The guideline's lead author, Bradley Johnston, PhD, is a cofounder and director of NutriRECS, an independent group that says it uses its members' expertise in clinical issues, nutrition, public health, and

evidence-based medicine to produce nutritional guidelines that aren't hampered by conflicts of interest. Besides systematic reviews about the relationship between dietary patterns, food, and nutrients and health outcomes, NutriRECS said it considers patient and community values, attitudes, and preferences in its guideline recommendations.

In the *Annals* papers, NutriRECS members and their coauthors wrote that they sought to bring scientific rigor to current meat intake guidelines based mostly on observational studies that don't establish cause-and-effect relationships.

Johnston, an associate professor with Texas A&M University's nutrition and food science department, and his coauthors used the **GRADE** (Grading of Recommendations, Assessment, Development, and Evaluations) approach to assess the quality of evidence upon which they based their guideline. The GRADE framework considers evidence from randomized controlled trials (RCTs) to be of the highest quality and observational data to be of lower quality because of residual confounding. A panel of 14 individuals from 7 countries voted on the final guideline recommendations, and 3 dissented.

The authors, who noted that their recommendations were "weak" and based on low-certainty evidence, found no statistically significant link between meat consumption and risk of heart disease, diabetes, or cancer in a dozen RCTs that had enrolled about 54 000 participants. They did find a very small disease risk reduction among people who consumed 3 fewer servings of red meat weekly in epidemiological studies that followed millions, but the association was uncertain.

The authors acknowledged that other reasons besides health—namely concerns about the environment and animal welfare—might motivate people to reduce their meat intake, although those factors did not bear on the recommendations.

"That would require a systematic review of the relevant evidence, which was beyond the scope of our work—and indeed, of our expertise," Johnston and his coauthors commented on the *Annals* website in response to criticism for not considering environmental impact.

Katz and other THI members **have criticized** the authors' use of GRADE because, unlike pharmaceutical research,

so much nutrition research is observational and so little involves RCTs. "We can't randomly assign people to diets for decades," Katz told *JAMA*. "Even if we could...we couldn't blind them to what they're eating...everything about nutritional epidemiology cries out for the use of other methods [besides GRADE]."

Katz and coauthors including Willett recently **published** an article about a tool they constructed that deemphasizes the importance of RCTs in evaluating evidence about what they call lifestyle medicine, including diet. "We're not anti-meat," said Katz, founding director of the US Centers for Disease Control and Prevention-funded Prevention Research Center at **Griffin Hospital**, a 160-bed acute-care community hospital in Derby, Connecticut, that's affiliated with the Frank H. Netter MD School of Medicine at Quinnipiac University and the Yale School of Medicine. "We're just pro-science."

The problem, said Harvard Medical School obesity specialist David Ludwig, MD, PhD, is that the science is not that good. "The average research study in nutrition is just lower quality."

In a recent *JAMA* **Viewpoint**, Ludwig and his coauthors wrote that compared with pharmaceutical research, dietary studies are far more challenging in terms of consistency, quality control, confounding, and interpretation, which makes translating those findings into public policy "exceedingly difficult."

Instead of coming up with tools to give more weight to observational studies in guideline development, nutrition scientists need to rethink how they design studies, John Ioannidis, MD, DSc, of the Stanford University School of Medicine, wrote in a 2018 *JAMA* **Viewpoint**.

"The field needs radical reform," Ioannidis noted.

Word Gets Around

Demands to retract the *Annals* papers before they were published suggest that the journal's embargo policy had been violated. (Embargoes prohibit reporters and press officers at the authors' institutions from circulating articles before they're published. Breaking an embargo is a serious breach.)

An **article** on the THI website states that the organization had obtained the meat articles 5 days before they were scheduled to

be published online. Laine said Katz was on the *Annals'* press release list because he writes a weekly column for the *New Haven Register*, a Connecticut newspaper.

Katz said he circulated only the press release—"that's in the public domain"—but not the embargoed articles, among THI colleagues, telling them that the guideline "looks like it's going to be a serious problem for us."

Actually, embargoes apply to press releases as well as the articles themselves, said Angela Collom, the *Annals* media relations manager. The *Annals* and many other journals post releases to a **website** run by the American Association for the Advancement of Science that restricts access to members of the media who agree to embargo policies.

"Those channels are not public domain," Collom said. Because Katz shared the press release, she added, the *Annals* dropped him from the list of journalists eligible to receive embargoed releases or articles.

Four days before the articles were published, Katz and 11 THI members sent Laine a **letter** asking her to "pre-emptively retract publication of these papers pending further review by your office." The signatories included THI council members Hu and Willett; **Neil Barnard, MD**, president of the Physicians Committee for Responsible Medicine (PCRM); former US Surgeon General **Richard Carmona, MD, MPH**; **David Jenkins, MD, PhD**, a nutrition professor at the University of Toronto Faculty of Medicine; and **Dariush Mozaffarian, MD, DrPH**, dean of the Friedman School of Nutrition Science and Policy at Tufts University.

"It's really frightening that this group, which includes people like Walter Willett and Frank Hu at the Harvard School of Public Health, which happens to be my alma mater, were aware of this and assisting it," Laine said.

What's more, THI member John Sievenpiper, MD, PhD, also signed the letter to Laine even though he coauthored the NutriRECS **systematic review** about the relationship between meat consumption and all-cause mortality and the risk of cardiovascular disease, heart attack, and type 2 diabetes.

Laine said she contacted Sievenpiper, a nutrition scientist at the University of Toronto, after receiving the letter and pointed out that he had signed a standard

form affirming his agreement with his paper's conclusions. That had not changed, he told her, but he did not agree with the guideline paper, of which he was not an author.

Hours before the meat articles were posted and the embargo lifted, Barnard's PCRM went so far as to [petition](#) the Federal Trade Commission (FTC) "to correct false statements regarding consumption of red and processed meat released by the *Annals of Internal Medicine*." But the FTC describes its role as protecting consumers and promoting competition in the marketplace, so it's unclear what authority or interest it would have in this case.

Despite PCRM's name, less than 10% of its 175 000 members are physicians, according to its [website](#), which describes the organization's mission as "saving and improving human and animal lives through plant-based diets and ethical and effective scientific research."

"Information Terrorism"

The rebukes continued for weeks after publication of the meat articles, but Katz didn't comment via the typical routes of posting comments on the journal's website or writing a letter to the editor. He said he did neither because he's "able to react much more immediately and generate a much wider awareness with my own blog platforms."

In his [October 6 column](#) for the *New Haven Register*, Katz compared the articles, which he called "a great debacle of public health" to "information terrorism" that "can blow to smithereens...the life's work of innumerable careful scientists."

About 3 weeks later, PCRM [asked](#) the district attorney for the City of Philadelphia, where the *Annals* editorial office is located, "to investigate potential reckless endangerment" resulting from the publication of the meat papers and recommendations.

Another salvo came during a recent 1-day [preventive cardiology conference](#), where half the [presentations](#) were on plant-based diets. During his keynote address, Willett showed a [slide](#) entitled "Disinformation" that faulted several organizations and individuals: the "sensationalist media," specifically the *Annals* and longtime *New York Times* science reporter Gina Kolata, who wrote the newspaper's [first story](#) about the meat papers; "Big Beef," specifically Texas A&M and nutrition scientist Patrick Stover, PhD, vice chancellor at the school and a co-

author of the NutriRECS meat consumption guideline; and "evidence-based academics," namely NutriRECS and Gordon Guyatt, MD, MSc, chair of the panel that wrote the meat consumption guidelines.

"It was part of my talk addressing the confusion that the public gets from the media about diet and health," Willett said in an email to *JAMA*. "Some of this relates to the triangle of disinformation that is...feeding into this. The same strategy is being used to discredit science on sugar and soda consumption, climate change, air pollution, and other environmental hazards."

Guyatt, a distinguished professor at McMaster University in Hamilton, Ontario, led the development 30 years ago of the concept of [evidence-based medicine](#). In an [interview](#) with the Canadian Broadcasting Company a few days after the meat articles were posted, Guyatt called the response to them "completely predictable" and "hysterical."

Tufts University professor Sheldon Krimsky, PhD, described it differently. "It sounds like a political campaign," said Krimsky, who spoke on a panel about corporate influence on public health at the annual meeting of the American Public Health Association. "I've seen Monsanto do the same thing on the other side."

Krimsky, who studies linkages between science and technology, ethics and values, and public policy, said THI is part of a plant-based diet "movement." "If Katz wrote a paper, and it was published in one of the journals, I would assume he would have to disclose his relationship with his organization."

Steven Novella, MD, founder and executive editor of the Science-Based Medicine website and a [long-time critic](#) of Katz, was more pointed in his assessment of the THI campaign against the meat articles. "It's a total hit job," Novella, a Yale neurologist, told *JAMA*. "They have a certain number of go-to strategies...in order to dismiss any scientific findings they don't like." One such strategy, he said, is to lodge accusations of "tenuous" conflicts of interest.

"Confluence" or Conflict of Interest?

The *New York Times* was the first organization to raise the issue of potential conflicts of interest among the meat papers' authors. An October 4 [article](#) noted that Johnston, who reported having no conflicts of interest in the 3 years prior to publication, coauthored a December 2016

Annals study that was funded by the non-profit [International Life Sciences Institute](#) (ILSI), which is primarily supported by the food and agriculture industry.

He and his coauthors of the 2016 article used GRADE to conduct "a separate and independent review of the methodological quality of dietary guidelines that address (added) sugar recommendations," Johnston told *JAMA*. They found that the evidence to support recommendations to cut back on added sugars was low to very low, highlighting "methodological deficiencies in nutritional guidelines," Johnston said. "This paper did not say sugar is okay to consume."

He said he received the ILSI funding in 2015, which was before the 3-year period for which he was required to report competing interests for the meat articles. However, according to a December 31 [correction](#) in the *Annals*, Johnston didn't include on his personal disclosure form a grant from Texas A&M AgriLife Research that he received within the 36-month reporting period. The grant funded investigator-driven research about saturated and polyunsaturated fats, according to the correction.

Johnston isn't the only one who's had ILSI ties. True Health Initiative member Sievenpiper served as a scientific advisor for ILSI's [Carbohydrates Committee](#) and as [vice chair](#) of the ILSI North America Scientific Session 2018. And in late 2015, Canada's *National Post* newspaper [reported](#) that the [Corn Refiners Association](#) retained Sievenpiper as an expert witness to support its case that high-fructose corn syrup is no less healthy than sugar.

Shortly after the meat papers were published, THI Director Jennifer Lutz posted an [article](#) entitled "Steak Holder Interests: Industry Funding and Nutrition Reporting."

The article called out Stover, who coauthored the NutriRECS meat guideline, for having an undisclosed conflict of interest because his school receives funding from the beef industry. Stover is vice chancellor and dean for the Texas A&M College of Agriculture and Life Sciences, which is part of Texas A&M AgriLife. Lutz's article noted that 44 Farms, [the largest Texas producer](#) of Black Angus cattle, [has established an endowment](#) at Stover's school to support the International Beef Cattle Academy.

However, the beef industry provides only about 1.5% of AgriLife's funding, which

it posts [online](#), spokeswoman Olga Kuchment said. Federal sources, such as the US Department of Agriculture, account for about half of AgriLife's funding, Kuchment added. Besides animal science, [AgriLife research areas](#) include nutrition and food science, horticultural science, and soil and crop sciences. Although he has received AgriLife funding, Johnston said, "I personally have never had ties with the beef industry."

Meanwhile, industry ties and other potential conflicts of interest seem to be common among THI council members and the organization itself.

Among the not-for-profit "[partners](#)" listed on the THI website are [#NoBeef](#), the [Olive Wellness Institute](#), which describes itself as a "science repository on the nutrition, health, and wellness benefits of olives and olive products"; and the [Plantrician Project](#), whose mission is "to educate, equip, and empower our physicians, healthcare practitioners and other health influencers with knowledge about the indisputable benefits of plant-based nutrition."

Among THI's for-profit partners are [Wholesome Goodness](#), which sells "better-for-you foods" such as chips, breakfast cereals, and granola bars "developed with guidance from renowned nutrition expert Dr David Katz"; and [Quorn](#), which sells meatless products made of mycoprotein, or fermented fungus made into dough.

Katz, who on his [personal website](#) describes himself as an [entrepreneur](#), bristles at the suggestion that he, his organization, or any of his council members might have conflicts of interest.

"We weren't telling people: Buy our kumquats," he said.

Perhaps not kumquats, but Katz, according to his [curriculum vitae](#) (CV), and [Hu](#) have received funding from the [California Walnut Commission](#). And the T.H. Chan School of Public Health, Hu's and Willett's academic home, [has received](#) hundreds of thousands of dollars from the walnut group.

"I don't think there is any basis in the world to accuse Walter Willett of conflict of interest. He and Frank Hu have genuine interest in the health effects of nuts," Katz said. "There's nothing fundamentally wrong [with] industry funding."

And, Katz told *JAMA*, "I think there's a big difference between conflict of interest...vs

a [confluence of interest](#). The work you do is what you care about...No one's ever paid me to say anything I don't believe."

Katz is a past president of an organization called the American College of Lifestyle Medicine (ACLM), whose [website](#) states that THI was "birthed from under ACLM's wing" in 2015, during his 2-year term. The ACLM established the [American Board of Lifestyle Medicine](#), which [isn't recognized](#) by the American Board of Medical Specialties. Among ACLM's corporate "partners" is [Plant Strong by Engine 2](#), which holds retreats "designed to foster and celebrate your plant-based potential," and [MamaSezz](#), which delivers "ready-to-eat whole food plant-based meals with no BS (you know, Bad Stuff)."

Carmona, the THI council member and former surgeon general, [serves on the board](#) of Herbalife Nutrition, the dietary supplements company, and as "[chief of health innovation](#)" at [Canyon Ranch](#), "the world's recognized leader in...luxury spa vacations."

In a 2018 [commentary](#) entitled "Resisting influence from agri-food industries on Canada's new food guide," THI council member Jenkins listed under his "competing interests" dozens of research grants from companies and industry groups, including the Pulse Research Network, the Almond Board of California, the International Nut and Dried Fruit Council; Soy Foods Association of North America; the Peanut Institute; Kellogg's Canada; and Quaker Oats Canada.

Katz's 66-page CV provides much food for thought about industry funding of nutrition research. He lists 2 grants from Hershey Foods totaling \$731 000 to study the effects of cocoa on vascular function in people with hypertension and in those with obesity. He received 4 grants totaling \$662 000 from the Egg Nutrition Center, the research and education division of the American Egg Board. One of the egg grants was awarded in August 2010, around the same time he published an [article](#) entitled "Recent anthropologic and clinical research raises questions about egg/cholesterol relationship—Eggsoneration" in the Egg Nutrition Center's *Nutrition Closeup* newsletter. He also received \$249 701 from [ISOThrive](#) to study the effects of its eponymous "gastroenterologist recommended microFood" in overweight adults.

Katz also is senior nutrition advisor for Kind Healthy Snacks—a THI partner—and has received \$153 000 in research grants from the company. In 2015, the year Katz became an advisor to Kind, it received a [warning letter](#) from the US Food and Drug Administration (FDA) for false nutrient claims, including the use of the word "healthy," on its labels.

Consumer Confusion

Do consumers lose when nutrition researchers can't play nice?

Timothy Caulfield, LLM, research director of the University of Alberta's Health Law Institute and a THI council member, gave 3 public lectures in 1 week not long after *Annals* published the meat articles. "This issue came up at all 3," Caulfield said.

"I understand both the concern about conflict of interest, especially in nutrition research, and the value of advocating [for] a more plant-based approach to nutrition," he said. "But there is so much public confusion surrounding diet. I worry about any messaging that might be interpreted as dogmatic."

Caulfield, described in a 2018 [profile](#) in Toronto's *Globe and Mail* as "one of North America's most high-profile skeptics, taking on the rising tide of pseudoscience and misinformation," noted that "the [THI] council has many alternative medicine practitioners and embraces 'integrative health.' This can be difficult to square with a science-based approach."

When asked if he planned to step down from the THI council, Caulfield said, "I'll need to put more thought into this. I haven't asked them to remove my name...but I haven't been actively involved."

The cacophony that has erupted over the meat papers is drowning out the valid points they made, Laine said.

"The sad thing is that the important messages have been lost," she said. "Trustworthy guidelines used to depend on who were the organizations or the people they came from." Today, though, "the public should know we don't have great information on diet," Laine said. "We shouldn't make people scared they're going to have a heart attack or colon cancer if they eat red meat." ■

Note: Source references are available through hyperlinks embedded in the article text online.