In hyped claim organic milk is healthier, activist science meets bungled reporting

For the health-obsessed media, a study touting the alleged benefits of drinking organic milk is a made-for-headlines event and a bonanza for the 'natural food' industry.

The web erupted last week after Washington State University issued a news release titled "Researchers see added nutritional benefits in organic milk," promoting a just-published study as a long awaited silver bullet proof of the superior health benefits of organic foods. All the stories lacked were consensus science. Here's how the media bungled their reporting and what the science really says—and doesn't say.

The study, co-authored by well-known organic researcher Charles Benbrook, claimed to be "the first large-scale, U.S.-wide comparison of organic and conventional milk"—it wasn't, but we'll get to that later. Published in PLOS ONE, the Public Library's open-access resource, the news struck immediate media gold, spawning a spate of misleading headlines and stories, even in the mainstream press.

"More Helpful Fatty Acids Found in Organic Milk," headlined Kenneth Chang's *New York Times* story. (Fact: organic milk does not have higher concentrations of more helpful fatty acids.) *Businessweek*'s Andy Martin's report was titled "Is Organic Milk Better for You? It Might Be." (Fact: It's not.) The NBC News headline for the story by Melissa Dahl, a health writer and editor, was among the least responsible: "Yep, organic milk really is better for you than regular milk." (Fact: Nope.)

The activist media upped the ante, with stories that read like industry news releases in *Mother Jones* (Tom Philpott cites the study as 'proof'—Fact: No way.) and *Grist* "Organic milk is better for your heart" (Fact: No better than conventional milk.), and the promotion of the story by the Organic Consumers Association, Stonyfield Organic and other companies and organizations set to gain financially from this news.

While the rapturous headlines and the endorsements sound definitive, the science is anything but. The flurry of uncritical stories touched off by the release of this study is a textbook example of how easily science can be manipulated and misrepresented—and why journalistic vigilance is so critical.

Fatty acid conundrum

Charles Benbrook claims that "organic milk is better" than conventional milk because it contains significantly higher concentrations of heart-healthy fatty acids. Testing nearly 400 samples over an 18-month period, the research team found that conventional milk they tested had an average omega-6 to omega-3 fatty acid ratio of 5.8, more than twice the ratio of 2.3 they reported from organic milk. They say that is a more favorable balance.

Independent scientists—those with no financial ties to the organic industry—say that the Benbrook study is rife with methodological problems and questionable scientific assumptions. Rossi Filippo, a nutritionist with the Institute of Food Science and Nutrition at the Catholic University of the Sacred Heart in Milan, pointed out in an email that the omega-6 to omega-3 ratio should be calculated considering the whole diet,

not only with one food. But even if the recalculated ratio should hold, the sweeping conclusions—that organic milk is better for us—is almost certainly wrong.

The problems with the study go far beyond poor math. While some scientists argue that higher ratios of omega-6 to omega-3 lead to greater health risks, that's not the consensus belief. Dr. Walter Willett, chairman of the nutrition department at the Harvard School of Public Health says that studies like this one that claim that omega-6 fatty acids are harmful promote a "false assumption." According to Willett, omega-6s are actually associated with a lower risk of heart disease. The ratio touted in the study is "irrelevant," he says, and health conscious consumers should eat more of both kinds of fatty acids—directly contradicting a central assumption in the Benbrook study.

Other scientists are concerned about the crude way Washington State University and Benbrook promoted the research. They make it seem like a breakthrough study, a theme echoed widely in news stories, and even by the *New York Times* in its otherwise balanced report. Kenneth Chang calls it "the most clear-cut instance of an organic food's offering a nutritional advantage over its conventional counterpart."

In fact, study after study—thousands of them, with the 237 considered most pertinent summarized in a meta-analysis by a team at Stanford University published last year—have found "little evidence of health benefits from organic foods." The American Academy of Pediatrics and the Mayo Clinic, among dozens of organizations, have said organic foods offer no nutritional advantages over conventional foods, and the National Dairy Council, which represents organic and conventional farmers, states there are no unique benefits from organic milk.

Despite Benbrook's claim, this is neither the first major nor the most comprehensive study comparing the health differences of organic and conventional milk. In 2010, for example, the *Journal of Dairy Science* evaluated samples from 48 states and reached the opposite conclusion from Benbrook's one-off publication. That study also looked at milk labeled as recombinant bovine somatotropin (rbST) free. (rbST is a synthetic version of the protein, which organic activists, including Benbrook, say is unhealthy, although there is no data to support that claim.) The conclusion in *JDS*:

> Overall, when data from our analysis of [fatty acid] composition of conventional milk and milk labeled rbST-free or organic were combined with previous analytical comparisons of the quality and composition of these retail milk samples, results established that there were no meaningful differences that would affect public health and that all milks were similar in nutritional quality and wholesomeness.

Grass fed not organics

"The problem with this study," animal scientist at the University of California-Davis Alison Van Eenennaam notes in an email, "is that it conflates 'organic production' with 'omega-3 levels in pasture'. Fatty acids found in milk are derived almost equally from two sources: feed and the microbial activity in the rumen of the cow. It is well known that milk from cows consuming grass has slightly higher levels of omega-3 fatty acids. Grass-fed conventional milk would have the same fatty acid profile. This can actually be seen in the

study. Conventional milk from Northern California, where cows are typically grazing pasture, had a fatty acid profile and omega-3 content similar to organic milk."

What about the claim that organic farmers are more likely to grass feed their cows? That's true in some cases but not in others. Depending upon the time of the year organic cows may or may not graze on pasture. According to USDA organic guidelines, they can technically be off it for 8 months if raised in a region with a short grazing season.

"In practice, organic farms as well as conventional farms can vary widely in feeding and diet formulations," writes Van Eenennaam. "This variation was demonstrated in a 2009 study that compared the omega-3 fatty acids milk fat content from three retail sources of organic and conventional milk, as well as one individual organic farm, every other week for 18 months. The individual organic farm had the highest and the lowest omega-3 fatty acids values, illustrating the substantial variation that exists even within a single farm."

Bottom line: the fatty acid levels in milk (even if the ratios are meaningful) do not necessarily have anything to do with organic methods. Milk composition is determined by breeding (genetics), the feed cows consume, how the cow is raised, lactation stage and season. In this context, the data in the Benbrook study looks like little more than overhyped noise.

Studies in Britain from several years ago have showed that conventional milk from cows fed on a diet of mostly grass tend to produce this exact result, notes Graham Brookes, an economist with the agricultural consultancy PG Economics. In the UK, most milk is produced this way, so whether it's organic or not is irrelevant.

It's not even established that fatty acids from milk—organic or conventional—provide any unique health benefits. Studies demonstrating the benefits of certain fatty acids have focused on fish oils, not on dairy products. After the publication of a similarly flawed 2010 study of organic and conventional milk in England (*Mother Jones* hawked that study too), the UK Food Standards Agency evaluated and rejected claims by organic milk supporters that their products offered a health benefit, recommending oily fish as the only way to get beneficial omega fatty acids.

Conflicts of interest dog organic study

Only the *New York Times*, among the major media, provided some counterweight to Benbrook's hyped claims about the alleged benefits of organic milk even though it fell prey to sensationalist journalism in its title. *Times* reporter Chang was also one of the few journalists to highlight the clear conflict of interest in the funding of the study. (Call out to Philpott—good reporting on this.) Almost all the research dollars came from Organic Valley, a mega farm cooperative that sells organic products and is positioned to reap a huge financial windfall if the publicity over the study influences consumer buying behavior.

Contrast this deafening silence to what happens whenever research is released that links conventional or genetically modified foods to a health or sustainability benefit—for example, when studies found that Golden Rice enhances nutrition or Bt cotton reduces pesticide use. Journalists' knives come out, usually

in the first sentence ("In a study funded by the biotechnology industry, researchers have found…."). Organic and anti-GMO activists dismiss these studies outright ("Scientists Tied to Tobacco Industry Propaganda, and Funding from Monsanto, Turn Attention to Organic Food,") claiming the entire conventional food industry is corrupt, and therefore all studies they produce are worthless regardless of the independent controls built in to ensure the credibility of the data.

Then there's the issue of Charles Benbrook himself. I found no mainstream stories that addressed the organic researcher's highly politicized role in this debate. Benbrook is a well-known activist who regularly savages conventional agriculture, criticizes crop biotechnology and accepts research money from the organic industry. In short he is a classic industry funded scientist whose research activists should reject outright. As GMWatch has noted, "Conflict of interest consistently obfuscates the claims of safety made by industry affiliated scientists."

Noting the funding sources of a study helps readers contextualize information; but when it comes to reporting on a favorite subject of health and foodie reporters—organics—journalistic responsibility often goes out the window. If this had been a study funded by the conventional ag industry and it had concluded that organics offered no clear health benefits, anti-GMO and and prominent organic advocacy groups would have ridiculed the study and labeled the author a "shill".

Benbrook's research is controversial. He is perhaps best known among scientists for releasing multiple studies, most recently last year, claiming that the cultivation of genetically modified crops leads to increased pesticide use, a popular talking point of anti-GMO activists. As we reported at the Genetic Literacy Project in October 2012, many scientists savaged this claim, saying it appeared he had cooked the data to bolster his anti-GMO campaigning.

"I can't help but get the feeling that Dr. Benbrook started with a conclusion and found data to fit rather than starting with a general review then finding significant conclusions," noted Anastasia Bodnar, co-founder of the non-profit Biofortified website. She cited far more extensive research that contradicted his extrapolations—Benbrook did not have hard data for much of his analysis—and pointed out that independent of overall annual volume usage numbers, the toxic profile of pesticides used in conjunction with commodity crops, primarily glyphosate, is far less harmful than the pesticides it replaced and even less harmful than some organic alternatives.

In an apparent eagerness to promote a 'breakthrough' study that puts a permanent halo on organic foods, many reporters fell victim to "single study syndrome"—the notion that the latest study no matter how one-off or poorly executed trumps all previously published data and deserves promotion. Compounding that problem, in this case, most reporters just didn't do their homework, or if they did, they did not grasp the fundamental methodological problems with the study.

There could be serious health consequences from poor reporting about organic milk. Organic foods are expensive and by the judgment of independent scientists are not worth the extra cost if one is looking for health benefits. Plus, they can pose unique dangers. For example, unpasteurized organic milk and cheese have become a fad among 'health conscious' consumers entranced by organic industry promotions. Just this week, the American Academy of Pediatrics warned that babies and children are at increased risk from

raw and unpasteurized milk and cheese that can carry bacteria such as *E. coli* and *Salmonella* from sick animals or contact with manure, which is used as fertilizer on organic farms. Some but not all organic milk is sold as raw or unpasteurized. Organic Valley Coop, which funded the Benbrook study and misrepresents it on links from its website ("Organic Valley's milk healthier than conventional alternatives") sells raw cheeses that it brags as being made from "organic cultured unpasteurized milk."

If reporters had done even a minimal amount of research, they would have come across numeorus studies suggesting that organic milk offers no meaningful advantages and might even pose some health challenges. For example, a 2008 study in the *Journal of the American Dietetic Association* that analyzed retail samples of conventional, rbST-free and organic milk found that organic milk does show a minimal increase in protein. But conventionally-labeled milk had the lowest bacterial counts (although the differences were not biologically meaningful) of the three varieties and conventional milk had less of the endocrine disrupting chemicals estradiol and progesterone than organic milk.

A 2010 study published in the *Journal of Dairy Sciences* found that organic milk was higher in saturated fatty acids, considered to be less healthy, and lower in heart-healthier monounsaturated fatty acids when compared to both conventional and rbST-free milk. The differences were measurable but minor, and not significant enough to be considered a health issue—as in the case of Benbrook's findings, although that's not what he claims and what many reporters hyped.

So, what did we actually learn from the Benbrook milk study touted by the likes of the *New York Times* and every organic site known to humankind? Milk from cows that graze on pasture, whether on organic or conventional farms, contain more omega-3 fatty acids that do not provide any unique health benefits. That's headline material?

Like any research undertaken by a true believer, science is vulnerable to taking a back seat to spin. Hundreds of independent studies by dozens of the top independent science organizations around the world have concluded that organic foods offer no unique health benefits when compared to conventional varieties. Botched reporting just promotes cynicism and contributes to efforts by many in the organic establishment to demonize conventional agriculture and biotechnology. That some journalists participated in what amounts to a marketing blitz for the organic industry is unconscionable.

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Additional Resources:

- Is The New York Times Right About Organic Milk? Silo Skies
- Organics versus GMO: Why the debate? Genetic Literacy Project
- What happened when an organic farmer visited the 'evil empire' Monsanto? Real Agriculture
- Organic farming not the answer to world food challenges, but offers some sustainability advantages,

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