



NEWS BACKGROUND

May 13, 2014

“FED UP”

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It should be stated emphatically at the outset that obesity—the subject of *Fed Up*, produced by Katie Couric and Laurie David—particularly in the United States and other industrialized nations has unquestionably reached epidemic proportions. It demands serious approaches guided by sound science. The filmmakers deserve credit for helping keep this major societal challenge front and center in our collective consciousness, and for trying to move the debate in a new direction.

Unfortunately, their compass is broken.

There was substantial media interest in the run-up to this past weekend’s theatrical release of the film. By the [IFIC Foundation](#)’s count, it received an impressive 1.6 billion U.S. media impressions between May 1 and May 9 alone. However, in the vast majority of the stories that have been written, **balance has been the exception and not the rule.**

While all documentaries have a point of view, few have distorted reality, omitted context, or advanced so many dubious assertions so deftly as has *Fed Up*. We would urge journalists to dig deeper and question the claims that have been made, **ask the filmmakers to back up their statements with facts**, and then analyze their answers critically.

Following on our January 2014 [blog post](#) after *Fed Up*’s debut at the Sundance Film Festival, we now explore in greater depth and breadth several of the claims made in the film, drawing upon the best available evidence from highly credible sources.

Correcting the *Fed Up* Record: Specious Claims Lacking Facts and Context

The *Fed Up* claim: "This year for the first time in the history of the world, more people will die from the effects of obesity than from starvation."

The facts: According to the [World Health Organization](#), 2.8 million people die every year from overweight and obesity—which necessarily would suggest an even lower number if counting only obesity, which is the literal claim being made here.

However, [Oxfam International](#) states that as of 2009, about 24,000 people died every day (or nearly 8.8 million a year) from hunger-related causes. [Professor Mark Gregory Robson](#) of Rutgers University in 2014 placed the number of annual hunger-related deaths annually at 10 million. And according to the [World Food Program](#), among children under age 5 *alone*, 3.1 million die every year from hunger and hunger-related causes.

The analysis: *Fed Up's* claim about the mortality rate of obesity versus that of hunger doesn't stand up to even cursory scrutiny and is a distortion of the truth. Moreover, it shamefully trivializes the massive global health threat of hunger and malnutrition.

The *Fed Up* claim: "For the first time in 200 years, the current generation of children are expected to live shorter lives than their parents."

The facts: According to the CDC's [National Center for Health Statistics](#), life expectancy at birth in the U.S. has been on an uninterrupted upward trajectory [for at least a century](#), with no year's number lower than the preceding one.

The U.S. Census Bureau, the official government source of population projections, believes that number [will continue rising](#) through at least 2020. (No projections are given past that year.)

While positive or negative trends in obesity and overweight can have a bearing on mortality rates, many other factors play a role too. And completely counter to *Fed Up's* doom and gloom, even if you believe the film's contention that obesity will inexorably curtail lifespans, [scholarly research](#) suggests that there is *less and less* of an association between obesity and mortality rates (in part because of medical advances) and that life expectancy will [continue to rise](#) regardless.

The analysis: Exactly who is doing the "expecting" in *Fed Up's* claim? We're never told. If it's a credible source, we're left hanging. To our knowledge, there are no other official sources for national vital statistics in the United States other than the Census Bureau and the CDC.

The *Fed Up* claim: "As more and more people began exercising, more and more waistlines grew out of control. Between 1980 and 2000, fitness club memberships more than doubled across the United States. During that same time, the obesity rate also doubled."

The facts: The claim is prefaced by recounting the work of Dr. Jean Mayer, who the movie concedes "would become the foremost expert on obesity in the U.S." Mayer's studies in 1953 involving mice showed that "lack of exercise must be related to weight gain. ... Eat less, exercise more has been the commonsense answer to unwanted weight for more than half a century," sparking the exercise craze of the 1980s.

The analysis: *Fed Up* has taken it upon itself to discredit the—yes, commonsense—concept of "energy balance." The message seems to be that no matter how much we exercise, food and beverages today are engineered to make us fat, and we're completely helpless to do anything.

Their evidence of a single observation is not only utterly irrelevant, but it's also misleading. Just like *Fed Up*'s feat of prestidigitation in the claim above, this sleight of hand is worthy of David Copperfield.

Where to start? First, the filmmakers embrace what might be the most basic form of scientific malpractice: blind fealty to "correlation as causation." As we pointed out in January, an example of this fallacy that [one researcher noted](#) was the correlation that can be made between increased bottled water consumption and obesity. It is every bit the silly non sequitur as the "fitness club memberships" trope.

Second is another common fallacy—"apples and oranges"—that immediately jumped out at us, and can be debunked with a little grade school math.

The obesity rate in the U.S. did in fact double between 1980 and 2000. According to [NHANES data](#), the rate was 15 percent in 1980 and about 31 percent in 2000. And according to the International Health, Racquet and Sportsclub Association, [37.9 million](#) Americans had fitness club memberships in 2000, making the 1980 number about 19 million.

Adjusted for population increases, the actual number of actual obese people was 34 million in 1980 vs. 87.2 million in 2000. When counting the "apples" of actual *people* with gym memberships and obese individuals, gym memberships increased 200 percent, while obesity increased *more than 250 percent*. In other words, the filmmakers take two independent facts and marry them to create a correlation that doesn't exist, all just to discredit the well-supported concept of energy balance.

This in no way is meant to diminish the extent of the obesity problem. But the fact that not a single commentator or reviewer seemed to notice or care about the absurd comparison is a sad commentary on how *Fed Up*'s agitprop is being accepted as truth.

Finally, why stop at the year 2000? Did something happen during the successive 14 years that might undercut the film's flimsy premise? Yes, it did actually, as we will explain below regarding *Fed Up*'s alarmist projection of future obesity rates.

The *Fed Up* claim: "[W]e're continually being sold a message contrary to the science [of energy balance]. Our weight, we're told, comes down to calories in and calories out." One interviewee derides the concept of energy balance as "nonsense."

The facts: Just because the filmmakers say energy balance is "contrary to the science" does not make it so. In fact, it is actually *Fed Up* that is at odds with the totality of the science around energy balance.

A [study](#) published just last month in the peer-reviewed journal *Physiology & Behavior* found:

"The body of evidence indicates that exercise training frequency and quantity are influential for weight loss. Aerobic training is superior to resistance training for weight loss, although resistance training helps preserve lean body mass better. ... Differing patterns of physical activity exhibited by normal weight, overweight, and obese people during weekdays and weekend days are consistent with their weight status; leaner people are more physically active. Collectively, these findings support acute and chronic exercise patterns as important modifiable behaviors to improve energy balance and weight control in adults while having minor effects on absolute energy intake."

The analysis: Like many of the film's most rhetorically charged statements, this one comes without any supportive evidence. In the absence of references to credible sources, this claim and many others should be viewed with extreme skepticism.

The *Fed Up* claim: Dr. Robert Lustig said that there is "really good data" that "a calorie is not a calorie," in that the "toxicity" of sugars is an inherent and unique contributor to obesogenicity. "When your liver gets that big sugar rush [after drinking a sugar-sweetened beverage] ... it has no choice but to turn it into fat immediately."

The facts: Many of the most trenchant comments made by Dr. Lustig about sugar, who receives substantial screen-time, are far from representative of the scientific mainstream. The theories presented by experts in the film about sugars' metabolism and the "unique" role of sugar in obesity have been called into question by numerous independent and respected scientific authorities. Regardless of global scientific consensus that state otherwise, the documentary presents these theories as fact. And once again, no credible supportive data are actually presented here. Some scientists specifically have questioned, in particular, Dr. Lustig's elucidation of how sugars are metabolized in the liver and his notion of "toxicity."

Case in point, Dr. Mark Kern, professor at San Diego State University, has [scientifically critiqued](#) Dr. Lustig's recent book *Fat Chance*. In his words, the book "is the product of one individual's point of view—a perspective that is not supported by the vast majority of scientific research on nutrition and metabolism." Furthermore, Kern concludes that "books like *Fat Chance* are regressive and only serve to increase consumer confusion about nutrition, rather than help create smarter consumers who are able to make informed decisions about their health." He goes on to state that:

"There is no scientific evidence to support the idea that fructose causes obesity or metabolic syndrome when consumed in typical amounts.

"Dr. Lustig's assertion that excessive fructose is converted to fat by the body, thereby uniquely contributing to obesity and metabolic syndrome, is unsubstantiated.

"Dr. Lustig's understanding of fructose metabolism and the published literature on fructose and health is limited."

In addition, the 2010 Dietary Guidelines Advisory Committee [said this](#) about sugar-related randomized control trials (RCTs), which are considered the gold standard of scientific research:

"RCTs report that added sugars are not different from other calories in increasing energy intake or body weight. Prospective studies report some relationship with SSB and weight gain, but it is not possible to determine if these relationships are merely linked to additional calories, as opposed to added sugars per se."

In an article in the American Diabetes Association's journal *Diabetes Care*, Dr. Richard Kahn and John Sievenpiper, MD, argue that many factors contribute to weight gain and that there is nothing unique about calories from sugars. Calories from any source, including sugars, if eaten in excess of energy needs, can contribute to weight gain:

"In a pooled analysis of three of the well-known Harvard cohorts (which are often cited [\[5–7,17\]](#) as showing that sugar causes obesity and diabetes) an increase in one serving of French fries (+3.35 lbs), potato chips (+1.69 lbs), unprocessed meat (+0.93 lbs), or boiled, baked or mashed potatoes (+57 lbs) resulted in greater or similar weight gain as did sugary beverages (+1.0 lbs) for every 4 years of follow-up, when intake was not adjusted for total energy consumption [\(18\)](#)."

More than any other dietary component or lifestyle factor, sugars have been studied for their potential association with obesity. A substantial amount of research has been conducted on the relationships between intake of sugars and health outcomes, and the cumulative body of evidence is quite impressive.

Scientific consensus to date shows that:

- The link between sugar intake and obesity is inconsistent.
- Sugar intake alone does not cause type 2 diabetes.
- Sugar is not considered an independent risk factor for cardiovascular disease.

The analysis: While we could have offered even more evidence of mainstream scientific opinions on the complex relationship between sugars and obesity, the facts related above should be more than ample proof that *Fed Up*'s portrayal of the subject is thinly sourced, cavalier, and simplistic—yet still so convinced of its correctness.

Fed Up fails in presenting [the science of sugars](#) and their role in obesity and metabolic syndrome as the gospel truth, when in reality the debate is far from settled. The film's overreliance on Dr. Lustig's views ignores the host of evidence and the conclusions of other eminent researchers to the contrary.

The use of suggestive language (e.g., "toxic," "poisonous," "implicated," "hazardous") is intended to persuade and influence beyond the evidence. Word choices such as these have a sole purpose—to push an agenda, not to further scientific or public understanding.

K.A. Kaiser, et al, in a 2013 article in *Obesity Reviews* (no online link), state:

"Emotion-raising language has often been used in discussions of SSBs and obesity. Some authors have used words like 'plague,' 'toxic,' 'hazardous' and 'deadly' when describing SSBs [sugar-sweetened beverages] or the sugars they contain and have tried to promote perceived connections between SSB marketers and the worst behaviour of tobacco marketers. Although such words may help to advance an agenda, they do not educate or inform the public. Moreover, they likely raise emotions and impair logical reasoning."

The prevalence of obesity in our country should be concerning to everyone. Although the majority of experts agree that the cause of obesity is multifactorial involving multiple genetic, social, and environmental factors, scientific investigation continues in the quest to pinpoint a definitive cause.

No credible source would seriously contend that we shouldn't limit the amount of sugars in an overall healthful diet, if for no other reason than the fact that foods which contain higher levels of sugars tend to be less nutrient-dense. However, the consensus of science is not that sugars are inherently toxic, but that it's the context of the total diet that matters when it comes to *any* food component—even water.

You can find additional resources on sugar and health [here](#).

The *Fed Up* claim: "Between 1977 and 2000, Americans have doubled their daily intake of sugar."

The facts: Our January 2014 blog post on *Fed Up* explored the dubiousness of this claim, which said in part:

Not only do the data not support that statement, but the assertion is wildly outside the factual realm.

According to [USDA ERS Food Availability data](#), 21.4 teaspoons of caloric sweeteners per day were available per capita in the U.S. in 1977. In 2011 (the most current data set), 22.8 teaspoons of caloric sweeteners per day were available per capita per day. This equates to an increase of about 6.5 percent.

In terms of calories, according to the same data, 342.5 calories from caloric sweeteners were available per capita in the U.S. in 1977. In 2011, 364.2 calories from caloric sweeteners were available per capita in the U.S., an increase of 21.7 calories per day or about 6.3 percent.

In a similar timeframe, 2,089 calories per capita per day were available in the U.S. in 1977. In 2010, 2,538 calories were available in the U.S. per capita per day, an increase of 21.5 percent. In other words, Americans are eating more calories, but they are not eating significantly more calories from sugars than they did in 1977.

The analysis: At the risk of sounding repetitive, the filmmakers once again fail to cite their sources, either in the movie itself or in interviews they have given to the media.

However, in the absence of that supportive data, and yet in the interest of fairness, we have gone to great lengths since our previous blog post to determine what could have led the filmmakers to make such an attention-grabbing charge. Our own best efforts to establish sugar consumption trends over an even longer timeframe (1977 to 2011) than that portrayed in *Fed Up* yielded percentage increases only in the single digits—a far cry from doubling.

We speculated that one contributing factor was a failure to account for the increase in the U.S. population between 1977 and 2000, which was roughly 25 percent.

As alluded above, why stop counting at the year 2000? That fact alone renders the claim immediately suspect. If we are provided with credible supportive data on this crucial but credulously accepted point by *Fed Up* fans, we would be happy to amend this commentary.

The *Fed Up* claim: "Over 95 percent of all Americans will be overweight or obese in two decades."

The facts: Data from the National Health and Nutrition Examination Survey (NHANES) show a

“[slowing or leveling off](#)” in obesity prevalence since 2003. The [forecasted trend-line](#) for overweight prevalence into the future is virtually flat, with only marginal gains among the obese.

[This statement](#) by the Centers for Disease Control and Prevention also suggests a rebuttal to *Fed Up*'s drivel, insofar as what longer-term trends indicate:

“We continue to see signs that, for some children in this country, the scales are tipping. This report comes on the heels of previous CDC data that found a significant decline in obesity prevalence among low-income children aged 2 to 4 years participating in federal nutrition programs,” said CDC Director Tom Frieden, M.D., M.P.H. [...]

“[T]his week’s issue of the Journal of the American Medical Association [the week of Feb. 23, 2014] indicates no significant changes in obesity prevalence among 2-19 year olds or adults in the United States between 2003-2004 and 2011-2012.”

Translation: “No change” means that “at this rate,” obesity prevalence two decades hence could well be identical to what it is now. Which precise moment in time the filmmakers chose to calculate their “rate” of increase is unknown.

The Analysis: *Fed Up* elsewhere has conveniently manipulated timeframes and statistics to suit its agenda, so it should come as little surprise that this claim appears to follow suit. One could choose practically any single point in virtually any data set to portend such a bleak future if trends continued “at this rate,” so it's implausible that such a fate could be in the offing.

Indeed, if “this rate” were one chosen closer to the present, a very different story would be told. While it’s certainly conceivable that future overweight and obesity rates could be higher than they are today, fudging the facts to conjure up the worst-case scenario is intended to obfuscate, not inform.

We are aware that the filmmakers made at least one edit between January’s film festival debut and its theatrical release: the addition of a photo of Michelle Obama from a Feb. 27 [event](#) announcing proposed changes to Nutrition Facts labels. Therefore, excluding the positive CDC announcement above, which came two days *before* the Obama event, was a deliberate choice to distort the truth.

Below we will note one other key omission in the editing room in our discussion of the “calorie commitment.”

The *Fed Up* claim: Consuming a single soda per day increases one’s risk of diabetes by 22 percent.

The facts: Yet again, the complex connection between sugar and diabetes is obscured and caricatured by *Fed Up*. The claim above is just one of many regarding diabetes.

During the film's exegesis of sugar metabolism, Dr. Robert Lustig states that there is no metabolic difference between sugar-sweetened soda and fruit juice. But oddly, the study [did not show](#) the same correlation between fruit juice consumption and diabetes. Presumably the film omitted this point because it could mean that either the study was flawed, or Dr. Lustig is not so knowledgeable as he purports to be about how sugars in beverages are metabolized.

Last year, one of the film's interviewees, *New York Times* columnist Mark Bittman, asserted in his February 27, 2013, column "[It's the Sugar, Folks](#)" that "obesity doesn't cause diabetes: sugar does." The only problem was, that isn't what the study Bittman was commenting on actually said.

Thankfully, the *Times* issued the following correction to the false claims of Mr. Bittman:

"Correction: March 6, 2013

"Mark Bittman's column on Thursday incorrectly described findings from a recent epidemiological study of the relationship of sugar consumption to diabetes. The study found that increased sugar in a population's food supply was linked to higher rates of diabetes — independent of obesity rates — but stopped short of stating that sugar caused diabetes. It did not find that 'obesity doesn't cause diabetes: sugar does.' Obesity is, in fact, a major risk factor for Type 2 diabetes, as the study noted."

The analysis: While these types of statements may play well on the silver screen, they are not screened for scientific integrity. The overselling of selective scientific results by the media is a cause for public concern. A bell once sounded is hard to un-ring, but healthy skepticism should prompt further inquiry when coming across overblown assertions in the first place.

The *Fed Up* claim: The film shows a May 2010 pledge by major food and beverage companies to remove a total of 1.5 trillion calories from the marketplace by the end of 2015, going on to belittle the "calorie commitment" as a reduction of only 14 calories per day per individual—"it's nothing," the film states.

The facts: In yet another of the movie's countless omissions of context and inconvenient, contradicting evidence, it does not mention the January 2014 announcement that 6.4 trillion total calories actually had been reduced, as reported by the [Robert Wood Johnson Foundation](#)—ahead of schedule and more than 300 percent over the original goal.

The analysis: The 6.4 trillion-calorie-figure represents a reduction of 78 calories per day, per individual. Columbia University researchers [suggest](#) that a daily reduction of just 64 excess

calories per U.S. child will help us meet the government's Healthy People 2020 target rate for obesity reduction. That's a lot more than "nothing."

As mentioned above, filmmakers made the deliberate choice to omit this key fact between the movie's Sundance debut and its theatrical release, airbrushing the reality of 6.4 trillion calories from the historical record, even though other edits were made.

Conclusion

Fed Up laudably shines a light on obesity, and the stories of the children portrayed in the film are truly heart-rending—but the cause for praise essentially ends there.

Writing an entirely comprehensive critique of *Fed Up* would be virtually impossible, given the speed and frequency with which the audience is bombarded with misperceptions, pseudoscience, and selective quotation. But we have attempted to analyze the most egregious of them and intend to update this critique online when warranted.

Among virtually all of the central claims supporting the film's through-line, some are shadings of the truth, some are sins of omission, and the rest are outright fabrication. How otherwise serious and thoughtful people are able to discern truth or credibility in this threadbare quilt of mendacity is a mystery.

The film's reckless disregard for the truth undercuts its entire premise. Its misdiagnosis of the problem and obsessive focus on a single nutrient actually could cause more harm than good, in that overconsumption of *any* macronutrient can lead to overweight and obesity. People are understandably looking for simple solutions to complex problems, but preying on those very human desires in service of box office grosses and Hollywood accolades is cynicism bordering on malevolence.

The film [pursues its thesis](#) with zealous conviction as being novel and "upending the conventional wisdom of why we gain weight and how to lose it." But putting aside the self-congratulatory hyperbole, conventional wisdom is often "conventional" for a reason; in the case of *Fed Up*, many of its most incendiary claims fly in the face of well-established scientific consensus, and on those grounds alone they cannot be accepted as valid.

That being said, science by its nature is a constantly evolving, inquisitive process. Because of that, while the most confident and assertive of statements (sugar is inherently "toxic," energy balance is "nonsense") make for great soundbites, they can obscure truth in their attempt to delegitimize divergent commentary and further research. Because all of us have a role to play in addressing obesity, "demonizing" food companies and decades of scientific research, a tactic gleefully embraced by *Fed Up*, indicates a desire to stifle healthy scientific discourse.

The author Ring Lardner once wrote the facetious bit of dialogue, "'Shut up,' he explained."

Apparently *Fed Up* doesn't know that line is intended to be a joke. An [email](#) on May 9 from "Katie, Laurie, Stephanie and the *Fed Up* Team" urged theatergoers to take their noble cause directly to their critics: "There's only one way to fight back," they importune. "We need you to show up this weekend in great numbers and shout them down."

What a way to conduct scientific dialogue: He who yells the loudest wins. Galileo and Kepler, legendary exponents of the scientific method, must be spinning in their graves like a lathe.

The email goes on, bashing the critics who "have been distorting the film's message and trying to discredit the science by using their own set of facts." Psychology textbooks everywhere are feverishly updating their chapters on "projection."

The filmmakers' stubborn aversion to scrutiny—ironic, given the microscope under which they have placed those with whom they disagree—and their treatment of facts as if they were bothersome gnats to be batted away speak volumes.

So as the "*Fed Up* Team's" email urges acolytes to mount the barricades today, it's unfortunate that their exhortation to "take action," on a subject that could use a little more seriousness and maturity, amounts to nothing more than a childish tantrum.

"Shouting down" your critics is a sure sign that the case you're trying to make is thin gruel. Perhaps that explains why *Fed Up*, to paraphrase the title of another film produced by Laurie David, chose to ignore so many "inconvenient truths."

The IFIC Foundation makes available the following relevant resources:

- [What's in our Food?](#)
- [Understanding Our Food Toolkit](#)
- [Science of Sugars](#)
- [Gluten-Free Diet Fact Sheet](#)
- [Alzheimer's Disease Podcast \(with Dr. Heather Snyder, Alzheimer's Association\)](#)
- [Dietary Fats: Balancing Health & Flavor](#)
- [It's All About You! Toolkit](#)
- [Sugar Fact Sheet](#)
- [HFCS Fact Sheet](#)
- [Everything You Need to Know About Sucralose](#)
- [Everything You Need to Know About Aspartame](#)
- [Facts About Low-Calorie Sweeteners](#)
- [Questions and Answers About Energy Drinks and Health](#)
- [Evaluating Scientific Evidence](#)