IS FAT KILLING YOU OR IS SUGAR

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What we do and don't know about dietary science

Onion rolls slathered with butter, herring in thick cream sauce, brisket of beef with a side of stuffed derma, and other staples of our family cuisine disappeared from our table. Margarine dethroned butter, vinegar replaced cream sauce, poached fish substituted for brisket. I recall experiencing something like withdrawal, daydreaming about past feasts as my stomach grumbled. My father's blood-cholesterol level, not to mention that of his siblings and friends became a regular topic of conversation at the dinner table. Yet, despite the restrictive diet, his number scarcely budged, and a few years later, in his mid-fifties, he had a heart attack and died.

The dangers of fat haunted me after his death. When, in my forties, my cholesterol level rose to 242-200 is considered the upper limit of what's healthy. I embarked on a regimen that restricted fatty foods. Six months later, having shed ten pounds, I rechecked my level. It was unchanged, But as soon as my doctor put me on just a tiny dose of a statin medication my cholesterol plummeted more than eighty points.

In recent decades, fat has been making a comeback. Researchers have questioned whether dietary fat is necessarily dangerous, and have shown that not all fats are created equal. People now look for ways of boosting the "good cholesterol" in their blood and extol the benefits of Mediterranean diets, with their emphasis on olive oil and fatty nuts. In some quarters, blame for obesity and heart disease has shifted from fat to carbohydrates. The Atkins diet and, more recently, the paleo diet have popularized the idea that you can get slim eating high-protein, high-cholesterol foods.

I remained wary of the delicacies of my childhood. Surely it was wiser simply to avoid fats altogether? I wavered, though, in 2013, when an article endorsing the salubrious effects of Mediterranean eating habits detailed the results of a study, the most rigorously scientific one yetconducted on the issue, which showed that following a Mediterranean diet rich in either olive oil or nuts could reduce the risk of heart attack, stroke, or death from cardiovascular causes by thirty per cent.

I was elated until my wife, an endocrinologist who is an expert on metabolism, pointed out that the headline number of thirty per cent emerged from the complex statistical way that the study's results were projected over time. If you looked at what happened to the people in the study, the picture was less encouraging: 3.8 per cent of the people consuming olive oil and 3.4 per cent of the people eating nuts suffered cardiovascular misfortune, compared with 4.4 per cent of the group on a regular diet.

It's one of many cautionary tales about assessing dietary data. Everyone wants to be healthy, and most of us like eating, so we're easily swayed by any new finding. Publishers know this all too well and continually ply us with diet and health books of varying degrees of respectability and uplift. The most prominent on the current menu are Sylvia Tara's "The Secret Life of Fat" (Norton) and "The Case Against Sugar," by Gary Taubes (Knopf). Both present a range of cutting-edge dietary research, both say that fat is unfairly maligned, wand both inadvertently end up revealing that the science behind their claims is complex and its findings hard to translate into usable advice.

Sylvia Tara is a freelance writer who holds a doctorate in biochemistry and an M.B.A. She has worked at McKinsey and on the management side of various biotech companies. Drawing on insights from both science and consulting, she has produced a book that is part physiology and part marketing pitch. Tara wants us to view lipids positively. Once we stop treating fat "like a vicious enemy," she argues, that it "could become beloved once again."

But Tara's attitude to fat is more ambiguous than this statement suggests. She claims to be obsessed with her figure, measuring her worth by how well she fits into skinny jeans. In her telling, the spur to her investigations comes from her envy of a friend who stays svelte despite gorging on beer and burritos, drinking sugary lattes, and never exercising. Tara, who writes that she gains weight easily, is interested in the question of why some people eat like hogs and stay thin, while others expand no matter how abstemious they try to be.

The book is a useful primer on the biology of fat. Fat comes in different forms, categorized by color. White fat, the type that we seek to lose when overweight, stores energy. Brown fat, normally found in the neck, back, and around the heart, is filled with tiny structures called mitochondria, and serves as a furnace to burn energy for body heat. A third type calledbeige fat, was identified some five years ago, during exercise, it receives messages from our muscles to morph into brown fat. Moreover, fat should not be characterized simply as inert blubber. It is the vehicle by which our cells receive certain essential nutrients, like Vitamins A, D, E, and K. The myelin sheaths around our nerves are eighty per cent ipids, "which means fat is actually required to think," Tara writes. Studies by Jeffrey Friedman, at the Rockefeller University, have shown that the hormone leptin travels from fat cells to the hypothalamus, a part of the brain which is involved in regulating appetite. "Friedman's discovery redefined fat," Tara writes. "It was a verifiable endocrine organ with wide influence to our bodies.

All this will be illuminating for many readers, but Tara is a less reliable guide when she uncritically embraces various new theories about the causes and effects of obesity. She trumpets the findings of a Turkish physician, Gökhan Hotamisligil, whose work suggests that a molecule known as TNF-alpha, which has potent inflammatory properties, may be the link between obesity and Type 2 diabetes a condition arising when the body becomes resistant to insulin, a hormone that we need to process sugar. Hotamisligil's experiments showed that not only is TNF-alpha produced by fat; it also can cause resistance to insulin. "This discovery was big news," Tara writes. However, she fails to specify that the finding was in rodents, and that subsequent studies in humans, including some by Hotamisligil, did not show the same results.

As with many books on diet, "The Secret Life of Fat" alternates exposition with prescription. But the idea that understanding lipids at a molecular level will help you stay trim seems far fetched. It's telling that Tara's final triumph managing to fit back into her skinny jeans has little to do with her sophisticated understanding of fat.

Tara seems to take aim at our destructive cultural fixation on body image. Fat was prized in the past, she notes, with big bellies signalling access to plentiful food and, thus, prosperity. The porcine aristocrats one sees in eighteenth-century portraits are frequently shown near tables overflowing with delicacies. The women's bodies depicted in canvasses by Peter Paul Rubens have long since made "Rubenesque" a euphemism for plus-size. And, if one goes far enough back, the huge bellies and buttocks of the Paleolithic "Steatopygian Venus" figures that have been found across much of Europe suggest that fat can connote fertility and desirability.

"FRIEDMAN'S DISCOVERY REDIFINED FAT"

The nineteenth century Ladies' Home Journal gave tips on gaining weight, as did an 1878 book titled "How to Be Plump." The nineteenth century in general was more notable for a growing concern with being slim, as has been shown by previous writers, such as Gina Kolata, whose "Rethinking Thin" (2007) itself draws heavily on Hillel Schwartz's remarkable history "Never Satisfied" (1986). Lord Byron, who struggled with his weight, swore by vinegar. At other times, he ingested just a single raisin a day, supplemented by a glass of brandy. Women in the nineteenth century stuffed themselves into near suffocating corsets to achieve an hourglass figure with an unnaturally tiny waist. Weight-loss regimens included consuming soap, chalk, pickles, digitalis, camphor tea and grapefruit.

The weight-loss fads of past centuries include precedents for all the main contemporary diets, from low-fat, low-calorie ones to high-fat, low-carbohydrate ones, like the Atkins diet. In 1825, a French lawyer, Jean Anthelme Brillat-Savarin, wrote a famous treatise, "The Physiology of Taste," in which he contended that true carnivores and herbivores did not get fat; it was only when one ingested grain and bread that the trouble started. Around the same time, an American Presbyterian minister, Sylvester Graham, reasoned that,as gluttony was the greatest sin, abstinence must lead to virtue. He advised eating vegetables and drinking water, eschewing meat, coffee, spices, and alcohol. For a while, students and faculty at Oberlin College were made to follow Graham's diet. Several years later, Horace Fletcher, known as "the great masticator," touted very slow chewing as the remedy for obesity; adherents included normally skeptical people like Upton Sinclair and John D. Rockefeller.

A genuine advance, which put nutrition on a solid scientific footing for the first time, was the work of the chemist Wilbur Atwater. In the eighteen-nineties, he began studying how the body converted food to energy, by placing subjects in a closed chamber and measuring the amount of carbon dioxide they produced and oxygen they consumed after eating. Atwater came up with the idea of the food calorie, adapting a measurement previously used for heat energy. In 1917, Herbert Hoover, then the head of the U.S. Food Administration, worked to publicize Atwater's findings. "I eat as little as I can to get going," he said. Low-calorie foods and skipping meals became popular. The importance of calories if energy gained exceeds output, the excess becomes fat remains one of the few unchallengeable facts in the field of dietary science. Still,further research has shown that calories eaten are only part of what determines weight. Our metabolism reflects an interplay of things like genes, hormones, and the bacteria that populate the gut, so the energy we absorb from what we eat varies from person to person.

"Good Calories Bad Calories"

Postwar years brought the first sustained scientific assault on dietary fat. Ancel Keys, a physiologist at the University of Minnesota, who had spent the war developing nutritionally optimal Army rations and studying the effects of starvation, became interested in the high rates of heart attack among a seemingly well-fed sector of the population. He soon became convinced that the saturated fats found in meat and dairy products were the cause, and thus began the war on fat that galvanized my parents. Keys became, with his wife, Margaret, and advocate for the Mediterranean diet of unsaturated fats. Their books promoting the diet were best-sellers, and Keys, who spent his latter years in Italy, lived to the age of a hundred.

The author of "The Case Against Sugar," Gary Taubes, gained prominence as a science writer in 2002, with a cover story in the Times Magazine, "What If It's All Been a Big Fat Lie?" which challenged the orthodoxy of restricting dietary fat. Carbohydrates were the real danger, he wrote not just processed foods containing refined sugars like sucrose and fructose but also easily digestible starches from grains and vegetables. He expanded these arguments in a book, "Good Calories, Bad Calories" (2007), and in his new book, he goes much further. Though he now allows that people can eat some carbohydrates and still live a "relatively" healthy life, he sees sugar as the devil incarnate, doing harm independent of its known role in causing obesity. Taubes believes that a wide range of seemingly unrelated diseases like "diabetes, heart disease, cancer, stroke, and Alzheimer's, which account for five of the top ten causes of death in the U.S."are in fact linked, and that dietary sugar is the cause of them all, as well as of "other disorders that associate with these illnesses, among them polycystic ovary syndrome (PCOS), rheumatoid arthritis, gout, varicose veins, asthma, and inflammatory bowel disease." In addition, he aims at showing that the food industry has systematically tried to obstruct scientific research that exposes the dangers of sugar.

Taubes, a pugnacious writer who clearly relishes the role of muckraker, digs up a long history of attempts to discredit charges against sugar and to point the finger at fat as the primary dietary cause of disease.

In 1943, when sugar, dismissed by the government and medical organizations as “empty calories,” was being rationed as part of the war effort, sugar companies formed a trade association “to set the record straight.
” It devised a two-pronged strategy: support scientists who endorsed the notion that sugar was a valuable source of dietary energy without any specific health risks; and then mobilize these experts in a publicrelations campaign.

A prominent Madison Avenue firm was hired to design a public-health campaign that would “establish with the broadest possible audience virtually everyone is a consumer the safety of sugar as a food.” Among the scientists they supported was Ancel Keys, the Mediterranean diet pioneer, his work influenced the dietary guidelines of the American Heart Association and the American Diabetes Association.

Fred Stare, an influential nutritionist at Harvard, received not only research funding but a donation of more than a million dollars, from the General Foods Corporation to build a new department. He proclaimed that it was not even “remotely true” that “modern sugar consumption contributes to poor health.

“SUGAR CONSUMPTION CONTRIBUTED TO POOR HEALTH”

Other research seems to undermine the whole idea of dieting: extreme regimens pose dangers, such as the risk of damaged kidneys from a buildup of excess uric acid during high-protein diets; and population studies have shown that being a tad overweight may actually be fine. Although the study of the Mediterranean diet for example, reflects randomized controlled experiments, most nutritional studies are observational which they rely on so called food diaries, in which subjects record what they remember about their daily intake. Such diaries are notoriously inexact. No one likes admitting to having indulged in foods that they know or think they know are bad for them.

Science is an accretion of provisional certainties. Current research includes much that is genuinely promising several groups have identified genes that predispose some people to obesity, and are studying how targeted diets and exercise can attenuate these effects, but the more one pays attentionto the latest news from the labs the harder it becomes to separate signal from noise. Amid the constant back and forth of various hypotheses, orthodoxies and fads, it’s more important to pay attention to the gradual advances, such as our understanding of calories and vitamins or the consensus among studies showing that trans fats exacerbate cardiovascular disease. What this means for most of us is what common sense should prevail.

Eat and exercise in moderation and maintain a diet consisting of balanced amounts of protein, fat, and carbohydrates. Make sure you get plenty of fruit and vegetables and enjoy an occasional slice of chocolate cake.

“ENJOY AN OCCASIONAL SLICE OF CHOCOALTE CAKE”