

CHAPTER 4

Unintended Blowback

Thinking in terms of systems rather than parts is useful when considering focus. A system is a connected collection of parts that interact, complete with feedback loops that send ripples across a network. As a result, doing something in one area of the system has the potential to generate dynamics in another. And while many describe these impacts as unintended consequences, systems thinkers see it differently, recognizing and expecting consequences in other areas. To systems thinkers, these are just consequences.

For example, how most people think about seat belts and safety is a great systems example. Conventional, nonsystems thinking suggests that when everyone wears a seat belt, the bodily harm suffered by those in auto accidents will be lessened. Wearing seat belts is an absolute positive, a good thing to do. But a systems thinker doesn't see the world the same way, rather thinking about the potential impact of wearing a seat belt. Might it be possible that wearing a seat belt makes you feel safer, so you are therefore more aggressive (and therefore riskier) in your driving? Could removing seat belts from cars make drivers safer? Systems thinking opens the door to understanding how interactions among parts changes our analysis of the whole, often leading to counterintuitive and surprising insights.

Getting What You Don't Want

In *Foolproof*, Greg Ip shows how focus can exacerbate and magnify unintended consequences.¹ He argues that the success of our safety mechanisms, from financial stabilizers to levees, lets problems build up, makes us overconfident, and can lead to even greater disasters later. For instance, preventing small forest fires leads to a buildup of underbrush that eventually causes massive fires. Might it be that the massive wildfires that have recently been raging were due to our fire-prevention efforts of prior years? Or might the *Titanic's* crew have sailed at top speed through ice-infested waters precisely because they felt the ship was unsinkable? Deepwater Horizon had one of the best safety records in BP's fleet of drilling rigs . . . might that have made its management team overconfident?

In finance, could long periods of calm lead banks to take on more risk? In fact, economist Hyman Minsky developed what he called the financial instability hypothesis, an argument that periods of stability generate instability, as it incentivizes actors to take on greater and greater risk as they remain oblivious to mounting vulnerabilities.²

When there are more safety measures, people engage in riskier behavior, because they divert their attention away from what is being protected against. On icy roads, studded tires do not reduce accidents as much as expected, because people drive more cautiously when they don't have them and more recklessly when they do. Hines Ward, a former Superbowl MVP who spent his entire career with the Pittsburgh Steelers, suggested football players would be safer if they didn't wear helmets, for similar reasons. "If you want to prevent concussions, take the helmet off: Play old-school football with the leather helmets, no facemask," Ward said on NBC Sports.³

Just think of the faith you place in yourself to multitask while driving. Ever talk on the phone while driving? Fifteen states have deemed this activity risky and now mandate that drivers either use a headset or speaker system so that they can keep their hands on the wheel at all times.⁴ The federal government provided \$17.5 million in grants during fiscal

year 2013 for states with primary enforcement laws against distracted driving. But these policies miss the point.

The lesson of the invisible gorilla is that our *cognitive bandwidth* is fixed. By deploying attention toward one activity that requires focus, we become less effective at noticing unexpected developments, let alone processing them—even when they’re directly in front of our faces. The hands-free calling mandate makes sense to the extent that we have physical limitations and cannot drive a car safely with one hand holding a phone.

But because it is our attention that’s scarce, hands-free policies don’t actually address the problem. In fact, by suggesting that hands-free calling while driving is safe, policies may be encouraging individuals to talk while barreling along a highway in a six-thousand-pound vehicle moving at seventy-five miles per hour. The unintended consequence of these safety policies might be roads that are less safe. In this case, the hands-free driving policy is focused on the wrong culprit. The culprit is cognitive multitasking, not motor multitasking. Interestingly, the United Kingdom tries to focus on the cognitive overload and has granted police the power to stop drivers if they believe that they are distracted by their hands-free mobile phones.⁵

Taking to heart the insight that people should not cognitively multitask while driving vehicles (and the logic of systems thinking), one city in the Netherlands adopted the policy that “unsafe is safe.”⁶ To force people to zoom out, Drachten removed all road signs, only leaving in place simple, easy-to-follow rules. Drachten also has zero traffic lights.⁷ As a result, drivers pay attention when they drive, rather than mindlessly following signs. In response to the change, road safety *improved*; Drachten saw accidents at one intersection fall from thirty-six in a four-year period to two accidents in the two years after the lights were removed.⁸ Drachten’s result may seem surprising, but it shouldn’t be if you think about the role of focus via a systems-oriented perspective.

In fact, some have hypothesized that we humans have a set tolerance for risk, something the late Gerald Wilde, formerly a professor of

psychology at Queen's university, termed *risk homeostasis*.⁹ What this practically means is that any reduction in perceived risk for an activity will result in humans pushing the envelope a bit further. Seat belts? Drive faster. Helmets? Hit harder.

Focus on Fat, Cholesterol . . . Lipitor?

Devotion to focus and specialization creates a perfect storm when it combines with the maximization logic we explored earlier. In medicine, an emphasis on optimization is focused on an easily measured metric—age. Everyone seems to want to live forever, and that's driving the ever-increasing emphasis to screen for potential problems and to nip them in the bud earlier. Indeed, dedication to screening, a manifestation of the optimization logic, is driving what many agree has become an epidemic of overdiagnosis.

This dynamic is encouraged by a professional ethos among doctors that prizes specialization. As H. Gilbert Welch and colleagues write, “Because these doctors care greatly about the conditions they specialize in, I believe they sometimes lose a broader perspective. Their focus is to do everything they can to avoid the bad events associated with the condition; their main concern is not missing anyone who could possibly benefit from diagnosis and treatment. So they tend to set cutoffs that are expansive, leading many to be labeled abnormal.”¹⁰

On top of that, putting faith in increasingly sophisticated technologies also compounds focus, further exacerbating the problem of overdiagnosis: “Our diagnostic technologies are of such high resolution that we are discovering more ambiguous and surprise abnormalities. Both can lead to a cycle of more follow-up testing—including more scanning—revealing even more ambiguous and surprise findings.”¹¹ But discovering more and more fine-grained abnormalities does not necessarily lead to better outcomes; what it does lead to is higher costs, false positives, and potentially unnecessary treatments.¹²

If you're like most Americans, you probably head to your doctor for a check-up every year . . . and he or she most likely checks your cholesterol

levels. If your doctor has told you that your cholesterol levels (or more specifically your bad cholesterol levels) are higher than ideal, you're not alone. The US Centers for Disease Control estimates that 73.5 million Americans have been diagnosed with high cholesterol.

Perhaps your doctor suggested that a cholesterol-reducing drug like Lipitor might be useful. If you took Lipitor, you're again not alone. Between 1996 and 2012 (when it went off patent), Lipitor became the world's best-selling drug of all time and generated more than \$125 billion in sales. It's an astronomical number! It also reflects the drug's widespread effectiveness in lowering cholesterol; after all, doctors wrote prescriptions for 29 million patients (a population greater than Australia!) and wouldn't have done so if it didn't work, would they?

Well . . . it depends on what you mean by *work*. Here are two key facts: First, *Lipitor works for lowering cholesterol*. Yup, that's right, it gets the job done. In fact, it's not just Lipitor but the whole class of statins that work by blocking an enzyme produced by the liver that plays a key role in generating cholesterol. Second, *Lipitor doesn't actually prevent heart attacks*. If you're reading closely, you'll likely want to stop and reread my last sentence. It's not a typo. Statins in general *do not* prevent heart attacks. In fact, research suggests you'd have to treat 50 people with statins to prevent one heart attack, and that you'd have to treat 890 people to prevent one death. As noted by Dr. Mark Hyman, "it's just not a very effective drug."¹³

But wait! You'd be correct in noting the seeming contradiction between my first fact—that statins lower cholesterol—and my second fact—that they don't generally prevent heart attacks. Both statements are true. But it's a question of focus. What if I told you that heart doctors are so focused on lowering cholesterol that they rarely consider the side effects of doing so? (Every drug has side effects; remember that Viagra was originally supposed to help lower blood pressure!) The side effects usually associated with statins include liver injury, memory loss, diabetes, and muscle damage. And again, if you felt some of these side effects while taking the drug, you wouldn't be alone. More than 17 percent of patients reported some side effects!

Lest you think this is merely legal mumbo jumbo, simply a laundry list of potential adverse consequences to protect the drug companies, which would rarely actually impact patients, you should know that the FDA recently demanded that labels on statins acknowledge the medication increases the risk of developing diabetes.

So let's get this straight: You go to the doctor for a routine examine. You learn your cholesterol is higher than what is deemed a healthy range. Your doctor recommends you begin taking cholesterol-reducing drugs, noting that millions of patients have had success by doing so. She then tells you she's taking Lipitor herself and that every cardiologist she knows also takes the medication.

"It's safe," she notes as she hands you a script. You leave thankful that modern medicine has a solution to help with your condition.

You begin taking the statin and voilà! Your cholesterol drops. God bless modern medicine! But then you get your blood sugar levels tested. Uh-oh . . . they're very high. Your doctor says you have type 2 diabetes . . . and with it comes an elevated risk of . . . drumroll please . . . heart attacks. It was not until 2015 that the connection between statins and diabetes was openly discussed. In fact, a March 2015 story on National Public Radio explicitly asked if cholesterol-reducing drugs merely trade heart disease for diabetes.¹⁴

Most doctors genuinely believe that lower cholesterol levels are healthier than higher cholesterol levels. And again, that's true, if all else is equal. The research often cited is the Framingham Heart Study that began in 1948 and has tracked the health of more than five thousand residents in the Boston suburb.¹⁵ Sixteen years into the study, researchers noted a correlation between heart disease and cholesterol levels. What they found was that the average cholesterol level of patients with heart disease was 11 percent higher than healthy patients. But heart disease struck some people with very low cholesterol levels and didn't afflict some with very high cholesterol levels. These facts were dismissed as anomalous at the individual level; the real insight came from the population-level analysis—or so we were told. "Avoid consuming fat and cholesterol and you'll live longer," emerged as the mantra of the day.

The food industry then rapidly developed low- or no-fat options that were cholesterol free, in what some have called the Snackwell's phenomena.¹⁶ Fat and cholesterol were removed from foods to create heart-healthy options, butter was replaced by cholesterol-free margarine, and so on. What didn't get much notice, however, was that processed carbohydrates and sugars replaced these fats . . . and in the long run, these tended to be more important drivers of heart disease than cholesterol! Oh, and let's not forget that years later we found that margarine's trans fats weren't exactly great for your health either.

In 1996, the situation was perfectly primed for a pharmaceutical answer to the question of how to lower one's cholesterol: enter Lipitor. Food was too confusing for most Americans to understand, but a pill? It's like the big red buttons now sold at most Staples office supply stores that state "That was easy!" when pushed. Take this pill, eat what you want, and your cholesterol will drop. Patients (and doctors) signed up in droves. And it worked. Cholesterol levels fell.

But more Americans today suffer from heart disease than ever before. Jonny Bowden and Stephen Sinatra, authors of national bestseller *The Great Cholesterol Myth*, explicitly state that "the standard prescription of low-fat diets and statin drugs are contributing to a health crisis of monumental proportions."¹⁷ What?!?! How can that be? Well, my first fact was that statins works at reducing cholesterol . . . but my second fact was that it doesn't prevent heart attacks. Let's investigate this second fact.

As luck would have it, the side effects are far more substantial than originally recognized. At this stage, I could get into the marginal propensities to develop heart disease and diabetes based on a Bayesian analysis of family histories, existing a priori medical conditions, and multivariate regression analysis accounting for lifestyle as best I could, but rest assured I won't. Let's just say that if you are narrowly focused on the heart, rather than the general condition of the body, then you claim success when cholesterol levels drop.

But if we think of a human body as a system that includes other organs (such as the liver and the pancreas) and substances other than cholesterol (like insulin), then we need to take a wider lens. The liver is

the body's detoxification engine, so might it face additional pressure when facing a foreign substance like a statin? In fact, it appears that rising liver enzyme levels (a measure of stress on the liver) is a side effect of taking statins. The focus on cholesterol is misguided, even if well-intentioned. Yes, lower cholesterol—all else being equal—lowers your risk of a heart attack. But statins are a far cry from the “all else being equal,” as they tend to affect your liver, increase your risk of diabetes, and possibly have an impact on muscles and nerves. All else is definitively *not* equal. And shouldn't we be treating the whole body, not just the heart? Isn't the human body a big, interconnected system?

If we look at how statins work, we find they target the HMG-CoA reductase enzyme. (Ha! I said I wouldn't drown you in statistics but I never agreed to not use obscure medical jargon! I'll make that promise from here forward.) This enzyme controls cholesterol manufacturing in the body; the drugs target it. But insulin (the hormone that helps the body convert blood sugar into energy) also controls that enzyme. In some patients, insulin levels then compete with the drug—placing additional pressure on the pancreas and increasing the likelihood of insulin resistance. What this means is that it might be easier to control one's cholesterol level by controlling one's blood sugar level. But wait, the food industry just did the opposite! It removed cholesterol and fat and added sugar! Oops.

Despite the booming market for cholesterol-lowering drugs, our heart disease burden is as large as ever. According to the CDC, more than 600,000 Americans die each year (approximately 25 percent of all deaths) from heart disease, and it's the leading cause of death for both men and women in the United States.¹⁸

I'm sure these facts will enrage some patients taking cholesterol-lowering statins. In fact, speaking of rage, that seems to be a side effect in at least a few cases. Here's a quote from a 2011 *Slate* article:

Patient 1 wanted to kill someone. Normally even-tempered, the 63-year-old man found himself awaking with uncontrollable anger and the desire to smash things. His violent impulses

started after he began taking the cholesterol-lowering statin Lipitor and they vanished within two days of quitting the drug. Patient 2 developed a short fuse after he started on Zocor, another popular statin. The 59-year-old felt an impulse to kill his wife and once tried, unsuccessfully, to do so. His violent tendencies subsided within a few weeks of stopping Zocor. Patient 3, a 46-year-old female, became unusually irritable while taking Lipitor, repeatedly blowing up at her husband for no reason. Like the others, her uncharacteristic behavior disappeared after she quit taking statins.¹⁹

Before readers run home to see if their spouses are covertly taking Lipitor or prepping a Lipitor-induced insanity defense for plotting to kill them, let's think about the fundamental disconnect that our struggle with heart health exposes. The human body is a delicately balanced system of interconnected parts, and while it's useful to have specialists that understand the individual elements extremely well, it's also critical that someone looks at the whole.

So let's reevaluate the problem of focusing too much on cholesterol. Most of us are relying on experts (doctors) who in turn depend upon data (such as cholesterol levels) that emerge from technologies (lab tests and their algorithms for preliminary interpretation) and are understood according to certain rules (i.e., threshold concern levels) that have been determined by the medical systems in which they operate.

Might it be that by our focus on diagnosis and prevention of heart disease is a contributing factor in the very rise of the disease that our efforts sought to prevent? Might a systems-oriented, feedback-focused thinker approach the problem differently? Does our reductionist approach miss critical connections that impact the whole?

PTSD from ... a Diagnosis?

I had the pleasure of speaking with Trisha Torrey, a woman who developed post-traumatic stress disorder (PTSD) from a misdiagnosis, some

years ago.²⁰ Trisha's story continues to haunt me to this day, and it should frighten everyone and anyone who's ever interacted with the modern healthcare system. Here's what happened. At the time, Trisha was a fifty-two-year-old self-employed marketing consultant who discovered a golf-ball sized lump on her torso. "It didn't hurt—it was just there," she noted. But as anyone in her shoes would likely do, she contacted her family doctor and went to see him. Unable to identify the lump, he sent Trisha to a surgeon that afternoon, who immediately removed it and sent it out for further evaluation. He promised to get back in touch as soon as he heard from the lab. After about a week of anxiety-filled waiting, Trisha called the surgeon's office to check on the status of her biopsy. The Independence Day holiday, she was told, had delayed processing. Another week went by before she received a devastating phone call.²¹

"When the surgeon finally called me with my lab results, he told me that I had a very rare cancer called subcutaneous panniculitis-like T-cell lymphoma known as SPTCL," she told me. Worse, Trisha noted that the surgeon went on to describe that the lab results took so long because they felt the need to reconfirm the results with a second lab. Both labs had confirmed the diagnosis, and the surgeon told her he'd set up an oncology appointment for her as soon as possible.

According to Trisha, "as soon as possible" ended up being more than two emotional, fear-filled weeks. She did what anyone in such a position would likely do—she turned on the computer and began reading everything she could find about SPTCL. But in 2004, there wasn't much information about it online because it was such a very rare condition.

"What I did learn was that everyone died. And died fast. . . . I was scared to death," Trisha told me.

The oncologist was discouraging and condescending, rubbing Trisha the wrong way from the very beginning. He sent her for additional blood work and a CT scan, both of which failed to identify anything unusual. Neither test showed any signs of any form of lymphoma. Further, Trisha had no symptoms other than night sweats and hot flashes . . . but as she herself commented, "But hey! I was a fifty-two-year-old woman! Don't we all?"²² The oncologist dismissed the menopause reference and insisted

her symptoms were being caused by lymphoma. He strongly advised chemotherapy, and quickly. As Trisha said, the doctor told her she'd be dead within five months if she didn't.

When questioning if the lab results may have been wrong, she was told that since there were two independent labs that confirmed the results, there was no chance the diagnosis was inaccurate. Devastated, Trisha told few people besides her family and a very few close friends. Her business began to suffer, because as she noted, "I was self-employed and had lousy health insurance, which meant that my diagnosis had now become expensive, too. . . . Life, what was left of it, was going down the tubes, fast."

So she decided to reengage her doctors. When she called the oncologist's office, she learned the doctor who had been treating her was out on sick leave and that another doctor in the office had taken over her case. When Trisha finally spoke with the newly assigned doctor, he immediately inquired why she hadn't already begun chemotherapy. She told him she was trying to get a second opinion from another oncologist. His response to Trisha smacked of expert arrogance: "What you have is so rare, no one will know any more about it than I do!"²³ The statement threw Trisha for a loop. It awoke her from her previous slumber of mindless obedience and blind outsourcing of her thinking. She decided to dig deeper.

After a few too many drinks with friends later that week, she shared her diagnosis, and they were floored. One friend felt compelled to call an oncologist she knew who happened to be treating someone with SPTCL. He offered to see Trisha if she wanted to make an appointment.

Immediately after scheduling an appointment with the new doctor, Trisha called her existing doctors and asked for a copy of her medical records. When she got the records, she did what few of us would likely do. Rather than merely deliver the sealed envelope to the new doctor, Trisha started flipping through her file and searched online for every word and concept she didn't understand. She felt compelled to learn more and *actually read* her medical file.²⁴

What she found bothered her. The lab results indicated the data was "most suspicious for" and "most consistent with" SPTCL, but neither of

them was definitive. Further, the second lab report noted that it had sent the biopsy to yet another lab to test for something called “clonality,” a condition describing if the cells were multiplying. Trisha immediately called the first oncologist’s office and asked for those results. Unable to find them in the original file, they scrambled to find them. When they did, the report said the cells were not multiplying, a finding that basically meant the lump was not cancerous.

Trisha walked into the second oncologist’s office empowered. Although still dependent, she was able to claw back control and think for herself. This new doctor sent the sample to some doctors at the National Institutes of Health to confirm (or reject) Trisha’s belief that she had been misdiagnosed. Three weeks later, the diagnosis that returned was for inflammation of fat cells—a minor issue that hasn’t bothered Trisha since.²⁵

While Trisha was no doubt relieved at this new finding, she was also furious. She accused her first oncologists of insisting on chemotherapy so that they could make more money from her, an accusation that she sticks by years later. “I also fault them for never following up on the clonality tests which were so pivotal to getting the right diagnosis.”

Since then, Trisha continues to be affected by the experience. She suffers post-traumatic stress symptoms and finds herself uncontrollably crying when she reads, watches, or hears about a person dying from cancer. “After all,” she noted, “had I undergone chemo, and survived, they would have told me that I had been cured of a disease I never had. And just as frightening, I found cases of people who had been diagnosed and treated for SPTCL who had died during the chemotherapy—and autopsies had shown they never had SPTCL.”²⁶

Trisha is a spiritual woman and believes that everything happens for a reason, so she gave up her marketing consultancy and has dedicated her life to patient advocacy and spurring a movement to empower patients. “I’m doing my best to turn those misdiagnosis lemons into empowerment lemonade.” As part of this effort, Trisha has gone on to write several books and has helped lots of patients to retake control of their medical relationships.

Superfood Frenzy

It's not just the avoidance of harmful substances like cholesterol from one's diet that is so alluring to those struggling with health. It's equally compelling to add in helpful foods! But it's also the reason we are willing to follow the latest food fad and consume ungodly volumes of kale, blueberries, or other so-called superfoods in a quest for better health. It's all a symptom of excessive focus, of our never-ending quest to find a magic bullet.

In fact, since the 1990 publication of the bestselling book *Superfoods* by Michael van Straten and Barbara Griggs,²⁷ there has been an explosion of interest in these supposed miracle foods. Amazon returns almost three thousand titles if you search *superfoods*, including everything from cookbooks to diet manuals. Headlines like, "Superfoods You Need Now" are common.²⁸ There are also lists of lesser known, yet to be identified superfoods. Or suggestions that "stress eating helps, when they're these superfoods."²⁹

Superfood companies try to evoke feelings of longevity, and many of these miracle foods are rediscovered from ancient cultures, adding an extra layer of mystery and intrigue to their already seductive stories. Quinoa and its close cousin amaranth were first domesticated, cultivated, and consumed by the Incas.³⁰ Cacao is similarly associated with the Aztecs and Mayans.³¹ This is not to suggest they are not healthy . . . they may be. I'm merely suggesting there is a heavy marketing component to their stories.

These companies get you so focused on the particular health benefits of their specific products that you fail to think about anything else. They also start stretching claims—Marion Nestle, who retired in 2017 as professor of nutrition, food studies, and public health at New York University, described how producers of fruits and vegetables pay for research they can use to market their products as superfoods. For instance, the Pear Bureau Northwest has paid for research and issued press releases about results such as "New Research Indicates Regular Fresh Pear Consumption May Improve Blood Pressure in Middle-Aged Men and Women

with Metabolic Syndrome.” If pears are superfoods, Nestle concludes, then “*all* fruits are superfoods. Eat the ones you like.”³²

Birthdays are a natural time to reflect on life and make changes. Consider the actions of Jo Abi, an Australian woman who decided to radically experiment with her diet after turning thirty-nine. She decided to eat a diet of only superfoods for three weeks straight. After all, she had heard about the amazing qualities of these foods to improve our health. So she eagerly began her diet. She explicitly articulated what she thought would then occur: “I expected my clothes to feel looser, my skin to glow and a serene smile to be on my face at all times. I expected clear and shiny eyes, rosy cheeks and thicker hair and nails.”³³

Here’s what happened. Although Jo at first found the vegetables, nuts, beans, and berries quite appealing, she was soon overcome with massive discomfort. She notes that she spent the entire three weeks in a state of mild nausea and felt the need to always be near a toilet. Initially, Jo dismissed the toilet-dashing behavior as symptoms of her need to detoxify her system, but she soon gave up. “By the end of the third week,” she noted, she “was waving the white flag of surrender along with a roll of extra-soft toilet paper.” Summarizing her experience in three words, she bluntly called it “butt on fire.”³⁴

Might Jo’s not-so-super experience have been driven by an unwarranted focus on superfoods? I doubt she’s alone. The feedback from focus can foil even the best intentions. Consider blueberries, the miracle fruit that tops most superfood lists. They’re full of vitamins, soluble fiber, phytochemicals, and antioxidants, they seem to fulfill every dietary hope we have for a food. What’s not to love?

It turns out eating too many blueberries has the potential to throw off the balance in your body between antioxidants and pro-oxidants. Professor David C. Poole has found that too many antioxidants may impair muscle function and increase tiredness during exercise.³⁵ And if that’s not enough to have you put down your blueberries, what if you learned that some believe that antioxidants do not prevent cancer and (gasp!) may even cause it?

It’s not some scientific quack suggesting it. Nobel Laureate James Watson, of DNA double-helix fame, has suggested that the cure for many

cancers may elude us as we use blueberries and broccoli to vacuum up the extra oxygen molecules (known as free radicals) floating in our system. Free radicals targeted by antioxidants, he believes, may hold the key to understanding cancer.³⁶ WHAT?! Could it be that our efforts to eat away the risk of cancer by gorging on vast quantities of antioxidant-rich foods is actually increasing our risk of cancer?

Not All Superfoods Are Super for All

Consider kale, that leafy green vegetable that established and aspiring celebrities alike swear by.³⁷ Kale began showing up on lots of menus. Surely, there's something to it, right? Well, turns out it may adversely affect your thyroid function. Oh, it also has the potential to cause kidney stones as it contains oxalate, a substance that binds to calcium.³⁸ Granted, these are risks that likely only affect a small percentage of the population, but that's precisely the point.

Chia seeds seem uncontroversial though, right? Not so quick. Turns out that they can interfere with the absorption of needed minerals and hurt your digestive system.³⁹ Goji berries? Nope. They are rich in a compound (dietary saponins) that can increase intestinal permeability in something known as "leaky gut" syndrome. And you'd have to drink thirteen servings of goji berry juice to get as many antioxidants as one red apple.⁴⁰

Writing in *Vogue*, Petronella Ravenshear expressed her discomfort with superfood mania in an article titled "Lifting the Lid on Superfoods." After describing the hype and marketing around everything from chia and goji berries to acai and agave, she suggests we put this "timeless" marketing logic in context: "Do we need to eat little-known berries from far-flung places or the foods of ancient civilizations to stay well? Superfoods notwithstanding, their lives were short and brutal; the average Aztec lived for 37 years."⁴¹

This is not to suggest there is not some merit in eating these so-called superfoods. I'm merely suggesting that a plan to achieve immortality by consuming twice a day acai-kale-quinoa smoothies with a drizzling of pureed organic, gluten-free blueberries and free-range, fair trade agave

may be worth reconsidering. There may be more myth than magic in these superfoods.

One of the main reasons that these supposed magic bullets are so problematic is that our focus on them blinds us to other potentially important factors. We focus so intensely on antioxidants that we fail to consider the pro-oxidants or the possibilities that free radicals could be useful. Superfoods pique our imagination while stealing our common sense. We become blind to alternatives. And worse, we let these supposedly good things box out other things. Recall the goji berry–apple comparison. Thirteen servings versus one apple!

Adding these superhero foods to our diet can create complications and generate the very opposite consequence from that which we seek, as seen with Jo's experience. But the problem is not merely about superheroes that aren't really superheroes. We can also be blinded by an unthinking focus on villains that aren't really villains.

Consider the Gluten

One villain that seems to have captured a lot of consumer attention is gluten. Gluten-free products compete with *non-GMO*, *local*, and *organic items* for mindshare among today's health-conscious, price-insensitive, and trend-following foodies, yuppies, and self-anointed amateur nutritionists. It's become so fashionable that even Fido and Spot have jumped on the bandwagon, driving sales of gluten-free pet foods to new records. Like all sweeping trends, it has a powerful attractive force that lures innocent bystanders into asking if they too should join the party. The *New Yorker* even ran an article entitled "Against the Grain: Should You Go Gluten Free?"⁴² to help readers answer that very question. *Grain Brain* and *Wheat Belly* held strong multiweek positions on bestseller lists.⁴³

Like financial bubbles, the herd behavior identified by such popular attention is never sustainable. Here's the big disconnect that captures the essence of the problem: about 1 percent of the population has celiac disease, less than 10 percent are gluten intolerant, and . . . drumroll

please . . . almost 30 percent of American adults are trying to avoid gluten.⁴⁴ One of the main reasons consumers want to avoid gluten is because it's supposedly healthier to be gluten-free. It's generally not.

The blunt reality is that many gluten-free foods are not healthier for the 90+ percent of the population that doesn't have celiac disease or gluten sensitivity. It's worth noting, for instance, that a Glutino Original New York Style Bagel has 26 percent more calories, 250 percent more fat, 43 percent more sodium, 50 percent less fiber, and double the sugar than a Thomas' Plain Bagel—for a price that (at this writing) is 74 percent higher!⁴⁵ Further, because many gluten-free products utilize rice flour, they are also at risk of containing higher levels of arsenic than desirable or healthy.⁴⁶ Other gluten-free items use corn, sorghum, millet, or amaranth flour—none of which is objectively better than wheat.

Despite these facts, the gluten-free craze gained momentum. Market research firm Nielsen estimated that sales of products with a gluten-free label had risen to over \$25 billion by 2016 with more than 10 percent of all new launches claiming gluten-free status.⁴⁷ While the trend is impressive, it's largely driven by marketing efforts. Many brands, for instance, added gluten-free labels onto products that never contained gluten. Add a label, grow your sales! Reminds me of internet mania when merely announcing a URL increased valuations overnight. Another sign the gluten-free bubble is nearing its end is the popular backlash against “casual” (versus those with celiac disease) gluten-free diners.

None of this is to suggest that there isn't a real underlying need for gluten-free products. There is, and I know from personal experience. In October 2011, my doctor informed me that a blood test indicated I had heightened sensitivity to gluten. The sensitivity was so high he recommended a gluten-free diet. I protested, suggesting he was overdiagnosing my unhealthy diet.

I asked: “Have you considered *ice-cream-itis*? That's a disease I know I have,” admitting my addiction to the heavenly creamy frozen sugar to which I was devoted. I insisted he conduct a genetic test to determine if I had a genetic marker for celiac disease. When the results came back, I was saddened to learn that I indeed had the gene.

I've been gluten-free since 2011, and I genuinely do feel better. I've lost weight, have gained energy, and at least in my own eyes, look younger. My wife doesn't seem to notice, and my kids say that I look older, and come to think of it, I'm also more tired . . . but this is my book and I'm writing my history. So there you have it. Whether you have celiac disease, are gluten intolerant, or just part of the fashionable trend-following crowd, rest assured that this chapter is certified gluten-free! I can't comment on the rest of the book, as it was produced in a facility that also processes wheat.

The two main reasons that our focus on the gluten villain is so harmful are that gluten is not really a villain for all and that by evicting gluten from our diet, we've created a vacuum that sugar, salt, and fat have jumped in to fill—of course aided by packaged foods companies eager to make cookies, crackers, and other gluten-free products taste ever so slightly less cardboard-like. Our focus on gluten blinds us to the additional calories, fat, and sugar. Go gluten-free to lose weight . . . and uh-oh, you're heavier!

It's hard to blame consumers for reacting this way. Even if they do have a good sense of what they should eat in the abstract, it is difficult to practice this, given the overwhelming number of options to choose from and the constraints of time and money. Few of us can comfortably make the time every day to browse, select, buy, chop, season, and roast fresh vegetables. Where should we turn for less perishable and more affordable options? Pasta lasts and is cheap, but is surely not as healthy (especially when combined with the sugary sauce that is marketed to most of us). What about bean-based pasta and low-sugar sauce? Healthier, but six times the price!

Sometimes it feels like the future really may lie with Soylent: complete nutrition in a bottle of bland, milky formula. Nothing to choose and a supposedly perfect solution containing all the nutrients we need. Think of it as baby formula for adults. As it is perfected, perhaps someday Soylent will allow us to remove the variable of choice in some of our meals. Until then, though, we need to reach a better understanding of how to make good choices on a daily basis.

The evidence at this point is overwhelming. By focusing on calories, fat, cholesterol, gluten, antioxidants, kale, and a host of other missing needles has distracted us away from taking a holistic approach to health. We're so busy digging through a haystack searching that we're not asking if we're even in the right barn. We ate less fat, but got fatter. We consumed more cancer-fighting antioxidants, but cancer rates rose.

Louise Foxcroft's *Calories and Corsets* concludes an exhaustive survey of two thousand years of diet advice by calling for a return to the Greek concept of *diata*, from which the word "diet" originates. The concept "described a whole way of life rather than . . . a narrow weight loss regimen. It provided an all-round physical and mental way to health."⁴⁸ Is it possible we're so focused on food that we're missing the point? Might we benefit from unfocusing a bit and seeing a wider perspective?

A *New York Times Magazine* story provocatively called "The Island Where People Forget to Die" highlighted how blinding focus plagues American thinking on diet and health. It noted that Americans tend to "focus on exercise and what we put in our mouths," while for those living on the Greek island of Ikaria, "diet only partly explained higher life expectancy" and exercise "played a small role at best."⁴⁹ Indeed, it turns out social structures may matter as much if not more than these two variables. In fact, it may be the interaction of the components that leads the system toward the much pursued goal of widespread longevity. We'll return to this later in the book.

The logic of systems thinking helps us understand feedback loops that a narrow focus can miss. By focusing intensely in one domain, we often fail to see how our actions may create the very problem we are seeking to avoid. We need to step back, zoom out, and look at the whole system rather than just its parts. The sad reality is that many of our supposed solutions are compounding our problems. Consider the current mechanism for treating those struggling with type 2 diabetes. Because these patients suffer from high blood sugar, they are often prescribed insulin

to lower it. But they have high blood sugar *while they have high insulin levels*, a condition resulting from insulin resistance.

Dr. Jason Fung has suggested that insulin prescriptions are likely increasing resistance. He notes: “As it turns out, insulin causes insulin resistance. The body responds to excessively high levels of any substance by developing resistance to it.” He goes on, highlighting the unintended consequences of the current approach: “We were prescribing insulin to treat it, when excessive insulin was the problem in the first place. . . . As patients took insulin, they gained weight, and when they did, their type 2 got worse, demanding more insulin. And the cycle repeated.”⁵⁰ A classic vicious cycle.

Or think about how social media, designed to connect us to friends and family members, has compounded the previously discussed fear of missing out. Given the propensity of people to disproportionately post positive images, social media encourages feelings that one’s reality is worse than the world experienced by everyone else. The result is that social media now often leads to loneliness, despair, and depression—the very opposite of bringing users together.

A systems approach and an appreciation of the feedback loops that accompany our choices can be helpful. Systems thinking quite powerfully shows the value of stepping back, zooming out, and looking at the big picture. Connections matter, and while most advice we are given is accurate “with all else equal,” rarely is “all else equal.” In fact, our decisions almost always assure that all else is not equal, so we need to regularly consider the feedback resulting from our actions. And because deep experts and narrow specialists are unable to see the big picture, the task of doing so necessarily falls to us.