

The Cure for Diabetes

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Walking Out Cured

It's a wonder no one has tried to have Mary Vernon's medical license revoked.

Since 1999, the 52-year-old family doctor has been treating diabetic patients in Lawrence, Kan., with an approach that was abandoned by most physicians in the 1930s. Worse, this Depression-era remedy is the opposite of the current guidelines established by the American Diabetes Association, a nonprofit organization that spent nearly \$51 million on research in 2005, and so should know a thing or two about how to handle diabetes.

There's no question that Dr. Vernon is trouble - but for whom? Not her patients, that's for certain. They just won't stay sick. People walk into her office afflicted with type-2 diabetes and, by every objective medical measurement, walk out cured. There's \$51 million that says that isn't supposed to happen, not in a clinic in Kansas, and definitely not as a result of cleaning out the refrigerator.

"My first line of treatment is to have patients remove carbohydrates from their diets," explains Dr. Vernon, a petite, energetic mother of two who also serves as the president of the American Society of Bariatric Physicians. "This is often all it takes to reverse their symptoms, so that they no longer require medication."

That's it?

That's it - a simple strategy, but one that's controversial. If Dr. Vernon and a growing cadre of researchers are correct about carbohydrates, we may be looking at an epic case of ignorance on the part of the medical community. That, however, pales next to the implications for the American Diabetes Association, namely that the very organization dedicated to conquering diabetes is rejecting what could be the closest thing we have to a cure.

A Diabetic Epidemic

Although not an infectious disease, diabetes seems to be spreading like one. Since 1980, its prevalence in the United States has risen by 47 percent, a trend that's expected to take a space-shuttle trajectory in the next decade. That's because nearly half of American men today either have the condition or are on the verge of developing it, according to a new report from the National Institutes of Health. And the consequences are considerable:

Diabetes is the primary cause of cardiovascular disease, slashing a man's life span by an average of 13 years. Dodge early death and you could still end up impotent, blind, in kidney failure, or, most likely, minus a foot. (A gangrenous limb or digit is amputated every six minutes in the United States.)

"This is a 'grab your muskets, fellas, the wolves are at the door' scenario," says David Katz, M.D., an associate professor of public health at Yale University school of medicine. "What once was 'adult-onset' diabetes - a condition mostly of overweight, sedentary, middle-aged adults - is now an epidemic in children under the age of 10."

So what exactly is diabetes? In freshman-biology terms, it's a disease of the hormone insulin. Secreted by your pancreas, insulin moves glucose - the form of sugar your body uses for energy - from your bloodstream into your cells. Problems arise, however, when, often due to excessive weight gain, your cells start to become resistant to the effects of insulin. (It knocks, no one answers.) As a result, more insulin is required to dispose of the same amount of glucose. (The knock becomes a loud banging.) This condition, called insulin resistance, is the first stage of type-2 diabetes.

As insulin resistance worsens over time, your pancreas has to pump out enormous amounts of insulin to force glucose into your cells. (Hey, let's use a sledgehammer!) Eventually, your pancreas has trouble keeping up, leaving you with chronic high blood sugar, a.k.a. hyperglycemia - the defining marker of diabetes and the root cause of the calamities that arise from it. Alas, it only gets worse from here: If the resistance continues to mount, some of the insulin-producing beta cells inside your pancreas can "burn out" and stop working altogether. (In type-1 diabetes, an autoimmune disorder destroys most or all of the beta cells.) Once beta cells burn out, you're looking at a lifetime of daily insulin injections.

Or not, if you believe Dr. Vernon.

Unlike protein, fat and fiber - which have little if any impact on blood sugar - carbohydrates such as starch and sugar are quickly broken down into glucose during digestion, which is then absorbed into your bloodstream. The more you eat, the higher and faster your blood sugar rises. Therefore, if you have diabetes, it would make sense to control your blood sugar by limiting your carbohydrate intake. Another benefit of consuming fewer carbs is that you often end up consuming fewer calories, and that can help lower weight, which, in turn, reduces insulin resistance.

By contrast, the American Diabetes Association suggests that people with diabetes build their diets around bread. OK, not just bread. In explaining the foundation of its Diabetes Food Pyramid, the ADA Web site - the public face of the organization - states, "This means you should eat more servings of grains, beans and starchy vegetables than of any of the other foods." And while high-fiber whole grains are emphasized, a slice of whole-wheat bread is still more than 80 percent starch.

Granted, sweets are at the pinnacle of the pyramid, though so are "fats" and "oils," which makes it appear that the ADA's main focus isn't on high blood sugar at all but rather on a different affliction.

"Long-term, what you're really concerned about is heart disease," says Marion Franz, R.D., a member of an 11-person team of experts who coauthored the ADA's 2006 nutrition recommendations. "It's the major cause of death for people with diabetes." In other words, they use food as a weapon against a complication of diabetes, rather than diabetes itself.

When it comes to controlling blood sugar, the ADA seems to push drugs as hard as diet. An ADA position statement published in August 2006 advises that people newly diagnosed with type-2 diabetes immediately commence taking metformin, an oral medication that slows the body's internal production of glucose, helping to lower blood-sugar levels. With total sales of metformin having neared \$1.1 billion in 2005, according to IMS Health, this recent recommendation must have brought a big smile to big pharma - and a look of utter disbelief to the faces of the ADA's critics.

"They're contradicting themselves," says Richard Feinman, Ph.D., director of the Nutrition & Metabolism Society and a professor of biochemistry at SUNY Downstate medical center, in New York City. "They want diabetics to take medication to lower their blood sugar, but recommend a diet that has the opposite effect."

At least the ADA's recommendations are pointing in the same direction in the case of overweight people with diabetes - pop metformin, but also cut calories and add exercise to reduce insulin resistance. What's odd here, however, is that they don't advise giving the lifestyle component a chance to work before reaching for the pill bottle.

"Metformin is insurance for people who aren't following their diet and exercise plan," explains John Buse, M.D., Ph.D., president-elect of medicine and science for the ADA.

The message to insulin-resistant America: We don't think you're going to help yourself, so here, take this.

Eliminate Foods that Raise Blood Sugar

When Brian Llong awoke covered in his own blood, he knew it was time to see a doctor. The boil that had been festering on his right thigh for 2 months had finally ruptured. On the recommendation of a friend, the 30-year-old business owner made an appointment with a local doctor. Luckily, her name was Mary Vernon.

"As soon as I saw the type of boil Brian had, it was obvious to me that he had diabetes," recalls Dr. Vernon, explaining that lingering boils - along with cuts and scrapes that don't heal - are one of the few outward signs of diabetes. A glucose test provided the necessary confirmation: Long's blood sugar was 360 milligrams per deciliter, almost four times higher than normal.

Dr. Vernon instructed Long to adopt a low-carbohydrate, high-fat diet instead of the ADA's well-established dietary guidelines. His condition reversed - and fast. In just three months, he was no longer diabetic. And this was without ever taking a single dose of metformin or injecting insulin.

"My treatment didn't seem like a treatment," says Long. "All I had to do was change my eating habits."

This turnaround may have amazed Long, but Dr. Vernon is more matter-of-fact about the remedy and the results. "I believe in addressing the cause, not the symptoms," she says. "That's why I first eliminate the foods that raise blood sugar. It's only logical."

So logical, in fact, that Elliott Proctor Joslin, M.D., a Harvard- and Yale-educated physician, used it more than a century ago. According to carefully documented patient logs he kept from 1893 to 1916, Dr. Joslin successfully treated dozens of diabetic patients - including his own mother - using a diet made up of 70 percent fat and just 10 percent carbohydrates.

Then, in 1921, a Canadian scientist named Frederick Banting found that by injecting diabetic dogs with insulin, he could lower their blood sugar back to normal. Soon after, insulin therapy made the leap from these hyperglycemic hounds to human beings. By the 1940s, insulin was in widespread use, and low-carbohydrate diets were on the decline. Dr. Joslin was later labeled a medical reactionary.

"Instead of advising people with diabetes to first restrict carbohydrates, physicians simply started prescribing enough insulin to accommodate patients' carbohydrate intake," says Dr. Vernon, who some 60 years later is trying to pick up where Dr. Joslin left off and reeducate academics and physicians by sharing her observational evidence. In published, retrospective reviews of her patients' medical charts, Dr. Vernon has documented the beneficial effects of a low-carbohydrate, high-fat diet for more than 60 people who had diabetes or were at high risk of developing the disease.

Of course, in the world of medicine, the experience of one doctor carries little scientific weight compared with experimental studies conducted under controlled conditions. That's why, in 2003, researchers at Duke University set out to test Dr. Vernon's findings in a laboratory setting. The results of their 16-week study: 17 out of the 21 diabetic patients who participated were able to significantly reduce their medication or discontinue it altogether.

"When you cut out carbohydrates, reducing insulin and other diabetes medications isn't just a benefit, it's a necessity," says William Yancy, Ph.D., lead author of the Duke study. "Otherwise, blood-sugar levels would drop too low."

In Favor of Vegetables

"You need a certain level of dietary carbohydrate to provide enough fiber, minerals and vitamins," says the ADA's Dr. Buse, when asked why a person with diabetes would want carbohydrates, given their effect on blood sugar.

And he's right. Why risk a nutritional deficiency in someone with a chronic health condition? Except this is exactly the gamble you'd take if you ate according to the ADA's own Diabetes Food & Nutrition Bible. An analysis of the high-carbohydrate, low-fat plan, presented January 2006 at a conference of the Nutrition & Metabolism Society, showed that it didn't provide the recommended dietary allowances (RDA) of four essential nutrients: potassium, iron, vitamin D and vitamin E. The ADA diet, in fact, was deficient.

The culprit? The plan's 2,000-calorie limit, says Judith Wylie-Rosett, Ed.D., R.D., a coauthor of the ADA's 2006 nutrition recommendations. "The more you restrict calories on any diet, the harder it is to get the nutrients you need from food."

It might be hard to imagine how a high-fat, low-carbohydrate diet would be any more nutritious, even if the calories were in the right range. But that's only because most of us have a skewed view of what we'd be eating. Specifically, we think low-carb means low-produce. In truth, many vegetables contain very few carbohydrates per serving, and most of those are the fibrous kind, which hardly budge blood sugar. So vegetables are not only acceptable but encouraged on a low-carb diet.

Dr. Vernon, for example, recommends that most of her diabetic patients eat vegetables at every meal. Dr. Joslin, back in 1893, proposed that patients simply limit their vegetable intake to those containing "less than 5 percent carbohydrate content," which he identified as spinach, tomatoes, asparagus, broccoli, and 23 other choices. And in a survey of more than 2,000 low-carb dieters, Feinman discovered that 80 percent actually consume greater amounts of vegetables than they did before they adopted the approach.

More bizarre than the ADA's general recommendation of carbohydrate consumption, though, is the organization's stance on sucrose, commonly known as table sugar. According to the ADA, there's no need for people with diabetes to restrict their intake of the sweet stuff. The organization's published rationale: When it comes to raising blood sugar, sucrose is no worse than starch.

"That's an almost devious justification," says Feinman. "Starch may be the worst food you can eat in terms of controlling blood sugar."

A bit of chemistry: Sucrose is composed of equal parts of two simple sugars, glucose and fructose. The former is the same glucose that circulates in your bloodstream. As such, it's already in the form your body needs, so it's easily digested and quickly raises blood sugar. Fructose, however, has to be converted to glucose in your liver. This slows down the rate at which it's digested, and reduces its impact on your blood sugar.

Starch, on the other hand, consists almost entirely of glucose. In fact, think of starch - the primary carbohydrate in bread, rice, pasta, and other flour-based foods - as a bundle of glucose molecules, held together by chemical bonds. These bonds start to dissolve the moment they make contact with saliva, immediately freeing the glucose to enter your bloodstream. As a result, starch has an even greater impact on blood sugar than sucrose; essentially, it's like injecting glucose before your shot of insulin. "The [ADA's] implication is that likening sugar to starch is a favorable comparison," says Feinman, "when it's actually the opposite."

The ADA's sanctioning of sucrose - as well as that of starch - does come with one caveat: "Intake must be adequately covered with insulin or other glucose-lowering medication." That sounds like you can eat all the sugar you want, as long as you take enough drugs.

"We're not saying it's okay for people with diabetes to eat lots of sweets," says Franz. "But they deserve the right to eat all types of carbohydrates, just like any other person." Never mind that the need for more medication usually indicates that a disease is worsening. "This is like saying it's all right to eat contaminated spinach just because you have an antibiotic," says Feinman.

Our Data-Driven World

The most obvious objection to treating diabetes with a low-carbohydrate diet that's high in fat is that, well, it's high in fat. After all, saturated fat is cardiac kryptonite, right?

Wrong, says Jeff Volek, Ph.D., R.D., a nutrition researcher at the University of Connecticut. "Our research indicates that replacing carbohydrates with saturated fat has a beneficial effect on cardiovascular health," he explains. "A low-carbohydrate diet decreases the body's production of saturated fat and increases its ability to burn the incoming dietary fat." In fact, says Volek, more than a dozen peer-reviewed studies published since 2003 show that a low-carbohydrate, high-fat diet is more effective at reducing overall heart-disease risk than a high-carb, low-fat regimen. And, just like the diet that Dr. Vernon prescribes, each of these meal plans ranged from 50 percent to 70 percent of total calories from fat.

Still, opponents argue that while the number of these studies may make a compelling case for following a low-carb, high-fat diet, their duration does not.

"What works in the short term has not always been proven to be beneficial in the intermediate and long term," says Dr. Buse. "In an organization such as the American Diabetes Association, you have to be data-driven, not opinion-driven."

Translation: If there isn't published evidence of how a diet performs in what Dr. Buse calls the intermediate term - which he defines as a study that lasts three to six years - the ADA won't support it as a treatment option. Which means all the short-term studies that Volek cites - and the clinical experience of doctors such as Dr. Vernon - don't count in

the ADA's world, even though low-carbohydrate diets have produced only positive findings.

"I think the onus should be on the ADA to show data that suggests low-carbohydrate diets aren't beneficial in the intermediate term," says Feinman. "All evidence we have suggests otherwise, including epidemiological."

Feinman is referring to studies on Greenland Eskimos, who prior to the 1980s had perhaps the lowest prevalence of both heart disease and diabetes on the planet. One 25-year study found that only one out of the 1,800 people monitored developed diabetes. Their diet: almost entirely fat and protein, and only about 3 percent carbohydrates.

Even with all the accumulating evidence, there's no doubt that the high fat content of low-carbohydrate diets is worrisome for many people. And this may be why more physicians don't advocate the approach, even though many follow it themselves: A University of Pennsylvania study reports that doctors prescribe a low-fat diet to their patients 67 percent of the time, yet when it comes to their own diet, they more often go low-carbohydrate.

Stay Off the Starch

At the McDonald's at 6th and Wakarusa in Lawrence, Kan., the employees have to fill some unusual orders, like when Brian Long strides in and asks for a double cheeseburger - hold the bun.

In the nearly 10 months that Long has been following Dr. Vernon's dietary advice, he's picked up a few tricks for staying off the starch, including ordering a naked double cheeseburger at every McDonald's, though he prefers the one on Wakarusa. "Here, the cashier doesn't look at you funny when you order it," he says. "Maybe it's because it's only a few blocks from Dr. Vernon's clinic."

Long doesn't realize it, but according to many nutrition experts, cutting carbohydrates from his diet was supposed to fall somewhere between impractical and impossible. Most people with diabetes simply can't or won't do it. "An extreme diet doesn't work well in the long term," says Franz.

"Which do you think people would find more practical?" asks Dr. Vernon. "Avoiding bread and sugar, or taking an insulin shot every day?" Before you answer, consider that the ADA, America's leading authority on diabetes, refuses even to pose this question to millions of diabetes sufferers, leaving them unaware that there may actually be an alternative to leading a medicated life.

"You might prefer to just take the insulin, and that's your choice," says Dr. Vernon. "But in my experience, patients are far healthier and happier without it." She pauses for a moment. "And isn't that the whole point?"
