

#1 NEW YORK TIMES BESTSELLING AUTHOR

JORGE CRUISE

THE 100

COUNT ONLY
SUGAR CALORIES
AND LOSE UP TO 18
LBS. IN 2 WEEKS

THE DIET PROVEN BY SCIENCE
"Cutting-edge nutritional science."
—Dr. Andrew Weil





THE
100TM

Count ONLY Sugar
Calories and Lose
Up to 18 Pounds
in 2 Weeks

JORGE CRUISE



WILLIAM MORROW

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DEDICATION

To Lisa Sharkey:

Thank you for believing in my message, and for having the courage and vision to illuminate the truth about weight loss, and giving the world a real chance at ending the obesity epidemic. Your support for this and our future books in *The 100™* series will continue to empower and inspire people around the world.

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THE 100™

Foreword by Dr. Vincent Pedre

When I was in medical school in the 1990s, very little time was devoted to nutrition. All learning was centered around which medications were best to treat particular conditions. It seemed that the only way to treat a disease was to reach for the script pad. But as I started my practice, I instinctively knew that something was missing in patient care.

My quest for more answers led me to become the “accidental” nutritionist. It was my patients’ needs and their incessant requests for weight loss guidance that led me to want to study nutrition and weight loss science. I studied integrative and functional medicine to pursue my passion, and I realized that the best medicine was actually in the kitchen. The most powerful interventions I could inspire in my patients were to lose weight and become physically active. In my practice, I help my patients understand the source of their weight gain, working on strategies to help them lose the weight by addressing the underlying issues.

Over the last several decades our understanding of the key role nutrition plays in our health has broadened immensely, but there are still many old ways of thinking we hold onto that are getting in the way of fully understanding weight loss. Looking at all calories as equal when it comes to weight gain is simply outdated science, yet many weight loss programs still pivot on the disproven concept of calories in = calories out. In *The 100™*, Jorge Cruise provides a clear, evidence-based explanation of why the old way to count calories is not only wrong, it will certainly set you up for weight loss failure. *The 100™* offers a new way of counting calories, based on sound science. This new approach to weight loss is not only simpler and easier to follow, it will allow you to feel satisfied while watching the pounds effortlessly come off.

Simply stated, the problem that has been throwing a wrench in your weight loss efforts is insulin. After reading this book, you will understand how this ultra-important hormone plays a key part in weight gain, especially with our *carb-heavy* eating patterns. By making the connection between sugar, carbs, insulin and the accumulation of fat in the body, you will be empowered to make the right food choices. *The 100™* will change the way you think of which calories count and which don’t. You will learn a new way to plan your successful weight loss and lifetime eating plan. This is not only a diet, it is a new eating mindset and lifestyle change.

The first time Jorge Cruise told me about his exciting new approach, we talked about the key role insulin plays in weight gain and many other diseases, such as prediabetes, diabetes, metabolic syndrome, cardiovascular disease, heart disease, and hypertension to name a few. High insulin levels are often missed by your doctor, who may only be doing a routine check for fasting blood sugar, which may be “normal” even if your insulin levels are high. Fasting blood sugar alone will often miss the mark. It is the ratio of your fasting blood sugar to your fasting insulin level that is more telling. A ratio greater than 7 should be your aim, keeping in mind that an ideal fasting blood glucose is between 70 and 90 mg/dL.

Further measurements, including BMI (body mass index) and waist circumference (a marker for insulin resistance) halfway between the belly button and the ribs—provide more information about unwanted weight gain. For women, a waist larger than 35 inches, and for men larger than 40 inches, is a sign of insulin resistance. If this is your waist size, your body has become insensitive to the signal insulin puts out—the signal that when recognized will move glucose into your cells for energy production, but when not recognized will lead to all of the diseases mentioned above. Ultimately, this is the main issue that has caused you to pack on the weight, and what is reversed by following the program in this book.

Knowledge is power. *The 100™* will give you the right knowledge to conquer your weight for good. With a thorough review of the history behind diet science, and how we went astray after World War II with ill-advised diet plans, this book will walk you through a clear account of weight loss trends and why some worked and others failed. I always believe that the most important thing I can give a patient is knowledge and understanding of their condition, because with that they can find the right motivation to move forward. *The 100™* will teach you what is going to work for your weight loss, and what won't. And this is based on more than 100 years of research from scientists and doctors around the world.

I have seen the enthusiasm with which Jorge Cruise motivates people like you to lose weight and stay fit. You will find that same level of enthusiasm and the right motivation through the words in this book. I have the utmost respect and admiration for his ultimate goal to make America and the world healthy. It starts right here with this new diet plan.

More than any time in history, we need to understand why our old way of eating is slowly making us sick and heavy. If only we can look at nutrition as our medicine, rather than waiting for the right pill to cure the disease, we will become empowered to make the right choices and live healthier and happier lives.

May you find inspiration in *The 100™* to change your eating patterns, and ultimately to begin on your path to wellness.

Best wishes
Vincent M. Pedre, MD

WELCOME

From the desk of Jorge Cruise

Dear Friend, get ready because I have some shocking news. Currently the US government suggests a Recommended Daily Allowance of 1,752 Sugar Calories or around 9 cups of sugar.

THE GOVERNMENTAL RECOMMENDED DAILY ALLOWANCE TRUTH

Note: when counting Sugar Calories we take into account ALL carbohydrates, since they are all sugar. With that in mind we see the following scenario play out:

- 10 oz carbohydrates = 130 carb grams = 520 Sugar Calories
- 2.5 cups fruit—Orange juice = 64 carb grams = 256 Sugar Calories
- 4 cups vegetables—Sweet Potato = 144 carb grams = 576 Sugar Calories
- 3 cups dairy—Skim milk = 36 carb grams = 156 Sugar Calories
- 2 servings added sugar—2 cups lemonade = 64 carb grams = 256 Sugar Calories = 1752

For years, experts, including government officials and health agencies, have been telling us that cutting overall calories is the key to weight loss, and that ending obesity is a simple matter of counting calories. *The 100™* is perhaps the most breakthrough book on the subject of weight management to date, because it actually shows you where dietary science is today, and it is probably not what you are thinking.

I am thrilled to introduce to you *The 100™*—my easiest program yet. **If you cannot wait to see the newly updated science, I give you permission right now to find out the secret of this book located in chapter 3.**

Discover how specific foods cause your body to hold on to excess pounds and the simple change you need to make to release excess fat from your body. *The 100™* way of losing weight will keep you on the path to **lose up to 18 pounds in just two weeks!!**

So, if you're ready to see the truth about calories, and learn how you can eat all the delicious foods you don't want to give up then you are in the right place. Get ready for a smaller, more energized vibrant you, now and forever.

I cannot wait to show you how it all works!

Your coach,

JORGE CRUISE

PREFACE

My Vision for You and for Our World

I am incredibly blessed to have had the opportunities I do, and with these blessings has come great responsibility. That's why I've devoted my life to one critical mission: To spread the truth about obesity and being overweight with the hope that I can help as many people as possible to break free from the vicious cycle of dieting, temporary weight loss, and eventual weight gain.

I've experienced firsthand what it's like to struggle with weight. I was raised in a family where food was abundant and rich in refined carbs and sugars. Beginning at a young age I was taught to eat what was served to me, and to finish everything on my plate. Throughout my childhood and into high school I sought out sugary foods and refined carbs for comfort and to reduce the anxiety I felt, but all because, unbeknownst to me, these foods are also highly addictive. I didn't know they also fueled weight gain. It wasn't until I was more than 40 pounds overweight that I finally discovered the importance of the types of foods I was eating and what they were doing to my body and my health. Once I was able to understand that it wasn't that I was eating too many calories, it was the quality of the food, not the quantity that was the problem, I was able to change my way of eating, lose the weight, and stay healthy.

My goal is to change the way we view food on a global level, to change the way the whole world eats. That's why I've dedicated over a decade of my life to writing books, coaching men and women, and appearing on radio and television to spread my message—eating in a way that matches how the human body was meant to work is the key to ending our struggle with excess weight for good. I've done years and years of interviews with leading health experts, read hundreds of books as well as scientific studies on nutrition and weight loss, and I firmly believe that we've been led astray. The messages we've gotten over the years on how to lose weight have just been plain wrong—and I want to take you through my journey, because I believe that once you know what I know, you'll be as convinced as I am.

In my past work, I've focused on strategies that have people count and track the amounts of sugars and carbohydrates in food. This is still a good strategy, but I have evolved from my previous work to realize that the way the world thinks is in terms of calories. Calorie counting can, and has been, a hindrance in the past, and to some extent still is because when you count all calories equally you can easily overlook the essential and sometimes harmful components of a given food—specifically sugars. That's why I'm going to teach you *a new way of viewing calories*. The old view and the conventional wisdom—how much heat your food puts out or calorie counting—is out of date, and completely misleading. Not all calories are used equally. I know I'm treading on very controversial ground here, but the science is so compelling and life-changing that I want you to know every detail. That's what this book is all about.

Calories were invented to assist you in weight loss; however, the specific key to weight loss that works long term is to track only the calories that cause weight gain and fat storage. These Sug

Calories (see chapter 2 and chapter 3 to learn all about this culprit) have been hidden and misnamed by the food industry to such an extent that you've had no fair chance at losing weight successfully despite your best efforts. That's about to change. I'm going to teach you a new way of doing the math that fits with how your body consumes and uses calories. Once you are informed, you'll never treat all calories as equals again.

We are in a global health crisis with ever-rising rates of obesity, diabetes, cancer, heart disease, and Alzheimer's, and my hope is that this book will teach you the common thread I see running through all these conditions—namely sugar, sugar, and more sugar. Armed with the knowledge in the following pages, you'll be ready to take control of your life and protect your health, and the health of those you love.

How to Use This Book

To simplify the wealth of material in this work, I've organized it for ease of use. This book is broken into four sections, and while you can feel free to jump ahead to the menus and food planners, I believe that you'll be more invested in The 100™, and will see better results, if you take the time to read the book in the order in which it is laid out.

In Part I, we're going to take a journey through the past to see how we got from being mainly healthy hunter-gatherers to the disease-burdened modern day people we are today. By taking the history lesson in chapter 1, you'll be able to see how the relatively recent changes to our diets have harmed our health, why scientists invented the “how hot your food gets relates to your weight loss” theory of calories and the hidden science that has proven correct. We'll also look at the introduction of refined sugars and grains, and the influential role of politics, personalities, and the food industry. In chapter 2, we will look at the science of what keeps human bodies healthy, what in our modern diets is harming our bodies, the specific role that carbohydrates and sugars play (Sugar Calories), and how to eat for health and well-being. We'll also look at what goes on in our bodies to cause chronic disease and how these are linked to carbohydrates and sugars as well.

In Part II, I'll teach you a new way of viewing calories. In chapter 3, you'll learn what Sugar Calories and Freebies are all about. By learning what calories are Freebies, and what calories should be tracked (Sugar Calories), you'll find a new freedom in eating and enjoying your diet, while being able to shed stubborn pounds. You will understand the components of various foods, how Sugar Calories cause weight gain, and you'll be introduced to new strategies of eating that match your genetic blueprint. Chapter 4 is where we take action with The 100™. You will learn about the menu and how you can lose up to 18 pounds in two weeks! This is a no-brainer food plan that I've made super simple—you won't have to track anything because I've taken care of the choices for you. The foods are all easy to find and prepare, so you'll enjoy four weeks of effortless eating.

In Part III, chapter 5, we'll look at how to move forward after you've finished your first four weeks on The 100™, how to eat when the going gets tough, and how to track and keep a food diary. Then, in chapter 6, get ready to get your motivation revved. Here I'll outline how to stay motivated no matter what challenge faces you.

In Part IV, chapter 7, I'll share specifics for how to add variety to your eating plan based on how you are feeling, and your special dietary needs. In chapter 8, you'll find extensive food lists for Freebie foods and Sugar Calories. In chapter 9 we'll take a look at how exercise works on The 100™.

Throughout the book, you'll see inspiring testimonials labeled “I Did It!” from clients who have

*found success using my philosophy for successful weight loss to keep you motivated. Also incorporated throughout the book are excerpts from an interview I conducted with my mentor, Gary Taubes, the award-winning science writer and author of Good Calories, Bad Calories, Why We Get Fat, and Born to Run. Science. Gary has opened the world's eyes to the issues surrounding obesity, not as an issue of calorie control, but as one of hormonal imbalance and food quality. He has helped me understand that the key to weight loss is found in understanding that not all calories count, and how insulin works in the body to control the regulation and storage of fat based on the types of calories you consume. He's inspired and informed much of my work and research, and now you can share in his words of wisdom by reading the boxes labeled **Interviewing My Mentor**. Since the interview excerpts are taken out of context, I've included commentary in italics when further explanation is necessary.*

I know that you can find a new freedom and a new happiness within the pages of this book, and I'm so excited to share it all with you. Let's get started.

PART ONE

The Foundation of Weight Loss

Even the most formidable building will turn to rubble without a solid foundation—the same can be said of successful weight loss. If you don't build your weight loss plan on what really works—you need a solid foundation—you won't be able to reach your goals. That's what these first two chapters are all about. I'm going to take you down memory lane to a time in history before humans knew of obesity. We'll follow these mostly healthy hunter-gatherers to the disease-burdened modern day people we are today. We'll also look at the introduction of refined sugars and grains, and the influential role of politics, personalities, and the food industry. In chapter 2, we will turn to the science to learn what our modern diets is harming our bodies, and how to eat for health and well-being. We'll also look at what goes on in our bodies to cause chronic diseases, and how these are linked to carbohydrates and sugars as well.

1

The History of Heft

Those who don't know history are destined to repeat it.

—EDMUND BURKE

The story of how we became a nation of more fat than thin individuals has its origins more than 10,000 years ago. Understanding how we went from then to now takes a bit of a history lesson, but it's a worthy use of your time, not to mention a fascinating story, because after reviewing the history of our growing plight you'll have an elevated insight into our hefty problems with obesity. Understanding how we got into this state of unhealth—from point A to B—is the first step to ending your struggle with weight forever.

You'll be rewarded with a new wisdom and a new freedom by taking the time to carefully digest this chapter, as well as chapter 2: The Science of Skinny. By the end of this chapter you'll understand how we evolved from healthy humans, virtually devoid of obesity—and most of its related diseases—to a culture dripping in fat. This new understanding is going to open your eyes to how you've been misled by public health officials and government agencies to repeatedly trust in flawed recommendations for losing weight—despite your most sincere efforts. With this new wisdom, you'll finally have the tools to shed the stubborn pounds and excess fat from your life forever.

Origins: The Evolution of Eating

Eating with Our Genetic Blueprint

Believe it or not there was a time in human history when being overweight and obese was a rarity. In fact, more than 99.5 percent of our genetic existence on this planet, some two and a half million years, was spent being mostly lean, healthy, and virtually disease free. This was known as the Paleolithic era, or, less technically, the Stone Age, because it began with the development of the first stone tools. This accounts for more than a hundred thousand generations of living as hunter-gatherers, compared with just six hundred generations that we humans have been farming, or the mere ten generations of people who have lived in the industrial age (see “[History of Eating Patterns](#)” for a breakdown).

During our time as hunter-gatherers, we roamed the earth as tribes of people who hunted and trapped small and large game, fished, foraged for seeds, nuts, vegetables, berries (the few months of the year they were in season), and, in smaller concentrations, for honey, eggs, and even insects. Experts believe that humans thrived as hunter-gatherer societies because we lived as animals in our natural habitat. British epidemiologist, Geoffrey Rose described this as “biological normality.” In other words, this way of eating was under the conditions to which we were genetically adapted to consume food—we were eating how we were evolved to eat. Interestingly, obesity, being overweight,

and the diseases of modern civilization (cancer, diabetes, Alzheimer’s, and heart disease) do not appear to have existed until we started farming some 10,000 years ago, and then refining starches into flours and sugars (a mere two to three hundred years ago), which I’ll address more fully in the next section. The former introduced starches such as potatoes and wheat as a regular part of the human diet while the latter introduced processed foods completely devoid of nutrients. Each alteration radically increased the amounts of Sugar Calories consumed by humans.

HISTORY OF EATING PATTERNS

When you look at the human diet from a historical perspective, it’s easy to see how our bodies evolved to eat food:

TIME PERIOD	DIETS	TIME FRAME	GENERATIONS OF DIET
Paleolithic Era, The Stone Age	Hunter-gatherers: high protein, high fat, leafy green vegetables, nuts, seeds, berries	2.5 million years	83,000 generations
Agricultural Era	Farmers: introduction of dairy, corn, rice, potatoes, and tree fruits	10,000 years	333 generations
Industrial Era	Introduction and dissemination of refined flours and sugars. Even more recent, the introduction of candy bars, chips, liquid sugars in juices, coffee drinks, teas, and sodas.	400 to 600 years	20 generations

The logical argument goes like this: Our agriculture period only accounts for 0.5 percent of our history as humans, and the time period for refining flours and sugars only covers 0.01 percent. When you compare this with the 99.5 percent of our past spent eating as hunter-gatherers, the food we eat today could be considered foreign, akin to giving soda to a lion.

The specific components of hunter-gatherer diets seem to have varied depending on the regions in which people were living. For example, in the colder or more drought-plagued areas, humans in the Stone Age probably ate high levels of proteins and animal fat, seeds, nuts, leafy green plants, some berries, starchy tubers, and honey when they could find it, while others ate higher levels of vegetable and seasonal fruit (most often berries), tubers, and lower quantities of meat. These eating habits are speculations to some extent because anthropologists were doing a majority of the detective work for the period before there was record keeping, but thankfully some modern-day hunter-gatherer societies still exist that can be used to extrapolate what was in our ancient diets (see “[Ancestral Eating Habits](#)” for more information).

Historical and anthropological studies show hunter-gatherers to be healthy, fit, and largely free of the degenerative cardiovascular diseases common in modern society.

—**James O’Keefe**, MD, preventive cardiologist best known for his studies in the field of cardiovascular medicine, professor of medicine at the University of Missouri–Kansas City, and coauthor of the bestselling consumer health book *The Forever Young Diet & Lifestyle*.

In any case, what is most noticeable and assuredly true about all nomad bands of people is that high-carbohydrate diets, refined carbohydrates, easily digestible sugars, high-fructose corn syrups, and

sugar-laden foods and beverages that are so common to our modern-day lifestyles simply didn't exist. In fact, as Gary Taubes points out in *Why We Get Fat*, "many of these foods have been available for only the past few hundred years—the last thousandth of a percent of our two and a half million years on the planet." Even foods like corn and potatoes only became popular 500 years ago, while the mass production of sugars and flours has only been around since the 1850s. As historical researchers in a 2000 analysis put it: ". . . cereal grains, dairy products, beverages, oils and dressings, and sugar and candy comprise more than 60 percent of the total daily energy consumed by all people in the United States, these types of foods would have contributed virtually none of the energy in the typical hunter-gatherer diet." As you'll learn in the following pages, these foods are almost wholly comprised of Sugar Calories.

Interestingly, obesity, as well as the diseases common to Western civilization all follow the same trajectory throughout history, they increase dramatically with the addition of farmed grains and tubers, refined starches, and sugars. It boils down to this: As one rises—eating carbohydrates, refined grains, producing sugars—so do the others—obesity, diabetes, diseases. Considering all these factors makes it easy to see how straying from our ancestral eating habits has damaged our health.

ANCESTRAL EATING HABITS

Figuring out what our Stone Age predecessors ate is tricky business. While cave paintings do depict hunters with spears chasing down animals for food, our ancestors didn't exactly keep food diaries. Fortunately, some hunter-gatherer tribes did continue to exist far enough into the 1900s for anthropologists to assess their eating habits. The most comprehensive study of these types of societies was published in the *American Journal of Clinical Nutrition* in 2000. American and Australian researchers analyzed the eating habits of 229 hunter-gatherer populations that were still functioning into the 20th century. Here's what they found:

- Only 14 percent of the populations got more than half their calories from plant foods, and not a single group was vegetarian.
- When averaged all together, the researchers found that these societies consumed about 66 percent of their total calories from animal foods, and 33 percent from plant foods.
- Breaking it down further, the analysis showed that our ancestors ate up to 35 percent of their calories from protein, and up to 58 percent in fat calories, with some populations eating as much as 80 percent of their calories from fat (modern-day diets are around 15 percent protein, 33 percent fat, and more than 50 percent carbohydrates).
- The fattest parts of the animals were preferred in the Paleolithic era, according to the analysis—the opposite of the lean meats that are most popular today.

The carbohydrates that were part of the hunter-gatherer diet, while still a plentiful 20 to 40 percent, were high fiber and low carbohydrate seeds, nuts, roots, tubers, and leafy greens—all slow to raise blood sugar and slow to digest.

The Invention of Farming

As touched on earlier, our troubles with excess weight and other diseases first appeared with the birth

of agriculture, and then, more recently, with the manufacturing of grains into flour, and cane into sugar. This began somewhere around 10,000 years ago. First, humans farmed in their natural native habitats by locating plants they liked and then protecting the plants from predators, which then progressed to tilling fields of grains and starchy vegetables we'd never find in the wild, such as corn, potatoes, wheat, and rice. This is how we initially began consuming far too many Sugar Calories that we are genetically designed for. It was with the introduction of these foods that our biological natural diets were first displaced.

Scientists who study the historical effects of agriculture and nutrition report that these changes in eating habits are too recent on the evolutionary time line for our bodies to have genetically adjusted to the shift from protein and fat to carbohydrates. This displacement from a genetically friendly diet introduced too many Sugar Calories, which unnaturally increased the amount of insulin secretions in our body, and, as I'll get into in the next chapter; this spike in insulin caused our bodies to start storing more fat than we were using.

And farming was just the beginning. The most radical transformation of our eating habits (until the introduction of high-fructose corn syrup in the late 1970s) was the refining of the cane plant and sugar beets into sugars and grains into nutritionally empty flour.

The problem is when we take sugars and concentrate and refine them, and serve them in massive amounts throughout the food supply . . . That's causing hormonal changes that in many people drive hunger, cause overeating, and increase the risk of diabetes and heart disease.

—**Dr. David Ludwig**, a pediatric endocrinologist, director of the Optimal Weight for Life (OWL) Clinic, and the director of the New Balance Foundation Obesity Prevention Center at Boston Children's Hospital.

Today's panoply of diets—from fast-food burgers to various concepts of balanced diets and food groups—bears little resemblance, superficially or in actual nutritional constituents, to the diet *Homo sapiens* and its ancestors consumed over millions of years.

—**Jack Challem**, columnist for the journal *Alternative & Complementary Therapies* and author of several books, including *No More Fatigue*, *Stop Prediabetes Now*, *The Food-Mood Solution*, *The Inflammation Syndrome*, *Feed Your Genes Right*, and *Syndrome X*.

Radical Changes: Introducing Sugar and Flour

By the late 1700s, sugar and flour were common commodities across Europe, although both were primarily available to the rich because of cost. It wasn't until the mid-19th century with the invention of roller mills for grinding grain that flour and sugar became widely available. Shortly after, sugar beet cultivation spread throughout the civilized world. Both flour and sugar are made by removing (aka refining) all the fiber, nutrients, minerals, and vitamins from the whole grains and plants from which they come, and what you have left is a highly concentrated substance that is devoid of all the essentials your body truly needs—in other words, they are non-essential (in the next chapter we'll go more deeply into the components of these foods and their effects on the body). However, sugar and white flour were highly valued because they were seen as attractive to the eye, easily digestible, resistant to spoilage, and less liable to be subject to infestation by insects or rodents. They were handy, convenient, and long-lasting.

“With flour and sugar came the introduction of jams, jellies, cakes,

bread, and the addition of sugar to coffee and tea, and so on—and as these foods became more commonplace, so did obesity and diabetes.”

With flour and sugar came the introduction of jams, jellies, cakes, breads, and the addition of sugar to coffee and tea, and so on—and as these foods became more commonplace, so did obesity and diabetes, and with those came many cancers, heart disease, and other conditions.

As civilization spread across the world, nonperishable foods, such as sugars and flours and the resulting concoctions (biscuits, crackers, etc.), were shipped along as well. It was during this time, from the mid-1800s to the early 1900s, that many of the first reports of *diseases of civilization* or *Western diseases* such as obesity, diabetes, heart disease, high blood pressure, stroke, gallstones, and cancers surfaced. Most accounts from this time were written by missionary doctors who were on hand caring for hunter-gatherer populations when the transition to Westernized diets occurred. Physicians in North Africa at this time reported higher rates of cancer with “the advance of civilization,” and by the early 1900s, doctors in Africa would rarely report cases of cancers in areas where natives kept their diets traditional, but these physicians detailed increasing rates of cancer in neighboring towns where “European” diets were incorporated.

This story would be repeated a multitude of times, with stories of populations that remained isolated from a Western diet exhibiting no disease or cancer, while in the United States rates of disease were on the rise, within the exact same time period. For example, from 1864 to 1900, New York reported a doubling of cancer rates, and in Philadelphia cancer rates jumped from 31 per thousand deaths in 1864 to 70 per thousand in 1904 (more than double). To link it back to diets, consider that sugar consumption in America jumped from 18 pounds per person per year in the 1800s, to an average of 90 pounds per person per year in 1900. In Britain the increase was from 36 pounds per capita in 1850, to over a hundred by 1900. That’s how Sugar Calories go to work.

What I’m saying is that our current food supply is so glutted with fructose, that is added sugar, and sugar that was put there very specifically for the food industry’s purposes, both for palatability and for shelf life, that it has now created a toxic—basically a toxic side effect in our livers, driving all of these chronic metabolic diseases.

—Dr. Robert Lustig, pediatric endocrinologist at the University of California, San Francisco, and star of the viral YouTube video *Sugar: The Bitter Truth*.

INTERVIEW WITH GARY TAUBES

GARY: We know that there were populations that didn’t have cancer. I mean it’s documented in the literature from the 1870s onward. And you can follow it all the way into the present. In the Inuit Eskimos there was no cancer; the first documented case of cancer in an Inuit was in 1937. As late as 1967 you couldn’t find breast cancer in Inuit women, but in American women one in nine women would die of breast cancer. And yet, it was a nonexistent disease among the Inuit. In Japan breast cancer is an extremely rare disease among Japanese women and when they move to the U.S. by the second generation they have the same breast cancer rates as anyone else.

[*The Inuit are the folks we commonly refer to as Eskimos—Inuit actually refers to a group of culturally similar indigenous peoples inhabiting the Arctic regions of Greenland, Canada, and the United States.*]

JORGE: Nothing has changed except the behavior—what they were eating?

GARY: When the researchers, the best epidemiologists in the world, look at these kinds of data and compare these populations to other populations and cancer rates (things like what happens when populations immigrate to another country), they concluded that as much as 70 percent of all cancers could be prevented.

As much as 70 percent could be prevented if we could figure out what foods, what aspects of lifestyle other than cigarettes were causing these cancers.

JORGE: And what are the foods?

GARY: Well, the obvious ones again are sugar and refined flours. But sugar, primarily.

JORGE: Sugar causes cancer?

GARY: You can argue and I can argue that sugar would be the prime suspect in most lifestyle-related cancers. The evidence suggests that sugar causes a condition called *insulin resistance*. When you are insulin resistant you have to secrete more insulin in response to the carbohydrates in your diet that you are eating. Your insulin levels get elevated and they stay elevated chronically. Insulin, as it turns out, promotes cancer growth. In fact, when I wrote about this for the *Journal of Science*, I started with the story that this University of Toronto researcher told me why he got involved in this research. He said he had breast cancer cells he was keeping alive in a petri dish in his laboratory.

JORGE: What do they feed the cancer cells to keep them alive?

GARY: You feed them glucose, which is what you get from carbohydrates, and you have to put insulin in the petri dish to keep the cancer cells alive. No insulin, no cancer cells. Breast cells in the human body don't have receptors to respond to insulin, so healthy breast cells arguably don't respond to insulin. But breast cancer cells couldn't live without it. So this researcher got involved in this research. It is pretty clear that insulin is a related hormone to cancer. Insulin is like growth factor hormone—they are tumor promoters. They promote the growth of cancer. Many of the genes that are defective in cancer exist and feed into what is called the insulin-like-growth-factor signaling pathway.

So, the argument is, in effect, that elevated levels of insulin start stimulating the cancer process. And then, basically the cancer cells up-regulate what are called insulin receptors. They get this magnified insulin signal. And insulin feeds blood sugar to them. It helps facilitate the flow of glucose, fuel. Now they start burning more and more fuel. It allows them to multiply and create daughter cells, which is what a tumor does. And it also stimulates their DNA, their genes, and the nucleus of the cell to mutate.

So, this whole process could be driven by elevating insulin levels. And we have good evidence that sugar is responsible. So this fellow, a Harvard researcher (who arguably might win the Nobel Prize someday for discovering an enzyme called PI3 kinase [*Phosphatidylinositol 3-kinases*] that regulates a cell's sensitivity to insulin, and also turns out to be a cancer promoting gene) and another researcher (who is now the president of Memorial Sloan-Kettering Cancer Center in New York, which is one of the three most prestigious cancer research hospitals in the country) both told me that they don't eat sugar anymore.

JORGE: Based on this research?

GARY: In fact, they are actually on something close to an Atkins diet—no sugar, no refined carbs, and a high-fat diet because they don't want to get cancer. Not because they have to control their weight, but because they don't want to get cancer.

JORGE: So if you want to avoid cancer, whether it is breast cancer, prostate cancer, then sugar, hidden sugar, carbohydrates, processed carbohydrates . . .

GARY: . . . are the things to avoid. Not the meat, necessarily. Not the fat, but the refined carbohydrates.

THE PIMA TRAGEDY: THE WESTERNIZATION OF DIETS

Probably the most famous example of what happens when unhealthy Western diets enter pure unadulterated native eating is what happened to the Pima Indians in the 1850s, although similar examples could be given for the Intuits, the Masai, and Samburu nomads, as well as the Australian Aborigines, or Native American tribes. In all cases, when the Westernization of a society happened—the addition of sugar, flour, and white rice—so did obesity, diabetes, and all their not-so-merry mates: cancer, heart disease, and other illnesses. These examples illustrate just how radically sugar calories can and do cause obesity and disease.

The Pima are a Native American tribe in Arizona who, today, have one of the highest rates of obesity and diabetes in the United States. However, until the 1850s, the Pima were known as a hardworking and successful community of hunters and farmers. Reports on the Pima in 1846 described the tribe as in good health, with fine figures, who ate abundant amounts of wild game, fish, and clams—obesity and overweight were not mentioned. In the 1850s, the California gold rush began and tens of thousands of travelers began passing through the Pima territory on the Sante Fe Trail on their way to California. With the gold rush came large numbers of settlers from America and Mexico who hunted the local game to extinction, and diverted the Gila River (which was central to the Pima's fishing and water supply) to irrigate their fields. By the 1870s, the Pima were starving from the invasion and destruction of their land. While they no longer had viable hunting or fishing options, the Pima were still trying to farm what they could, but for the most part, the tribe had become dependent on government rations, which consisted mostly of flour and sugar. In addition, several trading posts had opened on the Pima reservation after the 1850s, and there the Pima purchased sugar and canned goods, which replaced the high protein/low carb components of their traditional diets—and they've never recovered. Along with high rates of obesity, the Pima today have high rates of diabetes and kidney disease.

THE 100 The Evolution of Diets

Early Insights into Obesity and Overweight

Obesity and overweight became more commonly recognized as a problem in society after the introduction and wide dissemination of flour and sugar. In response, scientists began speculating about causes of such increasing rates of overweight and obesity within more progressive societies as well—and these pioneers were on the right track. In 1844, Jean-Francois Dancel, a French physician and author of *Obesity, or Excessive Corpulence, The Various Causes and the Rational Means of Cure*

wrote: “All food which is not flesh—all food rich in carbon and hydrogen—must have a tendency to produce fat.” And, even earlier, in 1825, Jean Anthelme Brillat-Savarin, born in 1755, wrote in the *The Physiology of Taste*: “. . . a more or less rigid abstinence from everything that is starchy or floury will lead to the lessening of weight.” Brillat-Savarin was not a physician, scientist, or chemist, but he was on the right track about diet and obesity. First trained as a lawyer and then a politician, he began writing his opinions about food based on observations of the way in which people ate. He claimed that in the course of over three decades, he had observed dining habits of more than 500 dining companions who were overweight or obese. From these encounters, Brillat-Savarin concluded that “some people, in whom the digestive forces manufacture, all things being equal, a greater supply of fat are, as it were, destined to be obese.” To that he added, “the starches and flours which a man uses as the basis of his daily nourishment . . . starch produces this effect [obesity] more quickly and surely when it is used with sugar.” This is a pretty amazing observation when you consider the fact that it was made long before gene expressions or even insulin had been discovered.

Still, most doctors in the 1800s until the 1930s touted the conventional wisdom that obesity was a disease and one that was nearly impossible to remedy. Many methods were tried to help people lose weight through these years including eating less, exercising more, leeches to the anus, bleeding from the jugular—all to no avail. “All these plans, however perseveringly carried out, fail to accomplish the object desired [weight loss],” wrote British physician Thomas Tanner in *The Practice of Medicine* in 1869, but he did go on to say, “Farinaceous [starchy] and vegetable foods are fattening, and saccharine matters [sweets] are especially so.” While Dancel argued that the doctors who believed obesity to be incurable were prescribing a cure (eating less) that actually caused overeating to occur because it left people in a state of constant hunger. “They forbid the use of meat . . . and direct the patient to eat a little as possible,” wrote Dancel, who argued that he could cure obesity if the afflicted person would pass on carbs and eat mostly meat.

These early low-carb advocates were basing their theories on early findings in chemistry (the study of how all matter is composed), and based on these findings, they argued that fat forms in the body from eating carbohydrates and sugars, not protein, and on observations that wild meat-eating animals were never fat, and as Dancel pointed out, if you look to nature, the most obese-looking animals, the hippopotamus, survive on carbohydrates, while the most lean, cheetahs, tigers, and wolves, eat only protein and fat from that protein. The first diet craze was to be born of these wild roots.

Weight Loss Take One

The first diet revolution could be said to have begun in the mid-1800s when one unlikely individual, a wealthy English undertaker, William Banting, found help with a lifelong struggle with obesity. Banting, age 65, weight 202 pounds, in 1862, had been trying to lose weight for nearly 30 years. He had tried a variety of methods: he took up rowing, cut calories, took purgatives and diuretics, consulted the best doctors of the time, tried walking, and horseback riding—all of which failed. Fortunately, Banting didn’t give up; he found yet another doctor, the physician, William Harvey, in 1862, and asked for his help. Coincidentally, Harvey had recently returned to England from a Paris symposium where the physiologist Claude Bernard had given a lecture about the harmful role of sugars and starches, and their link to diabetes. Bernard was a pioneer in his own right because he was the first to observe that humans and all living creatures survive by several intricate and interdependent systems in the body that work together for survival (that is, the endocrine system, nervous system, etc.), which we will discuss in detail in the next chapter. What titillated Harvey, though, was Bernard’s discussion of how sugars and starches increased glucose in the body—and how this worked.

seen more often in diabetics, who were frequently overweight.

The doctors were guessing (and guessing correctly) that weight gain was linked in some way to the amounts of carbohydrates in the diet because these foods—sugars and starches—were all similar. Broken down into glucose in the body, the same glucose seen in the abnormally elevated blood of diabetics. This is a key point that you'll notice is a common thread throughout this book: *All carbohydrates are in essence a form of sugar.*

19TH CENTURY CONVENTIONAL DIET WISDOM: LOW CARB WINS

Near the end of the 19th century, the Congress of Internal Medicine (the premier health agency of its time) met in Berlin to review the most popular dieting methods and trends. Of these, only three were awarded approval as regimens that could be used effectively to reduce weight, the Banting Method and two other diets designed by German physicians. The first program required that even more fat be consumed in the diet than in the Banting food plan, while the second weight-loss plan prescribed leaner meats, fewer beverages, and added exercise recommendations. All three diets prohibited sugar, sweets, and all breads and starches.

The Berlin review on weight loss and the Banting diet initiated numerous variations of the similar diets that would be used for the next several decades across Europe and in the United States.

This same dieting method persisted into the early 1900s. William Osler, a Canadian physician and the founding medical professor at Johns Hopkins, discussed the treatment of obesity in his book *The Principles and Practice of Medicine*. Osler wrote that he advised obese women “. . . to reduce the starches and sugars,” and encouraged a diet of mostly protein and fat. Osler also included Banting's eating guidelines, and two other low-carb options by two German physicians, Max Joseph Oertel and Wilhelm Ebstein. Oertel's diet (Oertel was the director of a sanatorium in Munich) restricted fats more than the Banting method, but still featured lean meats and eggs, and included more vegetables and bread. Ebstein, professor of medicine at the University of Gottingen, featured fatty foods because he theorized that they were essential to creating satiety, but he forbade sugars, sweets, and potatoes, and limited bread and green vegetables. Meat, however, was unlimited on Ebstein's plan. All these plans had one thing in common—sugar, which included all carbohydrates, was inherently linked to weight gain.

Based on this information and Harvey's own theory that diabetes might be linked to obesity because diabetics were almost always overweight, Harvey formulated a diet for Banting that was extremely similar to that of the hunter-gatherer societies described previously, with the exception of beer as a drink and a small amount of stewed fruit (which likely hindered even more weight loss for Banting and others who tried the diet). In addition to the ale and fruit, Banting was directed to eat three meals a day of meat, fish, or game, and a small amount of stale toast and tea in the evenings. Within a year Banting had lost more than 50 pounds, without cutting calories. Banting was so pleased by his success that he wrote a book called *Letter on Corpulence* that was published in 1864, and quickly became the best seller in Britain, Germany, Austria, France, and, a few years later, in the United States. Within a year, the “Banting Diet” became such a craze that it became a verb: to diet, meant “to bant.” It is even reported that the emperor of France used the Banting system to lose weight, and did so successfully.

Popular Theories for Treating Obesity: 1900 to 1940

The physicians of the time who implemented the Banting-type diets reported that they were widely successful with hundreds of their patients. The advice—eat meat and fat, avoid starches and sugars—morphed into the conventional wisdom from the 1800s through the mid-1900s and was widely accepted across Europe and in many parts of the United States as well. This was aided by the evolving science that was going on mostly in Germany and Austria throughout the late 1800s up until the Second World War, and these were the people considered the world leaders in the field of obesity research.

Beginning early in the 20th century, the medical research community in Europe, Germany, and Austria began to shift from viewing obesity as simply an incurable disease, to seeing *obesity as a disorder of excess fat accumulation* relating to how fat is regulated in the body. This is critically important because for the first time science was paying attention to the role of genes, long before much science existed for genes or hormones. These physicians were taking note that something was different about fat tissue in the overweight human than in the thin human—just as some people are hairier than others, and some taller than others; some people have a propensity to get fatter than others—something regulated how fat was stored in the bodies of obese humans that was different than worked in thin ones. Again, this rationale was based on few experimental interventions, and more observations, and anecdotes reported by those who had success using the method.

“Up until this time there had been two competing theories—the calorie imbalance theory vs. the fat imbalance theory. Both ideas shared fairly equal weight among the research community up until the war ended. Today—the idea that obesity is caused by a hormonal imbalance is out, while the idea that it’s all about calories in/calories out is in.”

This trend can be seen in the recommendations that were published in Europe and in the United States by many physicians treating obesity and overweight during this time, up until the late 1950s (then things began to change, which we’ll get into later). In the late 1800s, William Osler, the first appointed physician-in-chief at Johns Hopkins Hospital, revolutionized the medical curriculum in Canada and the United States by synthesizing the research he had learned from his German and British medical education—in essence, he brought the world’s theories and knowledge of medical treatment together for the most comprehensive and up-to-date care of the time. His recommendations on obesity were simple, “avoid taking too much food, and particularly to reduce the starches and sugars,” published in his book *The Principles and Practice of Medicine*, in 1901. And, as my mentor, Gary Taubes, points out in his book *Why We Get Fat*, four of the most prominent medical schools, Stanford, Harvard, Children’s Memorial Hospital in Chicago, and Cornell, all independently published recommendations for weight loss from 1943 to 1952, which boiled down to the following seven recommendations:

1. Don’t use sugars, including honey, syrup, jams, or candy.
2. Avoid fruits canned with sugar.
3. Avoid cakes, cookies, pies, puddings, and ice cream.
4. Avoid recipes using cornstarch or flour, such as gravies or cream sauces.

5. Avoid potatoes, macaroni, spaghetti, noodles, dried beans or peas.

6. Avoid fried foods.

7. Avoid sodas, including Coca-Cola, ginger ale, or root beer.

And obesity guidelines published in the 1951 textbook *The Practice of Endocrinology* recommended that unlimited amounts of meat, fish, birds, green vegetables, eggs, cheese, unsweetened fresh fruit (except bananas and grapes) be enjoyed; while breads, refined flours, cereals, puddings, potatoes, white or root vegetables, sugars, and all sweets should be avoided completely.

At the same time, another theory on weight loss and diet was born that would eventually shift the low-carb way of thinking out of fashion and into a fad. Louis Harry Newburgh, a professor of medicine at the University of Michigan, published a paper titled “The Nature of Obesity” (1930). In it, Newburgh concluded that the only way to lose weight was to eat fewer calories and to burn more calories. Newburgh’s view was that all weight could be controlled simply by restricting calories, or by burning more of them through activity. He also went on to say, rather offensively, that obese people had “perverted appetites” that only needed to be controlled to lose weight. **And that’s where the controversy between obesity as a disorder of fat accumulation versus obesity as a condition of energy imbalance was instigated, but the controversy was only a newborn at this point.** The German and Austrian researchers who believed that obesity was caused by a hormonal imbalance were still respected. Newburgh’s theory was just that—a theory, and both theories existed somewhat equally until a dire turn of events.

When the Second World War began in 1939, the seminal research in Germany and many parts of Europe came to a standstill. The European physicians and researchers who weren’t killed, fled the continent, and the pivotal obesity research that had been gaining a firm foothold essentially fell off the map. **Up until this time, there had been two competing theories: the calorie imbalance theory versus the fat imbalance theory. Both ideas shared fairly equal weight among the research community up until the war ended. From that point in time, until today the idea that obesity is caused by a hormonal imbalance is out, while the idea that it’s all about calories in/calories out is in.**

How Low Carb Fell Out of Fashion

The Fast Track to Fat: 1940s to 1970s

Fast forward to the end of World War II: Thanks to anti-German sentiment in America, the war’s abrupt interruption of fundamental German and Austrian research, and the reality that the only funding for obesity research was in the United States, the theory that obesity is caused by a hormonal imbalance dwindled, and was eventually silenced. Decades of research and substantial evidence that carb restricting and avoiding sugar was key to weight loss were simply bypassed for Newburgh’s philosophy that obesity is a problem of energy imbalance, and that obese people have a “perverted appetite.” **By the 1940s and ’50s, Newburgh’s theory of eating too much and moving too little emerged as the accepted conventional wisdom that persists today.**

INTERVIEW WITH GARY TAUBES

JORGE: I used to be overweight, and I used to always ask myself, what is the problem? What are the actions I'm supposed to take to lose weight? Confirm this for me one more time: What we are told is basically to eat less and exercise more. That is the popular song. Eat less, exercise more.

GARY: We believe it is all about calories. We believe if we take in more energy than we expend we get fat. Therefore, what we are supposed to do is expend more than we take in.

[We believe this because almost all health agencies, from the American Heart Association, the American Medical Association, the American Council on Sports Medicine, the National Institutes of Health, the Institutes of Medicine, the World Health Organization, and the U.S. Department of Agriculture, to name more than a few, tell us that this is the cause of obesity.]

JORGE: Makes sense mathematically.

GARY: The math is beautiful, but it doesn't tell you anything about the cause of obesity. That's the problem. Our belief, as the experts have taught us, is that obesity is caused by an energy balance disorder. So it is having more energy in and less energy out. That is the law of thermodynamics. People get fatter therefore you have to pay attention to the energy. This thought dominates all thinking on obesity. It dominates the public health messages: eat less, exercise more. I saw an article in the *New York Times* two days ago. A mathematician from MIT (I mean why anyone would go to a mathematician for help on a physical disorder, I don't know, but they did) said the problem is just too much food available. Remember, we talked about obese populations where the one thing there was that there was not enough food available.

Many of the obese populations I discovered had kids who were starving. You could see it: starving children, obese mothers. But you knew there was not enough food available. So you can find populations where you know that there was not enough food, but there was obesity. How can that be? That goes against everything we believe.

JORGE: Share with us how you would describe the true problem. What were all these people doing back then, in these other countries and today? Why are we fat?

GARY: I can't help but give some historical background. There was always another hypothesis another way to look at this. It was a German-Austrian hypothesis prior to the Second World War at a time in which the Europeans, the Germans in particular and Austrian clinicians were doing, arguably, the only meaningful medical science in the world. And if you wanted to be a scientist in medicine, nutrition, metabolism, genetics, endocrinology, the study of hormones, or physiology, pre-World War II you had to either speak German, or you certainly had to read it. And if you were really serious, you went to Germany or Austria to work with these people in a post-doctoral position. All the major authorities in the U.S. in metabolism and nutrition had trained with the Germans. So they had different hypotheses. And it wasn't about eating too much or exercising. They said that's silly. You know, it's kind of first principles; obesity is not a sort of energy balance, but of having too much fat. Imagine saying having too much fat is like having too much fat. It is the simplest possible thing you could say. [These scientists knew that something] was responsible for regulating fat tissue. Something must do it. Unfortunately, the Europeans couldn't figure it out by the time the Second World War set in. When the Second World War set in this whole theory—the whole German/Austrian research—vanished with the war. And when the war was over that continent had far more dire problems than trying to figure out what caused obesity.

JORGE: It almost caused it to kind of get buried.

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