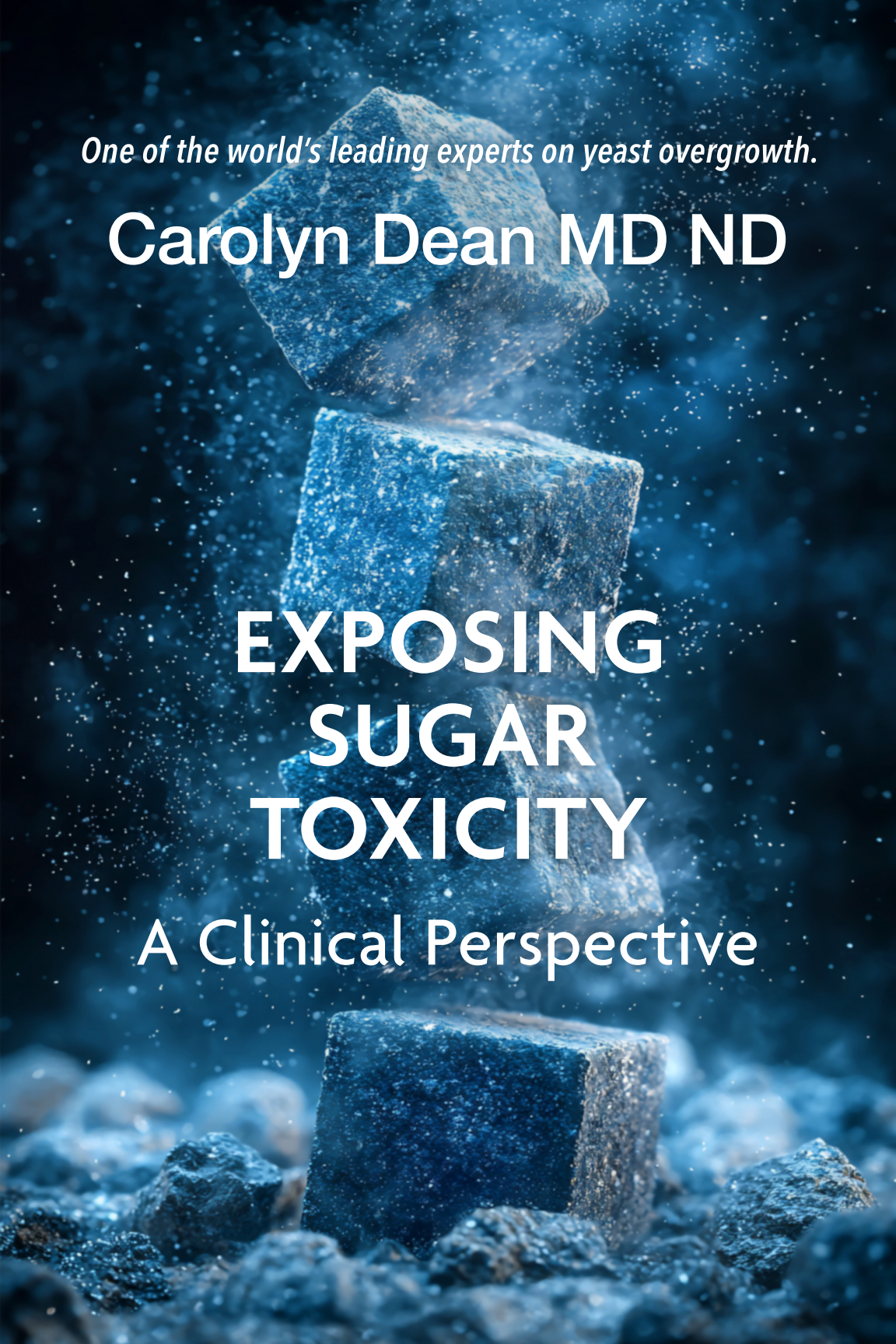
One of the world's leading experts on yeast overgrowth.
Carolyn Dean MD ND
EXPOSING SUGAR TOXICITY
A Clinical Perspective

Exposing Sugar Toxicity: A Clinical Perspective is the first book in ***The Sugar Detox Revolution***, a transformative three-part series by Dr. Carolyn Dean, MD, ND. This groundbreaking book reveals the truth about sugar's deeper impact—not just on weight or dental health, but on your entire physiology. Dr. Dean explores how sugar of all types depletes critical nutrients, impairs immune function, disrupts vitamin C transport, triggers peripheral neuropathy, and fuels Candida/Yeast overgrowth. She introduces the concept of "The Downward Spiral," a cascade of imbalances worsened by modern diets and misinformation.

You'll learn:

- How sugar contributes to metabolic chaos and gut dysfunction
- Why cravings are linked to nutrient depletion
- How Candida/Yeast toxicity develops from excess sugar
- Why sugar-free alternatives aren't good solutions

This book delivers clarity and empowerment for practitioners, health-conscious readers, or someone struggling with energy crashes and cravings.

Medical Doctor, Naturopath, and Dedicated Researcher

Dr. Carolyn Dean MD ND is the author of over 50 books including best seller *The Magnesium Miracle* and her newest books, *Magnesium: The Missing Link to Total Health (Revised)* and *Exposing Sugar Toxicity: A Clinical Perspective.* And, other noted publications include *IBS for Dummies, Hormone Balance, Death by Modern Medicine, The Complete Guide to Mental Health,* and 110+ eBooks to date. Dr. Dean is dedicated to helping anyone gain a better understanding of nutrients, how they contribute to the body, and proactive ways to encourage making informed decisions about health and vitality.

In 2014, Dr. Carolyn Dean MD ND launched the RnA ReSet® brand based on nutrient protocols she built through 50 years of experience in private health-care practice and clinical research. Dr. Dean's career as a medical doctor and naturopath and her work with mineral biochemistry resulted in a collection of unique, proprietary formulations that safely support healthy cells that create healthy bodies.

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A CLINICAL PERSPECTIVE

Carolyn Dean MD ND

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Version 5

TABLE OF CONTENTS

INTRODUCTION

The Queen said, "The rule is, jam tomorrow and jam yesterday – but never jam to-day."

"It must come sometimes to 'jam to-day,'" Alice objected.

"No, it can't," said the Queen. "It's jam every other day: to-day isn't any other day, you know."

~Lewis Carroll's Through the Looking Glass

Why put another sugar book on the market when there are dozens of them with details galore about sugar and its failings? Here's why:

1. None of these authors mention yeast overgrowth as a consequence of high sugar intake.
2. None of them mention that one of yeast's 78 toxins is alcohol while another is acetaldehyde. Both of these chemicals can damage the liver, adding to the medical

condition called "fatty liver" caused by sucrose and fructose.

3. The terms "yeast" and "Candida" do not appear in any of these books. None of the authors mention that alcohol, like sugar, encourages yeast overgrowth. Now a monster yeast has arisen – Candida auris – possibly because we have been ignoring Candida albicans for so long.
4. None of these books mention that sugar depletes magnesium, making magnesium deficiency a co-conspirator in creating our sick society. In fact, magnesium is never even mentioned.
5. None of them mention that it's the lack of nutrients – the vitamin and mineral cofactors in metabolic processes – that keeps people constantly foraging for food to meet those metabolic requirements. The body is not stupid; it knows what it needs, and it keeps us eating, trying to obtain these nutrients.

6. None of these books mention that glucose competes with vitamin C for transport on insulin to be able to enter into cells. The more sugar in the blood that gets into cells, the less antioxidant vitamin C can get in to clean up toxic metabolic end products.
7. Neither do they mention that the backbone of vitamin C is actually glucose. Humans lost one of the 3 enzymes that's necessary to make vitamin C (perhaps in the Garden of Eden). But you'll have to wait until I write a book on vitamin C to get all the amazing details!
8. All these books say that the "energy in/calories in", "energy out/calories out" equation is faulty. But all they talk about is calories, energy, and hunger.

The terminology has shifted to a complex hormonal dance among insulin, leptin, and ghrelin that would take another book to explain.

All these prominent writers are missing the big picture of nutrient depletion as the reason sugar is so bad for us. For example, Dr. Robert Lustig in his book *Fat Chance*[1] does have a chapter on

micronutrients, but he actually puts down supplements because he says they are failing in their research trials. He says micronutrients are important as cofactors in every metabolic function in the body; however, he's been seduced by the negative studies about nutrients and concludes that we have to get back to eating real food.

But he misses the very important point that food "ain't what it used to be." I've often quoted research that warns us that 100 years ago we could get 500-600 milligrams of magnesium in our diet, now we are lucky to get 200 milligrams, and I think we now need 600 milligrams – at least.[2] The bottom line is that our food is not going to save us. And that's precisely why I sought out companies who produced well-absorbed supplements, only to find that they were few and far between. Ultimately, I had to create my own company and my own formulas that would meet my standards.

Lustig and all the sugar researchers just think the flood of sucrose and high fructose corn syrup in the diet is the problem because too much is stored as fat. Unfortunately, a specialist is always

going to miss the boat and drag us down the rabbit hole of half-truths that make us think we are finally on the right track. As I have learned with the over 68 magnesium deficiency conditions that I've discovered – including obesity – if you don't give a person the necessary building blocks and cofactor nutrients to run the body, the body can't perform and will express aberrant behavior and aberrant biochemistry as a result.

Nutrition specialists then spend all their time and the little research money available to analyze aberrant behavior and biochemistry but never get to the cause. In a prominent research university, I was given a tour of a research project where a million-dollar MRI machine was being used in a behavioral study on cravings to see what part of a child's brain was triggered by images of foods – as if that could make a difference in stopping kids from eating too much sugar. The young researchers were giddy with the acquisition of their MRI machine until I shut the whole discussion down when I told them that the brain will trigger cravings for food until its nutrient requirements are

fulfilled. There is something more primal going on than images of food.

I was also appalled that their department had not one but two MRIs and the whole island of Maui has zero! We must fly to Honolulu to get zapped.

TOTAL BODY MELTDOWN

I've coined the term "Total Body Meltdown," and I've determined that its basis is magnesium deficiency and yeast overgrowth. A specialist would never even touch the term, "Total Body Meltdown," just as they ignore body-wide conditions such as yeast overgrowth and magnesium deficiency. Specialists feel they must treat every part of the body separately, which reminds me of the group of blind men each trying to identify an elephant by only feeling one part.

I advise a Sugar-Free Diet and Yeast Detox for Total Body Meltdown, which automatically excludes sugar, dairy sugars (lactose), and gluten. I've been telling people to avoid sugar for

decades, but now all the research has caught up with my 30-year war against this white poison.

NOTE: The Sugar-Free Diet and Yeast ReSet Protocol are explained in detail in Book 2 of this series, *Detox Your Body: The Sugar-Free Plan*. I have also provided 88 easy recipes to improve your cellular health in Book 3 of this series, *The Sugar-Free Kitchen: 88 Recipes for a Yeast-Free Life.*

MY SUGAR STORY

I could have been a casualty in this war. Let me tell you how far the sugar industry and sugar lobby groups are willing to go to suppress the dangers of sugar and make you think you can't live without it.

I was in love with sugar when I was a kid. Being sick was made all the sweeter because my mum would give me ginger ale. After my tonsil operation I was allowed all the ice cream I wanted. Of course, I didn't realize that the reason I was having constant earaches and colds was probably because I was addicted to sugar. When I was old enough, I ran my own paper route so that

I could buy cherry blossom chocolate and pop. I was hooked like most kids and my health suffered as a result. A sweet dessert after dinner was the norm – Jell-O, cake, pies, ice cream, and Kool Aid – dyed and sugared water was the beverage of choice. During high school I remember eating a huge bowl of ice cream and a can of peaches or pears packed in thick sugar syrup almost every night while I was studying. This was after I cooked a big plate of French fries for my after-school snack, and ate dinner, which usually included dessert.

Luckily, I have a high metabolic rate and was very active, so I didn't gain weight, and my skin didn't suffer the acne insults of sugar. However, I continued having frequent colds and flus and suffered cold sores that were like the plague to me. So, I was by no means healthy.

I left home in my late teens and due to a combination of poverty and delving into a healthy lifestyle, I gave up sugar and began to see how it had been affecting my health. Traveling from Nova Scotia to Seattle and California in 1969 didn't pull me into the hippie revolution but into the natural health movement. Years

later, in 1975, I put my knowledge to good use when I went into medicine, diverting from a career in ecology and genetics.

It wasn't until I studied naturopathy after my medical training that I realized the seriously high sugar intake in my youth along with mercury fillings and taking the birth control pill compromised my already yeasty body. But as has happened my whole life, my personal experience taught me what I needed to know to heal myself and to help others.

A Stolen License for Speaking the Truth

People are astounded when they learn that simply warning people about the dangers of sugar eventually cost me my (expired) Ontario medical license. But it's a price that I would pay again. My license was fraudulently "pulled" several years AFTER I left Ontario to do research in New York.

My adventure serves to show the lengths to which the sugar industry will go to retain their monopoly control over our taste buds and purses. Doctors live in fear of having a complaint lodged against them. The complaint against me originated from

a Canadian sugar lobby group because I said "bad things" about sugar on a national TV show and announced I was writing a tell-all book about sugar. My case was duly written up on the Ontario doctors' quarterly bulletin serving as a warning to others who might 'get out of line.'

Patients have the feeling that doctors will tell them if sugar or any other substance is dangerous. However, if disclosure can cost you your medical license, most doctors are unwilling to pay the price. That's why there historically have been few health professionals who will tell the people the truth about this dangerous substance.

From 1990, when I was attacked, to this day, the sugar industry will only admit that sugar causes dental cavities, and they have knowingly suppressed studies that show otherwise. They continue to tell the 'half-truth, half lie' that sugar is necessary for energy, and it is the major fuel of the body. Of course, we need blood sugar, which is glucose, and table sugar (sucrose) is made up of glucose and fructose. However, what we have in our bloodstream at any one time is only one or two teaspoons of

glucose, whereas there are ten teaspoons of sugar in an average can of soda pop (Some have more!). That incredible flood of sugar, several times a day, for several years, is the underlying cause of our epidemic of obesity, diabetes, and heart disease. Although thirty years in the writing (I stopped working on this book when I was attacked), now this book comes not a moment too soon as candy companies are spiking sugary treats with a frightening cocktail of herbs, vitamins and energy boosters and marketing them as health products.

Decay of our "sweet tooth" is the only side effect that the sugar industry will admit occurs with the overconsumption of sugar. Sugar industry PR materials and websites don't talk about its tainted history where for hundreds of years the white granules of refined sugar turned red with the blood of enslaved people. And they certainly don't talk about sugar as a cause of cancer and dozens of other diseases. Neither do they talk about instituting action against doctors like me who speak out against the dangers of sugar.

In a chapter of *Death by Modern Medicine*[3] called "Death by Sugar," I quote Dr. Abram Hoffer, the father of orthomolecular vitamin therapy. Dr. Hoffer was convinced that "Sugar is an addiction far stronger than what we see with heroin. It is the basic addictive substance from which all other addictions flow. Refined sugar and all refined foods such as polished rice, white flour, and the like, are nothing less than legalized poisons."

I've never wavered in my war against sugar. In 2000 I wrote "The Scary Truth About Sugar" for *Natural Health Magazine*. You can read it in Appendix A.

SUGAR INDUSTRY LOSING CUSTOMERS

A factor that is causing unrest within the sugar industry is the public's overwhelming interest in weight loss. Magazine articles, new books coming out nearly every month, and much TV advertising time are all devoted to weight-loss methods and programs. Yet anyone has only to look around to see that most North Americans are still overweight.

The Centers for Disease Control gives the following statistics:[4]

> *The prevalence of obesity increased from 30.5% in 1999-2000 to 41.9% in 2017–March 2020. During the same time, the prevalence of severe obesity increased from 4.7% to 9.2%.*

This means that more than 100 million adults are obese, and more than 22 million adults are severely obese.

We are told that being overweight is caused by consuming too many calories, which for the majority of cases are derived primarily from sugar and refined foods. The perception of sugar and its calories as a culprit in obesity and other health problems has led to a battle royal to corner the market on non-caloric sweeteners, so that the focus of interest on sugar has stirred another debate over the pros and cons of synthetic sweeteners.

Lest someone think that I am recommending sugar sweeteners as a substitute for sugar, that is not the case. Read what investigative journalist Florence Graves has to say about NutraSweet (aspartame):[5]

> *NutraSweet has been touted as the most tested food additive in history, but our investigation reveals such*

> *serious flaws in the Government's approval of NutraSweet that Congress should begin its own investigation immediately.*

What conclusion can the general public draw when the sugar industry has been galvanized into promoting a healthier image of sugar? The sugar lobbies become very concerned and vocal when the media presents sugar in a negative light. Nevertheless, scientific studies are proving that sugar intake should be modified, and artificial sweeteners are not the answer.

Since I wrote the 2018 edition of this book, consumer awareness of the benefits of low-sugar food choices has increased. A Nielson IQ survey shows that:

> *Low-sugar and GMO-free are top factors when deciding what to eat or drink, according to the results of our international online survey of 23,000 consumers. Asked how important certain factors are when deciding what to eat or drink, nearly half of the study's participants (48%) responded that "low sugar*

> *or sugar-free" and "free from GMO ingredients" are very or extremely important factors.*[6]

This shift to awareness of healthy eating slowly is changing what products are being offered to consumers. But sweetened and processed foods still present a health challenge, as more than half the people who participated in this survey did not consider low sugar, sugar-free, or non-GMO foods when they purchased food and beverages. Also, a sugar-free label gives people a false sense that they are eating something healthy, when, in fact, sugar-free is synonymous with NutraSweet (aspartame).

In Maui, where I live, sugarcane farming thankfully came to an end in 2016. The overwhelming concern was not the health dangers of sugar itself but the fact that to harvest the crop, the sugar cane was set on fire to burn away the leafy parts of the plant leaving the hardy stalks. The plastic tarp that trapped weeds and the chemicals used on the sugarcane were also burned into the atmosphere. Harvesting machines would chop down the stalks and take them to the sugar mill for processing.

The air quality over the island every few weeks was horrendous. Even with decades of lobbying against the practice, the decision to close down the operation was made after seeing a "roughly $30 million Agribusiness operating loss" from 2015, which was only going to get worse.[7]

THE HISTORY OF SUGAR

Sugar has a sinful history that rides on the shoulders of the slave trade, environmental contamination, and greed. I'm not going to tell that story here but you can read the paper "Sugar – The Reeds Which Produce Honey Without Bees" by John Crisp for a brief but brutal view that could change the way you look at sugar. For a more in-depth history, I downloaded *Sugar: The World Corrupted: From Slavery to Obesity*,[8] available on Kindle.

It's been almost 30 years since I first started writing this book, so my references are at least that old. And this turns out to be a good thing because the most recent books on sugar don't know the whole story. I'll reference various books throughout.

THE CHINESE MEDICINE VIEW OF SUGAR

I studied Chinese medicine in New York with Jeffrey Yuen, a Master in two Daoist lineages. I took extensive notes in my classes, and I want to give you a "taste" of the true nature of sugar. In Chinese medicine sweetness is called Gan, and people have access through food or herbs. It's obvious that sweet is the most popular taste in our culture. However, the sweetness that I learned about is "natural" and not perverted and addictive in the form of processed sugar. Natural sweetness arises from well-chewed grains that tend to "moisten" tissues, whereas excess will cause dampness, and dampness indicates yeast overgrowth although that's not talked about in Chinese medicine.

Chinese medicine terminology is far removed from allopathic medicine. Sweetness, according to Chinese medicine harmonizes, tonifies and strengthens. Small amounts of mildly sweet foods are slightly warming and normalize (harmonize) the mucus membranes of the GI tract. Sweet foods can be useful for gastritis, irritable bowel syndrome, and duodenal ulcers. Sweet foods also nourish the lungs, especially after debilitation from

respiratory conditions, e.g., bronchitis. They harmonize GI symptoms - burping and flatulence, vomiting and diarrhea, which the Chinese call disharmony above and below. This description of sweetness is a far cry from what I say about sugar as the cause of yeast overgrowth and a multitude of other sins. But it's all about "the dose." Natural sugars in small amounts of fiber-rich foods are different from 80 pounds of sugar per year, which is an estimate of the annual consumption per person of sugar in America.[9]

In Chinese diet therapy I learned that sugar, wheat, dairy and citrus cause Dampness and Phlegm, which are related to mold and fungi – or in alternative medicine terms – yeast overgrowth.

Traditional Chinese practitioners use particular food rules to treat disease. Because the Chinese diet is high in carbohydrates, they are very aware that too much can produce Dampness. In the West we consume more protein and produce Heat (the opposite) and create constipation. Sugar promotes dampness, but it also thickens the blood, which is a common condition now with blood

clotting and the widespread use of blood thinners. Chinese diet therapy is intriguing but too complex for this discussion.

BOOK OVERVIEW

Part I comprises four introductory chapters. I talk about the Politics and Economics of Sugar in Chapter One; The Science Cover-Up in Chapter Two; Chapter Three has an oxymoron for a title, "Sugar and Nutrition." In Chapter Four, I launch into Sugar Addiction, which is equivalent to that of morphine.

Part II covers the sugar diseases that arise from eating too much sugar. Chapter Five covers Yeast Overgrowth; in Chapter Six I talk about Hypoglycemia; Chapter Seven discusses Diabetes as one of the most common results of sugar overload. Chapter Eight is a new topic for me to cover but a major result of sugar poisoning – Peripheral Neuropathy. Heart Disease is the topic of Chapter Nine, and Chapter Ten covers Intestinal Disease. Stones, Ulcers, and Infection are the topic of Chapter Eleven. Chapter Twelve is a short chapter about Cavities, the only sugar-related condition that the sugar industry will acknowledge. Chapter Thirteen has important information about sugar and Osteoporosis. Chapter Fourteen brings you up to date about the influence of sugar on Cancer.

Part III is the final nail in the coffin – a discussion about Ozempic and the misguided treatment of obesity by allopathic medicine.

NOTE: In this book I remind you that magnesium deficiency, yeast overgrowth, and sugar overuse all conspire together in a negative downward spiral.

NOTE: Throughout the book, I'll use the words "picometer magnesium" and "picometer minerals" instead of the unwieldy "picometer-sized, stabilized mineral ions."

NOTE: In order to share important health information, within FDA guidelines, we developed a membership website, where you can find your own answers regarding building more wellness, using our formulas and information resources. So, you will see various references to information available to members in these pages.

NOTE: Some material in this book has appeared in previous works by the author.

SUGAR RESEARCH

When I finally decided to complete this book, I read at least a dozen books on sugar. My favorite authors are the late Nancy Appleton, Robert Lustig, and Gary Taubes.

Nancy Appleton

Nancy is one of my all-time heroes.[10] She passed away in 2020. I met her in 1993 when my husband, Bob, and I lived in Venice Beach, California. Because she worked directly with patients as a nutritional consultant, she presented the patient's view and the woman's view of sugar poisoning. For example, she was the only author I read that identified yeast overgrowth as a consequence of sugar poisoning.

According to her online bio,[11] Nancy Appleton, PhD, started writing and lecturing about health in the late 1970s as a reaction to her own poor health. Her discoveries about sugar and other common diet mistakes led to her first book, *Lick the Sugar*

Habit.[12] Six more books followed, including *Suicide by Sugar.*[13] She also encapsulated her life's work into the movie *Sweet Suicide* (which unfortunately is no longer available). I was only able to find a trailer for the movie.[14] Hopefully, someone will make the movie available by uploading it onto the internet.

I read *Lick the Sugar Habit* many years ago, but in my recent research I read *Suicide by Sugar* for an update on the statistics about sugar poisoning. Also, Nancy's *Stopping Inflammation: Relieving the Cause of Degenerative Diseases*[15] is very important because it lays the blame for inflammation on sugar's doorstep – but I say the blame can be shared by magnesium deficiency and yeast overgrowth.

The last time I was in touch with Dr. Appleton, she was working on her next book, *Rethinking Pasteur's Germ Theory: How to Maintain Your Optimal Health*,[16] where she proved that the medical paradigm of the Western world is incorrect. This theory has taken responsibility for our health away from individuals and given it to doctors and drug companies searching for the right

pills to attack germs. She wrote that over the past 100 years or so, our failures using this theory sometimes outnumber our successes suggest that we need a major shift in health thinking in the present. Perhaps the MAHA (Make America Healthy Again) Movement will begin closing the gap.

For decades Dr. Appleton has accumulated scientific references that confirm a long list of the dangers of sugar. I've included her most recent "War Against Sugar" citations in Appendix B. The list now includes 146 references.

Dr. Robert Lustig

Robert Lustig is a pediatric endocrinologist and another hero of mine. I mentioned him already and his failure to identify the nutrient deficiencies caused by sugar, but he's doing a good job of getting the word out there about sugar poisoning.

His YouTube video *Sugar: The Bitter Truth* burst onto the scene in 2009 and has garnered over 25 million views. Dr. Lustig got so frustrated seeing young obese children with type 2 diabetes in his clinic that he took to the internet and the lecture circuit to

educate people on the harsh truths about table sugar (sucrose) and high fructose corn syrup. Lustig would like to see sugar go the way of alcohol and tobacco by being regulated and heavily taxed. But he acknowledges the politics and economics of sugar and admits that will probably never happen.

That's why he takes his argument to the public. Lustig's book *Fat Chance: Beating the Odds Against Sugar, Processed Food, Obesity and Disease (2012)*[17] makes it very clear that sugar is evil, and soda is the devil. Lustig updates his thesis in a 2021 book *Metabolical: The Lure and the Lies of Processed Food, Nutrition, and Modern Medicine.*

Gary Taubes

Gary Taubes is an investigative science and health journalist and co-founder of the non-profit NuSI, Nutrition Science Initiative. NuSI supports research that tests fundamental assumptions about the metabolic and hormonal causes of obesity and related disorders. Taubes is the author of *The Case Against Sugar* (2016),[18] *Why We Get Fat and What to Do About It* (2011)[19] and *Good Calories, Bad Calories* (2007).[20]

The Case Against Sugar is an exhaustive, and sometimes dry, account of the war between the two groups of researchers who are trying to prove that either sugar or fat causes heart disease. It's actually quite depressing to read about the egos that made fat the bad guy and let sugar off the hook for decades. Some of these pro-sugar researchers were paid for their efforts by the sugar industry making them co-conspirators in the attack on our health.

Taubes is still active in the war against sugar with his latest book *Rethinking Diabetes: What Science Reveals About Diet, Insulin, and Successful Treatments (2024).*[21]

Dr. Jason Fung

Dr. Fung is a nephrologist who, like Dr. Lustig, got fed up with seeing his patients suffer kidney failure from obesity and diabetes. He finally concluded that sugar causes weight gain because it stimulates insulin, and weight gain is the final result. Too much sugar triggering excessive insulin causes the cells to rebel against the constant assault and shut down, making them insulin resistant. The "simple" answer is to not eat sugar. In rapid

fire, Dr. Fung wrote *The Obesity Code,*[22] *The Diabetes Code*,[23] and *The Complete Guide to Fasting*.[24]

NOTE: I find it interesting that none of these sugar authors promote a plant-based, vegetarian, or vegan diet. That's because we all know how difficult it is to avoid sugar, fruit sugar, and carbohydrates on a vegetarian diet. Some might balk about me including fruit sugar in this grouping, but you'll see what I mean when you read the sections on the dangers of fructose.

Also, I repeat that none of them, except Nancy Appleton, acknowledge yeast overgrowth as a consequence of overuse of sugar.

PART I: FOUNDATION

CHAPTER ONE: THE POLITICS OF SUGAR

"Do not be angry with me if I tell you the truth."

–Socrates

It's jam, cookies, ice cream, cakes, and all types of sugar and artificial sweeteners – today and every day. It's big business and it's causing a level of unwellness that modern medicine has been ignoring for decades.

WHO SPEAKS OUT AGAINST SUGAR

On April 23, 2003, the UN Food and Agriculture Organization (FAO) and the World Health Organization (WHO) acknowledged the dangers of sugar and released an independent expert report titled "Diet, Nutrition, and the Prevention of Chronic Diseases."

The report declared that cardiovascular diseases, several forms of cancer, diabetes, obesity, osteoporosis, and dental disease are the result of poor lifestyle and diet. It acknowledged that the burden of chronic diseases is rapidly increasing. Statistics from

2001 reveal that chronic disease contributed to approximately 59% of the 56.5 million total reported deaths in the world and 46% of the global burden of disease.

The experts who wrote the report feel that a diet low in sugars, salt, and saturated fats, and high in vegetables and fruits, together with regular physical activity, can have a major impact on combating this high toll of death and disease. They focused special attention on added sugars and determined that a healthy diet should contain no more than 10%.

In the report, Dr. Gro Harlem Brundtland, director-general of the WHO, said:

> *We have known for a long time that foods high in saturated fats, sugars, and salt, are unhealthy; that we are, globally, increasing our intake of energy-dense, nutritionally poor food as our lives become increasingly sedentary, and that these factors – together with tobacco use – are the leading causes of the great surge we have seen in the incidence of chronic diseases.*

What is new is that we are laying down the foundation for a global policy response.

NOTE: The WHO came down on saturated fats, sugars, and salt. But I can't find a more recent report. Why are they no longer weighing in on this issue?

Sugar remains the real culprit in the battle against Big Sugar and Big Food. We know, however, that there has been a huge shift in the way saturated fats are viewed, with the high fat Keto diet being heralded as a "cure-all". Also, salt has a split personality. Sea salt is healthy; whereas sodium chloride that's laced in all processed food is not. If you want more historical input of the nefarious practices of the salt, sugar, and fat industries read *Salt Sugar Fat* by Michael Moss,[25] an investigative reporter for the *New York Times*. But don't expect any valid health information about alternatives. James DiNicolantonio, PhD, in *The Salt Fix,*[26] supports the use of sea salt for health, but I think he advises too much salt with some of the studies that he cites. My recommendations have always been to weigh yourself in pounds,

drink half that number in ounces of water daily, and put ¼ teaspoon of a good sea salt in every quart or liter of that water.

The sugar industry and the soft drink industry fought to have the above WHO policy removed, and the allowable sugar levels raised. In a blatant attempt to derail implementation of the Diet and Nutrition Report, the sugar industry lobbied the U.S. Government to withhold its $400 million funding from the UN and WHO if it went ahead with its recommendations.

NOTE: So, that's why the report was never updated!

The United States Department of Health and Human Services (HHS), instead of supporting the WHO recommendation to help reduce chronic disease, produced a 28-page, line-by-line critique, which was just a blatant pandering to American food companies that produce many of the world's high-calorie, high-profit sodas and snacks, especially the makers of sugars.

Even worse, the Institute of Medicine (IOM)[27] in their 2002 report put forth a chart (Dietary Reference Intakes for Macronutrients) that did not set a Tolerable Upper Intake Level for sugars; it recommends an exorbitant maximum intake of 25 percent of

calories from added sugars. The IOM Report itself said, "Higher intakes are associated with a dramatic decrease in micronutrient intakes, especially calcium." The IOM panel determined no other adverse effects. This 2002 report was used by the sugar industry in defense of sugar. The IOM did not get directly involved with the debate between the WHO and the sugar industry although its report obviously sided with the sugar industry.

NOTE: The Institute of Medicine was absorbed by its parent, the National Academy of Medicine. The report mentioned above is no longer archived.

The major objection to any recommendations for reducing sugar comes from the sugar lobby groups funded by the industry. The U.S. National Soft Drink Association's stated position is that a 10 percent limit on sugar should not be included in the WHO plan. They publicly claimed that the scientific literature does not show an association between sugar intake and obesity. As mentioned above, the sugar industry blatantly lobbied the U.S. Government to withhold funding from the UN and the WHO if it went ahead with its recommendations.

Imagine four meals in one day, three squares and one snack, about 2,000 calories, but mix them all up and take 1/4 of that amount and make it all sugar – that is what most young people are eating – up to 40 teaspoons of sugar a day. Estimates of sugar consumption say that every American consumes an annual 80 pounds of sugar. It used to be more than that, but some of the market share of sugar has been taken over by poisonous artificial sweeteners.

The sugar industry refutes the statement that sugar has any effect on weight. Here's how the Sugar Association obfuscates this crucial question:

> *The cause of obesity is a complex issue, and there are many contributing factors. These factors include excessive caloric intake, genetics and low physical activity levels. Just like protein, starch, fat, alcohol and other carbohydrates, sugar is a source of calories in the diet. Excessive calories from any source, including sugar, can lead to weight gain, increasing the risk of obesity and other chronic diseases. A systematic*

> *review of the evidence concluded that "if there are any adverse effects of sugar, they are due entirely to the calories it provides." Additionally, three authoritative scientific organizations—the U.S. Institute of Medicine,[2] European Food Safety Authority[3] and U.K. Scientific Advisory Committee on Nutrition[4]—each conducted extensive scientific reviews of* ***added sugars*** *and obesity and found no unique role for added sugars in the development of obesity.[28]*

However, by 2014, the WHO, keeping to its mandate, began recommending further reduction of sugar and that only 5% of daily calories should come from added sugars. The recommendation was not associated with any fanfare, presumably to fly under the radar of the sugar industry.

No other agency has set such a low limit for the intake of sugar. In the United States, in spite of the fact that 70% of the population is overweight or obese, the Dietary Guidelines for Americans only advise that sugar should be used in moderation,

which gives no indication to the public that excess sugar is dangerous.

The sugar industry diagnoses the obesity problem as a lack of exercise. The UN report advised twice as much exercise as the US guidelines, one hour a day instead of thirty minutes, along with the deep cut in sugar.

We all need to follow the UN guidelines, making sure we limit our intake of refined sugar and refined sugar products is one of the easiest things we can do that will have a tremendous impact on our health. Remember – it costs nothing to stop eating sugar! Oh, and actually you will save money because you aren't buying all those expensive sugar snacks!

The problem with sugar keeps getting swept under the carpet, but the UN hasn't forgotten about the global problem of diet and lifestyle. As reported by Dr. Lustig in *Fat Chance*,[29] "On September 2011 the UN General Assembly declared that non-communicative diseases (diabetes and cancer) are now a greater threat to world health than are infectious diseases." Lustig

continued "over the next fifteen years, these diseases will cost low-and middle-income countries more than $7 trillion."

I'll have more to say about the sugar lobby in Chapter Nine where I talk about the war between fat and sugar.

EDUCATING CHILDREN

Because my practice attracted health-conscious patients, I had a unique opportunity to steer kids toward a healthy lifestyle. If parents complained that their children were addicted to sugar and junk food, I would engage the child in an experiment. Kids love experiments, and it went like this. I would tell them that if they avoid junk food for 6 days, then on Saturday they could eat as much junk food and sugar as they could swallow. They loved the idea and made long lists of what they wanted on their junk day. I chose Saturday so they could recover on Sunday before school, and they certainly needed a day to recover. Some kids threw up, some had tummy aches, some had headaches and got irritable and disruptive; others just crashed. But they all got the message – junk food made them sick. And they usually made the decision on their own to be more careful of what they ate.

Here's another tact you can take to educate children about sugar. I would ask them if they gave sugar, soda, desserts or ice cream to their cat or dog. They were horrified, and I would ask, why not? They would say it's bad for them. And I would pounce and ask them why they ate it if it was so bad. After the experiment and our discussion, most kids made the connection and swore off sugar. One especially bright young girl asked me why sugar was so easy to buy.

What do we tell Millennials who have, for the most part, grown up on sugar and junk food as rewards for being shuttled back and forth between the broken homes of their divorced parents? Millennials have also grown up on ADHD drugs to treat their 'acting out' behavior as they are confined to regimented schools during the day and exploring the world via their computers and cell phones at night.

Kids these days are used to being medicated, and sugar is just another medication for them. I was shocked to learn that in the medical autistic community candy is actually given as a reward to these children in behavior modification sessions.

I'm concerned that young people will continue to crave sugar and will add caffeine, alcohol, street drugs, and OTC drugs until they get sick enough to look for healthy alternatives. Unfortunately, they often go to the opposite extreme and choose a vegan or vegetarian lifestyle that doesn't provide them with the necessary protein and nutrient building blocks to repair and create a healthy body.

Even worse, vegetarian gurus promise the 'fountain of youth' with their unbalanced plant-based diets. But they never take into consideration that the soil is depleted of minerals, so the diet and the people become more and more depleted. Countless vegans and vegetarians come to me with heart palpitations and leg cramps from magnesium deficiency; with hypothyroidism from deficiency of the nine minerals required to make thyroid hormones; with adrenal exhaustion from lack of magnesium, vitamin B, and vitamin C.

I had a former vegan on my Oct. 1, 2018 radio show, who debunked the vegan, raw diet to which she was held hostage for decades. In chilling retrospect, she realized that this diet gave

her debilitating insomnia for which she got advice from vegan and raw gurus to be even more strict in order to achieve a cure. It wasn't until she started losing teeth that her eyes were opened.

NOTE: In order to share important health information, within FDA guidelines, we developed a membership website, where you can access this podcast recording.

The entire vegan/vegetarian culture in the U.S. amounts to less than 5% of the population, yet this small minority is demanding that the rest of us adopt their lifestyle for moral, ethical, and health reasons. Apparently, that message has reached the Millennials, 12% of whom are declared vegetarians, and the percentage of Gen Z vegetarians may be even higher. I keep thinking that if vegetarianism is so "perfect," why aren't more people in the older generations following it? You also must wonder who or what is funding this movement.

A good place to start your research on vegetarian propaganda is to read an article on The Weston A. Price website. Their article "Twenty-Two Reasons to Not go Vegetarian" is a counter to an

earlier *Vegetarian Times* article "*Twenty-Two Reasons to Go Vegetarian*."

One reason why I'm expressing these concerns in a book about sugar is because vegetarianism promotes heavy fruit intake and a plethora of desserts as a way to make their unvarying and often bland diet more palatable. How high is too high? It depends on the individual. If you have insulin resistance, then more than 2 teaspoons of sugar at a time may be too much.

I choose this amount because at any one time there are only 2 teaspoons of sugar in the bloodstream. More than that amount may not find its way into the cells and end up being turned into fat or sorbitol crystals (for the sorbitol discussion, go to Chapter Eight: Peripheral Neuropathy). I may be jaded in my concern about fructose, but it's because a young adult vegetarian asked if it's OK to eat 6 bananas, several mangos, a few kiwis and a pineapple a day. And I don't think it is.

When you read about the dangers of a high fructose intake, you will understand my reasoning. I do eat fruit, but mostly berries, which are low in fructose and carbs.

In the past I ate a frozen organic berry dessert. I cut up 5 medium-sized frozen strawberries and added 12 frozen raspberries, and 20 frozen blueberries. It barely makes a cup of berries, and the carb content is only about 10 grams, which fits nicely into a Keto/Sugar-Free Diet. I cover this mixture with ¼ cup of heavy whipping cream and mash it all down until it's mushy like ice cream. I can also add some whole milk Greek yogurt or kefir for a fermented taste.

Nowadays I make a chocolate pudding with avocado, banana, coconut cream and cacao to which I add some frozen berries. This recipe is included in The *Sugar-Free Kitchen: 88 Recipes for a Yeast-Free Life,* the third book in this series. Fruit, especially berries, supposedly have a high phytonutrient content, but that's even debatable these days because Big Agra has farmed out the minerals in our soils, so we really must supplement.

CHAOS IN THE SUGAR INDUSTRY

We have all witnessed and been affected by the chaotic changes the world has been going through during the past couple of decades. The cause of this chaos may never be understood by

the general public, but it has a lot to do with technology and social media outpacing our ability to understand, accept, or control it.

According to my husband, Bob Dobbs, the chaos is due to the 5 bodies that we occupy. They are The TV Screen Body; The Internet-Digital-Chip Body; The Physical, Chemical Body; The Intuitive Astral Body; The Mystery Body.

Here's a brief explanation by Bob in *Paranoia Magazine* (Issue #44, Spring 2007):

1. The Chemical Body is what most people consider to be their physical body. The dominant model for this is the product of Western science since the telegraph.
2. The Astral Body is what pervades all cultures - the belief there is more to our makeup than the Chemical Body. It is a huge storehouse of religious and spiritual energy.
3. The third organ is the TV Body - the repository of historical one-way broadcasting.
4. The fourth is the Chip Body - the mutating warehouse of digital omni-directional media.

5. The fifth is the Mystery Body - what we're still excavating and whose lineaments we cannot fully assess yet, if ever. We now know it's made up of the previous four bodies, but we don't know what more we will discover about its constituents, effects, and effects.

We cannot even begin to calculate the effect of sugar on our five bodies. What I do observe is the same person, on the same day, fanatically exercising, fasting, biohacking, and supplementing their Chemical Body while their TV and Chip bodies sit in front of their TV, computer, and cell phone screens ingesting copious amounts of sodas, sugared electrolyte drinks, caffeine, and junk food.

OUR DEVOLVING DIET

More and more information concerning diet is being disseminated to the public, and health and longevity rank among the major concerns of today's population. Recent guidelines on diet from the U.S. Department of Agriculture, the U.S. Department of Health, the Canadian Health Ministry, and the Australian Department of Health show that all these agencies share growing

concern about our over-processed, refined food diet. These government agencies all recommend that the amount of sugar in our diet be limited if we hope to achieve and maintain good health.

Following much analysis and debate, these directives consistently recommend that we curtail the use of added sugar in our diet. You'd think we would listen, however, as reported by Dr. Jackie Cassell[30] in the quote below:

> *Despite strong recommendations from health professionals and government agencies, North Americans continue to consume diets high in total fat, saturated fat, cholesterol, calories, sodium and sugar, along with diets low in several important vitamins and minerals. In fact, there seems to be a growing disparity between the level of public interest in nutrition and the nutritional adequacy of the typical American diet.*

In Australia it may be a different story. In 1982, the Australian sugar industry itself commissioned a study on what people thought and believed to be true about sugar, and how much of

it they were eating. The results were disturbing, highlighting areas of concern to the sugar industry, and no doubt food manufacturers in general.[31,32,33]

With the update of this book in 2025, the MAHA (Make America Healthy Again) Movement is exposing much of what I wrote in *Death by Modern Medicine* (2005, 2017).

DIABETES ASSOCIATIONS AND SUGAR

Both the Canadian and American Diabetes Associations obtain funding from food and drug companies. They insist that there is no known cause of diabetes – that it probably has to do with genetics. To say diabetes is genetic is a blatant evasion of the truth. The incredible rise in the incidence of diabetes does not indicate a sudden change in genes but points to an environmental cause. And that cause is Sugar!

Diabetic Associations also claim that diabetes is incurable but can be managed with drugs that stimulate insulin production. However, the most common type of diabetes – adult onset – is not caused by a deficiency of insulin – just the opposite. It's

caused by insulin resistance – our cells have been hammered so relentlessly by insulin that they begin to ignore it.

NOTE: Carbs trigger insulin. Stopping carbs lowers insulin, which is the ultimate weight gainer. Less insulin means no more insulin resistance and glucose can properly enter into cells and eliminate diabetes, which is diagnosed when sugar builds up in the bloodstream.

The late William Dufty, who wrote the 1975 classic, *Sugar Blues,*[34] gave us early warning of the dangers of a high sugar intake. Dufty cited Dr. G. D. Campbell, physician to the Diabetic Clinic of King Edward VII Hospital, Durban, South Africa, who has suggested urgent restriction – under the aegis of the World Health Organization – of highly slanted and at times virtually untrue statements issued by sugar authorities and their medical agents to promote the sale of sugar.

Campbell suggested a code of ethics banning the intrusion of sugar-subsidized scientists in nutrition societies and to bar them from using societies and academic titles to further the interests of their employers or sponsors:

> *Disinterested scientists should be particularly guarded in acceptance of any form of financial assistance from the sugar authorities, [e]specially those given with "no strings attached"; more than one nutritionist has already had cause to regret such a course. Highly interesting versions of interim results have appeared from time to time in sugar publications, without the knowledge or sanction of the actual workers sponsored.*

If he were still alive, Dr. Campbell would be interested in the activities of Dr. Frederick Stare, America's leading nutritionist for almost 4 decades. In 1942 he founded the Department of Nutrition at the Harvard School of Public Health. He influenced American nutrition until his retirement in 1976. According to his Wikipedia biography, he was a firm believer in the essential goodness of the typical American diet, holding that "prudence and moderation" was the key to healthy eating.

As an adviser to the US Government, Stare rejected the idea that the American diet was harmful; stating that Coca-Cola was "a

healthy between-meals snack" and that eating even great amounts of sugar would not cause health problems. He was also a leading campaigner for water fluoridation, which most sensible people now believe is very damaging to the body. Stare was also critical of fad diets and claims made by alternative medicine proponents. Stare was a hero to the sugar and junk food industry but certainly not to the American people.

Dufty in *Sugar Blues* reports on an address by Stare on May 16, 1951, on Food Faddism, which was published by the Sugar Research Foundation; Dr. Stare supported the food industry and accepted their donations and is quoted as saying:

> *I should certainly say before closing that the food industries, The Sugar Foundation, The Nutrition Foundation, and a number of food companies as individual companies, have certainly done a lot in helping to support basic nutrition, and a lot in helping to support our department (of nutrition at Harvard) for which we are certainly appreciative.*

We can certainly see why Dr. Stare was appreciative. Between 1950 and 1956, according to Open Letter II of the Boston Nutrition Society, January 22, 1957, these same groups contributed almost a quarter of a million dollars to Dr. Stare's Harvard Department of Nutrition.

Dufty reports on an interview with Dr. Stare acting as a spokesperson for the sugar industry. Stare, the sugar industry's puppet, unbelievably says we should double our sugar intake:

> *We have to cultivate foods that require as little land as possible to produce a maximum amount of energy. For instance, it takes 0.15 acres of land to produce a million calories of sugar; it takes 17 acres of land to produce a million calories of meat. Calories are energy, and I would recommend that most people could healthily double their sugar intake daily. Sugar is the cheapest source of food energy, and I predict it will become much more prevalent in the diets of the world. People say that all you get out of sugar is calories, no nutrients. Like many foods, I expect it to be fortified*

more and more in the future. There is no perfect food, not even mother's milk.

Dufty comments:

Stare's statement is one of those effective lies that contains truth but does not express it. Again, its credibility is based on the reader's ignorance. The choice between sugar and meat is desperate and false. Sugar may offer the cheapest calories in the supermarket, until you count the total hidden cost. One estimate of the current cost of doing the backlog of repair and replacement of America's teeth runs to $54 billion.

Dufty reports:

When the researchers bite the hands that feed them, and the news gets out, it's embarrassing all around. In 1958, TIME magazine reported that a Harvard biochemist [...] had worked with myriads of mice for more than ten years, bankrolled by the Sugar Research Foundation to find out how sugar causes dental

> *cavities and how to prevent this. It took them ten years to discover that there was no way to prevent sugar causing dental decay. When the researchers reported their finding in Dental Association Journal, their source of money dried up. The Sugar Research Foundation withdrew its support.*

Dufty continues:

> *The more scientists disappointed them, the more the sugar pushers had to rely on the ad men.*

Gary Taubes followed the fascinating history of the sugar lobby groups who were instrumental in keeping sugar on the shelves even when they knew it was poison. Taubes went into great detail naming names, dates, and places, giving validation and credibility to everything that Dufty says above.

EFFECTS OF TECHNOLOGY ON SUGAR

William Kuhns, in his book *The Post-Industrial Prophets Interpretations of Technology*,[35] writes the following about the mechanization of bread that mimics the processing of sugar:

Full mechanization of the bread-making process became possible only in the twentieth century. The use of chemically-changed flour, the addition of artificially-introduced gases and vitamins, the mechanical kneading and quick-baking process all became rigidly standardized, guaranteeing uniform loaves of bread with uniform density, size, and weight. Giedion points to a curious phenomenon here: the interaction between mechanized production and public taste. Mechanization tends toward a frothy, white, soft bread. Not only did public taste accept these features, but eagerly accepted "improved," accentuated versions of these qualities. And here is the nub of the problem! Public taste is reflected and created by mechanization. Bread may be only partially baked, stripped of its organic vitamins, and blown up by artificially-added chemicals, but its continuation is guaranteed by the very process that led to its introduction: mechanization.

> *Mechanization of standardized products reshaped the environment. But more subtly, it altered the inner qualities of thin*gs*–whether [it be] a loaf of bread or the lifespan of an automobile.*
>
> *The same could be said for the mechanization of sugar. We are trapped, in a sense, by the technology itself. There is no human scale here, for it would have to take into account the effect on health and longevity of the people, not on longevity of the product!*

Kuhns continued,

> *The process of mechanizing movement has, Giedion states, achieved two important effects:*
>
> *[…] the quantification of human movement (thereby making man adjustable to the machine) and the decisive, perhaps irreversible, trend of production efficiency over human rhythms, needs, and styles. Man increasingly moves less by the measure of his own body and mind than by the machine.*

WHO'S MINDING THE COOKIE JAR

As noted above, diabetic associations are funded by companies with a hidden agenda. Both the Canadian and American Diabetes Associations obtain funding from food and drug companies. They mimic industry by insisting that there is no known cause of diabetes—that it probably has to do with genetics. As I noted above, diabetes is not genetic.

Diabetic associations also claim that diabetes is incurable but manageable with drugs that stimulate insulin production. However, type 2 diabetics are outright insulin-resistant, so increasing insulin doesn't decrease blood sugar and only encourages weight gain. And the diabetic associations won't even admit that commonsense point – their agenda remains hidden!

CHAPTER TWO: THE SCIENCE COVER-UP

Briefly, let's look at the way sugar affects the body so you can see what science is either missing or consciously covering up when it comes to investigating the effects of sugar on the body. Eating sugary snacks or drinking a soda laced with 10 teaspoons of sugar is an incredible shock to the system. That's because the amount of sugar in the bloodstream at any one time is only 2 teaspoons. So, 5 times the amount of sugar in the blood sets off body-wide alarms. The alarm stimulates an excessive pancreatic insulin response in order to normalize blood sugar levels by shoving that sugar into cells.

Too much insulin makes blood sugar plummet as it's driven into the cells. That incredible flood of sugar, several times a day, for many years is the underlying cause of our epidemic of insulin resistance and metabolic syndrome with the triad of obesity, diabetes, and heart disease.

In reaction to the drop in blood sugar, adrenaline and cortisol from the adrenal glands are activated to raise blood sugar back

to normal by stimulating the glycogen stores in the liver. A constant high intake of simple dietary sugars keeps this roller coaster going and eventually overworks or 'burns out' normal pancreas and adrenal function, leading to insulin resistance. Conversely, high cortisol levels, produced by a myriad of stressors, will raise blood sugar levels and encourage fat storage – especially around the belly.

Insulin's job is to open the channels in cell membranes to an influx of blood sugar. When there is too much insulin, which can be stimulated by ten teaspoons of sugar, excess insulin molecules can lead to a traffic jam at the cell's receptor sites. After years of high insulin bombardment, the cell receptors just shut down (insulin resistance). Therefore, sugar cannot get into the cells where it is needed to create energy and becomes elevated in the blood, which damages the eyes, kidneys, and heart, which are the effects of adult-onset diabetes. It's this impending damage that the body is trying to avoid with insulin, but it becomes a losing battle.

As we are finding out with the Sugar-Free Diet, the best way to keep insulin from surging and storing calories as fat is by eating a low carb diet that does not trigger insulin. That means any sugar, fruit, or high carb vegetable is suspect.

MORE THAN EMPTY CALORIES

Because refined dietary sugars are devoid of vitamins and minerals, they must draw upon the body tissue micronutrient stores in order to be metabolized in our bodies. When our nutrient storehouses are depleted, fatty acids and cholesterol are not properly metabolized. Improper digestion of fats leads to higher blood levels of triglycerides and cholesterol and promotes obesity.

Dietary sugars also feed harmful intestinal yeasts, fungi, toxic organisms, and comprise the primary food for cancer cells. Vitamin C and other natural antioxidants like magnesium protect against the damage due to sugar.

But here's the rub and it's a Major Rub! Sugar and vitamin C are very similar molecules, and they both utilize the same transport

system in the body (insulin). This means, excess sugar uses up insulin and stops vitamin C from getting to where it is needed in the white blood cells to boost the immune system, and in all body cells to act as metabolic antioxidants. Now that's scary. That information goes hand in glove with the research showing that sugar immobilizes lymphocytes for hours after ingestion.[36]

NOTE: For clarity, I've streamlined the description of the insulin transport mechanism that affects both glucose and vitamin C. In reality, insulin activates a specific enzyme that facilitates the final step. A detailed discussion of this process will be included in my forthcoming book on vitamin C.

SUGAR IS A LEECH

I say that part of the scientific deception about sugar is the lack of research in the detrimental effects on nutrients. However, according to Cranton:[37]

> *Refined white sugar lacks most vital nutrients, including the ingredients, such as chromium, needed for its own metabolism. Thus, each spoonful you*

> *consume [...] must steal the nutrients needed to break it down into a digestible form from other foods in the diet, or from reserves in the body's tissues. Insulin cannot mediate sugar metabolism in the absence of adequate chromium.*

Many of the enzymes involved in free radical protection, such as catalase, superoxide dismutase, and glutathione peroxidase, require the very nutrients lost in the refining process. When functioning properly, these enzymes dampen free radical chemical reactions, allowing the desired biological effect without unwanted cellular or molecular damage. Without these control enzymes, free radicals can be generated at an ever-increasing rate, damaging the body's cells, tissues, and organs.

In her *Vitality* article "Simplified Spiral of Sickness from Sugar," Helke Ferrie wrote:[38]

> *Medical researchers found that the refining process of sugar removes 93% of chromium, 89% manganese, 98% cobalt, 83% copper, 98% zinc, and 98% magnesium - all essential to life.*

Each vitamin and mineral deficiency is responsible for a host of disease symptoms, including heart disease, depression, and arthritis.

NOTE: *Vitality Magazine* no longer has this particular article in its archives.

CHROMIUM DEFICIENCY

A study to determine chromium loss on a high sucrose diet points to one of the metabolic side effects of sucrose that is now being addressed.[39] I repeat, chromium is required for the metabolism of sugar, but if sugar excess leads to its loss, then sugar will not be properly metabolized. The results were that twenty-seven of the thirty-seven people in the trial experienced a net loss of chromium during the high sucrose diet compared to the low sucrose diet, while ten of thirty-seven had no change. Absorption of chromium was the same on both diets.

SUGAR DEPLETES MAGNESIUM

The following is a section excerpted from my book, *The Magnesium Miracle* (2017) that helps explain the sugar-magnesium connection:

> *A diet high in sugar and other simple carbohydrates also puts you at risk for magnesium deficiency. Natasha Campbell-McBride ND, in her book Gut and Psychology Syndrome, says that 28 atoms of magnesium are required to process one molecule of glucose. If you are trying to break down a molecule of fructose, you need 56 atoms of magnesium.*
>
> *That's an extremely unbalanced and unsustainable equation that drains magnesium.*

NOTE: A thorough description of *The Magnesium Miracle* is available on my membership website. Additionally, you can purchase a paperback or Kindle book version of this book through Amazon.com.

Even the raw-foodists and green-juicers are not immune to magnesium deficiency. For one thing, they eat way too much fruit. "Because it's natural," they think they can eat all they want. I recently received an email from a young man who asked if there was anything wrong with him eating 16 bananas a day on his vegan diet! Do the math. One medium-sized banana has about 27 grams of carbs, so 16 bananas give him a total of 432 grams. A healthy diet should only offer 100-150 grams of carbs a day.

This person is using up his magnesium stores to metabolize fruit sugar. Raw foodists also give themselves permission to lace their green drinks with lots of pineapples, bananas, apples and berries to try to overcome the bland or bitter taste of greens.

There is a social media twist to today's diets as self-proclaimed diet gurus have taken to YouTube and Instagram. These arenas have become hangouts for vegan bloggers who are influencing millions of people with outrageous "advice" and periodically get busted and shamed for eating meat!

High intake of fruit sugars can trigger type 2 diabetes (partly as a result of magnesium deficiency) and can also cause dental

cavities. For someone with yeast overgrowth more than 2 servings of fruit a day would be too much fructose (fruit sugar). For the average person, four servings a day could encourage prediabetes and diabetes.

The video *Sugar: The Bitter Truth*, with about 25 million views, is a must-see YouTube by pediatric endocrinologist, Dr. Robert Lustig, who explains the dangers of fructose sugar and how much worse it is than sucrose – table sugar.

WHAT HAPPENED TO POPEYE'S SPINACH?

Magnesium is the central mineral in "plant blood," or chlorophyll, much like iron is the central mineral in hemoglobin. You would think a diet high in green vegetables would have you covered. Not so. I have consulted with people who are drinking more than 40 ounces of organic green juice a day, yet they are still magnesium-deficient with symptoms of heart palpitations and leg cramps. Let me repeat this fact: if the food you are eating is not grown on soil replenished with minerals, the food will automatically be mineral-deficient – even if it is organic. When I

try to eat exclusively from the farm that I fund in Maui, my magnesium-deficient heart palpitations return.

SUGAR AND BEHAVIOR

I'll weave the history of sugar and behavior by highlighting the work of several remarkable researchers, nutritionists, and journalists who made it their life's work to educate the public about nutrition. In the process they were often vilified and their work suppressed.

Dr. Stephen Schoenthaler

Extensive, landmark studies by Dr. Stephen J. Schoenthaler, a California criminologist, should have convinced skeptics in the 1980s that diet does indeed have an effect on behavior. I will detail some of his work below, and you will be amazed at how little of this information made it into mainstream public health.

In April 1981, Schoenthaler received a commission to implement a large-scale, controlled study for the Los Angeles County Board of Supervisors. The Los Angeles Probation Department, after reviewing the evidence in Alexander Schauss's *Diet, Crime and*

Delinquency,[40] had already banned candy, soda, chocolate, sugar, and refined flour products from its juvenile centers.

Schoenthaler was asked to design a study to see what results this controversial move had produced.[41] After two years, there was startling evidence supporting the continuation of the ban on junk foods: among 1,382 inmates in three juvenile institutions, the incidence of anti-social behavior had dropped by 44%. This was very exciting evidence for the diet-behavior connection, because the changes, involving children with histories of strong anti-social behavior, were so noticeably demonstrated. The greatest reductions were seen in repeat offenders (86%), narcotics offenders (72%), rape offenders (62%), burglars (59%), murderers (47%) and assault offenders (43%).

The second part of the study followed 289 juvenile delinquents at 3 juvenile rehabilitation camps. They exhibited a 54% reduction in antisocial behavior after sugar consumption was reduced.

Dr. Schoenthaler's even more revolutionary study in the New York school system was never given the acclaim it deserved.[42] It

spanned seven years following an incredible number of children in New York schools – one million to be exact! Nobody before or since has accomplished such a feat. He did what I call the definitive study on child behavior and diet, and nobody in the current educational system has even heard about it!

Schoenthaler observed changes in one million school children from 803 New York schools from 1976 to 1983. Learning performance was established first, and then in 1979 diet changes were introduced. There was a gradual elimination of synthetic colors and flavors and selected preservatives (BHA and BHT). At the same time, high sucrose foods were gradually eliminated or reduced.

The results? There was a 15.7% gain (from 39.2% to 55%) in learning ability compared with other schools during the years in which these changes were introduced. Also, Schoenthaler noted that out of 124,000 children who, before the dietary changes, were unable to learn grammar and mathematics, 75,000 were able to perform these basic tasks after dietary changes alone.

In another important study that followed 68 child criminals on a junk food-free diet, antisocial acts diminished by 80% within seven months after changing their diet.[43] In a follow-up study with 276 children, one group stayed on the junk food diet, while the other group received healthy foods. The difference in antisocial acts between the two groups was almost 50%. The worst class of offences showed the most dramatic reduction: assault fell by 82%, theft by 77%. The delinquents who were guilty of the most serious crimes (assault, rape, robbery and vandalism) benefitted the most of all. Thank goodness that all institutions who cooperated in these studies decided to maintain the new dietary program. However, those studies were done in the 1980s and we have no way of knowing if those institutions continue the programs to this day.

A similar Alabama Diet Behavior study by Schoenthaler observed 488 incarcerated delinquents for 22 months to see if their rate of antisocial behavior after reducing sugar would drop as previous studies had shown.[44] The decline in antisocial behavior ranged

from a low 17% to a high of 53% (an average of 45%) depending upon gender, race, and type of offender.

Schoenthaler's Northern California Diet-Behavior program followed 3,399 incarcerated juveniles on a "junk food-free" diet during a 24-month comparison study (12 months before diet and 12 months following).[45] The results were: suicide attempts 100% lower; use of restraints to prevent self-injury 75% lower; disruptions/horseplay 42% lower; physical assaults/physical fights 25% lower.

Where is Schoenthaler's Presidential Citizen's Award, where is his Nobel Prize? Instead of his work being praised for its scope and disseminated country-wide, he was ignored or criticized.

"Diet Therapy for Behavior is Criticized as Premature" focused on Schoenthaler's work in an extensive *New York Times* article, Dec. 4, 1984. The argument made against him was that the government, universities, and institutions did not want to acknowledge the validity of his work in case criminals used a poor diet as a legal defense!

Here are a few choice quotes from the article that you can also read online:

> *This fast-growing public acceptance of presumed links between diet and behavior was greeted with alarm last week by researchers who say that evidence for the effects of various foods on feelings and actions is hardly ready to be so broadly applied.*
>
> *"Anecdotes about dietary manipulations that people accept as truth are becoming solidified as social policies," noted neuroendocrinologist, Dr. Richard Wurtman, from MIT. He was one of the first to show that ordinary foods can affect the brain. He said he was distressed by the application of 'preliminary findings and suggestions before they are confirmed as fact."*[46]
>
> *The conflict is a classic standoff between the plodding nature of rigorous scientific research and the public need for expedient answers to costly, distressing problems.*

The debate would be moot if not for the fact that, directly or indirectly, there is a price to pay for misapplication of scientific research. For example, as I noted above, in attributing criminal or delinquent behavior to a food allergy or hypersensitivity, the perpetrator is in effect told he is not responsible for his behavior.

Barbara Reed

Barbara Reed observed the diet-behavior connection as a probation officer in Ohio, beginning in 1973. She routinely gave her clients a questionnaire regarding their diet and instructed them to restrict their food choices to lean meat, fresh or frozen fruit, fruit juices, vegetables, herb teas, milk, nuts, seeds, and cold-pressed oils. They were strictly forbidden white sugar, white flour (and any product made with either, such as pastries, etc.) soda pop and cola, processed foods, and alcohol.

By 1975, the probation department, recognizing the effects of these dietary changes, was sending its worst cases to Mrs. Reed, with an injunction from the court, in some cases to choose "jail

or diet." She told the McGovern committee that out of the 252 prisoners she had put on the diet, which included vitamin supplements, none of those who stayed on the diet had been back in court. The physical and mental improvement in some of her clients was dramatic.[47]

Alexander Schauss

Alexander Schauss has been studying, teaching, and writing about diet for decades. His book, *Diet, Crime and Delinquency*,[48] is a hard-hitting scientific, as well as anecdotal, account of the effects of diet on crime. He continues his work on diet and the brain as Director of Natural and Medicinal Products Research at AIBMR Life Sciences in Puyallup, Washington.

Schauss has always insisted on developing a strong scientific basis for his approach, and although he stresses that behavior is far too complex to be reduced to "you are what you eat." Barbara Griggs quotes Schauss:[49]

> *When a person is placed on a good diet, at least it gives him or her the chemistry to respond to direction,*

> *information and education. There have been a lot of programs, a lot of studies, and not one of them has failed to show substantial results.*

When Schauss spoke in London in 1984, the Governor of Britain's Maidstone Prison listened attentively and commented: "We shouldn't be doing this in prisons. The change has got to happen with the parents and in the schools." As we have seen, the Schoenthaler study published in 1986 supported the Governor's observation. We have to change diet and change behavior before the crimes are committed. Instead, disruptive children and teens are put on medications that can actually perpetrate violent behavior.

Barbara Griggs

Barbara Griggs is a journalist who is best known for her books on herbalism, but she also turned her hand to diet in her 1987 book, *The Food Factor.*[50] In the book, she outlined Schauss' work and comments on the scathing attacks and bitter criticism that Schauss received because his work is so highly controversial and would inevitably have an impact on the food industry.

Griggs cites an attack from Dr. Gregory Gray (and his dietitian wife, Lorraine) printed in the May 1983 issue of the *Journal of Nutrition Education*. This article dismissed numbers of carefully designed, well-observed studies as "misleading"; raised doubts as to the accuracy or the integrity of the researchers; misquoted papers; suppressed relevant comments; and suggested that documented changes in behavior were probably due to a placebo effect. They concluded that "the nutritional approach was inordinately expensive, ineffective, and potentially risky both physically and psychologically."

The Journal of Nutrition Education refused to print Schauss' reply, which cited fourteen references, and neither Schoenthaler's nor any other researcher's responses were published. Dr. Gray's paper about the danger of avoiding sugar was then sent, anonymously, to every school district in the United States, and this malicious, harmful, and subversive act remains unchallenged.

NOTE: *The Journal of Nutrition Education* no longer archives articles published prior to 1984.

Discrediting Schauss Instead of Sugar

The very real danger in the sugar debate is to the sugar industry's profits; therefore, Schauss was hung out to dry. The anti-alternative medicine California Council Against Health Fraud, one of the original groups that formed the National Council Against Health Fraud (NCAHF) in 1984, convened a committee with the objective of discrediting Schauss' views. Their report unjustly asserted that diet isn't effective, it's "dangerous," and it would cost several thousand dollars per child. None of that is true; however, the report was carried almost word for word in a newsletter published by the American Council on Science and Health. This council and the American Medical Association (AMA) jointly organized a three-day forum on nutrition and behavior in Washington, D.C. in November 1984. You would think that the AMA would not have such strange bedfellows.

NOTE: NCAHF became inactive in 2002 and was legally dissolved in 2011.

Griggs reported that Schauss and Schoenthaler were not invited to this forum. Dr. Gray chaired the session on nutrition and criminal behavior. At the end of the two-and-a-half hour session, the late distinguished psychiatrist, Dr. Morris Lipton, who, thirteen years earlier had headed the American Psychiatric Association task force that had condemned orthomolecular psychiatry (which promotes limiting the use of refined sugar) said that he had not heard any hard evidence that the theory was without validity, and that under the circumstances, he felt strongly that national funding should be forthcoming to fully investigate the diet-behavior connection. Of course, nothing further was done on this point.

The organizers were eventually chastised for excluding from the official program advocates of nutritional treatments for behavioral problems. Dr. Schoenthaler, for example, whose numerous studies of dietary changes in correctional institutions have never been submitted for review by his scientific peers, had but a few minutes during a discussion period to answer the attacks of his critics.

Schoenthaler said in an interview, "we found in every one of 817 institutions we've studied that we could reduce by half antisocial behaviors like assault, theft and insubordination by changing the diet."

Scientists and doctors will keep avoiding the truth about nutrition for political reasons, which means they are never going to tell you to stop eating sugar or junk food. If you are waiting for some medical or government authority figure to tell you what to do, that's never going to happen. However, you can come into your power and make your own decision to be healthy with the self-evident facts that I am presenting.

Schauss continued to lecture widely. According to Griggs, at Oxford's John Ratcliffe Hospital, in a presentation on nutrition and behavior, he was joined by several prominent British researchers. Among them was the late Dr. Ian Menzies, a psychiatrist from Dundee, Scotland, who had successfully treated dozens of children with severe behavioral problems by eliminating allergens from their diet – usually in the form of brightly-colored junk foods and drinks. Another was the late

Munich neurologist Joseph Egger, who conducted a full-scale clinical trial at London's Great Ormonde Street Hospital (reported in *the Lancet*) and found that behavioral problems and hyperactivity, as well as severe migraines and even epilepsy, often abated in children on a diet free of foods to which they were allergic.[51,52,53]

This conference was attended by 450 health-care professionals, and one comment heard was: "Years ago I'd have said all your lot were cranks, but not after what I've heard here today."

Shari Lieberman, PhD, CNS, RD

Let me give you a bird's eye view of The National Council Against Health Fraud that arose in part from the California Council Against Health Fraud. At the same time, I'd like to honor the late Shari Lieberman, who fought back when the NCAHF attacked her in 1994. The attack and the fight were very painful for Dr. Lieberman and may have contributed to her developing breast cancer. Sadly, Dr. Lieberman passed away in 2009 at the age of 51 from metastatic breast cancer.

The NCAHF is no longer active, but as we all know, what goes on the internet stays on the internet, so its dirty footprint is still there, still claiming to be protecting the public from health fraud, which in their eyes is anything to do with alternative medicine. You can also read Tim Bolen's The Bolen Report, where he writes about Stephen Barrett and deftly exposes his fakery.

NCAHF was a nonprofit, tax-exempt group that described itself as "focused upon health fraud, misinformation, and quackery as public health problems." It was run by Stephen Barrett, an author and de-licensed American psychiatrist, who may have never practiced medicine. However, he set himself up to be an expert debunker of alternative medicine, both on the internet and in high profile court cases. Even according to the very anti-alternative medicine Wikipedia, "The NCAHF has been criticized by the supporters of the treatments it opposes, including practitioners of alternative medicine."

Dr. Shari Lieberman was a high-profile nutritionist, writer, and exercise physiologist who advocated the use of dietary supplements as a means of healing disease and maintaining good

health. In certain circles, even today, this is a crime against the status quo. Two board members from the NCAHF brought her work to the attention of her licensing board, the American Dietetic Association (ADA), from which she obtained her RD (Registered Dietitian) license.

This was much the same underhanded tactic that was used against me when a sugar lobby group in Canada "reported" me to my licensing board. Because I became known as a supporter of alternative medicine, my licensing board was only too willing to use this illegal complaint as a means to further investigate me. You may have already read my story in the Introduction.

What makes Lieberman's public smear campaign so notable is that there were no public complaints against her. And yet the NCAHF decided to target her because she was such a prominent figure in nutrition. The mandate of dietetics is strictly the prevention of nutrient deficiency disease, such as recommending just enough vitamin C to prevent scurvy, with the RDA of 60mg a day but not enough to treat disease, which may be 10,000mg or more per day.

This is also true of the restraints on supplement companies as I found out when the FDA sent me a letter saying that I could not have testimonials on my website from customers who said their diseases had improved or been eliminated with my products. I was told only drugs treat or cure disease, and if I even implied that my picometer magnesium product was treating a disease, that by definition made the product a drug and would require a billion-dollar drug trial to "prove" my "health claims." Yes, read and weep at the stranglehold that the FDA, drug companies, and allopathic medicine have on our very existence.

Dr. Lieberman wrote for several magazines and also hosted a radio show, published many books, and spoke at conferences and public gatherings. In all areas she advocated dietary supplements as a means of healing disease and maintaining good health. But since allopathic medicine has decreed only doctors can treat disease, and furthermore, they can only treat disease with drugs she was attacked. In short, the issue was about free speech. It was never about how she ran her nutritional consulting practice.

Stephen Barrett, notorious owner of the Quackwatch webpage,[54] which discredits all supplements, and a board member of NCAHF, purported to be an expert on the science of nutrition, was the principal witness against her. His claim was that her opinions were not scientifically based. As a result of his testimony, Lieberman was stripped of her RD credentials, which caused her considerable harm by destroying her reputation and her livelihood.

Lieberman, however, did not take this well-publicized, libelous attack lying down. She sued the ADA, providing evidence that the accusations Barrett had brought against her based on his claimed 'expertise' were false. Barrett actually has no credentials and no evidence of having expertise in the subject.

For her evidence, Dr. Lieberman provided 185 scientific citations to support the writings that Barrett had claimed were not backed by science in his complaint against her. Finally, the ADA reinstated her RD credentials after a 3-year battle and published this event in the *American Dietetic Association Journal* and their online newsletter *the Courier*.

Upon the reinstatement of her RD license, she snubbed it and went on to enjoy an illustrious career writing books, testifying about nutrition, and becoming head of the American Preventative Medicine Association (now the American branch of the Alliance for Natural Health).

Sally Bunday

The case against sugar and food allergens has been made many times over and continues to be ignored. Barbara Griggs keeps Sally Bunday's story alive in her book *The Food Factor*.[55] Sally says that research has established that the hyperactive baby of today is highly likely to grow up into tomorrow's problem child: delinquent, drop-out, "junkie," or even criminal.

Sally Bunday, in the UK, founded the Hyperactive Children's Support Group in 1977.[56] With Sally, as with many people who can't find answers in allopathic medicine, her commitment to this group was personal. Sally's son was hyperactive from birth. She describes, in Griggs' book, how, when only a few days old, he was struggling out of his blankets, and how while still a young baby, his thrashing about caused extensive damage to the

nursery furniture. He never wanted to cuddle and seldom slept for more than fifteen minutes at a time.

Sally learned of the work of Ben Feingold, the pediatrician whose diet for hyperactive children emphasized sugar-free and additive-free food. The Feingold diet has now been successfully used by countless American parents to change their hyperactive children into normal children. Sally found that after only five days of following the diet, her son seemed happy and cheerful, was cooperative at bedtime, and slept peacefully through the night!

Response from many similarly troubled parents who heard of this near-miraculous recovery inspired Sally and her mother to launch the HCSG. By 1985 they had received over 200,000 letters of inquiry from desperate, sometimes near-suicidal parents. It became apparent, they said, as they read these letters, that whole families are disturbed, and that the overwhelming stresses are leading, in some cases, to major problems, such as divorce, severe depression and even to battered children.

Sally Bunday, for all her work, has never received one penny of official financial support. She and her group have applied for

assistance to the Department of Health in England, but the response is always the same: "The research hasn't been done."

That is another lie, because the studies have been done. The late Joseph Egger, after his major work at Great Ormonde Street Hospital, set up a clinical trial that specifically studied the relationship between foods and food additives. This study was reported in *the Lancet* in 1985. A total of seventy-six children between the ages of two and fifteen were studied; seventy of these children were reported to be extremely disruptive by parents and teachers. On a special diet, sixty-two of these hyperactive children improved and twenty-one of them recovered completely. The study determined that the most common cause of the hyperactivity was a combination of the yellow coal-tar dye tartrazine and benzoic acid. This mixture can be found in hundreds of supermarket products, from soft drinks to puddings and jams.[57]

A similar study, also reported in *the Lancet*, pointed out several other additives that were found to be causing hyperactivity, including nitrites, sulfites, antioxidants, and flavor enhancers.[58,59]

Barbara Griggs goes on to comment that the Department of Health refused to recognize the validity of these studies.

In contrast to these results, a study carried out by Professor Lessof of Guise Hospital, also in London, reported finding that food additives were not related to hyperactivity in children. What we learned, however, is that the doses of food additives given in the study were unrealistically low. The average daily intake of food additives was up to thirty-six times greater, according to government estimates, than the one trial dose Dr. Lessof used in his bogus study.[60]

Once again, those of us looking for solutions to the chronic health problems of our children pray that the MAHA movement will gain traction and produce positive results. As of this writing they have announced they will ban 8 synthetic food dyes by the end of 2026.

Dr. Jean Monro And Dr. Peter Mansfield

Barbara Griggs continues her review of the leaders in the field of nutritional medicine with her discussion of the work of Dr. Jean

Monro and the late Dr. Peter Mansfield. Together they wrote *Chemical Children*,[61] published in 1987. They reported hundreds of instances of disabling and generalized damage for which food and chemical sensitivities are believed responsible. Massive environmental pollution is considered the cause of between 10% and 30% of these effects. With the additive and accumulative effect of poor diet, the potential for further damage is alarming.

This is the answer I got when I asked, "How many man-made chemicals are in our environment?":

> *Today, there are about 350,000 human-made chemicals on the market, including plastics, pesticides, industrial chemicals, cosmetic chemicals, antibiotics, and other drugs.*

Seriously? There are 350,000 man-made chemicals!

Belinda Barnes

It is incredibly frustrating for parents of hyperactive children, suspecting or convinced that their child is being adversely affected by sugar and food additives, to have to struggle with

this problem without medical or government support. Belinda Barnes, who in 1980 set up Foresight – The Association for The Promotion of Preconceptual Care in Britain, is quoted by Barbara Griggs as saying:

> *One in four children comes into the world with brain damage leading to learning disabilities; one in twenty-five has eczema, thousands of babies are stillborn or premature, thousands more have congenital abnormalities such as club foot or cleft palate; children today are getting arthritis or cancer. And almost all of it is preventable on the basis of what we already know about nutrition: there has been a huge amount of research done in this field.*

Ms. Barnes, who is the mother of three children, and is a dog, cat, and horse breeder, has also said:

> *The appalling thing is that it's all done so much better for animals in this country. No herd of dairy cattle, no prize mare, no champion bitch would be allowed to breed on anything but a completely adequate diet.*

NOTE: Foresight – The Association for The Promotion of Preconceptual Care in Britain, closed its doors in September, 2017.

All the above incredible stories of nutritional heroes are 40 and 50 years old – but much of their work has not been embraced by the next generation and our children today are suffering even more than before.

NUTRITION IN THE SCHOOLS

Dr. Lustig, in his book *Fat Chance,*[62] introduces us to some new nutrition advocates. He says,

> *I am proud to be part of an advocacy group in Walnut Creek, California, called the Wellness City Challenge, led by chef Cindy Gershen.*[63]
>
> *This woman is a true force of nature. Espousing real food to combat disease and promote happiness, she has almost singlehandedly mobilized the Mayor's Office, the Chamber of Commerce, the Board of Education, Kaiser Permanente and other hospitals, the*

Restaurant Association, the local Safeway supermarkets, and SYSCO (the food procurement company) to completely retool every public food venue in the cities of Martinez and Concord for one year. The vending machines have been restocked with apples and oranges, and there's nary a soda to be found.

As part of the intervention, students at Mount Diablo High School are learning to cook and serve real food for the teachers at breakfast. The kids can't believe the teachers are losing weight and are happy to come to work and teach; now they themselves want the real food instead of the stuff from their traditional fast-food concessions. This demonstration project has many supporters, including the American Heart Association, and has caught the eye of many benefactors who see the power in the message.

It is wonderful that people are so concerned that they reach out to help whole communities, and I'm sure there are such heroes in many communities. But you

see what it takes – "a force of nature" and someone who "almost singlehandedly" gets these miracles done.

As it turns out, the science cover-up is also very political. Lustig laments that the government doesn't seem up to the task of limiting sugar intake. There is no one at the top in charge of our health.

NOTE: That was before Robert Kennedy Jr was appointed Secretary of HHS. Once again, I'll say that we await the changes, but it's well known that RFK Jr.'s mission is to restore our children's health.

According to Lustig, if anything changes, it's going to be from the bottom up.

NOTE: In spite of the mission of MAHA, I think Lustig is right. It's up to the public to change their own health, the government is not going to make the required changes for us.

Lustig equates the war against sugar to the fight against alcohol addiction and alcohol-related MVAs. Nothing happened on a

government level until Mothers Against Drunk Driving pushed seat belt laws. It took from 1984 until 1993 for all the states to get on board. The federal government stayed out of the picture.

Tobacco control has been a long-fought battle where eliminating TV tobacco ads, banning smoking in public places, and high cigarette taxes in some states are the main results. Sugar is never going to be declared an addictive poison, so curtailing sugar is only going to happen at the consumer level. I doubt that the sugar industry will allow high sugar taxes or the banning of sugar ads – after all, they will say, sugar is a food! They'll say, "We need those cheap calories!" Their lobbying efforts have so far worked to keep sugar from being demonized, and I'm sure that policy will continue.

What follows is a review of the outright manipulation of science that diverted parents from learning about the behavioral effects of sugar.

FAKE SCIENCE ON SUGAR AND BEHAVIOR

In the early 1990s, a flurry of small-scale studies, and reviews of those studies, supposedly proved that sugar had little impact on behavior and seemed to put the concern about sugar to rest. I'm sure these studies were mounted to try to undo and sabotage the work of Schoenthaler, Schauss, and all the other heroes that I mention above.

Science, being "very Zen," only lives in the moment and does not seem to remember that research only a few years before proved that reducing sugar intake was good for you. But the sugar industry paid for their own research and came up with far different results. I'll go over the obvious flaws in the "bad" studies that erroneously served to exonerate the sugar industry. I include Aylsworth,[64] Rapoport,[65,66] and Prinz[67] in this list.

1. The amount of sugar given in these trials is usually far less than an average person's daily intake. Behar's study used an average of 65 grams (13 teaspoons) of sugar daily for a trial group of 21 children.[68] That is the average amount of sugar in a single ten-ounce can of soft drink. A milkshake

alone has 30 teaspoons, and a really "hopping" birthday party can net a child upwards of 100 teaspoons within several hours!

To calculate it another way, researchers today are saying that the average intake of sugar in the diet is 25-35% of all calories eaten. That means that if 2,500 calories are eaten by a growing pre-teen, 750 calories of that are from sugar. Sugar ads will tell you that there are only 16 calories in a teaspoon of sugar, so on average, which will add up to over 47 teaspoons of sugar per day. So, we can see that a mere 13 teaspoons daily for a clinical study is ridiculously unrealistic.

Behar's 13-teaspoon study concludes by saying that the mothers of these children were wrong in saying their children were hyperactive. Shockingly, the parents' observations were simply invalidated and disregarded.

2. The size of the trial is usually very small, and the trial duration is very short. In the studies that have been quoted by the promoters of sugar, only 10 to 30 children are

observed, and only for a few hours. Compare this with Schoenthaler's study of 1 million school children, noted above. His six other studies of 5,000 juvenile delinquents, and Schauss' two studies of over 2,000 delinquents covering a period of several years.

Compare Schauss' and Schoenthaler's studies to Behar's where 21 males were given their 13-teaspoon sugar drink and observed for five hours on three mornings. Wolraich only observed his 32 hyperactive school-age boys for three hours before concluding that sugar has no effect on behavior! Remember, Schoenthaler's one million-child study spanned one year.

3. There are usually no control subjects. The studies are usually done with children who are told not to eat breakfast, and they go to school where they are given a sugary drink. Then they are tested or observed for behavior. To these children, the drink is equivalent to an average breakfast and should not necessarily cause behavior change.

4. Artificial sweeteners are used as the placebo control, instead of a nutritious meal or nothing at all. The effects of these artificial sweeteners themselves are not taken into consideration. In a study of aspartame side effects, 231 cases were studied by the Centers for Disease Control in Atlanta.[69]

   Note that this aspartame study followed 231 children and is a greater number than all the studies promoting sugar use that I cite above. The most frequently reported complaints were: (a) neurological behavior (67%); (b) gastrointestinal (26%); (c) allergic (17%); (d) menstrual (6%). If two-thirds of a group who ingest aspartame demonstrate neurological and behavioral side-effects, would this fact not bear overwhelmingly on the studies cited above? Yet, we are told, "compared to the control group (on aspartame) there was no difference in behavior." No difference in behavior just means both groups were exhibiting abnormal behavior.

5. In the sugared drink studies, artificial colorings and flavorings are used. There is no way of knowing if the child

might be reacting to these substances. There are many reports on the effects of dyes and colorings on behavior.[70,71,72]

6. There is no mention of the "Hawthorne effect," which states that the testing and observation itself can affect the results of any study. This is extremely important, especially when it involves children, who undoubtedly will respond to the unnatural situation that was brought about by the study. With their normal routine abandoned, and being fed and observed by strangers, the children's altered behavior would have to be taken into consideration.
7. I think that the premise itself is wrong in these studies – i.e., to give sugar to try to prove or disprove that it causes hyperactivity or behavioral changes. In Schoenthaler's and Schauss' studies, the assumption was that children are already eating too much sugar. It was taken away from them for long periods of time, and the improvement in behavior was often remarkable.

8. Various doctors who treat allergies or food sensitivities suggest that the best clinical trial would withhold the food for at least 7 days. This would "unmask" a potential allergy. During the seven days any tolerance or adaptation would wear off. Then, on feeding the food, the observed behavior would be more indicative of a true reaction. When I recommend this experiment to parents and children it is obvious how addicted they are to sugar, for example, when they go through avoidance and then a sugar challenge.
9. Researchers in the past were also promoting the "serotonin theory."[73] Serotonin causes drowsiness; sugar stimulates serotonin release, so they conclude that sugar actually causes children, or adults, to become drowsy and sleepy rather than hyperactive. It is important to remember here what Hans Seyle taught us: that there is an "alarm stage" when the body is first overwhelmed; after a while, if the shock continues, the "adaptation stage" takes over. The adaptation stage is not normal, but the body just gives up the fight and "slumps."

Many factors contribute to the inadequacy of the above-mentioned studies. I continue to be amazed that the designers of these studies do not see the obvious fallacy in what they were perpetrating. They are asking us to believe that a study of only 30 children, observed for three hours, is considered adequate to prove that sugar does not affect mood or behavior, while a study of 1 million schoolchildren whose behavior and performances improved measurably over a seven-year period is not even referenced.

After the 'fake' studies were published, many researchers chimed with their support. One report was entitled: *Sweet Tooth, Rotten Kid: A Theory Gone Sour*.[74] In a one-page review, Weiss brazenly states that sugar is not a problem, and that the previous studies by Schoenthaler and Schauss are worthless. Weiss says:[75]

> *A new study disputes the notion that overindulgence in sweets predisposes a child to a life of disruptive behavior. […] researchers compared the consequences of eating either sugar or an artificial sweetener in high-school students and juvenile delinquents. Surprisingly,*

> *their findings hint that for some delinquents a spoonful of sugar may actually improve behavior.*

Sugar advocate J. Aylsworth wrote the following disinformation based on these inadequate studies:[76]

> *Refined dietary sugar doesn't cause hyperactivity. It doesn't cause excitability in children who display hyperactivity, and it doesn't cause behavior problems in otherwise normal children. Nevertheless, the imaginary link between sugar and hyperactivity-poor attention deficit-hyperactive disorder (ADHD), as the syndrome is known, remains a strong one in public thought.*

I think it's safe to say that this deliberate, deceptive, demonstration of pro sugar studies effectively stopped meaningful sugar research.

SHORT TERM STUDY CRITICS

Drs. Prinz and Riddle, clinical psychologists at the University of South Carolina, point out the difficulties created by the vast

majority of short-term studies on nutrition and behavior. They say:[77]

> *In psychology, there is a parallel issue surfacing in the area of applied behavior analysis. Operant behavior analysts have contributed a precise technology for the examination of functional relationships between specific behaviors and specific environmental events that occur just prior to (antecedents) and just after (consequents) the target behavior...'Setting events' are stimuli which might not occur in temporal proximity to the observed behavior but which nevertheless exert a controlling influence over the behavior. High sucrose intake over several days could potentially serve as an event, which sets the occasion for later performance on attentional tasks. Models of diet-behavior effects in general may have to account for delayed as well as immediate effects.*[78]

Actually, the wording of this statement alone gives you some idea of how scientific terminology distances the researcher from the

commonsense observation of what is happening to our health. But what they are saying is that there is more to sugar studies than just observing one meal and not taking into account multiple variables including long-term effects.

Are we like fish swimming in water who don't realize the nature of water? Are we so submerged in a sugar-laden world that we no longer can even sense what a normal diet is? If the temperature of the bath goes up one degree at a time to the boiling point, how do we know when to scream?

We think 'average' equals 'normal.' If the average intake of sugar, a totally refined, unnatural food, is 130 to 180 pounds per person per year, is that normal? I certainly do not want to eat a cup of sugar a day, and I will never believe that it is 'normal' to do so!

NOTE: I previously said that the average annual sugar intake is around 80 pounds. The 130–180-pound figure came before the advent of artificial sweeteners.

SCIENCE SUPPORTS CHRONIC DISEASE

Many years ago, a *Science Newsletter*[79] came unsolicited to my door. In it the author discusses Alzheimer's Disease. The opening paragraph warns:[80]

> *At some time in our life, most of us will have to confront a serious illness. The fear of being struck down by heart disease, cancer, stroke, diabetes or arthritis weighs heavily on our minds. But perhaps even more terrifying is the prospect of losing our ability to reason and to think...*

Drawn from statistics, here is one of those conclusions that have erroneously substituted 'average' for 'normal.' Science and medicine offer little to no help for chronic diseases such as heart disease, cancer, stroke, and diabetes. Therefore, we are led to believe that these diseases are 'inevitable.' Obviously, we need to take more responsibility for our own health and realize that we have a choice in whether or not we become ill. We need to pay attention to our diet, especially to the intake of refined foods and sugar, instead of hoping that science will come up with a 'magic

pill' that will neutralize the ill effects of all the junk we continue to eat.

In its efforts to manage chronic disease, medicine offered us drugs, many of which started out as lowly plants that had proven themselves effective for particular conditions in the folklore. In their natural state, plants are usually brewed as a tea and taken with often-remarkable results. Scientists, in their determination to go 'one step better,' isolate the "most active ingredient" from the plant, then, create that chemical synthetically in a lab. Thus, digitalis was born from the foxglove plant. However, it soon became evident that while the herb teas produced few, if any, side effects, the drugs always did. It was simply that the synthetic drug, devoid of the complementary and balancing ingredients found together in the plant, did not benefit the organism in the same way.

In his book *ABC of Prophecy*,[81] Barrington Nevitt offers a wonderful quote from T. S. Kuhn's *The Structure of Scientific Revolutions*[82] that 'pins the tail on the donkey' as far as science and scientists are concerned:

Mopping-up operations are what engage most scientists throughout their careers...an attempt to force nature into the preformed and relatively inflexible box that their paradigm supplies. No part of the aim of normal science is to call forth new sorts of phenomena; indeed, those that will not fit the box are often not seen at all. Nor do scientists normally aim to invent new theories, and they are often intolerant of those invented by others. Instead, normal-scientific research is directed to the articulation of those phenomena and theories that the paradigm already supplies...Discovery commences with the awareness of anomaly, i.e., with the recognition that nature has somehow violated the paradigm-induced expectations that govern normal science [...] until the scientist has learned to see nature in a different way - the new fact is not quite a scientific fact at all.

SUGAR VERSUS ASPARTAME

As the sugar scientists fought bravely to keep sugar alive, other teams of scientists created artificial sweeteners, like aspartame, labeling them diet products, making the public think they were a healthy choice, and covering up the side effects that occurred from the very beginning stages of their research. For an in-depth discussion of the dangerous health effects of using aspartame and other synthetic sweeteners, read, Chapter 10, "Death by Sugar," in my book, *Death by Modern Medicine: The Hidden Truth behind America's Health Crisis.* This book is available to members of my website or as a Kindle eBook.

CHAPTER THREE: SUGAR AND NUTRITION

This chapter title, of course, is an oxymoron and self-contradicting. After all, there *is* no nutrition in sugar, there are just calories or energy equivalents. Glucose goes into the Glycolysis cycle and Krebs cycle and comes out the other end as ATP energy with magnesium attached, ATP-Mg.

NOTE: If you look up Mg-ATP or ATP-Mg you will be presented with this information:

> *Adenosine triphosphate (ATP) is the main source of energy in cells, and must be bound to a magnesium ion in order to be biologically active. What is called ATP is often actually Mg-ATP.*

Gary Taubes, in his 2016 book *The Case Against Sugar*,[83] details the failure of nutritional research to do more than label table sugar a carbohydrate with fewer calories than fat, making fat the

bad guy. Obesity was never ascribed to excess sugar in the diet; you were simply ingesting more calories than you were burning off.

Although rather dry, I loved the book because Taubes guides you through the minefield that passes for nutritional research but is often paid for by the Big Food Industry with foregone conclusions that sugar has no safety issues. Even the role of insulin in distributing glucose into the cells and causing weight gain was not considered until after the 1960s, when the radio-immune assay testing was invented to measure hormones (including insulin) for the first time.

Well into the 1970s, U.S. nutrition researchers still blamed fat and lack of exercise for obesity and diabetes. Even today, I'm amazed at the backlash against the Keto Diet, which is successfully treating diabetes by strict avoidance of simple sugars and allowing high intake of fats.

Luckily, I learned all about the dangers of sugar in my naturopathic training in the late 1970s and early 1980s. One of

the examples of the dangers of a poor diet is The Price-Pottinger Cat Studies.

THE CAT IS OUT OF THE BAG

The Price-Pottinger studies, carried out in the 1940s, revealed startling effects of diet on a large cat population. Price and Pottinger, as dentists, had observed in anthropological research that the change in diet in native human populations dramatically altered the dental arch and the quality of teeth.

The cat study followed nine hundred cats in several diet groups through three generations. In the group on refined cooked food, there were no live births after the third generation. In the second and third generations of cats, there appeared an increasing incidence of allergies, arthritis, eczema, heart disease, cancer, obesity, and all the conditions of chronic disease that we see in our present human population. You can read a lively commentary on Dr. Pottenger's Cats by the late Dr. Andrew Saul on his DoctorYourself website.

The absence of live births is appalling. Of course, we aren't cats, and what they suffer doesn't necessarily apply to humans, but we can't help but recognize that we are now in the third and fourth generation of humans living on a cooked, refined and increasingly ultra-processed food diet. I can say with certainty that in the first decade of my practice I found that the children being born had a notably higher incidence of allergies and illnesses than did their parents or grandparents, and this can be partly due to the accumulative effects of the inferior diet ingested by each successive generation.

NUTRITION IN MEDICAL SCHOOLS

Basically, it doesn't exist! Doctors are trained in the diagnosis and treatment of disease. They have no policy on nutrition or the prevention of disease. It just does not exist. It is well known that few medical doctors have taken courses in nutrition. I originally wrote that only 15 out of 143 U.S. and Canadian medical schools listed courses in nutrition as a graduation requirement. According to the *British Medical Journal*, nutrition is taught to medical students as tail-ends of physiology, biochemistry, clinical

medicine, and pediatrics courses.[84,85] These references are decades old, but it's clear that not much has changed. In 2017, the author of an online article in the Harvard Newsletter lamented that:

> *Despite the connection between poor diet and many preventable diseases, only about one-fifth of American medical schools require students to take a nutrition course, according to David Eisenberg, adjunct associate professor of nutrition at Harvard T.H. Chan School of Public Health. He discussed the topic May 8, 2017 on PBS NewsHour.*

THE DANGERS OF SUCROSE CONSUMPTION

While some very smart researchers wanted table sugar to be declared a toxin, in 1976, SCOGS, the U.S. Select Committee on GRAS (Generally Recognized as Safe) substances, gave their findings on the so-called health aspects of sucrose as a food ingredient.

The report concluded that except for dental caries there was no "clear association" between the (then) present level of sucrose consumption and the incidence of health problems such as vascular degenerative disease or diabetes in the U.S.[86]

We know much more now about sucrose, a disaccharide that is composed of glucose and fructose. See the section below called "Don't Forget Fructose" for details on the dangers of this form of sugar that have been covered up and gone unrecognized for decades.

RESEARCHERS OUTRAGED AT SCOGS REPORT

Sheldon Reiser, Ph.D. from the Carbohydrate Nutrition Laboratory, Nutrition Institute, Agricultural Research Service, USDA, echoed the outrage of many researchers with a letter to the editor of *The American Journal of Clinical Nutrition*.[87] He affirmed that there were numerous studies showing that sucrose (as compared to starch) increases fasting serum insulin and decreases the insulin sensitivity of adipose tissue.

NOTE: This is the diagnosis of diabetes.

There is also ample evidence that in the process of acculturation to higher living standards, there is a dramatic rise in the number of cases of diabetes two decades after acculturation begins. Seventy years ago, an observant UK doctor, Surgeon Captain Cleave, recognized the manifestations of disease in relation to the ingestion of refined carbohydrates. He identified a 20-year incubation time for the onset of diabetes. In 1974, Cleave wrote *The Saccharine Disease*.[88]

You can read more about Cleave in Chapter Seven on Diabetes. I also quote him in Chapter Ten on Intestinal Disease. Cleave also said that the increase in the rate of diabetes is closely followed by a rise in the occurrence of vascular disease.

It may be said that the role of sucrose in these processes cannot be factored out, since acculturation involves a rise in both the intake of sugar and the intake of saturated fat and cholesterol. However, the dramatic and tragic rise in diabetes among Yemenite Jews in the last 30 years has occurred without a significant rise in saturated fat intake and is traceable to one and

only one dietary factor: a marked increase in the consumption of sucrose by these people since they entered Israel.[89]

The SCOGS Committee report emphasized that high levels of sucrose must be consumed in order to demonstrate undesirable metabolic changes. The premise, that high levels of anything will produce adverse effects and that, therefore, these adverse effects do not reflect a true dietary hazard, is false. Conceding that in most studies, sucrose is fed at a level higher than that consumed by the average American, the report ignores four important facts:

1. Some individuals consume much more sucrose than the average intake. For example, I don't consume sucrose, so who's eating my share?
2. Studies with sucrose are not comparative; that is, the effects of a large amount of sucrose are compared to the effects of an equal amount of starch; and while sucrose can be shown to produce adverse effects including all the symptoms of diabetes in susceptible animals, the same

level of starch in the same type of animal does not produce any symptoms of diabetes.

3. In animal studies, virtually all the clinical symptoms of diabetes can be produced by feeding high amounts of sucrose, but these symptoms are not produced by feeding high amounts of dietary fat or cholesterol.
4. Metabolic changes observed in homogeneous animal species fed high amounts of sucrose would be expected to occur in a finite portion of a heterogeneous human population consuming lower levels of sucrose.

The report recognized that a segment of the population appears to have a genetic predisposition to experience a large and permanent increase in blood triglycerides when consuming diets containing sucrose. We now know that an increased intake of fruit and fructose can definitely elevate triglycerides. The following is the 1976 SCOGS statement on triglycerides:[90]

> *In sensitive individuals, these effects have been observed with sucrose levels as low as 20-25% of the total caloric intake – well within the range of the*

> *average sucrose intake. This type of hyperlipidemia has been associated with abnormal glucose tolerance, diabetes and heart disease. It is difficult to see how sucrose intake at the present level represents no health hazard to the approximately 15 million carbohydrate-sensitive adults in this country.*

It is interesting how the report lightly tosses out the statement that "levels as low as 20-25% of the total caloric intake – well within the range of the average sucrose intake." Just know that for an average diet of 2000 calories, a quarter of that, or 500 calories, is equivalent to 125 grams of sugar, which is almost 30 teaspoons of sugar a day. I've often made the point that at any one time there are only two teaspoons of sugar in the bloodstream. Therefore, ingesting 30 teaspoons daily can lead to insulin resistance and result in obesity, diabetes, and heart disease.

In conclusion, SCROGS gave only minor concessions to the dangers of sucrose by blaming genetics for problems in 10% of the population and they waffled on about what was happening

to the other 90%. They said reasonable scientific evidence exists to conclude that:

1. Sucrose alone may be a very important etiological factor in heart disease and diabetes in that segment of the population described as carbohydrate sensitive (10% of the population).
2. In most of the population (90%), sucrose may not be a primary risk factor by itself, but by virtue of its synergistic interaction with dietary cholesterol and triglycerides, sucrose still must be considered an important risk factor in the development of vascular disease and diabetes.

However, their recommendations below were a little stronger, but they talked in percentages and not the actual number of grams or teaspoons of table sugar, making it difficult for people to follow.

> *In view of the foregoing, we strongly recommend that sucrose intake from all sources except fresh or processed fruit (without added sugar) be decreased by a minimum of 60% and be replaced by complex*

> *carbohydrates from foods such as vegetables and cereals. The implementation of this recommendation will entail that the sucrose content of packaged, frozen and canned foods be determined and displayed, and that a national campaign be launched to inform the populace of the hazards of excessive sugar consumption. In addition, a concerted national effort should be made to identify carbohydrate-sensitive individuals. Sucrose intake in these individuals should be exclusively from fresh or processed fruit (without added sugar).*

J. P. Dobbins, in 1980, issued another report criticizing the purported safety of sugar. He prepared the report to correct erroneous information widely disseminated by special interest groups that appear to be influencing government policy to the detriment of public health. Extensive documentation has clearly shown the dangers which result from consumption of sucrose at present levels of use. Research results have repeatedly demonstrated that sucrose is a subacutely toxic substance.[91]

What both the SCOGS committee and Dobbins have forgotten in their long-winded reports is that sucrose is a disaccharide made from glucose and fructose and it's actually the fructose fraction that is more problematic.

DON'T FORGET FRUCTOSE

Most vegetarian, vegan, raw diets – actually, most healthy diets – wave fruit around like it's the holy grail of dieting. They are trying to entice dieters to their particular way of life by implying that fruit is so healthy that you can eat as much as you like. Nothing could be further from the truth.

I suppose I sound a bit fanatic warning you about the evils of fruit, but for some people with yeast overgrowth, more than 2 pieces of fruit a day can feed yeast. I suffered from yeast overgrowth myself, and I know the effects of sugar and fruit. I'm simply passing on what I learned. You can read more about how to rebalance your yeast overgrowth to improve your wellness in Book 2, *Detox Your Body: The Sugar-Free Plan,* of this series.

Since I started writing this book thirty years ago, a number of studies and reports about fructose have surfaced that urge extreme caution. As I mentioned in the introduction, the best source of information is from video lectures by pediatric endocrinologist Dr. Robert Lustig. His original 2009 video called *Sugar: The Bitter Truth* has over 25 million views. In it, Lustig argues that too much fructose and too little fiber appear to be cornerstones of the obesity epidemic through their effects on insulin. You can also read Lustig's 2013 book *Fat Chance: Beating the Odds Against Sugar, Processed Food, Obesity, and Disease*.[92]

Fructose has a special place on the sugar hit list because of the marketing of high-fructose corn syrup (HFCS) in sodas and confections as a 'natural' sugar. People are made to think it's safe because, after all, it's only fructose from fruit. So, HFCS rides on the coattails of the 'all fruit must be safe' myth. In fact, it's not even made from fruit, but from genetically engineered and commercially refined corn.

NOTE: Ninety percent of corn grown in the US is genetically modified, which offers its own risks.

I've heard stories of people who went on a diet that offered only fruit in the morning – and lots of fruit! They were pretty shocked to find that their triglycerides went sky high. To help teach people more about the dangers of fructose, Dr. Lustig teamed up with nephrologist Dr. Jason Fung, who promotes the Keto Diet for obesity and diabetes. They wrote an article, "Fructose and Fatty Liver – Why Sugar is a Toxin,"[93] that I think is important enough for everyone to read. They say:

> *Glucose and fructose metabolism differ in many significant ways. Whereas almost every cell in the body can use glucose for energy, no cell has the ability to use fructose. Once inside the body, only the liver can metabolize fructose. Where glucose can be dispersed throughout the body for use as energy, fructose is targeted like a guided missile to the liver.*

The liver metabolizes fructose into glucose, lactose and glycogen. There are no limitations on this system of metabolism for fructose. The more you eat, the more you metabolize. When the limited glycogen storage sites are full, the excess fructose is

changed directly into liver fat through de novo lipogenesis (DNL). Fructose overfeeding can increase DNL fivefold and replace glucose with a calorically equal amount of fructose that increases liver fat by a massive 38% within only eight days. It is precisely this fatty liver [that] is crucial to the development of insulin resistance. There is currently an epidemic of fatty liver and allopathic medicine claims it doesn't know why.

PUSHING GLUCOSE

I found it hard to believe that in 2018 a study was funded to show that "Sugar improves memory in older adults and makes them more motivated to perform difficult tasks at full capacity."[94] This type of study in support of sugar is very harmful. It is based on the obvious fact that if a person's blood sugar is a little low and some dietary sugar is taken, he can "think better" in the short term, because the brain functions on glucose. However, excess sugar in the diet will have an appetite-suppressing effect – therefore, not enough of the calories will come from foods that build muscle and bone, make enzymes, and provide the nutrients for all the tissues and functions of the

body. The sugar industry, which usually sponsors studies of this kind, should become a more responsible witness to the fact that if we continue our over-consumption of sugar, poor health and disease will be our only reward.

We have four taste senses: sweet, sour, bitter, and acid. If we influence the sweet and salt taste senses by including fast foods and snacks in our diets, we will develop a preference for sweet and salty foods. This is facilitated by our natural preference for sweetness, which is well known and worldwide. In my practice, I had patients who freely admitted that they felt addicted to sugar and that they really needed to have something sweet every day. With patients that have a condition requiring them to limit their intake of sugar, I recommend that they avoid it for a minimum of three weeks. Their reactions – bargaining, anger, tears – strongly suggest a sugar addiction, the same as an addiction to coffee, tobacco, or drugs.

At the end of three weeks' time, the majority of patients find that:

1. They feel immeasurably better in their overall health.

2. If after about ten days to two weeks they stray from the diet and eat a sugared dessert or drink a soft drink, they will find, to their surprise, that it tastes excessively sweet. They will also report feeling much worse in their symptoms after eating the sugar.
3. At the end of the three weeks, they usually feel they can now take sugar in moderation, thereby keeping their symptoms under control.

In other words, they feel less addicted to a substance that now tastes much too sweet to them.

UPDATING THE SUGAR RESEARCH

A 2018 review describes the current consensus of the fat vs sugar debate.[95] Here is the edited abstract:[96]

> *During the 1970s some investigators proposed that refined carbohydrates, especially sugar and a low intake of dietary fiber, were major factors in coronary heart disease (CHD). This suggestion was eclipsed by the belief that an excess intake of*

> *saturated fatty acids was the key dietary factor,[97] a view that prevailed from roughly 1974 to 2014. Findings that have accumulated since 1990 inform us that the role of saturated fatty acids in the causation of CHD has been much exaggerated. The evidence linking carbohydrate-rich foods with CHD has been steadily strengthening. Refined carbohydrates, especially sugar sweetened beverages, increase the risk of CHD.*

Of great concern is the effect of sugar in pregnancy on a child's health. Even though the authors state that the topic needs further study, they say:[98]

> *We found evidence that sugar consumption during pregnancy may contribute to increased gestational weight gain and the development of pregnancy complications, including gestational diabetes, preeclampsia and preterm birth. Further, we found a growing body of the animal and human evidence that maternal sugar intake during pregnancy may impact*

> *neonatal and childhood metabolism, taste perception and obesity risk. We conclude that preconception and gestational sugar and alternative sweetener consumption may negatively impact pregnancy outcomes and offspring health and that there is a need for further observational, mechanistic and intervention research in this area.*

This report studies the effect of added sugar on aging:[99]

> *During obesity, many authors suggest that it is a High Chronic Intake of Added Sugar (HCIAS) that triggers the shift towards pathology. Our purpose was to discuss the metabolic effects of HCIAS, compared with the effects of aging, and evaluate how deleterious the combined action of HCIAS and aging could be. This effect of HCIAS seems mediated by fructose, targeting the liver first, which may lead to all subsequent metabolic alterations. The first basic alterations induced by fructose are increased oxidative stress, protein glycation, inflammation, dyslipidemia and*

> *insulin resistance. These alterations are also present during the aging process, and are closely related to each other, one leading to the other. These basic alterations are also involved in more complex syndromes, which are also favored by HCIAS, and present during aging. These include non-alcoholic fatty liver disease, hypertension, neurodegenerative diseases, sarcopenia and osteoporosis. Cumulative effects of aging and HCIAS have been seldom tested and may not always be strictly additive. Data also suggest that some of the metabolic alterations that are more prevalent during aging could be related more with nutritional habits than to intrinsic aging. In conclusion, it is clear that HCIAS interacts with the aging process, accelerates the accumulation of metabolic alterations, and that it should be avoided.*

A 2018 *Clinical Nutrition* review found that:

> *Higher intakes of sugars from non-alcoholic beverages and sugar added to tea, coffee, cereal were associated*

> *with glycaemia and inflammatory markers. Sugars from solids were not associated, irrespective of whether they were intrinsic or extrinsic. Positive associations of free sugars were largely explained by the contribution of beverages to intake*.[100]

A Scientific Statement from the American Heart Association[101] pronounced it "reasonable to recommend that children consume ≤25g (100 cal or ≈6 teaspoons) of added sugars per day." Here is the full statement:[102]

> *Strong evidence supports the association of added sugars with increased cardiovascular disease risk in children through increased energy intake, increased adiposity, and dyslipidemia. The committee found that it is reasonable to recommend that children consume ≤25 g (100 cal or ≈6 teaspoons) of added sugars per day and to avoid added sugars for children <2 years of age. Although added sugars most likely can be safely consumed in low amounts as part of a healthy*

diet, few children achieve such levels, making this an important public health target.

The last study that I'll reference followed 3003 participants; 185 (6%) developed incident CKD (Chronic Kidney Disease) over a median follow-up of 8 years. The conclusion was that "Higher consumption of sugar-sweetened beverages was associated with an elevated risk of subsequent CKD in this community-based cohort of black Americans."[103]

CHAPTER FOUR: SUGAR ADDICTION

William Dufty's book[104] begins with the words of a popular song from the twenties:

Sugar Blues

Ev'rybody's singing the Sugar Blues...

I'm so unhappy, I feel so bad

I could lay me down and die.

You can say what you choose

But I'm all confused.

I've got the sweet, sweet Sugar Blues.

More sugar!!

I've got the sweet, sweet Sugar Blues.

In *Sugar Blues*, Dufty reminds us that:

1923 was the heyday of Prohibition. When booze became illegal here, sugar consumption zoomed. The whole country acted like a gathering of arrested

> *alcoholics spending the evening at AA; they couldn't keep their mitts out of the candy jar. Teetotalers were often the biggest sugar fiends, vowing alcohol would never touch their lips while pouring in the sugar which produces alcohol in tummies instead of bathtubs.*

One doctor, who practiced medicine into his eighties, is Dr. Abram Hoffer. He was convinced that:

> *Sugar, is an addiction far stronger than what we see with heroin. It is the basic addictive substance from which all other addictions flow. Refined sugar and all refined foods such as polished rice, white flour and the like are nothing less than legalized poisons*.[105]

Janice Keller Phelps, a recovered alcoholic herself, has been treating people with addictions since 1977. In her book, *The Hidden Addiction*,[106] she gives an explanation for addictive behavior:

> *A non-addictive person will often eat some "sugar-food" and after eating a reasonable portion [...] will feel satisfied for a prolonged period [...] In contrast,*

> *the addictive person finds that something else happens. Feeling hungry, he or she eats a reasonable portion of sugar-food but immediately wants more. The physiological hunger is not quieted and continues to signal for more for some time. Some such people will proceed on a veritable sugar binge, gorging on sugar or simple carbohydrates even when they know it is going to make them feel terrible*.

Phelps and coauthor Nourse wrote a comprehensive manual for addicts in *The Hidden Addiction*. The question "Are you an addictive person?" is addressed:[107]

> *As yet there is no single laboratory test that can provide you with a reliable, definitive, yes-or-no answer to that question. Nor is it really possible for most people to look at themselves objectively for possible clues to addictiveness. Even the most obviously addicted person may vigorously deny that any addiction exists.*

Phelps's model for addiction identifies several addictive substances. The first is sugar, followed by alcohol, nicotine, caffeine, speed, marijuana, prescription drugs, and opiate narcotics.

One of the major factors in identifying addictiveness is the way in which sugars and refined carbohydrates are consumed and metabolized. Phelps noted a strong correlation between the use of alcohol or other addictive drugs and a strong craving for sugar. She observed that heroin addicts would consume staggering amounts of sugar while they were undergoing treatment. If they ate enough sugar and simple carbohydrates, they could satisfy their physiological hunger for the addictive substance and actually postpone or alleviate withdrawal for prolonged intervals.

Phelps cites an MIT (Massachusetts Institute of Technology) serotonin neurotransmitter study to support her thesis. Normally, serotonin is released by cells deep in the brain upon eating a sugary meal. Serotonin, when released, induces sleepiness and decreases sensitivity to pain. It also suppresses the appetite for

more carbohydrates, but in some people this turn-off switch may not work properly.

Phelps has noted that:[108]

> *Addictive people become addicted to their "chemical of choice" fairly early in life. Patterns of addiction often can be extremely difficult to pin down. In some cases, such as addiction to sugar-foods, the idea that you are addicted may come as a shock; only when you recognize the thoroughly unpleasant ways that sugar addiction can affect your life and health will you understand how real the addiction is and how important it may be to you to recover from it.*

Phelps is emphatic in stating:[109]

> *Sugar addiction is the world's most widespread addiction, and probably one of the hardest to kick. Because it is shared by so many addictive patients, I believe it is the "basic addiction" that precedes all others. Most of my addicted patients tell me that at*

> *one time they craved sugar almost daily. Furthermore, few people recognize their sugar addiction.*

Phelps, based on her fifteen years of work with addicts, goes on to indict sugar further:[110]

> *Sugar dysmetabolism is a major factor in my model for addiction. Sugar addiction can last a lifetime, or the sugar addict may progress to other addictive substances such as alcohol, street drugs, or prescription drugs.*

IF YOU ARE NOT ADDICTED, WHY ARE YOU IN WITHDRAWAL?

Often, in the first several days after eliminating sugar, people experience withdrawal symptoms. This is an almost universal phenomenon, and once again points to the addiction associated with sugar. This has not been scientifically studied, but for alternative medicine practitioners, it is a strong clinical observation. The withdrawal symptoms are irritability, insomnia, itchiness, stomach upsets (either constipation or diarrhea), and,

of course, a strong craving for sugar. After avoiding sugar, if followed by challenging the system with a large amount of sugar, you will experience headaches, irritability, sleeplessness, hyperactivity, or lethargy.

THE JUNK FOOD EXPERIMENT

These findings are particularly evident in children whose parents and teachers observe as being overactive or hyperactive. As I mentioned earlier, with young patients I will withdraw sugar in the same manner but give them a "binge" day once a week, when they can have all the sugar they want. After one or two binge days, even a child will be able to recognize that his or her tummy-aches and pains, nausea, irritability, and mood swings are related to their intake of sugar, and therefore the "sugar day" is voluntarily reduced to a sugar-hour or a sugar-half-hour, because the child doesn't like feeling ill. With children who normally are not given sugar at all, even small amounts of it can cause the above symptoms. This can serve as an excellent biofeedback mechanism, with children themselves being able to discern how much sugar they can safely take.

Unfortunately, at the present time, few people in the scientific community, as well as in the healthcare field as a whole, are serious enough about setting limits on sugar intake, and by ignoring the issue, some people will take their silence to mean that "the sky's the limit" on sugar; meanwhile, the scientific debate goes on.

A lot of the families I used to see in my practice were quite health-conscious and followed an above-average, healthy diet. Any parent that I interviewed, when asked how the child feels and acts after a party or holiday with lots of sweets, will tell me that the kids become hard to manage, over-excitable, giddy, belligerent, depressed, etc.

They will usually observe these symptoms and come to the obvious conclusion that a lot of sweets are not good for the child. This kind of "clinical" observation on the parts of parents, however, does not seem to carry any weight with scientists. I tell parents that there is still a scientific debate over the effects of sugar, and that its addictive and negative effects on health are still in the "unproven" category. The reaction of most parents is

irritation over the need for a debate over something they consider a foregone conclusion.

WHERE SUGAR HIDES

Dr. Douglas Hunt wrote *No More Fears* in 1988. He reported that he had treated over fifty thousand patients suffering from food allergies, hormone imbalances, phobias, and obesity. He is regarded as one of America's foremost experts on food addiction and is concerned about sugar as a source of problems for people who are either allergic to it or who consume too much. He says:[111]

> *Concealed sweeteners are present in a disheartening array of products, particularly the popular convenience foods so prevalent in our society. For example, catsup contains more sugar per ounce than ice cream. Many salad dressings have three times the sugar content of cola drinks, and some non-dairy creamers have more sugar than a chocolate bar. From cigarettes to cottage cheese, at home, market, restaurant, or vending machine, you cannot escape sugar.*

NOTE: I have not been able to track Dr. Hunt's current whereabouts.

Manufacturers use many guises to deceive the consumer about ingredients. One of the most misleading labels is "natural carbohydrates." You may be a committed label-watcher, but often in the supermarket you will look at an ingredient list that reads, "wheat, vegetable oil, dextrose, corn syrup solids, and malt powder." The last three ingredients are pure sugar. They are listed separately to avoid listing sugar as the main ingredient. Yet if you were buying a grain product, this would be equivalent to asking a waitress for a little cereal to sprinkle on your bowl of sugar.

SWEET SMOKE

According to Dr. Hunt, the tobacco industry adds refined sugar to air-cured tobacco during the blending process.[112] This apparently improves the flavor and burning quality of the leaves. Extensive research has suggested that the increase in cancer from cigarettes may be attributed, in part, to the sugar content.[113]

Nancy Appleton, in her book *Suicide by Sugar*,[114] confirms the dangers of sugar in tobacco.

> *Tobacco smoke is another well-documented source of AGEs (Advanced Glycation End Products). Sugar is a commonly added ingredient to tobacco in the United States. This is in addition to the small amount of sugar the tobacco leaf already contains. Since tobacco smoke is absorbed through the lungs, it adds to the body's load of AGEs and creates higher risks of heart attacks, cancer, and other diseases smoking is known to cause.*

Advanced Glycation End Products are basically proteins or lipids that become glycated – or attached to sugar – as a result of exposure to excess sugars in the bloodstream. AGEs can be a factor in aging and in the development or worsening of many degenerative diseases such as diabetes, atherosclerosis, chronic kidney disease, and Alzheimer's disease.

Sugar authors Gary Taubes and Robert Lustig agree with many other health advocates that sugar is addictive and that the sugar industry makes good use of this behavior to sell their products.

Dr. Lustig mentions addiction 126 times in his book, *Fat Chance*.[115] Gary Taubes says that sugar addiction has long been known and follows observations from the late 1880s to the present-day rat-addiction studies. Remember, Dr. Abram Hoffer has been quoted for decades saying that sugar is more addictive than heroin.

We can follow the sugar timeline with this excerpt from the Taubes book, *The Case Against Sugar*:[116]

> *By sweetening with sugar, as an essay in The New York Times observed in 1884, "we can give a false palatableness to even the most indigestible rubbish." Sugar does induce the same responses in the region of the brain known as the "reward center"—technically, the nucleus accumbens—as do nicotine, cocaine, heroin, and alcohol. Addiction researchers have come to believe that behaviors required for the survival of a species—specifically, eating and sex—are experienced as pleasurable in this part of the brain, and so we do them again and again. Sugar stimulates*

> *the release of the same neurotransmitters—dopamine in particular—through which the potent effects of these other drugs are mediated.*

Rats given sweetened water find it significantly more pleasurable than cocaine and heroin even when they're addicted to the latter. Addict a rat over the course of months to intravenous cocaine, as the French researcher Serge Ahmed has reported, and then offer it the choice of a sweet solution or its daily cocaine fix, and the rat will switch over to the sweets within two days. The choice of sweet taste over cocaine, Ahmed reports, may come about because neurons in the brain's reward circuitry that respond specifically to sweet taste outnumber those that respond to cocaine fourteen to one; this general finding has been replicated in monkeys.

Taubes also makes the same observation that I made about alcoholics simply switching their addiction to sugar.[117] He says:

> *The twelve-step bible of Alcoholics Anonymous—called The Big Book—actually recommends the consumption of candy and sweets in lieu of alcohol when the*

> *cravings for alcohol arise. Indeed, the per capita consumption of candy in the United States doubled with the beginning of Prohibition in 1919, as Americans apparently turned en masse from alcohol to sweets.*

My concern about this sugar shift extends to the harm that sugar does to the intestinal flora by encouraging yeast overgrowth and flooding the body with 78 yeast toxins – one of which is alcohol. See Chapter Five, which is all about yeast overgrowth.

PART II: THE SUGAR DISEASES

The sugar industry covered up the existence of sugar diseases for decades, only allowing that sugar caused tooth decay. The reach of sugar into all our cells and tissues in the body is the antithesis of magnesium being involved in all the same cells and tissues. If only we had much less sugar and much more magnesium!

Surgeon Captain Cleave recognized the following manifestations of sugar-related diseases:[118]

1. The use of sugar without fiber resulting in constipation and all its manifestations: Varicose veins, Deep venous thrombosis, Hemorrhoids, Varicocele, Diverticular disease, and Cancer of the colon
2. Direct effect on the teeth manifesting as Dental caries and Periodontal disease
3. Over-consumption of sugar causing Diabetes, Obesity, Coronary thrombosis, E. coli infections, Gallstones

4. Lack of protein – eating sugar calories decreases the intake of protein, which leads to Peptic ulcers

CHAPTER FIVE: YEAST OVERGROWTH

Allopathic medicine doesn't even consider yeast overgrowth a "legitimate" disease entity, so it's been overlooked for decades, yet it likely affects about 80% of the population. I originally wrote the following description of how yeast overgrowth can impinge on your wellness in my book*, ReSet the Yeast Connection,* which currently has evolved into a training program for doctors. However*,* my website members can research yeast overgrowth and how to rebalance it by reading my blogs, listening to my podcasts, and watching my video presentations.

IGNORING YEAST

Yeast overgrowth is a condition that most sugar authors, except Nancy Appleton, overlook, yet yeast thrive on sugar. We know that from yeast's role in making bread and beer, so it's quite obvious that the more sugar we eat, the more yeast we grow in our own intestines. It's analogous to sugar causing Type 2 diabetes. What's the solution? Stop eating sugar and you can reverse diabetes. And, similarly, if you stop eating sugar, you'll

starve the yeast. That's the message, but I'll give you more words to make my case. The following is an edited version of the introduction to my yeast book:[119]

> *Over the past five decades, I've developed a very wide overview and perspective on our current health care crisis. Speaking with thousands of patients, clients, and callers on my radio show, I've identified two clear causes of most health problems. They are Mineral Deficiency and Yeast Overgrowth Syndrome – and most people suffer from both.*
>
> *Candidiasis, Candida Related Complex, Candida Hypersensitivity, and Yeast Allergies are all names for what I call Yeast Overgrowth Syndrome. It's a condition where yeast has overgrown and outgrown its natural environment in the large intestine and has invaded the small intestine. There are 78 identified yeast toxins that accumulate as yeast dies at the end of its life cycle. Yeast Overgrowth is a health threat*

that remains untreated, mistreated, and if it's ever recognized, is undertreated.

A syndrome is a group of symptoms that consistently occur together, or a condition characterized by a set of associated symptoms. Doctors don't like syndromes – there are too many variables. They want one major symptom so they can make a disease diagnosis and treat with a disease-specific drug. Yeast Overgrowth, with its dozens of symptoms, gets a deer-in-the-headlights look from most doctors who ignore it or just call it a fad.

Allopathic medicine has been calling Yeast Overgrowth a fad for over 40 years and I'm tired of this oversight. The definition of a fad is an intense and widely shared enthusiasm for something that is short-lived and without basis in the object's qualities. I think Yeast Overgrowth has outlived its "fad" status and should be treated with the respect it deserves.

> *It seems that even alternative practitioners are ignoring Yeast Overgrowth in favor of genetic testing, hormone evaluation, microbiome investigation, and calling yeast overgrowth SIBO. I say that the environment created by yeast growing out of bounds and producing 78 different toxins is the reason our genes are being triggered to misbehave, our hormones are out of whack, and our bacterial microbiome is out of balance.*

I also talk about the missing link to treating yeast as being fully-absorbed, non-laxative, picometer magnesium. With input from my patients, clients, and customers, I realized that people with magnesium deficiency find that it's next to impossible to lower their yeast levels.

Here's what happens. Toxic acetaldehyde produced by yeast addles your brain, and magnesium is required in order to detoxify it. Unfortunately, brain fog can overcome your resolve to avoid addictive carbs, and you end up feeding your yeast. Also, without sufficient magnesium, acetaldehyde and a host of other yeast

toxins keep your immune system all fired up, causing collateral damage to many tissues in the body. Eventually your weakened immune system is no longer able to control your yeast overgrowth, and you develop more symptoms that doctors continue to misdiagnose.

My picometer-sized, stabilized multimineral ion formula also has a place in my Yeast ReSet protocol, because 9 of its 12 minerals support effective production of thyroid hormones. These picometer multiminerals also support optimum function of the immune system, adrenal glands, prostate, and brain.

I also recommend making smoothies with my low carb protein powder with beneficial protein blend in addition to Omega-3 fatty acids, L-Lysine, silica, and vitamin C. See Appendix C for a further discussion about my specific recommendations.

Additionally, the Introduction to Book 2 of this series, *Detox Your Body: The Sugar-Free Plan,* urges you to avoid sugar, gluten, and dairy.

WHAT IS CANDIDA?

NOTE: The words, "Candida albicans" and "yeast" are interchangeable in this book.

What is this organism that can have such a widespread, devastating effect on our bodies? It's also a stealth pathogen – I'll get to that shortly.

Candida albicans is neither a plant nor an animal. It's a type of fungus that shifts between a normal budding yeast to a tissue-invasive thread-like fungus depending on its environment. Maybe that's why it's sometimes called, "yeast," and sometimes called, "a fungus." If you feed sugar and carbs to Candida in the budding yeast stage, it will outgrow its home in the large intestine and turn into a thread-like fungal stage and move into the small intestine.

Candida's relationship to mold is so close that if you have Candida overgrowth, you are often sensitive to or allergic to mold. Heaven forbid if you encounter black mold! The antibodies to mold are

the same antibodies that attack Candida. So, if you are overloaded with Candida, you are more susceptible to mold. You may react with asthma or shortness of breath when you inhale the microscopic particles of moldy leaves or the musty mildew in a dark and damp basement. Moldy leaves or damp basements can also produce anxiety, depression, headaches, sinusitis, and allergies. Mold can make all your yeast symptoms much worse.

Candida is not an easy life form to pin down clinically or with scientific research. It is a natural inhabitant of our intestines, vying for space with over 500 other species totaling 100 trillion life forms – ten times the 10 trillion cells that make up the rest of your body. Candida makes its home in our mouth, digestive tract, vagina, and skin – it mostly loves mucus membranes or areas of moist skin – groin and underneath large breasts.

For the most part, yeast gets along with its neighbors. When you begin taking antibiotics, however, the whole delicate balance is lost. Antibiotics don't discriminate; they wipe out most of the good bacteria along with the bad, leaving Candida unharmed.

As I mentioned above, Candida is also a stealth organism, protected by an immune system that often turns the other cheek. That's because yeast naturally has a place in the human ecosystem, so it's not a foreign body. But with our modern lifestyle and yeast-inducing medications, we've allowed the yeast population to get so big that the human immune system can't cope. Additionally, and tragically, yeast overgrowth is not taught in medical schools, so most doctors don't know about it.

NOTE: Our bodies are most familiar with the yeast, Candida albicans, which is responsible for over 85% of Candida infections. There are at least 200 Candida species, and about 40 can cause infection in humans. After Candida albicans, the following three are the most common: Candida tropicalis, Candida glabrata, and Candida krusei.

CANDIDA'S ROLE

Candida's main function may come as a shock. It awaits our demise or the demise of our tissues and evokes the Biblical "ashes to ashes, dust to dust." Candida is an important scavenger cleaning up dead and dying debris and tissue. If it weren't for

molds, fungi, and yeast, once-living material would never decompose and would keep expanding, rapidly competing for our living space. Like a rabid dog that senses fear, Candida can sense dead and dying tissue or a decomposing meal in our intestines and begin to expand toward what, for them, is food. Add a high sugar diet and you have a ravenous monster. The story of Candida and yeast overgrowth is how it transforms from a normal inhabitant of our large intestine to an invading army advancing on our small intestine and transforming us from health to disease.

Our standard practice of living according to the rules of "eat, drink, and be merry" has long since caught up with us. Seventy percent of the population is overweight, and the majority suffer one or more chronic ailments and are on one or more prescription medications. When I was in my teens, I began to study health and nutrition and became what is still commonly referred to as "a health nut." I feel that too few of us trusted our instincts and became "health nuts," and those who didn't are suffering the consequences.

The walking wounded endure high blood pressure, diabetes, high cholesterol, heart disease, stroke, cancer, and autoimmune disease. These conditions are often brewing for years before our defenses are overwhelmed. What stirs that witch's brew is inflammation, and I contend that yeast overgrowth is a prime source of inflammation in the body.

NOTE: Magnesium is a wonderful anti-inflammatory and when you are magnesium deficient, you suffer a host of inflammatory symptoms.

To the great detriment of the health of our society, this fungus is growing rampant in a large proportion of the population – mostly women. It's one of the many diseases of civilization – the culmination of the side effects of drug and food technology and the disservices of our stressful way of life. The miracle of antibiotics has its downside as an underlying cause of yeast overgrowth. The refining of sugar and wheat has its downside by creating a simple food source for Candida. The tremendous levels of stress hormones that flood our bodies every day, hour, and minute in our sped-up world also make us prey to yeast.

The candidates for creating Candida overgrowth, listed below, alter our intestinal environment by killing protective bacteria, creating an acidic pH, and allowing the buildup of toxins.

CAUSES OF CANDIDA

1. Antibiotics
2. Alcohol
3. Steroid hormones and stress
4. Mercury in dental fillings or vaccines containing mercury (thiomersal)
5. Birth control pills
6. Immunosuppressant drugs
7. Pregnancy
8. Diets high in sugar, carbs, yeast and yeast products, moldy foods and fermented foods
9. Exposure to molds at home or work from untreated water damage
10. Chlorine in drinking water, shower and bath water, and swimming pools

11. Fluoride in drinking water, toothpaste, dental treatments, and drugs

Over the decades I've also created a chronology of illness that comes from yeast that is fed by sugar and drugs. I call it "The Downward Spiral." This information tracks the deterioration of health caused by poor eating habits, lack of exercise, and other challenging lifestyle habits.

THE DOWNWARD SPIRAL

1. Diaper rash, caused by Candida albicans (yeast), is mistakenly treated with cortisone creams, which encourage further growth of the yeast.
2. Childhood ear infections can begin at birth as yeast infections picked up from the mother's birth canal during delivery. Most ear infections are treated with antibiotics.
3. Ear infections may become chronic and require multiple courses of antibiotics, leading to diarrhea and intestinal yeast infections.

4. Anesthetics, used in surgery to place tubes in the ears, add another toxin. If that anesthetic is fluoride-based, the fluoride irreversibly binds with magnesium and makes it unavailable to the body.
5. Colic can develop due to antibiotic side effects.
6. Inability to digest milk due to an irritated bowel leads to frequent changes of formula and further irritation.
7. Gas and bloating can result from hard-to-digest soy formula.
8. Eczema, aggravated by food sensitivity, is suppressed with cortisone creams while it encourages yeast.
9. Allergies to foods, especially yeast, gluten, and dairy, can arise from poor digestion and lead to more yeast overgrowth.
10. Asthma, which may be environmental and can be yeast-related, is treated with medications including corticosteroid inhalers.

11. Multiple colds and flus are mistreated with many courses of antibiotics.
12. Annual flu vaccines contain mercury preservative, which acts like a powerful antibiotic and encourages yeast.
13. Cravings for sweets can be caused by yeast overgrowth and may cause or aggravate hyperactive behavior in children.
14. Dental cavities lead to multiple mercury amalgam fillings still used by almost 50 percent of dentists. Toxic mercury vapor may be inhaled or absorbed, disrupting enzymes in the brain, kidneys, and liver, and acting like an antibiotic and creating yeast overgrowth.
15. Allergic reactions are treated with allergy shots, antihistamines, and cortisone sprays.
16. Many adolescents take long-term oral antibiotics for acne, adding to their yeast population.
17. Many teens and young adults develop mononucleosis, and up to 20 percent never feel quite as healthy again.

18. Bladder infections are treated with antibiotics, which cause vaginal yeast infections and intestinal yeast overgrowth.
19. Birth control pills, given to a younger and younger population, cause chronic vaginal yeast infections, which are mistreated with antibiotic creams and pills.
20. The high levels of estrogen during pregnancy encourage vaginal yeast infections. High levels of estrogen deplete magnesium.
21. Body-wide rashes, including jock itch in men and athlete's foot.
22. Chronic sleep deprivation is common in all parents of small children and is a major stress on the immune system.
23. Irritable bowel syndrome can develop after a bout of diarrhea (attributed to traveler's diarrhea or food poisoning) and is usually treated with antibiotics.

24. A leaky gut occurs when budding yeast from the large intestine grows into the small intestine. It shifts from a budding stage to a tissue invasive stage and pokes holes in the intestinal lining. Undigested food molecules are absorbed, along with up to 78 toxic chemical antigens. The condition is called leaky gut but often misdiagnosed as SIBO (small intestine bacterial overgrowth).
25. Chronic sinus infections (97 percent are fungal, according to the Mayo Clinic) occur due to lowered immune system and are mistakenly treated with antibiotics.
26. Hypothyroidism often occurs because yeast toxins cross react with thyroid tissue and block thyroid receptors. In the majority of people, it remains undiagnosed and untreated.
27. Hospitalization for infections or surgical procedures usually warrants intravenous antibiotics and a host of other drugs that can cause yeast overgrowth.
28. Major colds and flus can lead to bronchitis and pneumonia, which are treated with strong antibiotics.

29. Chronic fatigue syndrome and fibromyalgia are treated with anti-inflammatories, sleeping pills, and antidepressants, which add to the toxic load.
30. Environmental allergies with extreme sensitivities to inhaled allergens, especially perfumes, colognes, household products, pesticides, and molds, can be caused by yeast in thread-like form growing into the mucus membranes of the nasal passages. The usual treatment is corticosteroid inhalers.
31. Dysmenorrhea, irregular periods, infertility, and worsening premenstrual symptoms occur due to a buildup of toxins and lack of nutrients.
32. Infertility is treated with an array of synthetic hormonal drugs, which encourage yeast growth.
33. Depression, anxiety, panic attacks, and palpitations are self-medicated with alcohol and treated with antidepressants.

34. Annual blood testing shows prediabetes and then diabetes as too much sugar in the diet leads to insulin resistance and sugar elevation in the bloodstream will eventually cause soft tissue damage due to AGEs – advanced glycation products.
35. Menopause is medicated with synthetic hormones.
36. Prostatitis in men is an inflammation of the prostate gland that is often driven by yeast and yeast toxins and a deficiency of zinc and selenium.

YEAST CAUSES EVERYTHING

Yeast can potentially cause or aggravate most health conditions. It's obvious to me that yeast overgrowth has become epidemic. Allopathic doctors, however, don't know anything about intestinal yeast. It wasn't included in my medical school training in the mid-1970s, and it's still not discussed.

If your doctor does attempt to treat yeast, s/he will likely just give you an antifungal pill (drug or natural) and expect it to treat the problem. Some practitioners focus on a strict yeast diet as

the only therapy. Others may say all you need is a special probiotic. The fact of the matter is that you need to do all three. I recommend a combination of natural antifungals and probiotics: Saccharomyces boulardii, humic/fulvic acid, and picometer silver.

Even in the naturopathic treatment of yeast, there are therapies that can be harmful. One program promotes heavy use of saunas to "sweat out" the yeast toxins, which can also sweat out significant amounts of magnesium and other minerals causing magnesium deficiency symptoms that are mistaken as yeast detox.

In my protocol, which is detailed in Book 2 in this series, *Detox Your Body: The Sugar-Free Plan*, I recommend gentle detoxification using picometer magnesium and methylated, food-based B vitamins with L-Methionine, and L-Taurine.

NOTE: I've even coined the term "too toxic to detox" for people with so much toxic overload that any method of detoxification that "stirs" things up can upset the delicate balance in a person and make them feel much worse. So, the rule is to start low and go slow with your detox and your supplementation protocol.

Additionally, I am in favor of coffee enemas as an assist to detoxifying yeast. However, you must research the application of coffee enemas and see if they suit you. Consult with a naturopathic doctor who knows your case if you have questions. If you undertake coffee enemas, only do one or two per week and make sure you do a retention enema of 2-3 ounces of water and the contents of 1-2 capsules of a soil-based probiotic at the end of your coffee enema. This procedure will help you re-establish your gut flora, which can be disrupted with a coffee enema.

For a full description on the best way to do a Coffee Enema, see Appendix D, "More Than You Ever Wanted to Know about Coffee Enemas."

THE INCIDENCE OF YEAST OVERGROWTH SYNDROME

Yes, in the past several decades, it's no exaggeration for me to say that the vast majority of people who approached me in my Toronto practice or for telephone consultations suffered from

yeast overgrowth, so much so that I began saying, "Yeast Causes Everything!"

Yeast overgrowth symptoms are often treated with drugs that simply cause more yeast overgrowth and more symptoms. I think yeast is the basis of much of the chronic disease the population suffers. The fact that most doctors don't recognize this problem has caused untold suffering in patients who go undiagnosed, untreated, or inappropriately treated.

NOTE: You only have to look at chronic disease and the types of medications that are touted as universal solutions. Statin drugs actually have antifungal properties, as does Metformin, and an antiaging/antibiotic drug called, "rapamycin."

Many other theories have been proposed to explain the health decline among the North American population. Some even argue that there is no decline in health and insist we are living longer than ever before. But statistics and headlines argue a different point entirely. No one can ignore the fact that:

> *Despite spending nearly **twice as much** per capita on healthcare compared to similarly large and wealthy*

nations, the United States has a lower life expectancy than peer nations and has seen worsening measures of health outcomes since the COVID-19 pandemic.

One likely reason for our failing health, that everyone seems to agree with, is chronic inflammation. Did you know that yeast overgrowth and magnesium deficiency are two major causes of chronic inflammation?

Doctors and drug companies are now researching inflammation and not cholesterol as the cause of heart disease. They claim they don't know what's really causing the inflammation, but that doesn't stop them from prescribing drugs to suppress it. Why has the body's defense system suddenly gone awry? What's causing this epidemic of inflammation and inflammatory diseases? And what exactly causes inflammation?

When I say that the epidemic of inflammation is due to yeast overgrowth, I'm talking about intestinal yeast overgrowth. I'm not talking about yeast vaginitis in women. However, intestinal yeast is usually the underlying cause of chronic yeast vaginitis. Most doctors know nothing about yeast overgrowth. They just

throw up their hands and say the cause of inflammation is unknown and just hope to treat it with more drugs. In natural medicine, we think of widespread inflammation as toxicity. We also know that drugs are toxic. So, the question is: how can you justify treating toxicity with more toxins? To a natural medicine practitioner, it just doesn't make sense.

Inflammation is the body's response to injury and infection, but medicine doesn't seem to recognize the numerous ways we are injuring and infecting our bodies every day. We injure our bodies with too much sugar, too many simple carbohydrates, too much alcohol, too much calcium, and not enough magnesium – all known causes of inflammation. The yeast overload caused by antibiotics, BCP, sugar, and alcohol weakens the immune system and sets us up for chronic colds and flus that are treated with more antibiotics. We are exposed to an enormous number of infectious organisms every day. Vicious is the Circle.

We injure our bodies with an overwhelming load of toxins (there are about 60,000 commercially-used, mostly untested, chemicals in our environment). There are antibiotics and medicinal drugs;

fluoridated prescription drugs that irreversibly bind magnesium; mercury fillings (with mercury acting like an antibiotic), and vaccines; lead in gasoline; chemical fertilizers contaminating most of our food supply; and GMO foods that have taken over the food chain and become foreign chemicals in our body.

NOTE: Earlier I mentioned that there are 350,000 manmade chemicals. Apparently, about 60,000 of them are used commercially. However, you look at it, both numbers seem excessive.

Allopathic doctors say they don't know what causes inflammation; natural medicine doctors say it's a combination of all the above toxic factors, but I say that yeast is a sinister threat lurking in your body. Yeast toxins and environmental toxins can depress the immune system and switch on the thread-like invasive form of yeast organisms that are stealth invaders that overwhelm our defenses from the inside, exponentially adding to our toxic load. We've seen that just recently in 2019; with the widespread use of antifungals in hospitals, there has been an

increase in fatal infections due to Candida auris that was only discovered in 2016.[120]

In what appears to be a concerted effort to ignore yeast overgrowth in our population, conventional medicine has not informed practicing doctors of the devastating danger of yeast in healthy people. The hardest crime to solve is an inside job.

In the case of yeast overgrowth, we harbor an organism that is a normal inhabitant of our body that is naturally able to evade detection until it's too late. That's right, yeast have what's known as "fungal cloaking devices" that help them elude the immune system. When the immune system is differentiating between friend and foe, it will identify bacteria and viruses as invaders but skip over yeast because it's part of our normal flora. Their cloaking device is part of what they are.

As I mentioned earlier, one of yeast's normal functions in the body is to break down dead and dying tissues and intestinal bacteria; it ultimately helps break down living organisms when they die. Another normal activity is the production of 78 different chemical antigens that can be absorbed into the bloodstream and

set up a never-ending inflammatory cascade. (An antigen is a toxin or other foreign substance that induces an immune response in the body, like the production of antibodies.) Yeast organisms do all this in the dark, moist mucus membrane tissues that become a perfect habitat for them.

Humans have lived compatibly with yeast for millennia, but it's only in the past seventy years, since the widespread use of refined sugar and antibiotics, that yeast has crossed the line and become the enemy. Yeast invades mucus membranes and orifices, and yeast overgrowth may also be responsible for the monster bacteria that become resistant to antibiotics.

I'm not just interested in curtailing your yeast population, but also in strengthening your immune system, your mineral stores, and restoring your intestinal bacterial flora. If you just set out to kill yeast but don't support your intestinal environment and your immune system at the cellular level, yeast will return.

Some folks argue that they hardly ever took antibiotics; however, according to Dr. Melissa Lee Phillips, using antibiotics, even once, can result in decreased beneficial bacteria and an increase in

harmful bacteria such as Clostridium difficile and the yeast Candida albicans. She says, "such shifts in microbiota can cause yeast infections and GI symptoms including bloating, abdominal pain, and diarrhea, but recent work suggests the consequences may be much longer lasting and more serious."[121]

Yeast researchers admit that there is limited understanding of when, why, or if the immune system attacks yeast when it overgrows. The gut yeast live in equilibrium on the epithelial (skin) layer of our internal and external tissues along with immune cells. In this equilibrium, the yeast is in a fairly quiescent bud-like stage. That balance is overturned when you take antibiotics, killing good and bad bacteria, which creates an unbalanced environment in the gut that allows greater growth of yeast and unleashes its mycelial (thread-like) invasive stage.

The complex factors involved in transforming yeast have yet to be properly researched. One important factor is that when the intestinal environment becomes more alkaline, yeast are able to switch to their mycelial invasive form. This fact really pokes holes in the dietary theory that optimum health is related to a more

alkaline body. It underscores the fact that we should not swing fanatically from one end of the spectrum to the other. If we think we are "acidic," the solution is not to drown in an alkaline diet and alkaline drinking water. After all, when you drink alkaline water, what happens when it hits stomach acid? It neutralizes your stomach acid and interferes with digestion!

I've always been wary of an extreme alkaline diet and the practice of testing your urine and saliva pH to make sure it stays in the alkaline range. Blood, urine, saliva, and tissues all have their own optimum pH, and it's impossible to speculate about what's happening in your blood and tissues based on urine and saliva pH that takes a measure hours away from what you've eaten.

What I do know is that a raw food diet of vegetables and fruit and a diet that relies on green smoothies creates a cold and damp intestinal environment that can favor yeast overgrowth. Proponents of these diets are fond of enticing people to their lifestyle by saying you can eat all the fruit you want because fruit is natural! However, a diet high in fruit sugar is ideal for yeast

proliferation. It also puts a huge strain on your liver, which is the only organ that can metabolize fructose, unlike glucose, which is shunted to all our cells by insulin.

The stomach environment is acidic, which is quite necessary to digest food and also very important in killing parasites or yeast that you might ingest. If you take baking soda tonics and drink alkaline water to make your body more alkaline, you simply neutralize your stomach acid. Duh!! Commonsense!

Another fact about acid-alkaline balance in the body is the way in which probiotics regulate acidity in your intestines. Lactobacillus acidophilus bacteria are the most common beneficial probiotic and increase the acidity of the gut in order to slow down the growth of yeast.

YEAST RESET PROTOCOL AND SUGAR-FREE DIET

The above information explains how yeast overgrowth contributes to the Downward Spiral of your health. Book 2 of this series, *Detox Your Body: The Sugar-Free Plan*, details my advice for resetting your yeast through supplementation and a Sugar-Free Diet. Book

3 of this series provides easy recipes to begin your journey to improved cellular health, *The Sugar-Free Kitchen: 88 Recipes for a Yeast-Free Life.*

CHAPTER SIX: HYPOGLYCEMIA (LOW BLOOD SUGAR)

The first years of my Toronto practice, starting in 1979, were spent identifying hypoglycemia and allergies in my patients. This trend continued until the mid-1980s, when I began seeing patients with Chronic Fatigue Syndrome and yeast overgrowth. Yeast evolved from overuse of antibiotics and a highly refined diet. Unbeknownst to most of the population, white flour and white sugar products – bread, donuts, bagels, cakes, and cookies – that caused hypoglycemic episodes were also feeding intestinal yeast.

In 1993, when I was involved with AIDS and Chronic Fatigue research in New York, every one of my patients had many layers of infection on blood testing. In the 2000s, adrenal fatigue and hypothyroidism took center stage. Now I talk about Total Body Meltdown as progressive layers of all of the above conditions accumulate in one body.

At first, I wondered if people might think that I was being insensitive talking labeling them with Total Body Meltdown, but it's a term that everyone identified with and felt that it totally described what they were going through.

HYPOGLYCEMIA

Surges of easily absorbed sugary foods dramatically elevate blood sugar. When blood sugar reaches a certain level, insulin is stimulated to enter the bloodstream and move the excess glucose away into the cells. The insulin that is released is dependent upon the rate that the blood sugar rises. If a great amount of insulin is quickly released, then the blood sugar may fall dramatically. This condition is called hypoglycemia.

When blood sugar falls in a precipitous manner, adrenaline is stimulated to make sure the blood sugar does not fall too low and render the person unconscious. Adrenaline stimulates the liver glycogen sugar stores to release sugar, but the adrenaline also produces a "fight or flight" reaction.

When adrenaline floods your body, you may feel a sense of anxiety or impending doom for no apparent reason. This can lead you to believe that you are having an anxiety or panic attack, but you don't equate your symptoms with low blood sugar. You may even attribute your panic attack to a situation you are in – crossing a bridge, having an argument, being in an enclosed space like an elevator.

At this point if you eat a donut or drink sugared coffee, your blood sugar is immediately revived, and you may feel better, but within twenty or thirty minutes, the cycle of rapid elevation of blood sugar and then rapid decline repeats itself. You find yourself going through life as if on a roller coaster; we call it the 'crash and burn syndrome.'

Dr. Paula Geiselman, in "Appetite, Hunger and Obesity as a Function of Dietary Sugar Intake,"[122] writes:

> *[...]both the animal and the clinical literature provide support for the hypothesis that the feeding-enhancement effect of sugar ingestion may be mediated by insulin-induced hypoglycemia.*

In simpler terms, this means that when you eat sugar, you crave more sugar. The insulin that floods out to keep the sugar levels down to normal often overshoots, which drives the blood sugar below normal, causing hypoglycemia. This low blood sugar then triggers a feeling of hunger and needing more glucose. This type of cycling of low and high blood sugar is not without its side effects. Dufty elaborates in *Sugar Blues*:[123]

> *The difference between feeling up or down, sane or insane, calm or freaked out, inspired or depressed depends in large measure upon what we put in our mouth.*

Dufty quotes Dr. E. M. Abrahamson and A. W. Pezet from their book, *Body, Mind and Sugar*:[124]

> *Hypoglycemia is [...] a condition in which the blood sugar level is relatively low [...] which tends to starve the body's cells, especially the brain cells. It is treated by diet [...] What happens to us when the cells of our bodies and especially our brains are chronically*

> *undernourished? The weakest, most vulnerable cells [...] suffer first.*

Back in the mid-1970s, in *Sugar Blues*, Dufty defined the physiology of sugar intake, which is still the same today; however, your doctor won't discuss any of this. Dufty eloquently repeats what I just said. But it is so important, I think it bears repeating:[125]

> *When we eat refined sugar (sucrose), it is very close to glucose, so it largely escapes chemical processing in our bodies. The sucrose passes directly to the intestine, where it becomes "predigested" glucose. This in turn is absorbed into the blood where the glucose level has already been established in precise balance with oxygen. The glucose level in the blood is thus drastically increased. The balance is destroyed. The body is in crisis.*
>
> *The brain registers the glucose first, hormones pour from the adrenals [...] and marshal every chemical resource for dealing with sugar: insulin from the*

endocrine (glands) of the pancreas works specifically to hold down the glucose level in the blood in complementary antagonism to the adrenal hormones concerned with keeping the glucose level up.

All this is reflected in how we feel. While the glucose is being absorbed into the blood, we feel "up." A quick pick-up. However, this surge of mortgaged energy is succeeded by the downs, when the bottom drops out of the blood glucose level. We are listless, tired and it requires effort to move or even think until the blood glucose level is brought up again. Our poor brain is vulnerable to suspicion, hallucinations. [...]

Dufty quotes the late endocrinologist, and adrenal specialist, John W. Tintera, who was emphatic about the negative effects of sugar: "It is quite possible to improve your disposition, increase your efficiency, and change your personality for the better. The way to do it is to avoid cane and beet sugar in all forms and guises."[126]

Dr. John Tintera, who passed away in 1969, published a paper on adrenal function "The Hypoadrenocortical State and Its Management" in *the New York State Journal of Medicine* in July 1955. Tintera reported on two hundred cases under treatment for hypoadrenocorticism (the lack of adequate adrenal cortical hormone production, or imbalance among these hormones). He discovered that the chief complaints of his patients were often similar to those found in persons who suffered blood sugar swings: fatigue, nervousness, depression, apprehension, a craving for sweets, inability to handle alcohol, inability to concentrate, allergies, and low blood pressure.

He insisted that all two hundred of his patients submit to a four-hour glucose tolerance test (GTT) to find out whether or not they could handle sugar. The laboratory thought their readings were incorrect because they found mostly low, flat blood-sugar lines instead of up and down curves from this group.

A glucose tolerance test is usually carried out on diabetic and prediabetic patients where blood sugar runs high. These patients were not handling sugar very well at all and were not getting the

expected rise and fall of glucose. These findings led Tintera to investigate these phenomena for the rest of his life. Tintera continued to say, "The importance of diet cannot be over-emphasized."

The following diet is outlined in Tintera's paper:

> *The diet consists of the strict elimination of rapidly absorbed carbohydrates in order to obviate the sudden rise in blood sugar with its subsequent fall. Between meals, feedings of milk or fruit are advised to prevent any slackening of blood sugar levels, which are prone to occur two to three hours after eating. Salt is allowed in unrestricted amounts because of the tendency to sodium depletion.*

Tintera summarizes his paper:

> *An attempt has been made to condense and describe a vast syndrome which has been recognized in a group of over 200 patients. Diagnosis is possible by means of a careful endocrine history and physical examination, rather than by elaborate laboratory tests. We have*

> *observed that hypoadrenocorticism may result in fatigue, mental confusion, various arthritic pains, gastrointestinal disorders, inability to concentrate, signs of disturbed carbohydrate metabolism, etc. These patients respond to therapy which includes an autonomic stabilizer, adrenal cortical extract injections, and an antihypoglycemic diet. The rationale for adrenal cortical extract therapy has been discussed.*

The question raised by Tintera still remains; is low blood sugar caused by low functioning adrenal glands? Does low blood sugar arise from an unbalanced diet and lead to stress on the adrenal glands? Or does the answer lie on a continuum somewhere in between these two extremes?

I studied Tintera's work in my naturopathic training. In my practice, I treated severely hypoglycemic patients with a low sugar diet and adrenal cortical extract (ACE) injections. Natural injectable ACE is no longer available; it was removed from the market many years ago in favor of synthetic cortisones like hydrocortisone and prednisone. When natural ACE was available,

I found it very useful for short-term therapy to help patients overcome their extreme adrenal depletion. Now, I use our picometer minerals and natural vitamins with even better results. I've found I don't have to rely on hormone replacement therapies because people receive the perfect building blocks for their depleted cells and their total body meltdown, not just their depleted adrenals.

Candy Bars for Hypoglycemia

Dufty, in *Sugar Blues,*[127] relates the struggle of Dr. Stephen Gyland, a general practitioner, in finding a diagnosis for his own blood sugar problem:

> *Dr. Gyland suffered poor concentration, failing memory, weakness, dizziness, heart-pounding, anxieties and tremors. He was told by an eminent specialist that he was a neurotic and should retire for the good of the profession. He consulted fourteen physicians all over the United States and received multiple diagnoses. He was near the end of his rope when, in 1924, he read Dr.*

Seale Harris's original medical paper on hypoglycemia in the Journal of the American Medical Association.

Dr. Gyland took a five-hour glucose tolerance test and learned he had low blood glucose. By avoiding sugar and eating small, frequent meals and a well-balanced diet, he recovered completely! He was understandably angry at having been misdiagnosed for so long. There was one doctor, however, who did find the low blood sugar but prescribed candy bars for the times when he felt his symptoms coming on!

Dr. Gyland, in a letter to the *AMA Journal*,[128] reproached his colleagues for ignoring Dr. Harris's work. Gyland vowed to use his hard-earned lesson to help diagnose and treat others with low blood sugar. He treated more than six hundred patients. He wrote an exhaustive study of his work detailing how he diagnosed patients, the symptoms they presented, and how they responded to his treatment. He began with the complete restriction of refined carbohydrates – sugar and white flour.

He was finally permitted to read his paper before one of the medical societies. He waited expectantly for it to appear in the

AMA Journal. Nothing happened. The AMA was not interested at all in alerting its members to the importance of glucose tolerance testing in routine physical examinations. That's likely because doctors never learned about nutrition, didn't really understand the concept of sugar causing low blood sugar, and couldn't see it as being a problem. As one of Dr. Gyland's doctors said – "just eat some candy."

In present times Dr. Gyland's symptoms of: "poor concentration, failing memory, weakness, dizziness, heart-pounding, anxieties and tremors" might even be diagnosed as the beginnings of dementia. Think of how many elderly patients are prescribed Ensure, which is falsely named a "nutrition shake." Be sure you are sitting down when you read the ingredients list. The second and third ingredients are sugar; milk, to which many are allergic, is the fourth; inflammatory omega-6 vegetable oils are the fifth; soy protein, which is highly allergic, is the sixth, and some more milk makes up the seventh ingredient. There is a smattering of synthetic vitamins and dirt-based minerals, natural and artificial

flavors, and an artificial sweetener sucralose tops of the "nutrition shake."

> *Water, Corn Maltodextrin, Sugar, Milk Protein Concentrate, Blend of Vegetable Oils (Canola, Corn), Soy Protein Isolate, Nonfat Milk. Less than 0.5% of: Vitamins & Minerals Natural & Artificial Flavors, Cellulose Gel, Salt, Cellulose Gum, Monoglycerides, Soy Lecithin, Carrageenan, and Sucralose.*

MAHA talks about the horrendous food choices fed to unsuspecting children. What about this elder abuse disguised as a "nutrition shake?

LOW BLOOD SUGAR TOO SIMPLE

Dufty reports that Dr. E. M. Abrahamson was prodded to enter the low blood sugar fray by a patient who was also a writer, A. W. Pezet. Mr. Pezet asked Dr. Abrahamson:[129]

> *Why do so many doctors know little or nothing about a constellation of symptoms, which afflicts millions of people? If the diagnosis is so simple, and the removal*

> *of the cause of the symptoms is simpler still, what's happened to medical education?*

Abrahamson and Pezet were so engaged in the topic that they wrote *Body, Mind and Sugar*[130] published in 1951. This book went straight to the public and sold 200,000 hardcover copies.

The *Journal of the American Medical Association* made the following pronouncement in 1973:[131]

> *Recent publicity in the popular press has led the public to believe that the occurrence of hypoglycemia is widespread in this country and that many of the symptoms that affect the American population are not recognized as being caused by this condition. These claims are not supported by medical evidence.*
>
> *Hypoglycemia means a low level of blood sugar. When it occurs, it is often attended by symptoms of sweating, shakiness, trembling, anxiety, fast heart action, headache, hunger sensations, brief feelings of weakness and occasionally, seizures and coma.*

> *However, the majority of people with these kinds of symptoms do not have hypoglycemia.*

So, Dufty wonders who and what constitutes the minority? The Department of Health, Education and Welfare was asked for their figures on the prevalence of hypoglycemia in the US:

> *[...] unpublished data from the Health Interview show that an estimated 66,000 cases were reported in household interviews of the civilian, noninstitutional population during fiscal year 1966-67. Out of 134,000 people interviewed 66,000 cases of hypoglycemia were reported. This represents 49.2 percent of those interviewed.*

Dr. Seale Harris, in observing patients who were given insulin, noted that if their blood sugar levels reached alarming lows, these people could experience symptoms of low blood sugar identical with hypoglycemic patients. These symptoms were weakness, dizziness, blurred vision, palpitations, anxiety, panic attacks, mood swings and fatigue.

Many doctors who made similar observations found that low blood sugar was a factor in a large number of conditions that were difficult to treat. Many hundreds of patients found that a diet that banned sugar, tea, coffee, alcohol, and refined carbohydrates and included small, frequent meals brought great relief to seemingly non-specific symptoms. In 1949, the American Medical Association actually awarded Dr. Harris their Distinguished Service Medal to honor his work on low blood sugar.

Dr. Steven Leichter, who wrote *Elementary Hypoglycemia: A New Appraisal* in 1979,[132] found that glucose ingestion, by causing early hypoglycemia and provoking the release of insulin, appears to be responsible for 'elementary' hypoglycemic symptoms. He suggests keeping their diets low in simple sugar but unrestricted in complex carbohydrates and fiber. He also found that hypoglycemia may be associated with severe or permanent psychiatric complications. He was trying to alert doctors to the fact that neurotic and hypochondriacal symptoms that doctors treat with tranquilizers could be manifestations of hypoglycemia.

A DIETARY EXPERIMENT

Dr. Leichter said that a simple dietary trial will give the answer.[133] He said:

> *Over the past several years, I have put thousands of people on low sugar and low white-flour diets as a preliminary step in therapy after their first consultation with me. In over three thousand patients, dietary guidelines given on the first appointment have been followed, and on the second appointment, over 80% of respondents, in filling out my questionnaire, have indicated that their gas, bloating, fluid retention, anxiety, depression, fatigue, mood imbalance, etc., have improved enormously as a result of this simple dietary restriction.*

Barbara Griggs, in her book *The Food Factor*,[134] reports on the work of Dr. Charles Mercier, in the early 1900s. Mercier was the Physician for Mental Diseases at London's Charing Cross Hospital. He was an observant doctor with a keenly logical mind; he observed that the diets of mental outpatients at Charing Cross

Hospital were nutritionally appalling. He instituted major dietary changes, and on follow-up, he reported that all but one of his patients recovered or was greatly improved when their diets were improved. His patients were told to cut down on fat and sugar and to eat more protein.

Dr. Larry Christiansen wrote about "Dietary Treatment of Depression" in the *Journal Behavior Therapy* in 1990.[135] He studied the effectiveness of a refined sucrose and caffeine-free diet in the treatment of depression. His experimental group demonstrated a significant decline in depression on all post-test scores. This amelioration of depression was maintained at a three-month follow-up. You can find his study online.

In Dr. L. A. Taylor's work, published in the *Journal of Behavioral Medicine*, his subjects reported significantly more negative effects and body symptoms after glucose ingestion, with performance measures deteriorating as well. These effects were more pronounced for those with high hypoglycemic index scores than for subjects with low index scores. The performance

impairment was greater for those who showed a rapid drop in blood sugar than for subjects who showed had a slower drop.[136]

We really don't know the extent of the danger from sugar because nobody is studying its effects and warning the public. Dr. Leo Galland worked with children for many years at the Gesell Institute. In his book, *Superimmunity for Kids*[137] *he says:*

> *Large quantities of sugar weaken the enzymes of essential fatty acid (EFA) metabolism. Sugar supplies 25-35% of the calories consumed by most American children but brings with it none of the vitamins and minerals needed for EFA metabolism or for energy. Sugar also increases the amounts of magnesium and other important minerals that are excreted in the urine. And recent studies in both animals and humans have shown that sugar increases the adverse effects of a copper deficiency.*

The most useful experiment you can do to determine your susceptibility to sugar is to avoid it for a minimum of three weeks. Add nothing new to your diet during that time so you won't

confuse the issue. At the end of that period, consume a large amount of sugar in one sitting. If sugar is "bad" for you then your body will respond, as mine does, with noticeable symptoms.

Sometimes, eating sugary foods for two consecutive days will clear any doubt you may have regarding your reactions. I have done this simple experiment with thousands of patients over the years, and with excellent results. This, of course, comprises the first stage of the "scientific method" – observation. If a person feels "good" off a certain food and feels "bad" after eating it, there is obviously a correlation between that substance and their symptoms! Scientists who illegitimately challenge the results from N=1 studies such as these will say that only a "double-blind" experiment is scientifically valid.

NOTE: N is the designation of the number of people in a scientific study; in this case, you are N=1.

Barrington Nevitt,[138] an associate of Marshall McLuhan, comments that:

> *Scientists know how to match the old, not how to make the new. [...] [They] pretend to transform the origin of life from a miracle into a statistic*[.][139]

Nevitt goes on to say that:

> *There is no universally acknowledged 'scientific method,' only paradigms that communities of scientists accept for their own separate disciplines. Science organizes knowledge through concepts that reinforce existing disciplines.*

CHAPTER SEVEN: DIABETES

It's an accepted fact that the older you get the more likely you are to develop diabetes. In fact, the national charity *Diabetes Canada* on their website lists the simple fact of being over age 40 as a risk factor. Lord Sufferin' Cats!

Amazingly, they do not mention the proven fact that sugar is the cause of Type 2 Diabetes. In fact, when you google "does sugar cause diabetes," you find that according to "the experts," it doesn't.

Here are some more half-truths.

> *Sugar consumption will not directly cause diabetes. However, excess sugar consumption can cause weight gain. Obesity increases the risk of diabetes. Once a person has diabetes, eating too much sugar can make symptoms worse, since diabetes makes it more difficult for the body to manage blood sugar levels.*

What a ridiculous word salad! The game that is being played here is to make you think that obesity causes diabetes – which distracts from sugar causing diabetes. But guess what? Sugar causes obesity *and* diabetes.

So, I'll say right at the outset of this topic that I agree with Nephrologist Dr. Jason Fung,[140] who wrote in *The Diabetes Code* and *The Obesity Code* that sugar is the cause of Type 2 Diabetes and stopping sugar is the cure.

Diabetes occurs because insulin becomes either overworked or overused and is no longer effective in pushing blood sugar into the cells. The name of this inability to transport sugar into the cells is called insulin resistance. The result is high blood levels of sugar and insulin, both of which cause cellular damage throughout the body.

Chronically elevated insulin helps create obesity and, even worse, keeps you from losing weight. High insulin levels also help create chronically elevated levels of cortisol, your stress hormone. When the two hormones, insulin and cortisol, stay elevated long after

they should go back to baseline, they become a tag-team that breaks down muscle mass, stores fat, and diminishes libido.

NOTE: The reason the stress hormone cortisol causes weight gain is that stress is primarily interpreted as a potential starvation event for which the body must store fat.

A very much ignored fact in the insulin-resistant cell is that vitamin C no longer has access to the cell to do its antioxidant work. That's because glucose and vitamin C are very similar molecules, and they compete for transport on the insulin molecule. An insulin-resistant cell can't open up the cell to glucose or to vitamin C.

Another oversight in the medical treatment of diabetes is the fact that hypothyroidism causes insulin resistance. A certain receptor on our cells called PPAR is the target site for Metformin-type drugs to facilitate sugar entrance into the cell. If these cells are resisting the entrance of sugar, which shows up in elevated blood glucose levels, diabetic drugs are given to stimulate the receptors. The late Dr. Roby Mitchell once said to me, "When God was making people, he made something else besides diabetic

drugs to interact with the PPAR receptor, and it turns out it's thyroid hormones."

None of these chronic diseases exist in a vacuum; they all show up together because the organs and hormones of the body all interact. As I mentioned earlier, I call the whole interplay, "Total Body Meltdown." Let me explain how the adrenals also become stressed when you abuse sugar.

Just in case you haven't read the following in previous chapters, here we go again! Eating a sugary meal or drinking a soda with 10 teaspoons of sugar stimulates an excessive pancreatic insulin response in order to normalize blood sugar levels. Too much insulin makes blood sugar plummet as it drives sugar into the cells. In reaction to the drop in blood sugar, adrenaline from the adrenal glands is released; adrenaline stimulates the release of glycogen sugar stores in the liver to raise blood sugar back to normal. Constant high intake of simple dietary sugar keeps this roller coaster going and eventually overworks or "burns out" normal pancreas and adrenal function leading to even greater insulin resistance.

REMEMBER: At any one time there are only 2 teaspoons of glucose in the bloodstream.

Insulin's job is to open the channels in cell membranes to an influx of glucose. When there is too much insulin, which can be stimulated by the 10 teaspoons of sugar in a soda, too many insulin molecules can lead to a traffic jam at the cell's receptor sites. After years of high insulin bombardment, the cell receptors just shut down. Therefore, sugar cannot get into the cells where it is needed to create energy and becomes elevated in the blood where it is not needed and becomes a problem. High amounts of blood sugar bathing the eyes, kidneys, and heart are metabolically turned into sorbitol molecules, which swell up inside cells, damaging them from the inside out.

The only way to keep insulin from surging and trying to force glucose into cells and storing the excess as fat is by eating a diet that does not trigger insulin with every meal. What triggers insulin? Sugar! What should you stop eating? Sugar!

It's not fat in the diet that makes fat, but over 50 grams (6 teaspoons) of sugar, fruit, or high glycemic carbohydrates get

turned into fat. Complex carbs in veggies, grains, and beans do not cause this. In fact, a high-fat, moderate-protein, very low-carbohydrate diet keeps insulin levels low. Also, Intermittent Fasting and training your body to eat only 2 meals a day will obviously reduce insulin. Compare such a diet to the 6 meals a day that surges insulin 6 times a day, which used to be advised for balancing blood sugar.

While Dr. Fung suggests the Keto Diet, since I've identified yeast overgrowth as one of the primary causes for insulin imbalances, I recommend a Sugar-Free Diet as a better alternative. You'll find that protocol and nutritional plan in Book 2 of this series, *Detox Your Body: The Sugar-Free Plan*, with easy recipes to begin this process in Book 3 of this series, *The Sugar-Free Kitchen: 88 Recipes for a Yeast-Free Life.*

INSULIN RESISTANCE

Cleave, in *The Saccharine Disease*,[141] states that:

> *[...] the virtual absence of diabetes in primitive communities who live on complex carbohydrates such*

> *as various grains and tubers compared with populations eating carbohydrates which are refined is anthropological proof that sugar is a leading cause of diabetes*.

NOTE: Complex carbohydrates in grains and root vegetables take much longer to break down into glucose and thus differ from simple sugar carbs that immediately flood the bloodstream.

Cleave discusses two ways in which the consumption of refined carbohydrates could strain the pancreas and other mechanisms of sugar metabolism present in the body, leading to the development of diabetes:[142]

1. *Direct over-consumption of these carbohydrates whereby, through the deception of the tongue and appetite, the over-consumption being measured not simply by the total amount of carbohydrate consumed but by the total amount consumed relative to the amount needed.*
2. *What strains the pancreas may be not so much the total amount of work it is called upon to do, but the rate at*

which it is called upon to do it. In the case of eating potatoes, the conversion of the starch into sugar and the absorption of sugar into the blood stream is a much slower and gentler process than the violent one that follows the eating of candy or other mass of concentrated sugar. Work by D.G. Campbell produced a series of blood sugar curves showing how a violent rise in the blood sugar after eating straight sugar compared with more gentle curves after eating complex carbohydrates with the same calorie value.

THE INCUBATION PERIOD

The incubation period for diabetes follows a "twenty-year rule" according to Cleave. In epidemiological studies, many authors have found that in a population newly exposed to refined sugar, there seems to be a remarkably uniform period preceding the appearance of diabetes. Natives in India and Africa, North American indigenous peoples, and Inuit peoples in Canada have all been studied and compared with their urban peers, and the incidence of diabetes has remained absent in rural populations

while reaching very high levels in the urban populations exposed to refined sugar and white flour. Cleave cites nine geographic populations, including westernized nations, and reports on the effect of sugar on the rise of diabetes.

In the journal *Nutrition Health*, Yudkin[143] discusses the metabolic changes induced by sugar in relation to diabetes. In the 1987 review, he discusses starch and sugars and their role in the epidemiology of diabetes and coronary heart disease.[144]

Many researchers (I've cited 7 sources) have found that sucrose added to the diet of laboratory animals or increased in the diet of healthy volunteers is consistently associated with impaired glucose tolerance, retinopathy, nephropathy, and reduced insulin sensitivity of the tissues.[145,146,147,148,149,150,151]

In a study by Reiser et al., men and women were tested and classified as carbohydrate-sensitive on the basis of an exaggerated insulin response to a sucrose load. The glucose response was significantly greater after 18% and 33% sucrose diets than after 5% sucrose diets. The results indicate that sucrose intake by carbohydrate-sensitive individuals even at

levels approximating the average U.S. intake can produce undesirable changes in several parameters associated with glucose tolerance.[152]

DIABETICS WANT THEIR CAKE

Some researchers have recently been trying to prove that sugar in the diet of a diabetic does not have to raise blood sugar levels. One study erroneously concludes that short-term intake of sucrose will improve glycemic control, and that sucrose will not aggravate glycemic control.[153]

Another study, entitled "Diabetics Do Fine on Sugar Snacks in Short-Term Trial," reports that adding two sugar-laden snacks a day to diabetics' diets has no effect on glycemic control in short-term study. But glycemic control (showing the numbers) is not the important part of treating diabetes – it's controlling the damage that sugar does.

Sugar is a slow poison, and any amount taken regularly may be harmful in the long run. Giving diabetics the idea that they can eat limited amounts of sugar will definitely gain "approval," but

not bode well for patients. "Give me an inch and I'll take a mile" will soon be evident as diabetics, being human, will begin to eat as much sugar as they like. They will still monitor their blood sugar and simply increase their meds or insulin as needed to cope with the excess sugar – just as their Diabetologists teach them to do.

NOTE: Let me pause here to note that we have a medical specialty called, "Diabetology," but we do not have a Nutrition medical specialty.

Diabetics in these studies are often on insulin. How can studies produce proper results when the subject's blood sugar is already being synthetically controlled? Are researchers suggesting that we all go on extra insulin so that we can eat as much sugar as we want!

A review by Hollenbeck[154] includes the comment:

> *Recently, there has been increasing interest toward the liberalization of sucrose in the diets of individuals with non-insulin dependent diabetes mellitus. However, there is evidence from several well-*

> *controlled prospective studies demonstrating that the consumption of moderate amounts of sucrose may result in high blood sugar levels and high insulin levels, high triglycerides and cholesterol and reduced high-density lipoprotein cholesterol concentrations.*

Dufty reports that in 1929, Dr. Frederick Banting, the discoverer of insulin, emphasized that his discovery was merely a palliative, not a cure, and that the way to prevent diabetes was to cut down on "dangerous" sugar bingeing. Obviously diabetologists have learned nothing in the past 100 years.

Fructose (fruit sugar), like sucrose, has been shown to have a hyperlipidemic effect in diabetics. In a 1983 study by Hallfrisch,[155] twelve men with a hyperinsulinemic response to sucrose loading and a suitable control group were alternately fed a diet with either 15% fructose or starch. The fructose caused a general increase in both the total serum cholesterol and the LDL cholesterol in most subjects in both groups, while triglycerides rose significantly only in the hyperinsulinemic group. We learned

almost 40 years ago that overuse of fructose may not be such a good idea.

Reiser showed that sugar can't hide when it is served as part of a meal, it still adversely affects glucose tolerance compared to complex carbohydrates. Results indicate that sugars adversely affect indices of glucose tolerance when they replace complex carbohydrates, even in a high-fiber, low-saturated fat diet.

SUGAR DAMAGES PROTEIN

Furth and Harding wrote an excellent article about sugar and glycation called "Why Sugar is Bad for You" in a 1989 issue of *New Scientist*.[156] Sugar has the power to bind and permanently alter the molecular structure of protein and therefore interfere with the way they work. This process produces Advanced Glycation End Products (AGEs).

Nancy Appleton, in her book *Suicide by Sugar*,[157] gave an excellent overview of the problem with AGEs. She explained that when our bloodstream is saturated with sugar continually, the sugar can bind inappropriately with protein (usually when

cooking with high heat). AGEs are primarily formed through non-enzymatic reactions between sugars and proteins or lipids, rather than through enzymatic processes. It's called the Maillard reaction.

Sugar and protein are not supposed to bind without the assistance of enzymes. When we consider that magnesium is responsible for 600-800 enzymes and for 80% of known metabolic functions, perhaps it's the lack of magnesium that allows some of these AGEs to be formed.

What's called non-enzymatic binding can permanently alter the molecular structure of the glycoprotein, placing toxic AGEs in structural positions that damage the body. This toxicity must be addressed by an overworked immune system triggering allergies, high blood pressure, and headaches, and may lead to atherosclerosis, heart disease, macular degeneration, joint stiffness, cancer, rheumatoid arthritis, Alzheimer's disease, cataracts, and diabetes.

The evidence for the damage caused by AGEs is in the diabetic population that suffers nerve, artery, and kidney damage

because high blood sugar levels in their bodies markedly accelerate the chemical reactions that form AGEs.

Diabetic cataracts are likely due to this process of glycation where the proteins of the lens of the eye are exposed to glucose. Cataracts also include calcium deposits, likely due to the lack of magnesium that is supposed to keep calcium in solution and directed to the bones and teeth.

Glycation happens at a rate dependent on the concentration of sugar. The more sugar, the more glycation. Aging is another complication of glycation and is dependent on the amount of sugar and the duration of exposure. If insulin cannot get rid of an influx of 40 grams (10 teaspoons) of sugar from a chocolate bar or a soft drink fast enough, you have an exposure level that can create glycation. With age, blood sugar goes higher and stays higher longer with a high intake of sugar. We will discuss AGEs and glycation again in the next chapter mainly because nobody else is looking at it!

When scientists began to realize that this process of glycation could cause aging and cause a malfunction of ANY protein in the

body, instead of limiting sugar, they started to look for a DRUG to reverse this process. I won't go into all the details of their search for the drug because it is anticlimactic. There is no toxic drug that is going to solve this toxic problem for us. The way out of the dilemma is the obvious. Cut out sugar! It is just that simple.

Furth and Harding agree that the link between sugar and disease is hotly contested, but there is no denying the data in the glucose tolerance curves. After a 50-gram dose of sugar, the level of glucose in the blood rises sharply and remains high for more than one hour, especially as we get older, and that amount of sugar is easily found in a 2 ½ cups of fruit juice or a chocolate bar or a soft drink.

As you can see, my references for the book begin and end in the 1970s and 1980s. Gary Taubes and Robert Lustig bring the conversation up to date, but they merely reinforce what we knew 50 years ago and show how badly medicine has handled the whole sugar controversy.

Taubes in *The Case Against Sugar*[158] gives a brilliant chronology of the history of diabetes including cultures (the Pima People of Arizona and the First Nations People of Canada) that succumb to diabetes as soon as they are introduced to sucrose. In the late 1800s diabetes was rare. Here is a summary of what Taubes wrote:

> *In 1890, Robert Saundby, a former president of the Edinburgh Royal Medical Society, presented a series of lectures on diabetes to the Royal College of Physicians in London in which he estimated that less than one in every fifty thousand died from the disease. "Diabetes," said Saundby, is "one of those rarer diseases" that can only be studied by physicians who live in "great centers of population…"*

By 2012, Taubes agrees that diabetes is epidemic:[159]

> *In 2012, the latest year for which the Centers for Disease Control (CDC) have provided estimates, one in every seven to eight adults in this country had diabetes—12 to 14 percent, depending on the criteria*

> *used to diagnose it. Another 30 percent are predicted to get diabetes at some point during their lives. Almost two million Americans were diagnosed with diabetes in 2012—one case every fifteen to sixteen seconds. Among U.S. military veterans, one in every four patients admitted to VA hospitals suffers from diabetes.*

Taubes notes that the Pima People and First Nations People, suffer diabetes in one out of every two adults. Diabetes is also big business: "A dozen classes of drugs are now available to treat the disease, and the market for diabetic drugs and devices in the United States alone is over thirty billion dollars yearly."

My advice for you is to continue to read this book series. In Book 2, *Detox Your Body: The Sugar-Free Plan,* I discuss the Yeast ReSet Protocol and Sugar-Free Diet along with Intermittent Fasting. Adding my picometer magnesium and multiminerals and methylated, food-based B vitamins with L-Methionine, and L-Taurine is the gentlest way to lower your blood sugar and to lose weight – which should be your intent. (See Appendix C.)

SEXY SUGAR

Is sugar sexy? Sugary chocolate treats have been paired with love and kisses, Valentine's Day and every holiday celebration we can think of, but, as it turns out, it's not so sexy. I put this information about sugar and sex in the diabetes chapter because one of the many side effects of diabetes is low libido. Perhaps a study published in 2007 can explain why.

The study, by *The Child and Family Research Institute* in Vancouver, found that too much fructose and glucose can turn off the gene that regulates the levels of active testosterone and estrogen in the body.[160] The study was done on mice and human cell cultures, not on humans, however the biochemistry is very interesting and informative.

Excess sugar, that's not taken up by the cells for immediate use, ends up being converted in the liver to fats (lipids). Apparently, this increased production of lipids causes "the shutdown of a gene called SHBG (sex hormone binding globulin), reducing the amount of SHBG protein in the blood. SHBG protein plays a key role in

controlling the amount of testosterone and estrogen that's available throughout the body. If there's less SHBG protein, then more testosterone and estrogen will be released indiscriminately throughout the body, and is associated with an increased risk of acne, infertility, polycystic ovaries, and uterine cancer in overweight women. Abnormal amounts of SHBG also disturb the delicate balance between estrogen and testosterone, which is associated with the development of cardiovascular disease, especially in women."[161]

When I was first studying sugar in the 70s, the only book available was *Sugar Blues* by William Dufty (1975).[162] Now there seem to be hundreds of low-sugar cookbooks and books warning about the dangers of sugar. But I don't see any that specifically address sugar and sex. Is it too hot a topic? Maybe there is not enough information for a book or not a subject that people want to think about, but a quick google search turns up hundreds of pages addressing high sugar and low libido. Most of them reference diabetes, which implies that low libido is part of diabetes, not necessarily part of sugar addiction.

Sugar Raises Insulin And Lowers Testosterone

Well, that's what sugar is supposed to do – cause a rise in insulin so that sugar can be ushered inside cells as food for the production of energy. However, "too much" sugar can gradually make cells resistant to the efforts of insulin to open them up to an influx of sugar. In men, this sugar – insulin interplay can lower testosterone levels leading to diminished libido.

Low testosterone causes reduced muscle mass and increased belly fat. And more belly fat leads to greater production of estrogen, leading to low sex drive and erectile dysfunction. But sugar reduction is not promoted as a solution to erectile dysfunction – the sugar lobby would not be amused. Also, Big Pharma is making too much money from the sale of Viagra to get behind a healthy sugar-free therapy.

The studies done to prove the effects of sugar on testosterone are quite pathetic. One such study only enrolled 74 men, but it did show that men with abnormally elevated oral glucose tolerance tests exhibited lower levels of testosterone.

Sugar Creates Leptin Resistance

Leptin is a hormonal protein produced by fat cells that regulates appetite and fat storage. High blood sugar and insulin resistance confuse leptin function and no longer tells you to stop eating when you are full and the leptin levels rise. Now you are leptin resistant as well as insulin resistant – all because of too much sugar. As I note many times in this book, at any one time, we only have about two teaspoons of sugar in our bloodstream, whereas there are ten teaspoons of sugar in one can of soda.

Another small study found that men with higher leptin levels had lower levels of testosterone and higher body mass index – they were obese.

Sugar Reduces Growth Hormone

Human Growth hormone (HGH) made the headlines a few decades ago as the antiaging miracle. People were taking shots and pills to turn back the clock. All the hoopla was based on a small study of about a dozen people. Finally, the risks, dangers, and costs were

seen to be far too great for anyone to be experimenting with human growth hormone. HGH treatments fell by the wayside.

We do know that Growth Hormone is produced during deep sleep; it improves muscle mass, helps your body utilize fat, and helps maintain optimal libido. If GH is depleted you can have diminished muscle mass, increased abdominal obesity, risk for Type 2 diabetes, and lower libido. Research shows an association between low GH, insulin resistance, diminished testosterone, and sexual dysfunction.

Sugar Makes You Tired

I've spoken about hypoglycemia and the ups and downs of blood sugar and the effect on your energy but there is more to the story. A neurotransmitter called orexin regulates eating behaviors, wakefulness, and arousal. Orexin's behavior is affected by the food you eat. Protein increases orexin triggering alertness; sugar does the opposite, decreasing orexin and leading to fatigue and drowsiness.

CHAPTER EIGHT: PERIPHERAL NEUROPATHY

I have added this short chapter about the effects of sugar on our nerves because I haven't given it any attention in the past, and neither have the sugar authors I consulted – except Dr. Richard Jacoby.

In doing research for *Exposing Sugar Toxicity: A Clinical Perspective*, I read *Sugar Crush* and learned from the brilliant peripheral nerve surgeon, Dr. Richard Jacoby, that sugar is constantly crushing our nerves. The full title of the book is *Sugar Crush: How to Reduce Inflammation, Reverse Nerve Damage, and Reclaim Good Health.*[163]

From this title we surmise that sugar inflames, irritates, and damages the peripheral nerves. DANG! How did this get missed by allopathic medicine and alternative medicine? Doctors say there is no cure for peripheral neuropathy and just prescribe toxic drugs like Neurontin (gabapentin) to try to give some relief.

Neuropathy is a result of damage to the nerve or system of nerves throughout the body. Your nerves send out messages

originating from your brain and spinal cord to the rest of your body. If they become damaged, that message does not make it to its destination. A damaged nerve can lead to weakness, numbness, tingling, burning, painful, and unpleasant sensations, usually in the hands and feet. Nerve damage can also manifest as restless leg syndrome, carpal tunnel, plantar fasciitis, and migraine headaches.

Neuropathy affects up to half of patients with diabetes, so it's a huge problem in this population and reinforces that too much sugar is associated with neuropathy. As a diabetic, your bloodstream may be saturated with high levels of sugar all day. Or a non-diabetic may suffer jolts of sugar with Sugar Pops in the morning, donuts at snack time, sodas throughout the day, and dessert at dinner. However you obtain your excess sugar, you are damaging your nerves. Nancy Appleton says that ingesting any more than 2 teaspoons of sugar at a time is a burden on your body.

What is the mechanism of injury? When there is too much glucose in the bloodstream that hasn't been shunted into the cells

by insulin, the body depends on other ways to remove glucose. One is called the polyol pathway, a two-step process that converts glucose to fructose. On the way to fructose, sorbitol is produced. That's very important because sorbitol, once it's inside a cell, it is stuck and can't get out. The retina, kidney, and nerves are not dependent on insulin to allow glucose to enter cells – so those cells can be passively flooded with glucose at times of hyperglycemia. This is important because these are the areas that sustain the most damage in diabetes.

Any glucose that is not used for energy will enter the polyol pathway. If the blood sugar is normal – at around 100 milligrams/deciliter (5.5 millimoles/liter) – the polyol pathway is not activated. If the blood sugar is high, then the polyol pathway cranks up and sorbitol accumulates. That molecule is too big to leave the cell, so it stays put, attracts water into the cell, and, with a certain amount of sorbitol, causes cellular swelling and cell death. Death by Sugar!

So, that's what happens; the microvascular damage to the retina, kidneys, and nerves is caused by high blood sugars that transform glucose into sorbitol.

It may be hard to imagine nerves swelling up with sorbitol, so let's go over it again. Nerves are made up of cells and these nerve cells are wide open to glucose – which then can morph into sorbitol. Sorbitol molecules are unable to move across cell membranes and get stuck inside the nerve cells. Water is pulled into the cells by concentrated sorbitol and the nerves, made up of these water-logged cells become swollen leading to nerve compression and causing numbness and tingling and burning pain – AKA neuropathy. Sorbitol-swollen nerves get less oxygen and nutrients, gradually stop conducting effectively, and start being symptomatic.

Allopathic medicine will list several factors that can cause neuropathy such as chemotherapy, exposure to toxins, alcoholism, traumatic injuries, or a B vitamin deficiency, but the most common cause of neuropathy is high blood sugar. As I mentioned earlier, neuropathy is common in diabetic patients

who suffer high sugar levels. But what about the high sugar intake by pre-pre-diabetic patients? That's what I'm going to start calling people who are ingesting more than two teaspoons of sugar per day – pre-pre-diabetics!

When I searched for studies about "sugar and peripheral neuropathy" there were only 190 human studies in the past five years that came up, and it seemed like the majority referenced diabetes. Nobody but Dr. Jacoby is looking into widespread sugar-induced neuropathy!

As I mentioned earlier, I only recently learned about sorbitol-damaged nerves from Dr. Jacoby. I did know from my naturopathic training that sugar tissue damage, which is common in diabetics, is caused by advanced glycation end products (AGEs). As we discussed in Chapter Seven, AGEs are proteins or lipids that become glycated (bound) to sugars as a result of high levels in the blood. AGEs can be a factor in aging and in the development or worsening of many degenerative diseases, such as diabetes, atherosclerosis, chronic kidney disease, and Alzheimer's disease. The most well-known AGE is HgA1C, a

measurement of glucose building up in the body as it binds to red blood cells over a 3-month period and, when elevated, is a sign of diabetes.

When I learned about AGEs decades ago, the advice was to avoid cooking foods at high temperature – especially meat. Now researchers realize it's mainly due to cooking fat and protein along with sugar. But instead of making sugar the bad guy, they picked on meat. Many processed foods are heated, and most of these foods have added sugars – therefore, AGEs are common in processed foods.

All tissues and systems of the body are at risk from the buildup of AGEs. These compounds can clog the tiny capillaries throughout the body, especially in the kidneys, eyes, heart, and brain, the areas that are targeted in diabetes.

Here's how Dr. Jacoby analyses the nerve damage and scarring that occurs from sugar:

1. Too much sugar triggers inflammation in your blood vessels and causes the Maillard reaction, or glycation: the slow sugar-cooking of proteins in your body, causing the formation

of AGEs. Among other things, this makes the endothelium rough and sticky, rather than smooth – it becomes more like Velcro than Teflon.

2. When sugar is processed into sorbitol, it enters your nerves through the polyol pathway and gets stuck there. The sorbitol causes your nerves to absorb water and swell. When there's no room for them to expand further, the nerve gets compressed against the surrounding bone and tissue. The pressure causes pain and numbness. In addition, the swollen nerve gets less oxygen and nutrients as it gradually stops conducting effectively.
3. The nitric oxide pathway is blocked by high levels of asymmetric dimethylarginine (ADMA) (which is a sugar regulator). This causes the blood vessels to constrict, which reduces blood flow to the nerve – and reduced blood flow means that the tiny blood vessels bringing nutrients and oxygen to your nerves constrict and then clog up. A relatively minor amount of constriction can lead to a disproportionately large impact on flow. According to Poiseuille's law, a 19

> percent reduction in the radius of the vessel will reduce blood flow by 50 percent. Think of the implications. Less than 20 percent constriction results in blood flow being cut in half. When nutrient-rich and oxygen-rich blood can't get to your nerves, they suffocate and black out, slowly and painfully.

Dr. Jacoby concludes that such abnormal sugar mechanisms are at work in all your cells and account for such diverse problems as irritable bowel syndrome, migraines, and macular degeneration. He says that to see the complete picture of what happens when you eat sugar, it's important to remember that your nerves are essential messengers throughout your body. They fulfill roles that extend well beyond the sense of touch, carrying critical messages to and from every muscle and organ in the body. When those messages are impaired, muscles don't work properly, and organs fail.

Since elevated ADMA levels are found in patients with hypercholesterolemia, hypertension, arteriosclerosis, chronic renal failure, and chronic heart failure, and they are associated

with restrictions in endothelial vasodilatation, magnesium deficiency is bound to be involved.

NOTE: Magnesium promotes nitric oxide, which is blocked by ADMA. Magnesium is essential for healthy blood pressure as it promotes the release of nitric oxide, a signaling molecule that helps relax blood vessels and maintain blood pressure.

The treatment for peripheral neuropathy is primarily to avoid sugar. Dr. Jacoby recommends the Keto diet, which is a great way to limit sugar and carbs. He even says, "sugar is the problem, fat is the answer." Because sugar is the problem, he's also leery of too much fruit. That's why I'm comfortable advising you to reduce sugar and fruit on the Sugar-Free Diet instead of the Keto Diet. In that plan, I recommend that people with yeast overgrowth only eat 2 pieces of fruit a day and that everyone else take no more than 4 pieces a day. Jacoby urges you to read labels and not get seduced by words like "natural" or "sugar free." Sugar free refers to toxic synthetic sugar substitutes.

A Sugar-Free Diet has all the benefits of a Keto Diet while reducing yeast overgrowth. I also add picometer minerals and

natural and whole food vitamin co-factors to get the building block nutrients for your body. See Appendix C for more information.

CHAPTER NINE: HEART DISEASE

What follows is an edited version of a blog that I wrote on December 7, 2017 that expresses how much ground we have lost in our war against sugar because of the sugar industry's suppression of the scientific truth that sugar causes heart disease.

A SUGAR-FREE HALF-CENTURY

What would the world be like if we hadn't become so addicted to sugar over the past half century? If allopathic medicine, which claims to be scientifically-based, had listened to scientists 50 years ago about the dangers of sugar, we could be living in a totally different world.

Isn't it the FDA's given mandate to ensure the safety of our nation's food supply? And if sugar is not safe, shouldn't the FDA have warned us about these scientific facts? I've heard people say countless times that when their doctor told them to severely cut back on sugar (or some other addictive substance), they finally listened. So, having doctors pass on this relevant

information about the dangers of sugar could have saved countless lives.

A 2018 article "How The Sugar Industry Tried To Hide The Health Effects Of Its Product 50 Years Ago" exposes the sugar industry's corruption. The article begins:

> *About 50 years ago, the sugar industry stopped funding research that began to show something they wanted to hide: that eating lots of sugar is linked to heart disease. A new study exposes the sugar industry's decades-old effort to stifle that critical research*.

A 2018 investigative report published in PLOS (Public Library of Science) titled "Sugar Industry Sponsorship of Germ-Free Rodent Studies Linking Sucrose to Hyperlipidemia and Cancer: An Historical Analysis of Internal Documents" proves what was apparent 50 years ago – that a high-sugar diet increases the risk of heart disease.

It was a rat study that should have escalated into human studies. But as soon as the inconvenient facts became known, all funding

for that project was pulled and the results were never published. Even worse, the results were systematically buried.

The sugar industry also never admits that sugar causes weight gain – they said weight gain is due to lack of exercise. Obviously, they would not want sugar to be associated with weight gain since that would lead to its association with diabetes and heart disease.

Of course, weight gain is caused by sugar, which leads to insulin resistance, metabolic syndrome, elevated lipids, and heart disease. And, as that early rat study showed, sugar intake can harm the heart even without weight gain.

According to the CDC, the percentage of adults 20 years of age, and older, who are overweight and obese was 73.6% (2017-2018). It's likely worse now in 2025. Yet the Dietary Guidelines for Americans only advise that sugar should be "used in moderation." They don't give an amount of sugar that is too much to maintain good health.

Even worse, the Institute of Medicine, part of the U.S. National Academy of Sciences, keeps the sugar industry happy by advising

people to limit their intake of added sugar to 25% of their daily calories. According to a 2017 publication in *Nutrition Reviews*, that statement by the IOM was made in 2005 and still stands.

I've said it before and I'm going to hammer it home – that means, if you eat a 2,000-calorie diet, 500 calories or 125 grams of carbs can come from sugar. The amount of carbs that you can eat but still maintain your weight or lose weight is between 20 and 50 grams.

Thus, the amount of sugars "allowed" by our health experts ensure weight gain. Even 10% of added sugars from a 2,000-calorie diet means a carb intake of 50 grams. Note that a can of soda may contain 10 teaspoons or 40 grams of sugar; a bottle of energy drink, like Rockstar, can have up to 15 teaspoons or 65 grams of sugar! Factor in the price of soda as being lower than water! So, what are people going to reach for?

You can read more about the attempts of the sugar industry to deceive us about sugar in the article "How the Sugar Industry Shifted Blame to Fat."

WHAT'S WORSE, FAT OR SUGAR?

The debate continues as to whether high fat or high sugar intake are responsible for coronary heart disease. But most researchers feel that the correlation between dietary lipids and heart disease mortality is less than the correlation that refined carbohydrates have with coronary heart disease. This makes dietary lipids of secondary importance, with refined carbohydrate consumption of primary importance.[164]

A large prospective study analyzed the diets of three groups in 1959 and surveyed subsequent mortality in 1982. Men born and living in Ireland, men born in Ireland who migrated to Boston, and men born in Boston to Irish immigrants formed the groups. In all groups combined, those who died of coronary heart disease were more likely to have had significantly less complex carbohydrate and fiber intake (as well as starch and vegetable protein). Cholesterol intake and the ratio of saturated-to-unsaturated fats were likely to be higher. The authors suggest that the nutritional change most closely linked to the increased mortality rate from atherosclerotic heart disease (which began to

rise in the 1920's) was a decrease in complex carbohydrates with a shift to refined carbohydrates (sugars) rather than changes in the consumption of dietary lipids.[165]

An international study cited statistics from the Department of Hygiene in the Tohokiu University School of Medicine in Sendai, Japan. Calculations were made between the consumption of simple carbohydrates and complex carbohydrates for twenty Western countries. The corrected death rate for 30- to 69-year-olds from atherosclerotic heart disease showed that the deaths correlated directly with the consumption of sugar and syrups (simple carbs) and inversely with starch (complex carbs) intake.[166]

Cheraskin and Ringsdorf[167] cite Dr. A. M. Cohen, who asserts that the ingestion of sucrose might be an important factor in the increasing incidence of atherosclerosis in affluent societies and its association with a decreased oral glucose tolerance. He said:

> *If a nutrient is an etiological factor underlying the increased incidence of atherosclerosis and diabetes in Yemenites who have lived in Israel for many years, it*

> *seems that suspicion must fall on the ingestion of sucrose. The increased consumption of sucrose might, therefore, also be responsible for the increased prevalence of these diseases in the general population.*[168,169]

Cheraskin and Ringsdorf[170] quote Kuo and Bassett and Pleshkov who revealed that sugar significantly elevated triglyceride levels and starch lowered the levels.

Cheraskin and Ringsdorf[171] also report on the recent interest in carbohydrate quality as a determinant of serum lipid levels. Multiple studies using data collected by the Interdepartmental Committee on Nutrition for National Development in the U.S. have obtained significant correlations between simple (positive correlation) and complex (negative correlation) carbohydrates and serum cholesterol levels for sixteen countries:

> *Thus, the increased ingestion of simple sugars is associated with an increase in serum cholesterol and an increased intake of complex carbohydrates, with a depression of the serum cholesterol. The lipemic effect*

> *of dietary sucrose upon serum lipids is verified both by dietary supplementation and elimination. And in the presumably healthy American male, sugar or sucrose exerts a hyperlipemic effect while the complex carbohydrates (starches) are principally hypolipemic in nature.*

A *Science* journal article found that alteration of serum lipid levels by exchanging sucrose for starch has actually been achieved in as little as five days.[172]

WHAT ABOUT SALT?

In the book *Salt Sugar Fat* by Michael Moss,[173] the history of the Big Salt industry is every bit as duplicitous and nefarious as that of the tobacco, sugar, and fat industries.[174] All for the sake of the mighty dollar, the salt industry has denied – with their fingers crossed behind their back – that sodium chloride is bad for you. However, the other side of the coin is that when medicine began cutting back on salt, they went too far and didn't differentiate between table salt (sodium chloride) and sea salt (with its 72 different minerals).

Some of the following you may have read in my blogs, but this is a summary of my research on salt. As we all know, salt has been demonized by allopathic medicine as one of the causes of hypertension and heart disease. That may be true to some extent for table salt (sodium chloride) used in saltshakers, and much more so in most processed foods, but it is not true for sea salt that contains dozens of trace minerals. Many of these trace minerals haven't even been studied with regard to optimum health, yet doctors tarnish sea salt with the same brush as sodium chloride.

Here is what one 81-year-old customer recently wrote:

> *A friend is into her 2nd year of recovery from a heart attack and congestive heart failure. Her cardio guy is making her follow the Mayo Clinic dietary guidelines of low sodium diet and reduction of fluid intake resulting in a fear of salt and water. She does not drink water unless she's parched, mostly on the golf course, and only a sip here and there. In spite of all that her ankles are often swollen, and she has chronic exhaustion and*

> *depression. She is only 62 years old. She is on a disability pension and is overweight. She was vibrant and healthy until her heart attack. I have been trying to encourage her to follow your advice, but because your Himalayan salt and water intake regime is opposite to her cardio guy, she tunes me out. I am finding it difficult to watch her slowly, in ignorance, destroy the very life she wants so hard to cling to.*

Here are my Water Guidelines: Drink half your body weight (in pounds) in ounces of water. Add ¼ teaspoon of sea salt (for its 72 minerals) in every liter of drinking water.

In the 2017 edition of *The Magnesium Miracle*, I write:

> *It's a sad misconception that table salt (sodium chloride) and sea salt are the same. Nothing could be further from the truth. Sea salt is replete with 72 different minerals and table salt is just plain sodium chloride. You could call sodium chloride a drug for the damage it does to the body. Sea salt was a valued commodity in the past, so valued that it was at one*

time used as currency. Proper hydration, sea salt and well-absorbed minerals are the keys to efficient and effective cellular function. When you have the proper amount of minerals in the cell – the cell automatically pulls in water (osmosis) to create the perfect electrolyte balance and allows the cell to function efficiently.

If you don't take enough minerals, water isn't able to be pulled into your cells and it collects in extracellular tissues, especially feet, legs and hands. You can develop "sausage fingers" and swollen ankles. If you have edema and symptoms of heart disease, like chest pain and an irregular pulse, your doctor may diagnose you with heart failure. It's probably why they are so aggressive about treating edema with diuretics. But if they could only review basic fluid dynamics and cellular function, they might learn the truth.

Not enough fluid in the cells can also affect the brain. My concern is that much of the dementia experienced by the elderly is, in

fact, simply cellular dehydration and mineral deficiency – especially magnesium deficiency!

A journal case study reported that an elderly woman's Serum Magnesium level became depleted due to a diuretic she was taking for hypertension. She was admitted to the hospital with severe weakness and developed an overt psychosis with paranoid delusions. Fortunately, her magnesium deficiency was identified, and following large intravenous doses of magnesium, her symptoms disappeared within twenty-four hours. However, her symptoms returned as long as she was taking the diuretic. No other abnormalities were found to explain her condition. People who are prescribed diuretics should check with their doctor about taking at least 600 milligrams a day of supplemental magnesium in divided doses. (The best form of magnesium is a picometer-sized, stabilized ion of magnesium.) If you take magnesium , many of the side effects of diuretics can be avoided.

If people still balk at the thought of taking something their doctor is against, I tell them to read *The Salt Fix*,[175] a book by cardiovascular researcher James DiNicolantonio, PhD.

Here is the book's blurb from Amazon:

> *A leading cardiovascular research scientist and Doctor of Pharmacy overturns conventional thinking about salt and explores instead the little-understood importance of it, the health dangers of having too little, and how salt can actually help you improve sports performance, crush sugar cravings, and stave off common chronic illnesses. Too little salt in the diet can shift the body into semi- starvation mode and cause insulin resistance and may even cause you to absorb twice as much fat for every gram you consume. Too little salt in certain populations can actually* increase *blood pressure, as well as resting heart rate. We need salt in order to hydrate and nourish our cells, transmit nerve signals, contract our muscles, ensure proper digestion and breathing, and maintain proper heart function.* The Salt Fix *will show how we wrongly demonized this essential micronutrient as well as explain what the current science really says about this misunderstood*

mineral and how to maximize its effect so you can enjoy ideal health and longevity.

DiNicolantonio cites many studies to back up his findings and he can add the following to his references. This recent study shows that "CV Events Increase Only With High Levels of Sodium Intake." Specifically, they found that "Increased risks for stroke or cardiovascular disease are seen only in communities where mean sodium intake exceeds 5 g per day." Most of the high sodium communities were found in China.

The amount of sodium in one teaspoon or 6 grams of sodium chloride, table salt is 2,325 milligrams. So, 5,000 milligrams or 5 grams of sodium would be found in 12 grams or 3 teaspoons of table salt. That's a lot of salt. *The Salt Fix* does report on several small studies where high amounts of natural salt were beneficial, but I stand by my recommendation to consistently use ¼ teaspoon of unrefined sea salt in each liter of drinking water.

Researchers in this 2018 study note that "Sodium has always been a 'holy grail' nutrient for CVD prevention, going back to the

1970s, but sodium is an essential nutrient and lowering too much can actually increase mortality."

In a previous study in 2016, the same team studied more than 130,000 people from 49 different countries and concluded that salt restriction reduced the risk of heart disease, stroke, or death only in patients who had high blood pressure, and that salt restriction could be harmful if salt intake became too low in other populations.

Apparently only about 10% of those with hypertension react negatively to salt, and even that number I might dispute because someone who is properly saturated with magnesium is able to master their electrolytes, including sodium. With the massive medical avoidance of salt, 90% of the population is needlessly restricted, which can negatively affect the body. It's not just tasteless food, but the electrolytes are thrown out of balance. Also, the adrenal glands require sodium. In my world, I want people to add sea salt to their drinking water to access the 72 minerals available, but many have been brainwashed by the anti-salt lobby.

The Lancet reports that…

> *The reaction of the scientific community (to this salt study) was swift. 'Disbelief' was voiced that 'such bad science' should be published by The Lancet. The American Heart Association (AHA) refuted the findings of the study, stating that they were not valid, despite the AHA for many years endorsing products that contain markedly more salt than it recommends as being 'heart healthy.'*

It's quite narrow-minded to think that salt only influences blood pressure. First of all, our ancestors did not use sodium, they used natural sea salt, which carries 72 minerals. Table salt is only one mineral, sodium chloride. Our cells absolutely require minerals. We are not getting them in our drinking water anymore – it's chlorinated, fluoridated, filtered, and devoid of minerals so we have to depend on sea salt.

If we don't have minerals in our cells, our cells become dehydrated and don't accept water. The water collects in extracellular tissue, falling with gravity to our ankles, causing

edema and filling up our blood vessels causing high blood pressure. The treatment is not to take diuretics and limit fluid intake, but to drink sea-salted water, adding extra picometer magnesium and picometer multiminerals. The people who do this eliminate their edema and their high blood pressure. Their cells become hydrated pulling in minerals by osmosis and cellular processes become perfected and the organs work properly.

IMAGINE ALL THE PEOPLE

Let's imagine what the world would be like if medicine had followed the Hippocratic Oath to "first do no harm" and "use those dietary regimens which will benefit…patients."

Educating the public about the dangers of consuming too much sugar would result in far less obesity; lessen ineffective gastric bypass surgery; and prescribing fewer weight loss drugs with their many side effects (Fen-Phen, Ozempic, Wegovy). There would be less obesity, less metabolic syndrome, and less lipid imbalance, and therefore less heart disease. Blaming dietary fat as the culprit in heart disease unleashed an unnecessary witch

hunt against saturated fats, opening the commercial market to trans fats for decades until trans fats were found to be far worse!

Magnesium deficiency is associated with heart disease, metabolic syndrome, diabetes, and obesity. Perhaps if medicine was more involved with nutrition, they could have avoided this epidemic. Instead, there is no nutrition subspecialty in medicine. Instead, there is a Bariatrics subspecialty and even a Diabetology specialty that commercialize obesity that occurs because we ignore nutritional education. Instead of preventing the problem, they allow it to manifest and then use expensive drugs and surgery to treat it.

If medicine and the public were more aware of the dangers of sugar and the industry covering up the problem, they might not have attacked me and convinced my licensing body that I was a danger to society because I said bad things about sugar! By keeping me (and other critics) out of mainstream media, the message of natural solutions is greatly hampered. Drug companies became the main advertiser on TV and natural solutions were demonized.

If there were more awareness of nutrition, we might have avoided our magnesium deficiency epidemic and the associated 65+ diseases that can be the result. Sugar creates a magnesium deficit, in part, because the liver needs twenty-eight atoms of magnesium to process one molecule of glucose. Fructose requires fifty-six atoms of magnesium.

Sugar also contributes to the epidemic of yeast overgrowth that we suffer. If we had limited our intake of sugar to the WHO recommendation of no more than 5% of our daily calories, we would not suffer the dozens of autoimmune diseases like Hashimoto's thyroiditis that plague the Western world.

My instincts and information were perfectly on target almost 50 years ago when I warned people about sugar. Today, I continue to fight against excess sugar. With my picometer minerals, emphasis on replacing depleted magnesium, and my Yeast ReSet Protocol, you can painlessly limit your sugar intake and maintain your good health.

PAST HISTORY

My original 1990s text for this book includes a lot of "old" references from the 1970s, 80s, and 90s. Some might say they are "out-of-date," but I say that 50 years ago, the sugar industry began to taint sugar research and some of the more reliable studies were done before that time.

A PubMed search for "sugar and heart disease" netted 2,138 human studies in the last five years, which might seem OK at first, but seems trivial when you stack that number up against the 177,931 human studies on heart disease published in the same period.

NOTE: That translates into 0.012% interest in researching sugar as the cause of heart disease. Very disheartening!

Cleave's thoughts from 70 years ago on the incidence and evolution of coronary artery disease may be summarized by saying that the all-important incubation period is about thirty years. He relies heavily on epidemiological and geographical studies of the incidence of coronary artery disease. Once again, Africans living tribally on unrefined carbohydrates are almost

completely free of coronary artery disease. The same is true for Asian Indians living rurally, etc. There is no lack of references on Cleave's work of the available studies at the time.[176]

INDIA SUCCUMB TO DIABETES

You may have heard of the "recent" epidemic of diabetes in India. A 2016 study, "The Elevated Susceptibility to Diabetes in India: An Evolutionary Perspective,"[177] doesn't even mention sugar. Instead, it attributes India becoming the "diabetes capital" of the world to a high "metabolic load," generated by high levels of body fat, high dietary glycemic load, and sedentary behavior.

Once again, researchers portion out the blame to fat, sugar and exercise so that proper emphasis is not placed on eliminating sugar to help eliminate diabetes. But they even backtrack on the previous statement and illegitimately evoke genetics to say:

> *There is little consensus on the causes of the Indian diabetes epidemic, or on the appropriate public health policies by which the issue may be addressed. The*

simplest perspective might invoke genetic susceptibility.

It's the same story as with most health concerns – when they can't find the cause, they blame the genes. Let's be clear, genes don't "evolve" into diabetes overnight.

In fact, the incubation period seems the same as Cleave's original observation. Over the past 40 years, the incidence of diabetes in India has increased dramatically. In the 1970s, roughly 3% of the urban population was diabetic. By 2017, a study of 15 states in India found that diabetes incidence almost quadrupled to 11.2%.

TARGETING COCONUT OIL

At a 2018 conference in Germany, Dr. Karin Michels, a professor of epidemiology, demonized India's reliance on coconut oil, erroneously calling it a "pure poison" and "one of the worst foods you can eat."[178]

I presume she was trying to promote the role of "fats" in the declining health of the people in India. Her comments were met

with outrage and incredulity in India (and around the world) where coconut oil is a healthy dietary staple. India's horticulture commissioner asked the Dean of the Harvard School of Public Health to take "corrective measures" and retract the comments. This controversy underlies the stunning lack of basic nutrition facts at the university level. It is unfortunate that such biased, uninformed people have sway in the world and circulate lies and half-truths.

STUDIES ABOUND

In the early days, there were an overwhelming number of animal studies on coronary artery disease and diet.[179,180,181,182,183] In their rat study, Reiser et al. found that as the level of sucrose in the diet increased, there were increases in total cholesterol and VLDL - very low, LDL - low, and HDL - high-density lipoprotein.[184] The conclusion was that the sucrose intake at levels now common in the American diet by carbohydrate-sensitive males could lead to a blood lipid profile associated with coronary risk.[185]

Story and his team found that epidemiological evidence indicated a relationship between refined sugar intake and increased serum

cholesterol levels and atherosclerotic heart disease, which resulted in a series of human and animal experiments examining this relationship.[186]

NOTE: Sucrose is 50% glucose and 50% fructose, and fructose feeds into the triglyceride pathway.

Albrink studied high-sucrose diets, which cause increased serum-triglycerides and decreased high-density lipoprotein concentration.[187] Fiber was introduced to determine its protective effects. The results suggested that fiber protects against carbohydrate induced lipemia.[188] But I wouldn't depend on fiber to protect me since sucrose does not just affect blood lipids.

Porikos studied triglyceride levels and liver enzymes in 21 males after an ad lib baseline diet in which 25-30% of total calories were sucrose;[189] liver enzymes became elevated and serum triglyceride levels were elevated. The triglyceride levels showed a significant reduction when the subjects were switched to a calorically diluted diet.[190]

In Yudkin's work[191] fourteen young men increased their average daily sucrose intake from 115 grams to 260 grams. After three

weeks, (the good) HDL cholesterol fell significantly, and it reverted to its original value when they returned to their habitual diet for two weeks.

Sheldon Reiser[192] showed that when 30% of the calories consumed were in the form of sucrose rather than starch, sucrose was shown to significantly increase total serum lipids, blood cholesterol and triglyceride levels.

A review article by Reisner provides a comparison of the results from studies in which the effects of the extended feeding of sugars such as sucrose and fructose were compared to starch.[193] In general, feeding sugars compared to feeding starch produced undesirable changes in metabolic risk factors such as blood triglycerides, total cholesterol, insulin, and uric acid. Reisner suggested that a segment of the population characterized by high levels of triglycerides and insulin may be at a substantially higher risk than is the general population from the present level of intake of sucrose or fructose.

SUGAR SENSITIVITY

Yudkin[194] raised the question: Does sugar promote atherosclerosis only in people with "sucrose-induced hyperinsulinism?" Researchers have found a genetic hyperinsulinism caused by mutations in the ABCC8 gene. But that doesn't mean all forms of this condition are genetic – it's not that simple.

Yudkin's study[195] of 27 male patients with peripheral vascular disease was compared to a matched control group consuming a similar amount of sugar (avg. 120 grams/day=24 teaspoons). Both the platelet adhesiveness and insulin levels were higher in the patient group. This suggests that there is a particular group with an extra sensitivity to sugar.

In another study by Yudkin and Szanto,[196] a group of young men were given a high-sucrose diet for ten days and their level of insulin was measured before and after. Three subjects with "sucrose-induced hyperinsulinism" (SIH) and three controls were selected to be given a high-sucrose diet while their platelet motility was monitored. After fourteen days, only the platelets of

the three subjects with SIH showed a platelet pattern that is characteristic of individuals with atherosclerosis. This pattern reverted towards normal fourteen days after the end of the high-sucrose diet.

Another experimental study by Yudkin and Szanto followed nineteen men ages 21-44 on high-sucrose, no-sucrose, and "normal" diets for two-week intervals.[197] On the high sucrose diet, there was no change in cholesterol; triglycerides rose in all nineteen, and six of nineteen demonstrated an increase in insulin levels, platelet adhesiveness, and body weight. It is suggested that the effect of sucrose in producing hyperinsulinism may be more relevant than its effect on blood lipids, and that only individuals who show sucrose-induced hyperinsulinism are susceptible to the development of ischemic heart disease by dietary sucrose. As interesting as Yudkin's studies are, they were only on a very few subjects as he tried to determine if there indeed was some genetic predisposition to sucrose-induced hyperinsulinism. I don't think we can draw any conclusions until much larger trials are undertaken. Even then, as I've mentioned

before, sucrose does much more damage to the body than manipulating insulin, which means we should all be very careful how much sugar we consume.

I'll end this chapter with the 2024 comments by Kenneth Ting on Yudkin's work and how little we've progressed. The title of his paper is "John Yudkin's hypothesis: sugar is a major dietary culprit in the development of cardiovascular disease" in which he amassed 141 references to prove his point.[198]

> *Within the past decades, our consumption of dietary fat has significantly declined (23, 24) yet the incidence of cardiovascular diseases has continued to rise, thus implicating the possibility that dietary fat may not be the culprit behind the prevailing cardiovascular mortalities. On the other hand, dietary fructose consumption has tremendously increased and positively correlated with the rise of metabolic diseases, including but not limited to diabetes, obesity and atherosclerosis (5, 6, 8). In the 1970s, John Yudkin first proposed the notion that sugar is the*

dietary factor that contributes to cardiovascular illnesses (7, 17, 20). Although his hypothesis was initially dismissed, researchers have been revisiting his hypothesis for the last 25 years and have accumulated strong and convincing evidence to support it. To date, our understanding of fructose metabolism, specifically in the intestine and liver, has significantly advanced. However, the mechanistic link between excess fructose metabolism and the development of cardiovascular diseases, such as atherosclerosis, is only beginning to be appreciated.

CHAPTER TEN: INTESTINAL HEALTH

The health of our intestines is firmly based on what we eat and don't eat. That basic statement of fact was denied by my clinical advisor during my internship. He was a gastroenterologist and delivered his opinion while drinking a coke and eating a bag of potato chips.

The truth is that we are eating too much sugar and not enough fiber. Intestinal health is also affected by yeast overgrowth, which is stimulated by sugar intake. I cover that topic in Chapter Five.

Part of my ongoing role in natural medicine is to remember the past. As I've said many times, I've been studying natural medicine and alternative medicine since the late 1960s. So, I know where all the bodies are buried. I know all the facts, myths, and trends – and I still define the cause of chronic disease to be based on mineral deficiencies and yeast overgrowth. Sugar fits into the picture of chronic disease because it feeds yeast, and it depletes magnesium. I have spearheaded the treatment of yeast

overgrowth with the avoidance of sugar since the late 1970s, and I've been relentlessly attacked for my position.

In this chapter, I want to go back to the person I call the original whistleblower on sugar, Surgeon-Captain T.L. Cleave. I've written about him in previous chapters, but the focus here is on the gut.

This doctor was very much aware of the effects of sugar and the lack of fiber on the colon. Close to seven decades ago, in 1956, Cleave, published a paper that presented his concept that many of the major diseases characteristic of modern Western civilization are due to the effects of consuming refined carbohydrate foods. In 1974, he published a newer, expanded work in a book called *The Saccharine Disease*.[199]

NOTE: Saccharine does not refer to the artificial sweetener, saccharin. Saccharine simply means 'related to sugar', and 'saccharine disease' refers to all those conditions that arise from the ingestion of sugar and refined starches.

Cleave cited diverticulosis, diverticulitis, appendicitis, irritable colon, ulcers, and cancer of the colon as conditions arising from

the ingestion of excess sugar. He said saccharine disease begins with intestinal stasis, or constipation, due to the substitution of white sugar and white flour products, in place of whole grains or sugars with their natural fiber content.

The lack of bulk in the intestines from a refined diet leads to slower passage of the colon contents, making for a longer time for reabsorption of water from the colon and greater drying of the contents. Straining at stool to produce stronger contractions to move the dry bulk onwards can lead to the development of diverticulosis, which are herniations of the lining of the mucus membranes of the colon into the muscular wall itself. They are called diverticular pouches.

Diverticulitis identifies inflammation around these pouches after they become blocked with intestinal debris. Cleave remarks that "it is quite easy to establish epidemiologically that Africans living tribally on an unrefined diet do not get this disease at all." Unfortunately, once you create diverticulums, it can be difficult to get rid of them, and the medical treatment of diverticulitis is antibiotics – hence, more yeast.

Once again, the incubation period is very important. Cleave finds that from epidemiological observations, including autopsy and clinical studies, it would appear that the incubation period in diverticular disease is about forty years.

Cleave said that instead of constipation some people develop irritable colon, with chronic diarrhea due to the impact of irritating putrefactive products on the wall of the intestine. He reported that the use of bran alone is not successful, but that treatment requires replacement of table sugar in all forms by raw and dried fruits and certain fresh vegetables. Regarding cancer of the colon, Cleave states:[200]

> *In the saccharine disease of the colon the first of these local consequences is an intermittent putrefactive diarrhea and the chronic simple colitis [...] but a graver local consequence is probably cancer of the colon. It is noteworthy that the frequency of cancer increases steadily in each successive part of the colon; cancer of the rectum being one of the most common in the body. It is significant that the irritant action of any toxins on*

the intestinal wall must increase steadily in each of these successive parts, both on account of the actual greater production of toxins and also on account of the progressive slowing that normally occurs in the colonic contents as they pass onwards.

PEPTIC ULCERS

In the foreword to *The Saccharine Disease*,[201] fiber-guru Dr. Dennis Burkitt, a physician with a world-wide reputation for his work on fiber and diseases of modern civilization, says that Cleave blames the causation of peptic ulcer on something he calls protein stripping:

Under modern food processing there is reduction of protein, which is the main component of food that buffers the acid in the stomach. With less protein the stomach is more subject to the higher acidity which occurs during digestion. He feels that there is a remarkable correlation throughout the world between the consumption of these "protein-stripped" carbohydrates and the incidence of peptic ulcer. The concentration of carbohydrate due to refining leads to

> *deception of the tongue and of the appetite and produces over-consumption. This extra consumption tends to displace the consumption of other foods which contain natural amounts of protein.*

Cleave asks us to consider the common fare of young people:[202]

> *If they consume some sweets and sodas, which consist of almost pure sugar with practically no protein at all, the caloric value of this substance is high and will result in considerable secretion of gastric juice. Consequently, the membranes of the stomach and duodenum are exposed to almost completely unbuffered acid often for several hours at a time. The habitual coffee break or cocktail hour can have the same effect on the stomach lining and may be responsible for [...] peptic ulcer (disease).*

Cleave's work on peptic ulcers in *The Saccharine Disease* should be studied in detail. He references much experimental evidence to support his theory and follows up with anthropological data as to the geographical incidence of the peptic ulcer disease.[203]

Katschinski addressed the topic in 1987.[204] He found that sugar consumption is directly related to ulcer development: as sugar intake increases, so does the risk for developing duodenal ulcer.

Neither Taubes nor Lustig discuss peptic ulcer disease. It's perhaps because we now know it's more likely to be an H. pylori infection. But remember this: sugar depletes the immune system and makes us more vulnerable to H. pylori infection.

SACCHARINE DISEASE

In the foreword to Cleave's book *The Saccharine Disease*, fiber-guru Dr. Dennis Burkitt wrote:[205]

> *Cleave believes that the fundamental problem lies in the fact that western man has experienced a profound change in his diet in a very short period of time which has not permitted evolutionary adaptation.*

SAVE THE FIBER

When sugar is refined, approximately 90% of the sugar beet or the sugar cane is lost, leaving sugar as the end product. When

wheat grain is refined, leaving white flour, 30% of the wheat has been removed.

According to Cleave, in the United Kingdom, the consumption of refined sugar rose astronomically from about 15 pounds per head per year in 1815 to about 120 pounds per head per year in 1955.[206] in the 1980s when I was first writing this book, figures in the U.S. for sugar consumption range from 130 to 180 pounds per year. They are lower now because of the dramatic rise in artificial sweeteners.

Cleave has stated that the "saccharine disease" is produced, due to the refining of carbohydrates, in three main ways: By the removal of fiber, by over-consumption, and by the replacement of sugar for protein.

Cleave presents his argument:[207]

> *The concentration of these refined carbohydrates deceives the taste buds and the feeling of fullness. If one were to eat the dozen apples required to produce five ounces of fruit sugar, or a two-and-a-half-pound sugar beet equivalent to five ounces of beet sugar, the*

> *normal distention of the stomach, and hence the feeling of fullness, would limit the quantity of sugar eaten. With the concentration such as it is in refined sugar, people often do not perceive when they should stop eating this high caloric food.*

Cleave lists the main manifestations of the "saccharine disease" in relation to the ingestion of refined carbohydrates that modern medicine continues to ignore:[208]

1. By removal of fiber:
    a. Simple constipation (intestinal stasis) with its complications of venous ailments (varicose veins, deep venous thrombosis, hemorrhoids and varicocele, diverticular disease and, in part, cancer of the colon).
    b. Dental caries (in conjunction with the taking of sugar) and periodontal disease.
2. From over-consumption of sugar: diabetes, obesity, coronary thrombosis, primary E. coli infections and gallstones.

3. From the removal of protein: peptic ulceration.

Cleave comments on the explosive outbreak of saccharine disease that took place among the Canadian Inuit following sugar consumption that rose to greater than 100 pounds per head annually. Dental caries, appendicitis, diabetes, and gallstones were rampant, and in Cleave's opinion, other manifestations – notably coronary disease – would certainly follow.[209]

Cleave's other great contribution to the concept of the "saccharine disease" is his discussion on the importance of incubation periods, which I have mentioned several times above. Let me quote his premise about the incubation period from *The Saccharine Disease*:[210]

> *It is important to remember that it takes time for the consumption of refined carbohydrates to produce the various manifestations of the saccharine disease. For example, a massive dose of sugary material could cause so great a proliferation of intestinal organisms that in some E. coli conditions such as appendicitis (especially in children) the incubation period could be*

> *a matter of hours. Sweets can cause the destruction of all the milk teeth from decay in a matter of months. However, in the case of diabetes, the incubation period may be twenty years; in the case of coronary disease thirty years and in the case of diverticular disease forty years. The incubation periods will depend partly on the degree of concentration, partly on the amounts used and partly on the personal makeup in different persons.*

When this important concept is understood it becomes abundantly clear that studies on sugar consumption over too brief a period will be inadequate, inconclusive, and misleading. And it becomes obvious that we are considering all the above diseases to be "normal" effects of aging and not the true ill effects of a refined food diet!

Let me remind you that Cleave's concept, written 70 years ago, is of supreme importance. There is a wealth of nutritional research and scientific studies that are now validating Cleave's work but they are still being ignored. However, a literature search

on the effects of sugar will produce enough references, giving overwhelming evidence of the negative effects of sugar on the health of the general population. Anyone wishing to learn more about the origins of this field of study should read Cleave's book.

FINDING FIBER

Dr. Robert Lustig, in complete agreement with Cleave, is so keen on fiber that he mentions it almost 200 times in his book, *Fat Chance*.[211] In so doing, Lustig advances the case for fiber far beyond the colon.

He says, "The common belief, promulgated by countless TV commercials playing to the over-seventy crowd, is that fiber […] is important for our bowels and little else […] but fiber is oh so much more." He goes so far as to say that "fiber is half of the 'antidote' to the obesity pandemic." I don't really believe that's true, but as you eliminate sugar, you really must increase fiber. When I discuss the Sugar-Free Diet, I tell people that if you aren't going to have a salad every day, you must take a fiber supplement like psyllium seed powder.

As I did in my *IBS for Dummies*[212] book, Lustig spends time discussing soluble and insoluble fiber. We know that soluble fiber is a prebiotic, acting as a food for bacteria that ferment the fiber adding health benefits to the colon. Soluble fiber also slows digestion to help expose the food to absorption sites for enhanced absorption. Insoluble fiber is not digested and lends bulk to the intestines, hastening the passage of waste through the large intestine.

You really should read Lustig's *Fat Chance*[213] for interesting details about juicing such as "…the shearing action of the blender blades completely destroys the insoluble fiber of the fruit. The cellulose is torn to smithereens. While the soluble fiber is still there, and can help move food through the intestine faster, it now does not have the 'latticework' of the insoluble fiber to help form that intestinal barrier."

In the dieting world, Lustig is also up on hormonal issues that are important in the obesity world, such as:

1. Leptins – a hormone important in metabolism and weight management

2. Ghrelin – a hormone that stimulates appetite
3. PYY – a hormone connected with satiety
4. Cortisol – a hormone secreted by your adrenal glands that also regulates metabolism.

Lustig talks about the importance of leptin resistance, reducing ghrelin and cortisol, and increasing PYY, and recites all the studies that show how these hormones work in the body. However, as Lustig says, knowing about the complexity of leptin and ghrelin is not going to help you lose weight.

He insists that the basics of weight loss and blood sugar management are much simpler: keep insulin low, eat lots of fiber, and avoid added sugar. And that's all you have to know. Getting into all the hormonal ins and outs are very interesting for some, but if your interest is mainly to be healthy, lose weight, and balance your blood sugar, it can be TMI.

I would take this further and say that if your doctor wants you to test for these hormones, you have to ask how that will change the management of your case. Actually, my advice for any

medical testing is don't do it if it isn't going to help you change or improve your protocols. Medical testing has become highly commercialized. The bottom line is that you just have to avoid sugar and supplement with picometer minerals and natural, whole food vitamins.

As I mentioned in the Downward Spiral in Chapter Five: Yeast Overgrowth, a leaky gut occurs when budding yeast from the large intestine grows into the small intestine. It shifts from a budding stage to a tissue-invasive stage and pokes holes in the intestinal lining. Undigested food molecules are absorbed along with up to 78 toxic chemical antigens. In that same chapter, I detailed the effects of yeast overgrowth, and some of the following may be repetitious, but I want to focus on the effects of yeast on the intestines.

MAKING BREAD AND MAKING YEAST

If you have ever made bread or seen it made, you know that baker's yeast and sugar mixed together trigger a fermentation process that makes the bread dough rise to several times its original size. Yeast in our intestines does the same, and in many

cases, you can increase your belly a few sizes as your intestines swell.

When the round buds of yeast grow to a critical size, it can no longer absorb enough food through its surface to reach the center. Consequently, smaller buds break off to form their own colonies. When they travel, they send out mycelial threads to conquer more territory.

Yeast don't have mouths or stomachs; they grow into their food, absorbing sugars in the form of table sugar, milk sugar, fruit sugar, and glucose from simple carbohydrates like bread. A standard American breakfast of sugared cereal, banana, milk, toast, jam, and sugared coffee contains all their favorite foods, starting off your day with a fermenting brew.

Similarly, in the intestines, if Candida has the space to grow and a sugary food source, it won't stop until it meets resistance. Resistance to yeast naturally comes from good bacteria called probiotics. In the absence of enough good bacteria, the solid constraints posed by the intestinal wall are the only barrier it recognizes. However, when the living mycelial threads encounter

the unyielding intestinal wall, they poke and prod until they form tiny micropunctures in the moist lining and create a devastating condition called leaky gut.

LEAKY GUT: AN OPEN DOOR TO OUR TISSUES

Let me repeat. In the absence of competition, yeast colonies grow into all the empty nooks and crannies of the large intestine and advance into the small intestine. It is a scientific fact that when yeast cells reach a certain critical mass, they change from a round budding stage to a thread-like tissue-invasive stage. They are running out of food and looking for more, so they pack their bags and take a vacation to the small intestine from their home in the large intestine.

In the small intestine, where food is much more plentiful, the yeast threads poke microscopic holes in the intestinal lining. This damage activates the immune system and causes a breakdown of the "tight junctions" in the gut wall, much like tiny wounds that won't heal. Such a phenomenon is called "leaky gut" – a superhighway to the bloodstream with nothing to block toxins trickling across the gut lining.

Instead of absorbing life-giving nutrients through an intact intestinal wall using proper transport factors, undigested food molecules, yeast's 78 toxic chemical antigens, bacterial toxins, and other chemicals take a one-way ride. Hundreds, and maybe thousands, of waste products thus cause inflammation from head to toe.

Consequences of a Leaky Gut

1. Incomplete digestion of food, making undigested food available for yeast to thrive on, and gas and bloating are direct results. Yeast toxins are then absorbed through a leaky gut along with incompletely digested food molecules that act as antigens in the bloodstream, producing food allergy reactions.
2. Faulty absorption of food and nutrients, which leads to malnutrition and triggers food cravings. If your body is not getting the nutrients it needs, it craves more and more food – weight gain is a direct result.
3. Disruption of vitamin and mineral transport into the blood. Damaged carrier proteins result in all of the metabolic

processes in the body working at a huge disadvantage since vitamins and minerals are vital as co-factors for everything that happens in the body – fatigue is a direct result and one of the first symptoms. The layering of symptoms can lead to chronic fatigue syndrome. Magnesium deficiency can cause heart symptoms, muscle cramps, and low energy; B vitamin deficiency leads to nervous tension, weight gain, and lack of energy; selenium deficiency lowers the immune response and, along with iodine deficiency, weakens thyroid function. The list of disruptions in the body is very long. Researchers report that yeast overgrowth is associated with a number of nutrient deficiencies: magnesium, zinc, vitamin A, vitamin B6, and Omega-6 and -3 fatty acids.[1]

4. Lymphatic tissue, damaged first by yeast then by toxin overload from yeast and abnormal bacteria, causes gut swelling, irritation, and inflammation, culminating in IBS or IBD. The liver is overworked because the gut is producing an overload of toxins that overwhelms the gut lymphatic tissue.

5. Immune cells in the gut are disrupted by yeast and overworked by trying to create antibodies to the hundreds of yeast and bacterial toxins that are produced. With all this diversion in the gut, the immune system is not as responsive to germs from the outside world – frequent colds and flus are the direct result. The vicious cycle is revved up again when we have bronchitis or pneumonia and have to take another round of antibiotics that kill off more gut bacteria allowing more yeast to overgrow. Toxins that maneuver past the gut's immune cells into the bloodstream cause another riot of defense as antibodies are produced against invaders.

   Antibodies against many yeast byproducts are known to cross-react with body tissues, which means the body mistakes toxins for human tissue. When the body attacks its own tissues, we call that autoimmune disease: multiple sclerosis, lupus, thyroiditis, rheumatoid arthritis, and fibromyalgia are examples. Immunoglobulin A (IgA) molecules normally in the lining of the gut are disrupted by

gut inflammation and can no longer protect against parasites, bacteria, viruses, and yeast, and the cycle of dysbiosis continues.

6. Disruption of serotonin production in the gut leads to mood swings, anger, and irritability that no amount of Prozac will treat.

The solution to all these devastating problems is to get yeast under control and restore gut ecology. I share how to solve the problems of intestinal disease caused by excessive sugar and diminished fiber in the diet through my Yeast ReSet Protocol and Sugar-Free Diet in Books 2 and 3 of this series.

SUGAR AND INTESTINAL DISEASE STUDIES

In my original sugar book, I only had one reference on sugar and Crohn's disease for the effect of sugar on intestinal health. I wanted to add new studies on this topic, however, the bottom dropped out of this line of research. After all, who's going to fund research that proves sugar is bad for you?

In the abstract on sugar and Crohn's disease, a study of 104 patients with the disease and 153 controls showed that the risk of Crohn's disease was increased in non-smokers with a high intake of refined sugar, but in smokers, risk was not increased with added sugar intake. Presumably they were already at high risk. Although the mechanisms through which either smoking or refined sugar might exert a causative effect in Crohn's disease are not known, the fact that they are addictive suggests that each might trigger a common mechanism.

Mayberry found that the consumption of sugar and sugar containing foods in thirty-two patients with recently diagnosed Crohn's disease was significantly greater than in matched controls.[214]

Thorton interviewed thirty newly diagnosed patients with Crohn's and compared them with thirty healthy controls.[215] The patients ate substantially more refined sugar, less dietary fiber, and considerably fewer raw fruits and vegetables than the controls.[216]

When I scanned PubMed for research on Sugar and Intestinal Disease published in the past 5 years, I found 103,448 citations. Then I filtered for human studies and was left with only 10 studies. TEN! I ran the stats on those numbers: 10 studies out of 103,448 means that only 0.01 percent of the research in human gut disease even considers sugar as part of the equation. This was quite incredible to me, especially with everyone all googley-eyed about the gut microbiome. Because what feeds the gut yeast and bacteria? Sugar. That's what.

Let me list the titles of these 10 studies so you see what we are up against in trying to educate doctors and the public about the dangers of sugar.

1. Dietary patterns and risk of inflammatory bowel disease in Europe.
2. Effects of a high fat diet on intestinal microbiota and GI diseases.
3. Patients with celiac disease reported higher consumption of added sugar and total fat.

4. How sugar and soft drinks are related to inflammatory bowel disease.
5. Carbohydrate intake in the etiology of Crohn's disease and ulcerative colitis. (This study seemed like it was on the right path until I read the conclusion: "This study is in agreement with many case-control studies that have not identified diet associations with Crohn's disease or ulcerative colitis.")
6. Dietary intake and micronutrient supplementation in youth with celiac disease with and without Type 1 diabetes. (This study was also disappointing; it was just a 3-day diet survey. The survey did find that the majority subjects had high intakes of sugar and fat and there were indicators that their diet "needed improvement." Yes, there were quotes around those two words.)
7. Overview of diet-related study in Crohn's disease. (In Chinese.)
8. Food intolerances caused by enzyme defects and carbohydrate malassimilations: Lactose intolerance. (In German.)

9. Irritable bowel syndrome: New Pathophysiological hypothesis and practical issues. (In French.)
10. The role of dietary factors in inflammatory bowel diseases: New perspectives.

I've said the following many times: we are on our own when it comes to maintaining our health. Fortunately, I've been at this a long time, and I've developed a plan that will help anyone who is interested in staying healthy! You can find this information in Book 2 of this series, *Detox Your Body: The Sugar-Free Plan*.

CHAPTER ELEVEN: GALLSTONES

NO SUGAR, NO STONES

On the causation of gallstones, Cleave defers to the work of Dr. K.W. Heaton, who has written papers and books attributing gallstone formation to the liver secreting an excess of cholesterol in the bile and/or a deficiency of the accompanying bile salts (which normally hold the cholesterol in solution).[217] Heaton proposes that these changes in the bile arise from:

1. The consumption of refined carbohydrates, which
2. Cause the liver to secrete too much cholesterol in the bile, and
3. With the loss of fiber which creates intestinal stasis,
4. Which allows extra bacterial conversion of a major bile salt into a particular substance,
5. Which, when reabsorbed, depresses bile salt synthesis by the liver, and thereby the solubility of cholesterol.

Epidemiological evidence indicates the absence of this condition in populations still living on unrefined complex carbohydrates. A rapid appearance of the condition when African populations replace these carbohydrates with refined ones upon moving to urban areas. The same statistics are available among Canadian Inuit, Native American, and the Japanese.

Native Americans, with a very high consumption of sugar, now have the highest incidence of gallstones of any community in the world. Cleave refers to Heaton's work on laboratory animals where all diets, which are successful in producing gallstones, contain a high proportion of refined sugar or refined starch.

Scragg reviewed dietary habits of 267 hospital patients with newly diagnosed gallstones and compared them to matched controls in the community, and another set of hospital patient controls. Increased intake of sugar in drinks and sweets was associated with increased risk of gallstones.[218,219]

An article abstracted in *New Scientist* states that gallstone formation in young people was correlated with an increased sugar intake (soft drinks and sweets) as well as an increased

energy or fat intake, suggesting that sugar may increase cholesterol synthesis by stimulating insulin secretion. The advice given was to increase dietary fiber and avoid refined carbohydrates.

My fated PubMed search for studies on sugar and gallstones turned up 11 human studies in the past 5 years. Most of them were about pancreatitis because gallstones can block the pancreatic duct.

CHAPTER TWELVE: SUGAR AND THE IMMUNE SYSTEM

ASCORBIC ACID COMPETES WITH SUGAR

The following is an excerpt from one of my older books which is no longer available. I include this because it clearly describes Dr. James Howenstine's research on sugar and its adverse effects on the immune system.[220]

> *I want to drop sugar into your lap as the most dangerous "food" for the immune system. The words below are taken from a 2006 article by the late Dr. James Howenstine and represent the strongest indictment I've seen against sugar and its detrimental effect on the immune system.*
>
> *"Ascorbic Acid Competes with Sugar in the Immune System"*
>
> *Insulin moves both glucose and ascorbic acid into cells including phagocytic immune cells (white blood cells). The phagocytic cells like leukocytes*

> *attack and remove microbes, tumor cells and debris from the blood. The level of ascorbic acid in leukocytes may be 80 times greater than that found in plasma. Glucose and ascorbic acid are constantly competing for insulin transport so diets high in sugar and carbohydrates will decrease the amount of ascorbic acid that enters cells and thus create undesirable effects on the immune response.*

Dr. Howenstine makes another comment about the ascorbic acid/glucose competition that disrupts superoxide (a pathogen killer) and inhibits the ability of DNA and RNA to make new white blood cells. He says:[221]

> *There is another form of competition between glucose and ascorbic acid. Ascorbic acid stimulates the hexose monophosphate (HMP) shunt and glucose inhibits it. The HMP is a series of chemical reactions that reduces niacin coenzyme NADP to NADPH. Phagocytes need NADPH to create superoxide and other reactive oxygen*

> *species that are used to destroy pathogens. In addition to creating NADPH, ascorbic acid has the ability to deactivate excess quantities of NADPH and oxidative substances that could harm normal tissues.*
>
> *The hexose monophosphate shunt also produces 5-carbon sugars (ribose and deoxyribose). These 5-carbon sugars are needed to make DNA and RNA. When the immune system faces microbial invasion it immediately signals for production of new immune cells that need these genetic materials – DNA and RNA. If the body has too much glucose and too little ascorbic acid, there will be a lack of genetic material and inadequate DNA and RNA for creation of needed new leukocytes. Clearly high sugar intake will reduce the potential health benefits of this pathway.*

On my March 30, 2020 podcast, Dr. Thomas Levy reinforced Dr. Howenstine's statement. Dr. Levy said:

> *Ascorbate is derived from glucose – it's a very simple molecule. Ascorbate uses the insulin transporter of*

> *glucose to get into cells. It even crosses the blood brain barrier. There's not a cell in your body that does not utilize vitamin C as the primary source of electrons, donating them to glutathione which is the most concentrated* antioxidant inside your cells. But, in addition to *that, vitamin C donates 2 electrons per molecule. Most other antioxidants donate only one. So, this gives ascorbate more power*.

It's obvious that this simple chemical competition results in vitamin C losing its position in the cells if there is too much circulating glucose and nullifying its important antioxidant mechanism.

SUGAR AND INFECTION

The question regarding diet in relation to immunosuppression and infection is very important, (i.e., the ability of the body's immune system to prevent infection). As a general practitioner, I made the clinical observation in my first decade of practice that there was an upsurge in visits when children have attended birthday parties, holiday parties, or have consumed copious amounts of candy over Halloween and Easter.

The children came in with throat infections, ear infections, and colds and flus throughout the next week. I had only to ask about sugar intake during the days preceding the infection to find a correlation verifying high sugar intake.

In the scientific literature, Corman says:[222]

> *The importance of diet in multiple aspects of the immune response is inescapable, although only a few trials have attempted to apply knowledge derived from in vitro and animal data to humans. The ability to modulate or "reset" the immune response by manipulating dietary intake will surely continue to be studied in the future.*

I don't know about that Dr. Corman, who is going to fund sugar studies that would topple Big Food, Big Medicine, and Big Pharma?

With regard to the white blood cells' ability to fight infection, a study of healthy adults after ingestion of 75 grams (18 teaspoons) of glucose showed significantly depressed response to a foreign substance. Results also suggest that glucose

ingestion increases serum insulin, which competes for binding sites on lymphocytes and makes the lymphocytes inactive.[223]

An experimental animal study showed that as the nutritional quality of the diet is reduced by progressively diluting the diet with sucrose in 10% increments, the production of antibodies decreased proportionately.[224]

In experimental study on healthy human volunteers, 100-gram portions of carbohydrate from glucose, fructose, sucrose, honey, or orange juice were given. Ingestion of each significantly decreased the ability of the white blood cells to attack foreign invaders with the attacking ability remaining below control levels five hours after feeding.[225]

A study at Loma Linda conducted in 1964 proved that the higher the fasting blood glucose in diabetics, the lower the attacking ability of white blood cells.[226] Even when fasting, diabetics have higher blood glucose than nondiabetics, and this level of blood glucose works to suppress the immune system. As a result, statistics show that diabetics are more susceptible to a variety of diseases than nondiabetics. They are more likely to develop heart

and blood disease, suffer from kidney and liver dysfunction and eye problems, and to succumb to infectious diseases.

These researchers also studied the action of individual white blood cells under a microscope to observe the specific changes that occurred in the presence of sugar. Where the glucose level was normal, the phagocytic cells were very active. The higher the amount of sugar in the blood, however, the less active the cells became.

BE YOUR OWN SCIENTIST

Personal experience has taught me that the overuse of sugar results in inevitable symptoms. Back when I first started writing this book – in the late 1980s – I did an experiment of my own. For two days in a row, I ate more sugar than I am used to and afterward, I became very "mucousy" and soon developed a cold. Later, I repeated the experiment, and this time, I soon had stuffed-up sinuses and awoke during the second night unable to breathe through my nose. Because of all this nasal and sinus congestion, my mouth was extremely dry, so it was difficult to swallow, and my throat felt sore.

Since I've been using picometer silver ions I don't get colds anymore. But if I do eat too much sugar, I develop yeast overgrowth, and my weakened immune system allows tiny staphylococcal nasal boils to grow. But I nip them in the bud by applying picometer silver directly and nixing sugar.

CHAPTER THIRTEEN: CAVITIES

From 1990, when I was attacked by my licensing board, to this day, the sugar industry will only admit that sugar causes dental cavities. Otherwise, they tell the "half-truth, half lie" that sugar is necessary for energy and is the major fuel of the body. Let me repeat that at any one time, we only have about two teaspoons of sugar in our bloodstream, whereas there are ten teaspoons of sugar in one can of soda.

Such an incredible flood of sugar from soda, cakes, and cookies several times a day for several years is the underlying cause of our epidemics of obesity, diabetes, and heart disease.

The general public is well aware of the effects of sugar on the teeth and its relation to the formation of caries. The scientific literature is replete with studies on the effects of diet on dental health.[227,228,229]

Periodontal disease and gingival inflammation are critical concerns because they can lead to the loosening and loss of teeth, which make it difficult to chew food properly. Dr. Cheraskin

performed a study on 242 presumably healthy dental students over a five-day period.[230] The evidence of the study conclusively showed that gingival inflammation is increased with ingestion of glucose and sucrose drinks and is discouraged with a restriction in refined carbohydrates.[231]

In *The Saccharine Disease*, Cleave states that:[232]

> *[...]during WWII there was a big fall in the incidence of caries in all the countries in the war zone with the fall in the consumption of refined products; also in communities all over the world, caries [are] slight or absent until these products appear amongst them.*

Schmidt writes about Dr. Page, a scientist and a dentist who was interested in nutrition and its impact on dental health:[233]

> *Page kept careful dental records of thousands of patients for many years. He studied relationships between dental decay, the ratio of calcium-to-phosphorous in the blood, and the ingestion of sweets. He found even a one-ounce dose of honey, fructose, or sucrose to have a pronounced effect on the ratio of*

> *calcium to phosphorus in the blood; sucrose had the most pronounced effect, fructose (fruit sugar) had the least. He found this ratio was invariably elevated in individuals developing dental decay.*

This is interesting in light of Weston Price's discovery that the saliva in the mouths of decay-free native people had certain consistent characteristics in the ability to dissolve calcium and phosphorous – characteristics not found in the mouths of individuals eating refined foods. The calcium and phosphorous content of the saliva, of course, is directly influenced by the content of these two elements in the blood. Page's work thus directly complemented Price's.

Both men showed that disturbances of calcium and phosphorous metabolism occur in tooth decay. We may infer that these same disturbances affect the condition of the entire body.

GOOD DIET - GOOD TEETH

Dufty, in *Sugar Blues*, gives more insight into Price's work:[234]

> *In the 1930's, a research dentist from Cleveland, Ohio, Dr. Weston A. Price, traveled all over the world – from the lands of the Inuit to the South Sea Islands, from Africa to New Zealand. He published the results of his travels. In 1939, he published, Nutrition and Physical Degeneration: A Comparison of Primitive and Modern Diets and Their Effects. The book is illustrated with hundreds of illuminating photographs.*

Dr. Price took the whole world as his laboratory. His devastating conclusion, recorded in horrifying detail in country after country, was simple:[235]

> *People who live under so-called backward primitive conditions had excellent teeth and wonderful general health. They ate natural, unrefined food from their own locale. As soon as refined, sugared foods were imported as a result of contact with "civilization," physical degeneration began in a way that was definitely observable within a single generation.*

Dufty continues:[236]

> *Let us go to (primitive man to) consider his way of eating and be wise. Let us cease pretending that toothbrushes and toothpaste are any more important than shoe brushes and shoe polish. It is store food that has given us store teeth.*

Dufty quotes Dr. Francois Jacob, Nobel Prize Winner and author of *The Logic of Life: A History of Heredity*:[237]

> *In general, the practicing scientist hardly concerns himself with history. I was not happy about the way they tell the history of biology. In each paper, a scientist writes what his predecessors learned, and so forth, and winds up with a linear history, from error to truth. It's not like that*.

IT'S THE REAL THING?

Dufty reports that in 1951, a Navy nutritionist, Dr. McCay, who had been in charge of nutritional research for the U.S. Navy during WW II, testified before a congressional committee on the consumption of cola beverages (the Navy, discovering the

amount of money its men were spending on Coca-Cola, decided to conduct testing on all cola beverages. It was found they contained, among other things, about 10 percent sugar).[238]

Dr. McCay declared:

> *I was amazed to learn that the beverage contained substantial amounts of phosphoric acid [...] At the Naval Medical Research Institute, we put human teeth in a cola beverage and found they softened and started to dissolve within a short period. The acidity of cola beverages [...] is about the same as vinegar. The sugar content masks the acidity, and parents don't realize they are allowing their kids to drink this strange mixture of phosphoric acid, sugar, caffeine, coloring and flavoring matter.*
>
> *A congressman asked the doctor which government bureau had charge of passing approval on the contents of soft drinks.*
>
> *So far as I know, no one passes upon it or pays any attention to it, the doctor replied.*

"It is a rule of thumb," wrote Paul Hawken, (author of *The Magic of Findhorn*[239]), "the more you see a product advertised, the more of a rip-off it is." Hawken writes a scathing attack on advertising, and on Coca-Cola in particular:

> *A product like Coca-Cola which contains known poisons and destroys teeth and stomach has one of the most stunning ad campaigns in the history of the Western world. It is really fantastic: This unreal amount of money creating an illusion–the illusion that "Coke is the real thing." Now, Coke executives have learned from extensive research that young America is searching for what is real, meaningful, in this plastic world, and one bright ad executive comes up with the idea that it is Coke. Yep, Coke is the real thing, and this is drilled into the minds of 97 percent of all young people between the ages of six and nineteen until their teeth are rotting...*

Gary Taubes, in his book *The Case Against Sugar*,[240] updates the antics of the Coca-Cola company:

The Times reported in 2015 that academic researchers were doing the bidding of Coca-Cola by taking its money to fund a Global Energy Balance Network (GEBN) and "shift blame for obesity away from bad diets," this was still the argument the researchers would invoke in their defense: "Mainstream scientists understand that obesity is caused by a calorie surplus due to over-eating or under-exercising." And anyone who didn't know this was either a quack or at best held a "fringe view."

By implication, the problem still wasn't drinking too much Coca-Cola, or consuming too much sugar, or even consuming too much of anything; it was not being sufficiently physically active to expend those calories, a natural implication of the energy-balance thinking.

Truth in advertising is another oxymoron because there is very little that is truthful about advertising. Imagine a young pimply-faced kid in front of a camera telling folks how clear his

complexion was before he started drinking Coke, and even though he knows it's bumming his social life, he just can't seem to get off the stuff. That would be truth in advertising. Or how about a young girl holding up a can of soda, that's dyed orange with synthetic food coloring. The reason it is bad is because we use synthetic coal-tar flavors and colors, and the reason we would like you to try it is because we want to make money. Truth in advertising would be the end of three major networks, 500 magazines, several thousand newspapers and tens of thousands of businesses, so there will never be truth in advertising.

A CNN online article from January 29, 2019 titled "Old Emails Hold New Clues to Coca-Cola and CDC's Controversial Relationship" stirred the sugar pot once more. "Private emails between employees at the Coca-Cola Co. and the US Centers for Disease Control and Prevention have been exposed in a new research paper, raising questions about just how extensive of a relationship the soda company has had with the nation's public health agency." The infographics that accompany this article

show the 35-65 grams (8-16 teaspoons) of sugar in popular sodas, sports drinks, and sugared coffees.

CHAPTER FOURTEEN: OSTEOPOROSIS

THERE'S MORE TO BONES THAN CALCIUM

Dr. Alan Gaby and Dr. Jonathan Wright[241] presented a review of the concept that bone integrity depends not just on calcium (and estrogen for women), but a wide range of nutrients, including the negative effect of a high sugar diet. They suggest that a healthy diet goes a long way to prevent bone reabsorption.

Holl, et. al.[242] present a study on the excretion of minerals induced by sugar/glucose ingestion. Dr. Francis Pottenger's work demonstrated that gross skeletal changes occurred in cats fed sweetened foods – again we see disturbances of calcium and phosphorous metabolism.[243,244,245]

Dr. Boy Frame and Dr. Geoffrey Marel[246] found that a variety of imbalances in mineral concentrations may have more importance than an abnormal concentration of any single element. In her book *Lick the Sugar Habit*,[247] Appleton elaborated on this point with the following comment:

> *Since minerals work properly only when they are in the correct ratio, when the phosphorus decreases, the functioning calcium decreases. If there are only 2 units of phosphorus, then only 2.5 times that, or 5 units of calcium, will be functioning; the rest of the calcium will become harmful. On the other hand, if calcium increases to 12, but the phosphorus remains at 4, then the extra 2 units of calcium will become toxic. Toxic or non-functioning calcium can cause kidney stones, arthritis, hardening of the arteries, cataracts, and plaque on the teeth.*

Appleton suggests that:[248]

> *One look at the average American diet should be enough to see that most calcium deficiency is not due to a lack of calcium in the diet. We are getting more calcium than ever before by eating more calcium-rich milk products–milkshakes, pizza, crepes, cheeseburgers, fruit yogurts, ice-cream cones, cheesecakes, and the like. Although there is indeed*

> *plenty of calcium in these products, and many other vitamins and minerals also, the nutrients are not so readily available to the body because of the sugar which accompanies them*.

When I searched PubMed for "sugar and osteoporosis" human studies published in the past five years, only 134 came up out of 11,858 osteoporosis studies in the same period. This is just another indication that nobody is funding the effects of high sugar intake on our bones or the dietary prevention of conditions like osteoporosis.

OSTEOPOROSIS MISUNDERSTOOD AND MISTREATED

And where does sugar come into this picture? As Nancy Appleton says in *Suicide by Sugar*,[249] sugar disturbs the mineral balance in the body:

> *No mineral is an island. Minerals can only function in relation to each other. If one mineral drops in the bloodstream, the other minerals will not function as well. When we consume too much sugar, our bodies*

> *are forced to readjust their composition to make up for the excess amounts of glucose and fructose. In order to do this, minerals are pulled from the bloodstream. The minerals that are left do not function as well as they should in the absence of the ones that were pulled. Needless to say, in this type of situation, the body's chemistry has been thrown off.*

The following is an excerpt from *The Magnesium Miracle* (2017) presenting an overview of the importance of balancing minerals and that balance being thrown out of kilter by sugar.

> *Osteoporosis is neither a normal nor inevitable consequence of aging: Our bones were designed to last a lifetime. Popular wisdom, however, is that osteoporosis in women is due to a lack of calcium and declining estrogen levels with age. Doctors therefore rely on estrogen, calcium, and drugs that keep bones cells from breaking down, to treat osteoporosis. The NIH "Osteoporosis Prevention, Diagnosis, and Therapy Consensus Statement of 2000" was developed from a*

> *conference including eighty experts, but no mention of magnesium deficiency as a causative factor in osteoporosis was made in the final report.*[250]

However, a 2014 meta-analysis confirmed the association between Serum Magnesium levels and postmenopausal osteoporosis. Seven studies involving 1,349 postmenopausal women were identified. Overall, postmenopausal osteoporotic women had lower serum levels of magnesium than the healthy controls. The same association was found for women below the age of 60 and above 60. The investigators concluded that low Serum Magnesium seems to be a risk factor for osteoporosis among the postmenopausal group.

With drug companies funding most of the osteoporosis research, there are no large clinical trials investigating the magnesium connection in bone production and there probably never will be. As long as people are given false hope that there is some magic bullet in the pharmaceutical pipeline that will "cure" osteoporosis, or any other chronic disease, they will ignore the underlying diet- and nutrient-related reasons for their health problems.

Reports that Fosamax causes jawbone deterioration is evidence that this osteoporosis drug, and likely all bisphosphonates, cause brittle bones. This side effect of jawbone deterioration has dentists refusing to place dental implants in women who are on Fosamax.

Fosamax works by destroying osteoclasts, the cells that break down and remodel bone as its ages. These cells also sculpt the bone as new bone forms, shaping it into a strong and stable matrix. Fosamax prevents bone from breaking down—but the drug companies did not reckon with the necessary bone-remodeling function of the osteoclast. Without osteoclasts bones have no blueprint to follow and calcium is deposited helter-skelter. X-rays of bones under the influence of Fosamax may appear dense at a glance, but when you look closely, without the remodeling capacity of osteoclasts, the bones' internal structure is in complete disarray. These bones are brittle, and they break more easily – the opposite of their purpose.

Instead of cozying up to Fosamax, doctors should read a 2013 study in the *Journal of Nutritional Biochemistry* showing that

magnesium has a direct influence on increasing the formation of osteoclasts.[251] In *The Magnesium Miracle*, I report on animal research proving that magnesium depletion alters bone and mineral metabolism, which results in bone loss and osteoporosis.' In this 2013 study, investigators acknowledged that magnesium deficiency occurs frequently and leads to loss of bone mass, abnormal bone growth and skeletal weakness. But they wanted to determine how this occurs. Using an animal model, they found that magnesium deficiency inhibited the activity of osteoclasts – which is the mechanism of action of Fosamax. They concluded that altered osteoclast numbers and activity may contribute to the bone changes that are seen in magnesium-deficient patients.

Magnesium deficiency is very common in women with osteoporosis compared to controls.[252] But what happens when women take enough magnesium?

- In one study, postmenopausal women with osteoporosis were able to stop the progression of the disease with 250–750 milligrams of magnesium daily for two years. Without

any other added measures, 8 percent of these women experienced a net increase in bone density.[253]

- A group of menopausal women given a magnesium hydroxide supplement for two years had fewer fractures and a significant increase in bone density.[254]
- Another study showed that by taking 180-300 elemental magnesium from magnesium lactate, daily for two years, 65 percent of the women were completely free of pain and had no further degeneration of spinal vertebrae.[255]
- Magnesium in conjunction with hormonal replacement improved bone density in several groups of women compared to controls.[256,257]
- Another study showed that if you take estrogen and have a low magnesium intake, calcium supplementation may increase your risk of thrombosis (blood clotting that can lead to a heart attack).[258]

It is unfortunate that the treatment for osteoporosis was simplified into the single battle cry "Take Calcium." Calcium still

dominates every discussion about osteoporosis, is used to fortify dozens of foods (including orange juice and cereal), and is a top-selling supplement, but its day in the sun seems to be over. Research from New Zealand has come forth that taking calcium supplements causes calcification affecting many tissues. However, a so-called authority, The Bone Health and National Osteoporosis Foundation, still advises:

> *A diet that includes adequate amounts of total calcium intake (1000 milligrams/day for men 50–70; 1200 milligrams/day for women 51 and older and men 71 and older), incorporating dietary supplements if diet is insufficient.*[259]

Dr. Mark Bolland in New Zealand found that women who take calcium supplements are at greater risk for heart disease as calcium builds up in arteries, causing atherosclerosis.[260]

The point I want to make here is that all the calcium supplementation in the past two decades has not prevented the epidemic of osteoporosis that we are suffering today.

To impress upon you the importance of Bolland's research and the conclusions that many doctors have not yet embraced, below is the abstract from Dr. Bolland's fourth paper, "Calcium Supplements and Cardiovascular Risk: Five Years On."[261]

> *Calcium supplements have been widely used by older men and women. However, in little more than a decade, authoritative recommendations have changed from encouraging the widespread use of calcium supplements to stating that they should not be used for primary prevention of fractures. This substantial shift in recommendations has occurred as a result of accumulated evidence of marginal anti-fracture efficacy, and important adverse effects from large randomized controlled trials of calcium or co-administered calcium and vitamin D supplements. In this review, we discuss this evidence, with a particular focus on increased cardiovascular risk with calcium supplements, which we first described 5 years ago. Calcium supplements with or without vitamin D*

marginally reduce total fractures but do not prevent hip fractures in community-dwelling individuals.

Bolland's 2015 paper "Calcium Intake And Risk Of Fracture: Systematic Review"[262] concluded that increasing calcium intake from diet or supplements did not result in a clinically significant reduction in risk of fracture. Calcium didn't help; in fact, it hurt – Bolland found that calcium supplements can cause kidney stones, acute gastrointestinal events, and increase the risk of myocardial infarction and stroke. Bolland concluded that any benefit of calcium supplements in preventing fracture is outweighed by an increased risk for cardiovascular events. They said that while there is little evidence to suggest that dietary calcium intake (as opposed to supplemental calcium) is associated with cardiovascular risk, there is also little evidence that it is associated with fracture risk. Therefore, for the majority of people, dietary calcium intake does not require close scrutiny. Bolland and his team concluded that because of the unfavorable risk/benefit profile, widespread prescribing of calcium supplements to prevent fractures should be abandoned.

Remember where all that extra calcium is going. It's being deposited in soft tissue causing atherosclerosis, gallstones, kidney stones, heel spurs, and breast tissue calcification instead of being directed to the bones.

I want to mention again that bones are not just about magnesium – although you might get that impression because of my focus. Minerals, mostly calcium and phosphate, make up 60 percent of bone. Magnesium provides the resilience factor along with water and an organic matrix of proteins, especially collagen. Our bones are a dynamic interweaving of minerals, proteins, and nutrients that we can't hope to manipulate by introducing only one or two variables, but we should do our best to eat a good diet, exercise and take a range of absorbable nutrients and let the body and our bones take care of themselves.

CHAPTER FIFTEEN: CANCER

Sugar may be one of our favorite vices, but the dark side to sugar is that it is quite capable of setting up an environment for cancer growth. A consistent finding in epidemiological studies is that people who consume the most calories have significantly higher incidences of cancer.

There are several reasons why overeating causes cancer, but one overlooked reason is that more gene mutations occur in response to a higher caloric intake. A host of vitamins and minerals are required to digest food, and the more food we eat, the more nutrients we need. The immune system also needs nutrients to do the work of cancer cell surveillance and destruction. If we overutilize nutrients to digest excess quantities of food, they just aren't available to help keep us cancer free.

In previous chapters I've bemoaned the fact that there are so few recent studies on sugar and various diseases, but a search for the words "cancer and sugar" turned up a total of 26,690

studies, with 5,314 of these coming from the last 5 years. Limiting the search to human studies left 3,995 studies.

We've known since 1931 that cancer cells crave sugar. A German researcher, Otto Warburg, PhD, was given a Nobel Prize in Medicine for his discovery that cancer cells depend mainly on glucose for their food supply.[263] In the 1930s, Warburg discovered that cancer cells have a different energy metabolism compared to healthy cells. He found that increased sugar intake could increase cancer cell production. Primitive cancer cells require a direct supply of simple glucose molecules, not being able to master the more complex synthesis of glucose from more complex sugar molecules or glycogen. The buildup of lactic acid and an acidic pH from direct consumption of glucose in cancer cells is a diagnostic sign for cancer.

It's because cancer cells devour glucose without the aid of oxygen that they produce a large amount of lactic acid. The buildup of lactic acid creates a more acidic pH in and around cancerous tissues. An acid pH in the body contributes to the overall physical fatigue experienced by cancer patients.

Research on human breast cancer using a mouse model demonstrated that tumors are sensitive to blood-glucose levels.[264] An aggressive strain of breast cancer was injected into 68 mice. They were then fed diets to induce either high blood sugar, normal blood sugar, or low blood sugar. The results showed that the lower the blood glucose, the greater the survival rate. After 70 days, 8 of 24 high blood sugar mice survived compared to 16 of 24 normal blood sugar, and 19 of 20 low blood sugar. The researchers recommend lowering blood sugar to normal as a way to slow breast tumor growth.

An epidemiological study carried out by Seeley[265] in 21 modern countries (those in Europe, North America, Japan, and others) followed morbidity and mortality and revealed that sugar intake is a strong risk factor that contributes to higher breast cancer rates, particularly in older women.

A four-year study by Moerman in the Netherlands at the National Institute of Public Health and Environmental Protection[266] compared 111 biliary tract cancer patients with 480 controls. Moerman concluded that cancer risk was associated with the

intake of sugars, independent of other energy sources, more than doubled for the cancer patients.

Exercise also appears to exert a preventive effect, according to Michaud et al. at the National Cancer Institute.[267] They followed up on two large studies conducted over the past 20 years on approximately 50,000 men and 120,000 women. They concluded that obesity significantly increased the risk of pancreatic cancer, and that physical activity appears to decrease the risk of pancreatic cancer, especially among those who are overweight. Preventing obesity by dietary intervention and exercise is by far the better avenue of approach for treating pancreatic cancer.[268]

The Michaud team continued their investigation of the triggers of pancreatic cancer and found that evidence from both animal and human studies suggests that abnormal glucose metabolism plays an important role in pancreatic carcinogenesis.[269] They investigated whether diets high in foods that increase postprandial glucose levels are associated with an increased risk of pancreatic cancer. They studied 180 patients with pancreatic cancer and concluded that their data support other findings that

impaired glucose metabolism may play a role in pancreatic cancer etiology. A diet high in glycemic load may increase the risk of pancreatic cancer in women who already have an underlying degree of insulin resistance.[270]

The intestinal effects of high sugar and low fiber are seen in many studies on intestinal cancer. Albert Tuyns, in a control study of colorectal cancer and diets high in raw vegetables,[271] reported a clear protective effect for both colon and rectal cancer; bread (because of the high fiber content) was also said to be protective for colon cancer. Starchy foods and foods rich in oligosaccharides (sugar) caused an increased risk for both colon and rectal cancer.[272]

Heaton comes up with a similar finding. He says dietary practices which inflate caloric intake, and specifically, the use of sucrose, should be considered as increasing the risk of colorectal cancer.[273]

A more recent study found the following about high sugary beverage consumption and cancer:[274]

> *High sugar intake may increase cancer risk by promoting insulin-glucose dysregulation, oxidative stress, inflammation, and body adiposity, but epidemiologic evidence is unclear. Associations between dietary sugars and lifestyle-related cancer risk from longitudinal studies were evaluated. In 8 of 15 studies on sugary foods and beverages, a 23-200% higher cancer risk was observed with higher sugary beverage consumption. In conclusion, most studies were indicative of a null association, but suggestive detrimental associations were reported for added sugars and sugary beverages.*

There are thousands of studies confirming that sugar is directly associated with cancer, so it's pointless for me to keep listing them. The next step is for you to limit your sugar intake so that you don't unwittingly feed cancer cells. Or, if you have been diagnosed with cancer, please stop ingesting sugar.

I don't personally address cancer treatment on my podcasts or in emails to customers. However, if you want to build wellness around any situation, you can follow my general line of guidance:

- Mineralize.
- Make sure that you get the appropriate whole food and natural cofactors for your minerals.
- Hydrate well.
- Balance any yeast overgrowth.
- Walk 30 minutes a day outdoors.

TOTAL BIOLOGY AND GERMAN NEW MEDICINE

German New Medicine and Total Biology approach disease as a Conflict that the body is trying to solve and as a result physical symptoms are created. Recognizing the underlying Conflict can help resolve the physical issues. Some resources to help you explore these wellness tools can be found in Appendix E.

PART III – OZEMPIC

CHAPTER 16: SUGAR, OBESITY, AND WEIGHT LOSS DRUGS

By the time you've reached this chapter in my sugar book, I've mentioned the words obesity, obese, and overweight 83 times. It's obvious to me and most commonsense people that sugar and weight gain are closely associated.

With 70% of the population overweight and obese, we have a major health crisis. So, it's no wonder that allopathic medicine is looking for a solution. The trouble is that they want that solution to be a commercially available drug.

They do not want a public health effort to encourage diet and lifestyle changes that would address this problem. Wanting a drug solution makes it crystal clear why, according to one of our most legitimate news sources (Not), *People Magazine* "1 in 8 (12.5%) U.S. Adults Have Taken Ozempic or Similar Drugs."[275]

THE COMMERCIALIZATION OF MEDICINE

Prescribing drugs that you must take long-term is not a new idea to the business managers of medicine. When I went to medical school in the mid-1970s, we were advised to only use drugs for as short a time as possible. Now, it seems, the advice is to do the opposite. We're living with lifelong statins that kill the enzyme HMG CoA reductase that regulates cholesterol production. People are on lifelong proton pump inhibitors that kill the stomach acid that we need to digest out food. Thinning bones are treated with bisphosphonates that kill osteoclasts that are crucial for our bone's structural integrity. But none of these drugs do only 'that one thing' while side effects mount because the enzymes that the drugs destroy are often crucial for many other functions in the body.

With blinders firmly in place, the drug pushers imagined that a drug mimicking a powerful hormone would act the way they wanted it to instead of like a Frankenstein monster. How can they possibly think that the end stage of the GLP function to create a sense of fullness is all that's going to happen when they actually bypass the

vagus nerve? I'll be doing a deep dive on the cascading symptoms that occur due to a dysfunctional vagus nerve.

I'm sure the drug companies know about the side effects of GLPs, but when you're operating as a commercial enterprise and not as a health care or health support entity, you just want to push as much of these drugs out the door as you can before the regulators catch up with you. It's a game, but for many of the participants it's a deadly game.

LET'S PUT ALL OF THIS INTO PERSPECTIVE

1. ABC News reports that "One in 10 Americans Use Antidepressants."[276]
2. Approximately 17% of Americans take blood pressure medications although "Nearly half of adults have high blood pressure (48.1%, 119.9 million)" and doctors want all of them to be on drugs.[277]
3. Harvard Health says "Many Americans take statins…half of men, ages to 65 to 74, and 39% of women, ages 75 and older.[278]

I'm making comparisons with drugs that have been used for decades and weight loss injections that were only approved by the FDA in June, 2021. With 70% of the population being overweight, drug companies are even pushing for universal acceptance of these injections by insurance companies, Medicare, and Medicaid. Commonsense tells us that the Government paying for these shots is another sure way to bankrupt the country.

Neither financial concerns nor side effects are standing in the way of a bombardment of nonstop weight-loss-injection marketing. Here's what the sales force is ignoring.

SIDE EFFECTS FROM WEIGHT LOSS INJECTIONS

The List of Side Effects Grows as these drugs cause medically induced anorexia and bulimia. The following is not an exhaustive list by any means. And that list will be expanded when I describe the malfunction of the vagus nerve that is caused by GLPs.

1. Blindness

   More Americans on Ozempic go BLIND as doctors sound alarm over potentially startling side effect.[279]

2. Loss of Lean Muscle Mass

   On the Massachusetts General website, you can find "Fitness for People Taking GLP-1 Agonists: A Comprehensive Guide," where the author admits that GLP-1 agonist drugs can lead to a 13.9% loss of lean muscle mass that is misrepresented as fat loss.[280]

3. Dr. Joseph Mercola amasses 19 health conditions that can occur on these drugs. They include varying degrees of risk of: fainting, pancreatitis, nausea, diarrhea, vomiting, abdominal pain, acute pancreatitis, gastrointestinal disorders, hypotension, syncope, arthritic disorders, nephrolithiasis, interstitial nephritis, thyroid cancer, making the trade-off dangerous for users.[281]

4. A website called Everyday Health announced "Every Ozempic Side Effect Explained."[282] I apologize for the repetition but it does drive the point home that people on Ozempic suffer: Digestive Problems, Ozempic Face, Ozempic Butt (from rapid muscle loss), Ozempic Breath and Dry Mouth, Hair Loss, Tiredness and Fatigue, Dizziness, Excessive Muscle Loss,

Suicidal Thoughts, Increased Heart Rate, Eye Problems, Low Blood Sugar, Erectile Dysfunction and Rare, Serious Side Effects of: Kidney Failure, Thyroid Tumors, Pancreatitis, Gall bladder Disease. This post was "Updated on July 19, 2024" so I can only imagine that the list will increase on their next update.

Long Term Effects

Upon withdrawal of injections there is a chance of negative brain function, insulin resistance, high BP and metabolic dysfunction.

THE PANACEA PARADE

Then there is the unceasing list of so-called "benefits" of these injections, which are mostly based on weight loss. Many health conditions are triggered or worsened by weight gain. Therefore, if you lose weight, the medical condition will diminish. Instead of attributing the change to weight loss, doctors credit the drug and say the benefits offset any of the drug's side effects.

For example, according to a Medscape article, SGLT2 inhibitors "should be offered to all patients with Atrial Fibrillation."[283]

The same is being said about heart failure in cringeworthy fashion as one cardiologist opined, "It is highly improbable and incredibly fortuitous for a therapy (SGLT2s) to work across an entire syndrome. As luck would have it, that syndrome is heart failure."[284]

WHAT IS BEING IGNORED?

Lifestyle, diet, exercise are uniformly said to be ineffective for weight loss by allopathic medicine, which left the stable door wide open for weight-loss injections to be the holy grail. However, in my experience people can't help but eat more food and more calories because their body is searching for essential nutrients in our current ultraprocessed diet. The title of this article tells the story. "Chemicals or Calories? How Ultraprocessed Food Leads to Obesity"[285]

I'd also say that the enormous financial windfall to Big Pharma is also being ignored. We cannot underestimate the power of money in promoting this toxic chemical, all the while ignoring the crushing

side effects. Novo Nordisk, the manufacturer of Ozempic, reported a staggering $40.6 billion in revenue in 2024.[286]

I've said a lot about Ozempic but not actually what it is and how it's supposed to work. Ozempic is the commercial name for the synthetic peptide drug Semaglutide, which mimics the action of the naturally occurring glucagon-like peptide in the body known as GLP-1.

NOTE: A synthetic form of a hormone is not the hormone, and it's not going to act like the natural hormone. The chemical molecule could have a different rotational spin, which means it won't easily slip into receptor sites but bashes them until they open up.

In 2017 the drug was approved for use in diabetics. By 2021, the FDA approved Wegovy, a higher-dose formulation of Semaglutide, for chronic weight management because weight loss was an unexpected side effect in diabetics who were on this drug.

HOW DOES OZEMPIC WORK?

Promoters say these drugs work in several different ways to help improve blood glucose (sugar) levels. But do they even know the extent of their action?[287]

1. Ozempic mimics a naturally occurring gut hormone called glucagon-like peptide-1 (GLP-1). It is responsible for your pancreas releasing insulin after you eat; it reduces glucose production in the liver; and slows the movement of food out of your stomach.
2. Ozempic reduces the amount of glucose your liver makes and stores as glycogen in the liver. This is another benefit for diabetics.
3. Ozempic diminished gastric motility and gastric acid production slowing down the movement of food out of your stomach so that you don't absorb carbs as fast, which improves blood glucose. It also makes you feel full for an extended period of time.
4. The fourth function of Ozempic moved it out of the diabetic realm into the weight loss realm because it targets the areas

of the brain that regulate appetite and fullness. This, and feeling so full that you are nauseous result in weight loss.

A few short years after being approved for diabetics, this powerful drug was unleashed on the market for weight loss. Seventy percent of the US population took note. Because these drugs diminish gut motility, gastric acid secretion, appetite, and food intake by making your nauseous to the point of vomiting, I call them anorexic, bulimic drugs.

NOTE: A higher-dose formula, Wegovy, could be one reason why people using the weekly injection for weight loss are having more side effects than diabetics who are using a lower dose.

YOU'RE DOING WHAT TO YOUR VAGUS NERVE?

Are you ready for that deep dive?

"Human GLP-1 is produced in the gut and works through the nervous system by triggering the vagus nerve," says bariatric surgeon Dr. David Brown in an eye-opening YouTube video.[288]

It's the first time I learned that the vagus nerve is being dramatically affected by GLP-1. Knowing the importance of the vagus nerve in the nervous system, I was intrigued. Dr. Brown says that this non-human, synthetic GLP-1 bypasses the vagus nerve and rushes directly to the brain, exerting a powerful effect on the appetite center where there are GLP-1 receptors.

NOTE: It turns out that circumventing the natural function of the vagus nerve is never a good idea and brings on many of the side effects of this drug such as:

- Gastroparesis (stomach paralysis)
- Fainting
- Low blood pressure
- Low pulse rate
- Mental health issues
- Chronic headaches

These symptoms, and many more, occur because the vagus nerve is in charge of:

- Breathing rate regulation

- Digestion
- Urination
- Sexual arousal modulation
- Salivating
- Sweating
- Pupil size changes
- Heart rate management
- Crying
- Hormone secretion -- including the stress response and the fight-or-flight reaction.

I want to emphasize that all these activities are controlled by the vagus nerve and negatively affected when you bypass these functions.

Gastroparesis

Under the heading – Digestion – you find Gastroparesis, which is the GLP-1 side effect that I find most chilling. At first, I wondered how such a devastating symptom could be caused by this drug. Well, now I know why – it's because it renders the vagus nerve

impotent. Here's what's happening. Gastroparesis occurs when damage to the vagus nerve stops food from moving into your intestines from your stomach. This vagal nerve damage can result from diabetes, viral infections, abdominal surgery, scleroderma, and GLP-1 inhibitors.

Vasovagal Syncope

Here's another serious consequence of sidelining the vagus nerve, Vasovagal syncope. Syncope is another word for fainting. It occurs when the vagus nerve branch to your heart overreacts to certain situations like extreme heat, anxiety, hunger, pain, or stress. Blood pressure drops very quickly making you feel dizzy or faint. Dropping to the ground is the body's best solution to getting blood flowing back to your head.

The Vagus Nerve

The Cleveland Clinic confirms what I said above:

> *The vagal nerves carry signals between your brain, heart and digestive system. They're a key part of your*

> *parasympathetic nervous system. Vagus nerve damage can lead to gastroparesis, food not moving into your intestines. Some people with vasovagal syncope faint from low blood pressure. Vagus nerve stimulation (VNS) can treat epilepsy and depression.*[289]

We think of nerves as operating muscles or being in charge of touch and movement or causing pain if damaged. We don't think of them being in charge of an underground autonomic (automatic) nervous system responsible for:

- Rest and Relaxation
- Restoration and Repair
- Anti-inflammation
- Digestion
- Reproduction
- Homeostasis
- Resilience

The vagus nerve is the longest cranial nerve in the body running from the brainstem to the intestines branching out on both sides

of the body. It connects the brain to ears, eyes, tongue, esophagus, stomach, pancreas, intestines, liver, kidneys, colon, heart and lungs.

Being deep to the chest and gut, it's not a nerve that you can manipulate externally with massage. However, regular exercise and stress reduction techniques help balance the vagus nerve. A very gentle pressure on your eyes stimulates the vagus nerve and lowers your pulse and blood pressure. Massaging your ears also opens the door to your vagus nerve. A cold pack on one side of your neck over the carotid artery for a few minutes can stimulate the vagus nerve. Even smiling is a boon to the health of your vagus nerve. I joke about how I collect smiles on my morning beach walk, and I didn't even know I was activating my vagus nerve and everybody else's.

NOTE: Medically, we know about the effect of a gentle carotid massage to control supraventricular tachycardia – but it must be done gently on the way to the ER.

I learned about humming or singing as a diversionary treatment for anxiety or a panic attack. It turns out that humming, laughing, and singing all stimulate the vagus nerve and can affect the pulse and blood pressure. Breath work focusing on prolonged exhalation stimulates the vagus nerve because so much of the nerve runs down either side of the lungs.

In his YouTube, Dr. Brown gives a mini lesson on the autonomic nervous system (ANS) and how it manages the body functions I talk about above – all of which cannot be controlled consciously. I also found it interesting that the ANS regulates the skeletal muscles, and we know by now that the GLP-1 injections cause loss of muscle mass that can be up to 40% of total weight loss. When the ANS is out of balance, there's a disturbance in heart rate variability, which accelerates the aging process.

NOTE: When you know all this information, "Don't mess with Mother Nature" would be the best advice.

LET'S REWARD FAILURE

Every week there's a new "benefit" that's trotted out and a new serious side effect of the GLP-1s. In the midst of all that, it's almost comic to learn that five scientists who helped develop the blockbuster diabetes and weight-loss drug semaglutide (Ozempic, Wegovy) are among recipients of the 2025 $3 million Breakthrough Prize. I won't go into who's funding that prize, you can look it up online if you're interested.

WHAT IS THE REWARD TO DRUG COMPANIES

The monetary benefit determines which drugs gain ascendency in our disease-care system. Here's an article about the promotion of the Semaglutides. "Is Semaglutide the 'New Statin'? Not So Fast."[290] The best part of this article was a Reader's Comment:

> *If a drug costs $1000 per month and has a number needed to treat (NNT) of 67 over 34 months, that calculates out to $2.3 Million to prevent one primary-outcome CV [cardiovascular] event. ($1000 x 34 x 67). That's horrendously inefficient.*

But, hey, American doctors don't have to consider cost-effectiveness--which is one reason U.S. healthcare is so messed up.

The author of the "Not So Fast" article concludes that "I do not believe that semaglutide is the 'new statin.' For a split second you think he's on our side. But then he blows his cover and says, "There is no doubt that the GLP-1 receptor agonist class is the most significant therapeutic advance for the management of obesity and comorbidities to date." His next statement digs him into an even deeper hole when he declares that: "Statins are the cornerstone of primary and secondary prevention of CVD in a wide range of comorbidities, as evidenced in multiple large and high-quality trials dating back over 30 years."

SERIOUSLY? It's obvious that these clowns have never met a drug they didn't love!

ANOREXIA, BULEMIA, AND THE VAGUS NERVE

It turns out my statement is really on point that the GLP-1 drugs are medically inducing anorexia and bulimia. When I searched

PubMed for the words: vagus nerve, anorexia, human in the past 5 years, I got only 8 results. Delving into the distant past I found only one paper in 1963 with a relevant title: "Anorexia Produced by Direct-Current Blockade of the Vagus Nerve" but there was no paper and no abstract.[291]

Online I did find a website about Vagus Nerve Disorders and one particular paper called "The Role of the Vagus Nerve in Eating Disorders," which had very few views, but I found it extremely interesting.[292]

The author, who isn't named, defines eating disorders and then discusses the vagus nerve. The author mentions, as I have already defined, that the vagus nerve is responsible for regulating many essential bodily functions, such as heart rate, breathing, digestion, and the release of certain hormones.

When discussing the anatomy of the vagus nerve, the author says that it has both sensory and motor fibers. For example, when the stomach is full, sensory fibers in the vagus nerve send signals to the brain, indicating satiety and reducing the sensation of hunger.

Motor fibers transmit impulses from the brain to the organs, controlling their activity and influencing physiological processes. When the brain sends signals through the vagus nerve, it can increase or decrease the heart rate, regulate breathing patterns, and stimulate the release of digestive enzymes. The vagus nerve is probably the most complex system I've ever come across.

As part of the parasympathetic nervous system involving rest and relaxation, the vagus nerve stimulates the release of the neurotransmitter acetylcholine that slows down the heart rate, increases intestinal motility, and enhances nutrient absorption.

Then the article focused on how the vagus nerve regulates the digestive system giving us the sensation of hunger, the process of satiation (fullness), and the activation of the body's natural reward pathways. It communicates with various structures in the gastrointestinal tract, such as the stomach and intestines, to coordinate the digestion and absorption of food.

It's the vagus nerve that signals hunger from the brain when it detects that the stomach is empty. These signals prompt the brain

to release ghrelin, a hormone that stimulates appetite and motivates us to seek food. As the stomach expands with food, it causes the release of satiety hormones like leptin, which reduce appetite and promote feelings of fullness.

There's even more complexity as the vagus nerve interacts with the brain's reward center – the hypothalamus, which is responsible for controlling appetite and energy balance. Dysfunction of the vagus nerve can disrupt this delicate balance, leading to conditions such as overeating, obesity, or eating disorders.

There you have it – medically induced dysfunction of the vagus nerve can cause eating disorders like anorexia and bulimia. Dysfunction in the vagus nerve can disrupt the normal processes of hunger and satiety, leading to disordered eating behaviors and altered perceptions of body weight and shape.

The author says that dysregulated vagal activity has been associated with increased anxiety, emotional dysregulation, and decreased awareness of bodily sensations, all of which are

prominent features in individuals with eating disorders and seen in people who are on GLP-1 drugs.

What are the answers to the current weight and diet crisis?

WHY WE'VE GIVEN UP ON DIETS

How can a person make sense of a diet culture where the extremes of vegan and carnivore are both touted as life-saving? It's quite impossible for the average person to make any sense of the dozens of diet options available.

What do I think? I think we eat food to get the macronutrients and micronutrients to grow and repair the body. That goal gets torpedoed out of existence when our body has to fight toxins and chemicals and stress and emotional trauma. Which means we need even more nutrients for repair.

NOTE: Dr. Stephanie Seneff says that the buildup of glyphosate (Round Up) in the food supply has caused weight gain. Dr. Robert Lustig says it's a high fructose corn syrup. Dr. Mercola says it's

omega-6 vegetable oils. And you can throw ultraprocessed foods into the mix because they contain all three contaminants.

I've talked about avoiding sugar, gluten, and dairy as part of a yeast free diet for decades. I think that's a good place to start – although I have introduced a daily yeast treatment protocol that doesn't make us a slave to that diet.

I certainly talk about the need for picometer, stabilized ions of magnesium to establish 80% of metabolic functions in the body. Magnesium and other basic nutrients can give the body what it needs and stop the overeating which leads to weight gain as people try to get the nutrients they may be missing.

That's just a teaser, much more complete information on Diet and Lifestyle will be available in Book 2 of this series, *Detox Your Body: The Sugar-Free Plan.*

AFTERWARD

I'm sure you can see that the finale of this book is up to you. You decide what goes in your body and how much. You decide how much ultraprocessed food and refined sugar you want to eat. Nobody is forcing you. With the information that I have provided, you can make an informed choice about how much processed, adulterated food you feel comfortable eating.

That choice will affect your health and the health of your children for as long as you live. So, choose wisely and get involved in making lifestyle changes. If you support the ecology movement and the save the planet movement, why not start by saving your own health? Potentially we eat up to ten pounds of food additives and chemicals annually, along with 100 pounds of sugar. Why not begin averting your own toxic waste dump?

APPENDIX A

THE SCARY TRUTH ABOUT SUGAR

Originally published in *Natural Health Magazine*, 2000.

By Carolyn Dean, MD, ND

While visiting friends, I bonded immediately with their two-year old son, Robbie. We played while the adults talked. After about an hour he got hungry and asked his mother for some of his favorite food, peanut butter.

Robbie ate 4 teaspoons straight from the jar and within minutes he turned into a whirling dervish, a cyclone of hyperactivity. He was banging his head against a pillow on my lap one minute and the next tearing down the hall to throw toys around his room. The parents seemed all too familiar with this behavior and began making excuses. He gets like this when we have company, when he's overtired, when he's excited.

As a doctor, I immediately knew what the problem was – sugar. Robbie's parents had already figured out that indulging his

sweet tooth led to hyperactive episodes. But they didn't make the connection between the peanut butter and the behavior. I took the jar and showed them the label, which listed two different sugars (high fructose corn syrup and sugar). The parents were stunned and said they would be more diligent about cutting out the hidden sugars in their son's diet. When my husband saw Robbie's father a week later, he said Robbie was much calmer, was sleeping better, and was like a different person both at home and at daycare.

Most people do realize that sugar can cause hyperactivity, but what they don't realize is that sugar lurks where you least expect to find it and affects the human body in myriad ways. The sugar industry vehemently denies that sugar is hazardous to human health. Are the parallel increases in sugar consumption, obesity, and diabetes just a coincidence? Here are the straight answers.

I know sugar can lead to weight gain, but is it really all that bad for me?

Yes, it really is. Sugar is a simple carbohydrate found naturally in many foods, including fruits and grains. If the only sugar we consumed were in natural, whole foods, we'd all be just fine. But

the average American diet is full of refined, nutrient-depleted foods and contains an average of 20 teaspoons of added, refined sugar every day. That's twice the amount recommended by the USDA (10 teaspoons and four times the maximum I personally recommend.)

So, what's wrong with refined sugar? Many things. First, sugar compromises immune function. Two cans of soda (which contain 24 teaspoons of sugar) reduce the efficiency of white blood cells by 92 percent-an effect that lasts up to five hours, according to Kenneth Bock, M.D., an expert in nutritional and environmental health. Since white blood cells are an integral part of your immune system, if you happen to meet a nasty virus or bacteria within five hours of drinking a few colas, your immune system may be unable to fight off the invader.

Refined sugar also overworks the pancreas and adrenal glands as they struggle to keep the blood sugar levels in balance. When you eat sugar, it is quickly absorbed into your bloodstream in the form of glucose. This puts your pancreas into overdrive, making insulin (which carries glucose to your cells to be used for energy) to normalize blood sugar levels. But this rapid release of insulin

causes a sudden drop in blood sugar. In reaction to the falling blood sugar, excess adrenal cortisone is stimulated to raise blood sugar back to normal. A constantly high intake of simple dietary sugar keeps this roller coaster going and eventually overworks or "burns out" normal pancreas and adrenal function, leading to early menopause, adult-onset diabetes, hypoglycemia, and chronic fatigue.

The purpose of eating is to provide your body with nutrients. But since sugar is devoid of nutrients, the body must actually draw from its nutrient reserves to metabolize it. When these storehouses are depleted, the body becomes unable to properly metabolize fatty acids and cholesterol, leading to higher cholesterol and triglyceride levels. Drawing on the body's nutrient reserves can also lead to chronic mineral deficits, especially in magnesium (a mineral required for more than 300 different enzyme activities) and chromium (a trace element that regulates hormones such as insulin), putting you at risk for dozens of diseases, from depression to attention deficit disorder to asthma.

A recent study, for example, found that kids who eat significant amounts of junk food are much more likely to develop asthma than kids who don't eat junk food. While the researchers didn't tie asthma to sugar itself, they did point out that a diet full of candy and other highly processed junk foods is deficient in a number of nutrients essential to health. And as I explained earlier, such foods further deplete the body of nutrients once consumed.

In fact, children are the biggest consumers of nutritionally void junk food at a time when their brains and bodies are growing rapidly and in need of a nutrient-dense diet for proper development, both physically and mentally. Criminologist Stephen Schoenthaler has been conducting nutritional studies on delinquents and public-school children for almost thirty years. In a paper from 1986 he describes how one million kids improved their test scores when they eliminated sugar and white flour from their diets.

Alexander Schauss, PhD, a nutritional researcher and writer, performed similar work in juvenile detention centers and showed

that violent behavior decreased dramatically when sugar was eliminated.

But I don't eat junk food. Why should I be concerned about my sugar consumption? Unless you're eating a diet entirely made of whole, unprocessed foods (think fruits, vegetables, grains), you're probably eating more sugar than you think, and then you should. Sugar, in its myriad forms, is added to virtually every packaged food product you'll find at the supermarket –not just the sweet stuff. If you drink one soda, even the "natural" variety, you have used up your day's sugar allowance.

Don't be fooled by the list of ingredients. Sugar has hundreds of pseudonyms (see "Stealth Sugars" for a sampling), and manufacturers have gotten very good at hiding them from consumers. Because ingredients are listed from most to least amount, often three different types of sugars will be in the middle of the list. If all sugars were required to be listed together, sugar would be the first ingredient.

To find out how much sugar you're actually taking in, try keeping a food diary for one week. Check the labels of the foods

you eat and make note of their sugar content. The reality of the numbers may not hit home because most of us don't think in grams; 4.2 grams of sugar is equivalent to 1 teaspoon of sugar. At the end of the week, take the total number of sugar grams and divide it by 4.2 to get your weekly sugar intake in teaspoons. Then divide that number by 7 to get your daily sugar consumption.

Unfortunately, the way the FDA's labeling rules are set up, manufacturers don't have to separate added sugars from naturally occurring ones on labels. But your total sugar intake will give you a very good idea of how much added sugar you're eating. Naturally sweet foods, such as fruit, don't really contain that much sugar. A cup of strawberries, for example, contains 1/6th the sugar of a can of cola.

Is there such a thing as a safe amount of sugar? Ideally, you should eliminate all refined sugar from your diet. I do realize that such a feat may not be realistic for everyone, particularly since a large number of the foods you find at the grocery store have been made with refined sugars (plus the fact that nutrition labels don't have to list the amount of added sugars a product contains).

Many people subscribe to the bizarre logic that if they overindulge in sweets and don't wake up the next day with diabetes or some horrible disease then it must be okay. Dr. Abraham Hoffer, a psychiatrist in British Columbia who has been studying the effects of sugar on health for more than 40 years, says that it takes roughly 15-20 years of steady consumption of refined sugar and junk food before an individual develops a chronic illness like diabetes. And it doesn't take a lot of sugar to put you at risk. Hoffer's statistics show that once an intake exceeds 20 teaspoons daily, the risk of chronic disease increases exponentially.

If you can't completely cut sugar from your diet due to eating out and not being in control of ingredients, try not to ingest more than two or three teaspoons a day. That way, you will stay well below 70 pounds annually (20 teaspoons daily), which is the cut off point for sugar-induced chronic disease. At the level we're eating sugar now (20 teaspoons per person daily), it is only a matter of time before we're facing an epidemic of sugar-induced diseases. In fact, the epidemics may have already begun – according to the Centers for Disease Control in Atlanta, the

incidence of adult-onset diabetes has increased by 70 percent among people in their 30s in the past 10 years.

What does processing do to sugar? Processing sugarcane, or any whole food, strips it of most, if not all, of its nutritional value. Researchers found that the refining process of sugar removes 93 percent of its chromium, 89 percent of its manganese, 98 percent of its cobalt, 83 percent of its copper, 98 percent of its zinc, and 98 percent of its magnesium. Ironically, the end product, the refined sugar, is what we consume, while the nutritious residues are discarded and generally fed to cattle. In the 1920s, Sir Frederick Banting, the Canadian medical researcher scientist who first discovered insulin, visited Panama to study diabetes among workers in the sugar cane fields. He could find almost no incidence of diabetes among the workers who ate the whole sugarcane plant daily. But among their Spanish employers who incorporated the refined end product, white sugar, into their diets, the disease was rampant.

Is fructose healthier than sugar? Many people mistakenly believe that fructose is a healthier sugar-especially since it is used

in many so-called "natural" foods. While there is a small amount of fructose naturally present in fruit, the fructose that is added to many commercially prepared foods is nearly as refined as plain white sugar. Most of the fructose you'll encounter is in the form of high-fructose corn syrup (HFCS), which has nearly eclipsed sugar as the most consumed sweetener in the United States. It is added to thousands of products, from cola to cookies and even to canned vegetables. HFCS is a highly refined sweetener that is virtually identical, chemically speaking, to refined white sugar; during digestion, sugar breaks down into equal parts of glucose and fructose – HFCS contains 55 percent fructose and 45 percent glucose.

Why do I crave sugar? You may crave sugary foods for many reasons. As I explained earlier, refined sugar stresses the pancreas and depletes the body's supplies of chromium. A common symptom of chromium deficiency is sugar cravings. Satisfying these cravings further lowers chromium and increases cravings. And eating sweets is just plain pleasurable. Chocolate, for example, has been found

to stimulate the production of serotonin, the feel-good brain chemical.

But the human body is drawn to carbohydrates for reasons other than instant gratification. Carbohydrates are necessary for metabolic processes in our body. Whole, unrefined carbohydrates like grains break down into sugar when chewed. After chewing properly, grains will taste sweet. Grains contain B vitamins and magnesium; these nutrients are important co-factors in hundreds of metabolic processes in the body. And the sweetness of the foods that contain B-vitamins and magnesium may create a conditioned response to these foods. In other words, sweetness makes your body think you are getting beneficial vitamins and minerals. But when we get empty carbs like sugar with no other nutrients, the body craves more and more to try to meet its nutrient demands.

So, if your body needs these vitamins and minerals and is attracted to carbohydrates to get them, and if instead of a whole grain you eat a refined empty product, then you will probably keep craving carbohydrates until you get the vitamins and minerals you need. That's why many doctors recommend B-complex vitamins

and magnesium supplements help to control carbohydrate addiction. Of course, eating organic whole grains would be the optimum solution.

The main reason for our sugar cravings is that we've had a lifetime of refined sugar. It's in baby food, snacks, and treats at every turn; Madison Avenue is able to sell 10 cents worth of junk food for $2.00 because it appeals to our sweet tooth. We're hooked and we're not complaining as long as the supply holds out. And, as Dr. Hoffer says, it's a stronger addiction than heroin.

Another cause of sugar cravings is yeast overgrowth, also known as candidiasis. Candida is a yeast that is naturally present in the human body. But some things, such as antibiotics and too much sugar in the diet, can cause the yeast to multiply, leading a number of health problems, from vaginal yeast infections to severe fatigue. And these yeast, when present in abnormally high numbers, can cause strong cravings for sweet, starchy foods, causing the problem to perpetuate. (If you suspect a yeast overgrowth, your doctor can perform a saliva or stool test for yeast antibodies. Additionally, Dr. Dean is the medical advisor to

yeastconnection.com. Visitors to the site can take the Yeast Questionnaire to help determine if they have a yeast problem. If so, a 6-Point Yeast Fighting Program will help eliminate the sugar and yeast from your life.)

Are natural sweeteners like honey better than white sugar? Regardless of what kind of sweeteners you eat, they should account for no more than 5 percent of your daily calories. Some natural sweeteners, such as blackstrap molasses, unprocessed honey, fruit juice, brown rice syrup, and evaporated cane juice do contain low levels of nutrients, such as the B vitamins and minerals such as iron, calcium, and potassium. But don't be fooled: these "natural" sweeteners are only marginally better than plain white table sugar, and dietary intake of them should be limited.

What about calorie-free sugar substitutes such as Nutrasweet™? Don't be fooled into switching from sugar to sugar-free substitutes; they're even more unhealthy, especially aspartame (Nutrasweet). If you want to add a touch of sweetness without any calories, try stevia. Stevia is an extremely safe herb that is not only an excellent sweetener but actually lowers blood

sugar levels in diabetics by helping to regulate pancreatic function. Unlike sugar, which weakens the immune system, stevia has antimicrobial properties and actually helps the body fight off colds and flus.

Aspartame (Nutrasweet™), on the other hand, is a neurotoxin and should be avoided like the plague. Aspartame has been shown to cause birth defects, brain tumors and seizures and to contribute to diabetes and emotional disorders.

Aspartame has three components: phenylalanine (50 percent), aspartic acid (40 percent) and methanol (also termed wood alcohol; 10 percent). Those in support of this popular artificial sweetener state that the two primary amino acids, which comprise 90 percent of aspartame by weight, are a harmless and natural part of our diet. While phenylalanine and aspartic acid are naturally occurring amino acids, our bodies and brains are not equipped to handle such high concentrations as found in a diet soda where they disrupt nerve cell communication and can cause cell death. The neurotoxic effects of these isolated amino acids can be linked to headaches, mental confusion, balance problems, and seizures.

Methanol, too, is naturally present in fruits and vegetables, but these foods also contain ethanol, which neutralizes the methanol. The Environmental Protection Agency (EPA) defines safe consumption of methanol as no more than 7.8 milligrams per day of this dangerous substance. Yet a one-liter beverage, sweetened with aspartame, contains about 56 milligrams of wood alcohol, or seven times the EPA limit. And the absolute irony of the use of aspartame in diet products is that it can actually cause weight gain. Phenylalanine and aspartic acid, found in aspartame, stimulate the release of insulin. Rapid, strong spikes in insulin remove all glucose from the bloodstream and store it as fat. This can result in hypoglycemia (low blood sugar) and sugar cravings. Additionally, phenylalanine has been demonstrated to inhibit carbohydrate-induced synthesis of the neurotransmitter serotonin, which signals that the body is full. This can cause you to eat more than you normally would and, ultimately, gain weight. In one study, a control group switching to an aspartame-free diet resulted in an average weight loss of 19 pounds.

Saccharin is a petroleum-derived sweetener discovered in 1879 and was used extensively during the sugar shortages during World Wars I and II. The sweetener got a bad reputation in 1977 when the FDA proposed restrictions on its use saying studies involving male rats given large amounts of saccharin developed urinary bladder tumors. The National Toxicology Program (NTP) then officially classified saccharin as an "anticipated human carcinogen." But researchers have since been unable to reproduce the results from 1977, and saccharin was recently removed from the NTP's list. Saccharin might be the lesser of two evils, but it's still a synthetic substance.

Many low-carbohydrate foods, like the Atkins Bars, contain sugar alcohols. What are they?

STEALTH SUGARS

It sometimes requires a little detective work to find the hidden sugars in foods. You probably know the "ose's" (maltose, sucrose, glucose, fructose), but there are dozens more that you'd never

suspect. The following is a list of 100 common names for sugar that you may encounter in ingredients of your favorite foods.

- Amasake
- Apple sugar
- Barbados sugar
- Bark sugar
- Barley malt
- Barley malt syrup
- Beet sugar
- Brown rice syrup
- Brown sugar
- Cane juice
- Cane sugar
- Caramelized foods
- Carbitol
- Carmel coloring

- Carmel sugars
- Concentrated fruit juice
- Corn sweetener
- Corn syrup
- Date sugar
- Dextrin
- Dextrose
- Diglycerides
- Disaccharides
- D-tagalose
- Evaporated cane juice
- Florida crystals
- Fructooligosaccharides (FOS)
- Fructose
- Fruit juice concentrate
- Galactose

- Glucitol
- Glucoamine
- Gluconolactone
- Glucose
- Glucose polymers
- Glucose syrup
- Glycerides
- Glycerine
- Glycerol
- Glycol
- Hexitol
- High-fructose corn syrup
- Honey
- Inversol
- Invert sugar
- Isomalt

- Karo syrups
- Lactose
- Levulose
- "Light" sugar
- "Lite" sugar
- Malitol
- Malt dextrin
- Malted barley
- Maltodextrins
- Maltodextrose
- Maltose
- Malts
- Mannitol
- Mannose
- Maple syrup
- Microcrystalline cellulose

- Molasses
- Monoglycerides
- Monosaccarides
- Nectars
- Pentose
- Polydextrose
- Polyglycerides
- Powdered sugar
- Raisin juice
- Raisin syrup
- Raw sugar
- Ribose rice syrup
- Rice malt
- Rice sugar
- Rice sweeteners
- Rice syrup solids

- Saccharides
- Sorbitol
- Sorghum
- Sucanat
- Sucanet
- Sucrose
- Sugar cane
- Trisaccharides
- Turbinado sugar
- Unrefined sugar
- White sugar
- Xylitol
- Zylose

WHERE SUGAR RESIDES

USDA recommends limiting added sugars (from packaged foods and the sugar bowl) to 24 grams a day (6 teaspoons) if you eat

1,600 calories; 40 grams (10 teaspoons) for a 2,000-calorie diet; 56 grams (14 teaspoons) for a 2,400-calorie diet; and 72 grams (18 teaspoons) for a 2,800-calorie-diet.

Food with Its Average Added Sugars

- Apple Sauce contains 11 g
- Peanut Butter contains 18 g
- Yogurt contains 23 g
- Fruit Juice contains 40 g

Where We Get Our Sugar: Then and Now

In 1973, the per capita consumption of sugar and other highly refined sweeteners (such as high-fructose corn syrup) was 126 pounds a year. Today, it's 158 pounds – an increase of 26 percent. During the same time period, the percent of overweight Americans increased by nearly 20 percent.

Soda Overload

A single can of soda contains 12 teaspoons of added sugars. That's 120 percent of the USDA's recommended daily intake of sugar. Researchers have found that just two cans of soda can suppress immune function for up to five hours.

APPENDIX B

NANCY APPLETON'S WAR AGAINST SUGAR

Dr. Appleton has been battling sugar for a long time. Her first edition of *Lick the Sugar Habit* was published in 1988. She is constantly updating her "reasons why sugar is bad for you." On her website (www.nancyappleton.com) she itemizes the reasons why we should avoid sugar, giving scientific journal article references to prove her point. Currently her list is at 146 scientifically supported reasons why sugar is bad for you.

1. Sugar can suppress the immune system.
2. Sugar upsets the mineral relationships in the body.
3. Sugar can cause hyperactivity, anxiety, difficulty concentrating, and crankiness in children.
4. Sugar can produce a significant rise in triglycerides.
5. Sugar contributes to the reduction in defense against bacterial infection (infectious diseases).

6. Sugar causes a loss of tissue elasticity and function; the more sugar you eat, the more elasticity and function you lose.
7. Sugar reduces high-density lipoproteins.
8. Sugar leads to chromium deficiency.
9. Sugar leads to cancer of the ovaries.
10. Sugar can increase fasting levels of glucose.
11. Sugar causes copper deficiency.
12. Sugar interferes with absorption of calcium and magnesium.
13. Sugar may make eyes more vulnerable to age-related macular degeneration.
14. Sugar raises the level of a neurotransmitters: dopamine, serotonin, and norepinephrine.
15. Sugar can cause hypoglycemia.
16. Sugar can produce an acidic digestive tract.
17. Sugar can cause a rapid rise in adrenaline levels in children.

18. Sugar malabsorption is frequent in patients with functional bowel disease.
19. Sugar can cause premature aging.
20. Sugar can lead to alcoholism.
21. Sugar can cause tooth decay.
22. Sugar contributes to obesity.
23. High intake of sugar increases the risk of Crohn's disease and ulcerative colitis.
24. Sugar can cause changes frequently found in person with gastric or duodenal ulcers.
25. Sugar can cause arthritis.
26. Sugar can cause asthma.
27. Sugar greatly assists the uncontrolled growth of Candida Albicans (yeast infections)
28. Sugar can cause gallstones.
29. Sugar can cause heart disease.
30. Sugar can cause appendicitis.
31. Sugar can cause hemorrhoids.
32. Sugar can cause varicose veins.

33. Sugar can elevate glucose and insulin responses in oral contraceptive users.
34. Sugar can lead to periodontal disease.
35. Sugar can contribute to osteoporosis.
36. Sugar contributes to saliva acidity.
37. Sugar can cause a decrease in insulin sensitivity.
38. Sugar can lower the amount of vitamin E (alpha-Tocopherol) in the blood.
39. Sugar can decrease growth hormone.
40. Sugar can increase cholesterol.
41. Sugar can increase the systolic blood pressure.
42. High sugar intake increases advanced glycation end products (AGEs – sugar bound non-enzymatically to protein).
43. Sugar can interfere with the absorption of protein.
44. Sugar causes food allergies.
45. Sugar can contribute to diabetes.
46. Sugar can cause toxemia during pregnancy.
47. Sugar can contribute to eczema in children.

48. Sugar can cause cardiovascular disease.
49. Sugar can impair the structure of DNA.
50. Sugar can change the structure of protein.
51. Sugar can make our skin age by changing the structure of collagen.
52. Sugar can cause cataracts.
53. Sugar can cause emphysema.
54. Sugar can cause atherosclerosis.
55. Sugar can promote an elevation of low-density lipoproteins (LDL).
56. High sugar intake can impair the physiological homeostasis of many systems in the body.
57. Sugar lowers the enzyme's ability to function.
58. Sugar intake is higher in people with Parkinson's disease.
59. Sugar can increase the size of the liver by making the liver cells divide.
60. Sugar can increase the amount of liver fat.
61. Sugar can increase kidney size and produce pathological changes in the kidney.

62. Sugar can damage the pancreas.
63. Sugar can increase the body's fluid retention.
64. Sugar is enemy #1 of the bowel movement.
65. Sugar can cause myopia (nearsightedness).
66. Sugar can compromise the lining of the capillaries.
67. Sugar can make the tendons more brittle.
68. Sugar can cause headaches, including migraine.
69. Sugar plays a role in pancreatic cancer in women.
70. Sugar can adversely affect school children's grades and cause learning disorders.
71. Sugar can cause depression.
72. Sugar increases the risk of gastric cancer.
73. Sugar and cause dyspepsia (indigestion).
74. Sugar can increase your risk of getting gout.
75. Sugar can increase the levels of glucose in an oral glucose tolerance test over the ingestion of complex carbohydrates.
76. Sugar can increase the insulin responses in humans consuming high-sugar diets compared to low-sugar diets.

77. A diet high in refined sugar reduces learning capacity.
78. Sugar can cause less effective functioning of two blood proteins, albumin, and lipoproteins, which may reduce the body's ability to handle fat and cholesterol.
79. Sugar can contribute to Alzheimer's disease.
80. Sugar can cause platelet adhesiveness.
81. Sugar can cause hormonal imbalance; some hormones become under active, and others become overactive.
82. Sugar can lead to the formation of kidney stones.
83. Diets high in sugar can cause free radicals and oxidative stress.
84. High sugar diet can lead to biliary tract cancer.
85. High sugar consumption of pregnant adolescents is associated with a twofold-increased risk for delivering a small-for-gestational-age (SGA) infant.
86. High sugar consumption can lead to substantial decrease in gestation duration among adolescents.
87. Sugar slows food's travel time through the gastrointestinal tract.

88. Sugar increases the concentration of bile acids in stools and bacterial enzymes in the colon. This can modify bile to produce cancer-causing compounds and colon cancer.
89. Sugar increases estradiol (the most potent form of naturally occurring estrogen) in men.
90. Sugar combines with and destroys phosphatase, an enzyme, which makes the process of digestion more difficult.
91. Sugar can be a risk factor of gallbladder cancer.
92. Sugar is an addictive substance.
93. Sugar can be intoxicating, similar to alcohol.
94. Sugar can exacerbate PMS.
95. Sugar given to premature babies can affect the amount of carbon dioxide they produce.
96. Decrease in sugar intake can increase emotional stability.
97. The rapid absorption of sugar promotes excessive food intake in obese subjects.

98. Sugar can worsen the symptoms of children with attention deficit hyperactivity disorder (ADHD).
99. Sugar adversely affects urinary electrolyte composition.
100. Sugar can slow down the ability of the adrenal glands to function.
101. IVs (intravenous feedings) of sugar water can cut off oxygen to the brain.
102. High sucrose intake could be an important risk factor in lung cancer.
103. Sugar increases the risk of polio.
104. High sugar intake can cause epileptic seizures.
105. Sugar causes high blood pressure in obese people.
106. In intensive care units, limiting sugar saves lives.
107. Sugar may induce cell death.
108. Sugar can increase the amount of food that you eat.
109. In juvenile rehabilitation camps, when children were put on a low sugar diet, there was a 44% drop in antisocial behavior.
110. Sugar can lead to prostate cancer.

111. Sugar dehydrates newborns.

112. Sugar can cause low birth weight babies.

113.Greater consumption of refined sugar is associated with a worse outcome of schizophrenia.

114. Sugar can raise homocysteine levels in the bloodstream.

115. Sweet food items increase the risk of breast cancer.

116. Sugar is a risk factor in cancer of the small intestine.

117. Sugar may cause laryngeal cancer.

118. Sugar induces salt and water retention.

119. Sugar may contribute to mild memory loss.

120. The more sodas a 10-year-old child consumes, the less milk.

121. Sugar can increase the total amount of food consumed.

122. Exposing a newborn to sugar results in a heightened preference for sucrose relative to water at 6 months and 2 years of age.

123. Sugar causes constipation.

124. Sugar causes varicose veins.

125. Sugar can cause brain decay in prediabetic and diabetic women.
126. Sugar can increase the risk of stomach cancer.
127. Sugar can cause metabolic syndrome.
128. Sugar ingestion by pregnant women increases neural tube defects in embryos.
129. Sugar can be a factor in asthma.
130. The higher the sugar consumption the more chances of getting irritable bowel syndrome.
131. Sugar can affect the brain's ability to deal with rewards and consequences.
132. Sugar can cause cancer of the rectum.
133. Sugar can cause endometrial cancer.
134. Sugar can cause renal (kidney) cell carcinoma.
135. Sugar can cause liver tumors.
136. Sugar can increase inflammatory markers in the bloodstream of overweight people.
137. Sugar can lower vitamin E levels in the bloodstream.
138. Sugar can increase your appetite for all food.

139. Sugar plays a role in the etiology and the continuation of acne.
140. Too much sugar can kill your sex life.
141. Sugar saps school performance in children.
142. Sugar can cause fatigue, moodiness, nervousness, and depression.
143. Sugar is common choice of obese individuals.
144. A linear decrease in the intake of many essential nutrients is associated with increasing total sugar intake.
145. High fructose consumption has been linked to liver disease.
146. Sugar adds to the risk of bladder cancer.

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APPENDIX C

REGULATIONS ABOUT HEALTH CLAIMS CAN LIMIT HOW WE CAN DESCRIBE THE COMPLETEMENT FORMULAS[293]

This appendix originally appeared as Chapter 8 in: Dean C. *Magnesium: The Missing Link to Total Health.* Hawaii: BlueStone EDU LLC; 2023. ©2023 by Carolyn Dean, MD, ND. Reprinted with author's permission.

In January 2003, I released the first version of *The Magnesium Miracle*, and with it, the magnesium deficiency awareness revolution began. From that time forward, people who were truly seeking a solution for the missing link to their health could read my book and learn the answer.

In 2017, I was asked to update *The Magnesium Miracle*, and at that time I provided a full revision. But, in 2020, we encountered a very strange thing called COVID, and I felt it was important to

update my work with a clearer understanding of how magnesium deficiency contributes to pre-and post-COVID health outcomes, including Long-COVID.

Once a person encounters this information, it would follow that the next question is, "What magnesium do you recommend?" It is an answer that I would love to provide for you here. But I have been advised by my highly experienced natural health industry attorney not to, because in so doing I am marrying my product recommendation with disease discussions, which implies that my products are a cure for disease, which they are not. Their function is to help overcome nutrient deficiencies. Nutrient sufficiency is poorly recognized, and nutrients can help support the structure and function of the body at any level of wellness or illness.

In this Appendix, I would like to challenge both consumers and practitioners to consider ideas that I've been contemplating since COVID started.

Idea #1 - Restorative and Preventative Supplementation is Imperative.

The following abstract, from the journal *Nutrients*, defines the importance of nutrients in supporting the structure and function of the immune system against viruses and bacteria as indicated by the title: "Optimal Nutritional Status for a Well-Functioning Immune System is an Important Factor to Protect against Viral Infections."

> *The role nutrition plays in supporting the immune system is well-established. A wealth of mechanistic and clinical data show that vitamins, including vitamins A, B6, B12, C, D, E, and folate; trace elements, including zinc, iron, selenium, magnesium, and copper; and the omega-3 fatty acids, eicosatetraenoic acid and docosahexaenoic acid, play important and complementary roles in supporting the immune system. Inadequate intake and status of these nutrients are widespread, leading to a decrease in resistance to infections and consequently an increase in disease burden. Against this background the following conclusions are made:*
>
> 1. *supplementation with the above micronutrients and omega-3 fatty acids are a safe, effective, and low-cost strategy to help support optimal immune function;*

2. *supplementation above the Recommended Dietary Allowance (RDA), but within recommended upper safety limits, for specific nutrients such as vitamins C and D is warranted; and*
3. *public health officials are to be encouraged to include nutritional strategies in their recommendations to improve public health.*

Although most readers will not think that the above abstract is extreme or even out-of-bounds, it is in sharp contrast to current medical and government opinion. I was very excited when the Office of Alternative Medicine (OAM) was established in October, 1991. I thought that finally alternative medicine would be properly studied and claim its rightful place in the medical system.

I was shocked and dismayed when I attended an early meeting of the OAM. My question about nutrients being used to prevent and treat disease evoked the standard answer, which was and still is that the purpose of this agency is to ensure that Americans are meeting their RDA nutrient requirements; that drugs treat disease, and nutrients do not.

Idea #2 - Natural health strategies and guidance by doctors will continue to diminish or disappear.

How do you make an informed decision about your body and its health potential without being able to clearly study all the facts? You cannot make a good decision without clear information. And today, consumers, healthcare practitioners, doctors, and even educational entities, such as naturopathic schools, medical schools, and other advocacy groups are unable to provide clear and prevailing guidance because of the limitation and restrictions being placed on them at every turn.

When it comes to the dietary supplement industry, many credible companies, like mine, are locked out of the health care system and the consumer marketplace because we are not allowed to communicate any benefits of restorative health or disease prevention through natural medicine and its attendant strategies. In my case, the problem comes to roost in identifying the problem and providing a solution. In my scientific and medical mind, it makes perfect sense that a magnesium deficiency can be solved with magnesium sufficiency. Thus, it follows that if my clinical mind

was able to develop a formulation that would relieve those symptoms in a highly efficacious way, that my formula would be first and foremost my recommendation.

However, this is forbidden by the FDA and the FTC, not only for me as a medical doctor and naturopath, but also for you and even your neighbor. Despite the First Amendment, which guarantees Freedom of Speech, I am not allowed to display your testimonial about the effectiveness of my formulas. Neither you nor I can claim that any dietary supplements can enhance health.

In fact, there are only about 13 authorized health claims that can be used in food or dietary supplement labeling to show that a food or a food component may reduce the risk of a disease or a health-related condition. If a food or nutrient company wants to make a health claim for a nutrient that has not already been approved, the manufacturer or medical entity must submit a petition to the FDA and move through an extensive and expensive review process for approval.

Yet, every year there are thousands and thousands of scientific studies that are initiated on behalf of dietary supplement companies and food manufacturers to substantiate the validity and beneficial nature of their products. When you dig deeper into the health claim approval process, you finally discover that the only studies that really count are randomized control trials. The FDA and FTC declare that no other studies are rigorous enough to meet their stringent criteria.

Additionally, health claims are limited by the fact that anecdotal compilations conducted in support of a health claim must be related to an already-approved biomarker, for example, LDL cholesterol or blood pressure are approved biomarkers.

Health claims that purport to reduce the risk of cancer, for example, are nearly impossible to make because even if the supplement company invested in a randomized clinical trial to support the claim, there is only one biomarker on the FDA's short list approved for health claims, and that involves intestinal polyps.

Even in the treatment of breast cancer, vitamin D is not an approved nutrient and cannot be claimed as a benefit to those who have breast cancer. What can be claimed is that vitamin D lowers the risk of osteoporosis for women, who are undergoing breast cancer treatment and taking estrogen lowering drugs, because the claim is related to vitamin D and osteoporosis which is a qualified health claim the FDA has approved.

The complexity of the constraints placed on the natural health industry, once pointed out, is easy to see. Hopefully, this new awareness will help you navigate this medical and bureaucratic minefield. We are biologically tied to the Earth and its many benefits, but the regulatory aspects of our industry do not favor natural medicine, even though many drugs were originally derived from plants.

These regulations put the doctor, naturopath, chiropractor, herbalist, acupuncturist, and other health care practitioners in the middle of the pressure cooker that comprises the FDA's regulation of health claims. The doctor's or naturopath's professional expertise; their constitutional right to free speech [FTC]; and the

consumer or client whose health condition and health recovery should be foremost, instead, come last.

Idea #3 - The dietary supplement industry can be its own worst enemy.

Consumers and health care practitioners should be able to discover the scientifically proven benefits of dietary supplements without conflict or contradiction. As an advocate for clinical research on human subjects, I have submitted my own products to rigorous clinical study. Yet, even with clinical validation, companies within the dietary supplement industry exaggerate the benefit of their products and confuse the consumer with absurd marketing tricks.

A perfect example of this is the blatant promotion of Magnesium L-Threonate as "the only" magnesium to cross the blood-brain-barrier.

In 2009, a rat study was published, "Enhancement of Learning and Memory by Elevating Brain Magnesium." Everyone heard about this study because the news that a patented magnesium was able to get into the brain and cerebrospinal fluid – of rats – was promoted

relentlessly. The study authors implied that only their magnesium was able to penetrate the impenetrable blood brain barrier (BBB). I immediately knew this was an incredible exaggeration because even magnesium oxide with a 4% absorption into the blood can have positive effects on the brain.

I carefully read the Magnesium L-Threonate study to confirm that there was only a 7% increase in magnesium in the cerebral spinal fluid compared to magnesium citrate. With that tiny, tiny difference (that could be declared to be within the normal 10% study error), the study authors declared their product to be The Holy Grail that conquered the BBB.

Here is what I wrote a decade ago in an Aug 2014 blog about the Magnesium L-Threonate study:

> *I've been asked about the newest magnesium on the block—Magnesium L-Threonate. The manufacturers are on record as saying theirs is the only magnesium that crosses the blood brain barrier. However, that is definitely NOT an accurate statement. The treatment of migraines, seizures, stroke, head*

injuries, and other nervous system problems with even the highly unabsorbed magnesium oxide (at 4%) shows that all types of magnesium work at the neuron level, which means they all get into the brain to some extent.

To this day, I remain concerned about marketing claims for Magnesium L-Threonate. Not only have they not corrected this misconception, but their product has also become so expensive that it can be an excessive burden on a consumer who has a genuine concern about their cognitive health and on a fixed income.

Most Magnesium L-Threonate products have deceptive labeling. They say on the front of the label "2,000 mg of Magnesium L-Threonate." So, you think you are getting 2,000 mg of magnesium and do not mind paying the exorbitant price. But then the Supplement Facts on the back say you must take 3 capsules to get a meager 144 mg of elemental magnesium. The rest of the capsule contains L-threonate, which somehow people have been led to believe is an amino acid called threanine which has neurobiological, but this

compound is a derivative of L-threonic acid, a metabolite of vitamin C. It is a synthesized form of magnesium mixed with threonic acid, creating a salt.

The importance of supplementation for brain health cannot be overestimated. Chapter 3, "Magnesium Transport Across The Blood-Brain Barriers," excerpted from the book, Magnesium in the Central Nervous System, shows that any form of supplemental magnesium has access to the brain.

The following edited abstract shows you why: (Bracketed words are my additions.)

The finding that magnesium levels are reduced in acute and chronic brain diseases has led to a recent surge in interest in the role of magnesium in the normal and injured nervous system, although the mechanisms of magnesium decline in pathological conditions, and its availability in the neural tissue after administration are not fully understood. The brain has two main barrier systems:

1) the blood-brain barrier (BBB) formed by brain capillary

endothelial cells which separate the blood from the extracellular fluid in the neuropil (a dense mass of unmyelinated axons, dendrites and glial cell processes); and

2) *the blood-CSF barrier (BCSFB) formed by choroidal epithelial cells which separate the blood from the CSF.*

Recently, transient receptor potential melastatin members have been identified as cation channels for magnesium transport. Although it is not known if choroidal epithelial cells express these molecules, they are expressed by brain endothelial cells and may play a role in magnesium transport. It is evident that magnesium enters the CNS through the BBB and is actively transported by choroidal epithelial cells into the CSF.

This abstract very clearly shows us just how vital magnesium is to the brain because it has its own transport mechanism in place. It is imperative that well-made magnesium supplements are represented accurately within the industry to support the consumers it serves. In this regard, the dietary supplement industry can be just as negligent as big Pharma, competing for profits at the expense of the consumer, instead of rallying behind

the naturopath's creed, "To Do No Harm." Having scientifically validated information and affordable products should be our primary purpose.

Idea #4 - Consumers are at a disadvantage.

My regular followers have heard me say that when I completed my internship in 1979, I became a naturopath because it was the most logical path to my success as a doctor. I believed that the marriage of medicine and nature was so clear that by the time we got into the 90's, every doctor would be a naturopath as well.

It seemed to me that teaching my patients how to focus on diet, lifestyle, and using supplemental nutrients, along with the moderate use of drug therapies for critical care and selective surgeries for trauma and life-threatening illnesses, was the way of the future.

Instead, the opposite has happened. Our country is living under the burden of a completely bloated and out-of-control medical system that is placing an unsustainable financial burden on our country. Medical errors are generally ranked third as the cause of

death in America. While clinical research demonstrates that lifestyle changes and food-based nutrients work, many consumers rely on drugs and devices for their health care, and their health maintenance, often to their peril.

In the meantime, US Centers for Disease Control and global health organizations like the WHO continue to provide research that demonstrates that many Americans and global citizens are clinically deficient in necessary nutrients, including magnesium, vitamin D, vitamin A, vitamin E, folate, zinc, iodine, and iron. It is an incredible contradiction. The federal government studies and reports on the problem and then suppresses the solutions.

Medicine is a book that I wrote in 2005 *(updated 2017)* to expose the dark side of medicine. I had hoped the book would have some impact and improve the general state of affairs. Instead, we have a state of chaos.

Here is how we win; here is the solution: If the mission of allopathic medicine is to keep the population sick and hooked on drugs, we win by staying healthy and aware – it is as simple as that!

Idea #5 - Health freedom and personal choices must be secured by individuals and families.

As a doctor, naturopath, researcher, public health advocate, and CEO of my own dietary supplement company, I have been at the center of the practice of natural and allopathic medicine for 45+ years. I am grateful that my path led me through this challenging landscape and dropped me off at the door of magnesium deficiency. Necessity is the mother of invention for sure.

I diagnosed myself as severely magnesium-deficient while I was writing *The Magnesium Miracle*, and I became laser-focused on the role of magnesium for my health, and the health of everyone else! For a person to be truly healthy, I realized they had to eliminate magnesium deficiency as a root cause of disease through proper supplementation. My mission is to spread this information far and wide.

In the post-COVID environment, it is imperative that you secure your own health freedom now. Health freedom means staying healthy and free from disease and free from unnecessary medical

intervention. Please do all you can to protect your health choices and those of your family in these challenging times.

General Research

Costello, Rebecca B. and Rosanoff, Andrea; "Increasing public health awareness of magnesium: one step at a time;" Magnesium Research 2022; 35 (1): 29-31.

APPENDIX D

MORE THAN YOU EVER WANTED TO KNOW ABOUT COFFEE ENEMAS[294]

This appendix originally appeared as a blog post: Dean C. Time for a coffee enema. Dr. Carolyn Dean MD ND Blog. Published 2009. Accessed August 7, 2025. ©2009 by Carolyn Dean, MD, ND. Reprinted with author's permission.

I have talked about coffee enemas but I've never written down a proper procedure. I'll embellish some excellent material from Dr. Sherry Rogers 1994 book *Wellness Against All Odds*, which I found on a website selling "the best coffee for coffee enemas." My comments are offset with my initials:

> CD: The very last part of the colon, before reaching the rectum, is in an "S" shape and called the sigmoid colon. By the time the stool gets to this part of the colon, most nutrients

have been absorbed back into the bloodstream. Because the stool contains products of putrefaction at this point, there exists a special circulatory system between the sigmoid colon and the liver. There is a direct communication of veins called the enterohepatic circulation. Have you ever felt sick just before having a bowel movement, when stool material has just moved into the rectum for elimination? As soon as the material is evacuated, you no longer feel sick. This is due of the toxic quality of the material and the enterohepatic circulation coming into play. Because of this, it is important to evacuate when you have the urge. The rectum should usually be empty.

This circulatory system enables toxin to be sent directly to the liver for detoxification, rather than circulating them through the rest of the body and all of its vital organs including the brain. This system of veins carries rectal / sigmoid toxins directly to the liver for detoxification.

When a coffee enema is used, the caffeine from the coffee is preferentially absorbed into this system and goes directly to

the liver where it becomes a very strong detoxicant. It causes the liver to produce more bile (which contains processed toxins) and moves bile out toward the small intestine for elimination. This seems to free up the liver to process more incoming toxic materials that have accumulated in the organs, tissues and bloodstream. The coffee does not go into the systemic circulation, unless the enema procedure is done improperly.

The coffee contains some alkaloids that also stimulate the production of glutathione-S-transferase, an enzyme used by the liver to make the detox pathways run. It is pivotal in the formation of more glutathione, one of the main conjugation chemicals, enabling toxins to be eliminated via bile into the small intestine. So, in other words, a coffee enema speeds up the detoxification process and minimizes the backlog of yet to be detoxified substances. You will need the following materials:

- An enema bag or bucket, preferably one of clear plastic that you can see through.

CD: I buy my Disposable Enema Kits from Amazon. Being of Scottish descent! I reuse the bags and keep them clean by putting 2 ounces of 3% hydrogen peroxide in the bag and through the tubing between uses.

- A stainless-steel cooking pot to boil the coffee.
- Organic coffee fully caffeinated, drip grind coffee.

CD: I buy my organic coffee from VitaCost.com. I make sure to grind it in my Blendtech, high speed blender before using it. If not, the larger grains WILL clog the tubing.

- A source of uncontaminated water. Chlorinated water should be boiled for 10 minutes.
- The see through enema bag/ bucket is preferable, but an old-fashioned type that doubles as a hot water bottle can be used although it is hard to tell how much is used at each pass. Do not use any bag with a strong odor.

CD: Keep a few ounces of 3% hydrogen peroxide in the enema bag between uses to keep it perfectly clean and safe.

Enema Procedure

1. Put a little over 1 quart of clean water in a pan and bring it to a boil. Add 2 flat tablespoons of coffee (or the coffee amount that has been prescribed for you, the Gerson Program recommends 3 rounded Tbsp.). Let it continue to boil for five minutes, then turn the stove off, leaving the pan on the hot burner.

   CD: I learned my coffee enema technique when I was invited to be a member of the Gerson Institute Board and given the gift of a week's detox. I use 3 level Tbsp of coffee. However, if you are new to coffee enemas, begin with only one teaspoon. The caffeine is not supposed to get into your bloodstream, but some people can feel a bit jittery after a coffee enema, so you need to allow your body to get used to a bit of caffeine in your system.

2. Allow it to cool down to a very comfortable, tepid temperature. Test with your finger. It should be the same temperature as a baby's bottle. It's safer to have it too cold

than too warm; never use it hot or steaming; body temperature is good.

CD: Because I have no patience, I drop a half dozen ice cubes into the hot water to bring it to the right temperature. Or an even more efficient way of preparing your coffee is to put the 3 Tbsp of coffee in a mason jar with 24 ounces of water, shake it up and let it sit overnight on the kitchen counter. In the morning, I shake it up again and let it sit for a few minutes and then pour the liquid into another mason jar and rinse the dregs out of the first jar. I also make a probiotic implant to use after my coffee enema. In a small jar I open up one or two capsules of Prescript Assist and then add 2 ounces of filtered water.

3. Instructions on setting up the bathroom.

CD: Sherry's instructions are a bit convoluted. Let me just tell you what I do. I make my bathroom as comfortable as possible for my coffee enema experience, which I actually find quite enjoyable! I fold up a huge beach towel and put it on

the floor. On top of that I put a large Ziplock plastic bag and on top of that two double sheets of paper toweling to catch any and every drip that may occur! I use a bolster pillow for my head that is nice and solid, so I don't have to chase a floppy pillow around the room. Since I'm not going to have anything on below the waist, I wear socks and a sweater and have another large beach towel ready to cover me up when I'm lying down on the towel. To my right I have my roll of paper towels and four pieces ripped off and ready. To my left I have my Kindle to read while I'm waiting.

4. Pour the coffee into the enema bag. Loosen the clamp to allow the coffee to run out to the end of the catheter tip and re-clamp the bag when all the air has been removed from the enema tubing.

   CD: I just run the coffee to the clamp because if you let it run to the end, the section after the clamp will drip all over the place.

5. Use a coat hanger to hang the enema bag at least two feet above the floor; on a doorknob or towel rack. Do not hang it high, as on a shower head, because it will be too forceful and the hose won't reach. It should flow very gently into the rectum and distal sigmoid colon only. It is not a high enema or colonic. Allowing it to go well up into the colon may introduce caffeine into the general circulation as though you had taken it by mouth.

   CD: I found some great shower hooks to hang my coffee enema bag. It is large enough to fit over a door handle or towel rack. It is stronger than a coat hanger and you can take it traveling with you.

   IMPORTANT NOTE: To make sure coffee doesn't get past your colon into your small intestine, you should hold your ileocecal valve closed while doing your enema. The valve is located about halfway between your belly button and your right hip bone. While introducing the coffee into your colon, hold the valve shut by placing the fingers of your right hand over the

valve and pushing in, pulling up toward the left shoulder. You are exerting a deep pressure, not a superficial push.

6. Lie down on the floor on your back or right side and gently insert the catheter. If you need lubrication, food grade vegetable oil such as olive oil, a vitamin E capsule, or KY jelly should be fine, unless you are chemically sensitive. It is generally a good idea to avoid petroleum products.

    CD: I just stay on my back during my enema. I use George's Aloe Gel from VitaCost.com as my lubricant. Before lying down I put a generous amount of aloe on the last several inches of the enema tubing and in and around my anus.

7. Gently insert the tube into the rectum a few inches and then release the clamp and let the first 1/2 of the quart (2 cups maximum) of coffee flow in. Clamp the tubing off as soon as there is the slightest amount of discomfort or fullness. Do not change positions or use an incline board to cause the enema

to enter further into the colon; this defeats the purpose of this type of enema.

8. Try to retain the enema for a minimum of 12 or more minutes. Sometimes there will be an immediate urgency to get rid of it and that is fine. It helps to clean the stool out of the colon so that next time around you can hold more of the enema longer. Never force yourself to retain it if you feel that you can't. When you have clamped the tubing, remove the catheter tip and void when you have to. It is best to hold it for at least 12 minutes each time. After you have emptied the bowel, proceed with the remaining 1/2 quart and likewise hold that for at least 12 minutes, if able, then void.

> CD: If you are going to do the 2-cup treatment, I would just put 2 cups in the enema bag to start with. That way you don't have to clamp the tubing closed and the intestinal peristalsis will just push gas or bowel contents, and coffee back into the enema bag and cause you much less discomfort.

9. The goal is to have two enemas, not exceeding 1/2 a quart (2 cups) each, that you are able to hold for 12 to 15 minutes each. Usually, 2 or 3 times will use up all of the enema, but that is not your goal. (The Gerson Program recommends one 4 cup enema) Being able to hold it for 12 to 15 minutes is. When you have finished your session, rinse out the bag and hang it up to dry. Periodically, run boiling water, peroxide, or other comparable antimicrobial agent through the empty bag to discourage mold growth when not in use.

CD: I do the Gerson 4 cup enema and keep the tubing open to minimize distress. I hold it for 15 minutes and clap off the tubing and use paper towels to keep everything clean as I remove the tubing from my anus, drop the enema bag and tubing in the sink, and dive over to the toilet! When I've emptied my bowels fully, I then rinse out the enema bag and put in the two ounces of Prescript Assist and repeat the enema procedure. But this time, when the probiotic implant is in place I clamp the tubing, remove it and lie on my towel for 5-10

minutes resting and allowing the implant to circulate through my colon.

If you feel wired or hyper or have palpitations or irregular heartbeats after a coffee enema, you should reduce the amount of coffee, usually by half for a few days or weeks. Or consider that you really need organic coffee. Be sure the source of your water is good clean chemical-free spring, well, or filtered water.

CD: You also could just be magnesium deficient, so you can take care of that very easily by using ReMag.

Sometimes you will hear or feel a squirting out and emptying of the gallbladder. This occurs under the right rib cage, or sometimes more closely to the midline. If after a week of daily enemas, you have never felt or heard the gall bladder release, You should consider making the coffee stronger, going up in 1/2 Tablespoon increments per quart, not exceeding 2 Tablespoon per cup. Alternately, you may need a slightly larger volume, such as 3 cups at a time. Sometimes, 3 enemas

(2 cups or less each) rather than two at a session are more beneficial for some.

CD: I experience this bile dump more at the colon level. It sometimes comes after I think the colon has emptied after my enema and then I get a flush of very warm liquid, which I think could be bile.

Always discontinue the enemas if there is any adverse reaction whatsoever and discuss it with the doctor at your next appointment. If you find the enema helpful, do not use it more than once per day for any extended period without medical supervision. Use it as necessary, perhaps several days in a row, but more commonly a few times a week.

CD: I personally take one enema a week and an additional one on my fasting days. However, I will make a big confession. When I first began to experiment with coffee enemas I did them daily for several months. A friend of mine, Dr. Nick Gonzolas, recommended them to his cancer patients and did two a day himself. When I decided to cut back on them and maybe only do them once a week, I got caffeine

withdrawal! But it took me weeks to realize this.

I never drink coffee so I've never tried to go off it and never developed a caffeine withdrawal headache. Well, that's what happened when I stopped doing coffee enemas! I'd wake up in the morning and a few hours after my usual enema time, I'd develop a heavy head. So, I would just do a coffee enema and feel better thinking I was toxic – or some such nonsense! I kept telling myself stories about how I needed to keep taking the coffee enemas. Then it finally hit me that I was in caffeine withdrawal, so I just bit the bullet and had a slight headache for one day and that was the end of it!

APPENDIX E

TOTAL BIOLOGY/GERMAN NEW MEDICINE

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There are so many resources available to explore the benefits of Total Biology and German New Medicine. So, I decided to give you my current favorites. After, I will include the Small Property Affirmation and Link Breaker that I use.

Dr. Gilbert Renaud (my teacher) His website:

https://www.recallhealing.com/sources

Danny Carroll His website: https://danny-carroll.com

AFFIRMATIONS

- **This is a Total Biology Affirmation: A Small Property** – I was a small property ravaged by a storm. The fine

weather has returned. The forest and the river have become calm. The house is vibrant and shines in the sun. And above all, the field is returning to its order, health and beauty. Thank you my diseased/depleted organs, for I know you have done all this to save my whole being. And thanks to myself for doing my healing. **Repeat this 10 times, 3X/day.** To be repeated 10 times in the morning (before getting up), around lunch time for another 10 times; and 10 times at night (just before falling asleep) … To be repeated in a calm and relaxing atmosphere, in the darkness … To be verbalized with consciousness. Take the time to visualize and identify each symbol as clearly as possible. ***Write down any dreams that you remember!***

- **General Affirmation:** I am filled with love and understanding.
- **Breaking Links:** To break the links to past illness, listen to the "Time to Say Goodbye" https://youtu.be/g3ENX3aHlqU

The link breaker: Walnut – Bach Flower Remedy "I break all links that hinder my growth." Dosage: 5-10 drops three times a day

MEET DR. CAROLYN DEAN MD ND:
THE DOCTOR OF THE FUTURE

Dr. Carolyn Dean MD ND is the author of over 50 books including the best seller *The Magnesium Miracle* and her newest book, *Magnesium: The Missing Link to Total Health (Revised).* And, other noted publications including *IBS for Dummies, Hormone Balance, Death by Modern Medicine*, and 110+ eBooks to date. Dr. Dean is committed to helping anyone understand more about nutrients, their requirements in the body, and ways to promote health and vitality in a proactive manner.

In 2014, Dr. Carolyn Dean MD ND launched the RnAReSet brand based on nutrient protocols she built through 50+ years of experience in private healthcare practice. Dr. Dean's career as a medical doctor and naturopath resulted in a collection of unique, proprietary formulations that support precise applications while remaining safe for everyday use.

Dr. Dean continues to provide her leadership and vision for enabling people to take control of their own health. This includes her 45+ years of educational resources, including guidebooks, presentations, and a history of other audio, video, and written

assets for anyone wanting to learn more about nutrients and their health.

DISCLOSURE

Dr. Dean has a creative and economic interests in the innovative products of RnAReSet, including, but not limited to: *RnA ReSet Drops, ReMag, ReMyte, ReAline, ReCalcia, Pico Potassium, ReStructure, Pico Silver, Pico Zinc Plus, Pico Selenium, Flora ReVive, Whole C ReSet, Vitamin C ReSet, D3K2 ReSet, Omega-3 Algae A+E, ReNew Serum, ReMag Lotion Plus, ReMag Balm, Flora ReFresh,* her *PicoPets* line of products, and our agricultural product*, Mighty Mash.* For more information regarding all the *Completement Formulas*, go to the product website RnAReSet.

If you have questions, email Customer Service at support@rnareset.com. If you wish to place an order by phone, call 1-888-577-3703.

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