

Sugar Coated

[Transcript]

Caption: Longmont, Colorado

Text on Screen: In the past 30 years, obesity rates have doubled to 600 million. Diabetes rates have tripled to 347 million worldwide.

GARY TAUBES: You know, if you think about this as a court case: So, the crime committed is something in the environment is causing diabetes, and heart disease, and obesity, we don't know what it is, maybe it's just that people eat too much, maybe it's that we're not physically active enough, maybe it's a dietary fad. Maybe it's the sugar.

They do an investigation, find there's a lot of evidence to implicate sugar. But it's a little ambiguous, there's no smoking gun, you know, we've got some witnesses, and they're always at the scene of the crime. And they never have an alibi, but the evidence are not definitive. What do you do?

The fundamental life blood of their industry was holding on to this fact that there's no definitive evidence that sugar is a death dealing disease.

So as long as they could hold onto that, as long as they could keep the evidence ambiguous, they get to stay alive.

If the evidence gets definitive, they're done. What do you do?

Is it possible that sugar's toxic? How do you even discuss it without appearing that you're a fear mongerer?

We're talking about a substance that makes people very happy. It's how we manifest love, and joy, and happiness in the world, and now you go after sugar, which is something that we give our one year olds on their first birthday? It's not that simple to know what the right thing is.

Title Screen: Sugar Coated | a film by Michèle Hozer

60 MINUTES ANCHOR: New research is starting to find that sugar, the way many people are eating it today, is a toxin.

FEMALE NEWS ANCHOR: This after a controversial New York Times Sunday Magazine cover story that proposed sugar is in fact toxic.

MALE INTERVIEWER: Is sugar toxic?

DR. LUSTIG: I believe it is.

MALE INTERVIEWER: Do you ever worry that that's- just sounds a little bit over the top?

DR. LUSTIG: Sure, all the time. But it's the truth.

STEPHEN COLBERT: You call- you call- you call sugar a poison, all right?

DR. LUSTIG: In high dose.

STEPHEN COLBERT: Okay, why not use a more alarming term, like, sugar is Hitler?

CNN MALE ANCHOR: Medical doctor Robert Lustig, he specializes in treating childhood obesity, and he wrote this book, "Fat Chance."

DR. LUSTIG: The thing about sugar that's so pernicious, it's the thing that takes you from obesity to all of the metabolic problems.

The hypertension, the diabetes, the heart disease, and likely, the cancer, and the dementia.

And now one third of America has non-alcoholic fatty liver disease, this is a disease that wasn't even described until 1980. It is the biggest epidemic in the history of the world.

First of all, I don't- I'm not really the anti-sugar guy, I'm the anti-processed food guy. But to be honest with you, I'd rather not be known as anything, and I wish this problem didn't exist, and you know what? When I started in medicine in 1980, it didn't exist!⁶ Or I might not have gone into this field! <laughs> Because, who needs this?! But you know, I'm here now.

FEMALE NEWS ANCHOR: You're taking everything we've learned about healthy eating over the last thirty years, and turned it upside down.

DR. LUSTIG: And it deserves to be turned upside down, because it didn't work, did it?

FEMALE NEWS ANCHOR: Well, you said we needed intervention, rehab. Were you being-

were you joking around?

DR. LUSTIG: No, not at all.

FEMALE NEWS ANCHOR: No? Okay.

MALE NEWS ANCHOR: You wanna card kids for Coke?

DR. LUSTIG: Absolutely. If a parent wants their kid to have a Coke, let them buy it for 'em.

DR. LUSTIG: You know, my biggest issue is... not being criticized for the science. You know, let's- let's have the debate about the science, that's okay. The thing that bothers me is when they say that I'm uh... not believable, that I'm a zealot. You know, a zealot believes on faith. You know, I don't believe on faith, I am completely about the science. I don't do this because I want to. I do this because there's really no choice.

GARY TAUBES: You know, I mean, you need somebody like Rob for this issue, okay? It's a very controversial, volatile issue, you need somebody in the academic research establishment to take it on, and Rob has taken that upon himself, and he's very good at that aspect of it, so he is um- you know, he's a pediatric endocrinologist who came to believe about a decade ago that sugar is the sort of fundamental problem in modern diet.

He did this lecture that went viral on the internet, it's probably got now about four million hits. Well, he's got this very compelling lecture style. A bit like a fundamentalist preacher making a point.

DR. LUSTIG: You wouldn't think twice about not giving your kid a Budweiser. But you don't think twice about giving your kid a can of Coke.

GARY TAUBES: The scientists get nervous with that kind of certainty that he represents, it's not consistent with what you really want in scientists, where you want them to be more aware of the uncertainties, and discuss the holes in the data, and the negative evidence again, but um, but you need somebody like Rob. You need him out there saying what he's saying, and forcing the issue.

Text on Screen: The daily consumption of sugar has increased worldwide by 46% in the last 30 years.

DR. LUSTIG: This problem affects you at home, this problem affects you at work, this problem

affects your business dealings, and ultimately, this problem affects the country, and the world. It's not just obese kids. Now, that's what I take care of, that's how I got into this, but this is much bigger. This is more of a manifestation of a societal breakdown.

You may have all heard that in 2011, the U.N. General Assembly announced that non-communicable disease, that is, heart disease, diabetes, cancer, dementia, is now a bigger problem for the developing world - not just the developed world. Everybody knew that we had a problem, but now, African countries, Asian countries, India - disaster - is now a bigger problem for them than is acute infectious disease, including HIV.

What happened? Why is everybody in trouble now? All at once? All over the world?

Caption: Okinawa, Japan

DR. WILCOX: The Japanese live longer than anybody else in the world. And the Okinawans live the longest of the Japanese.

Caption: Centenarian Village Ogiwi, Okinawa

DR. WILCOX: The Okinawans have lower rates of most age associated diseases, compared to other nations. Their levels of heart disease are very low, levels of certain cancers, such as hormone dependent cancers, breast cancer, prostate cancer, they're very low.

It's partly dietary, it's partly other lifestyle factors. A very healthy diet for- for reducing risk for age associated disease. Very vegetable heavy, with a nice balance of protein sources. Fish, lean meats. You might think of it as the- the perfect anti-aging diet.

It's one of the reasons why we think that the Okinawans live so long. At least they did, for many years.

Caption: American Village Okinawa

DR. WILCOX: Okinawans have gone from the leanest of the Japanese to the heaviest in just a couple of generations. Mainly a postwar phenomenon. The younger generations generally consume a much more Westernized dietary pattern than older generations.

So there's- there's more processed foods, potato chips, and- and soda beverages, and this combination has put younger generations at higher risk for cardiovascular disease.

Obesity, diabetes. So all of these diseases that are linked to foods that are higher in intake of sugar, salt, and fat. We have never in- throughout human history been exposed to the- to the levels of sugar intake that- that we're currently exposed to. so this has gotta have metabolic consequences.

Text on Screen: Japan has the 5th largest number of diabetes patients worldwide.

Caption: San Francisco, California

DR. LUSTIG: Here's what's happened to your food over the last thirty years. 1982 to 2012. Meats, down ten percent, 'cause we were all told to go low fat. Fruits and vegetables, exactly the same, we're all told, we don't eat enough fruits and vegetables, you know what? We're eating just as much as we always did. And finally, processed foods, and sweets. 11.6, 22.9 percent. A doubling in the span of thirty years.

That's where the food dollars have gone, and as we've allowed it, we've gotten sicker, and sicker.

Of all the packaged foods in the grocery store, seventy-four percent of them are spiked with added sugar. Salad dressing, barbeque sauce, tomato sauce, hamburger buns, hamburger meat, all sorts of things.

Also, there are fifty-six names for sugar. Sucrose, table sugar, cane sugar, beet sugar, high fructose corn syrup, agave, maple syrup, honey. So the food industry can hide the sugar that they add to any given food in plain sight, because no one knows what they are.

Bottom line, they're all the same. Calorie for calorie, gram for gram, ounce for ounce, they're all the same. And they all do the exact same thing, and they all overload your liver, and they all cause liver fat accumulation, when consumed in excess. Now, remember, it's about excess. It's not about quote, moderation. So then you have to define, what's moderation? Moderation is six to nine teaspoons of added sugar per day. That's moderation. That's what the American Heart Association says. The World Health Organization just said up to twelve teaspoons of added sugar per day.

Text on Screen: What is moderation?

DR. LUSTIG: But Europe is consuming seventeen teaspoons of added sugar per day. And America is at 19.5 teaspoons of added sugar per day. Bottom line, we're consuming it in excess, and it's causing chronic metabolic disease because of it.

ALEXIS GOMEZ: I was struggling a long time with my weight. I- I hated wearing pants, my stomach always stuck out, I felt uncomfortable sitting in class, I felt like my gut was just bulging out.

My heaviest was when I was fourteen years old, my freshman year of- of high school. I was 217. Food was my friend! You know, TV was my friend, that's- and that's what I did, I- I watched a lot of TV, I kinda just stayed in myself, because I felt like everyone was either making fun of me, or critiquing me, I didn't feel you know, happy.

DR. LUSTIG: Last time I saw you was uh, April of 2009, and by the way, happy birthday!

ALEXIS GOMEZ: Oh, thank you!

DR. LUSTIG: You just had it recently?

ALEXIS GOMEZ: Yeah, I'm twenty now.

DR. LUSTIG: Yeah, tell me how it's going?

ALEXIS GOMEZ: It's going good, I've dramatically changed my life, and I - I feel so much better, so much more alive, and so much more confident about myself.

ALEXIS GOMEZ: When I started seeing Dr. Lustig, I was really sick. I had a- a very fat liver, my pancreas was working way overtime to- to filter out all that sugar. It was just storing in my body. My body fat I believe was at almost fifty percent.

ALEXIS GOMEZ: You know, I think it was all about- it was really all about what we were eating, when I was little. Um, you know, I- my mom wasn't informed about all the bad kinds of things, ingredients that- that go into processed food.

DR. LUSTIG: Yeah, yeah.

ALEXIS GOMEZ: And especially with fast food.

DR. LUSTIG: Right.

ALEXIS GOMEZ: And also sometimes too before eating, I would drink like, a whole big cup of juice, and then I would drink another big cup during my actual meal.

So that you know, it's a lot- it was a lot of sugar that was going in to my body.

DR. LUSTIG: It was, it was. The other thing was, when you first came to us, your liver was just chock full of fat. Do you remember the ultrasound that you had way back when, when you were ten?

ALEXIS GOMEZ: Yeah, I remember.

DR. LUSTIG: Okay? It- it didn't look so hot.

DR. LUSTIG: The thing that's really overtaken all of pediatrics is fatty liver disease. I didn't even know about it until 1992, when I saw my first thirteen-year-old with type-2 diabetes, and fatty liver disease. And his ALT you know, sh- a measure of liver fat- was in the hundreds. And I went, whoa! What the hell is this?!

Well, now, all my patients have it.

Text on Screen: Teenagers consumer on average 30 to 41 teaspoons of total sugars per day.

DR. KEARNS: When I first got to Inner City Health Center, it was a real eye opener. And whereas in private practice, I might, per patient, have one filling to do, or a crown here and there, my patients at Inner City Health Center would have a cavity in every single tooth. Or they'd have massive bone loss, and I'd have a 45-year-old person who I'd have to tell them, I have to remove all of your teeth. And that was my daily routine.

Caption: Denver, Colorado

DR. KEARNS: Just tough case, after tough case. Obviously, sugar consumption was the root cause of much of the disease that I was treating. I just kept feeling like I have to do something on a bigger scale.

Caption: Portland, Oregon

DR. KEARNS: So I went to the conference on gum disease and diabetes in Oregon.

They had a keynote speaker, who passed out a book called, "The Fast Food Guide to Nutrition," and on the drinks page, saw that sweet tea had gotten a green light as a healthy drink. I found myself getting angry, and kinda tapped him on the shoulder, and I said hey, you know, how can

you possibly recommend sweet tea as a healthy drink?

And you know, I was sorta looking at him, and he turned around and very sternly said, well, there is no evidence that links sugar to chronic disease. And I kinda was really shocked at what he said. I mean, I really couldn't even respond. I started to think, well, there must be some sort of political influence here that might be impacting this policy advice that we were getting at this conference.

I was at my local library, and I decided to type "sugar" into their catalogue, and a reference to the Great Western Sugar Company popped up. It was a company that had gone out of business in the late seventies, and they ended up donating quite a few of their records to local libraries all up and down the front range of Colorado.

And I noticed a particular reference to a collection at Colorado State University that had a line item, I think it was "Nutrition," maybe "Public Communications." And I decided that I definitely needed to go up and - and take a look, and see what was in there.

So the first folder I pulled out was the Public Communications Committee Meeting Minutes, and the very first documents, as I flipped open the file folder, had the blue letterhead of the Sugar Association across the top, and then said, "confidential" underneath it. I was just standing there going, oh my god, what did I just find?

I can't believe this, this is a you know, a trade association sugar confidential document, and I just sort of stood there staring at it, taking it in. And there's just page after page of this big public relations strategy that the Sugar Association implemented in the 1970s.

And so it was a very important time, when the Food and Drug Administration was actually reviewing all the scientific evidence on the health effects of sugar. And so everything they did during that time period of the Great Western Sugar documents, was designed around getting that safety approval from the FDA.

And there was this one photo of the sugar executives accepting the Silver Anvil Award, which is like the Oscars of the public relations community, and it was for influencing public opinion about the health effects of sugar consumption. So, exactly what I was trying to find, you know, I located in these files.

GARY TAUBES: I was giving a lecture in Denver. "Why We Get Fat" had just come out, and after the lecture Cristin came up, and told me what she had been doing, and why she had been

doing it, and my eyes lit up. That was how we started working together. Me here in Oakland, and Kristin in Colorado.

MALE ANNOUNCER: There's a growing controversy about sugar. On one side, those who claim it's a harmless source of calories, and quick energy. On the other, those who say there is evidence to implicate sugar not only in obesity and tooth decay, but also in hyperactivity, and diabetes, among other things.

DR. KEARNS: Late sixties, early seventies, lots of controversy going on about the health effects of eating sugar, and it's so similar to today, it's actually pretty incredible. The same debates, the same questions, even the same research is sort of being repeated, and discussed.

So much so that the industry felt very strongly they needed a very comprehensive public relations campaign to impact public opinion.

GARY TAUBES: And imagine you're the sugar industry. So you're the head of the Sugar Association, and it's your job to assess all of this, and decide what to do, the sugar industries, and the food industry give you money to make these kinds of decisions, and they hire a public relations firm to put together a plan for them.

And in the plan is to make sure there's never a consensus.

DR. KEARNS: So it started with funding research, gathering scientific consultants that could help them tell their side of the story. It was really an international effort, right from the beginning. The U.S., Canada, Cuba, Haiti, initially. In the late sixties, the Sugar Research Foundation changed their name to become the International Sugar Research Foundation, which reflected the fact that the sugar industry was being threatened on an international scale.

So now we have England, Australia, South Africa, France, you know, Belgium, all coming together to have the same message. It's not to say one way or the other sugar causes disease, but they need to keep it not quite clear, so that policy makers can't definitively say sugar causes disease. They just have to keep it muddy.

Text on Screen: “Answer back or risk being legislated out of existence.” – J.W. Tatem, Jr. | President

MALE TV HOST: Back with us on this weekend's edition of This Week In AgriBusiness from

The Sugar Association, Andy Briscoe, representing that group in Washington D.C. How's the climate these days in Washington for your industry?

ANDY BRISCOE: You know, it's always tough. Under the new- new administration, obviously, the public health community folks have come out of the woodwork and certainly targeting sugar to some extent.

MALE TV HOST: For all of the bashing and complaining that there is about sugar, it seems, and all of the dietary recommendations, it still remains a crucial component in our diets, doesn't it?

ANDY BRISCOE: Mm, you know, sugar is an important – uh, uh, component of- of a balanced diet, and a healthy lifestyle. Uh, everything in moderation, as we say. It's all natural, and only 15 calories.

DR. LUSTIG: A calorie is a calorie. If you eat more than you burn you'll gain weight, if you eat less than you burn you'll lose weight, therefore, if you're fat, it's your fault. That's basically what this mantra sums up to. Well, you know what? I don't believe in common sense. I believe in data. And the data say something else entirely.

What the data say is that some calories cause disease more than others, because different calories are metabolized differently. Does sugar cause diabetes? Well everyone says, well, yeah, but it's because of the calories. Sugar are empty calories, that's the mantra. It is not. This is absolutely not true, sugar are toxic calories.

In fact, studies from Europe show that if you consume one soda per day, your risk for diabetes goes up 29 percent irrespective of the calories, irrespective of your weight, irrespective of anything else you eat.

DR. FREEDHOFF: Diet and weight related illness, they're crippling health care, and I have no doubt that this system will collapse. There is no way we will be able to sustain our current level of health care with the growing burden of diet and weight related illnesses. Especially type-2 diabetes, which really, the- the cost of that is already staggering, and we're just at the tip of our iceberg.

I don't think people have had an epidemic loss of willpower. I think that we are normal human beings, living in an environment that pushes calories, and sugar upon us.

We know that in regard to children, and the rising rates of childhood obesity, it's carrying with it

rising rates of other chronic diseases. We're seeing type-2 diabetes in kids under the age of ten, we're seeing heart disease in teenagers, and non-alcoholic fatty liver disease really is skyrocketing.

You develop diabetes or heart disease in your teens, the likelihood of you making it to that seventy-plus year old age I think's pretty darn low.

Caption: Martin Luther King Jr. School | Berkeley, California

JEAN MARC SCHWARZ: So I'm a – I'm a scientist, and we do a lot of research with adults, and kids also. And we- we do a lot of research with the effect of sugar. And that's-

JEAN MARC SCHWARZ: The first time I came to this school, I was worried that maybe some of that science would be something complex to understand, but I was very surprised to see how the kids are so good at picking up things.

STUDENT IN CLASS: Um, I've heard the liver being described as like, a vacuum cleaner that takes all of the bad things out of your system, and that it has to find a way to process all of that stuff, and um... and so I think that when you have a lot of sugar, or a lot of fat, or a lot of alcohol, or whatever, then it will, you know, it'll eventually overload your little system that's inside your body.

JEAN MARC SCHWARZ: That's exactly right. And when you start to have some overflow in the liver, that you start to make fat. And you do that if you have soda, if you have juice, or if you have a lot of sugar coming down.

JEAN MARC SCHWARZ: Sugar is actually made up of two molecules, glucose, and one molecule of fructose. They are different, and the body handles these differently. Glucose is an energy source that can be metabolized by all our organs in our body, including our brain. Fructose, on the other hand, is almost exclusively metabolized by the liver. So when you drink a sugary beverage, the liver is flooded by fructose. I like to call this the tsunami effect. As a result, the liver is overwhelmed, and start to convert this sugar to fat. All this excess sugar to fat conversion can increase our risk of fatty liver, diabetes, and heart disease.

STUDENT IN CLASS: If you like, um, made a smoothie with just like, just fruits, would that be um worse than just eating a fruit?

JEAN MARC SCHWARZ: So if you eat an orange, how many orange do you- do you eat?

STUDENTS IN CLASS: One.

JEAN MARC SCHWARZ: One? If you do an orange juice, how many orange do you need to make an orange juice?

STUDENT IN CLASS: A - a lot.

JEAN MARC SCHWARZ: Much more. When you chew on food, it just goes slow, and it takes a while, the delivery is different. But If you t- start to make a juice, you'll have that bang! Tsunami effect.

JEAN MARC SCHWARZ: The relationship between sugar and liver is - is not a new story. If you think about the Egyptian, they were the one who actually started to force feed a goose. Then the Roman, they continued to do that, now the French take credit for the foie gras, but they were all doing the same thing, they were force feeding sugar, or carbohydrate to birds, and that was creating a fatty liver.

The credit to the American industry is actually to re-invent that industry, but instead of doing that with bird, they do it with us. And those beverage, those soda, are a pleasant feeding that you don't even notice, but that lead to exactly the same things to get the foie gras.

And those beverage are just an amazing tool, because uh, you just enjoy it at the same time, you don't have any force feeding.

WOMAN IN ADVERTISEMENT: You know, this was me, five years ago. And it's still me, 'cause I confess, I'm a waistline watcher from way back. Well, that's enough for today. Now, for a lively lift. Ice cold Coca-Cola. There's no waistline worry with Coke, you know. Actually, this individual sized bottle has no more calories than half a grapefruit.

Mmm! Another thing, the cold, crisp taste of Coke is so satisfying, it keeps me from eating something else that might really add those pounds.

GARY TAUBES: In the 1960s, Americans were suddenly dieting, and they're marketing to women, it's this whole "Mad Men" world. The idea of diet sodas came in, and cyclamates, and - and saccharin in particular, were beginning to take over the market.

The Sugar Association saw that as a threat. So the Sugar Association started spending significant,

huge sums of money by those standards, to fund researchers to see if these things were harmless or not. And of course, they wanted to find that they were harmful, and they did.

MALE NEWS ANCHOR: There's a good deal of sourness, not to say bitterness, in the reaction to the ban on saccharin. There were complaints the Food and Drug Administration banned a useful product on the basis of skimpy evidence.

GARY TAUBES: So there's an article from the New York Times in the late sixties, where a sugar industry executive is taking credit for funding the studies that labeled cyclamates as carcinogens. From my perspective, if the sugar association was gonna take credit for this, what else were they doing?

DR. LUSTIG: You know, they basically controlled the space for about forty years. You know, from the seventies, 'til now. And um, you know, now they're threatened again. And we have more data now. And they're gonna have a hard- much harder time silencing the critics nowadays.

DR. FREEDHOFF: I've been blogging since 2005, and I've got a large Twitter following. I'm amazed, regularly, at the reach and power of social media. Whereas once upon a time you needed a real platform, well, now you can build your own.

A few years ago I received a phone call from the Ontario Medical Association. And it was a very surprising phone call, 'cause they were inviting me, a very outspoken critic of deceitful advertising from the food industry, to a food industry breakfast to give a talk. And so I prepared a talk, I booked a flight, I cancelled an office full of patients, I got a hotel, I was ready to go!

Two days prior to the talk, the OMA contacted me saying that the food industry folks no longer wanted me there to speak. So my partner in the office, he said well, you know, you're booked off anyhow, why don't you tape it, put it online? And so I did. And what would've been a room full of fifty people who did not care what I was saying, now I think, the last time I checked, it was over 270,000 people had viewed this particular video.

So I'm gonna talk to you a little bit about what I think the food industry can do, it's actually quite straightforward. I think the food industry could stop talking about no sugar being added to things. This particular product, it looks a lot like Twizzlers, it says "no sugar added," and yet, it has more sugar than actual Twizzlers!

I think the food industry could stop suggesting that grape juice is good for you. It says, "no added

sugar ever," yet every single glass has ten and a half teaspoons of the stuff, that's the same amount as you'd get if you drank a quarter glass of maple syrup each and every day.

This product, a breakfast replacement, contains nine and three quarter teaspoons of sugar per glass! Give your kid one of these a day for a year, and you'll give them thirty-one pounds of sugar.

Ultimately, transparency I think's important. Everybody can make up their own mind when they watch the video, but so far, if even the food industry executives who contacted me said, you know what, there's a lot of truth in what you said, you know, you gotta figure, they know what they're doing.

DR. LUSTIG: It probably wasn't until about the sixties when we started to really piece together the data that said sugar was a problem.

JOHN YUDKIN: You see, up until a little while ago, up to say, two or three hundred years ago, the average consumption of sugar in this country was about four pounds a year. And that's splendid, I'd be very happy if everybody had four pounds of sugar a year. They eat a hundred pounds!

And that's splendid, I'd be very happy if everybody had four pounds of sugar a year. They eat a hundred pounds!

DR. LUSTIG: The head of the anti-sugar movement was a British physiologist nutritionist by the name John Yudkin. And he wrote this book back in 1972 called, "Pure White and Deadly." And he said that sugar was the bad guy, and he gave lots of correlative data, saying sugar's the problem, and we need to reduce our consumption.

On the other side, there was this guy over here, Ancel Keys.

ANCEL KEYS: You know the chief killer of Americans is cardiovascular disease.

DR. LUSTIG: And he was the one who said dietary fat was the bad guy. And there was a fight going on between these two guys, and the question is, who won, and why?

DR. KEARNS: One of the scientists that the sugar industry was most concerned about was John Yudkin. And being concerned about how they were going to contradict him, essentially. From sponsoring research that would counter his research. Any time he might have an article come out, they would write counter articles.

They gave a significant amount of money to Ancel Keys, and Keys shows up in my industry documents throughout the decades, he was Yudkin's you know, primary opponent. If Yudkin came out with a paper saying sugar was linked to heart disease, Keys would publish one that said, sugar is not linked to heart disease.

GARY TAUBES: Researchers would say to me, if you studied sugar, you would be accused of being just like Yudkin. Which meant, he's kind of a quack, and he's obsessed. And by the mid 1970s, the world had already divided up into people who thought Yudkin could be right, which was a tiny minority, and the huge majority of researchers who had just kind of bought into the dietary fad hypothesis, 'cause everyone else believed it.

I guess I had probably boiled ten thousand hard boiled eggs for breakfast over the course of the decade, and threw out ten thousand yolks, 'cause that's what we did, you didn't eat avocados, you didn't eat peanut butter, you didn't- certainly didn't eat bacon, or red meat. And we believed it, for the most part.

WOMAN SINGING JINGLE: Oh, I don't want it, you can have it, it's too fat for me, it's too fat for me, it's too fat for me.

CHILD: It's not too fat for me.

MALE ANNOUNCER: No food is too fat all by itself, but if you'd rather get your fat and calories another way, guess what? Now there's new "Better Than." It tastes better than regular ice cream, and it's 96 percent fat free!

DR. LUSTIG: Here's the low fat craze. Took America and the world by storm! But when you process it, low fat processed food, it tastes like cardboard. So the food companies knew that, so what'd they do? They had to make it palatable. So how do you make something palatable that has no fat in it? You add the...sugar!

DR. LUSTIG: So, everybody remembers Snackwell's? Two grams of fat down, thirteen grams of carbohydrate up, four of them being sugar, so it was palatable. And that's what we've done. And we're still doing it. Today.

SAMI INKINEN: I think I'm a classic example of a person who followed recommended Western diet, and what happened. Well, we're all told that it's all about calories in, calories out. And I'm the kind of person that if you tell me that a little fat is good, zero fat must be even better.

And consequently, I was eating you know, packaged foods, which are full of either processed carbohydrates or sugar, or both, for a good fifteen or twenty years. And throughout this time I was training probably ten hours on average, or at least ten hours a week of endurance training.

And I was measuring my morning fasting blood glucose level, just out of sort of scientific curiosity for myself. And only recently have I discovered that those morning fasting blood glucose levels were pre-diabetic.

MEREDITH LORING: And he wasn't even eating the worst of the stuff, you know? Like, he was eating plain oatmeal, snack bars, which aren't the greatest, but it's not Oreo cookies, it's not ice cream. And he was pre-diabetic. Imagine people that are really eating the standard American diet.

I mean, he's a walking poster child for the fact that exercise isn't really gonna move the needle for someone, it's all diet.

SAMI INKINEN: What if you're an average person and you don't exercise ten hours a week? What happens to your body, what happens to your health? If I was on the borderline of - of you know, truly becoming diabetic?

DR. LUSTIG: Everyone thinks it's about obesity. Well, obesity is thirty percent of the population. But what you don't know is that forty percent of the normal weight population have the same metabolic diseases and the same metabolic dysfunction that the obese do.

Normal weight people get heart disease, normal weight people get cancer, normal weight people get type-2 diabetes, and the list goes on. But they're normal weight. What does that say? That's saying it's not a behavior! Because the behavior is gluttony and sloth, but these people aren't gluttons and sloths, 'cause they're normal weight!

Well, if it's not a behavior, then it must be an exposure. And everyone is exposed. Everyone is at risk. And that is a completely different argument.

DR. SIEVENPIPER: I wanna say first that I have a lot of respect for Professor Lustig. I think he has brought this issue to the fore. He's been a champion of- of health, and tried to improve the health of- or people, and- and to deal with this overweight and obesity epidemic, and try to understand it.

I just don't agree with his interpretation that it's all about the sugar, or that sugar is toxic, to use his sort of language.

With the overweight and obesity, I think we're consuming more calories in general. We're consuming too much in general. Um, and I think, though for some people, certainly it's gonna be sugars. For some people, it may be animal proteins, for some, it's gonna be refined starches, for some, it may be potato products, like French fries, and potato chips. Uh, for the majority, it'll probably be a combination of those, or all of the above.

But I don't think a calorie is a calorie per say, but where we see the adverse effects of sugars, it appears to be calorie driven. And now, there may be very good hedonic pathways to explain that. Like, sugar is very tasty, and palatable, we all enjoy- or most of us enjoy the taste of it, just like fat can be highly palatable in terms of the mouth feel. And the combination of fat and sugar can be absolutely blissful.

It certainly probably is a pathway to overconsumption, there's no debate there, again, I'm not trying to defend sugar, but really it's where it's providing excess calories that I think it's- it's having,- it's making its mark.

DR. FREEDHOFF: Even if it turns out that all the data suggesting that unique toxicity to sugar is false, we still consume too much sugar.

And I do think that manufacturers use sugar both in its capacity as a cheap ingredient that makes food taste good, but more as an ingredient that leads to greater sugar consumption, 'cause we also know that palates that are conditioned for higher levels of sweetness, they crave more of them.

So that will have a different impact on health.

MALE ANNOUNCER: What will your last ten years look like? The average Canadian will spend their last ten years in sickness. Change your future at "MakeHealthLast.ca."

DR. FREEDHOFF: Here in Canada we have the Heart & Stroke Foundation, similar to the American Heart Association in the States. And the Heart & Stroke Foundation is so involved in funding. Funding of research, funding of programs, they're involved on boards, and selection committees, and so consumers trust the Heart & Stroke Foundation.

And there is a program run by the Heart & Stroke Foundation called "Health Check," where there's

a little checkmark that goes on the fronts of packages, where explicitly, the Heart & Stroke Foundation report that people who see that checkmark believe that the product is healthy, good for them, and endorsed by the Heart & Stroke Foundation's dieticians.

And one of the things they put their stamp on are fruit gummies, and fruit leathers. That literally have more sugar than actual candies! But now they are advertising those candies on the front of package as servings of fruit, with a Health Check endorsement.

DR. FREEDHOFF: (ON VIDEO) Hi, I'm Dr. Yoni Freedhoff, and today I wanna talk about SunRype's Fruit Source Bites.

DR. FREEDHOFF: So \$20,000 dollars a year buys them this checkmark that goes on a box, that dupes parents into thinking this is a healthful product. I don't believe it's a healthful product. I don't think products that are eighty percent sugar by weight, the rest water, a tiny little bit of vitamins, and a whole pile of marketing, is health food.

DR. FREEDHOFF: (ON VIDEO) In one serving, these seventeen small, little gummies, you get the sugar equivalent of a Twix bar. Now, if you wanted to actually get this sugar from fruit, your child would need to consume this entire bowl of strawberries. It's 1.14 pounds of strawberries.

DR. FREEDHOFF: (ON NEWS) We should not be taking nutrition out of children's mouths by calling sugar "fruit."

Caption: November 1, 2013

TERRY DEAN: What we've tried to do with the Health Check program, and these types of products, is create alternatives for parents who are desperate to get some kind of a serving of fruit and or vegetable into their children's diets.

DR. FREEDHOFF: If you concentrate a fruit juice, what you are left with is a pile of sugar! You are not left with anything else! And so yes, on paper, in theory, it comes from fruit. The sugar that's in it comes from fruit. But it is just sugar.

It's one thing for the food industry to try to be deceptive about things, but the Heart & Stroke Foundation, I think it's an abuse of public trust.

GARY TAUBES: When you have children, it seems like the world would be a much simpler

place without sugar in it. And I wonder if they would be much more... you know, stable, if their mood swings would be much less volatile if they weren't consuming sugar.

You know, and again, it's all purely speculation, but they- whatever it does to them, even if it just- if it just tastes so good that it changes their desires for days, it's just a con- it seems like a constant struggle.

WOMAN: I went on a binge last night, and I ate um... <laughs> it's really strange, because I feel guilty now, like I'm confessing to this terrible crime, but um, I ate a whole bunch of cookies, and drank a lot of chocolate milk, and um, ate some ice cream. Just you know, just kept going.

FRANK LISCIANDRO: I had heard the rumors about how sugar was prevalent in our diet, and could hurt us. So I just felt it- at that point that it was a necessity for me to make the film.

MALE NARRATOR: This year we can each expect to consume on the average, over 129 pounds of sugar. Five and a half ounces every day. This huge increase in sugar consumption is the most sudden and drastic change man has made in his eating habits in all his fifty million years of existence.

FRANK LISCIANDRO: People didn't know that! And we were beginning to see the symptoms of diabetes, and obesity, and people who were doing research were pointing the finger at our diets. And especially at sugar in the diet.

SHELDON REISER: On the basis of our studies is that certain risk factors involved with both heart disease and diabetes are increased when sucrose is consumed.

JUDITH HALLFRISCH: Thirty years ago, Sheldon Reiser and I were doing the sugar research, and I'm very surprised that all of the sudden people are realizing that sugar is bad for you.

Because we did this research thirty years ago, and even at the amount of sugar that were being consumed at that time, there were elevation in blood pressure, in cholesterol, in triglycerides.

SHELDON REISER: And all of these would increase this person's susceptibility to a degenerative diseases that we're concerned about.

FRANK LISCIANDRO: Which are?

SHELDON REISER: Which are essentially heart disease and diabetes.

FRANK LISCIANDRO: When I interviewed Sheldon Reiser, it was as if he wanted to state the facts, tell us what he had found, and I realized that he was by himself in this fight against the sugar industry.

JUDITH HALLFRISCH: When we were doing the research, we certainly realized that industry had the power and the money to promote their opinion, far above what we had the ability to do. And it's very hard to counteract that.

DR. KEARNS: What's very clear about the purpose of the research that the sugar industry funded, was to protect sales of sugar. You can't get the answers that would be harmful to the sugar industry if you don't ask the right questions.

So they actually wanted to control the research questions. So when it comes to what is the cause of diabetes, we still don't know what the cause of diabetes is. Why not?

Part of that reason is, the sugar industry was influencing our National Institutes of Health. And they said, we don't need to worry about sugar consumption, because it's obesity. So let's just focus all our research on obesity, and forget about what kind of role sugar has in diabetes.

STAN GLANTZ: Where we are in the sugar debate is about where the tobacco debate was in about 1960.

And you know, I- you can look at classic cigarette ads where they're saying, you know, doc- more doctors smoke Camels, or they're good for your t-zone, your throat, and so with the tobacco documents, and the- you know, the sugar documents that she found, take- show, is that they're all using the same playbook.

Caption: Tobacco Industry Documents

STAN GLANTZ: I mean, when I got the tobacco documents back in 1994, I realized they were gonna be very important. In addition to really giving us a clear view of the strategies, is it just shows how cynical they are.

THOMAS LAURIA: Unlike a drug, or unlike alcohol, a cigarette smoker, even at 12 o'clock at night, driving home in a car, can make a clear and rational decision that they don't wanna smoke anymore.

STAN GLANTZ: (ON TV DEBATE) Nicotine is an addictive drug. What a smoker does when he smokes, it's self-administered drug- uh, drug delivery to reach a target level-

THOMAS LAURIA: Oh, typical rhetoric from a- a leading anti-smoking activist.

STAN GLANTZ: (ON TV DEBATE) Excuse me, Mr. Lauria, will you let me uh- finish.

THOMAS LAURIA: Well, I mean, you're going on and on Stan, in your useless, zealous fashion! In delirium!

STAN GLANTZ: (ON TV DEBATE) Mr. Lauria, I'm telling you as a scientist- Mr. Lauria, please be polite.

STAN GLANTZ: I worked on the tobacco industry for a long time before I got these documents. And I remember saying like, these guys are really bad, and - and look at all these terrible things they're doing. And I would get like, patted on the head, and said, oh well Stan, you know, it's very nice that you think this, but you are a little paranoid delusional.

And people just didn't take it seriously. And once this information was put out there, in their own words, people were a) shocked, and b) couldn't dismiss it. And I think what Cristin's work is on the way to doing is undertaking the same kind of transformation of how people look at the sugar industry.

Caption: Congressional Hearing on Cereals | August 1970

MALE NEWS ANCHOR: Two weeks ago, a nutrition expert told Congress the breakfast cereals widely advertised on television and elsewhere were often full of calories, and not much else.

SUGAR CRISP BEAR: (singing) Can't get enough of that Sugar Crisp, Sugar Crisp- Mmm! Sugar Crisp! Sugar Crisp is tumbled through sugar and honey and comes up tasting like a hundred and one sweet buns. (singing) I can't get enough of that Sugar Crisp, Sugar Crisp...

MALE NEWS ANCHOR: So today, the cereal industry responded with its experts. One was Dr. Frederick Stare, chairman of Harvard University's Nutrition Department. He said that on the contrary, a breakfast including dry cereal was as good as bacon and eggs, or better.

FREDERICK STARE: Popeye's spinach does not begin to compare with the overall worth of breakfast cereal with milk. Any cereal.

DR. KEARNS: Fred Stare certainly has a long history with the sugar industry. They started working with him I think as early as 1952. The chair of the Nutrition Department at the School of Public Health at Harvard, how could you get anybody you know, more credible than that?

GARY TAUBES: His department at Harvard has been taking money from the sugar industry since well, the 1940s, and significant sums along the way. You know, hundreds of thousands of dollars at a time when that was a lot of money.

DR. KEARNS: Then, through their PR campaign in the seventies, Fred Stare really became their main spokesman. So they had him appear on radio shows, on the morning programs, to be helping to spread your industry message.

MALE ANCHOR: In general, agree that there are very serious problems with the American diet.

FREDERICK STARE: Oh, I disagree with that. The only trouble with the American diet is they eat too damn much, that's all! I mean, if you wouldn't eat so much, and have a little less fat, you'd be in much better shape.

DR. KEARNS: He had a newspaper column that he could use to get any message they wanted across. He wrote popular books, he was on the American Heart Association Nutrition Committee. His impact on what we know about nutrition, and the health effects of sugar is pretty incredible.

MALE ANCHOR: As you know, there are reports citing possible links between sugar and heart disease.

FREDERICK STARE: Right.

MALE ANCHOR: Diabetes, obesity, tooth decay.

FREDERICK STARE: Right, right, right.

MALE ANCHOR: Hypertension.

FREDERICK STARE: Yes.

MALE ANCHOR: Now, sugar alone I know is not responsible for any of these diseases, but certainly the risks associated with a high consumption of sugar are demonstrably large.

FREDERICK STARE: I'd have to disagree. The risks associated with a high consumption of calories are demonstrably large. But not with sugar.

GARY TAUBES: One of the first things that the public relations campaign requested, and that the sugar industry did, was put together this document called, "Sugar in the Diet of Man."

So they get Stare to organize it, and Stare puts together a committee of researchers who are very sympathetic to the idea that fat and cholesterol are the problems, and then you know, none of these are sugar researchers.

Then they print out I think it was 25,000 copies, and they distributed widely, saying it's not sugar, it's fat.

DR. KEARNS: So the first document I found was related to the release of this "white paper," and it was preparing the different PR spokesmen in the sugar industry on what reporters might ask related to the "white paper."

And they talked about the way that the paper was funded being an unrestricted grant. And we know by actually looking at the tobacco papers, because Fred Stare was also connected to the tobacco industry, what an unrestricted grant meant in Fred Stare's department at Harvard.

It's supposed to be a donation of money that isn't earmarked to a specific project, but what Fred Stare told the tobacco industry was, we'll just call it an unrestricted grant, you give us the money, and we'll make sure you get the research that you want.

MALE NEWS ANCHOR: Doctor, let me play devil's advocate.

FREDERICK STARE: Sure, play anything you want.

MALE NEWS ANCHOR: You've been accused any number of times-

FREDERICK STARE: Yeah.

MALE NEWS ANCHOR: Of being an apologist for the sugar industry.

FREDERICK STARE: Right, I know.

MALE NEWS ANCHOR: One of the things that those who oppose your viewpoints point to,

they say, well, you wanted money for the school, and therefore you became a spokesman for the sugar- interests in the sugar comp-

FREDERICK STARE: No, no, I became a spokesman for what I consider to be the motto of Harvard University, which is Veritas, which for those of the camera crew who may not have had Latin, means truth.

Text on Screen: 6 months after Stare's testimony in Congress, the Harvard School of Public Health received \$2 million from the Kellogg Company.

DR. SIEVENPIPER: Part of the reason we have so much industry funded research is because the governments have pulled back so much on their research budgets. And you know, academics, as much as people wanna believe that they're biased, they- they- they wanna do good research, and they wanna do research. And if they can't get the money to do- answer the important questions as they see them, uh in their labs and clinics, from the government, then they will look to other sources.

Text on Screen: The food industry continues to provide grants for sugar research to scientists, including Dr. Sievenpiper.

STAN GLANTZ: There is one fundamental difference between tobacco and food. and that is, we don't need tobacco. You know, my goal is to destroy the tobacco industry.

We do need food. So the goal is not to destroy the food industry.

The problem is, that the reason we have all this toxic food supply is because that's the most profitable thing to do. And these big corporations, their job is making profits. That's all they do.

And it's true that the food industry has to be part of the solution, because we want them to keep making food. But to think that you're going to be able to negotiate with them, and work something out, that would be them agreeing to make less money. And they're not gonna want that.

It's a little bit like tobacco was in about the seventies, when the National Cancer Institute was trying to work with the cigarette companies to make a safe cigarette. Well, the do-gooders thought oh, we're working with industry, we're cooperating! If you go look in the industry documents, the industry was saying like, ooh hoo hoo! Look what we're pulling the wool over their eyes, we're gathering intelligence about what they're doing.

And- and you know, it was a disaster. And right now, some of the major thought leaders and foundation funders are still taking this view that well, we could work with them, we'll all be partners. Ain't gonna happen.

Caption: Vancouver, British Columbia | 2013 Canadian Obesity Summit

DR. SHARMA: Welcome everyone, with almost 9,000 members, we are actually the largest professional obesity organization in the world. We - we are certainly the biggest national obesity organization of any country that I know of.

GIRL: Um, our city was named the fattest city in America.

DR. SHARMA: Okay.

GIRL: Um, so we're just here-

DR. SHARMA: 02:01:28 So- so what's the name of your city, again?

GIRL: Corpus Christi, Texas.

DR. SHARMA: Cor- Corpus Christi, Texas, is the fattest city in America. All right. Okay.

GIRL: Yes, sir.

DR. SHARMA: People work in so many different areas of obesity. I mean, I think it is bringing that whole community together, that I think will ultimately make the difference.

It's not going to be you know, people standing up and pointing fingers, and saying, I have the answer. Because I often say, if you know, anybody who thinks they have the answer, has not even understood the question.

DR. FREEDHOFF: There have been three summits now for the Canadian Obesity Network. And each of them have been sponsored in part by industry.

But this is certainly the first conference where a fast food company, and a sugar sweetened beverage company have sponsored the summit.

Text on Screen: McDonald's and Coca-Cola are sponsors of the summit.

KIM RAINE: As a person who represents an advocacy organization, I don't wanna be associated with an organization who takes sponsorship from organizations that I don't agree with.

DR. FREEDHOFF: Sure.

WOMAN: There's a conflict of interest.

DR. FREEDHOFF: Just because you make healthy products as well, and they'll all say that in these talks.

WOMAN: Yeah.

DR. FREEDHOFF: Altria used to make Marlboro cigarettes, and Shredded Wheat at the same time. That didn't make working with Altria a good plan.

WOMAN: That's right.

DR. FREEDHOFF: So yeah, I- I think it's insane. I think it's absolutely insane.

DR. SHARMA: The Canadian Obesity Network was created by Industry Canada, and the mandate of the Network has always been to engage industry. Except that we've had a very hard time engaging industry, because for a long time, obesity was a four letter word. Now, they're here, and nobody says that we have to agree on anything. Right?

I mean, we know what their agenda is, in fact it's much easier to know what you know, the agenda of industry is, than to know what the agendas of certain other people who are here.

A company that's here because they wanna sell more product, I know exactly what their reason for being in the room is. There is no conflict, this is why they are here.

RICHARD ELLIS: It's a little tight up here, I almost fell off there. Thank you, and good afternoon, everybody.

Um, I think I'm supposed to disclose um, McDonald's Corporation's financial contribution to the CON summit, in the amount of 10,000 dollars, I believe. A lot of people this morning have said to me, why are you here? And gee, it's awfully courageous of you to be here. Um-

I don't think it's courageous at all, we do this an awful lot.

DR. FREEDHOFF: The Canadian Obesity Network has become the voice of obesity in Canada, where they help to shape public policy, and they help to shape public opinion through their interactions with the media. I think that we can't simply fall back on the well, "we were created by industry for industry, this is a network." Because it's so much more. So then the question becomes, does an involvement with the food industry affect CON's ability to advocate for public policy, and treatment, and prevention?

DR. FREEDHOFF: And so, the food industry, I think in many cases, this is their approach to weight management, um they market food very heavily, and then they tell you to exercise, and eat in moderation, and it is as simple as that. And then sometimes we'll have, and I put this in for Richard's benefit. Um, this is the snack size McFlurry, this wasn't in my talk, but I had to rush it in. Where this snack has the caloric equivalent of a Snickers Bar dissolved in a twelve ounce can of Coca-Cola.

And has about fifteen teaspoons of sugar, and yet it is labeled as a snack. That's one hell of a snack.

DR. SHARMA: I don't see how you could solve this problem by simply pointing fingers, and you know, saying you know, it's their fault. You- if you would just put Yoni up there for a- you know, half an hour telling people what he thinks the problem is, and what the solutions are, and not give the opportunity to the other side, this would be a complete waste of time.

RICHARD ELLIS: We don't have all the answers, we're a burger and fries, and a salad and low fat parfait company. But we have a lot to learn.

Um, and so we look forward to opportunities like this to do so.

DR. SHARMA: If you need any information, like, if you wanna do a little article, or link to my website, or put up a video, or whatever, let me know.

DR. FREEDHOFF: If the Canadian Obesity Network is reliant on dollars flowing in from the food industry, there's a great deal less likelihood that they will be as forceful shaping opinion or policy negative for those industries who are funding them.

And the Canadian Beverage Association and Coca-Cola's a great example. You know, this is an area this ripe for change. Whether it's taxation, or regulations, this is on the table. And I would be shocked if anything formative was championed by the Canadian Obesity Network, now that they are firmly in bed with Beverage Association and Coca-Cola.

Text on Screen: Coca-Cola gave a 90-minute talk on its strategy to combat obesity. Outside media was not welcome to the event. Coca-Cola declined our request for an interview.

DR. SHARMA: The afternoon symposium hosted by Coca-Cola, you know, it's up to them to decide who they want- what - what their agenda is, who their speaker's going to be, and what they're going to say. It's not something the Canadian Obesity Network identifies with, or would say that you know, we support, because it's not up to us to support any position.

The job of the Obesity Network is to provide the forum, but ultimately, it's totally up to the sponsor.

Caption: San Francisco, California

DR. LUSTIG: Any time industry has offered to voluntarily regulate itself, it has basically caused nothing but disaster. Whether it be seatbelts, whether it be tobacco, whether it be pollution, uh, industry has an vested interest in not allowing itself to be regulated.

Basically, I went to law school to learn the tobacco playbook. What worked, what didn't, why didn't it, all of these things are relevant to this current fight.

Caption: Sugar Summit | UC Hastings, San Francisco

DR. LUSTIG: 26 percent of diabetes in America today is explained by sugar and sugar alone, nothing else.

WOMAN: Is this widely accepted across the scientific community?

DR. LUSTIG: Of course not! Is anything widely accepted across the medical community? This is very new. This just came out in end of February. But it has been embraced by a lot of scientists. Obviously there are a lot of people who work on the other side who have not embraced it.

DR. LUSTIG: Listen, even I say we need more research. The question is, how much more research do you need before you do something? The food industry will always say, we need more research. That's their way of moving the goalpost, because we'll never have enough research for them. They'll always say, well, we need more research. And therefore, nothing will ever be done.

The question is, when do you have enough to act? When does policy trump industry?

WOMAN 2: We really have to think about- ask the question, how is it that in 2013, we're still

debating whether there's a relationship between sugar consumption and diabetes?

And this reminds me a lot of the tobacco discussion, where you had tobacco executives sitting in front of Congress saying, one after the other, tobacco has no relationship to addiction.

TOBACCO SPOKESPERSON 1: I believe that nicotine is not addictive.

TOBACCO SPOKESPERSON 2: I believe that nicotine is not addictive.

TOBACCO SPOKESPERSON 3: And I too believe that nicotine is not addictive.

DR. LUSTIG: The fact is, we still don't have the seminal proof, even for tobacco and lung cancer today, that the tobacco industry called for. That is, a randomized control trial.

Well, you know what? That would be pretty unethical. Getting a group of naive people to start smoking for twenty years, and seeing whether or not they got lung cancer. Um, you - you tell me how you're gonna get that study done.

Well, they would like us to do the same thing with sugar. They want us to basically take a group of naive young adults, okay? And divide them up into people who consume too much, versus those who don't, watch everything they eat for the next fifty years, and see if they get heart disease and diabetes. Now, how are you gonna do that?

STAN GLANTZ: You've gotta look at where in the debate you are, and the issue isn't so much the scientific facts, because those are coming together. The issue is the credibility of the people attacking the science. And the issue is about manipulation of the process.

Caption: August 1, 1974

MALE REPORTER: In Washington today, a coalition of health and consumer groups asked the Food and Drug Administration to put a limit on the amount of sugar allowed in breakfast cereals. Their petition to the FDA also asked that a health warning, similar to the one on cigarettes, be required on cereals which exceed the sugar limit.

DR. KEARNS: And there was a lot of movement in the early seventies to regulate sugar that was really freaking the sugar industry out. The Food and Drug Administration was looking at the safety of sugar and the sugar association's goal was to make sure that the FDA concluded that sugar was safe.

Caption: FDA GRAS (Generally Recognized as Safe) Review Committee on Sucrose

GARY TAUBES: You go after sugar, you know, imagine the uproar if this FDA committee says sugar is - should not be Generally Recognized as Safe. That this is a potential toxin. You know, you're going after major industries.

DR. KEARNS: So this "white paper" became something that the sugar industry submitted to this FDA review committee, as part of the evidence. Somehow, the Chairman of the Scientific Advisory Board for the sugar industry, George Irving, became the Chairman of the actual review committee for the FDA, who was looking at the science of sugar.

Talk about a conflict of interest.

GARY TAUBES: And who do you go to for help? So they could go to Yudkin. And arguably, they should've gone to Yudkin. And they could've gone to Sheldon Reiser, and arguably, they should've gone to Sheldon Reiser, but they didn't, they went to (laughs) the sugar industry for help.

The FDA just went with the consensus of opinion, which unfortunately were the consensus of opinion among people who were not studying the issue.

The sugar industry's saying hey, the FDA says we're fine. You know, you could imagine them in some fancy court case in- in Manhattan, with their expensive lawyers, and they get an acquittal. They didn't do it, we're fine.

There's all- still all the evidence there implicating sugar, but they got their acquittal. That's all they needed.

JUDITH HALLFRISCH: When that report came out, we just thought that they misrepresented our research. We just thought they were wrong. (laughs) And that we were right. He got very frustrated that we were dismissed.

GARY TAUBES: And I think if it had been something like you know, some... uh you know, chemical that's in ten products that could be easily replaced by some other chemical, the FDA would've done its job. But you're talking about sugar.

It's how we demonstrate our love.

I mean, pick a holiday that isn't about sugar. (laughs) Ultimately, whether it's you know,

Valentine's Day, and Mother's Day, and birthdays, and barbeques, and lemonade, and pies, and cakes, and you know, this is- this is what we do.

It's our culture.

Text on Screen: After the FDA report, the Sugar Association won the Silver Anvil Award for their public relations campaign. At the time, 1 out of 41 Americans had diabetes. Today it is 1 out of 11.

DR. KEARNS: I think an injustice has been done. For more than forty years, you know, probably longer, this industry, it appears, has been deceiving.

And the level of suffering that has resulted from that, it's hard to even calculate.

Text on Screen: Concerned with skyrocketing public health costs caused by metabolic disease, Japan institutes a radical new law, dubbed the "Metabo Law."

DR. WILCOX: The "Metabo" law is in full force here in Japan. So these towns and villages offer these health checkups, companies offer these health checkups. Send mobile units over to workplaces.

Generally you see in Asian populations more of a sensitivity towards obesity related diseases, such as diabetes. And there is a focus on doing something about the problem.

People go in for their health checkups, and they get their waist measured, and blood work done, and well, you get a- a report. And you get rated on each item, how you're doing, and according to where you should be.

PUBLIC HEALTH NURSE: (speaks Japanese)

DR. WILCOX: If you are past the cut-off points, then you get flagged on certain items, if your waist size is too big, you get flagged on it.

Too much in the red zone on too many items, you'll get a call from the public health nurse, saying come in for a consultation.

It is a little bit embarrassing at times, you know, when you have to take off your shirt, and the public health nurse puts the tape measure around your waist, and says, (laughs) Mmm... (laughs)

PUBLIC HEALTH NURSE: Hmm...

DR. WILCOX: You know, you're looking a little larger than last year. Well, in some ways, Japan is protective, they take a more say, nanny type of approach, but in other ways, people need to be nudged in certain directions.

Such public health campaigns in Japan have been pretty successful in the past. Stroke, cerebrovascular disease, was very prevalent in Japan in the 1960s.

The government mandated public health initiatives, salt intake in Japan dropped quite a bit, and cerebrovascular disease mortality rates have dropped about eighty percent. That's huge.

Those are all positive things that- that we could possibly learn from in- in North America.

DR. LUSTIG: Where does that leave us? It leaves us with this question of freedom. So the Libertarians say, wait a second! Don't tell me what to eat! Well, you know what? You've already been told what to eat. Where were you for the last forty years, as your food supply was being changed under your nose? Were you protesting then?

The Libertarians say, get government out of my kitchen! You know, I don't want government in my kitchen either, unless there's somebody more dangerous already there.

Here is a report from an international investment bank, Credit Suisse, called, "Sugar Consumption at a Crossroads." This is a direct quote. "We believe higher taxation on sugary food and drinks would be the best option to reduce intake, and fund the healthcare costs associated with diabetes and obesity."

An investment bank is calling for taxation. That's how big and bad this problem has gotten.

DR. LUSTIG: We need a new food business model that rewards food industry for doing the right thing, not for doing the wrong thing. Right now, they're rewarded for quantity, not quality. So could they make money selling real food? Sure, absolutely. Could we subsidize real food, so that we could make it cheap enough for people to be able to buy? Sure we could.

But it means a real overhaul of what we're doing. And the food industry can still make money. There's nothing wrong with the food industry making money. I am not against people making money. I am against people making money by poisoning other people.

That's what tobacco did, and that's what the food industry's doing today. That I'm against.

ALEXIS GOMEZ: (panting heavily)

ALEXIS GOMEZ: When I first started going to UFC gym, I was still eating bad, so there was no real - real kind of results. I was still lacking that knowledge about processed foods, and about how much it actually takes to burn off a chocolate bar.

You know, a small candy bar cancels out your five mile run. It's almost as if you didn't run. And I didn't realize that, and when I did, I completely changed my diet.

Including cutting out completely fast food, and cutting out completely frozen foods, and intaking a lot more vegetables and fresh foods. I substituted my juice for fruit, and it's a way better feeling.

It's a- it's a different kind of full, and it's- it's an energetic kind of full.

TRAINER: Come on Alexis, go! (Alexis grunts with exertion)

ALEXIS GOMEZ: In total, I've lost about fifty pounds. My numbers are- are great, my liver is - is functioning very well, I feel so much more energetic, so much more alive, and it's a great feeling.

DR. LUSTIG: When kids switch from processed to real food, their metabolic dysfunction goes away, they have a chance to lose weight, they feel better, they do better in school, their lives turn around.

I would love to see sugar off the GRAS list. By calling attention to the fact that it's on the GRAS list, and the fact that the food industry is allowed to use any amount it wants in any product it likes because it's on the GRAS list, hopefully will engender enough public reaction to actually help move the needle, and get the food industry to start ratcheting it down.

DR. FREEDHOFF: Just recently, the World Health Organization came out and said this is a big problem, added sugar in our lives. And we should be trying to limit this, and change this behavior.

Text on Screen: On June 18, 2014, the Heart & Stroke Foundation dropped their Health Check program.

DR. FREEDHOFF: The Heart & Stroke Foundation I think was very classy, they actually came to my office the day before they made their announcement, to let me know in person that this is

what their decision had been, that they'd talked about it for quite a long time, and decided that indeed it couldn't continue the way it had been continuing, and that the best move for the Heart & Stroke Foundation, and more important, the best move for the Canadian population at this point, was to just say, you know what? We're - we're done with this program!

Text on Screen: The Heart & Stroke Foundation also came out with their first Canadian guidelines that severely limit sugar consumption.

DR. FREEDHOFF: And so the Heart & Stroke Foundation's new sugar guidelines are very strong guidelines. They're in line with the World Health Organization, and the American Heart Association's, and with what science currently feels is the way to go. To have them coming out and making these recommendations, it is a first step hopefully, to seeing changes on federal guideline level.

Text on Screen: There are no government guidelines that limit added sugar consumption in North America.

DR. FREEDHOFF: Doctors in general, I think we don't do a good enough job advocating outside of our offices. And I- I think it's an important piece of why I went into medicine, if I can help make changes, and improve the health of people beyond sort of the four walls of my office. I think that's part of my job.

Text on Screen: Cristin Kearns is moving to San Francisco to work at the University of California as a postdoctoral scholar.

DR. KEARNS: Once I found those documents, I - I didn't know where the path would lead, you know, I was just sort of taking it one step at a time.

I was offered a fellowship to come and study at the University of California, at San Francisco. The goal is to be demonstrating the similarities between the tactics used by the sugar industry, and the tactics used by the tobacco industry.

I'll have the opportunity to work very closely with Stan Glantz, who is a giant you know, in taking on the tobacco industry.

STAN GLANTZ: So tell me what you're finding.

DR. KEARNS: So what I have is evidence of the sugar industry influencing that research agenda.

STAN GLANTZ: Oh, I think the whole perspective that she's bringing is a transformative perspective, and I think it's gonna change the discussion. And- and the thing that you need to know, is that you're effective, these guys are gonna come after you, you just gotta be ready for it, and not get too freaked out.

Text on Screen: Their goal is to use the sugar documents to bring change to the sugar industry.

DR. KEARNS: To me, the work that I'm doing, I'm going to do it. You know, I have to do this work. History is repeating itself, absolutely. We've been through this before. This isn't new. Unless we truly understand the industry practices, that this debate will continue to go on.

GARY TAUBES: Let's do a definitive study, let's narrow it down, let's - let's figure out what it takes to answer this question once and for all.

MEREDITH LORING: Sami really came up with the idea to do this expedition. And this is definitely the craziest thing we've done yet.

We're rowing from California to Hawaii in an ocean rowing boat, unsupported. It's about 2,400 miles, or more.

We're packing all of our own food. We're eating on the boat very much like we eat in normal life.

SAMI INKINEN: You don't need sugar, processed carbohydrates, and in this case, sports performance products, as they market it to you, to be able to perform, and exercise a lot.

MEREDITH LORING: We have a very clear idea that we wanna raise awareness against dangers of sugar, and help people have like, a truly healthy diet.

DR. LUSTIG: Good luck, bonne chance, Buenos Fuertes, don't break a leg! (laughs)

Text on Screen: On June 18, 2014, Sami and Meredith left Monterey for Hawaii to raise funds for the Institute of Responsible Nutrition.

DR. LUSTIG: Sami and Meredith, they believe what we believe. And they're putting the pedal to the metal to prove it.

Text on Screen: The mission of the institute is to reverse childhood obesity and type 2 diabetes.

DR. LUSTIG: First they ignore you, then they laugh at you, then they fight you, then you win. Well, we're in the fight now. If I never see another obese kid in my life, it'll all have been worth it.

Text on Screen: After 45 days, Sami and Meredith made it to Hawaii, a distance of 2,750 miles - with no added sugar.

Text on Screen: “It’s laughable that sugar is still on the GRAS list.” – Dr. Walter Willett | Chair, Dept. of Nutrition, Harvard T.H. Chan School of Public Health.

Text on Screen: The Sugar Association and the Canadian Sugar Institute declined to participate in the film.

Text on Screen: The World Sugar Research Organization did not respond to our request to participate.

[END]