

Transcript

01/08/2013

Toxic Sugar

Catalyst

NARRATION

Rarely a week goes by that you don't hear about the world's obesity crisis.

Juanita Phillips

Obesity is now...

Tony Jones

..eating habits, half of all Australian children will be obese.

NARRATION

We're often blamed for eating too much and not exercising enough. But some of the world's top experts refute this stereotype.

Professor Robert Lustig

Did all of a sudden the entire world just become a bunch of gluttons and sloths? All at the same time? I mean, get real.

NARRATION

In only a few decades, there are now more obese people on the planet than undernourished.

Gary Taubes

When you have this kind of dramatic increase in obesity and diabetes rates, something in the environment is causing it.

NARRATION

Experts are pointing to a new dietary villain that's making us fat and sick.

Gary Taubes

The obvious suspect at the moment is sugar.

Professor Robert Lustig

Sugar is driving all of the chronic metabolic diseases that we know about today.

Professor Michael Cowley

There is a myopic focus on reducing fat consumption at the expense of not considering what the sugar component is.

NARRATION

Why is sugar so toxic to our health? This is the bitter truth behind our sweet obsession with sugar.

In the '70s, when obesity and heart disease were on the rise, we were told that dietary fat was the villain. Memorable ads like this one used persuasive imagery to convince us that low-fat muesli bars could make you skinny.

Man

Hey!

Voice-over, on commercial

Kellogg's new Low Fat Granola Bars - loaded with taste, but only half the fat.

NARRATION

Advertisers choreographed TV ads like this with catch jingles and repetitive phrases to drive the message home.

Woman

40% less fat.

Voice-over, on commercial

McCain Oven Chips - better for taste, better for you.

Gary Taubes

And then there was a hypothesis going around at the time that, if a food didn't have fat in it, it couldn't make you fat.

NARRATION

This sparked the low-fat revolution. A vast range of low-fat products began to dominate supermarket shelves.

Dr Maryanne Demasi

The only problem was - when you took the fat out of food, it tasted like cardboard. So they had to replace it with something, and that was sugar.

NARRATION

It gradually became the essential additive.

Gary Taubes

So now you have a product that's lower fat - lower saturated fat - and it's got a lot more sugar than it ever had.

NARRATION

Whole-fat mayo, for example, has just over 2% sugar. The low-fat version has six times more.

Professor Michael Cowley

My pet hate, in terms of low-fat food, is low-fat yoghurt that's high in sugar. You might as well eat candy if you're gonna do that, because the sugar level in some of these low-fat yoghurts is really quite high.

NARRATION

Adding sugar is how the food industry engineers temptation.

Professor Robert Lustig

And now the food tastes great. In fact, it tastes so great we can't put it down. This is a win-win for the food industry. They complied with the arguments of the 1980s. They've gotten us to eat more, and they are making money hand over fist. The problem is - they're doing it at our expense, and we're losing our health.

NARRATION

By the mid-'90s, the demonisation of fats meant that sugar was actually considered a healthy alternative. Ads like this promoted sugary drinks as part of a healthy lifestyle. The American Heart Association recommended that fatty snacks be replaced with high-sugar products like juice, hard candy, and spreads like syrup and honey.

Gary Taubes

Probably the first time in human history that health organisations were advocating we eat sugar as a means of being healthier.

NARRATION

But now that 60% of the population is overweight or obese, and diabetes rates have tripled, is it possible that we've been given the wrong advice?

Voice-over, on commercial

Get off the fat seat. Get it off.

Gary Taubes

These numbers are astounding. Throughout this entire period... This coincides completely with this argument that we should eat a low-fat, high-carbohydrate diet, during which sugar consumption increased steadily. It's hard to argue that we were given the right advice.

Dr Maryanne Demasi

Even today, our peak health authorities, like the National Heart Foundation, endorse cereals that... well, might be low in fat, but they're up to 30% sugar.

NARRATION

This is a bitter pill to swallow for obesity researcher Professor Michael Cowley.

Professor Michael Cowley

It's a bit surprising that cereals like Honey Cheerios or the Milo cereal contains an endorsement from groups that are supposed to be looking after our metabolic health.

Dr Maryanne Demasi

So the Heart Foundation has got it wrong on this occasion?

Professor Michael Cowley

I don't understand how they've said that's a healthy food.

NARRATION

Australia's National Heart Foundation declined to comment on camera - but, in a written statement, said their tick is simply to help consumers identify healthier options. Australian data on sugar consumption is unreliable. But, in the States, they've seen a significant increase in the last several decades. The chances are you're eating more refined sugar and starch than you realise. It's not just in the obvious things, like soft drinks, syrup and candy.

Professor Robert Lustig

One half of the sugar that we are consuming today is in items that we didn't even know had sugar. Tomato sauce, barbecue sauce, hamburger buns, hamburger meat. All sorts of processed foods. If you look at virtually every item in the store that has a food label, it has some form of sugar.

NARRATION

This is a vastly different diet to what we evolved to eat.

Professor Michael Cowley

Human evolution till about 3,000 or 4,000 years ago had a very different diet to what's happened since the agriculture revolution, where there's been a much greater input of grains, and so increase in carbohydrate consumption.

NARRATION

It's this increase in dietary carbohydrate that's messing with our metabolism.

Professor Michael Cowley

If you constantly provide carbohydrates to the body, you'll have constantly high insulin levels, and that will lead to increased fat deposition in tissues.

NARRATION

The higher your insulin, the more likely you are to store fat, because insulin is the main hormone that puts fat into fat cells.

Dr Maryanne Demasi

Now, if it's subcutaneous fat, the type that collects under the skin, then that's not so bad for your health. But if it's visceral fat, the type that collects around your belly and your organs - well, that's when problems arise.

Dr Maryanne Demasi

What is it about visceral fat that causes health issues?

Professor Michael Cowley

Visceral fat releases a different set of hormones, and, in particular, it releases what we call proinflammatory hormones that cause inflammation elsewhere in the body.

Dr Maryanne Demasi

Right.

Professor Michael Cowley

And that's why visceral fat is dangerous.

Dr Maryanne Demasi

So it's possible to be lean, but still have a lot of visceral fat around your organs?

Professor Michael Cowley

That's correct. And it's possible to be lean and metabolically unhealthy.

Dr Maryanne Demasi

So being slim doesn't necessarily mean you're healthy. Up to 40% of normal-weight people show signs of metabolic disease. And 20% of obese people are actually metabolically healthy.

NARRATION

Sugar is a simple carbohydrate made of two molecules, glucose and fructose. This bond is cleaved in the gut before they're absorbed. It's been shown that glucose mainly drives fat storage under the skin, and fructose deposits fat around organs, like the liver.

Professor Robert Lustig

When you make extra liver fat, that liver fat ends up mucking up the workings of the liver, and you end up with a phenomenon called 'insulin resistance'. The liver doesn't work right, so the pancreas has to make extra insulin. And it also causes hypertension - changes in the brain that might result in altered cognitive function and possibly even dementia. It can increase cell proliferation, which can cause cancer. It can cause vascular smooth muscle proliferation, which can cause heart disease.

NARRATION

Sugar can also accelerate ageing.

Professor Robert Lustig

When you paint your barbecued meat with barbecue sauce, it browns faster. Well, that's happening inside your body. It's known as the 'browning' or 'Maillard' reaction, and it is the thing that causes cellular ageing. And the reason you do it with fructose is because it browns better. This is the reason that fructose has been added to bread. It browns virtually all foods better. Well, it browns your insides better too. And, as that happens, you are ageing faster. If you had a glass of fruit juice this morning, you're ageing seven times quicker.

Dr Maryanne Demasi

Fructose is mainly found in fruit. That's why they call it 'fruit sugar'. Now, you might be thinking, 'How can it be bad for me if it's found in a health food?' Well, let me explain. You could easily drink a glass of apple juice before dinner. But if you had to have the equivalent in whole fruit, you probably wouldn't finish your meal. You see, juicing fruit removes all the fibrous pulp, so you can take in a whole lot more calories without feeling as full. So if you're going to eat fruit, stick to whole fruit, because it has a lot more fibre, and it's the fibre that tames your insulin response to sugar.

NARRATION

Chronically high levels of fructose is not only toxic to your liver - it messes with the hormones that control appetite.

Professor Robert Lustig

There is a hormone in your stomach called 'ghrelin', which is the hunger hormone. When your stomach is empty, ghrelin goes up, tells your brain, 'Hey, time to eat.' Then you eat, ghrelin goes down, and so hunger goes away. But, when you consume sugar, fructose does not get registered by the brain as you having eaten. Ghrelin doesn't change. You stay hungry.

NARRATION

And it's not just sugar that can promote weight gain. Refined starches - another type of carbohydrate - can have similar effects. And there's no law requiring manufacturers to declare these on food labels.

Professor Robert Lustig

Aren't they supposed to regulate our food? Aren't they supposed to regulate what they can put in food?

NARRATION

Professor Lustig says for too long there's been the perception that fat people have no-one to blame but themselves.

Professor Robert Lustig

You go to a doctor, you go to a nutritionist, you say, 'Doc, I don't get it. Every time I stand on the scale I weigh more and I don't feel so good. What's going on with me? Why am I fat?' And the doctor looks at your behaviours and says, 'Well, I know why you're fat. You're a glutton and a sloth. You eat too much, you exercise too little.'

NARRATION

Obesity is often seen as a character flaw - that person's inability to exercise willpower and eat in moderation like thin people.

Professor Robert Lustig

I also take care of obese six-month-olds. They don't diet and exercise. I also take care of obese newborns. Yes, newborns. Do you want to blame them for their obesity at age six months?

Dr Maryanne Demasi

Now, of course overeating and being sedentary can make you gain weight. But Professor Lustig says this can't fully explain the sudden escalation in obesity across the globe. It has to be something within our environment, and it's likely to be the change in the composition of our diet.

Professor Robert Lustig

Our fat consumption has stayed exactly the same over the last 30 years. And look at the disaster that has befallen us. And that is because our consumption of dietary carbohydrate has gone through the roof. Anything

that drives insulin up will drive weight gain. I don't believe in blame. I believe that there are victims, not perpetrators.

Dr Maryanne Demasi

Most dieticians will tell you to watch your calories, because it's all about energy balance - calories in versus calories out. But it's not actually that simple. We're biological systems, so we metabolise different calories in different ways.

Professor Robert Lustig

'Calories in, calories out' is how we got into this mess. It depends on where those calories come from, it depends on what those calories are, it depends on how those calories are metabolised, as to whether or not they will cause weight gain. When you burn protein for energy, it takes twice as much energy to metabolise that protein into energy as for carbohydrate. It's known as the 'thermic effect of food'. Those calories are not recoupable. So you actually burn more energy metabolising protein than you do carbohydrate.

Dr Maryanne Demasi

So the net effect of eating a calorie from carbs versus a calorie from protein is actually quite different. That's why our experts say not all calories are equal.

NARRATION

Gary Taubes says starving yourself to lose weight just doesn't work.

Gary Taubes

When you do starve people for whatever reason, they respond by lacking energy, their metabolism slows down, you think about food constantly - exactly the opposite of what you want if you want to cure obesity.

NARRATION

Most people turn to exercise to shed those extra kilos.

Gary Taubes

The studies show that exercise has virtually no effect on weight loss. One thing exercise does is it makes people hungry.

NARRATION

Burning calories through vigorous exercise triggers hunger signals in your brain so that you eat to replace those calories. Your body knows it's losing vital energy stores, so it reacts by slowing down your metabolism to conserve that energy. This is thought to have helped us evolve as a species and to survive in times of famine.

Professor Michael Cowley

It's so hard to lose weight because we are metabolically programmed to return to where we were. We have a raft of hormones in our body that all drive to push us back to where we were. 97% of people who lose weight regain it within five years.

NARRATION

That aside, exercise does have other health benefits that extend beyond weight loss. Dr Lustig says minimising carbs from processed foods - the foods we've been told to eat most of for the last 30 years - weight loss should follow.

Professor Robert Lustig

When I get people off sugar, and I get their insulin down, they all of a sudden feel more energy. They all of a sudden want to engage in physical activity. And that's part of why they lose weight. So the question is - which is driving the epidemic, the behaviours or the biochemistry? I would put it to you that the biochemistry always comes first.

NARRATION

Professor Lustig says it's easy to fall into the trappings of sugary food, because the more you eat, the more you want. MRI scans show that sugar triggers the same reward centres in the brain as nicotine, alcohol or cocaine.

Professor Robert Lustig

By increasing reward, you downregulate the receptors in that area, making it necessary to consume even more the next time to get the same level of reward. This is a phenomenon called 'tolerance'. And tolerance is the first step on the way to addiction. And so we have shown, and others have shown, that sugar has potential for abuse.

NARRATION

He says sugar should be regulated like tobacco and alcohol.

Professor Robert Lustig

Both of those are toxic and addictive. And we regulate them and we keep them out of the hands of children. Well, sugar meets the same criteria of ubiquity, toxicity, abuse and negative impact on society that tobacco and alcohol also achieve.

NARRATION

There is still ongoing debate surrounding Professor Lustig's theories. Some nutritionists warn against demonising sugar in the same way we demonised fat in the '70s. They say the focus on sugar will result in unbalanced dietary advice. However, it seems Australia's peak health authorities are slowly catching onto Professor Lustig's warnings. They've launched new campaigns to encourage people to rethink sugary drinks, and they've recently updated our dietary guidelines to include warnings about sugar consumption.

Emma Alberici

..Australia's dietary guidelines - released today - have included for the first time the advice to 'limit added sugar'.

Professor Michael Cowley

I think the new guidelines that are emerging recognise that we've eaten too much sugar or been advising people to eat too much sugar.

Dr Maryanne Demasi

Until now, each generation has always had a longer lifespan than the previous. But it's been predicted this current generation won't. And obesity is to blame. Even if we act now, it'll take a generation or two to turn the tide around. And if our experts are right, the weight of the nation rests on the shoulders of the food industry.

Topics: [Health](#), [Others](#)

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