Beyond Blood Sugar, How Science Tackles Obesity and Diabetes Transcript

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Introduction and New Yearu2019s Resolutions

Welcome to the MedEvidence Podcast. This episode is a rebroadcast from a live MedEvidence presentation. Moving on with our slide presentation, as you know, that this is not a passive event.

This actually requires active engagement with the audience. And so you might think you're getting a free lunch, but in fact, you're not. You're working for it.

So we're going to start with this concept of it's January. It's the beginning of the year. We may or may not have made New Year's resolutions. So just to do a survey to get a sense for what's happening in the room.

Who in the room by show of hands made a New Year's resolution to eat better, move more, or finally get healthy? OK, so we'll do it one by one. There's going to be choices here.

So number one, yes, I made a resolution this year. Raise your hand if that's true. OK, about half. B. Yes, I copied and pasted my resolution from last year to the new calendar.

Show of hands. Yep. Okay. Okay. Three. I already forgot my New Year's resolution. What was it? Number four. Oops. I broke my New Year's resolution on January 2nd.

or, okay, those are the choices. So I get a pretty good sense that these New Year's resolutions have the best intent, but they don't always happen. And Eric and I are going to talk a lot about the fact that you need two things to work together in order to fulfill our New Year's resolution and more broadly to live healthy lives.

And this is a combination of willpower and sally science. Will Power and Sally Science both think they can cure the obesity diabetes conundrum on their own?

And do you agree? So that's a rhetorical question and we'll see if we get to the answer to that. So, go ahead, Eric. Just, you know, give us a little bit of sense why one versus the other isn't necessarily the best equation in terms of success.

Exactly. So, as the slide says, if willpower alone worked, you know, we wouldn't need this presentation. You know, instead, diabetes and obesity are complex biological problems.

Science is finally catching up, and a lot of times people facing that dilemma between donut and broccoli. So, you know, if science alone was enough, then we would have a singular treatment, here's a pill, you're all set, without ever having to tackle anything other challenges, and we'd all be easy and one and done, but obviously that's not the case.

Okay, so what makes it so difficult to achieve our New Year's resolutions on weight loss and healthy eating? It really comes down, and we can talk a little bit now about, or talk about adipocytes and obesity.

Willpower vs. Science in Weight Loss

Now, fat cells. A lot of people think, well, your fatty tissues are just sitting there kind of a knowing reservoir of potential energy, energy storage, and that it really doesn't really do much anything other than makes our waistline bigger And our hips are bigger.

But adipocytes, they're active. Our fat cells are actually, it's an endocrine, and promotes secretes hormones. And it's very important. And part of that is that they release free fatty acids into the circulation.

Free fatty acids can turn into triglycerides. They can stimulate an inflammatory process. And they can cause and interfere with anti-inflammatory effects.

So they're very potentially a concern for our health. Yeah, and that's a great point, Eric. And just to emphasize the point, when you're overweight, your adipocytes, these are cells that particularly have this biological function of making sure we eat enough and to store energy, go off into a rogue state.

So we need these things because, you know, back when there was very little food around, we needed a constant reminder to eat and make sure we had enough energy in our bodies.

But now these cells are actually overacting for the current environment, the current societal conditions. And so really, when we have to deal with willpower, quote unquote, we're actually working against the natural mechanisms in our body that make us want to eat.

So it's a really important point. All right, we talked about adipocytes activate immune cells, further fueling inflammation and tissue remodeling. I think we've got some more slides that we can talk a little more detail about that.

So the dual role of adipose tissue in disease, we talk about already how they can be initiated or triggered. So the fat cells are used adipokines and other ways that they can stimulate inflammation.

Inflammation is kind of a generic term that implies that you may be activating different parts of your immune system. inflammatory responses that can cause, as kind of the net process, is really a lot of endothelial dysfunction and damage, fibrosis, and atherosclerosis, because that's what the inside of your arteries are experiencing from this.

And so the many inflammatory cytokines, tumor necrosis factor, IL-1, IL-6, these are all part of these active, what your fatty tissues are doing.

Adipose Tissue, Inflammation, and Obesity

And so we look at some of the treatments we look like and some of the new treatments we're looking at are looking at dealing with some of these inflammatory or inflammasone.

So if you can… treat this, then you're not going to be so much into the exacerbator, which worsens and accelerates existing health conditions. So you really want to be more proactive up front, try to nip it in the bud, per se, before you set up that kind of chronic inflammation leading to endothelial cell dysfunction.

So we want to treat it more upstream. And this gets a little bit nerdy, but this concept of cytokines is actually very, very important. So when you think about it, why do things that happen in our gut either make us feel full or hungry?

Okay? Full and hungry comes from the brain, not from the gut. Well, the reason it is is because of all the signaling. And so the science is now focused on all these signaling things, whether it's appetite or inflammation or other things as Dr.

Schramm mentioned. So it's a little bit nerdy, but we put it in so you realize what scientists are thinking about in terms of what they're attacking, what they're trying to change.

Question, why do we eat too much? And we've already talked about, OK, well, the brain and the gut and your fat tissues and your internal organs should be communicating together to say, OK, when we're overfed or when our sugar is too high or we have too much excess, that we should be having the necessary kind of breaks to put onto the system.

And so, OK, let's eat less. OK, let's change what we're doing. A lot of times, we kind of override a lot of those signals. Now, this was an important study that came out this summer.

It was Duke University. And what it looked at is, okay, well, what's contributing to obesity most? Is it that are we eating too many calories or are we just not exercising enough?

Because a lot of people's strategy is like, well, I'm going to watch my diet, but I'm just really going to work out now. I'm going to really work off this.

I'm going to lose weight through exercise. And they looked around. It was global. It was a global study. And it looked at, turns out that our calorie intake is much more a driver of obesity than our level of exercise.

Now, I'm not saying don't exercise. But at the end of the day, it really does mean we really have to focus on what we eat and how we're eating. And when they looked at this study, and one of the big factors in this was it wasn't just that people are eating more, but of the kind of food that really promotes a lot of the obesity, diabetes, heart disease, the inflammatory components in our diet, which is ultra-processed food.

So here in the United States, 60% of our diet is ultra-processed foods. It's twice than any other country in the world. And so our obesity problem isn't just that we're eating too much.

We're generally getting the wrong kind of calories, the wrong kind of nutrition in the diet from ultra-processed foods. So that was the take-home point from that.

So this gets into the concept of food noise, this whole gut-brain connection. So just before I get into the choices, who has heard of food noise before in the room?

So just relatively few. So this will be interesting. So this is actually a term we're using scientifically now, and we're actually using this term in our clinical research to see if we can, quote, shut off food noise.

So let's get into the question here. One, food noise is persistent and intrusive thoughts about food. Would that be yes or no? B, a concept not limited to individuals with current eating disorders.

OK. C, an idea described as food-related intrusive thoughts. Frit, always a good acronym, right? It sounds like you're spot on. It's not scientific unless you have a good acronym.

That's one of our rules. And a contribution to overeating and obesity. So would you choose one of those or would you go with E, all the above?

Food Noise and Appetite Signaling

There are paid attention. They're not asleep after lunch. I told you. Okay, so we've got a super smart audience here. All of the above is correct. So go ahead and break it down a little bit more for us.

Okay, so food noise, the constant thinking about food, again, especially highly palatable and energy-dense foods, which for a lot of people, guess what, ultra-processed foods.

That's basically what they are. So frequently checking food delivery apps and obsessively planning the next meal during current meals. So if you find yourself…

That's never happened to me. Anyways. Okay. Provoked by external food cues, seeing or smelling palatable foods or internal food cues, stomach rally and thoughts about food, often intrusive.

I've been watching a lot of, you know, playoff football and college basketball and this kind of thing. And you notice how much food is being advertised in that, you know, a lot of fast food, ultra-processed foods.

And, you know, I can't imagine you're watching this and people, of course, are getting hungry. So we get a lot of cues, a lot of reinforcement out there.

So it is a real thing. So you're not the only person out there with that. And patients using weight loss medications report a significant reduction in food noise.

And we're going to talk a little more about weight loss medications in just a few minutes, but that is true. One of the things that we see for some of these classes of weight loss medications is helps to silence that food noise.

Patients are like, you know, they don't really feel like, you know, that kind of hearing and responding and needing to do all these things. So it can be really helpful.

Are you finished with this slide? Yes. Okay, sorry. I got a little off track because I was thinking about dessert. Exactly. Well, you know, we've got doughnuts and, okay.

Okay. That's a great slide. So, okay, so this fat mouse, okay, interesting. So eating, again, cookies and ultra processed foods and all that. But interesting is down in the corner is a banana peel.

And I was like, oh, okay, well, this mouse was onto something. So, but something derailed this mouse before, you know, he made the right choice to go and eat fruits and vegetables rather than going for, anyways.

So hormones and appetite, so leptin is a satiety hormone and ghrelin is a hunger hormone, leptin and ghrelin. Now I will tell you there are other satiety hormones that are important.

We'll talk about GOP-1. We'll talk about GIP. We'll talk about all of that too, but there are hormones that are secreted at certain times of the day or evening that either drive our hunger up or down.

And leptin is one I like to talk about. And people with leptin resistance tend to, it's our full signal, right? It's our satiety signal. And part of that can be mitigated in the diet if you buy fiber.

Fiber is an important component in the way that it stimulates satiety, including leptin. It also stimulates GLP-1 release, which we'll talk about in just a little bit.

So, again, that's why diet fiber is important. Obesity is protean, and basically, and I've heard Dr. Corrin use this term a number of times, so I never get tired of seeing this slide.

So, it's a Greek, which means somebody, a god who could change the shape it will, and so it has, in clinical practices, it just means a diverse spectrum of clinical, metabolic, psychological, and functional presentations and complications, including cardiovascular, which are obviously some of the most significant.

So it isn't just that it causes one thing, it can cause a whole variety of disease states. Yeah, and this is really important what we're doing in clinical research, and we hope to get people interested in what we're doing in clinical research.

So, for example, as we speak, we're doing studies right now looking at overweight patients with congestive heart failure and how we can help congestive heart failure by in part treating obesity.

Hormones, Satiety, and Obesityu2019s Many Forms

We're looking at studies of diabetes and obesity. and how you can fix diabetes or make it less likely to cause complications based on treating obesity.

We're doing these studies in arthritis. We're doing these studies, believe it or not, in compulsive behaviors because there's a connection between being overweight and having compulsive behaviors.

So this is what we made by protean. It interacts and causes all these manifestations, and sometimes we're trying to help the manifestations by treating this underlying cause.

All right, well, diabetes, that's a new word on me. Go ahead and explain that. Diabeticity, right, because we're talking about obesity, but also diabetes.

And so we've come over the years with terms, diabetes, and it just happens that a lot of the current Weight loss medications evolved out of diabetic treatment.

So this is how we got comfortable starting to use that term. But it isn't just that having high sugar if you're a diabetic is necessarily the singular problem.

It's the other things that go along with it. Insulin resistance. adiposity, you know, fat, inflammation, and hormonal dysregulation. And as Dr. Korn alluded to, you can see there's kind of a long list of things, cardiovascular disease, stroke, kidney disease, MASH is fatty liver disease, and all the different things that can affect vision, and peripheral, and autonomic neuropathy, and increased cancer risk, which is also a concern.

Yeah, and this is what we mean by the protean manifestations of obesity. So I'd recommend that you all use the word protean today with your friends and they'll think you're really, really smart.

Okay, so back, and we've already talked a little bit about complications and impact of diabetes. We often characterize them as either microvascular or macrovascular.

So microvascular involves related to, when people have high sugar and like diabetes, it becomes really, it's a toxic, it becomes toxic to the nerves. and it stimulates a lot of inflammation in the blood vessels, in the smaller blood vessels, and then ends up with, you get endothelial dysfunction, ischemia, and so you end up seeing, again, diabetic retinopathy, diabetic nephropathy, and diabetic neuropathy.

So all these things, and if you're a diabetic, you should be following up with your eye doctor and seeing your primary care doctor or your specialist.

Macrovascular, this is what we think about in terms of cardiovascular, like if you've had coronary artery disease or peripheral vascular disease or stroke, and it's an accelerated atherosclerosis driven by that insulin resistance, compounded if you have high blood pressure, cholesterol issues, or other kind of chronic inflammation.

So that's how we look at it in the medical world. Oh, the choices to make, right? Not all calories are created equal, right? And so no, right? I would say not all calories are created equal.

Not all carbohydrates are created equal, by the way. But so the impact of 300 calories of, say, eating something that's healthier versus more kind of healthier protein or fiber versus something that's, again, ultra processed like a donut.

which, again, leaves you hungry an hour after you eat. So when we talk about nutrition with patients in the office, it isn't calorie counting so much.

It's really getting down to the nuts and bolts and nitty gritty of what they're eating. What are you eating? What does that look like? But this is a good slide so people can take a good take on message.

Yeah, there's an interesting part of human conditioning that goes into this. So if you look at this slide and your eyes go down to the donut and think that's what you want to be doing, then we have some conditioning work to do.

Whereas if you look at the salmon and say, oh, wow, that looked amazing. I can't wait to do the salmon. Then we've done our job. So that's part of what we're trying to accomplish here.

Ah, food order impact on blood sugar. OK. So we're going to have a graph or two if it's going to be an event here. So you'll know the top line, the yellow line, is when you eat your carbohydrate first.

And then the bottom blue line to that is when you eat your carbohydrate last. So there was a necessary food order

impact on blood sugar. And so it's kind of interesting.

Diabetes Complications and Nutrition Choices

So this showed that after consuming a protein or fiber first in the healthy part of it, that you could see a significant reduction in what it did for blood sugar compared to just eating your carbohydrate up front.

So the food order can have a significant impact on that. Fascinating. OK. Tips. Okay, so. Everybody needs tips, right? Water is good. Drink half your body weight in ounces a day.

So, okay, we can do some math on that. Though I do tell patients that I said look, you know, but don't, that's during the day. Don't consume half your body weight in fluid two hours before bedtime or else you're going to be up to pee a lot.

Don't do that because you need to sleep all night. So thinking about how you're eating, suggesting that eating perhaps your protein and healthy fiber up front before the carbohydrates to reduce blood sugar spikes.

But again, the devil with the details about carbohydrate metabolism is you should, you know, we could talk a little bit about healthy carbs versus not so healthy carbs.

But trying to choose good healthy carbohydrate sources I think also is important. And then again, be aware of ultra-processed food that can provoke hormonal and metabolic changes that increase hunger and stress hormone levels.

And that's true for all of those. I mean, you just cannot go there, you know. It's really, a lot of times people when they're doing or they're trying to really work on their diet that sometimes they like to sneak in all these little sneaky treats and everything.

And it's tough because you continue to condition your body into that hormonal response, and you really need to try to avoid doing that kind of eating.

So I know, Eric, you have some pointed points to make, or pointed… opinions, is probably the best word, about the new food pyramid. So I'm going to give you the clicker for this.

Oh, the clicker. And give you the power there. And I'll let you go through, quote, the new food pyramid. I can just go through all this. OK. And again, the goal here is the government wanted us to know what to eat more of and what to eat less of.

That's ultimately what this is all about. But I want you to walk people through this. OK. So when I saw this coming out again, it was kind of a deja vu moment because I remember as a med student and a new resident, that's what this is a few decades ago.

I was like, oh, that's like what the old food pyramid looked like. And for a long time, physicians and physician groups really did a deep dive into looking at that to say, okay, was that really understanding what we know about the science?

Or was it that, you know, the government was being influenced by, you know, the industries that put their, you know, that shaped that? So I guess we're kind of back to looking at and understanding, you know, this and why some of that is, why that is, Some things that may be good about that, but things I'd be mindful about.

And so what the premise of the reshaping of the food pyramid is, it's put these kind of protein, I'm just kind of putting in here, these kind of protein-dense foods up front.

But not all the protein-dense foods are created equal here. So you can sort out, you know, this is kind of red beet versus here's an avocado, which is a plant-based protein.

And you're going to say, well, why would one potentially be better, say, necessarily over the other? And the answer is there's no animal-based protein that has any fiber.

You won't find fiber in any animal-based protein. But for plant-based proteins, it's a little bit different. The legumes, the avocados, these things, they have nuts, et cetera.

They have both, they have plant-based fiber and protein. So if you can choose, and they're less calorie-dense than eating a steak. So try to encourage patients to consider, they don't have to go vegetarian, but at least consider a plant-centric diet.

So using plant-centric diet. But we know that red meat certainly increases your risk for colon cancer. I think that's been pretty well established. And the World Health Organization came out in 2015 that said that processed meat products are carcinogenic, class one.

So I think they treated that like smoking. So that says a lot about the potential downside and dangers for consuming a lot of red meat and processed meats.

Salmon, you know, people say, well, what about the healthier protein options like salmon? Probably a better choice. Okay? So, and sometimes people say, what about poultry?

And I say, well, depends. Poultry is probably a little bit less problematic. Animal-based foods have in them, their constituent is choline, or phosphofil choline, which is lecithin.

Food Pyramid Critique and Prevention

Lecithin actually stimulates the inflammatory process that lead to activation of macrophages, formation of foam cells, which if you've got coronary disease, you hear your cardiologist talk about foam cells.

These macrophages that contain LDLs, they're very atherogenic. So you can, so it's another kind of good reason to think about maybe moving into the, meaning more into the plant-based realm.

But down, you know, whole grains, again, these may fall into the good carbohydrates, you know, versus bad carbohydrates. How do you know? What's a good carbohydrate?

You'd prefer your carbohydrates instead of white starches. You want to look for starches with color, like sweet potato, whole grain breads. So there are good choices to be made in this.

But I'm not eager to steer people in the realm. Dairy also falls into the types of food that's high in choline. And so let's tell people to generally try to stay away from that as much as they can.

Thank you. Your turn to drive that. Yeah, so those are great insights. You alluded to the fact that there may have been corporate influences in the food pyramid in the past.

Can you imagine that, right? Yeah, and again, I don't know this for a fact, but I found it interesting that this soup can looks a lot like a Campbell soup can.

That's right. Is that right? And that there's all kinds of ways you can get soup, right? Doesn't always have to look like that. That's number one. Interestingly, that milk is there, which looks like typical cow's milk rather than almond milk or something else, right?

Whole milk. They want whole milk, right? Right. And sometimes people get locked out. So here you can see a fried egg. And I know that the scrambled egg people are really upset about that.

All right, go ahead. Okay. So prevention and risk reduction. So this, if you're diabetic or pre-diabetic, of course you want to have good control of your A1C.

Check, make sure your blood pressure. This is really managing any kind of chronic interest you have. So optimize your blood pressure, optimize your cholesterol, don't smoke.

So this is important to lower your long-term risk for both microvascular and macrovascular disease. And think about early screening. So, you know, if you're diabetic, you should be getting an eye exam.

You should be seeing your primary care doctor regularly to monitor your kidney functions and consider the optimal medications to manage your condition.

ACE inhibitors are good to help to preserve, maintain good blood pressure. And then the medications are out there that the SGLT2 inhibitors, GLP1s, These are, which we're going to talk a little about in the medication section here, but they're excellent to consider helping to delay the progression of diabetes.

And they, a lot of benefits now that we see in the GLP-1 range. So be proactive. Be forward and proactive. All right, we have another audience response question.

All of the below are medically accepted methods to lose weight except calorie restrictive diets, B, bariatric surgery such as partial gastric bypass, C, medications such as approved classes like opioid anti-depressant combo, fat blockers, and GLP-1s, the Ronco binge eating cleansing diet of popcorn, colonics, and moonshine, Or intensive physical activity program with standard meals.

So D, yeah. I'm going to go with all except D. And that is correct. These guys are good. Did I tell you? I tell you. They've been around a couple times.

OK. And here's another interesting little question, a little bit of a trivia question. What unlikely creature helped kickstart the development of GLP-1 therapies?

Was it a hibernating bearer that ignores winter weight gain advice? Is it B, a bottom-feeding fish from the Brazilian Amazon? Is it C, camels that are famous for surviving long journeys without snacks?

Is it D, a desert lizard whose saliva helps keep blood sugar stable during long fasts? Or is it E, a Harvard medical student during a late-night lab experiment?

So I'm just kind of curious in this one. A, anybody say A?

GLP-1 Origins and How They Work

Anybody B? Anybody C? A couple Cs. Anybody D? Or anybody E? A couple. Okay. Well, D is the correct answer. So again, really, really smart audience. They've paid attention.

Right. So why don't you explain that to people? That's gotten them fascinated. Yeah, so we're talking about the Gila, not the Gila, but the Gila monster, largest native venomous lizard in the U. S.

And after long periods of not eating, the Gila monster can maintain constant blood sugar levels. So a breakthrough discovery found a hormone in its saliva, exendin-4, is similar to GLP-1.

What an origin story. This is great. So looking for things that are out there in nature that, you know, we can incorporate in modern medicine. Yeah. So has anybody taken the drug by Etta or heard about it?

Well, this was the first one that we worked with the research. We actually started those studies over 20 years ago. And when we did those studies, they were mostly for the treatment of diabetes.

And then this led to all the discoveries about GLP-1s. And now they cure everything, GLP-1s. So it's amazing. In 20 years, you went from people saying, are you crazy, Dr.

Corrin? You're going to actually put me in a study where I get saliva from a Gila monster? That's how it started. And now people are banging down my doors to get these prescriptions.

So it's quite a transition. OK. So how do GLP-1s work? Okay, so glucagon-like peptide-1 receptor agonists, so GLP-1, and as I mentioned, it's hormonal, and so it mimics gut hormones that reduce appetites, slows your digestion and promote weight loss, and they improve your metabolic health to reduce your risk of a major heart.

heart-related events and risk of death overall. So we've been doing a lot of these studies. But what its mechanism does, so it increases insulin release.

Remember, these were initially anti-diabetic medicines. So insulin release, which is good because that helps to control your blood sugar, and it decreases your liver's sugar or glucose production.

And that makes sense if you're diabetic because you don't want that. It slows gastric emptying and improves satiety. So satiety, you're full feeling. And then this leads into the use of GLP-1s, which we've actually worked with all these in our clinical research at our clinical research center.

And over the years, we've proven a bunch of things about them. So the use of GLP-1 drugs such as Ozempic and Manjaro has led to the following in research programs.

Is it A, the side effect of weight loss? Is it B, the side effect of reduced disease and blood pressure? Is it C, the side effect of improved skin conditions?

Is it D, the side effect of reduced compulsive behavior in preliminary studies? Or is it E, all the above, quote, protean manifestations? There we go.

Man, they have earned their lunch today. Thank you. Yeah, unbelievable. Yeah. But it's so interesting, as Dr. Schramm pointed out, is that a lot of these things were studied for diabetes.

And we learned about all this other stuff because it was an unanticipated side effect, which happened to be a good side effect. So interesting. Let's talk about the next revolution.

Cool. All right, so combining different mechanisms of action to obtain more efficacious therapeutic treatment options. So, yeah, GLP-1 has been around, you know, for two decades.

I remember it was 10 years ago we did the probably one of the first semaglutide studies where we knew we could start to give this monthly. And so, but since then we've been able to recognize some of the other important hormones that are involved.

Glucose-dependent insulinotrophic polypeptide. Holy cow, that's a lot. We call it GIP. So GIP, kind of like GLP, but not exactly the same, but it does boost the release of insulin and improves insulin sensitivity.

Some reduction in nausea and vomiting, but also for burning and metabolizing fat, lipolysis is very good for that.

Next-Generation Weight Loss Therapies

We talked about GLP-1s enhancing insulin release, slowing that gastric emptying, right? So your stomach, you feel fuller sooner, suppressing the appetite and increasing satiety.

Glucagon, when you combine it with GLP-1, it helps to facilitate some of the insulin-tropic actions, and it actually can help lipolysis and the process and how your body metabolizes fat.

So it's very helpful. Amylin is also, it's earlier used as a anti-diabetic treatment. We recognize in slowing gastric emptying, promotes psiety, inhibits glucagon secretion.

It's interesting, but it's also, amylin is very good for that food noise. People in studies were combining GOP with amylin, and they were doing that versus GOP versus GIP.

A lot of the people are reporting they get less of that food noise. And amylin is very good in the long term for burning fat. So, because when you burn fat, you want, okay, you want your body to release the fat it has.

It's important that you burn it or metabolize it or otherwise it just goes back and gets stored as fat. And so, you know, if you're combining medications that help the, kind of get that process along so that you're eating less, you're taking less calories in and you're stimulating the process to mobilize your fat.

then this is when you see things really start to work for people. So diet is important, of course. So we are best when Will and Sally work together. Lifestyles work best when it works with hormones, not against them.

We know obesity is biologically defended, right? Because Dr. Corn said when we were our primitive selves, we were Our two biggest challenges were starvation and infection.

So we developed a super hyper intense metabolic system to try to maintain our galleries and a super amazing immune system that not as always these days working in our favor, but that's just the way it is.

And then to remind patients that chronic disease is not a personal failure. And this touches base to patients who come into the clinic. And if you're trying to, you've tried to lose weight, but you just, you know, oh man, I couldn't do it.

You know, January 2nd, I was back in the fridge, you know, looking for something. Don't take that as a kind of personal failure. We don't want that to incurs that for patients.

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