Introduction and Speaker Background

Hi everyone. I'm Doctor Sanjeev Goyal, and this is the advanced Anti-Aging and Technology Summit. And today I'm so happy to have Doctor Nicole Avena with me.

Hi, Nicole. How are you? Hi. I'm great. How are you? Good, good. I'm so thankful that you could join me for this hour to talk about, sugar and effect on the brain, and, but before we get started, let me do a little bios. That.

Okay. Give you your bio? Sure. Okay. So, Doctor Nicole Levinas, a research psychologist and neuroscientist who's an expert in the fields of nutrition, diet and and addiction.

She's received a PhD in psychology and neuroscience from Princeton University in 2006, followed by a postdoctoral fellowship at Rockefeller University.

Doctor Veena presently holds a faculty position of assistant professor at Mount Sinai School of Medicine in New York. She's also a visiting professor at Princeton University.

Doctor Veena has published over 90 scholarly journal articles on topics related to diet, nutrition, and overeating. Her research achievements have been honored by awards from groups including the New York Academy of Sciences, the American Psychological Association, and the National Institute on Drug Abuse.

She's also the author of several books, including Why Diets Fail, What to Eat When You're Pregnant, and What to Feed Your Baby and Toddler. When she reviewed the research on food addiction, as well as the nutritional effects on brain development and behavior.

Her latest book, What to Eat When You Want to Get Pregnant, is due for release in the spring. She is also edited two academic titles, Hadronic Eating and Animal Models of Eating Disorders.

Now, it's now in its second edition. I just saw the head tonic eating is. That's your latest book that people can get right? Is that character of ironic eating is available, but the latest book that people can get is What to Eat When You want to get Pregnant.

That's going to be out, April 1st. Oh, okay. Great. And Doctor Veena regularly makes public speaking appearances to discuss her research and discoveries throughout the United States, Europe and Asia.

She's regularly asked to speak to several interest special interest groups, industry groups and schools. She's appeared on several television news programs, as well as daytime TV shows, including A Doctor's and the Doctor Oz Show.

Her work has been featured in many popular news, national newspapers and magazines. So welcome. Thank you. So maybe let's let's just get started to kind of talk.

I like to talk about how did you get into this understanding and get interested in sugar and addiction. That to me interest for me. I kind of just stepped into this.

I was starting to do my PhD at Princeton University. This is going back many years ago, and I was talking with my advisor at the time about what I might do for a dissertation project, and I'd always been interested in neuroscience in the brain and motivated behaviors.

Why people made certain decisions, and did it make other decisions even though they might be better for them? And we started talking about this idea of, you know, maybe there's something more to this obesity epidemic that's

happening.

Maybe this isn't about willpower or about the fact that people just can't control themselves. Maybe this is something that's associated with the types of foods that we tend to eat, these highly processed foods that contain lots of added sugars.

So we started with this idea that maybe sugar could be addictive, like drugs of abuse are addictive. And so it really just started off as a dissertation experiment that led to be a career for me, essentially, because, you know, this is almost 20 years later and I'm still working on my dissertation, although I did graduate, I still doing the experiments that are related to the initial one.

So yeah, that's really how I got into it. And it's been great because I think that when we first started doing this research, there wasn't really any research on the topic of sugar addiction.

But now we've seen over the years that's completely changed, right? So maybe just tell me about the what is the latest science on how sugar impacts the brain?

Well, we've learned so much over the years about how sugar and processed foods can have an impact on the brain and what we've seen in our laboratory. And what other people have seen in different laboratories throughout the country and the world, in fact, is that when people overeat sugar, it can have an impact on the brain that looks like what happens when people are using drugs.

So when we take a look at these fMRI images of a person who is not eating sugar and then compare it to a person that is overeating sugar, the images are identical to the types of images we would see if we looked at someone who wasn't using cocaine, and someone who was using cocaine.

So we're able to see that there are significant neural overlaps in activation of reward related brain regions. In response to overeating sugar. And this is part of the reason why so many people have a difficult time cutting back and, you know, trying to eat healthy because they're constantly being, you know, pulled into this vicious cycle of overeating because of what's happening in the brain that sugar is able to do.

And we see not only the neuroscience side of this, but also the behavioral side. And I think many people can relate to the feelings of, you know, wanting to be hold back on eating sugary foods or cutting back on carbohydrates.

But feeling compelled to do so, feeling that you know they can't avoid them, that they can't say no. And that's because we again, see these addiction like behaviors emerging, binging, withdrawal, craving, all these things that we typically used to think about just with respect to things like drugs and alcohol.

We now see plenty of evidence for with foods, especially with sugars. So how does it compare? I'm curious, like, okay, you mentioned cocaine. I assume probably heroin falls in that.

And you mentioned alcohol and, you know, potentially sex. I mean, all these other things, these are kind of addictive behaviors. So how does sugar compare like on a milligram per milligram or like how strong is addiction of sugar compared these other types of substances.

That's a really great question, and one that I often get asked a lot. And it's difficult to answer because we need to keep in mind that the propensity towards addiction to different types of substances is going to be based on individual differences.

So, for example, you or I might have no problems with alcohol, right? We could casually drink alcohol and it's not a problem for us.

How Sugar Addiction Research Began

But someone else might not be able to do that. They might have to completely avoid alcohol because they have

certain genetic predispositions, and maybe some behavioral traits that lead them to be prone to over consume and maybe even an alcoholic.

And I think the same thing happens with other drugs of abuse. You know, some people can casually smoke cigarets, other people get addicted to them so they, you know, have problems and will avoid them.

And I think the same thing happens with sugar. There are certain people who, you know, can have sweets here and there and they can control it, but there's other people who can't.

And so that's where the research is now. We're trying to better understand who are the people who are most susceptible to developing a sugar addiction, are their risk factors or their genetic predispositions.

And one of the things that we've seen in the research is that there are certain people who have specific alleles to the dopamine receptor gene that put them at greater risk for developing a sugar addiction.

And so these are the types of studies that we're trying to do now, and trying to better understand so that we can help people who may be at risk or help people who, you know, meet the criteria for addiction to better understand the etiology of it for them.

So so that means that somebody could have like an addictive make up that makes them addict addicted or more likely be addicted to many different substances, not just sugar.

Yeah. So I mean you've heard it's very true. Exactly. We've heard people talk about, you know, addictive personalities. And there is truth to that. We know that there are certain individuals who are at risk for developing addictive behaviors.

And some individuals might, you know, sort of have that be going toward more things like drugs and alcohol, whereas other individuals might have that same type of genetic makeup.

But instead of turning to drugs and alcohol, they end up going toward gambling or sex, or in some cases, food, which can have negative consequences, just like all of those other things can.

When we become addicted. So I've had my DNA test looking at my specific I was looking at how my, my dopamine works and serotonin as well. And it showed that, you know I have a very quick rise and potentially also a drop as well.

So it's that placed me in the high and the is that the high risk kind of I don't know. You know taking it knowing it could be it could be so people who have certain alleles to dopamine receptors have been linked to having a greater propensity toward addictions.

Now, again, in part, that means that, you know, those individuals are more likely to have these sort of spikes and then declines in their dopamine. And so that's sort of up and down kind of, you know, change in dopamine release could be a trigger for some of these addictive like behaviors.

And I think that's one of the beauties of modern medicine, right, is that we now have all of these types of ways in which we can, you know, get a better picture of what's happening inside of us, what does our genetic code look like?

And that used to be something that, you know, was almost like science fiction. But now you can, you know, order the kid online and do your little, you know, swab or give a blood sample and you're good to go.

And you can find out a lot of interesting things about yourself. Is there a particular, is there a particular like, allele you want to mention? Like just like our readers, because we're we've had Doctor Mansoor on talking about, you know, the, the genetic testing.

So I'm just wondering if they can just. Yeah. Take it. So it's certainly the D2 allele would be the one that's been most tightly linked to addiction. Yeah. There's certainly other alleles that have been investigated.

But I think that the research really backs that one right now as the candidate gene. Okay. And then I assume there might be it must be interplay between the serotonin, alleles and noradrenaline levels as well.

Sugar, the Brain, and Addiction-Like Behavior

Or there's not really. Absolutely, absolutely. And I think, you know, we're really just beginning to scratch the surface in terms of understanding the genetics of addiction.

I think we've known for years and years that addiction runs in families. And that's been something that always hinted at a genetic component. But it's really only in the past several years that we've been able to better understand that from an empirical standpoint, because of the advances that we now have in technology, to really better understand what's happening on the genetic level.

And so let's say if someone has whatever the their makeup is and they recognize that they may have a sugar addiction which most of us do. What, what are the steps that they should.

What are the type of steps they can do to deal with that. How did this how did they. Yeah. Well, certainly if you, you know, meet some of the risk factors for sugar addiction or other addictions, it's not a sentence.

It doesn't necessarily mean that you're bound to become addicted. It just means you have a greater chance of becoming addicted than somebody who maybe doesn't have that genetic predisposition.

And so we have to keep in mind that, you know, there are other things that need to be put into place that would trigger you into going into these addictive like behaviors such as our environment.

And so what things I can say to people who, you know, feel like they're struggling with a sugar addiction or overeating is that there are a lot of resources available now that can help you to sort of walk through the steps to better understand what it means to have a addictive relationship with food.

I think understanding, you know, how tolerance develops, how binging behavior develops, how withdrawal develops, and what it feels like, and how to manage cravings.

These are all things that can be learned and can be understand. And there's a lot of different techniques that are available out there that can help people to manage their addiction, to mitigate it, and also to get help with trying to, you know, maybe change their environment in a way so that they're not constantly being, you know, stimulated by these addictive types of foods, which can be difficult in our modern food environment because, you know, we're constantly being shown advertisements and, you know, different messages that signal that we should be eating.

And, you know, these foods are delicious, but there's ways in which you can recognize those things. I talk a lot about this in Why Diets Fail My book, and there's a lot of tips in here on, you know, how to understand what it is like to live with a food addiction, and how you can actually break it down in a way so that you can manage it and get away from any of these triggers that are in our modern food environment.

So maybe just if do you mind taking us through like one nugget like about this about how to deal with cravings, like how would, how would you suggest that.

So craving. Yeah. Cravings are an interesting thing to talk about because many people think cravings are bad. And in some cases they can be. When you're craving the wrong thing.

But for many of us, cravings are a natural part of the appetitive process. So our bodies will sometimes crave certain foods. So let's say, for instance, you know, you feel like you feel like you want to have a hamburger for dinner tonight or a piece of steak.

That could be because maybe you're a little iron deficient. And so your body is going to naturally desire foods that contain nutrients that it needs if you're in a deficiency or almost a deficiency.

So in some cases, cravings can be a good thing. They can help us to have balance in our diet and make sure that we don't struggle with nutrient deficiencies.

But if you're craving ice cream, that's probably another story that usually is associated with the fact that craving for things like sweets and candies and cakes is more associated with the hedonistic appeal of the foods.

And so those types of foods tend to release opioids and dopamine in the brain that make us feel good. And we have a memory for that. And so when we crave those types of foods, we're not actually craving the food.

We're craving feeling good, we're craving pleasure. And so what I often recommend that people try to do is to find something else that can release dopamine or opioids, find something else that's pleasurable.

It doesn't have to be something that you're, you know, eat. It could be, you know, something that you like to do, maybe a hobby or, you know, maybe just talking to someone that you haven't talked to in a while that you care about on the phone.

Playing with your children, lots of different things can release dopamine and make us feel good. And I think that's what we need to recognize. And the biggest thing I can say is for cravings.

You have to wait it out. And with time, that urge will dissipate. And so if you can distract yourself from a craving by, you know, just maybe even if you have to walk around your kitchen ten times just to, you know, do something to wait it out, that can sometimes be enough to make the craving dissipate and go away.

How long? How long do people how long does it take for craving to usually go away? And long a person like we talking about an hour or 15 minutes? It's pretty short lived.

Yeah, pretty short lived. Ten minutes, maybe 15 minutes. A lot of it depends on if you put in an element of distraction. And so you know, you have to remember this is simple learning behavior.

We've learned that ice cream tastes good and that releases these chemicals right. So we have that association. And we've also trained ourselves, at least those of us who've been giving in to our cravings for all these years, that as soon as we get that craving for ice cream, we're going to go over to the freezer and get it, and then we're going to feel good.

Now, if we wait it out, that relationship and that learning essentially starts to fall apart, now we're craving it, but we're not getting it. And so we don't readily hang on to that type of information that's learning, that's being unlearned.

And that's essentially what we want to do with our cravings is just unlearn them, unlearn that every time you think about a food or get this desire to eat certain types of foods that you're going to give in to that and reward yourself with, you know, that burst of dopamine and that burst of brain opioids.

So yeah I'm so I'm getting I'm, I'm understand that basically with sugar it's really a lot of it's about that central nervous system and dopamine. But what about like effects on like other hormones like ghrelin or leptin.

These, these hormones that, you know, regulate our appetite and satiety? Sugar have an impact. It does. Yeah. And, you know, it's interesting because I've focused mostly with my research on, you know, how sugar affects the brain, but we know that sugar actually has an impact on, you know, many of these different hormones that are related to various different processes in the body.

So like you said, leptin and insulin, ghrelin, these are all things that are also being altered by excess sugar intake. And in part they can also then have a negative impact on the dopamine system.

Genetics and Individual Susceptibility

And this pleasure system is put in place. And so we need to keep in mind that it's a complicated system. And essentially when you have too much sugar, it's messing up all different parts of it.

All the cogs in the wheel are really getting, you know, put out of whack when we consume too much sugar. So that's why it's so important that people are mindful about how much they're taking in and next steps to try to reduce and replace with other types of foods and beverages where possible.

When you're talking about sugar, are you talking about carbs or things that are sweet? Like, like, is bread considered sugar in this case? Yes. Yeah. So I'm talking about carbohydrates, you know, and mostly these simple types of carbohydrates that, you know, we can break down, but that we find will be the ones that will give us that energy burst or that rush that we get from, you know, not only the glucose that's being released into our blood, but also from the dopamine surge that comes will be over, consume them.

And I think that, you know, it depends again, on the individual. There's plenty of people who I've worked with over the years who could care less about eating ice cream and cookies, but they'll take a loaf of bread, and that's something that they just have a hard time regulating their intake of.

So there really is an individual element to, you know, what types of carbohydrates people tend to struggle with. And so when we talk about sugars, I think a lot of people can relate to, you know, having a sweet tooth and maybe overdoing it with the sweet sugars.

But there's also plenty of carbohydrates out there that don't taste sweet, but they actually are detected in our body as if they are sweet. And so we need to keep that in mind.

And they still cause a dopamine hit as well. And ultimately the same thing okay, does what does. So do you think that there's differences then? I guess it doesn't sound like there's many differences between different types of sugars.

You're saying that all sugars are equal. Well, we've done some research on this and we've looked at the role that, you know, different sugars have on the brain.

And we've also looked at some of these alternative sweeteners that are on the market now because as I'm sure you're well aware, I mean, we have a variety of different things in the grocery store now that we can buy to sweeten our foods.

It doesn't have to be sugar or corn sirup anymore. We have a whole bunch of different sweeteners. Some of them are nutritive, some of them are non-nutritive.

And so what we've seen in our research is that it's the sweet taste that seems to elicit dopamine response. So if you are, you know, craving sweets and you use monk fruit instead, it's still going to release dopamine, even though it might not be as bad for you in terms of calorie content.

And you know some other things in terms of how it can impact your blood sugar levels, it's still releasing dopamine. And so we would recommend that people try to unsweet in their diet just overall.

And so by that I mean, you know, not opting for these alternative sweeteners just as a way to replace sugar, but work to really cut down on how sweet your diet needs to be.

And if you're going to sweeten it, opt for things like, you know, whole fruits, whole fruits that are naturally sweet, that contain fiber and other nutrients.

There are great way to add a little sweetness to your diet when you need something that's, you know, sweet, but also contains extra nutrients. So just clarifying that.

So if something salty, salty carbohydrates, you don't have a dopamine hit or you have one, you know, we do. We do. So when you have a, salty carbohydrate or, you know, something doesn't contain, you know, sugar in a sense where it's a sweet tasting sugar, we do see a rise in dopamine, but it's more indirect.

And so it has more to do with the fact that those types of carbohydrates are increasing blood glucose levels, which in turn will raise dopamine levels.

And so when we consume a sweet carbohydrate, it's more of a direct link to dopamine in the sense that in our rat studies, even if we take sugar and just put it on the tongue of the rat, they don't even digest it.

It's still releases dopamine. And so there is this really strong link between that, you know, initial taste and the release of dopamine. Oh, okay. And so you just you mentioned the artificial sweeteners and, I wouldn't mind if you could just go into that a little bit more detail for our for our listeners.

So, yeah, many of them like let's say something like stevia, would that have it would also have I guess you're saying a dopamine hit, even though it's probably healthier.

It that doesn't that's that's correct. That's what the research tends to suggest, that it's the sweetness that's resulting in this rush of dopamine. So if you are let's just say trying to get off of sugar, I certainly would recommend trying one of these alternate sweeteners to replace some of the foods that you love.

It's a way to kind of wean yourself off of actual sugar, but I don't think you should make that the end goal. I think that the end goal should really be to move to the next step, which would be to remove as many of the added sweeteners in our diet as possible.

Managing Cravings and Reducing Triggers

Because if you don't, you're still going to struggle with those cravings. You're still going to struggle with, you know, the desires to binge and overeat because you're not actually solving the problem.

You're not allowing your dopamine system to reset. It's almost like methadone for heroin addicts in the sense that it's better than heroin, but it's not ideal.

I mean, ideally we would want to be, you know, completely off of sugar and sweeteners if we can. Okay, that makes sense. Thank you. Let me just see here.

So can you just, if, let's say you start to cut down that sugar over some time, does your how you were saying about the dopamine system resetting. Can you just tell me is that what is that happening, that, it's not that easy to release a dopamine anymore?

Like what happens to our to our brain after. So if you're, if we are in a situation where we've been over consuming sugar for weeks or months or years, even what's happening is that our dopamine neurons have become accustomed to this constant surge of dopamine being released into the synapse.

And so as a result, we make compensatory changes. Our brains will compensate for all that excess dopamine by making fewer receptors that are more sensitive.

And so what ends up happening when people decide to cut back on sugar or to reduce their intake of sugar, is that we're able to go back to this homeostatic set point with respect to dopamine.

So when we eat something, it won't produce this bolus of dopamine being released. It will produce a more manageable amount. Then we will also see that, you know, there'll be changes in the way in which the receptors are expressed and bound.

And so all of this basically is a compensatory mechanism to kind of bring us back to where we were prior to

overeating sugar and having such a high sugar diet.

Now, for many people, that point in time was before they were even born, because what we're finding now is that so many children are overeating sugar even during pregnancy.

We are talking a lot about how, you know, it's important to monitor your diet when you're pregnant because there's so much research that has been coming out that suggests that that first thousand days of life is really critical for the development of all the body systems, but also for food preferences and I talked a bit about this in my book, What to Eat When You Want to Get pregnant or what to eat when You are pregnant.

And this is really a book that, I wrote because I was just fascinated by the research that we were doing and the stuff that was coming out of other labs linking early life, exposure to certain foods and over exposure to sugar, and how it could have a negative impact on the fetus brain development and how that has long term health outcomes for, you know, not only immune health, cognitive functioning, but also nutrition status later on.

Wow. So you're saying that. So it's not just that the first 1000 days of the of the child's life, you're talking about the fetus life as well. Yeah. So the first reading actually yeah.

The first. Right. The first thousand days of life is generally referred to as the period from conception through age to. And so that covers pregnancy and early life.

And so it's important to consider what is being consumed during pregnancy. But then also when one starts to feed the baby, what types of foods are being introduced.

And we're seeing now more and more toddlers are being overexposed to sugar. I have little kids myself so I can speak from, you know, a parent and know that there are just so many foods on the market that are, you know, marketed towards children of that age.

And it's really something that a lot of parents struggle with, especially because kids that age tend to be picky eaters to begin with. And so it can be tough for a lot of parents to manage.

Yeah, I think they've made like Nutella healthy breakfast bread, but I find it extremely sweet. Yeah, I haven't seen that one yet, but I'm sure I wouldn't be surprised.

It's you know, I think it's important that people are aware of the marketing and that, you know, you have to be very skeptical about the claims that you see on many of the food products, because even though it's organic or all natural or has natural ingredients, that doesn't mean it's healthy.

That means it it might have one good thing in it, but it could have 50 bad things in it. So you really need to be very skeptical when it comes to looking at nutrition labels.

So tell me about your own diet. So what do you, in an ideal world, how much sugar should one have? Because I mean, you know, stuff some sugar around like you say fruits around.

So how much how much do you think is like a healthy amount that one should be stimulating our brain with? Well, I think that, you know, there's a lot to think about when we try to answer that question.

So I think the less the better. And I think not so much how much we should have, but what are the sources that we should draw from. And so I think, you know, opting for fruits, those are great.

But we want to make sure we're not opting for fruit juice because that's just essentially the sugar sucked out of the fruit and all the nutrients left behind.

So whole fruits are very good. Even if they're frozen, they're still good. We want to avoid dried fruits or dehydrated fruits because, again, often they're devoid of the nutrients due to the dehydration process.

So a whole fleshy fruit is really the ideal way to go. And the best thing. But I mean, I think that for most people, there is room to have sweets now and then.

I think that we can have them on occasion, but I just think that we need to be more mindful of how often now. And that is, because what we're seeing is that, you know, it's somebody's birthday, it's school every day.

And so the kids are having a cupcake every day. And, there's just a lot of opportunities for sweets to be introduced. Whereas they're not occasional special things anymore.

They're a regular part of our diet. And I think that's where we need to kind of be mindful and pay attention to when we might be having too much so that we can think about cutting back.

But in the US, I mean, we have guidelines now that suggest that no more than 10% of the daily calories come from added sugars. It was recommended that that number be reduced to 6%, although for some reason that's still not clear.

Those recommendations were not adopted in the latest iteration of the nutrition guidelines. But I would agree that, you know, aiming for 5 or 6% of your daily calories coming from added sugar would be ideal.

And I think that for most people, you're probably way over that, even if you think you're not eating any sugar because there's sugar hidden. And so many of the foods that we eat that even if you're eating, is healthy and clean as you possibly could, I guarantee you're still eating sugar.

So what do you think about, about like keto diets or, you know, trying to low carb diets like, you know, 100g a day of carbs. What do you think about that?

I think there's a place for them. I think that they need to be done mindfully. My concern about diets like that, where it's extremely low carb, is that people will then make choices that are high in saturated fat or, you know, high in, you know, other forms of fats that are not good for our health either.

And so I think that if people adopt a low carbohydrate lifestyle, it's a great thing, but I think it needs to be done with, you know, careful attention to the sources of other types of foods that people are supplementing within their diet.

You know, I you see these, you know, advertisements for keto. And, you know, people will talk about how, oh, well, that they eat all the bacon they want.

And, you know, it's a greatest diet ever. That part of it I'm not really on board with, because we know that there's health risks associated with eating too much saturated fat that are just as serious as the health risks, eating too much carbohydrates.

And so I think it really just needs to be done in balance.

Sweeteners, Carbs, and Dopamine Response

But if people can, you know, incorporate healthy proteins and healthy forms of fat into their diet and do it in a low carbohydrate manner, then I think it can be beneficial.

And a lot of people who eat that way are able to lose a significant amount of weight and keep it off. And they're also able to see that, you know, a lot of their chronic conditions seem to dissipate and get better.

And so I think it can be an advantageous type of diet for people if they do it the right way. What's your advice, to somebody who's saying, okay, look, I want to do this sugar detox.

Like, you know what, what timeline should they expect? You know, before they feel like, okay, that they're going to be successful and that's going to be a lasting change.

Yeah. So I think you have to be kind to yourself and give yourself time. And, you know, realize when you do something for months or years, it's not necessarily going to go away the minute you decide to make a change.

But if you do decide that you're going to cut back on your added sugar and try to cut it out, you can expect that you're going to have some uncomfortable feelings in the first week or two.

Most people experience some mild form of withdrawal where they'll feel like they have a headache or they'll feel lethargic. A lot of times you'll hear people around like, you know, the middle of January who've maybe decided to cut out sugar for, you know, January is a New Year resolution that, you know, midway through the month, they start to feel like, oh, you know, I don't know, my blood sugar is dropping, I think because I'm weak and I'm tired.

Well, that's actually not the case. Your blood sugar is just fine. The reason you feel like that is because you're in withdrawal. And that's the symptoms of withdrawal.

When it comes to sugar, irritability, fatigue, you know, feeling, you know, just like not yourself. And so depending on the severity of the addiction that can last for a couple of days or could maybe last for even up to two weeks.

But by and large, most people, after two weeks, they start to feel like they're on the other side of it. They don't feel as terrible as they typically would in the beginning days of giving up sugar.

And I think then that's when the challenge comes into helping to, you know, navigate through this new world of no added sugar. How do you, you know, go to the office and if it's somebody's, you know, retirement party, how do you say no to having that piece of cake if you just don't want to have it?

And so that's your guest. Yeah. What do you suggest? I suggest people have a whole stock list of excuses that they, you know, can bring up. And so I this is something, again, I talk a lot about in the book, Why Diets fail.

Because the psychology of it is just as important. So, you know, if you tell somebody, oh, I just I had a piece of cake for lunch, like lie if you have to.

I mean, you know, it's really, you know, your health and you're the person who's in charge of it. And people tend to sometimes feel bullied into eating certain foods, believe it or not.

And I think that, you know, you need to be in control of that. And I try to work through many of the different ways in which, you know, you can prepare yourself for some of these awkward social interactions so that you have something prepared to say.

So it doesn't, you know, make you feel uncomfortable. What do you suggest, people do with regards to, like, avoiding the triggers? Like, I see you just saying, you know, like, obviously if someone's brought it as a birthday party, that's a kind of that potentially be a trigger.

But what other ways can they do to kind of reduce the triggers, to this addiction? Well, part of the reduction of trigger of the triggers or the effects of the triggers have begins with recognizing the triggers.

And I think that's usually the most difficult part for people is that they don't always know what's triggering them and what's causing them to overeat.

So a lot of times let's just say, you know, somebody has a bad day at work and they, you know, have a long commute home and they finally get home. And the first thing they do is grab a bunch of cookies and stick them in their mouth.

And they don't necessarily equate that to the fact that they had a bad day at work and they were anxious, and now they're using the cookies to self-soothe and to self-medicate, to help them feel better.

And so when people start to reflect and look back at, you know, the situations in which they overeat or, you know,

gave in to the sugar urge when they didn't want to, you really can start to see the pieces fall into place so that you can better understand, you know, where you might intervene.

And so if you know you had a bad day at work, you want to recognize that and recognize that's making you upset and anxious. And so maybe instead of going in the kitchen when you get home, you're not even going to go in your house.

You're going to walk around the block twice to just burn off the tension and distract yourself from the fact that you'd love to just go in and grab a bunch of cookies.

And so figuring out how you can sort of break up these relationships and sort of, trigger that triggers is really key. And a lot of social situations like you suggest with a birthday party, if that's a trigger.

What I suggest is that people be prepared for that trigger. And so you need to have your bulletproof vest. You need to come to that party with a nice plate of fruit that you've prepared as the alternative dessert that, you know, the people who aren't having cake can enjoy.

And so thinking through these situations and, you know, how can you circumnavigate them in a way that's still going to allow you to participate and feel like you're involved, but do it in a way that's best for your health and best for the health of the people around you.

Yeah. We use a birthday watermelon in our at our place. That's become a tradition and that and I use the I'm allergic to cake as as my excuse. So that's that's perfect.

What do you use as your, Europe. What advice would you give to somebody who's trying to help somebody else with coming off? Yeah, that can be difficult.

That that can be a tough one because, you know, it's it often takes the support of a whole family. And especially if, you know, you live in a family where people have different dietary interests and needs than if one person is trying to get off of sugar and the rest of the family isn't on board with it, they might not be okay with not buying cookies and, you know, ice cream and things like that at the store.

And so I think it's important that, you know, we be mindful of the health of others in our family.

Resetting the Brain and Early-Life Nutrition

And if somebody is, you know, trying to do this, we really need to give them as much support as we can, because it certainly is an uphill battle, especially in our modern food environment where, you know, people are constantly being bombarded with advertisements and options to eat these foods that they're trying to avoid.

And I often talk about how, you know, for people who are addicted to drugs, like heroin, for example. Fortunately for them, there aren't like billboards of heroin needles and there aren't, you know, magazine advertisements and internet pop ups every two minutes with, you know, a picture of heroin paraphernalia.

That would be awful because these poor people are trying to avoid all those triggers. But all of these people who are trying to reduce their addiction to sugar are constantly fighting these triggers day in and day out.

So if you are trying to help somebody through this, I think, you know, being a supportive ear, helping to, you know, get them to a place where they can take baby steps.

You know, it's not something that has to happen overnight. You don't have to wake up and quit sugar. I actually advise against that when I talk about this and why diets fail.

Because when you quit sugar cold turkey, it's often setting you up for failure because it's just so much. It's like taking on way too much. There's sugar in so many parts of our life, and you really need to, I suggest, do more of a

baby step approach of a harm reduction approach, where you start off by finding the single source of the most added sugar in your diet.

For most people, that's sugar sweetened beverages like sodas and colas and things like that, and work to reduce them and replace them with something else.

So if you're a big soda drinker, maybe you decide, okay, well, I drink the soda because I like the caffeine, but it's that I get I need that caffeine throughout the day.

Okay, so switch to coffee. Switch to black coffee. That's can be your substitute. And if you drink the soda because you like the bubbles or the, you know, fizz well, there's plenty of sparkling waters on the market now that are zero calories, zero sugar, and taste delicious.

And there's so much healthier. So it's really just about identifying what it is you like about certain foods, and then just making little tweaks and replacing them.

And over time you'll come to not miss those foods when you see the benefits you're getting from the replacements. You know, I find that so interesting about the, starting to like, be aware of how people are pushing sugar.

I noticed that at the fast food places, it's almost a it's, like a normal part of asking, do you want to have a combo, which I think always comes with the drink?

So do you like, do you, can you just tell our viewers a little bit about how much sugar content is in these in these, these drinks compared to, let's say, I don't know, orange or something.

Like what? Oh, my goodness, I mean, sugar. That's, you know, depending on the, the venue that we're talking about, I mean, these types of, you know, sugary drinks, we're talking, you know, hundreds of maybe even a thousand times more sugar than what you'd see in, like, a clementine or a handful of grapes.

And we're talking about an excessive amount of sugar, and it's not being consumed in a way that is allowing it to be absorbed in the body properly. So when we eat fruit that contains sugar, it also contains fiber and other nutrients that actually allow that sugar that we consume to be slowly dissipated into our body and absorbed in a way that's going to be beneficial.

So when we eat a Snickers bar, that's not what happens. We're having this sort of bolus of sugar that we're consuming, and it's going to cause this abrupt increase in blood glucose levels.

It's going to cause changes in our insulin levels. It's going to cause that spike in dopamine. And so it's really important that people are aware of, you know, how much sugar is in many of the products that are out there and what it's doing to us.

I have, the lecture I teach at Princeton University and the lecture that I give when I talk about food and nutrition in the health psychology class that I teach, I put up a bunch of slides of different food products, and I asked the students to guess what percentage of their daily value of added sugar did they think is in the food products, and many of them are things that you would expect to be high in sugar, like Frappuccinos and, you know, cinnamon buns.

But many of them are actually healthy looking products, like yogurts, for example, and they contain a full day's worth of sugar. One serving, which is really, really, really not good.

And so we need to keep that in mind. It's very easy to, you know, not even leave your house in the morning and have already consumed the daily recommended amount of added sugar just by passively being, you know, absorbed into us through foods that we typically think of as healthy.

But they actually contain a lot of added sugar. So how many grams is that? Like just so I can get an

understanding? You said that like 1,010% is the recommended guideline over calories from added sugar, but what is the, yeah, what's the amount.

So so it's about reading about. Yeah. So about 10 to 12 teaspoons is what is recommended per day. And so depending on you know, when you look at the label, if you're trying to understand, you know, if this is a good product to buy or a bad product to buy, I often recommend looking at the label and seeing what is the percentage of added sugar.

And if it's over 10%, then I would avoid it. And also you want to take a look at the ingredients list, and if you see any form of sugar in the first five ingredients, then I would avoid it because those ingredients are listed in order of how much they're used in the products.

So the product, if it's got sugar listed as the first ingredient, that means the product is mostly made up of sugar. So is there a dose response between like blood glucose levels and dopamine release.

Practical Sugar Reduction Strategies

Like is. So you're saying that if something causes blood glucose to come quicker, does that mean greater spike of dopamine. Yeah. There have been studies that have shown that there is a link between how high the blood sugar spikes and dopamine release.

And, you know, obviously that's going to be somewhat of an inverted U, because when glucose levels go too high, it's going to be aversive. And that's the case, you know when people go into diabetic shock.

And so in that case we're not going to see that dopamine rising. It's actually going to be falling because it's gotten to the point where it's now aversive.

But we do see that this happens. And that's, you know, in part one of the reasons why a lot of candies and foods that contain, you know, a lot of excess sugar at a small volume can make kids especially, you know, feel really good and can taste delicious because they are able to produce this spike in dopamine.

It's not like what we get when we eat strawberries or blueberries or, you know, a fruit or some other thing that contains sugar, but just in a less amount.

This, your latest book, What to eat when you get want to get pregnant about reproductive health. Can sugar have impact on fertility? It can. It absolutely can.

And we're seeing this coming from a couple of different sides of the story. And so there's been some work over the years, obviously, that has linked being overweight and obese with infertility.

And people who tend to be overweight or obese often will sometimes struggle with infertility issues. More so than people who are normal weight. And so it can be a risk factor for infertility.

But we're also seeing it from the standpoint of the fact that on a cellular level, there seems to be a link between overeating sugar and decreased immune response.

And so that in turn can have an impact on our fertility as well, when our immune system is, you know, being compromised. If you think about it from an evolutionary standpoint, if your immune system's compromised, it's probably not a good idea to get pregnant and have a baby, right?

Because if your immune system can't even take care of yourself, how's it going to take care of a growing fetus? And so this can be another risk factor that can, you know, caused this sort of secondary infertility as a result that we need to be mindful of.

And I talk a lot about this in, my new book, What to Eat When You Want to Get Pregnant. And, you know, I think

that it's important for people who are actively trying to get pregnant, trying to conceive, but also people who are maybe thinking in a couple of years they might want to have a baby, both men and women.

It's so important that we pay attention to nutrition, because what you eat can have a significant impact not only on your health, but your fertile health as well.

And so knowing that, you know, many of the foods that we commonly eat contain these added sugars, which are not good for fertility and also contain other ingredients and chemicals and pesticides and things that we know can have a negative impact on fertility, I think is so important, and we need to get ahead of it because, you know, it's not going to happen overnight.

You can clean up your diet, but some of these chemicals in these pesticides are going to be residues that are going to take a little while for us to shed.

And so I think the earlier you can start thinking about your diet and making some changes, all the better. So just to try to understand a little bit the mechanism, what do you what do you what is what do we think is the mechanism between sugar and decreased immune system?

Do we know what we're hearing more and more about this especially, you know, with everything that's happening with the Covid pandemic and the fact that we're seeing so many individuals who are having to be hospitalized and having serious disease complications and having that be associated with being overweight or obese.

And so that is a significant risk factor for developing complications from Covid. And we take a more inflammation or something. They tend to have more inflammation.

Exactly. And and sugar is an inflammatory right. And we can we can show that, you know, when people consume sugar it serves as something that causes inflammation.

And so I think, you know, we're still working out the exact mechanisms of how it decreases the immune system and compromises it. But I would imagine that it's through that mechanism of the fact that it is causing inflammation and perhaps some way that that is disrupting normal immune system health and response, which as a result puts people in a situation where they are unable to fight off some of these types of pathogens and viruses that normally we could if our immune systems were up and running correctly.

So what are your thoughts about, sugar? And like the long term impact on the brain of being addicted to sugar, like, I understand. And also, what are your thoughts about sugar and like, Alzheimer's or, you know, I I've heard that there's some connection with that as well.

So I'd love to hear your thoughts on that. Yeah. So I think long term, you know, the effect that sugar can have on the brain, I mean, we talk about this from, I think, the standpoint of just mental health and physical health and so I think that we need to keep in mind that there's two situations that are happening here when people are struggling with a sugar addiction for many, many years and they're in this sort of vicious cycle of not being able to get out of it, it takes a significant toll on people's mental health.

It can cause anxiety, can cause depression, and many people find themselves in this spiral of distress where, you know, they're depressed and anxious about the fact that they're addicted to food and they can't change their dietary habits.

And so it can really lead to poor mental health outcomes. And that can prolong and persist for many, many years. And we certainly don't want that to happen.

But then on the physical side of it, I think that we need to keep in mind that the longer people struggle with sugar addiction, the longer that they're more likely to develop obesity and being overweight and those co-morbid health conditions like metabolic syndrome, cardiovascular disease, diabetes.

And, you know, these are conditions that don't appear overnight. You usually see these things emerging after years of use. And by that time, it could be very difficult to reverse some of the behaviors that perhaps got a person into that position.

And so if you know, when I when I speak with parents about this and, you know, try to help families who are trying to, you know, maybe change their child's diet or get their family diet under control.

You know, I often say just because your children are lean and active and look healthy right now, it doesn't mean that they're going to be like that in ten years.

And when they're in their 20s or late teens, they might develop some of these chronic conditions because of the diet that they're consuming.

Fertility, Inflammation, and Long-Term Health

And you could treat those chronic conditions with medications for the rest of their life, but you're still going to have those behaviors that are not so easily unlearned.

And so that's why it's so important from a very young age, to try to get kids on board with eating healthy and understanding why it's not about how you look today, it's about how you're going to live, you know, ten years from now.

And then, with respect to your question about, the links to Alzheimer's disease, yes, I think that certainly there's a lot of research that's coming out now that suggests that sugar does play a significant role.

I think we're going to be hearing more and more about this. I've, you know, seen several articles that are we're starting to refer to Alzheimer's disease as a form of type three diabetes.

In fact, because there seems to be such a strong link between diabetes and sugar and Alzheimer's disease. So I think that that's something we'll see more, information about over the years, especially as, you know, we're getting to the point where many of the baby boomers are of that age, where they're going to start to be diagnosed with Alzheimer's disease, and they're living to that point.

And so I think this will be a bigger issue. And we'll be hearing a lot more about it in the coming years. And thank you that that's great. Is there anything else you want to tell our viewers about?

Sugar and addiction? I mean, like, like, what's the main message that they should take away from today? I think the main message that people should take away from today's discussion is really that, you know, sugar addiction is something that we now have science behind.

We know that this is real. We know that this is a phenomenon that people struggle with. It's a biological condition. We have tons of evidence that backs that up.

And so I think that the point that people who feel like they're struggling with sugar addiction should walk away with is knowing that this is a condition that is affected your brain to make you want to behave a certain way.

And so the punishment, the self-doubt, the guilt, all that should just be left at the door. And you should focus on what you need to do to correct it.

And there's lots of resources out there, lots of information. If you go to my website, Doctor nikolaevna.com, I have lots of links to articles and information about, you know, the latest research on sugar addiction, really to help people to make those changes and make those, adjustments they need to to their lifestyle so that they can break free from it.

And just if you don't mind just letting the, the viewers know about your books, Donna Keating and, the book for if

you want to get what did when you want to get pregnant?

Yes. The one about, I'm sure, children what to eat if you want to just you want to just mention them quickly? Yeah, absolutely. So, my newest book, What to Eat When You want to get pregnant.

This one will be out in in stores I online available all over April 1st. And then I've got a couple others. Why diets fail. This is all about sugar addiction.

So if you're interested in learning about tips on how to cut sugar out of your diet, how to replace it, or just learning more about the science behind sugar addiction, definitely check this out and then the last two, what to eat when you are pregnant.

This is really meant for, you know, moms who are pregnant and, you know, want to use nutrition to their advantage or grow a healthy baby. And then lastly is what to feed your baby and toddler.

And this is really a handbook for new parents to just navigate that world of, you know, introducing solids to your baby. And it's based off of the latest research that suggests that we essentially should, you know, not lead with fruit.

We tend to, you know, think when I know when my almost teen was, a baby and it was time to feed her, the doctor said to me, okay, start with apples and then do pears.

But that's actually not a good idea. And I go through the research in here why we want to lead with vegetables. And I kind of navigate the whole, you know, having a kid and trying to get sugar out of their diet from the point of, you know, being a toddler on.

Okay, awesome. So what? Just I'm curious, before we end off, what's your interest? What are you looking at right now? Unanswered question in your research.

Like, what's what's exciting you right now that you're working on? Yeah. So right now we've been, you know, really focused on trying to just get a better understanding of which foods are addictive.

And so I think for years and years we've worked to establish whether or not food can be addictive. And I feel like we're finally at that point that, you know, most are in agreement that there's sufficient evidence that sugar and other types of processed foods can produce signs of addiction.

But I think now comes the question of, okay, well, there's shades of gray like, you know, is this a healthy looking granola bar that costs $5? Is that okay to eat, or is that so?

I think that that's where we are now is to trying to better understand what are the properties that we want to look for when trying to decide whether or not a food is going to produce an excess amount of sugar, or if it's something that we should, you know, be thinking is like more of a healthy type of food.

And so that's really where we are now in terms of the research, trying to catalog that and figure out a way to, you know, better advise people on what foods are falling on the healthy side of the spectrum versus maybe the unhealthy side.

Yeah. Okay. Perfect. That's really exciting. So thank you so much, doctor Veena, I really appreciate your time today. Oh thank you. Happy to be here. Okay.

So, you've been listening to the Doctor Nikolaevna ad for the advanced Anti-Aging Technology Summit. Hope you enjoyed your, the session today. Thanks.