Note: The Sound Bites® Podcast is produced for the ear and designed to be heard. If you are able, we encourage you to listen to the audio, which includes emotion and emphasis that's not conveyed in the transcript. Transcripts are generated using AI technology and may contain errors.

**Melissa:** Hello, and thanks for tuning into the sound bites podcast. Be sure to stay tuned after the interview for some bonus content to help you do more with dinner. I'm sharing a few very simple tasty and healthy recipes.

[00:00:00] Hello. And welcome back to the sound bites podcast. Today's episode is about all things sugar, what you may not know and what you should know about this often misunderstood ingredient. My guest today is Dr. Courtney Gaine. She is a registered dietician and the president and CEO of the sugar association in Washington, DC. Prior to her work at the sugar association, Dr.

[00:00:24] Gaine was a senior science program manager at the north American branch of the international life sciences Institute or ILSI north America. Prior to ILSI, Dr. Gaine was project director of nutrition and wellness at the nonprofit organization Convergence, and was a science manager at foodminds, a public relations firm, but she began her career in academia as an assistant professor at east Carolina university in Greenville, North Carolina.

[00:00:51] She obtained her PhD in nutritional sciences and biochemistry and bachelor's degree in dietetics from the university of Connecticut. and fun fact, she was also a co-captain of the Yukon women's basketball team. And she's very knowledgeable about sports nutrition. On top of all that, she's the mom of five. Welcome to the show Dr.

[00:01:11] Gaine.

[00:01:11] Thanks Melissa. Thanks for having me today.

[00:01:13] Very excited to have you on the show. Now this episode is not sponsored, but Courtney, as you know, we met on a recent sugar beet farm tour. So I want to tell my listeners about that. So I was invited to attend the sugar beet farm tour in the red river valley of North Dakota last fall and had the opportunity to learn all about sugar production

[00:01:34] from farm to table and learned about sugar myths and facts, including some really interesting information about how sugar intake recommendations have been determined, sugar consumption statistics, and other

information that I think will be surprising to my listeners. And I had the pleasure of meeting sugar beet farmers and growers, and scientists and

[00:01:55] you Courtney, as well as some other dieticians and chefs who communicate with the public about food and nutrition. So I might share some of the experiences on the farm tour - we also toured the factory, we had some cupcake wars, things like that - as we go through the conversation. However, we have a lot of information to share.

[00:02:15] We can't possibly share everything that I've learned or everything that you could share from your experience working with the sugar association. So we've kind of culled out some of the most important information. And before we dive in, I also want to let my audience know that this episode is being submitted to the commission on dietetic registration for a free CEU for dieticians, diet technicians, and certified diabetes care and education specialists.

[00:02:41] So check back on my CEU page or follow on social media to see when it is available. So before we dive into the topic, Courtney, I would love for you to tell our listeners a little bit more about your background and your work, how you came to this role with the sugar association and what type of work you did leading up to this position.

[00:03:02] Well, as you mentioned, sports were a big part of my upbringing, and I feel like with sports comes nutrition and an interest in nutrition, which I always had at least from high school on. And when I got to the university of Connecticut and decided to major in dietetics, it hardly seemed like school. I loved learning everything that I needed to learn.

[00:03:21] And I had a passion even as an undergrad for sports nutrition, and served as this graduate sports nutritionist for Yukon athletics. So I got a lot of really great experience early in my career in working with athletes. I decided to go on for a PhD. I loved everything I was learning, and I wanted to know why, why, why - I was fascinated by the mechanistic side and metabolism in general.

[00:03:44] And it's kind of a funny story, as an undergrad, I took community nutrition, like we all have to, and I absolutely, I could not stand dietary guidelines, FDA food labeling. I just found it so incredibly boring. So, if I were going to talk to myself 25 years ago, I think that person will be really surprised at what I'm doing now, but I got a PhD because I really wanted to understand the ins and outs of metabolism.

[00:04:08] As a doctoral student, I studied protein metabolism, particularly muscle protein metabolism, and the effects of endurance exercise on protein metabolism, which is a little bit different of a field than sugar. So I loved all of that. And I went, as you mentioned to east Carolina and the physiology and kinesiology, I wasn't even in the nutrition department, I loved academia.

[00:04:30] But I was young and I needed to get to a big city and try other things out. Maybe one day I'll return to academia. and I went to work for foodminds, which at that point was kind of a startup food policy PR firm. And I realized, you know, 30 years old, I actually knew nothing about food policy. At this point I was quote unquote, a retired professor and, while working at foodminds I had the opportunity to work with so many different

[00:04:56] food and beverage companies and commodity groups, and really was able to expand my area of expertise beyond protein. Of course I was a dietician, so I had a pretty good knowledge of all nutrients and foods. but to really understand deep dives of the science of things like flavonols and fiber and sodium, so I worked with many different clients over the course of the years.

[00:05:18] And I think other than just learning the science, what was really important was, I started to understand the connection between science and food policy, which is something that, as I've mentioned, I wasn't previously interested in. And now as I was more mature, I found it really fascinating and how policies are made, whether it's labeling or dietary guidance.

[00:05:40] And so around this time, the idea of evidence-based nutrition was starting to take off. I think, you know, when I was finishing grad school in 2005, you started to hear about evidence-based medicine and a little bit into evidence-based nutrition, but it sounds silly now, but even 15 years ago, it was kind of a foreign concept -

[00:06:01] this evidence-based nutrition. So I started to really become fascinated with evidence-based nutrition policy and the methodologies globally that were kind of rising to the top as standards of practice. So I got a lot of exposure to that at foodminds. And then I went to international life sciences Institute, ILSI, which is now called the Institute for the advancement of food and nutrition sciences.

[00:06:25] just had a rename, but at ILSI we were a tripartite, still are a tripartite organization where the government, academia and industry get together and tackle scientific questions to help advance the field. And at ILSI I really had a

lot of exposure to evidence-based nutrition and evidence-based research along with

[00:06:47] understanding the government's role in nutrition science. And there were a lot of agencies we work with from FDA to NASA. And so understanding the role of the government nutrition scientists, and the questions that they're interested in and how to answer them. So evidence-based policy really kind of became probably, I would say my passion and my forte over those, the course of, I guess, a decade.

[00:07:09] And then a job opened up at the sugar association for a vice president of scientific affairs. And around this time, this would have been in 2014, the FDA was considering updating - or not considering - they were in the later stages of updating the nutrition facts label. And added sugars and sugar were front and center of the consideration of adding added sugars to the nutrition facts label. But also in the media, of course, we still have added sugars in the media, front and center now, but I thought to myself, wow, somebody needs to get out there and put the data in front of the decision makers.

[00:07:45] In my previous roles, they were very scientific and there wasn't a lot of opportunity to be very vocal, but I saw this opportunity at the sugar association to really stand up for science and evidence-based decision making. And so I took this job in the summer of 2014 at the sugar association and I guess it's been what, seven and a half years.

[00:08:06] And it's a lot harder to insert facts in the dialogue than I ever thought. And I thought, oh, am I going to be bored? Just working on sugar when I'm so used to working on all of these nutrients and food products, but looking back, there's nothing boring about sugar and in trying to insert science and facts into - whether it's the public dialogue or the evidence -

[00:08:28] based decision-making dialogue is a lot harder than it sounds.

[00:08:31] Wow. Okay. What excellent background and interesting path. Thank you for sharing that. I think that really helps us understand where you are today, how you got there and the perspective that you're going to bring to this conversation. So tell us a little bit about the sugar association, you know, what their role and purpose and mission is.

[00:08:52] The sugar association has been around since 1943. So we are certainly not a new organization. We represent the sugar beet and sugar cane

growers, the processors, the refiners, and all of the people in between that, that help grow the sugar and get it to your table. Our role as part of the industry is the scientific voice.

[00:09:14] And so we tell sugar's story through sharing facts on sugar, we support scientific research. We advocate for evidence-based policies and most importantly, our voice is grounded in scientific evidence. So we really do a lot of education to health professionals, to educators and to the general public on really sharing what we call a sugar story, which is there's a lot to it from growing it to consuming it.

[00:09:42] Absolutely. I learned so much and like I said, we're going to share as much as we can in the conversation today. So over those two days that I spent with your team, we split our time between Fargo, North Dakota and Morehead, MN. I learned so much, you know, everything from farm to table. I don't know how much of the farming growing aspect we'll have time to touch on today, but towards the end, I would like to share some of that.

[00:10:05] Well, let's first start by defining sugar. There's the word Sugar there's sugars, there's added sugars. So I want to be sure that we start with some clear definitions and that I use the right terminology moving forward.

[00:10:19] You bring up a really good point. there's certainly a lot of confusion around sugar, sugars, added sugars, total sugars.

[00:10:25] So I'll try and keep this pretty simple. any of you that have nutrition backgrounds who are listening, sugars are pretty well known as simple carbohydrates, mono and disaccharides right? So sugars, and that S is really important as I go through these - sugars refers to this broad category of simple carbohydrates sugars can be naturally occurring and they can be added to foods.

[00:10:49] So that's a broad category. Sugar refers only to sucrose the chemical name of sugar and sucrose only comes or is extracted from sugar beets and sugar cane. So when you hear sugar, it comes from sugar beets and sugar cane and its molecular chemical name is sucrose. When it comes to labeling, we have total sugars.

[00:11:15] And when you see that number for total sugars, that is the sum of both the naturally occurring sugars, as well as the added sugars. So if you were

to take a strawberry yogurt, for example, the lactose in the milk and the fructose and the glucose and the sucrose in the strawberries are added together with

[00:11:35] any of the caloric sweeteners that are added to the strawberry yogurt to increase the flavor. So total sugars is a sum of all the sugars, no matter where they came from. Added sugars on the nutrition facts label are any caloric sweeteners that are added to a food and beverage during preparation or processing.

[00:11:55] And they also include caloric sweeteners that are packaged as such. Like a jar of honey or a bag or a box of sugar or agave.

[00:12:04] Okay, great. So we're going to be talking about sugar and added sugars. And, but we'll be clear when we are speaking to which one. One of the interesting things that I learned is sugar comes from sugar beets and sugar cane, and yet it's found in other plants.

[00:12:22] So can you just briefly tell us, like, why do we get it from sugar beets and sugar cane? If we can extract it from other plans?

[00:12:28] That's also a really great point. All green plants make sucrose or sugar. It's a product of photosynthesis. So almonds, peanuts, lentils, grapefruit. Apricots. They all contain sucrose.

[00:12:45] The reason that we extract sucrose from sugar cane and sugar beets is because the concentrations of sucrose in those plants are so much higher than they are from anything else. So sugar cane has about 14% sucrose content, sugar beets have about 16%. The next closest is mangoes. And that has 6%. So there's double the sugar content from the next closest plant food in sugar cane and sugar beet.

[00:13:13] So it is a lot more efficient to extract the sugar from those two plants.

[00:13:18] Now you had shared some consumer insights with me that I think would be helpful for us to address before we get into the other questions and topics, because I think it's really interesting. I talk about this a lot on the podcast.

[00:13:31] There's trends, there's research, there's guidelines. There's, you know, all of this information, but what consumers and the public patients, clients are really saying and really doing is often like the missing piece. So I'd love for you

to share with us what you can about the focus groups that you've done with people about sugar.

[00:13:53] Consumer research. You know, I used to probably not understand it as a more of a bench scientist. Just how important hearing from consumers actually is. And so we feel, there's a lot of information out there about sugar and there's so much that we feel like we need to say. There's a lot of misinformation needs correcting, but where do you even start.

[00:14:12] And so we spoke with various groups of consumers on what do consumers, what do they want to hear? And what would they believe hearing from the sugar industry? And we were really surprised I think, at what the takeaway was. It's not surprising that consumers feel bombarded by nutrition information, especially nutrition information that

[00:14:35] seems to contradict itself in way too short of a time period. X cures, cancer followed by X causes cancer. And even for nutrition professionals, it's a lot to take in. How do you sort through fact from fiction, and you can really feel that when you talk to consumers. So we learned, we were thinking, oh, we need to talk about the research of sugars and various health outcomes.

[00:15:00] And in talking with these people, they actually don't want to hear about sugar and health outcomes. They're kind of at a point, a saturation point where they weren't willing to take in new information. And most importantly, for us, we learned that they didn't want to take that information in from us being the sugar industry.

[00:15:19] So it didn't make sense for us to be, you know, with health professionals and educators maybe that's a different story, but with consumers, they weren't interested in hearing from the sugar industry about sugar and health. But what they did want to hear about were two really simple things. They want it to know where sugar comes from and they want it to know how much sugar they could consume in their diet.

[00:15:39] And that really has helped us. We can answer those questions and they actually trust the sugar industry the most to talk about where sugar comes from, which makes sense because we make sugar. So it's really helped us in terms of a lane of communication with consumers in terms of where we can share sugar's story and be credible and have an impact.

[00:16:00] Very good. Thank you. Yeah. So that other million dollar question, how much can I have could also be worded, especially from a dietician standpoint, is can sugar or how can sugar fit into a balanced diet? And we're going to go through quite a bit of information regarding that. I also thought was interesting and I'd like you to share how much sugar or added sugar you'll have to tell me which one it is, but how much sugar or added sugar are we actually consuming?

[00:16:26] Because there's a lot of misunderstandings about sugar. And I think that setting the record straight right now, are we eating more than ever before? Are we drinking more sugar than ever before? What are the statistics right now?

[00:16:39] The area around consumption has always really frustrating. And when I say there's information out there, I can't even tell you where it's coming from.

[00:16:45] It's not necessarily the media or is it social media. There's just a volume of information out there. And one of the things that I most often see that's incorrect is the amount of added sugars that the American public consumes. Typically reported are intakes that are much higher than what they're actually reported.

[00:17:05] So. We over time, the trends and added sugars. And I will say "added sugars" because when it comes to reporting consumption data, the let's say policymakers, it doesn't matter to them where the caloric sweetener is coming from. So added sugars is a combination of honey and corn syrup and high-fructose corn syrup and agave and sugar cane and beet sugar.

[00:17:28] So added sugars consumption is on a 30% decline in the last 20 years. So in the eighties and nineties added sugars consumption, crept up to an all time high in 1999 of around 18% of calories or 24 teaspoons. But over the last 20 years added sugars consumption, as I mentioned is on a 30% decline and we're down to

[00:17:52] 12.9% of calories in our diet come from added sugars. That's also 16.9 teaspoons. So you often see that we consume more added sugars than ever before. Which is not, it's not what the data actually say. So, the dietary guidelines, our daily value is 10% and we're at 12.9% right now.

[00:18:14] Okay. Do we know where most of our added sugars are coming from.

[00:18:18] Can you speak to that?

[00:18:19] Yeah, sure. In terms of the sources of added sugars in the diet, this is something that we pay close attention to, and the dietary guidelines every five years does a really nice job of reporting out the most recent data. So in terms of calorie percentages, 35% of our calories from added sugars come from beverages. About a quarter is from

[00:18:42] what we would call sugar sweetened beverages. even if it's not sugar in them, but they're referred to as sugar sweetened beverages, that's about a quarter of the calories or 24%. And then coffee and tea is 11%. So together that's a little over a third of our added sugars calories come from beverages. Desserts and snacks make up 19%.

[00:19:06] And then there's other categories such as candy and breakfast cereal and sandwiches, which are between seven and 10% and then smaller contributors like condiments and dairy and yogurt. And I think when looking at this data, one source of frustration that we have with the narrative is there's always a lot of dialogue on quote unquote, hidden sugars and how you need to look out for hidden sugars.

[00:19:35] When in reality, first of all, added sugars are on the nutrition facts label. So I wouldn't necessarily say they're hidden anymore ever since the new labeling rule, but even so, there's a reason that added sugars are in all these foods. And we'll talk about that, but if you're trying to get people to reduce their added sugars intake going after those sources of 4%, 6% of contribution to your total added sugars intake, doesn't nearly make as much sense as going after maybe the ones that we associate as having sugar and contributing a lot more calories.

[00:20:06] Yeah. I find that very interesting. I didn't know that, you know, the narrative is that we're drinking more sodas and Lord knows the coffees and teas. we're carrying around these desserts in a cup all the time, but the fact that the total consumption has gone down, what are you seeing with the trends in the diet that kind of could explain some of this?

[00:20:29] Well first with the added sugars trends, I mentioned consumption, went up in the eighties and nineties, and there's been a steady and relatively

steep decline since 2000. A lot of that mirrors trends in soft drink consumption, which also reached a peak in 1999 and soft drink consumption is down 30% in the last 20 years.

[00:20:50] There's been a lot of messaging to the public. And so sometimes I feel like public health victories if that's what you want to call it, don't nearly get as celebrated as trying to find the newest villain, but soft drink consumption is down a lot. Some other interesting trends in the diet that I feel like maybe don't get enough attention.

[00:21:08] If you look at 1970 to 2014, there've been some pretty significant trends that have changed in the American diet. Most notably would be a really significant increase in just general caloric intake. We consume about 450 more calories today than we did in 1970 per day. And when you look at where those 450 calories are coming from a few, a little bit are coming from added sugars about 33, but they're coming from a lot of places.

[00:21:43] there's been pretty big increases in calories from all sources of grains and fats and oils. And the purpose of bringing that up is there's a lot of things that have happened. We eat a lot more and we eat a lot more of a lot of things. And so I know it feels now like the message is if you just reduce your, your all time high added sugars, that will eliminate all of our problems.

[00:22:06] But I think it's important to look at the broader picture of the data because there's a lot more going on. I know industry is not allowed to talk about activity, but I think it's a shame if we don't factor in physical activity, to a dialogue on how to improve the health of Americans.

[00:22:23] So let's transition into, this million dollar question.

[00:22:27] Can sugar or how does sugar fit into a healthy diet? So let's look at the 2020 -2025 dietary guidelines. I know their slogan is make every bite count. They're looking at healthy dietary patterns, but what can you tell us about what it says regarding sugar?

[00:22:44] The dietary guidelines have been around since 1980 and they come out every five years and there's always been some, some mention of sugar, whether it's reduce your calories from sugar limit consumption of sugar, sugar switched to added sugars, kind of in more recent versions, there's always been vague language around added sugars and the dietary guidelines, but in 2015 was the very first time that the guidelines issued a quantitative sort of recommendation.

[00:23:12] and that was to limit your added sugars calories to less than 10% of your diet, which is also equal to 200 calories, 50 grams or 12 teaspoons based on a 2000 calorie diet. So that was new in 2015 and they maintained the 10% recommendation in 2020. The dietary guidelines does recognize that added sugars play an important role in the food supply with various functions, such as body texture, color Browning capabilities, as well as increasing the palatability of some nutrient dense foods.

[00:23:49] Speaking of that in the 2020 -2025 dietary guidelines that were released last year, that was the first time where they came up with a number, an amount I should say of added sugars, calories that they viewed as critical to the diet. I hate to say the word essential because I don't, that opens up a can of worms, but they determined that one and a half to 2% of total calories or 17 to 50 calories from added sugars were really important in consuming a nutrient dense diet in their healthy eating patterns.

[00:24:26] Why is that? Can you expand on that?

[00:24:30] So sugar plays so many roles in the food supply other than, I guess what it's classically known for, which is, sweet taste. Depending on whatever food category you're looking at, sugar is playing many functions. Sweet taste is just one of them. Let's take, whole wheat bread, for example, where sugar would help offset some of the bitter flavors of the whole grains, the sugar helps the yeast rise.

[00:24:57] It retains the water, to prevent spoilage and, provides air pockets. So typically in a food matrix, sugar is playing so many roles besides its functional aspects. I think the dietary guidelines also recognizes that some foods just are not palatable without sweetness. And obviously the most tangible example would be the consumption of cranberries.

[00:25:21] I'm sure there are some people that enjoy cranberries plain, but, cranberries have a lot of proven health benefits and are essentially unpalatable if you don't add sugar to them.

[00:25:30] Right. So that speaks to the many different functions that sugar has beyond the sweetness that you referred to a little bit ago.

[00:25:37] So it's required in foods for beyond flavor and sweetness for a variety of reasons that you mentioned. And then also just the palatability. I just wanted to clarify that before we move forward. So go ahead and continue then with what the dietary guidelines are saying about the sugar, added sugars and the amount.

[00:25:57] So the dietary guidelines recommendation of limiting calories to 10% or less from added sugars is based upon food pattern modeling. So if you could have 2000 calories in a day, which is the standard reference diet. through modeling where modeling, plugs in foods to make sure you're getting the recommended nutrient intakes and food group intakes, they determined that it takes 85% of those 2000 calories

[00:26:27] to meet all of your nutrient and food group needs. So if 85% of those calories are spoken for, there's only 15% of the 2000 calories leftover and they're leftover for what are termed added fats and oils and added sugars. So within that 15%, that's not a ton of room to play with. And so, the dietary guidelines netted out on 10% for added sugars

[00:26:54] because there's only so many calories in a day. I think one misconception or something, I shouldn't even say misconception is just not often talk about. Is that these recommendations are based on food pattern modeling. Of course, I think we can all agree. Everyone should have only so many calories in a day that fit, but the recommendation is not based on a health outcome.

[00:27:16] It's based on food pattern modeling. So it's not that 11 or 12%. Are related to an adverse health outcome. The concern is that if you go above 10% of calories from added sugars, you might be displacing the intake of other foods and nutrients that you need, but it's about finding a way where everything fits within your calorie needs.

[00:27:39] Yeah, that was interesting to learn. and I know that there was a discussion in the last revision of the dietary guidelines, that there were some people wanting to have the limit be 6%. And I was wondering if you could speak to that a little bit and clarify some of that.

[00:27:54] Sure. the dietary guidelines advisory committee had put forth a recommendation of

[00:28:00] reducing the added sugars consumption to 6% of calories versus the 10% that was put forth in 2015. Now not having been part of those conversations, when you do model it out, you have 15% leftover. So 10% for added fats and 10% for added sugars doesn't quite make sense. So there was a feeling that it was going to be harder for people to get to below 10% in added fats,

[00:28:29] leaving less room for added sugars. However, if you take a step back, there were no new data from 2015, and it's really hard to override dietary guidance if there are no new data. So as I mentioned, this isn't based on published research studies. This is based on modeling. And so without that evidence to kind of overturn the 10%, I think that makes it really hard to go down to 6% because it's just, how do you interpret modeling?

[00:28:59] So obviously it was quite controversial and the dietary guidelines, I know a lot of consumers may not have them posted on their refrigerator and strive to meet them every single day. But they have huge implications to all of our federal feeding programs, school breakfast, school lunch, the WIC program, SNAP program, but not just that, certainly the food and beverage industry seeks to comply with the dietary guidelines and whether it's reformulating or introducing new products to keep up with the latest nutrition science, there's a lot of moving and shaking that happens after the dietary guidelines.

[00:29:38] And to reduce the added sugars intake down to 6%. I don't know how that would happen. I mean, that's never been a level of consumption that we've ever seen in the United States. I guess I should've mentioned when we talked about added sugars consumption, that as long as the USDA has been tracking food supply data in 1910, we were at 11% of calories from added sugars. Because of all these functions that sugar plays in the diet,

[00:30:04] it's really hard to get to points that have never been seen before. so, there could be a point where there's an adverse impact on the diet. So to propose 6% when it's never been studied and there was no evidence to suggest that it was necessary, I think made it really hard to accept that dietary guidelines, advisory committee recommendation.

[00:30:24] Interesting. Yeah, it comes down to math and what's realistic and not from a standpoint of, oh, it's just be too hard to cut back on sugar. But it's interesting that the challenges that you're sharing from the function of sugar in

products, and gosh, back in what you said 1910, we were eating 11% of added sugars.

Every five years, as we approach the dietary guidelines, I think this is going to continue to be a really hotly debated topic is how much added sugars. But if you were to take a step back and look at how nutrient recommendations come to be for, for every other nutrient, they're done by the national academies of science engineering and medicine, or NASEM from the health and medicine division and through those,

the dietary reference intakes are established. Previously the HMD was called the Institute of medicine or the IOM. So back in the late 1990s and early two thousands, a series of committees were put together to establish dietary reference intakes for all of these nutrients. prior to that, we had RDAs from the 1960s.

So when the carbohydrates report came out, which was 2002 and then republished in 2005, so the DRI for carbohydrates, at that time, the committee said there was not enough evidence to establish a DRI for total sugars or for added sugars. So we don't have a DRI for total sugars or added sugars and we haven't.

And so, when you look at whether it's dietary guidelines recommendations, or, look at the daily values on the nutrition facts label, the 50 grams of added sugars aren't based on a DRI like everything else on the nutrition facts label. What I think really needs to happen is that there needs to be a DRI

for carbohydrates update, it's been 20 years. There are thousands and thousands of new studies on carbohydrates, on total and added sugars so that we can have an evidence-based look by experts in carbohydrates and sugars done the appropriate way, which is, is thorough, it takes a long time and it's done by experts to see, is there a recommended intake

for added sugars and total sugars. You know, food pattern modeling - it is what it is, but it's certainly not a recommendation that is evidence-based and based on health outcomes. And I think at this point, given the interest in added sugars by most consumers, I think it would really help if it was derived in an evidence-based way, provide some confidence to the public and kind of end the public scientific debate that we, we seem to have every few years. [00:30:43] So you mentioned the nutrition facts label. I'd like to talk a little bit more about that and, food products you just mentioned, how could some products reduce their sugar even farther? there's a lot of challenges with that. So can you speak to that?

[00:30:59] Sure. I have like a personal joke that if we spent as much money as

[00:31:04] companies around the world who have tried to spend to find a sugar substitute, everybody could have their own dietician and own personal trainer every single day. There is a lot of money going in to sugar reduction and there has been, and, but certainly with these different policies around the globe, there's a lot of incentive. But it's really challenging to take sugar out of food.

[00:31:26] If a product was previously, quote unquote, too sweet, companies have taken those sugars. Whatever you could has come out in the last 20 years added sugars had been in the radar. But I think you would hear from most food manufacturers that they've done what they can without changing the matrix of the food.

[00:31:45] So when you take sugar out of, let's say cereal, you can't just put a low, no calorie sweetener in to replace it. You are going to have to use ingredients that also can make up for the functions of sugar, whether it's bulking or moisture retention. And so you're often putting two or three ingredients in, right?

[00:32:05] And every category is different. I think you would hear from R and D folks that beverages are the easiest, matrix to take sugar out of, just because I'm not saying that making a beverage is not complicated and I'm sure it is. I've never done it, but it just food functionality wise beverages are a little bit easier.

[00:32:22] And certainly there are products that are a lot harder, but I think the big debate comes when you take sugar out and often it might be starches and fats that replace it for some of the bulking properties. What's the end game, because if you're not reducing calories, when you're taking the sugar out, what's the goal.

[00:32:41] And so I think you're seeing a little bit more of a focus on sugar reduction doesn't count unless you're reducing calories. And that's really, really hard. So you're seeing globally, just a lot of efforts going on. And what is the

end game. So certainly a challenge for R and D folks that all of these companies.

[00:33:02] Yeah, absolutely. Actually I have a podcast episode that, speaks to that and I don't have it in front of me, so I don't remember the number, but I will link to it in my show notes as well, talking about some of those challenges specifically. So we're touching on several misunderstandings about sugar.

[00:33:17] We touched on the myth or the misunderstanding that sugar is hidden in foods and yeah, I do think that that mantra came about before it was spelled out on the nutrition facts panel. But I have to say as a diabetes educator and former supermarket dietician, I don't really like the added sugars on the nutrition facts panel

[00:33:39] because from a diabetes standpoint, I'm telling people, don't look at sugars, look at total carbohydrate. And I just think it starts getting really confusing. And, you know, we were just talking about the percentages. I think that's confusing too. I don't even like to use percent daily value on most things with my patients because

[00:33:57] it's a lot of math, you know? So can you speak a little bit more about the percentages and sort of the guidelines versus sort of practical application? You know, we want healthy dietary patterns, but then we're hyper-focused on added sugars.

[00:34:14] Yeah. You, you raised a big can of worms here. I do think, you mentioned how useful a percentage of calories kind of recommendation is.

[00:34:25] I mean, I'm a dietician, you're a dietician. I've never calculated the percentage of anything I've consumed. So if, if I'm not doing it, who is doing it? I think more work needs to be done in what is most meaningful. You know, if you give the recommendation in 12 teaspoons, people generally know what a teaspoon looks like.

[00:34:42] However, most of the added sugars we're consuming, aren't actually added, right? So it's not like, oh, I can have 12 teaspoons. So then you think maybe grams are the easier way to present it because at least the grams are on packaged foods. Not that people know what a gram looks like, or you could say 200 calories, but

[00:35:03] that's not super helpful either. So I think there's a little bit more work that needs to be done. I would say grams probably might be the easiest just because it's so clearly labeled on the nutrition facts label. You also bring up the point of where are we going to focus our energies as a consumer or as a health professional, working with consumers. There has been,

[00:35:26] and this certainly in the 2015 dietary guidelines, there was more of a push to focus on overall dietary patterns. Taking a step back as someone who's been in this field for 25 years, myself, I don't know if, as a health professional community, we understand how to get people to eat healthier.

[00:35:43] Right. So I take a big step back and do we tell people they can't have stuff? Should we tell people to eat more of certain things? And I think the bottom line is everybody's different. Whether it's, culturally different or individually different, there's so many ways to think about it. But when you look at what, at least the dietary guidelines have tried to move toward are dietary patterns, which, no food is going to save your life or kill you.

[00:36:09] Right. So it's a good way to look at it. It is multifactorial and this push toward dietary patterns is a better way to guide people. And that certainly picked up some steam in the 2020 dietary guidelines. So on one hand you have a focus on dietary patterns. On the other hand, you have a hyper-focus on added sugars.

[00:36:28] And so you have added sugars on the label and you have a focus on reducing added sugars. For example, if you were to take a person, right? So, and we now, according to dietary guidance and your percent daily value on a label, you can consume 50 grams a day from added sugars, and that can still fit into an overall balanced diet where you're able to get all of your food groups and nutrient needs.

[00:36:53] So if it's up to the individual, let's say it's up to me and I choose to get my 50 grams. I want a brownie. It has 15 grams. I want a glass of lemonade. It has 20 grams. Those products would both be considered high in added sugars. And, maybe not available to me if I was at school lunch, maybe I couldn't have a brownie.

[00:37:14] Those products are seen as high in added sugars. Well, what if that was the only 35 grams of added sugars I was planning on having all day? It doesn't make me unhealthy. And so in some ways, having this focus on added sugars in each individual product versus added sugar throughout a day, we're

kind of taking a step back from teaching people how to consume healthful dietary patterns.

[00:37:39] So I don't have the answer to it, but I do think the messages are really confusing to folks - you have a right to choose how you want to get your 50 grams. And having products now seen as good or bad is pretty challenging.

[00:38:22] What are some of the other misunderstandings that, you wanted to talk about with regard to sugar. You touched on reducing the sugar content in food doesn't always mean reducing calories. Should we talk about just the whole sugar, calories, obesity, diabetes aspect, and also hyperactivity?

[00:38:40] Sure. I'll tell a little story. When I first came to work in the sugar industry there was, as I mentioned back in 2014, so much focus on added sugars. And I thought, well, surely and I had worked a little bit in carbohydrates and added sugars, but I certainly was not an expert in all the literature. And I thought, well, surely there has to be some convincing evidence that added sugars is really bad for you.

[00:39:05] And I started in the fall of 2014 and the advisory committee was in the middle of their deliberations and they were doing systematic reviews on cardiovascular disease and diabetes and obesity. And I read every single one of those studies and there were hundreds of them and charted them and

[00:39:24] was blown away. And then on top of that, I've, since in seven years read all of these studies. That evidence that I think the general public assumes that's out there as well as even nutrition professionals and nutrition scientists, unless you actually dive into all of the literature, which unless it's your job, why are you going to do it?

[00:39:45] You're just going to kind of take things at face value. And one thing about the added sugars literature, is that to summarize it, whether you're talking about obesity or diabetes, is that if you overfeed the subject - So if they need 2000 calories and you give them 3000 calories and a high sugar dose, you're going to see problems.

[00:40:10] But if you don't overfeed the test group, you don't see problems. And so looking at the data for people who are, consuming within their calorie needs. Sugar doesn't have an impact on health outcomes. It's when you're eating too

many calories. So the problem that sugar has is that it is obviously a source of calories, but it's seen as a source of calories that is not needed.

[00:40:35] So I think when you look at tackling obesity, it's really easy to take the low hanging fruit - sugar - and say, you don't need this. Let's cut it out. So it really is a calorie conversation. And of course, as we've talked about, there are roles for sugar calories that are really important to food matrices and to palatability.

## [00:40:58]

But there's also sugar that's part of just enjoyment of life. I think we've all had birthday cake and, some sweet treats. And so what's that sweet spot where that fits into your life. Is it a health thing? It's a calorie thing. And I know that often gets criticized as well. There are certain things that are really hard for industry to talk about, but if sugar is a source of excess calories, then it's a problem, but it's also the same way that any other source of excess calories becomes a problem.

## [00:41:28] Good point.

[00:41:29] That's very interesting. What do you say to people who think that the sugar association just wants people to eat more sugar?

I'd love for you to speak to that.

[00:41:55] Yeah, I think unfortunately, when you work for somebody, people are gonna assume that your opinions get thrown out the window. I always tell this to my industry as somebody who spent 11 years in school, there's no way I would ever compromise

[00:42:10] all of the work and my integrity for a job. And if there were a time personally that I ever had to say something that I didn't believe was supported by science, I would certainly leave my job. In my seven years with the sugar industry that's never happened. So I can speak personally, that I can go about my job and speak from the science.

[00:42:30] I think in terms of the perception that the sugar industry is trying to get people to consume more sugar - I think the sugar industry understands we have a chronic disease issue in the United States and would like to be part of the solution. The focus is not on let's have people eat more sugar. I think our issue

we feel now is we have a real reputation problem that isn't necessarily grounded in facts.

[00:42:53] And so our energy is around as I mentioned in the beginning - telling sugar's story and the facts about it on where it comes from, what the science says, what the dietary guidance is. There's a lot about sugar that people don't know. So our industry is really proud of sugar, of growing sugar. as you met some of them, it's a family business.

[00:43:16] There are multi-generation family farmers, there's multi-generation engineers in the factories, and it's a pride thing. Nobody wants to be said things about that aren't true. And so rather than getting people to eat more sugar, we're trying to protect sugar's name and the integrity and what we are and our proud industry. When it comes to lobbying and the perception of promoting sugar, I'm not a lobbyist, no one at the sugar association staff is a lobbyist.

[00:43:47] What we do is - one of our missions is to promote evidence-based policies. So lobbying, not technically, but maybe perceived as lobbying is participating in these processes of rulemaking. So whether it's the dietary guidelines or the FDA nutrition facts label, of course, we want to make sure that these decision-makers are utilizing facts about sugar.

[00:44:09] And so we will submit comments into these processes with references that we would like under consideration. I think one great thing that probably a lot of consumers aren't aware of is that over the years, these processes of rulemaking have become much more transparent. So if anyone is interested in the sugar association participation in the 2020 dietary guidelines, all of our comments are found on regulations.gov.

[00:44:36] This is true for a lot of rulemaking. If you would like to see something happen and you present your case, it's publicly available. We also are working on, we would like for the FDA to bring more transparency to the labeling of sugar substitutes or alternative sweeteners. This isn't us giving checks to FDA.

[00:44:57] That's not how it works. We wrote a 90 page petition, including a ton of data, which is uploaded on regulations.gov. And there is what's called a docket where the public can submit comments on it. So some people may call it lobbying, but it's really educating the decision-makers.

[00:45:42] Okay. Thank you. Oh, and I had mentioned hyperactivity, so I don't want it to be forgotten because I mean, I know that sugar does not cause hyperactivity, but I would love for you to address that.

[00:45:54] There's a lot of perceptions of sugar that I think are just ingrained, whether they're old wivestales or not, or is that the right term for them. But one thing that I get a lot, having a bunch of kids and being around other parents is this idea that sugar makes kids hyper. And, I'm probably guilty of saying it too, but despite many attempts in using various methodologies to try and show that sugar causes hyperactivity in children,

[00:46:23] it just hasn't been done. I don't know. I sometimes think that the kids just get so excited by what they're eating and they're usually around other kids or around people, but I don't know the reason for it, but the evidence has yet to show that to

[00:46:35] be true. Yes. That's one of my biggest pet peeves, especially in the mom groups or whatever.

[00:46:40] And some people just make these casual comments, it's just like, it's a known thing and I'm like, but it doesn't cause hyperactivity. It's more about the exciting party that they're at or, ooh, that they're getting a cupcake. That's exciting. Thank you for addressing that. Well, let's talk about the basics about

[00:47:01] how sugar is grown and harvested and processed. We already talked about how it comes from sugar beets or sugar cane it's extracted from the plants. And it was so exciting to be actually out in the field and see, I didn't even know what a sugar beet looked like, and I'll put some pictures in the show notes for everybody to take a look, but they're white and they're quite large.

[00:47:22] And, I got to ride on the tractor a while it was harvesting the beets. And if my video is good enough quality, maybe I'll put that in the show notes as well. And speaking of cake and cupcakes, one of the most exciting things about being out in the sugar beet field was it was actually my birthday and, one of the sugar beet growers wives drove her car up to the field and opened her

[00:47:52] hatchback. And she had made me a cake from scratch that morning. So we all enjoyed a delicious moist chocolate cake for almost for breakfast. It was kind of mid morning. It was just lovely. So that was a lot of fun.

[00:48:08] We were super happy to have you join us on your birthday. That was really, really fun.

[00:48:13] And I'm so glad that you got to see where sugar comes from - from the field all the way through the factory, which is really important. When we asked consumers of couple of years back, does sugar come from plants, only 30% of consumers said yes, and we followed up on it. And, it's not that consumers don't believe that sugar comes from plants.

[00:48:36] They'd actually just never thought about it. which is not surprising. There's a lot of things about what we eat, that people aren't connected to, which is why we need more people to spread the word on where our food comes from.

[00:48:49] Right. Absolutely. Yeah. So the red river valley is just ideal for growing sugar beets.

[00:48:55] You want to talk about that a little bit, because I just think that that was really fascinating. And I talk about agriculture a lot on the show and how different geographic locations, different climates, different soil provides opportunities for different products. So tell us a little bit about why the red river valley is so perfect.

[00:49:13] Sugar beets are grown in the U S in various locations where the climate is generally cooler. So sugar beets are grown in 11 states. One of those regions is the red river valley, which spans North Dakota and Minnesota. And it is special, because it used to be a glacial lake. So it was the bottom of a glacial lake 10,000 years ago.

[00:49:37] And its soil is black. It's incredibly rich in nutrients. The land is really flat and if you all, haven't been to that part of the world. You don't know what flat land looks like. You can see miles and miles, so it's flat and they also get a lot of rainfall. You know, the weather can be really cold. so their growing season is pretty short.

[00:50:00] but it's a big agricultural area because of the factors that make it so ideal for crops to grow.

[00:50:07] Yeah. One of the fun facts that I learned is because it's so flat and the winds blow north to south to avoid that wind erosion they plant the beets east to west. So I just think things like that are really cool, but yeah.

[00:50:21] And then the cool weather, is ideal for storing the beets before they're processed. And the processing, we went, we toured the processing facility and it's a very simple process. Do you want to just briefly explain what that is?

[00:50:37] I think among other problems or issues that are misconstrued about sugar, how sugar gets processed is probably the biggest one.

[00:50:47] And with processing and where your food comes from kind of being front and center issue for consumers right now, it's a really important objective of the sugar association to help educate consumers on where sugar comes from. For instance, 50% of consumers think that sugar is bleached. Melissa, as you just said, the sugar beet is white.

[00:51:06] so sugar is actually naturally white. So the process is really simple. And it simply is extracting the sucrose or the sugar from the plant and you are washing it and you're crystallizing it and drying it. So when you hear the term refining or processing, you're really just cleaning it. You're de colorizing it.

[00:51:28] So the color, once you, you extract the sugar from the sugar beet or the sugar cane, which involves, with water, mixing it and you get a sugar juice and then you crystallize it and you dry it. You have molasses, which is, and some people don't know that molasses comes from sugar beets and sugar cane.

[00:51:45] So that's another, I think I guess we can point out. You're spinning off the molasses and then you're just further washing it off so that you can expose the white sugar crystal. It really is a simple process. You could make sugar at home. It might take a little while, and it might not be as pristine white, but refining and processing is a de colorization and removing of molasses colors.

[00:52:06] That's really interesting. And I remember when we were in the factory learning about the processing process, if you will, that we saw the dried crystallized sugar being poured into the bags and they said, oh, you know, there's a code on the bag that will indicate which location you were in. And I couldn't wait to get home to see if the bag of crystal sugar that I have in my pantry had that code on it.

[00:52:31] And it did. So it was like I was in that factory that made this, this bag of sugar. I kind of geeked out on that. But, the other thing that was really cool is we did these cupcake wars and I'm not one for a cooking competition because

I'm not the most culinary person in the world. And I also have a bit of an aversion to the competitive nature of some of these things, but it was so much fun.

[00:52:53] It didn't hurt that you guys assigned me to be with chef Will Coleman and Ali Swietek from the sugar team. And it was so much fun. And so I just have to give a shout out to Will and Allie, because we made a peanut butter jelly cupcake. And it was really good. And, I have to kind of pin Will down on actually writing up that recipe.

[00:53:14] We use the basic cupcake recipe that you provided, but then we, we modified it a bit to make it our own. So that was a lot of fun. And yeah, just, it was really, really great to meet the farmers and the growers. They're very dedicated. I don't know if there's anything else you wanted to say about the tour or that whole process.

[00:53:33] We had so much fun bringing our dieticians and nutrition and food professionals out to North Dakota, because it's really hard. You can read about things and you can watch a video, but until you experience something, whether in this case it was standing in the farm, talking to the farmers, going into the factory, seeing the sugar be in the bags, you don't really understand something.

[00:53:57] So we were really, really happy that, that you all came out and we hope you walked away learning a little bit more about sugar and feeling warm and fuzzy about your experience.

[00:54:08] Absolutely. It was such an incredible learning opportunity and wanted to thank you again for that. I learned a lot about sugar and, you know, I'm the guilt-free RD so

[00:54:18] There's no bad foods, it's all good food. And I really just encourage people, to try to enjoy their food with health in mind. And I think this is a big part of it is addressing some of those misunderstandings about sugar and not feeling guilty and not feeling bad and knowing that it's required or it's necessary in certain levels in certain foods for a variety of reasons.

[00:54:42] And just to look at that balance and try to keep focused on those healthy dietary patterns. So I just really want to thank you for coming on the show Dr. Gaine. It's just been really nice talking with you and I would like for

you to share some information about where people can find more info on sugar. I'm sure you've got some websites and social media handles.

[00:55:01] Well, thanks so much for having me, Melissa. I do. I really appreciate the opportunity to share sugar's story and we have tons of information out there. Pretty simply you can go to sugar.org and we have a lot of resources that can be downloaded as well as if you want print copies - we send those out for free.

[00:55:20] We also have a STEM packet for schools, which is a really great education material on how sugar gets to be and how it fits in a diet. And there are also videos to accompany that for any educators out there. In terms of social media, our handle is @moretosugar on Facebook and Instagram and on Twitter.

[00:55:42] And we encourage you to follow that. Instagram we have some pretty pictures, but we have a lot of information out there. So thank you for listening. And we hope to stay in touch. Absolutely.

[00:55:53] Thank you so much. And for everybody listening as always enjoy your food with health in mind and a little sugar? Until next time.

Thanks for staying tuned. If you're not familiar with my do more with dinner initiative, it's simply a way to do more with dinner and MORE stands for make ordinary rituals extraordinary.

And it was born out of my desire to spend less time in the kitchen and more time with my family at the dinner table, talking, laughing, sharing stories and sharing quality time. I've shared some ideas and inspiration over the years from fun table topics and conversation starters to simple, healthy recipes.

Well, I've been trying a lot of new recipes lately, maybe because so many of my dietician friends have new cookbooks. Or I've been attending more virtual cook alongs. And I'm always excited when I find a new recipe that is so easy and delicious that I know it will become a regular family favorite at our dinner table.

And this Curry red lentils recipe is just that. This recipe is from chef Todd Mitgang of crave fish bar in New York. He prepared this on a virtual cook along hosted by the seafood nutrition partnership a few months ago. And I've made it many times since and shared it with friends and family. All you do is heat a quarter cup of olive oil in a 4 quart sauce pan on medium to high heat. Add one cup of sliced carrot, one cup of diced Spanish onion, or simply yellow onion, and one cup of sliced celery. Cook that for five to eight minutes until soft. Then add two teaspoons of yellow Curry powder and one teaspoon of kosher or sea salt. Stir that for 30 seconds. And then add one cup of red lentils and three cups of vegetable stock.

Now be sure to rinse your lentils with fresh water beforehand to remove any dust or debris. Simply bring that to a boil, reduce to simmer and cook covered for 20 minutes. It is so delicious. Chef Mitgang also taught us how to prepare pan roasted salmon with a spice mix that included equal parts of garlic powder smoked paprika, which is my favorite spice and sumac powder, which I had never heard of before. We rubbed Dijon mustard, olive oil, and the spice mix onto the salmon.

And then after searing the salmon on all sides, we put it in the oven for about five minutes at 350 degrees. Then we placed the salmon on top of the red Curry lentils and added a garnish of Thai basil. So delicious! But another very simple and tasty way to prepare salmon was shared by a dietician colleague during that cook along.

And I tried it the other night. Simply sprinkle everything bagel seasoning on the salmon and bake in a 425 degree oven for 20 minutes. Perfection! You can go to seafoodnutrition.org and USApulses.org for more seafood and lentils recipes. And also I'm in the process of updating my free downloadable, do more with dinner resource kit, but you can get the current one now@soundbitesrd.com.

It's on the right sidebar on the podcast episodes page in each of the show notes pages, too. While you're there, be sure to sign up for my newsletter and you'll be notified every time a new episode is released. If you like the show, please share it with others who might also like it. And if you're a dietician, diet technician, or diabetes educator, be sure to check out my free CEU library with more than 30 free CEUs for select podcast episodes.

Thanks again for tuning in and take care.