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| Mark: | Welcome to the health edge translating the science of self care, giving you news to use, I am Mark Pettus and glad and as always to be joined by my friend colleague Dr. John Bagnulo, John good morning? |
| John: | Good morning Mark, it’s good to see you, how are you today? |
| Mark: | Good to see you, doing well, it’s St. Patrick’s Day. |
| John: | That’s right. |
| Mark: | It’s a big day for the Irish and those that celebrate. It’s a nice time of year and we’ve got some great stuff to share this morning John on this common theme of artificial sweeteners and like so many topics in nutrition and health, lot of confusion and some mixed messages. We’ll do a bit of a deep dive around that topic. Anything new and exciting in your world John? |
| John: | No, not really. We’re enjoying a really warm period of time here in Ohio, the family and I are thrilled, that our Mark’s MRI came back very favorable. Everything we’re doing whether it’s the ketogenic diet or the use of boswellio and the vitamin D therapy, it’s keeping the tumors from growing at all. It’s good news. |
| Mark: | That’s just such joyous news John. As I know Benny, the listeners have been sharing this journey with you from some of what you and I have shared and at some point maybe we can even dedicate some time if you feel comfortable talking about how you and Juana, have interpreted and responded to what for any parent has to be one of the more profound challenges you can ever confront. Just personally John it’s too inspiring for words to describe how love and compassion translates in your lives to Mark and the ketogenic approach that you’re using and the incredible thoughtfulness around many of the anti-inflammatory herbs, botanicals that you’re using. There’s just no question in my mind that it’s got to be giving him an advantage that for most children, just wouldn’t otherwise not be forthcoming. It’s just such a powerful example of how lifestyle with the right knowledge and skill can express itself. I just applaud you, I’m so glad to hear that that’s moving in a favorable direction. |
| John: | Thank you Mark, I really appreciate that and I really appreciate so many of our listeners who have emailed me to either inquire or to offer their words of support, so thanks, I really appreciate it. It’s an interesting journey, this thing we call life and I firmly believe that things really shape us and lead us down different roads. This has certainly been immensely challenging to the whole family but I think we’re stronger because of it and I am certainly more passionate than ever about trying to share the type of information that you and I share over this podcast and that I write about, whether it’s on Facebook for the work I do for functional formularies that you do as well, I think it makes our mission stronger. |
|  | Children tend to really bear the brunt of so much that's wrong with our environment and our food supply and this is a great segue in artificial sweeteners. This is something that, they’ve been around for a long time, I think many of our listeners Mark are going to already forego anything that has artificial ingredients or artificial sweeteners in them, but for those of our listeners who either themselves haven’t quite made that leap yet or maybe who have family members that they’re trying to persuade to really reduce their consumption of aspartame or sucralose. This could be important information for them. |
|  | It’s really alarming when you take a look at how much of the average American’s food supply is artificially sweetened. It’s been estimated that anywhere from 15 to 18% of the products consumed by the average American contain one artificial sweetener and other. Of course, the two big ones, are aspartame and sucralose, which also go by the names, nutrasweet, and Splenda, but there’s a new one that was just approved two years ago, and it goes by two new names, it’s either called Neotame or Advantame, and it’s 40 times, I believe 40 times sweeter than aspartame which is already a thousand times or more sweeter than sugar. This stuff’s everywhere. |
| Mark: | No question, these are pervasive in our food supply John, and when we step back even further and look at some of the origins of these things in our modern life, so much comes back to what historically has been framed as weight, as a caloric accounting problem and if you can take anything with calories such as sugar and replace it with something that is calorie free, that just off the top, that has to be an edge in terms of weight, metabolism and as we will look at this John, we will remind our listeners that is not the case at all. Then it says so much John, about how wired we are from the standpoint of sweeteners and drive towards things that are sweet. Then the example of these artificial sweeteners super sweet, and we’ll give listeners a sense of, you suggested these are hundreds or in the case of neotame, thousands of times sweeter than sugar in its natural form. |
|  | There is a tremendous marketing and addicting advantage of these molecules as they affect our palette and our brains. We’ll try to touch on all of these but that obsession, John with calories has just made artificial sweeteners such an easy and attractive option for so many people who to this day consume artificially sweetened foods at many levels as you briefly touched on 15 to 20% of our food supply, thinking that they're doing something good for themselves and unintentionally and perhaps unknowingly having the opposite effect on their health. |
|  | It’s another one of these really major public health issues and like so much and the modern western medical enterprise, until you’ve got tons of randomized placebo control trials, people continue to say, “The evidence is mixed or, "It’s conflicting and until I see the evidence, I’m not convinced.” There is a lot of evidence, some of which we will share. Then I will just say John, before we dive into this, we’re always looking at life in our relationship with the environment around us, through this ancestral lands. Independent of where the evidence is at or what a person’s unique experience might be with an artificial sweetener, it does beg for the question, when you hold it up to the lens of ancestral compatibility, artificial sweeteners like other new to nature molecules are not designed to be compatible with human physiology. It’s always good to start there and think you know, that alone should give me pause. |
| John: | That’s really well said, that should always be the backdrop before you start any of these discussions. I really like to just drive home this point that you’re making about how intensely sweet these are, because what most people and I’m sure many of our listeners are not aware of this, and certainly the average American and the average consumer is not. It’s all about insulin really, when you start to take a look at the adverse effects of sugar. You have glycation and you have as many people unfortunately believe, if you have potentially this calorie response with respect to weight gain or driving lipid generation or something like that, but really when we focus on the first and foremost adverse effect of these sweeteners. |
|  | We’re going to spend time talking about aspartic acid and what that does to neurons, things like that and the work of people like Blaylock. Really the first point everyone needs to consider, and you and I talked about this in the past Mark, in programs we’ve talked together, is there is this cephalic insulin response, that if something tastes incredibly sweet, over the course of human evolution, we’re programmed to produce a little insulin to prime the system and get it ready for the massive wave of sugar, historically which would have come from ripe fruit or something like that. When you eat something incredible sweet, even though it may not put the real sugar into your bloodstream, you are already producing insulin as the body anticipates that sugar to be coming in. Insulin again, that’s really the hormone, the master metabolic switch so to speak whether or not we’re going to be in a state of anabolism, gaining weight, or catabolism, breaking down stored energy. |
|  | When it comes to artificial sweeteners I don’t think we really need to get into, I think we can for a variety of reasons, whether we’re looking at neural toxicity, or potentially alterations of the microbiome or some things like that. Really it all starts with that insulin spike that will not match the sugar of the meal, the carbohydrate content of the meal and what does that do over time? If someone is struggling with weight, their insulin resistance is not going to be helped with the use of an artificial sweetener. This research goes way back, this notion of the cephalic insulin response, I just don’t think many people are aware of that Mark. |
| Mark: | I think that's a huge point that you make John. The interaction between our taste buds, what’s on our palette and the brain, is so sophisticated and so highly evolved that it would be very easy for anyone even someone with a lot of clinical depth to underestimate many of the neural biologic mechanisms that are unleashed when you put something super sweet on your palette, this is like an immediate response. We know that from some of the research and from functional MRI imaging, that these super sweet substances and I jotted this down, earlier John, looking at the common artificial sweeteners, so we’ve got Acesulfame K, we sometimes call that SK, is about 200 times sweeter than sugar. Aspartame which you mentioned, nutrasweet equal is about 180 to 200 times sweeter than sugar. |
|  | The neotame, one of these newer agents, 7,000 to 8,000 times sweeter than sugar. These are pretty stunning, saccharin, sweet n low, sweet twin, different brand names about 300 times sweeter. Then sucralose, the last of that family Splenda, about 600 times sweeter. Our palettes, and this rich in complex array of taste buds, these receptors are being introduced to molecules that are unlike anything our species has been introduced to and we know that these have major effects in the brain, almost immediately, when we start to taste this. That cephalic response John, how those neural signals prepare for what historically has been a large caloric load based on anything that sweet, it has impact on insulin and probably other things that we’ll touch on, the microbiome, gut hormones ... |
| John: | [crosstalk 00:13:23]. |
| Mark: | It takes these simplified notion that something is calorie free, therefore good, and shifts it to a much more nuance biologic translation, that it has nothing to do with calories. As the evidence continues to mount about epidemiologically and experimentally, these people should really be concerned about how much of this are getting in their diet. I think that’s happening at the level of the palette, within nanoseconds, then what goes on beyond there, we’ll touch on John but I think that insulin connection is central to all chronic complex disease and anything that disrupts that system should give anyone pause, if they're serious about their health and self care. |
| John: | Absolutely. Which of the sweeteners should we start with, aspartame? |
| Mark: | Let’s start with aspartame, John. |
| John: | For our listeners who might not really know that much about the chemical composition of aspartame, we’re talking about a molecule that’s about 50% phenylalanine, amino acid by weight, which has been ranged in a way that it exerts the similar qualities of sugars when it does act on the taste buds, which again, they’re nerves, that's what people have to understand, is that these molecules are designed to exert neurostimulatory effects, that’s really what sweeteners is. This molecule aspartame has a considerable portion of aspartic acid. For anyone that’s looked at the research on glutamic acid, the two molecules are incredibly similar, I think that's where things really start to become an issue on a neurological level, and when you start to look at the Blood Brain Barrier you start to look at how aspartic acid causes massive influxes of calcium into neuron. It really disrupts that narrow window for calcium influx and for neurological overall mineral status. |
|  | What happens is, aspartic acid again, much like what we see with monosodium glutamate which is about 95% glutamic acid by weight, is you see that neural excitability, basically and it's ... Some people Mark and I know you’re certainly aware of this, some people call these excitotoxins because of how they alter normal neurological function. For anyone, whether it’s from the manufacturers of aspartame to anybody who is arguing for its safety, whether that person would work for FDA, or they would be independent, individual that feels, "How could we have something like this in our food supply that would be an excitotoxin." |
|  | You really have to start to look at the animal studies that have been compiled on neurological function with exposure to glutamic or aspartic acid which make up a big part of these molecules, whether we’re talking at MSG or talking about aspartame. Again, they're making a lot of assumptions such as aspartame is not going to ever reach the brain, it's never going to cross the Blood Brain Barrier. That’s just not the case, there are a lot of reasons why people have compromised Blood Brain Barriers, there are things that would cause a surge in that migration across the Blood Brain Barrier, certainly children have different levels of permeability than adults do, but if we just start there and we start to take a look at aspartic acid, which makes up a big part of aspartame, it’s really easy to see where things can go wrong in a hurry for the neuron the fundamental unit of how we operate and how we think on a day-to-day basis. Blaylock, I’m sure some of our listeners are familiar with Blaylock as a researcher. He’s really been the one that has pioneered the anti-aspartame research over the last two or three decades. |
| Mark: | Yeah that I think is so critical John. These are active neurobiologic transmitters and when you look at the sheer number of kids these days with attention issues and cognitive issues across the age continuum is certainly in kids, is very common. I think it’s hard not to be concerned to what extent some of these agents like aspartame could be altering behavior and it’s another good example John of the connection between a food molecule and a behavioral output. There are no shortage of examples of clinical syndromes that are in some way characterized by brains that on the balance of excitability and rest and restoration are heavily tilted toward that excitable state and we know that these molecules can be quite active. |
|  | We were talking briefly John, before the recording about some of the research now linking and I believe aspartame has been one of the sweeteners studied and alterations of the microbiome and this was a widely quoted study in nature. It was published in 2014 and we’ll make that available to the listeners on our website, healthedgepodcast.com. It was an animal study but there were some very intriguing alterations of the microbiome of these animals in exposure to sweeteners like aspartame. As we’ve talked about another podcast, alterations of this ecosystem have biologic repercussions and in this instance these are more inflammatory repercussions, so you see alterations that take an immune inflammatory response and accentuate it. |
|  | We know that inflammation is one of the central features of insulin resistance. Now we have two mechanisms John, we’ve got the super sweet palatable cephalic response that creates an insulin surge, and now in a cellular level we see at least an animal model changes in the microbiome that we know interfere with insulin signaling. You have both a cell that’s resistant, a pancreas that is putting out more insulin and that convergence basically leads to even higher insulin states and all that can come with insulin resistance. |
|  | I know other studies John, and again there's been a lot of research on this but certainly sort of jump out at me, with respect to aspartame. This was a study done in 2010, and it was a small study. There were about a 40 adults involved in this study. About 25 of those adults were obese, 15 of them were lean, and they compared stevia, we’ll talk about stevia. We want to bring this into this discussion as a more natural sweetener compared with aspartame and compared with sugar. |
|  | In these 40 adults they looked at changes in sugar after consumption of these artificial sweeteners with a meal, and the meals were the same for each individual in terms of macronutrient content and caloric load. They were isocaloric, they were equal that way. They looked at insulin production, they looked at satiety and what they found was that stevia, in this study, was neutral it did not have a significant glycemic or insulin effect. Aspartame while it didn’t have a large glycemic effect as sugar, clearly had a very significant insulin effect postprandially after eating, in a way that was very similar to actually consuming sugar. When you looked at satiety scores, people who consumed aspartame tended to feel less satisfied, they were more hungry and they tended to consume more calories. A small study but again, demonstrating some significant insulin and probably signaling differences between, in this instance stevia and aspartame which was really no better than sugar. Maybe even worse in some instances, so interesting work. |
| John: | Those are the qualities of aspartame that physiologically I think everybody should know about and can hopefully wrap their heads around. The discord between what it generates for insulin response, but the fact that it doesn’t put any sugar into the bloodstream, would make sense. The people made looking for something else, soon after, whether it’s a diet coke or some other product like that. I think that the next level of this complexity that is more difficult for people to fathom the impacts neurologically, the influence that it may have on our liver’s health would be the fact that this molecule, aspartame has a heat ceiling of stability somewhere between 86 degrees Fahrenheit and 95 degrees Fahrenheit. |
|  | Somewhere between that, and it’s again there’s little controversy as to when these molecules starts to break down. Somewhere Mark between 86 degrees Fahrenheit, and 95 degrees Fahrenheit. Certainly it won’t take temperatures greater than 95 degrees Fahrenheit and it may take temperatures slightly less. Aspartame starts to breaks down, and it could start to break down into methanol which is a really potent neurotoxin, that then degrades into formaldehyde. When you talk about the influence that aspartame has been showing that nature paper, on the microbiome, is that the molecule, as it is when we consume it is it one of the metabolites of aspartame, is it the methanol which would certainly we expect to have adverse effects on microbes or certainly formaldehyde. |
|  | You've got a lot of different ways that these molecule as it branches out, could really have adverse effects. I think most people are unaware of that methanol degradation process that aspartame starts to break down. Look at our core body temperature, it’s axiomatic to expect at least a small amount of aspartame to form a toxin on a whole another level. I just think that people really have to understand all these different levels and that this isn’t [inaudible 00:24:32] in the sky, it’s not something that we are saying you need to avoid or be afraid of simply because it’s an artificial molecule. I think people really have to appreciate what that molecule is made up of. The aspartic acid influence on neurons as a fundamental unit of who we are, the fact that it contains a certain amount of metabolites, methanol and later formaldehyde which have been widely accepted as toxic on a variety of different systems in the body. Then you know the most fundamental unit which I spoke into is what it does to insulin levels. I think it’s on the top ten worst ingredients in the US food supply. It might be at the top of the list. |
| Mark: | That's really reason for pause for sure John. What about sucralose Splenda, really commonly used a lot of people really like it, I’ll see people take two, three, four packets which says a lot about this sweetness, where that reward center that dopamine, things that are going to keep us coming back, independent of calories. Again the biologic translation of these molecules has just nothing to do with caloric content. Again, these things get a hello, because they are calorie free and if you’re trying to get off of sugar, okay, most would see that as a step in the right direction but the biologic translation again is a bit concerning. What about Splenda John, how would you describe that to the listeners? |
| John: | I think molecularly and again, I don’t expect everybody to have interest in the molecular structure of these molecules, it’s pretty easy to get geeky on this. This is an organochlorine which falls in the family of things like PCBs and DDT, in the way that the chlorine molecules attach to a sugar molecule so that ... The chlorine is in theory supposed to prevent this sugar molecule. We don’t have the enzymes necessary to cleave that off and to allow us to absorb the sugar molecule on its individual unit. |
|  | Organochlorines have a long track record that is very shady at best it can be downright toxic to being carcinogenic, at worst. That should give people a high level of suspicion when you just take a look at this on a chemical level. Then when you start to look at the papers, and the most recent one Mark was a 2014 paper in a journal of toxicology and environmental health. Not exactly sports illustrated or leisurely reading, and I don’t expect many people to look at journals whether it be nature as you and I always point out. Unfortunately these papers don’t fall in the normal journal medicine, and they at quite often never make the New York Times front page or even the journals like, those like in the Huffington Post and Natural News. |
|  | This journal, this 2014 paper in the journal of toxicology and environmental health showed that at very, very low levels of exposure in animals, this was a study done with rats. At a level that would put humans at around one milligram per kilogram of body weight. Sucralose in just eight weeks produced very unfavorable changes within the microbiome, people had already questioning this type of research, you’re saying, “Well, how do you know there are unfavorable changes?” You only have to take a look at what else was absorbed in those animals with respect to their insulin levels. Things like IGF 1, glucagon secretion, all of which really create that really important homeostasis with respect to glycemic control in the body’s shift from anabolism to catabolism. |
|  | That’s a very short period of time with a very, very low dose of, and as you mentioned, some people use a couple packets a day, of this stuff. I think that that’s the most recent paper to showing that very, very low levels of this organochlorine again, we can start to look at how it is. It would have these adverse effects on microbial health but just the fact that it contains chlorine is an organochlorine would be for me, indicative of the potential that it can have as an antimicrobial, as something that would disrupt the microbiome. Then I also want people to understand that ... Again, we talked about this last week I believe, we talked about the most problematic artificial ingredients in our food supply. |
|  | The burden of proof is really put on us as the consumer and so you’ve got a handful of non-profit organizations whether it’s the environmental working group, or the center for science and public interest, that try to serve as watchdogs for these things but they don’t have the funding to carry out the research and the testing required. One of the initial papers Mark was on sucralose or Splenda as most consumers know it, was done by the manufacturer, McNeil laboratories. When they gave sucralose at fairly doses, I would admit, when they gave sucralose to animals to gain approval, by the FDA, those animals that were given sucralose had higher levels of neoplasms or tumors than then the animals who didn’t get their sucralose. |
|  | Yet, this is what’s astounding, is that even though there was a noticeable difference in the way of neoplasm development, basically in the experimental arm, those getting the sucralose it was nevertheless still approved by the FDA. I think that there is going from the very beginning, with the papers conducted by McNeil laboratories to the most recent one showing aberrations or adverse changes in the microbiome, I just think there’s enough evidence now that people should be warned against sucralose, they shouldn’t be in our food supply. |
| Mark: | This whole notion of the precautionary principle, we apply the opposite of that here in the US. Most other countries will not allow widespread use of this molecules until there’s sufficient evidence to prove that they’re safe. In the US we tend to say, “Well,” we talked about this GRAS status generally regarded as safe and let’s assume they’re okay to use until you can prove otherwise and not only as you pointed out John are the incentives aligned in a way that will make those studies unlikely. |
|  | When evidence becomes the barometer as to whether something is safe or not, you find yourself, in this circular argument, that those that say these things are safe, point to the fact that there is not a lot of evidence. There is not a lot of evidence because that which are likely to see will be sponsored by the food industry and so, you’re left with experimental and toxicology and animal studies. It's another example of how hard it is to get something out of our food supply because of just how our research enterprise and incentives are aligned. Again, it’s all about the consumer and … |
| John: | It is. |
| Mark: | … taking matters into your own hands and ultimately it just has to be a kind of a grassroots ground up response. People just need to say, “I refuse to put this into my system or to that of my sweet young child, or for pregnant women.” It’s just a matter of voting with your fork, with your dollar, that's crazy. |
| John: | It’s widespread Mark, it’s not limited to just the food industry, it’s [inaudible 00:32:40] so many things that they really have no role in preventing fires. At the end of the 1970s we were at a much better place than we are now in the … The regular administration really did everything they could to take that burden of proof off of the chemical industry and for any of our listeners that want to look at really one of the best accounts of this process, there’s a great documentary, it was made in the late ‘90s by Bill Moyers, was a PBS documentary called, “Secrets Of The Trade Industry.” It really looked at the role of chemicals, basically in the United States and society, the role of chemicals, how pervasive they are. |
|  | Bill Moyers has blood drawn at Mt. Sinai as part of this documentary and he’s found over 150 known toxins, carcinogens, all chemicals which have either been incorporated with food, into the clothing that he is wearing into some regular part of his home environment and it’s just really eye opening for people I think to whether it’s that documentary, or any of the other accounts which have shown how ... The system just really isn’t there to protect us, it needs to change. |
|  | In other countries as you mentioned, they have two factories in a lot of these countries where work has been outsourced. In China there is usually two factories or two different components within any factory, one that would produce some toy for children in France and in other areas of Europe who consumers demand that they be phthalate free and that it be chemical free. Then there's the factory for the children in the United States where it’s anything goes. |
|  | It’s really sad but that's how it works, because there is a demand for chemical free product in certain areas the world, and wherever that factory is, they have to take note of that and they have to produce a chemical free product because of the testing and the vigilance there. Here in the United States it’s really anything goes, I hope our listeners really do start to think more about the rest of their home environment for them and the family. It isn’t just limited to food. |
| Mark: | In the last five or ten minutes that we have John ... Everyone would agree that sugar is bad for human health and finally I think everyone is sort of caught up with an explicit look at sugar as a very important contributor to all chronic complex disease and obesity, and insulin resistance. For those that obviously want to avoid sugar John, who maybe historically have gone toward artificial sweeteners that listen to this and say, “Well, that sounds like something I need to avoid,” how might you begin to guide them? |
|  | Stevia, is quite popular, this is a plant that’s indigenous to South America, and the research that I’ve looked at John, would suggest that while stevia is sweeter than sugar. Hasn’t been associated in the research that I’ve looked at with the shifts in glucose or insulin that one sees with some of these other artificial sweeteners that we’ve talked about. Certainly not the same as sugar then I know a lot of people John, you get this question a lot, in addition to stevia, things like honey, Agave, or even sugar alcohols; xylitol, erythritol, we could be talking about there. In the last five or ten minutes, how can we begin to help people look at those alternatives as either better neutral, maybe not better at all? |
| John: | I think I’ll start, Mark with the first two that you mentioned which are of course natural substances, stevia, and has been used by populations in the southernmost part of South America now for over 100 years. Whether it’s Argentina or Chile, they’ve used ground stevia leaf to sweeten tea and things like that for years now. I think when you do look at the research on stevia leaf, I think it looks as though it is benign. It doesn’t produce the insulin spike, that you mentioned earlier in that paper that you compared stevia with aspartame to sugar. I think that the important thing is though that the stevia doesn’t become ultra concentrated. The soft drink industry now has started to use a liquid stevia product known as truvia, it’s in Coca-Cola and things like that. That is a remarkably sweeter than ground stevia leave. |
|  | I think again, once you start to take this from a few times sweeter than sugar to hundreds of times sweeter than sugar, then you always risk that potential cephalic insulin response that we started out talking about. I think stevia can be tolerated well, I just don’t know what the upper ceiling is for using a certain amount that would start to cause any insulin spike even for a modest, I’d be concerned with that. I think stevia has the most going for it, it has a very, very small amount of calories, I think it’s almost negligible. I think that would be a good starting point, but again you’d want to use ground stevia leaf as opposed to some of the more potent stevia concentrates. |
|  | When it comes to honey, honey is something that I just want to feel better about because I’m someone that’s raised bees and I think that bees are really important for sustainable agriculture and for us going forward as a more environmentally ecologically minded model of agriculture. I think we need bees and I think honey can fit into a healthy diet. I just don’t think honey is a good fit for everybody because it does have such a high fructose content, in comparison to other sweeteners. I think honey has some upside, it has a high antioxidant value, depending on what flowers were predominantly relied upon by the bees. It is not going to produce the same unfavorable changes in blood sugar levels as sugar would. It is much better than sugar despite what some people, whether it’s the corn syrup industry or other researchers say, that it’s just any other sweetener. It is not, it’s very different in terms of some of the benefits that can be elicited from a good raw unfiltered honey, especially if it were, one where the bees were on wild flowers or something like Buckwheat. |
|  | It’s really been well established, you can go on pub med, or med line, you can look at numerous papers that have shown antioxidant benefits and more favorable changes in triglyceride formation and things like that, compared to other sugars. It’s something that I would still, for someone who is insulin resistant Mark, I would still want them to really keep it. Keep it under tight wraps in terms of how much of that they use over the course of a week, certainly not even a day. I like those two, I think that also I was really suspicious around these sugar alcohols like xylitol, but the more and more I looked at xylitol, the more and more I found very, very little research to show that it caused any type of adverse effects. In the research on the microbiome, this is really surprising to me, show that xylitol, produced favorable changes in the microbiome. |
|  | The elimination of those microbes which are typically more pathogenic, or cause higher levels of Dysbiosis in people and in animals?! Again I would say with xylitol there is much more good news around it, then there is bad news, but I think people have to be careful about what type of xylitol they source as is the case with stevia. As I mentioned with honey, you don’t want highly filtered pasteurized honey from China. I think that that, it has shown to have a lot of things in it that we don’t want to put in our body and I think with xylitol the same is true. You really want xylitol from North American hardwood trees, as opposed to xylitol which was made from processing, GMO corn and things like that, from areas the world where we know there is also high levels of contamination in these sugar alcohol generating crops. |
|  | Make sure whether it’s stevia, get sweet leaf, get ground stevia leaf. With honey try to get a raw local honey organic if possible. When it comes to xylitol, try to get it from North American hardwood trees because it can be manufactured in Michigan, and Minnesota and places like that where they’re using birch trees and ash trees and things like that. |
| Mark: | That’s really great advice John. I've arrived at very similar conclusions with respect to xylitol, and Erythritol. Xylitol is what I now go to, I might use one or two teaspoons a day, and I find that it has a sweetness very similar to sugar. Definitely a lower glycemic effect, and I too was intrigued John, by some of the more favorable effects of xylitol on the microbiome. Particularly in the oral, there is some interesting literature that I’m sure you came across showing some improvement in the oral micro biologic diversity and lower inflammatory risk, which is very, very intriguing. I think this can be I believe as well, good alternatives when well sourced and then maybe just … |
| John: | The one thing I want to add more before I forget is that a lot of people are very critical of xylitol because they say that it’s not natural, but it’s every bit as natural, it’s made from syrup. We’re talking about a product made from the sap of birch trees predominantly and a lot of people know that birch sap or birch syrup is something that the Native Americans use. It’s basically taking the sap from a birch tree and getting that to your crystallized form. It’s a lot like maple candy which I know people in Maine and Vermont, and areas of New England really appreciate as a delicacy that’s basically maple syrup that’s been fully evaporated, and the sugar crystals. Xylitol is not that far off from that. Even though it’s a sugar alcohol, people like to label those as unnatural, that's not always the case. I completely agree with you that I've been really surprised that the favorable changes that have been shown with xylitol, sorry to interrupt with that. |
| Mark: | Not at all and I think moderation is important. These sugar alcohols we have talked about in the past, particularly in larger amounts, can be met with a lot of gastrointestinal gas, and cramping, irritability. Some time back we introduced this concept of the FODMAPS, you know these from Fermantable, Oligo, Mono, Di-saccharides, and these Polyols, these sugar alcohols that some people can be sensitive, particularly if they have Dysbiosis or Small Intestinal Bacterial Overgrowth (SIBO). There can be a bit of a dose response in terms of that gastrointestinal tolerance. There it’s a matter of I think just finding that point below which you tolerate that better, but that's the only downside I think in my review of this, John. |
|  | The last thing I wanted to being up before we bring this home is Agave which often comes up and has a bit of a hello attached to it. The greatest concern I have with Agave, John, as a substitute is it has a very high fructose content, higher than any of the other sources that we have talked about. Again, while many people will be resilient to lower amounts of fructose, for those that are dealing with weight issues or insulin resistant issues, which is a large percentage, 50 to 75% of Americans, fructose beyond a certain threshold dose. I think you and I have talked about 25 grams, maybe 50 grams on the upper end, all sources of fructose can be under certain threshold contribute to fatty liver, insulin resistance and all of the adverse metabolic sequelae or consequences of that. I don’t usually recommend Agave unless people are taking it in very small amounts. You take a similar take on that John? |
| John: | Absolutely. I think it got that hello that you refer to because it has such a high fructose content that it actually has a lower glycemic index. The glycemic index could be useful for at times but when you start to get into, there are some anomalies. Ice cream is something that people realize that regardless of its glycemic index is going to eventually elicit some downstream changes with respect to insulin, things like that, that you don’t want. Not to say people can’t have ice cream once in a while but if we operated off the glycemic index alone Mark, there are a lot of foods that would have devastating health consequences if people made them a staple of their diet. Certainly that's the case with Agave, it has an extremely high fructose content, that’s why it has a slightly lower glycemic index, but what people don’t realize, that the glycemic index only measures how a food influences our blood sugar levels, for two hours after we’ve eaten it, after that two hours it’s all bets are off. |
|  | The other thing is there are certain things that can be in the mix, so to speak, within the digestive tract, that can really increase the glycemic index of something that's predominantly fructose-based. Agave I think is actually one of the worst sweeteners that people could chew, simply because of that fructose content. It’s also falsely represented as being something that you can consume, in a raw unfiltered totally unaltered state. You can’t do that with Agave, it has to be processed significantly, it’s oxalic acid content is extremely high, it would cause mouth sores and things like that in people if it weren’t at least modestly processed. I think people really should look as you really summed it up Mark. The best three are going to be stevia, honey or certainly xylitol. Maybe xylitol is the best, I think like you said, it’s any course one, it’s what people respond best to, then what they feel makes the most sense for the foods they eat. |
| Mark: | Absolutely. As always for those that are looking for an alternative to whatever they are doing particularly artificial sweeteners, try a few of these different sources and see how you respond to that. As always, John it’s been really enlightening and informative to explore this topic with you and I want to remind our listeners that we are now on YouTube as well, if you want to get some of the visual effect, check us out on YouTube, we have an app if people are interested that they can download. It’s a free app that they can download from iTunes, it will soon be available as a Google app. It hasn’t quite been completed yet, so feel free to check that out, and we encourage those folks who like the podcast to give us a thumbs up on iTunes. We appreciate that vote of support. |
|  | Then lastly John I would just say the website continues to have new content added to it, review articles and we’ll get a few references up on the topic today around artificial sweeteners. For people that are looking for more references and want to take a bit of a deeper dive we encourage you to check out our website at thehealthedgepodcast.com. John, as always, great pleasure buddy being with you. |
| John: | Same here mark, good to be with you. Bye everybody. |
| Mark: | You take care. |
| John: | You too . |