

A sunburst graphic with numerous thin, light gray lines radiating from a central point behind the text.

Healthy Moms Podcast

BY **Wellness Mama**[®]
simple answers for healthier families

Episode 95: The Science of Sustainable Weight
Loss with Bright Lines

Child: Welcome to my Mommy's podcast.

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Katie: Hello and welcome to the Healthy Moms Podcast. I'm Katie from wellnessmama.com and I am here with one of the smartest people I know and I can't wait to share her work with you. Dr. Susan Pierce Thompson is the adjunct associate professor of Brain and Cognitive Sciences at the University of Rochester and an expert in the psychology of eating. She's the author of The New York Times bestseller, "Bright Line Eating: The Science of Living Happy, Thin & Free," as well as President of the Institute for Sustainable Weight Loss and founder and CEO of Bright Line Eating Solutions, which is a company dedicated to helping people achieve health and vibrancy and permanent weight loss. And her program utilizes some cutting edge research that we're going to talk about today to explain how the brain blocks weight loss and how to fix that problem.

I have been personally following her program for the past few months. It can fit really any dietary restrictions and I have been blown away with how well it works. So we are gonna dive into the science and the practical in this interview and I know that you're gonna love Susan. Susan, welcome, thanks for being here.

Susan: Oh, thanks Katie. I'm so glad to be here with you.

Katie: I think it's gonna be an awesome interview and more of a conversation because we've talked before and I know I have a tremendous amount of respect for your work. But to understand your approach, I think it's really important for people to understand your story because you have an impressive academic background, really impressive professional background, but in my opinion the most impressive part is your personal background and what you've overcome. So if you don't mind, take us through your personal story and how you got here.

Susan: Sure, sure. I'm totally chuckling because, yeah, all those drugs I did are so impressive. I know, yeah, I was kind of a wreck as a kid in a lot of ways, like I got into drugs really early. And, you know, my work now is about food, right? So I see the signs of food addiction way back in my youth, but I didn't think of it as that then and I don't know because I think a lot of kids are fixated on food, but I certainly was. And I was lying about sugar or sneaking it, hiding it and I was fixated on other kinds of food too. It wasn't just sugar and I learned how to cook amazingly from a really young age and I developed a weight problem. And I weigh less now at the age of 40, turning 43 here than I did when I was 11 years old. So, you know, I wasn't an obese kid but I was a heavy kid.

And when I was an early teenager I guess there was a point, Katie, I don't know if you can remember a point like this in your early teens, where all of a sudden body image like dawned on you, where you became aware of your body size. For me that happened at the age of like 13, 13/14, is when that shift happened for me. I'm grateful that I was spared from it until then. And at the age of 14, I did mushrooms, which was my first drug experience and I had an amazing time, bonded with the people I was doing it with incredibly and I lost 7 pounds in one night doing that. And like the penny dropped for me, I was all, I was...I was like, "I'm gonna do this every chance I get, like this is it for me." And thus proceeded six years of using drugs to, you know, get high, bond with people, escape from life and control my weight. And funny enough, I graduated to worse and worse drugs. Crystal meth was a big problem for me in my middle teenage years. Eventually cocaine and then eventually crack cocaine. I dropped out of high school, burned my life to the ground, didn't have a place to live, became a call girl. Yeah, really pretty brutal existence there, especially around 18...17, 18, 19, 20 years old, those were hard years for me.

And I got clean and sober when I was 20, miraculously and mercifully. I got taken to a 12-Step meeting on a first date by a cute guy. He took me to a...to a meeting on our first date. It was just the most bizarre thing. And that morning, I'd woken up in the crack house feeling like I needed...you know, I had a moment of clarity where I needed to change my life. I knew in that moment that if I didn't get up and get out of there right then that that's all I was ever gonna be. So I got up and I walked out the door and that night, that guy happened to take me to a meeting and I dove into the 12 Steps and I dove into recovery and I haven't had a drink or a drug for, you know, since I was 20 years old. So, you know, coming up on 23 years.

And I knew I would get fat when I stopped using drugs and I did. I packed on a ton of weight really fast. It was almost overnight, it felt like I put on 40 pounds and there were more to come. And through

my 20s, I became obese and tried everything. At that point, I had an addiction framework like I was thinking of myself as a recovering addict, alcoholic, and so I recognized my food addiction really easily. That didn't mean that I could do anything about it though, I marched myself down to a 12-Step program for food and the magic of just, you know, immediate abstinence didn't happen for me with food like it did with drugs and alcohol. And that started years and years and years of tinkering and figuring and jiggering and what I've eaten or not eaten, whether I'm on my plan or off my plan and trying exercise and not exercising, you know, all of the rigmarole. And it just got worse and worse and worse and I got fatter and fatter and I was doing everything I could to address that.

I finally did find a 12-Step program that worked for me, that had really clear boundaries around food and I lost my weight when I was 28, my excess weight 28, 29. And I've been, you know, in a right sized body now for, yeah, coming up on 14 years, which does statistically put me in the top, like nobody does that, nobody goes from obese to slender and stays there for 14 years. It is very rare. So I'm statistically in the top one/one hundredth of one percent of successful weight loss maintainers. And my professional life sort of really did start after I got clean and sober even while I was monkeying around with food and bingeing on cookie dough and, you know, starting over on this diet, that diet. Even while I was doing all that, I was still academically real successful. I went back to community college and then transferred to UC Berkeley and got straight A's there and spoke at the graduation and got my PhD in Brain and Cognitive Sciences, I guess in 2003, did a post-doc in Sydney, Australia, from 2003 to 2005 and started really studying what happens in the brain, like the brains of people like me, why do our brains go so far off the rails.

And became a tenured psychology professor and started teaching a college course on the psychology of eating. And that sort of brings us up to the present day and the birth of Bright Line eating, you know, where I realized that I had some information that it could really help a lot of people. And I had a moment in my morning meditation, felt very much like that moment of clarity in that crack house actually, that moment that said, "You gotta do something." And the message this time was, "You gotta write a book called Bright Line Eating." And, Katie, I didn't even know where those words came from. I'd never heard them before or thought them before, but they came to me in my meditation as a book title, you have to write a book. It was a mandate really, you have to write a book called "Bright Line Eating," it can help so many people. And in that morning meditation session, I felt and was like pulsing with the waves of the prayers of all the people on that merry-go-round of trying to lose weight and trying this and trying that and counting the points and counting the calories and counting the grams and, you know, the macros and the, you know, the apps and the reps and the sets and the miles and all of that stuff. And just how, you know, kind of the path that I had found and the information that I knew could help so many people. And, yeah, and kind of that was January 26th of 2014, and the rest is kind of history. So there it is in a nutshell there, girlfriend.

Katie: Yeah, your story is so amazing and I think anyone listening; hopefully, not too many of them can really understand the experience of dealing with drugs, but one thing you said, you said you felt like you were doing everything you could to lose the weight and nothing was working, and I think a ton of people can relate to that because I think that is a common feeling, especially for mothers who had babies and then struggle to lose the baby weight. It's almost this frustration, almost even a panic because you truly feel like it's out of your control, you can't do anything. And so even people who may not associate with having "addictions" I think that is an important key, and so let's talk about Bright Line Eating. This is the system that you have figured out that basically, the science if you look at it, it's working when nothing else is working. So what is Bright Line Eating for someone who's never heard of it?

Susan: Yeah, thanks Katie. And I do think that that's a really common shared experience because it is maddening. Our brains are blocking us from losing weight and it's...to own a brain like that and not have kind of learned about why it's happening, it very much feels like this ridiculous awfulness of like, why can't I take off these pounds, I can do everything else in my life, right? I mean, I could run a marathon, I could get a PhD, I could raise a happy family and I couldn't, you know, shed X number of pounds, like I couldn't stop eating ice cream at night when I really wanted to actually stop eating ice cream when I like, very bizarre. So Bright Line Eating...well, bright lines, bright lines, I didn't make up that term. It's a legal term initially. Bright line rules in law are clear standards that are applied every time to produce consistent results, unambiguous boundaries.

And so in psychology, the term has been co-opted as a barrier that you put up to shape your behavior, where there is a no exceptions policy. It's just, you know, like an alcoholic in AA doesn't drink alcohol no matter what, it doesn't matter if it's New Year's Eve. You know, if you're sober, you're sober, you have a bright line for alcohol. So that's the notion of a bright line, and I think just even that, getting that term out into society is helpful because I know some people who need a bright line for their ex-boyfriend, right? Or for Facebook after 10 p.m., or for, you know, whatever we all...bright lines are a helpful concept.

And so applied to food, the four bright lines are sugar, flour, so no sugar, no flour. Meals, so eating discrete meals as opposed to grazing or snacking. For most people that's three meals a day. The bright line isn't three meals a day though because some people do medically need a different number of meals than that, or schedule wise, or whatever, but I find 95% of people are best served by three meals a day. And then quantities, which means bounding your quantity, so when you're gonna eat three times a day, you're not gonna eat three troughs a day, or three little tiny bird, you know, shavings a day. You're going to eat three precise quantities...meals per day, which you can bound in different ways with a digital food scale, with a one plate rule, there's different ways to apply the quantities, bright line. But suffice it to say, you're not gonna eat your food and then go back for more and then go back for more and just call that a meal, right, like you're gonna...it's gonna be sort of a bounded experience eating the meal. And that's it, you know, those are the four bright lines and that's kind of how we roll in Bright Line Eating.

Katie: Yeah and I love it because I know, like a lot of my listeners come from different food backgrounds as far as some have allergies some have kids who have allergies. Some have autoimmune disease that dictates they can't eat tomatoes or whatever it is, and that's why when I found Bright Lines, I was like I've got to interview her because whether you are vegetarian or autoimmune or a paleo, any of these actually can fit within the framework of bright lines. Which is the beauty of it, and I love also the...your addiction story because like you said you can cold turkey give up alcohol, you can cold turkey give up drugs, but you can't not eat. So you have kind of like figured out a way to create boundaries that work, that take out the stress and to me that's the biggest key, you take out the stress and the uncertainty and that frustration and panic feeling, because they are very clear lines. You talk about also the susceptibility scale, so can you talk about what this is and how it relates to the way that someone may need to use Bright Lines.

Susan: Yeah, totally. So the susceptibility scale is a scale from 1 to 10 that tells you how susceptible your brain is to the pull of addictive foods. So our food supply these days is laced with addictive foods, processed foods, sugar, flour, primarily. And not every brain is equally susceptible to that. So this is now sort of addiction 101. There are a lot of misconceptions about addiction. One of them is that addiction is in the substance. So heroin, for example, people think of heroin as being just addictive across the board that anyone taking enough heroin over a long enough period of time

becomes hopelessly addicted. And that's just not true Katie, like the body will become, you know, will adapt to it, so there will be some tolerance and some withdrawal if you go off it. But for a lot of people, the minute they get a chance to go off that, let's say they were given a Vicodin prescription after a surgery, right? For a lot of people, they can't wait to get off that Vicodin, even if their body is...has developed tolerance to it.

For other people, they've become pill heads after a surgery like that, right, that exposure to that Vicodin sets up a sort of snowball for them. That's then very, very hard to recover from. So addiction is not actually in the drug, it's in the brain. Some research shows, this is true for humans and true for rats that about a third of people have highly addictable brains. A third of people have moderately addictable brains and a third of people are not addictable at all. You can give them, it doesn't matter how much alcohol or cigarettes or caffeine or heroin you give them, they're gonna moderate it and/or get off it at the soonest opportunity. They're just not addictable. So, true of rats too. So the susceptibility scale has to do with food.

Now an addictable brain is an addictable brain, but the substance you get addicted to depends on a cue reward association that builds up over time. So your brain has to learn that this substance delivers a hit. And it's all the cues that predicts that reward, that kind of feed into that, right? So for example, I have a highly addictable brain. I'm a 10 on the susceptibility scale, some people like to say 10-plus, plus, plus, on the susceptibility scale and I've been addicted to all kinds of things. I mean, they're a long list. I've been a card carrying member of 5 different 12-Step programs. But I'm not addicted to shopping and some people are, for sure, and I'm not addicted to gambling, never have been and some people are for sure.

Because those behaviors or processes just I've never kind of just gone down that path, I'm sure I could be, you know, given enough positive experiences but fluorescent lights kind of give me a headache in the mall. It's like not...I just don't like being there. So I leave and I never kind of got the hit from it. So with food, some of us get addicted to food and the susceptibility scale in particular tells you kind of, you know, what type of approach is likely to work for you especially if you've got pounds to shed. Because if you underestimate your brain's susceptibility to addictive foods, you might be trying a path that's really not tailored to how your brain works, like the one cookie experiment or the moderate serving of ice cream experiment. If you're high on the susceptibility scale, that's not gonna serve you, right? So it's helpful to know, where you're at.

Katie: For sure and it makes so much sense like I look at even just my own family in high sight and my mom, I think would probably be about as low as you could be on the food susceptibility scale, she's always...she has been 118 pounds since she got married, she had two kids, went right back down to it, and has never really cared that much about food. Like she eats a salad at every meal at the beginning because she loves it and she's like, "Eh, dessert," like she may have a piece of chocolate at Christmas or something like...she just doesn't like it. And that's certainly not the case for most people in today's world, but I think people really have a tendency to beat themselves up for being food susceptible, because it feels like it's a character flaw or a fault and you've written about this. But I think this is super important to understand, because at least for me understanding this helps to give yourself a break and to realize there's a biological reason instead of, you're just not strong enough or whatever. So both of us are biologically pretty high on this susceptibility scale in fact as high as we can be, so can you explain why the body has the susceptibility to food in the first place? And then from a logical perspective, I would think it seems like this actually would be a good thing in...throughout history and an evolutionary perspective. In fact, you're talking about how the susceptibility of addiction actually is an important biological perspective. So can you explain that just

for someone who maybe is beating themselves up and thinking it's just that they're not strong enough or they...it's a character flaw?

Susan: Yeah, totally. You are so right, Katie, that what it is in the brain that makes someone susceptible really was an advantage, pretty much. So what makes someone...first of all it's largely genetic. It's not entirely genetic. There are studies showing that...well, okay, let's talk about the genetics first. If you take non-addictable rats and you breed them with non-addictable rats, you always get baby non-addictable rats. And likewise if you breed the addictable ones and the addictable ones, they have baby addictable rats. So it's strongly genetic, but if you take non-addictable rats and you breed them together, so you get a litter of non-addictable babies and then you start exposing them to certain kinds of stressors during their upbringing.

So for example, you rip them away from their mother and their litter mates and you raise them in isolation, which mimics child abuse, you know, you will turn a significant portion of those ones into addictable rats. Or if you make their food supply uncertain, so, again, sort of another food...another source of stress and fear-based childhood, right, where you don't know where your next meal is coming from, now you also can turn a significant portion of those into addictable rats. So there's a genetic basis and then environmental factors that play in as well, which, of course, you know, is poignant for those of us who have or know people who have had really, you know, challenging childhoods, you know, and then you think of how much more addiction is in play there. Anyway, so what it is in someone's brain that makes them addictable is a heightened sensitivity and draw towards the cues that predict those rewards. So like the precursors to the reward, the signposts, the things that let you know it's coming. And what that is, is it's basically a draw or a pull toward the advanced warning that something's about to happen.

So for example, someone who has a highly addictable brain would be the first to notice that the bushes rustling in a certain way meant that a rattlesnake was imminent or, you know, a bobcat or something like that. Or that the clouds looking a certain way meant rain was coming or not coming. Those are the cues that predict certain types of rewards or...and...or predators, you know, certain types of events. In our society being drawn towards the cues that predict rewards means that if you are used to stopping by a vending machine at work at a certain time of day, that time of day becomes a cue that predicts that reward and all of a sudden it's really hard not to do that, like you're drawn towards that...that time of day pulls you toward the vending machine. It means that if you drive a certain way, you get pulled toward a drive through, you know, because you have that habit, or if you have a certain emotion. Now you're pulled towards the foods that you've always eaten when you have that emotion and you get into a cycle of emotional addictive eating.

So, yeah, and then visual cues, sensory cues, you know, it makes parties and special occasions that much harder. All of a sudden, if you've got this draw towards these cues in our environment, all kinds of things, you know, like television commercials with the chocolate swirling and all of it, right? Our society is practically one nonstop march of cues that predict food rewards, essentially, and that's one of the things that makes it so, so hard to lose weight in our society that we have an environment that's set up to be a curse, essentially, to the addictable brain because they're just surrounded by all these cues that have become the precursors to food rewards for them.

Katie: Yeah, that's so interesting and also such an important point I felt like as a parent to realize. My husband and I made a decision early in our marriage that we were never going to create a situation where happy feelings or holidays were always tied with food. So we lean much more towards the experiences for birthdays, and like let's go to the jump house or let's go climb at the climbing gym or

something that's fun, that's experience based instead of birthday equals cake or happiness equals cake. But that's really interestingly, because I could see that becoming, you know, a really big problem for people if their happiness was associated with a food cue like that.

Susan: That's so powerful Katie. And I...you make me wanna have that conversation with my husband. Because it's really hard not to do that, right, in our society that's exactly...and, you know, even if you do that inside the house, odds are...and I was about to use like a very non-bright line phrase, dollars to donuts. The birthday parties of your kids' friends, right, are all gonna be, you know, at the bounce house with pizza and cake. So it's hard to, as a parent, work against the tide, you know, of our current food environment. But I think we can do a lot and that's awesome that you have that. And it's really hard to do otherwise because our society really is organized around addictive foods, sugar and flour foods, being available at every celebratory event and being pushed and expected and mandatory at every celebrated event, it makes it tough.

Katie: It does and, I mean, even it offends people highly sometimes when you turn down treats, or I'm sure you've had that experience on holidays.

Susan: Oh yeah.

Katie: If you don't eat the pie or... Whereas on the one hand we're looking at the stats that our kids are gonna face as adults and their autoimmune disease and cancer and heart disease and all these problems...

Susan: Diabetes.. yeah, one third of kids are gonna have diabetes, half of kids of color are going to have diabetes, that's just...I mean that's...that's a jaw...gob smacking, jaw dropping like unreal.

Katie: It is. And then on the other hand we have every bank, every...anywhere they go, they're being given candy or a treat or at school for making good grades, like congratulations, now you get to have a higher risk of diabetes. Like everywhere they go it's...and it really is an uphill battle, but I hope that with people listening and people like you explaining this, eventually we will make a difference. I wanna go back to willpower though because it seems like a lot of diets in today's world, they leave the willpower part alone, like that should just be an assumption that you can follow this diet and that it's all willpower and obviously you can't, that's your fault. But you have a different take on this, so can you delve into the willpower gap as you explain in your book and why this is important, and how maybe this is making it really hard for some people listening to lose the weight.

Susan: Yeah, totally Katie. So first of all, you're so right that I think a lot of diet fitness programs they basically say, "Look, here's what you eat and here's what you don't eat and here's, you know, how you structure your workouts, and ready, set, go." And then you're totally left on your own to manage the long term execution of that. So it's just assumed, like you said, that your willpower is gonna show up for you at all the clutch moments, to keep you in line if you want it badly enough, right? That's the assumption is, if you really want this and if you've got the moral fiber and the gumption and the self-control and whatever, then you'll do it this time and we all kind of...like I fell into that, I believed when I was starting a diet that this time I was gonna make it work, that I was so laser focused on the huge, desperate, clear desire for this desired outcome that I wanted to take off this weight finally and I was ready to turn over that leaf and there was nothing that was gonna stop me. And yet...you know, and I would, I would lose a few pounds, you know, I would definitely lose a bunch of weight and for me I never got to my goal. Somehow along that path, I would get stymied and it really does have a lot to do with a willpower gap.

So the reality is that willpower doesn't work in the brain the way people think it does. It's, it's governed by a part of the brain called the anterior cingulate cortex, and that part of the brain unfortunately has a lot of work to do. It's got a big job, it's got the willpower to delegate out and then it also governs your ability to be persistent on tasks that you'd rather quit like, you know, keep on going when that excel spreadsheet or whatever...if you'd really rather leave work and go to the movies or something, you've gotta kind of stay there and be persistent. It governs your regulation of your emotions like the effort it takes to do stuff, basically, is what it governs. So if you've got kids, I know, you know, there's a Wellness Mama podcast, so I'm assuming a lot of your listeners have kids.

Kids, you know, I'm just saying mother of three, they can be pretty frustrating, right, like you don't...in my world, like I don't usually get to say exactly the first thing that's on my mind to my kids. I kind of gotta soft pedal it and take a deep breath over it sometimes, right, and all of that regulation requires our willpower. Now the challenge is that it's a battery pack that gets, you know, drained in about 15 minutes of work and making decisions, that's another thing that drains us. So checking email for example, sitting in traffic, checking email, being with our kids, and all of a sudden our willpower is empty. And the anterior...to make it worse, the anterior cingulate cortex is perhaps the part of the brain that is the most vulnerable to glucose fluctuations, which means that if we haven't eaten in a while, it's gonna be completely sluggish and offline for us.

So you put all this together and you can see why it's really ridiculous to assume that you're gonna make the right choice of what to eat on a Friday night after sitting in traffic when you're kids are, you know, crawling up the walls, and now you've gotta make some kind... And you haven't eaten in four hours and now it's some...now, you're magically gonna say, "Great, I can't wait to take all the vegetables out of the fridge, let's make a salad right?" It's like, "Honey, let's order a pizza," you know? And you just fell into the willpower gap. So basically any plan of eating that relies on you to make the right decisions in clutch situations regarding your food and stick to the plan is destined dooming you to failure, like it doesn't work that way. It's not gonna happen, the brain was not designed to do that. It's not gonna do that for you, it's not, assume it's not.

Katie: I think that's so freeing. Actually like to just understand that and to realize that there's a reason, like for instance when I got diagnosed with Hashimoto's, it was actually a freeing moment for me because I finally understood, it biologically made sense, all these symptoms I was having, and now there was a point of action. And I think that's what Bright Lines and the book and reading it did for me, was to give me that, "Okay, I understand now, this makes sense and now I can conquer it because I know what I have to do." And I want to talk about this a little bit more and delve into the relationship between weight loss and self-love, because I get so many questions from people and it seems like there's a couple different camps: those who think if they just lose the weight, then they're gonna love themselves and be happy, which I don't think is true. But I also think there's a whole big segment of people, including me, for a long time, who look in the mirror and they say things to themselves in their head that they would never dream of saying to someone else. And there's such a tendency for people to kind of go on the cycle of try to go on a diet, do it for a while but then mess up and then binge, because they figure, well, they messed up anyways so they might as well eat whatever they want until they go back on the diet and then beat themselves up for not sticking to the diet, and self flagellate and go back on a really restrictive diet all over again and then rinse and repeat. So let's talk about this, what is the relationship...the true relationship between weight loss and self-love and what's the remedy to this vicious cycle?

Susan: Yeah, yeah. Well, it's a great question Katie and I'm, you know, I'm just...I'm gonna say it all.

Maybe I should ask this question at the end, but did you resonate with the explanation I gave in the book, we're you like, "Oh, that...that kind of makes sense," because I have an opposite opinion than most people. I think most people think that if, you know, you're eating, most people think you're overeating. If you're overweight, you're overeating, and I agree with that, that's true. If you're overweight, you're overeating. There are almost no exceptions to that. There are a few, but almost none. If you're overweight, you're overeating. And a lot of people think if you're overeating, you're eating to mask feelings or to stuff emotions or because you don't...to escape from life, or because you don't love yourself or value yourself enough, or because you've got deep-seated psychological issues you haven't worked through or, you know, blah, blah, blah, right? Does that sound fair? That that's kind of what a lot of people would assume?

Katie: Yeah, definitely, that seems like a really common perception.

Susan: Yeah. So what I think is that people are overeating because their brains are hijacked. And our brains were designed to keep us within a certain weight range and to do it naturally, and our brains have been hijacked by the foods in our environment and our current eating...mostly our eating choices in our current food environment, but also a little bit about our eating times and behaviors and stuff, like the grazing all day thing. And once the brain is hijacked, it is convinced, and we can go into the neuroscience of this if you want Katie, but it is convinced that you must eat more food or you will starve. So it's kind of like your brain forcing you to breathe when you're running...breathe heavier, when you're running up stairs. You're not breathing heavier because you've got deep-seated psychological issues, you're breathing heavier because your brain is demanding oxygen. And there are certain functions that the brain doesn't really give you any control over. It gives you the perception of control. Like, yes, if you're running up stairs, you could try to breathe slower and you could succeed for a hot second at that, but you agree, right, that in very short order, your brain's gonna take over and say, "No, thank you dear, I need more oxygen," right? And it will make you breathe harder. And while it does that, it's going to convince you in your own voice inside your own head that you need to, that...so for example, if you try to set a timer for two minutes and try to hold your breath for two minutes and you play a little mind game with yourself and you convince yourself that you'll get a million dollars or, you know, whatever you want most in the world or whatever, if you succeed at holding your breath for two minutes, my guess is you still won't be able to do it. You won't be able to hold your breath for two minutes, no matter what good outcomes would happen if you did even though it's only two minutes.

And I ask people to try that experiment, literally try it, because it's very illustrative to hear what happens inside your own head when you convince yourself to breathe before two minutes are up. You talk yourself into it, it sounds like you inside your own head, deciding, "Wow, this is getting hard, I'm not sure I'm gonna be able to do this, do I really need to do this? This is just a game anyway, there's nothing really riding on this, maybe I'll just breathe, I think, okay, if I up, ups the up, yeah I think maybe I need to break, okay, I'm gonna breathe," right? It's very similar to the inner dialogue that happens when we're on a food plan and we're convincing ourselves to eat off of it. And we think that we just convinced ourselves to eat off our food plan at that party because we're out with the girls, we deserve it, because it's, you know, whatever the rationale is, we think that was us doing that.

And what I'm here to tell you as a neuroscientist is that, no, it wasn't, that was your brain demanding food that it believes that you need to survive because it's hijacked, in the same way that your brain is gonna demand oxygen under certain conditions your brain will be convinced that you need to eat more food. And that's what we've created through the current obesogenic food environment that we're living in. Now the interesting part is, now that we haven't even gotten to the crux of it yet. The crux of

it is what happens when you watch yourself make that "decision" over and over again. You watch yourself, presumably, theoretically, hypothetically talk yourself into eating off your food plan. You saw yourself do it, you thought it was your voice in your head, you didn't realize it was your brain being hijacked. So now you're left holding the bag, because you're left going, "Ah, well..." and this is not conscious, this is subconscious. You're left now trying to connect the dots, "Well, why would I keep doing that to myself? Why would I keep letting myself down like that? I just wrote out all my goals and had my future goal weight and I was visualizing my desired outcomes and I was...I had all my food like in the...and I..." you know, blah, blah, blah, blah, blah, like why would I eat off my food plan like that? Why would I do that to myself?

Well, if you watch yourself betray yourself over and over again with food, you've basically got nothing left to conclude except that you don't value yourself, that you don't trust yourself, that you don't believe in yourself, that you don't want it badly enough. This is called self perception theory in psychology, which is where you actually learn who you are. You come to believe things about who you are by watching your behavior. Well, you just watched yourself act against every, you know, most precious stated goal that you've got which is this diet that you just started, which you believe so much in and you just watched yourself talk yourself out of it for a cookie at a party or a piece of pizza on a girl's night out, or whatever, right? And how do you explain that, it's the same way you would be listening to your best friend if they were, you know, backing out of an engagement to get together with you to do something for the seventh time in a row, and they were saying, "I really can't go, I'm sorry." How would you...how would you explain that if they're betraying you again like that for the seventh time in a row. You'd be like, "Well, you don't value me as a friend, you're not here for me, you don't think much of our friendship," right? Do you see how you would have to conclude certain things about that friend if they kept doing that to you.

And it's the same way with food. Your brain is hijacked, number one, it talks you into eating things you think it's you making that decision, you watch "yourself" make that decision and then you're forced to come to some outrageous conclusions about your low self-esteem and your lack of self-worth. And I tell people, especially women, I tell...I tell women I'm like, "Look, do you know yourself to be kind and accomplished and like a really good person in all kinds of ways. You don't have deep-seated psychological issues, you have a brain that's hijacked." So you don't need to love yourself more, you need to stop eating the foods that are hijacking your brain.

Katie: Yeah. And I think to me that's the key after reading your book and looking into your research is the free part, because it's living happy, thin and free, but I think most diets, they totally neglect the free part. They don't even...it's not even on the radar. And in fact most diets, even if they work, it's more like you get to be miserable and thin, most people I would think, which is not sustainable for the long term, it's just not. Whereas you basically give people a freedom that I've never seen any other diet or any diet that I've tried come anywhere close to. So can you explain from the brain's perspective how just those four bright lines can kind of flip that switch in the brain and make it so much easier?

Susan: Sure. Well, to do that I first have to explain a little bit about leptin and dopamine. Should I go there to explain where the trapping is coming from and the freedom or?

Katie: Absolutely, yeah, my listeners wanna know the science, so go for it.

Susan: Okay. So when I say the brain is hijacked, I mean basically three things, the willpower gap we've already explained. So we're assuming the anterior cingulate cortex is gonna show up for us

and help us make the right decision all the time, and it's just not. It's not capable of that. It wasn't designed for that. The second way is leptin is the hormone that we all need to have onboard. Leptin is that magical hormone. I don't know if you've ever thought of this deeply but, nobody used to ever get fat basically. Like if you...if you just go...if you just rewind the clock, you know, 10,000 years. People were all like slender, lean basically. And what would happen is at certain times of year there would be a glut of food, you know, all the berry bushes would be full, all the crops would be coming up, you know, the wildebeest would be running around and you'd kill a bunch of them and you had all this food and people would sit around and eat it and they would get heavy a little bit. They'd put on say, you know, three, four, five pounds and the fat cells would grow and they would release a hormone called leptin. And leptin would circle back to the brain and say, "Okay, we have enough fuel on board. We're done eating, we're not full, I mean we're not hungry, we're full, we're great, we're done eating and now it's time to go use this fuel to ensure our future survival. So let's go build a hut. Let's go find a mate. Let's go kill another wildebeest," right?

And so leptin is the hormone that says you are full and it's time to get active to use this fuel for some good purpose. And that feedback mechanism worked perfectly for all those years. What's happened today is... Well, first of all leptin was discovered in 1994 and as soon as it was discovered, the pharmaceutical companies went bonanzas and they started to put it into little pills and test it and unfortunately giving people leptin pills doesn't help at all. It turns out that just like you might imagine, the fatter you are the more leptin you have, because it's secreted by the fat cells as you're gaining weight. So then people start wondering, "Well what's blocking all the leptin," like it's called leptin resistance, right, what's blocking the leptin, why isn't the brain seeing it? It's there, why isn't it doing its job? Why isn't the brain seeing it? And the answer is that it's being blocked. It's being blocked by insulin. So that's lesson number one, we gotta lower those insulin levels.

Lesson number two is dopamine. There's this phenomenon of addiction where you eat an addict...you eat an addictive food or you take a drug and you flood the addictive centers of the brain with dopamine, and what happens then is the receptors go, "Whoa, that was way too much stimulation, we don't need anything like that on board here," so they down regulate, they thin out, which leaves you itchy and needy and without enough pleasure on board unless you're eating those addictive foods again. So this is how people get into a, you know, two to four-hour cycle of eating sugar and flour all day long essentially, is they get these powerful cravings on board for, you know, for this, for that and they don't feel right unless they have it.

So those are the two ways that the brain is hijacked. Dopamine down regulation which is addiction, that's the same thing, by the way, as heroin and cocaine addiction, same thing: sugar and flour are as addictive as heroin and cocaine. Very literally, physiologically in the brain, as an addiction neuroscientist, that is true. Sugar and flour are as addictive as heroin and cocaine, I promise you. And having been addicted to crack cocaine, I'm here to tell you sugar is harder to kick than crack cocaine, just saying. So our brains are hijacked by that and they're also hijacked by the insatiable hunger that comes from when your brain doesn't see your leptin. It believes you're starving, it literally believes your physiological...physiologically starving and it...your brain shows all the markers of physiological starvation. No wonder you can't stop eating, right, because your brain thinks you're starving.

So that's the foundation of your question, Katie, was about free. So how do we get free with these bright lines? So basically you can kind of feel it, right, that if you don't realize all this has happened inside your brain, trying to eat less especially if you're like, you know...and I don't mean to pick on any particular program here because I have kind of the same opinion of all of them, but like let's

imagine that you're trying to eat, you know, points and you're eating like one point brownies, right? Well, you're eating the foods that keep fueling this process in your brain, so now you're trying to restrict your caloric intake while continuing to eat the same foods that are fueling the hijacking of your brain.

And you're basically trying to breathe slowly while you run upstairs, you're trying to fight your brain every step of the way, it's not gonna work. Your brain is gonna win and it's gonna create an insanity in your head in the process, the same way that you would be going insane in your head if you were doing the equivalent of trying months and years of trying to run upstairs while you breathe slowly, like it just doesn't...you know, your brain is gonna need more than that, it's gonna be demanding more than that and it's...it's...it creates, like for anyone who's ever been at, you know, like me and you, right? If there's an insanity in your head when you're trying to like hold simultaneously the urge to eat more food and the restriction of like, "No, I'm not gonna do that. It's like it creates an insanity. It creates a decidedly...a decidedly...a decided feeling of not free, right? Like, I'm not free.

So when non-food addicts ask me what does the free mean, and happy, thin and free, I just crack up. Because they don't get it, they've never had it, right? They've never had the rigmarole in their head of what they've eaten or not eaten, whether they're on their plan or off their plan, whether they're gonna eat a lighter lunch today because they're going to a party tonight and they're gonna be, you know, wanting to overeat tonight at the party, but can they make it, you know, blah, blah, blah, should they have a smoothie at breakfast and then skip lunch entirely. And, you know, will they use up all their points at dinner for the blah, blah, blah, it's like it's insane, it's totally insane. So I feel like I've been talking for a long time but you probably want me to actually get to the punch line right, of like, how do you...how do you...how do we get free with Bright Line Eating? Yeah?

Katie: Yeah, exactly.

Susan: Okay. So we get free by putting up a bright line for sugar and flour and meals and quantities. And all of a sudden your food becomes clean and clear, and with a bright line for sugar and flour your insulin levels drop immediately and fast and powerfully. And all of a sudden your brain can see your leptin. So now you're not struggling against your brain so hard. It now thinks you're full and it wants you to get moving. So now you're good there. And slowly your dopamine receptors start to regenerate, because dopamine regeneration...dopamine down regulation is reversible. So your dopamine receptors will regenerate. So those powerful cravings that used to send you off into the night, you know, for that specific fix, right, about food fix or whatever, or that would leave you at a party like facing a certain food and not able to say no to it. Those cravings start to go away. They start to fade. Eventually, they go away almost entirely.

And in Bright Line Eating we give you other supports like having you write down your food the night before and plan it the night before, so that you are no longer faced with that moment of like, "Jeez, what am I gonna eat?" And you're in the middle of the willpower gap, right? You already planned what you were gonna eat and you've already pre-prepped some of it, and the easiest thing to eat is the...the right thing to eat is the easiest thing to eat in any given moment. So you put all that together and you start to like...I think you're in this groove, Katie, of like this is easy. How was it all so hard all those years, like it just clicks into place where all of a sudden your brain is working for you and all the...the moxie and willpower and, you know, awesomeness that you've, you know, demonstrated in every other area of your life starts to show up in this area of your life. And it's like, "Wow, I can totally do this and I'm not feeling crazy, like this is awesome."

Katie: Yeah, exactly. And I love so much the analogy of if you're walking upstairs, you can't choose not to breathe heavier, if you need air, your body needs it, period. Because it's actually really fresh on my mind, I just got back from Switzerland from a health conference. And so, first lesson is if someone from Switzerland ever says, "Do you wanna go out on just a little hike?" It's not a little hike. Swiss people don't do little hikes, it was 20 miles: 10 miles up a hill, 10 miles down a hill. And at that altitude, not being an avid hiker, I, at certain points, like literally could not breathe on that way up the hill and the idea of even trying to not breathe in that situation is insane. But then I also compared to you on the way down, it's harder on your legs but you can breathe and it's such a big difference. And so this to me that's kind of the analogy I think of in my head, with Bright Lines is once you break that cycle at the top, it gets so much easier and you still may have struggles, or your knee may hurt once in a while from walking downhill, but the will to breathe and that absolute insatiable thing, "I have to breathe right now," that's gone, because you're just breathing again, and it's simple. And when you talk about susceptibility, I think of like, yeah, people who don't understand that difference, my mom, I mentioned her, but she can...literally her favorite food could be on the counter. And unless she's hungry, she'll just walk by all day, doesn't care. Whereas other relatives in the extended family like, if there's a candy bowl, they can't not eat the entire thing. And it's just a really noticeable difference.

But I wanted to circle back on one thing. Because you talked about sugar and I know some people listening may be thinking that just applies to refined sugar and they're thinking, as I did for a long time, "Well, I don't eat any refined sugar, I haven't in 10 years." But sometimes they eat maple syrup or honey or stevia or xylitol. So can you explain a little bit deeper what you mean by sugar?

Susan: Yeah, Katie, that's such a great question and I just wanna say that Switzerland sounds amazing, really, really nice, beautiful. Yeah, so sugar is all forms of sugar or sweeteners that are added. So whole fresh fruit is fine...fine wonderful delicious, yay, love fruit. And the fiber offsets the fructose in the fruit. That's why it doesn't hit the brain the same way. But when you add sweetener to your food, whether it's honey, agave, any of the things you mentioned, stevia, blah, blah, blah, there are multiple pathways by which it gets us in trouble. So I know people say, "Oh no, but stevia is okay," but, no, it's not, actually, because that extra sweetness hits the taste buds and the taste buds have a direct connection to the addiction centers in the brain. So that will stop your dopamine receptors from regenerating. So all of those sweeteners, artificial sweeteners are some of the worst that the bright line counts for them as, you know, equally strongly if not more strongly. So, yeah, all of the things you mentioned are not part of the Bright Line Eating food plan.

Katie: Thanks for clarifying that and I'd love to also talk a little bit about dietary dogmas, because Bright Lines is very much, at least, from my take on it, it's not anything about what to eat specifically as how to eat. You give a framework but you don't say, you must eat, you know, grilled chicken on this day or it's not a very prescriptive thing like that. And I think people really attached to like a food philosophy, whether it's paleo or a vegetarian, there's a lot of people right now claiming that plant based eating is the only way to maintain a healthy weight, and that if you're plant based, you're never gonna gain weight. And others saying, obviously it's paleo or Trim Healthy Mama or whatever the case may be, so. But the interesting part and I've listened to you speak before, people can still, first of all, get these dietary dogmas into Bright Lines if they want to. But also people will lose weight on Bright Lines following the same types of eating, not eating for instance any wheat if they're allergic, not eating any sugar anyway, but to lose weight on Bright Lines when they wouldn't, when they were just eating this prescription. So, first of all, why don't you like dietary dogmas on the specifics of what to eat, and then, secondly, why do you think Bright Lines still works within all of those frameworks?

Susan: Yeah, I think...and it's interesting this was a concept for a book that I'm thinking about writing

with a colleague of mine. But basically the key here, Katie, is that, people are missing the boat in thinking that when it comes to lose weight it's about what you eat, it's just not. The reality is that the research is very clear, that for... It's been tested, in even metabolic ward studies, which means people are like on lockdown in a building and like every morsel of food they're given is measured, right, and for a long time, they're expensive studies to do but they've been done. And the reality is that people lose an equivalent amount of weight on, you know, low carb or low fat or paleo or vegan, it doesn't...it doesn't matter. They are equivalent. Assuming the calories are equivalent, right, so I do think that there's some truth to, you know, certain health claims, but that's a different question than a weight loss claim, right?

So, you know, for example, I believe that if you eat, you know, more kale than bacon, you will be healthier. Like I just think kale is a healthier food than bacon in general. And I think there's good evidence for that, but there's no evidence to say that, you know, eating a certain food plan actually makes you lose weight better. What there is evidence for is that if you stick with a food plan, you'll lose weight better. So the issue is in long term compliance, and long term compliance is not a matter of, you know, macronutrient combinations and, you know, certain food dogmas as you call it. It's really not. Long term compliance is a behavioral psychology hacking issue. It also has to do with, if you're eating foods you're addicted to, that's the thing about sugar is eating some today increases the odds that you'll eat some tomorrow, right, that's the issue with sugar is. And there are some foods that eating them now makes you overeat later, artificial sweeteners is one of them. Eating artificial sweeteners today results in a 50% increase in caloric intake later.

So you gotta watch out for certain things like that, but it's really about compliance and Bright Line Eating with a combination of bright lines and planning, we're focused on automaticity and habits. That's the way to execute behaviors long term. In the same way that we brush our teeth, you know, morning and night without fail, without thinking about it, whether we're in a good mood or a bad mood, whether we've been out at a party late or not, you know, a lot of us are really rock star tooth brushers, not all of us, 5% of the population is not, but most of us can really relate to like having some automaticity around our teeth brushing. That's what we gotta get with our eating. So I don't care if you wanna get automaticity with eating paleo or automaticity with eating vegan or automaticity with what.

I personally believe that when it comes to what you eat, there are two non-negotiables to being thin: One of them is you've got to get sugar and flour out of your system, and the other is you gotta eat a lot of vegetables, vegetables, just a lot of vegetables. And if you do those two things, you don't eat sugar and flour and you eat a lot of vegetables, more produce than you think, a lot of vegetables, then what happens is what you do around the margin like where you get your protein sources from, how much fat you do or don't eat, and what sources and blah, blah, blah, blah, your body absorbs that pretty well. There's a lot of flexibility and that's my personal philosophy.

But I don't even push that on people and I personally see my job as giving people back authorship and ownership and agency over what they put in their mouth. And then if they want to, they can go on a journey of eating increasingly healthier and healthier or they can come to Bright Line Eating and eat right away the...what they think is the healthiest way to eat. I think there's a lot of controversy in nutrition right now and I...I'm agnostic to most of it, you know, all these fat and protein, you know, high carb, low carb, vegan, paleo stuff, I...yeah I'm agnostic to all that. I'm interested when the research comes out. But mostly it's an issue of compliance and compliance has got nothing to do with your macronutrient ratios or any of that stuff. And we've hacked compliance in Bright Line Eating, that's why we're so successful. There are certain things you gotta do to be able to stick with something.

Katie: Right and I think, yeah, you're doing all the things biochemically that support that. For instance, you talked earlier about leptin and I'm one of those geeks that reads medical journals for fun, but it seems to be like with leptin that a lot of them agree that if you don't eat between meals and give your liver time to regenerate and kind of rest between eating, which Bright Lines suggest, then you help your leptin levels and cortisol levels get into a correct range. So like there are so many things, every aspect of it is very lined up with science. Obviously, you have a science background, so that makes sense. But I just love that, there's so much science that backs it up and it makes it so much easier that way.

Susan: Totally, studies are coming out every day and we're like, "Oh, look, that's what we do in Bright Line Eating." Totally.

Katie: Yeah, exactly. One thing I've personally found, as you mentioned, people can kind of adapt it is, there's a lot of research on fasting for longevity and for cellular health, but obviously with Bright Lines you still do wanna eat, you don't wanna just not eat either. So what I've been doing is eating within 8-hour window. So I'm still eating three meals but I'm sort of fasting 16 hours a day, I'm sleeping for a lot of that. And it just seems to really help but also just gives amazing mental clarity and all those benefits related to fasting without skipping meals, which is actually not good if you're in the, you know, pregnancy or nursing or motherhood phase of life when you have all these extra demands on your body anyway. So that's just one tip I throw out there, but let's talk a little bit more about vegetables because I 100% agree with you and I often say like even if you're a meat eater, you should still be eating more vegetables than a vegetarian. No matter what your dogma is, eat vegetables. Everyone agrees on that, but why do think...what's the mechanism? Why are the vegetables so important?

Susan: Good question. I think most people think it's about fiber and nutrients like vitamins and minerals. And what it turns...and those are important things. I'm not saying that those aren't. I think fiber is super important. There's obviously a huge literature on that and I am a fan of nutrients. That's great. But what's interesting, Katie, is that there is another line of research that people don't know as much about which shows that the primary benefit of produce is actually in its hormetic stress on the body, the actual phytotoxins in vegetables. So stick with me here, it turns out that the healthiest things you can do for your body involve exposing it to micro stressors. Like for example, consider exercise. Exercise actually weakens you temporarily, it exhausts you and it depletes your resources, it puts...leaves you in a weakened state and it's a stressor on your body, especially if you're doing resistance training and you're tearing muscles and like it's hard on the body. But what the body does...it kicks the body into a mode of growing stronger, right? And then you give your body, you know, 24 or 48 hours of rest and nutrition, your body takes that exercise session and it literally becomes stronger and better and healthier for it. That's called for hormesis. The process by which stressors on the body make the body adapt and become stronger.

And exercise isn't the only hormetic stressor. There is also cold and heat and asphyxia like oxygen deprivation, like at altitude or if you just hold your breath a bunch. There's all kinds of hormetic stressors, right? And it turns out that the phytotoxins in vegetables and certain fruits, all act as hormetic stressors. So they get into our body, the body sees them as toxins but we co-evolved with those fruits and vegetables to benefit from them, to benefit from those toxins, and all of a sudden the body is adapting and changing and becoming stronger on the cellular level, so that's actually the biggest benefit from vegetables, believe it or not, is their toxins. Crazy, right?

Katie: Yeah, super fascinating though.

Susan: Yeah, hormesis is a trip. When you start learning about hormesis and I love how you're using that nice long fasting window, I'm doing that a lot too, like I'll sometimes eat my dinner at like 2:00 and I'm done for the day, you know, no more food. It's amazing when you start getting into circadian rhythm science and fasting science and hormesis and all that stuff. Yeah, very interesting stuff.

Katie: Oh my Gosh. I feel like we could do a whole another podcast one day just on that. But I want to also address an objection that I know I'm gonna get because I recently posted a picture on Instagram with just a write up about how I think really no one should be eating sugar, period, including, you know, anyone, like it's not a moderation type thing. And I had all these people get mad at me, especially that like intuitive eating crowd, you know, every day moderation, this is an extreme view, you're gonna create eating disorders, what about, you know, a lot of diets recommend cheat days, and those are totally fine or a little bit of sugar in moderation. And I think most people listening, if they understand what you've been saying, probably understand the answers to that, but what is the specific answer to the...why we can't just do everything in moderation these days?

Susan: Well, I don't know if I have the same answer as you on this Katie. I don't think Bright Line Eating is for everybody. I think some people can do moderation and I wish I were one of them, not really anymore because I'm a pretty happy being me but, you know, jeez, it'd be nice to be able to eat a cookie and not want another one like my husband. But I know that for...in my estimation, about two thirds of the population, it's not going to be a long term path that will include being healthy and in a right sized body and as happy as they could be and things like that. I think there are people for whom that really does work, and so I'm a big fan of do what gives you peace and do what makes you feel free and do what leads to your health and your well being. And then my path is not for everybody at all.

But I do know that a lot more people would be empowered by a bright line for sugar and a bright line for flour, than realize it. And a lot more people would be stunned by how liberating it is, liberating and freeing to actually adopt a complete bright line than to try to keep making exceptions for holidays and special occasions and all that stuff, than realize it. A lot of people don't realize how freeing it is to actually just quit something and then just make it part of your identity that you don't eat that. Because then you're not always wondering, will I, won't I, is this the time to have an exception, is that not? You just make the decision once and for all, you move on, you do what it takes to adapt to that decision like quitting smoking, you know, you change your identity to be a nonsmoker, like that's who you are. And all of a sudden before long, the problem has been completely removed. It's just not even in your universe anymore. And so, yeah, I don't think everyone needs to quit sugar personally, but I think way more people would be served by it than realize it, for sure.

Katie: Yeah that makes sense and the converse would be I guess that those intuitive eaters that's wonderful that it works for them, but they also can't assume conversely that their method's gonna work for someone who has a really high food susceptibility because it's just, like...it's like the brain oxygen thing, it's just not gonna work for someone who is there.

Susan: Exactly, exactly, and that's such a critical point, like we need...and I think we were there with alcohol, right? If someone says on New Year's Eve, no, thanks, I don't drink, to the champagne, I hope and I trust that these days people aren't gonna be saying, "Come on, it's New Year's Eve, you need to drink with us," you know? But you're right that on Thanksgiving, if you try to say no thank you to pumpkin pie, because you don't eat sugar, you will get a lot of hazing for that, a lot of pushback and a lot of shaming and a lot of harassment. So I agree that the folks who wanna keep eating sugar

and finds that it works for them, you know, it'd be great if we could, you know, get to a point where we understand the susceptibility scale and realize that that's not gonna be a workable strategy for everybody...food is not a one-size-fits-all thing.

There's a lot of different ways to crack the food nut and Bright Line Eating is one of them and it works for a lot of people. But it's not the only way and their way isn't the only way and too I tried intuitive eating so hard, I went...I went into that and really tried it. It does not work for me, it does not. I do not reach my stopping points often enough to keep my...you know, to be sane and in a right sized body. It makes me crazy to try to do intuitive eating. I cannot do it. And, you know, it would be nice if...if that...if, you know, the type of brain that I have got equal respect.

Katie: Yeah. And another thing people may be wondering is, can the brain heal? I know that...like with the science of addiction has a lot of research here. If a person does this for long enough, does the brain ever heal or has someone who these kind of pathways have opened? Are they always gonna be there?

Susan: Oh so. At first I didn't understand your question at first because I was gonna say, yeah, the brain heals, like I already told you those dopamine receptors regenerate, but I see what you're saying like could someone go back to being a normal eater after they've been high on the susceptibility scale, is that what you're saying like...

Katie: Exactly, like once you've kind of lost the weight and gotten to that point, I know a lot of people may be wondering, well, then can you just eat intuitively or eat freely, or whatever the method may be?

Susan: Right. So the answer is probably no, unfortunately. And I've tried this, I had six years-ish, without taking a single bite off my Bright Line Eating plan and then decided to try to go be an intuitive eater. Because my third daughter was born and she was nine months old and I have three daughters, I have twins, who at that time were like three and my baby girl was nine months and I just...I didn't wanna be weighing and measure my food in front of them and I just thought, you know, I wanna just eat whatever food I put on the table for them. I don't wanna be eating differently and, you know? So I tried and what happened was I very quickly took about two and a half months I think, to reach the point where like my life was spiraling out of control and, you know, will I, won't I, I'm gonna eat this, am I gonna eat that...like I said, am I gonna eat less lunch for...you know, food at lunch because I'm gonna go to a party tonight at dinner and am I gonna make an exception here and, you know, should I try the ice cream last night but I couldn't stop eating it, now I need to not eat today because I don't wanna gain too much weight. I was willing to gain some weight, but not too much. I don't want to have to buy a whole new closet full of clothes, you know? It did not work.

And so here's the neuroscience of it Katie, the neuroscience is there are...first of all, there are several lines of research, I mean, several entire bodies of research in different domains that demonstrate in a variety of ways that once the brain has developed a certain behavior pattern, a certain tendency, a certain learning, it never can unlearn it. It just doesn't. You can make the outward behavior go dormant, but the brain still knows, the brain still remembers and you're still someone who's eminently capable of that old behavior in the way that someone who never behaved like that just isn't. So let me give you two good examples. Somebody, you know, speaks French until they're five and then they move to America, they never speak French again for the rest of their life. Now they're 80 years old, you expose them to French and they speak it fluently within a week, like just boom, it's right there. They haven't had any interaction with French in 75 years and they're natively fluent within a week.

That's one example.

Another example is Pavlov's dogs, right? You take Pavlov...you take a dog and you expose him to meat and to a bell at the same time and he salivates and eats the meat, all is well, and you do that say 25 times, you pair the meat with the bell. And now after 25 trials, the dog's trained up and you ring the bell and the dog salivates, okay? You can make that salivation go extinct by giving your five-year-old access to the bell and having her run around the dog and ring it, willy-nilly, all the time, with never any meat in sight, and eventually the dog learns that the gig is up and no meat is coming and the bell doesn't mean meat anymore, and the dog will stop salivating to the meat, completely. No more salivation, you can ring that bell all day, any time anywhere, and it will not salivate. Now, you take that same dog and you ring the bell and present meat, and this time it takes 2 trials to train that dog up to be a full salivator to that bell, instead of 25 trials.

So what that means is that if you have a certain dysfunctional, addictive, unhealthy, emotional, whatever patterns around food and you do a lot of healing work, you do a lot of Bright Line Eating, you do a lot of whatever you do and change your path, you are still eligible to be that insane eater again within a hot second, if you stop doing the things that got you well in the first place. It's like a dry river bed, you know, you've got water and it grooves a river bed, you can divert the water upstream. This is the neurological analogy, this is, you know, the electricity in the brain, is it forms reverse through fiber tracks in the brain. You can divert the water upstream and make that river bed run dry, but it's still gonna be there as such a dry riverbed now. Yeah, some shrubs will grow in it and stuff but you let some neural activity back down that old path, those shrubs wash away real quick and you've got a roaring river before you know it. So take it from someone who's been there, trying to go back to an old addictive pattern. Yeah, once your brain is cooked, it's cooked. Unfortunately, you can't...you can't turn up...what do you call it, you can't turn a pickle back into a cucumber. You just can't, once your brain is pickled, it's pickled.

Katie: Yeah, it's an interesting analogy and it reminds me of a few months ago my husband had surgery and he had to have an umbilical hernia repaired that was a result actually of a previous surgery, and after a lot of research, we decided instead of general, he just went in to do IV sedation, but also really heavy local. And this was at the recommendation of a doctor friend of ours, who said the local actually prevents those pain pathways from opening in the first place, whereas if you're under general, they open, you just don't feel them because you're asleep. But if you prevent them from opening in the first place, it actually keeps the pain down afterwards, whereas if you go through general and those pathways are open, you're gonna still feel that pain more after, because those are the nerves or whatever the pain pathways have been connected to the brain and they're already primed for that. So I kind of related, there's a very biological method there and super fascinating, maybe discouraging, although, I will say from experience, I truly don't miss. I didn't really eat flour to begin with, but I don't miss sugar at all, even natural sweeteners. So it's not like you're living in a constant state of like, "Oh my gosh, I can never eat cake again or whatever," like it really is a freedom. And I don't think you can understand that until you actually get there, but I wanna talk about the results because you've shared some with me there's some results in the book and then you also did a talk that really delved into the results. But it's really, I mean, astounding, the results people have on Bright Lines, so what are you seeing in people who follow this method over the long term?

Susan: Oh Katie, yeah, it's remarkable. I mean, this is the most successful weight loss program on planet Earth by far. No comparison. And we have a pretty extensive research program that goes along with the Bright Line Eating boot camp that we offer and the ongoing follow-up, you know, surveys and stuff that we send out and everything. And, yeah, we find that people are getting down to

goal weight and maintaining it, like on no other program. I mean there's nothing out there that's even close. I mean, I think I calculated at one point that someone's...if they do Bright Line Eating as compared with the, you know, any of the best of the other available commercial weight loss programs, they're too...if they do Bright Line Eating, they're 280 times more likely to get down to goal weight and stay there, than on any other program. It's ridiculous. And so, yeah, I mean people on a commercial weight loss program, weight loss happens in the first six months typically, and weight regain starts after six months. We have people continuing to lose weight on average, you know, like I forget, 84% of people., you know, keep progressing, keep their weight off, you know, it's just...it's just remarkable, yeah.

Katie: Yeah and you have all kinds of stories from people on your website. I will link to a few of those, because I know they're really inspiring for people who'd overeat, especially if somebody is considering it and it's kind of that whole, but I don't wanna give up sugar phase.

Susan: Yeah, right.

Katie: I think that can be really encouraging.

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Katie: Well, you do a lot of research, but you also talk about the research that you hope that we're gonna see in the future related to obesity and weight loss. So what do you think we're lacking currently in research and what do you hope we see in the future?

Susan: Well, we're lacking research designed by people who understand anything about food addiction unfortunately, so some really interesting obvious studies haven't been done and I have a new appointment, relatively new, at the University of Rochester and stuff and right now I'm so focused on serving the ridiculously, rapidly growing movement of Bright Line Eating that it's very hard to, you know, engage in a bunch of the research that I would like to do as well, but that's what the Institute for Sustainable Weight Loss is for, so. Anyway, so some of the research that needs to be done is...well, first of all, it'd be great to just demonstrate the regeneration of the dopamine receptors in the nucleus accumbens after people stop eating sugar and flour. It's been demonstrated in rats and stuff. It takes about three weeks, but I really wanna see that with fMRI in humans. So just to watch the progression of those dopamine receptors regenerating because we really don't have any hard evidence on exactly how long it takes, I have a sense in my gut from just knowing, you know, when people start to experience their cravings fade away, right?

Other research is just more, more research on this...the long term sustainability of what we're doing because Bright Line Eating is only two years old. So we don't have long term data yet. I mean, I guess, it's coming up on three years old since we started our first boot camp. So the first cohort of people ended the first boot camp at the end of the year of 2014. But we didn't start our research program in the form that it exists now for another year. So basically the people in our research program have only been there for like a year and a half. So we have very relatively short-term data, we're gonna track these people for 10, 20 years and beyond. So just demonstrating the sustainability. I'm also partnering with a woman named Kathryn Lively at Dartmouth and she does research on identity change. So this is really interesting. How does your identity change when you go from obese to slender? It's a big shift. Like that's a different way to walk around in the world, for sure. Anyone who's been, you know, obese can tell you whether they've been slender or not, like it's, that's a...that's a big shift. And we're gonna be looking systematically at the identity shift that happens through Bright Line Eating and through Sustained Weight Loss.

We also...so here's the most important thing I think. This is what I'm most excited about is there's a lot of research showing that when you lose weight, your body registers the starvation event, essentially, the caloric deprivation, and changes certain things in your physiology to guarantee that you'll gain back the weight essentially. It shifts your leptin, gastric inhibitory peptide, peptide YY, GLP1, cytokinin, pancreatic polypeptide, amylin, all these different hormones that govern your body fat set point and your, your hunger levels, your satiety levels all that. And what we wanna do is...it's already been done with other diets to demonstrate, look, when you lose weight your body starts working against you essentially, from that point on, to make you gain the weight back. But we're not seeing that with Bright Line Eating, not on average. We certainly have some weight regain of course, I mean the weight regain in the normal population is close to 100%. In Bright Line Eating, we have some weight regain. But why not more and what's the difference, what is...what are we...what are we doing that's keeping people's metabolic and hormonal systems, their endocrinological systems from fighting

against them to make them regain that weight, right?

So just a simple thing would be a blood draw before and after weight loss to show look, you know, normal healthy leptin, ghrelin, neuropeptide YY, etc, etc, levels, you know? So those are some examples of the research that I wanna do. And that I want to see done, I don't care who does it, I just want it done.

Katie: Yeah, I'd be so fascinated to see that and I also just wanted to clarify for people too, I guess that I'll link to the results, but when you talk about people having sustained weight loss, you're not just talking about people lost like 10 pounds and kept it off. Some of these people have lost like over half their body weight or gone from like 200 to 300 pounds or up down to like a healthy weight of like 120 something. It's a really drastic change and they're keeping it off, I know you have a couple examples of people who have done this for a couple years now. So really it's staggering, it's amazing.

Susan: Yeah, totally. People, who, yeah, have lost 200 pounds, people who've lost 100, 150 pounds and now they're slender. They're not less fat, which is what you can expect if you do gastric bypass surgery, is to hopefully be less fat. And still on average, obese. The average gastric bypass patient at the end of the surgery after all is said and done is still morbidly obese. Our people get slender. They get into a right sized body. It's totally a different game. And they don't have to reroute their stomachs and keep their bodies from digesting vegetables and stuff to do it.

Katie: Yeah, it's awesome. And also it seems like all their testimonials, like their main thing is like, "Yeah, that's great, I lost all this weight, but I also just feel at peace," like there's a calmness that does not seem to come with long-term dieting in other places. So I love that.

Susan: Right. And like people feeling and people reporting things like, you know, low...very low hunger levels, no craving levels, little to no cravings at all, that their peace has gone up with their food, that their eating feels easy now, like these are not things you typically see from dieters. Like what you normally see when someone starts a diet is that they get hungrier, they get less peaceful with food, they get more crazy with food, more obsessed with food and that's not what we see in Bright Line Eating, people report this peace that you talk about Katie, that you've got now. And they all say it's not really about the food, and it's not about the food, it's not about the weight, this is a way of life.

Katie: Yeah, it's awesome. And I'd love if you have a couple seconds to go through...and when I told people I was interviewing you, they sent me a few specific questions like, "Oh, can you please ask her this, I have been trying to find an answer to this." So do you have time for a few rapid fire questions?

Susan: Yes, absolutely.

Katie: Okay. So the first one someone asked, "What about when it comes to kids? Can kids do Bright Lines? Why or why not? And at what age is it okay time for them to start?"

Susan: This is a tricky one, kind of no, but maybe and maybe yes. So let me explain. I really believe that Bright Line Eating is not a program for people who need it. It's a program for people who want it and who are willing to do it. And so if your kid is clamoring to do Bright Line Eating and I would make...I would wait until they're really clamoring like begging, they're sure, like you've explained to

them this is, you know, this is normally a grown up choice, you know what I mean? I do not recommend in general that kids do Bright Line Eating. And I certainly don't recommend that it be imposed by their parents. I think that the best thing is to preserve the possibility for intuitive eating for the kids to listen to their bodies and the best way you can do that is to provide meals at meal times, serve foods that you feel good about. Then be completely hands off about whether and how much they eat, so that they're just listening to their bodies about how much to eat and just go with that, would be my recommendation. So if you don't feel good about serving sugar and flour, don't serve them.

And make sure that your kids are eating meals, you know, sitting down at the table with you and then don't bug them about eating their vegetables or not or taking a bite of everything or finishing their plates, like hands off, once you've put the food on the table your job ends and let your kids just eat until they get distracted and don't eat anymore, right? That's what I would recommend. If you have a kid with a bad weight problem who really wants to do Bright Line Eating to solve that, then with the understanding and support of their pediatrician, I would say a begrudging like, okay, but in general I think this is a choice for grownups to make for themselves.

Katie: Gotcha, so but if someone has like for instance like an older teenager, who is capable of doing it on their own and who makes that choice, that would be an acceptable adult type decision, but like you don't wanna enforce this on a 5-year-old basically.

Susan: Yeah, or I don't wanna enforce it on anybody who's not choosing it for themselves, but, yes, if there's an older, if there's a teenager who wants to make that choice. We've had even...we had a 12-year-old...12-year-old and 15-year-old boys in Bright Line Eating, who did it with their dad and it seemed to work out really well. Now keep in mind that any kind of diet, and I don't know if you wanna call Bright Line Eating a diet, but any kind of diet in adolescence sets someone up for a lifetime of weight struggles. So unless they're already overweight, I would not start on...especially girls, I would avoid any kind of food monkeying around, like the plague. Like just...just tell them, "Honey, just... just eat, it's fine, it's just food." Like try to like really minimize food, focus food whatever, just like, you know.

But I get that kids unfortunately are being raised in this environment and by teenager hood they can already be pretty far off the track. So I get that there can be the desire for a solution there both for the kids and the parents. So, yeah, with the assent of the pediatrician and the support of the pediatrician, I think that's...that's okay.

Katie: Got it. Okay, another question is obviously from someone who's already doing Bright Line. "They said as long as meals are planned the night before and fit the rules, can they be rearranged within a day? For instance, can the breakfast template be used at dinner and vice versa for someone who feels better with carbs at night for adrenal reasons?"

Susan: Absolutely. So the food plan is very malleable that way and the categories and quantities of food are...are super flexible. I recommend for the sake of automaticity, changing that food plan once and then leaving it. So that you're not deciding each day like, "Do I...you know, where do I want my grain today, you know, breakfast or dinner?" No it's like, if you want it at dinner put it at dinner and then leave it there and then that's an equally good choice. There's no...nothing sacrosanct about the specific categories and quantities of food being the way they are except that it tends to work for a lot of people and experience has shown that. So we tend to leave it alone, but that's a perfectly good reason to move your grain from breakfast to dinner. Yes.

Katie: Very cool. Another one definitely from someone who's already doing Bright Line, "For the breakfast template of a starch plus fruit plus protein. Can a person choose a vegetable like cucumber in place of the fruit if they're tired of fruit, or just want to choose a veggie?"

Susan: Sure. Produce is produce.

Katie: Okay, perfect. And someone else asked, "How can people avoid triggers and social cues to eat when they're everywhere?"

Susan: It takes a lot of support. I mean, basically starting to do Bright Line Eating is like starting a process of breaking those cue response associations. So you've gotta basically build up habits now of not responding to those cues to eat the way you used to, and to do that takes a lot of consciousness and it takes a lot of support. So the first thing is you got to be planning your food the night before. So you know what you're eating and it's not that stuff, right? So you can be thinking to yourself, "This is not my food. I've got a delicious meal, it's either packed in the car, I'm gonna eat it, you know, or I just ate it and now I'm at this party and I'm not gonna eat anything here because I already ate my dinner." So you gotta be really clear on what your food is and support yourself by having it prepared and then you use support.

So you text a buddy and you say, "Hey, I'm at this party and there's a lot of pizza and beer around and I'm not having any of it, thanks for supporting me." Or you going to the bath...there's five strategies that research shows replenish willpower in the moment. One is social connection. So again text a buddy, call a friend, whatever. Another is prayer. You know, ask God for help, ask God to remove that thought. Then the other is meditation. So go into the bathroom and, you know, get out an app or just sit, you know, on the side of the tub and take 10 deep breaths or whatever. Another is gratitude, so think about what you're grateful for or without your smartphone and make a list of what you're grateful for. And another is service. So find a way to get out of yourself, notice someone who's sitting alone and go talk to them. Make a game with yourself that you're gonna meet three new people and find out, you know, three interesting things about them and that you're gonna remember it on the way home. So you're gonna quiz yourself. So you have to be paying attention. Get out of yourself. So those...those are some of the strategies that I recommend, our app, The Bright Line Eating daily companion, which is in beta testing now and will be rolling out really soon, walks you through all that. It's called an emergency action plan and it helps you when you're in a clutch situation like that.

Katie: I love it and those things are so good for any aspect of life. Having more gratitude and prayer, meditation, all those things are awesome anyway. Somebody else asked and you may need to preface explaining the exercise or no exercise portion of Bright Lines, but they said, "Why no exercise, what if people have a specific goal unrelated to weight loss like being able to run a race with a friend or lift a certain amount for competition, is exercise okay then?"

Susan: Well, it really depends. If you're really trying to lose weight, the research shows that you will decrease your odds of getting to your goal if you exercise during the weight loss phase. And the reason is that exercise is a powerful willpower depleter. It just is, you can't get around that. And you are...it also triggers a compensation effect, which is your brain stressed to trick you into making exceptions to your food plan and the automaticity that you're trying to build up in that...in those early days of your food plan will unravel.

So people are say...this exercise piece is a big reason why people aren't hitting their weight loss

goals, is because they're assuming they need to do diet and exercise at the same time. Now all that said, exercise is super healthy and I want people to get back to it as soon as their Bright Lines are automatic. Like so a few months in, I want them to get right back to exercise. And, you know, of course I'm a fan of goals like that, like I have those myself. I wanna be able to do a pull up and I'm working hard toward it. I don't know if I'll ever succeed because I'm pretty far from it but I'm working on it and, etc, etc, right? So the challenge is that it really is better in the initial phase of the weight loss plan, while you're setting up your habits and letting them become automatic to not exercise because the cutting of corners that happens when you're exercising as well, it's just a...it's a plate that's too full, it's more than the brain can handle and I know people think they're...they're, you know, Wonder Woman, and everything. But, really, you know, this is why people are sabotaged and they're not achieving their goals.

Katie: That's good to know, so basically once...it's not no exercise forever. It's just until the cravings are gone and the stress is gone and you've got all that stuff dialed in. And I would assume also this doesn't mean like it's not good to go for walks with friends if you are enjoying that and not seeing it as exercise or not? Swim with your kids because, it could be exercise, but not like having a structured exercise plan that is causing you stress? Is that kind of the right jest?

Susan: Yeah, that's the idea. So if it happens incidentally...if it's activity that happens incidentally that you're not psyching yourself up for or whatever, then that totally doesn't count as exercise. It's not...that's not willpower depleting. It's that...but it...but see, it's interesting because even if it's mild, if like let's say someone says, "But what if I wanted to go for a walk?" And I'm like, "Well, are you gonna schedule that four times a week and then have to psych yourself up for your walk that day?" She's like, "Yeah," And I'm like, "Well, then don't do that. That's...that's depleting your willpower right there."

Katie: Got it, that's so contrary to conventional wisdom of, you know, I go to the gym and kill yourself five days a week if you wanna lose weight. And I will say this is an anecdotal evidence as well, so I mentioned I was in Switzerland and did this crazy super long hike, and ironically after the hike we had basically shortened our eating window like I said I do every day, but couldn't eat after 2:00 p.m. because of some the liver testing we were doing. So we essentially hiked like 20 miles and couldn't eat and I was totally fine. No cravings, no like, "Oh, my gosh, I need sugar," none of that, totally fine, just wanted water. So I think that may be the key, and I was curious myself like once it's that automatic, like can someone exercise for fun without a problem?

Susan: Totally, I'm a big fan. Exercise as much as you want. At that point, go train for a Triathlon. I mean, you do need to watch a little bit because you've got to make sure you're fueling your body enough at that point. And a lot of people I think on Bright Line Eating get hesitant to add as much food as they would need to do that. But, yeah, there's no restrictions on activity of any kind once you're eating, it's dialed in.

Katie: Awesome and I'm hoping people listening, I would guess a lot of them are wanting to find out more and wanting to try it and I will, in the show notes of this, share some of my own story as well. Just, I feel like with all the kids and the thyroid disease, I had kind of really struggled with my weight for years and was super frustrated and kind of at the point of giving up when I found your book and kind of was like, "You know what? I'm just gonna do it as it's written, I'm not gonna overanalyze because I'm a researcher too and I have a tendency to do that." And like, "Well, what about this, and should I add in this, I'm just gonna do it and not think about it and just take a deep breath and trust the system," and it's worked. And so I know if anyone is listening and they're kind of in that place, hopefully Bright Lines will be an answer for them as well. But how can people try it and where to

start? Of course I'll have links in the show notes, but where would you recommend someone start?

Susan: I would recommend that someone go to our website which is, brightlineeating.com and click on the link that says, 'Get Started.' And right at the top, there's gonna be information about the 14-day challenge and I would recommend that they do that 14-day challenge. It's a super low investment and the stakes are really low because, you know, you can do anything for 14 days and it'll also give you an option if you want to try out the boot camp, which is our full program, that's producing all the success that we talked about and everything. And so they'll get that option too if they try the 14-day challenge. So, you know, it's like a tiny...tiny commitment with like an option to do more if you like it.

Katie: Yeah, I love it. And if you don't like if you try it for two weeks, you haven't lost anything even if you decide it's not working, or it's not for you, that's I think the key it's not like you said, it's not like gastric bypass or something serious where...it's kind of irreversible at that point, it's something that you can easily try and the worst that happens is you ate more vegetables for two weeks and it's still a win. So I'll have those links in the show notes. But, Susan, thank you so much, this has been awesome. I could talk to you all day and we'll have to do a round two, if there's a lot more questions.

Susan: I would love that Katie so much. Thank you so much. I just adore you. It's so nice to be here with you and your tribe.

Katie: Oh my gosh. Thank you for being here and thanks to all of you for listening. I'll see you next time on the Healthy Moms Podcast.

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