THE MODEL HEALTH SHOW

EPISODE 402

Secrets Of The Female Brain

With Guest Dr. Lisa Mosconi

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Shawn Stevenson: Welcome to The Model Health Show, this is Fitness & Nutrition Expert, Shawn Stevenson, and I'm so grateful for you tuning in with me today, this is a very special and powerful episode. And we're diving in deeper this month, really focusing on brain health, and I'm super excited about this one. We have the most complex dynamic organ in the known universe inside of our heads and it's super powerful to understand this. We have upwards of 100 billion neurons and 100 billion support cells in our incredible brains and we have more connections in our brains than there are stars in the known universe. And so when I'm talking about this being the most complex organ in the known universe, I really do mean that. And even though this incredible brain takes up about 2% maybe of our body weight, unless you got a big old brain, it actually uses upwards of 20%-25%, maybe 30% of the nutrition that we take in. We've got a hungry, hungry brain, and this organ is starving for attention. I know that in my education process, in going through school and learning about anatomy and things like that, we hardly spent any time really understanding how our brain is regulating everything else.

I think that the brain should get the lion's share of attention, because of all of its downstream impact. And for me, I would hear about these different parts of the brain through media, rather than in school. I was watching The Waterboy one day, and I was pretty young, and the teacher in one scene was making fun of the Waterboy and saying, "There's something wrong with your medulla oblongata." And he replies, "Salado, there's nothing wrong with my medulla oblongata." and he tackles the teacher. And it's this crazy scene, but I'm just like, "What is a medulla oblongata?" Sounds fascinating. So somebody like myself, I'm gonna look it up. And your medulla oblongata, funny enough, has a lot to do with helping to regulate your breathing, your digestion, and also helping to regulate your blood circulation and even things like sneezing. But this is a large part of this autonomic or involuntary part of our brains. And so our brains are doing all of these really interesting miraculous things for us behind the scenes, and we never really even realize they're going on. Thank goodness for our brains because without our brain working at its true

capacity, so many functions are going to be inhibited or even lost. And so that's why I really want to take some time this month and focus on brain health and today we're focusing more specifically on the dynamic difference with the female brain.

What we tend to also be inundated with is that our brains are the same, men and women are largely the same. And not just talking about how we communicate in our culture, because culturally, we say that there are many differences between men and women in how we communicate and all this stuff. But truly we have some very significant differences with the way that our brains are structured, the way that our brains operate, and even how hormones, neurohormones, impact our brains. And we're gonna talk about all of that today, and a lot of things are gonna be made clear today, and this is a very, very, again, important episode and I'm really excited about it. Before we get to our special guests and our incredible topic of the day, I wanna share a nutritive component of our brain health that I really, really think you need to know about. There was a recent study published in PLOS One, so this is a Public Library of Science, and it revealed that spirulina, this super green algae, spirulina has the potential to number one, improve neurogenesis in the brain, this is the creation of new neurons.

This is one of the most rare happenings in the universe, again, is being able to create new brain cells, because largely the brain cells that we develop in childhood are what we get throughout the rest of our lives. We do know that we can create new brain cells in different parts of the brain, not the medulla oblongata but in the hippocampus, the memory center of the brain, for example. Spirulina has a potential to improve neurogenesis in the brain. That's one thing they found. Number two, they found that spirulina has the ability to reduce neuroinflammation, inflammation in the brain, which is absolutely catastrophic in its effects. And we know that inflammation in the brain is now linked to Alzheimer's, dementia, depression, anxiety, the list goes on and on, and it's a very real issue. We found a certain food that can actually help to reduce that inflammation and improve overall brain health in spirulina. And spirulina, full disclosure, it's not yummy.

But it is yummy in the way that I take it and also my family, my friends, I give it to the people as gifts all the time in the Organifi green juice formula. One of the hallmark ingredients is a healthy dose of spirulina in a way that actually tastes amazing, and it's coupled with other powerful green super algaes like

chlorella for example. We've also got Ashwagandha in there, which is great for stress management, the list goes on and on. Great formula, but it tastes amazing. You going to have a green blend in your protocol today. We're not living at the same time, the same environment that our ancestors did. We need this kind of insurance to protect our brain and to nourish our brain. So, huge fan of Organifi's green juice formula. Make sure you get yourself some, alright? Pop over to organifi.com/model, you get 20% off their green juice formula and their other incredible blends as well, the red juice, they've got a gold blend that's fantastic. But specifically, when we're talking about nourishing your brain protecting your brain, you going to have their green juice formula, alright? It's organifi.com/model. That's O-R-G-A-N-I-F-I.com/model.

And you get 20% off everything they carry. Use it, absolutely use it because it's going to save you some money, but most importantly, this is an investment in your brain health and your mental performance. Pop over there and check them out, organifi.com/model. And on that note, let's get to be Apple Podcast review of the week.

iTunes Review: Another five-star review titled "New Adventures" by CobanGirl. "I feel each time I listen to a new podcast, I'm experiencing wonderful adventures, I learn a lot and I'm truly inspired. Keep it going, please."

Shawn Stevenson: I love it. That is so awesome, that's exactly how I want you to feel, is like you're going on an adventure of discovery, of learning, of fun, and thank you so much for sharing that review over on Apple Podcasts. I appreciate it so very much. And listen, if you've yet to do so, pop over to Apple Podcasts, leave a review for the show, let everybody know what you think about the show. And no matter what platform you're listening on, or if you're watching on YouTube, make sure to engage, leave a comment, ask a question, maybe we get the guest to pop in and answer some questions for you, but please make sure to let me know what you thought about the episode, I appreciate it so much. And on that note, let's get to our special guest and topic of the day. Our guest today is returning for a second time on the Model Health Show and her first appearance is one of my all-time favorites.

And today's guest is Dr. Lisa Mosconi, and she's the director of Women's Brain Initiative and Associate Director of the Alzheimer's Prevention Clinic at Weill Cornell Medical College, where she serves as an Associate Professor of

Neuroscience and Neurology and Radiology. In addition, she is an adjunct faculty member at the NYU Department of Psychiatry and the author of "Brain Food" and her new book, which is now available, "The XX Brain" the female brain. And in this episode, we're covering some important and powerful insights about the inner workings of the female brain. I think you're really going to love this. So let's jump into this conversation with the amazing Dr. Lisa Mosconi.

Dr. Lisa Mosconi: You're an introvert?

Shawn Stevenson: Definitely!

Dr. Lisa Mosconi: Interesting.

Shawn Stevenson: I'm a situational extrovert if I need to. But I would much rather be by myself and my wife is the opposite. She'll charge up being around people.

Dr. Lisa Mosconi: Nice.

Shawn Stevenson: But we've rubbed off on each other quite a bit.

Dr. Lisa Mosconi: And that's my husband too, he's the social butterfly and is 100% extrovert. So that's interesting.

Shawn Stevenson: It is. You know what's so funny is that that people, they see people in these types of lines of work where you're in the public eye, and they're assuming, "You must be very outgoing." Not really. I'm in-going a little bit. But I definitely, I have my times, but if I'm by myself with a good book or even if I'm by myself meditating, or whatever it is, it fills up my tank.

Dr. Lisa Mosconi: Yes, same. Now, we got to a point where I tell my husband to just take my daughter to karate, she's four and she goes to karate. It's the funniest thing. She broke the tablet. You know how they have the wooden tablet and she has to punch it and break it? She did. So now she's a yellow belt which is the funniest. She's a teddy bear and you just... So I say, "You take her so I can get two hours that nobody needs anything from me."

Shawn Stevenson: Yes.

Dr. Lisa Mosconi: And it's fantastic, it's great.

Shawn Stevenson: That teamwork is super important.

Dr. Lisa Mosconi: It's so good.

Shawn Stevenson: And I love that you said "tablet", "break a tablet".

Dr. Lisa Mosconi: What's it called?

Shawn Stevenson: A board.

Dr. Lisa Mosconi: A board.

Shawn Stevenson: But it's cuter how you said it. But I was picturing Moses with the tablet. But it's all good, all good. So, again, I told...

Dr. Lisa Mosconi: A piece of wood, she broke it.

Shawn Stevenson: Four years old, little teddy bear just...

Dr. Lisa Mosconi: Three and half and a teddy.

Shawn Stevenson: Break your jaw.

Dr. Lisa Mosconi: With all these pink things that she likes.

Shawn Stevenson: Oh my gosh, I love it, I love it.

Dr. Lisa Mosconi: She's funny.

Shawn Stevenson: So, your book is just amazing.

Dr. Lisa Mosconi: Thank you.

Shawn Stevenson: As I mentioned, I didn't know I'd tear through it so quickly, but the information is so important and so poignant and so...

Dr. Lisa Mosconi: Did you know about how women have been excluded from research?

Shawn Stevenson: No.

Dr. Lisa Mosconi: So many people don't.

Shawn Stevenson: That's the thing.

Dr. Lisa Mosconi: I'd say most people don't know that. So many scientists don't know either.

Shawn Stevenson: Of all the thousands of studies I've read, I've never thought about that distinction. And you mentioned it very clearly that the medical system has uniformly excluded women and basically treating women as smaller men when we're talking about the medical data. Can you talk about that a little bit?

Dr. Lisa Mosconi: Yeah. So the first part of the book is really a description of how women have been systematically excluded from medical research, which is not to say just a conspiracy against women, but it's something that happened as a result of a number of biases, if you will. And so I use this term "bikini medicine" which is an unfortunate term, if you will, that it's quite to the point, describing how historically most medical professionals really believed that men and women were essentially the same person, just with different reproductive organs. So, setting those parts of the body aside, as if one could, meant that most professionals, most doctors, would diagnose and treat both sexes the same exact way. And basically there's a whole worldview that got derived from that model, which makes women's health, the field, biased to start with because if you go to a doctor and say, "Can you look at this female patient through the lenses of women's health?" They're going to do a pap test to check your cervix for cancer.

Shawn Stevenson: Standard.

Dr. Lisa Mosconi: They're going to do a mammogram if you're over 42 or 40 depending on the doctor, they might do a blood test to check your sex hormones for fertility or menopause and what not. But again, women's health is confined to the health of our reproductive organs. And that's really a direct consequence of very reductive understanding of what a woman is to start with. Because clearly, women are not the same as smaller men with different reproductive organs. We're somewhat different systems, and it's not in any way to exaggerate the differences. So, it's not like women have some parts that men don't have, well except for the reproductive organs, but when we're thinking about, for example,

women's brains, which is really the focus of my research, anatomically we're basically the same but the functionality of the brain is different. And there are so many things that can happen in the brain that happen more to women than to men, or only to women and not to men, and only to men and not to women. But we understand men's risk factors a lot better than we understand what can happen to women. So that's really why I'm doing this.

Shawn Stevenson: Yeah, and it's so important because as you outlined, the first thing I want to make clear, which you alluded to already, is that it's not some conspiracy, but there was some early reasons why this evolved into this, which is women's bodies tend to create some curve balls when doing clinical trials, like pregnancy.

Dr. Lisa Mosconi: Getting pregnant was a big one. So what happened was that there was a drug, Thalidomide, that was given to women, including pregnant women, to deal with symptoms like nausea. And then it turned out that the drug actually had a terrible impact on the baby, and many babies were born with deformities, with severe medical issues. And so the drug was reevaluated and was banned in the United States. But at the same time, the FDA really took a cautionary stance and decided to exclude women of child-bearing age from experimental clinical trials where you still don't quite know side effects as well as you should. But then women...

Shawn Stevenson: That's excluding a lot of people.

Dr. Lisa Mosconi: But that's excluding a lot of women because it's any woman from puberty through menopause. So what happened then is then... I think it was really other concerns for the babies and the women to some extent, the new mothers, that women were just excluded from all clinical trials, not the phase one clinical trials, but from all medical research. And by doing that, women were no longer participating in research, but they were also no longer informing research. And it is true then our bodies are more cyclical in nature than a man's body, and if you're a scientist, you have to deal with that.

Shawn Stevenson: Yeah.

Dr. Lisa Mosconi: But that's not that hard to do right, to be honest. And instead a decision was made to just focus more on men assuming that, especially when it came to heart, lungs, and brain, that would also whatever results investigators found would also apply to women. And that turned out to be not the case, in a big way.

Shawn Stevenson: And even when women are included, and again thanks to your data and me learning this, it tends to be everybody's lumped together, all the data's lumped together. It's not giving a distinction between, "This is something for women's health, specifically and this is something for men's health." And with that said, we parlay into this discussion of the female brain, and how different it is under these different measures, whether it's some kind of a nutritive intervention or medical intervention, it's going to impact women's brains differently. So I want to talk about the difference with the female brain because it's fascinating. So first of all, let's talk about number one, the physical brain itself is different.

Dr. Lisa Mosconi: A little bit. The anatomy is not quite different. If you look at brain scans and you don't know the gender or the person that you're taking a picture of, there's no way of telling, "This brain belongs to a woman, this other brain belongs to a man." Other than on average, women's brains are slightly smaller because we are smaller on average than men, but once you adjust for head size, pretty much volumetrically speaking, there are no strong gender differences. The differences that matter most are in the functionality of the brain, in the biochemistry of the brain. And I've been looking into that for a really long time because of personal reasons. I have a family history of Alzheimer's disease that affects the women in my family quite a lot. So my grandma, my grandmother, was one of four siblings, and there were three sisters and one brother. And all three sisters got dementia and died of dementia, whereas the brother was spared.

And that was quite shocking also because I'm from Italy. As you know, I'm from Florence in Italy and especially back then, there was no assisted living. So your grandparents lived with you, period. And then the family, and especially my mom, became the primary caregiver for my grandmother. And then my aunts started taking care of the other sisters who got dementia. It was a 10 year process, and it was very painful as anyone can imagine. And that really led me to think about Alzheimer's disease as a connection with sex and gender, which was really not a topic of conversation back then.

Shawn Stevenson: At all.

Dr. Lisa Mosconi: I've been doing this for almost 20 years, and I've seen the field change so much, and something that many people are not aware of is that women's brains have very specific risks that we usually underestimate and put down to, perhaps

you're having a bad day or maybe you're PMS. But in reality, women are twice as likely as men to have anxiety and depression, we're three times more likely to have an autoimmune disorder, including those that attack the brain like multiple sclerosis. We're four times more likely to have headaches and migraines as any man knows. We're more likely to even get meningioma's, which is the most common form of brain tumors especial during menopause. And we're far more likely to die of a stroke. And on top of all that, Alzheimer's disease, which is the most common form of dementia on the planet, affects more women than men.

So of every three Alzheimer's patients, two are women, which means that for every man suffering from Alzheimer's disease, there are two women. And that's an enormous amount of women. In the United States alone, Alzheimer's disease affects almost 6 million people. And if we don't find solutions by the year 2050, it's going to grow to 15 million, which for context is the population of New York, Chicago, and Los Angeles put together. So it's a huge amount of people and two-thirds of all those people might be women. So we have some problems here. And it's important to find solutions. So this is really what I was trying to do with the book, not just be super depressing.

It's not a downer, I promise.

Shawn Stevenson: It's empowering.

Dr. Lisa Mosconi: It's really about acknowledging the problem, explaining how we got ourselves in this situation, and what we can do to really reverse this problem and optimize cognitive health and brain health in women. These are the scans I wanted to show you.

Shawn Stevenson: There are some wonderful brain imaging scans in the book as well. Just to highlight some of these things, we look at pre-menopause, post-menopause. The brain really does change.

Dr. Lisa Mosconi: It does change.

Shawn Stevenson: But one of those physical aspects, just to pivot back a little bit, and it just of course made so much sense when you talked about it, that one of the physical... It still would be difficult to see if you don't have a trained eye looking for it, but I guess the hemispheres of the brain for women, it's more... What's the right

word for it?

Dr. Lisa Mosconi: Interconnected.

Shawn Stevenson: Interconnected.

Dr. Lisa Mosconi: Yes. Well, I think the technical or the structural connectivity. Yes. And so what happens, just taking a step back, just a quick one, is that women are born with two X chromosomes and men are born with an X and a Y. And those genetic differences do matter also in terms of brain development. And I think it's important to clarify that, because most people think of these XX and XY is only involved in reproduction. But in reality, there are many genes on these chromosomes that are directly involved in brain function. And something is, a curious fact is that the X chromosome, which women have two of, are much bigger than the Y chromosome. So each one has 1098 genes, whereas the Y chromosome has only 78. Yes, and many of these extra 1000 chromosomes that women carry are really involved in brain function. So there's something there that starts immediately at the time of conception, because the cell that is born with the XX is going to develop, and mature and migrate differently than the other cell that is born with an XY.

And one of the big differences is the type and quality of the hormones that are going to be produced in those brains. The XY chromosome dictates that that baby is going to start making androgens, like testosterone, which are male hormones. Because these chromosomes are also part of our brains and they're involved in brain function. So the brain is also really going to be wired to respond more to the androgens and testosterone because boys have very little estrogens. For girls, it's exactly the opposite. We make a fraction of the amount of androgens and we make a thousand times more estrogens. This is a figure of speech. But our brains are really wired to respond to the estrogens. And the way that works is that we have little receptors in many parts of the brain that are specific to that type of hormone. So, our brain tissue is populated by estrogen receptors that specifically bind to estrogens, it's like a key in the lock. And when the binding happens, then there's a lot of things that happen in the neurons downstream, especially energy production.

So hormones, estrogens in particular, in the female brain, are really strongly involved in energy levels in the brain. And so what happens, as these baby brains age and go through puberty and then through a number of different phases of

life, is that at some point we reach midlife. And that's when things start going downhill for women, at least temporarily, because testosterone doesn't run out until late in life. Most men don't lose their hormones until they're in their 70s or 80s. Of course there is a little bit of a change, but it's not nearly as dramatic as what happens to women in menopause and perimenopause where we basically lose our hormones, like "boom", they literally peek down. And that has an effect on the brain which we have demonstrated using brain scans, perhaps for the first time, as far as I know. So that was quite shocking, it's that image in the book that you mentioned.

Shawn Stevenson: Yeah, this was like, because I think the issue is that we label these as sex hormones and it's the end of the story. But understanding there's so many more receptors, there's a lot more activity going on in the brain for women as far as estrogen and all the influences that this has. And so that starts to open up the case for when you shift away from having this estrogen production. And then we see paralleled all of these issues with cognitive decline, Alzheimer's, that are so much higher in women. And we're not talking about this, we aren't having this conversation.

Dr. Lisa Mosconi: Right. Right.

Shawn Stevenson: So, estrogen is so much more than just a sex hormone.

Dr. Lisa Mosconi: It's so much more. Thank you. Yeah. Hormones like estrogen are not only involved in reproduction, but also very closely in brain function. And estradiol, in particular, which is the most potent form of estrogen, is really key for energy production in the brain as well as growth, plasticity, and immunity. So what happens is that when your estradiol is high, as a woman, your brain energy's really high. But when your estrogens go down during menopause, and perimenopause prior to that, then your brain energy also goes down. Your neurons slow down and they start aging faster. And studies have shown that this process could even... In some women, not all women of course, but in some women, that it's correlated with the formation of Alzheimer's plaques, or amyloid plaques. And we have shown that, using brain scans, that that's really true. If a woman is predisposed to Alzheimer's disease, that shows up during menopause, which is 50. It's not age 70 or 80. It's 50 years old or earlier. I was just reading that 10% of menopausal women go through menopause before age 45. It's incredible. Yeah.

Shawn Stevenson: Yeah. Wow.

Dr. Lisa Mosconi: Yeah.

Shawn Stevenson: So, with that said, some of the... So you mentioned that estradiol.

Dr. Lisa Mosconi: Estradiol.

Shawn Stevenson: There are different forms of estrogen, which I think is important to mention. It's not just one thing. It's estrone and...

Dr. Lisa Mosconi: Yes, and estriol.

Shawn Stevenson: Estriol.

Dr. Lisa Mosconi: Yes.

Shawn Stevenson: And so when we're looking, which we'll get to, hormone replacement or whatever the case, we have to be mindful what kind of estrogen...

Dr. Lisa Mosconi: We're replacing the estradiol. That is the one that your body no longer makes after menopause, and the estrone is the backup. Whereas the other, the third hormone you only make it when you're pregnant. And it makes you feel great but only for a few months and then that's it, you're on your own.

Shawn Stevenson: So we got people... Estrogen's coming off the bench when they need to, but it's such a bigger conversation. And so let's talk about some of the impacts that estrogen has on the brain. So you mentioned preventative, like when it's around, there's less of an incidence of potentially the amyloid plaque formation.

Dr. Lisa Mosconi: Yes. Yes, it seems to...

Shawn Stevenson: But what are some things that estrogen does for the brain? What benefits does that do for a woman's brain?

Dr. Lisa Mosconi: Well, many, many benefits. We refer to estrogen, and specifically estradiol, as a master regulator in the female brain, because it's really involved in a number of functions that you wouldn't even imagine because we never talk about it. But energy is the most important thing. And I know you love biology so I'm going to

go into it to.

Shawn Stevenson: Let's do it, yeah.

Dr. Lisa Mosconi: But by energy, I mean cerebral metabolic rates of glucose. So, estrogen is something that activates neurons to burn glucose more efficiently. And glucose is the main energy substrate for neurons especially. So over 90% of synapses are glutamatergic and they really need glucose to fire. And the estrogen literally helps glucose enter the krebs cycle and be shuttled into the mitochondria, which are the energy factory of the body and the brain. So that's really important because that's the way that your brain produces the most ATP. And I know there's a lot being said about ketone bodies, but with the research... If anyone is thinking, "Well, then I should go on a keto diet," what the research has shown is that as you go through menopause, what you really want to do is to treat the root cause of this. So, you want to have the hormones that allow your brain to burn the glucose. Because if you do not, what happens is that ketones are not enough, and research has shown that, and at some point your brain gets really confused and starts burning its own fat.

Shawn Stevenson: The structural fats?

Dr. Lisa Mosconi: Yes, the structural fat in the brain.

Shawn Stevenson: That's so dangerous.

Dr. Lisa Mosconi: And that's why we find white matter reductions on brain scans. It's called catabolism is when... It's not a good thing. Let's just say that. So that's one reason that having enough of this hormone is really important to keep the brain structurally solid and sound, but also to really support the functionality of neurons and the health and integrity of your membranes.

Shawn Stevenson: Yeah. This is so, again, super enlightening and...

Dr. Lisa Mosconi: I'm so glad I get to talk about these things. I'm usually more like, "Yeah, neurons burn sugar."

Shawn Stevenson: We love to geek out. And I love the fact that in the book, you said this, and this is a direct quote. You said, "Alzheimer's isn't like you suddenly caught a cold. Rather, the disease is the result of a number of genetic, medical, and lifestyle

events that have been happening along the way." Because what we tend to think is that, "This just happened."

Dr. Lisa Mosconi: Yes, that one day you go to the doctor and boom, you have a diagnosis.

Shawn Stevenson: And if we're talking about this story of estrogen, it's a longer history than, "Oh, my estrogen is turned off," or whatever the case might be. This is something that, with our lifestyle and with our focus on our brain health, is going to determine what estrogen is doing pre-menopause, during and after.

Dr. Lisa Mosconi: Right. After. Yeah, for sure. And it's important to talk about this because that's quite an insight to associate menopause with Alzheimer's disease. Most people think of Alzheimer's as old age and menopause as middle age. But in reality, we know now that Alzheimer's disease starts with negative changes in the brain years, if not decades, before clinical symptoms emerge, which is like in the 70s. So the real onset of Alzheimer's is more in mid-life, especially for women, and it seems to really overlap with the transition to menopause. And I want to add this and then I'm going to stop the bad news. But for most women, menopause is around age 52 in the United States, 52, 53. But it can be much earlier sometimes because of genetics, sometimes lifestyle, but very often because of medical interventions. And I would like to mention this because common examples are a hysterectomy and/or an oophorectomy, which is the surgical removal of the uterus and or the ovaries. One in every nine American women has this procedure done in the course of their lifetime, very often before menopause, when they're young, in their 40s.

And we unfortunately know that having the uterus, and more so the ovaries, removed prior to menopause, correlates with a higher risk of future dementia in women. So this is something that I realize is depressing news and is very upsetting news, but we need to talk about it because so many women are not aware. And it is important information to have, because sometimes you get your uterus taken out because of fibroids. This is the most common cause of surgery. But we know from other work that very often fibroids respond to medical and lifestyle treatments. So it's something that is worth looking into before your doctor even suggests the surgery. So I just want to put it out there. It's one more reason...

Shawn Stevenson: Yeah, this is super important.

Dr. Lisa Mosconi: To really consider reproductive organs not as something that you can get rid of quickly.

Shawn Stevenson: Right, right, because this goes back to this being a male-focused field and like, "Well, you're not going to need those anymore." And I've seen this many times, it's actually one of the catalysts for me getting into the space and moving outside of fitness and focusing more on nutrition and health, it's because of a patient I work with who had fibroid tumors and we were able to... And we did it by the way, we did it, it was a while back, we did an episode on fibroids so I'll put that in the show notes, but she had fibroids the sizes of oranges and they were able to dissolve to the size of raisins within a month's time, but this is results not typical, let me just be clear.

Dr. Lisa Mosconi: No, but it can happen. And even if they don't dissolve in a month, you can still make it better, you can manage the symptoms often, not always, not always. But if you can, I think it's really worth looking into that. And this is even more a good reason to.

Shawn Stevenson: We need to be more judicious in owning like, "These are your organs, and let's take some time and go through and look at all of our options before we have something taken out," is the biggest take-home. And again, I think it's important to get self-educated, which is a book like this. This is mandatory reading for any woman and also if you love women, you should check it out too, but the female brain, "The XX Brain", this is a guide to understanding your body.

Dr. Lisa Mosconi: Yes, it was meant to be a woman's guide to maximizing brain health and preventing Alzheimer's disease that was my idea for a sub-title and then that got overruled, but I really wanted to write it as something that is very practical. So yes, it's divided into three different parts. The first part is the research, which I think is very motivating to really understand how your brain works, and what hasn't been done, and what needs to be done. But what we know so far is quite powerful already, it's just that it's not common knowledge, it's not common knowledge. If you go to an OBGYN or a surgeon who's going to take out your ovaries, there's a good chance they might not know that that's going to have an effect on your brain. So I think there's a whole education thing that is missing in medicine. I think we should be doing a much better job of really communicating with each other and sharing data and then providing information to the patients, that comprehensive information, which is not to say that doctors don't want to do that.

Shawn Stevenson: Yeah. Of course.

Dr. Lisa Mosconi: It's just something that needs to happen and we're moving in that direction, but I think it's also important for women to know that and demand information and really understand their brains better. And then take part two, which is a lot of tests and it really helps you figure out if there's anything that you should be concerned about. What kind of risk factors are really important for you and not the average statistical woman or person? And then in part three, which is the longest part of the book is really everything we know from science. Not internet, no personal opinions, it's really science-based evidence and actionable research that every woman can engage in today, including a lot of information on hormones.

Shawn Stevenson: Because you talk about that we have a chronological age, we have a hormonal age. And so, this is really a big key as we move into this new model of women's health and health overall for anybody, is understanding we have a hormonal age.

Dr. Lisa Mosconi: Yes. I think it's more of a thing for women for the reasons we just discussed, that all of a sudden you're aging really fast. As you hit menopause, your biological clock and your hormonal clock are not in sync anymore. So I think especially mid-life as women approach perimenopause, which is any woman of age 45 and older, sometimes younger, but it's pretty much every woman, something is happening to your brain that really deserves your attention, your full attention, and your support.

Shawn Stevenson: And I think that's the nice thing that we can do for ourselves to really feel connected to our brains and acknowledge the fact that your brain is not going to get better on its own and there are a lot of things that you can do to protect it, to support it, to nourish it, especially in mid-life, when women's brains seem to be more sensitive to hormonal aging than just straight up chronological aging. Which is not putting women down, it's not a condescending thing to say. It's exactly the opposite. We just have these hormones. It's not sexist to say that they matter for your brain, which is not to endorse any stereotypes, and women have this chocolate love and the shopping thing, but it's really about understanding that these hormones matter and that we need to just protect them the same way that we think about health for many other things.

Yeah, I love the fact that you talk about why... Just that question like, "Why do women have to go through this at all?"

Dr. Lisa Mosconi: Right.

Shawn Stevenson: It seems like a philosophical question, but you mentioned that there's only two species that are able to continue living after their fertility is over. And it was, what? "Whales and women."

Dr. Lisa Mosconi: Women and killer whales.

Shawn Stevenson: And killer whales, not just a regular one.

Dr. Lisa Mosconi: Not just regular whales, killer whales. There's another type of whale as well that I just learned about, but I think they're rare, but killer whales are quite interesting.

Shawn Stevenson: So fascinating. And this is the thing, is we try to piece together, "Why? Why would that be?" And you had a great example of how, even killer whales, how their social dynamic is. So let's talk about that.

Dr. Lisa Mosconi: Yes. They live in matriarchal societies. So the kids stay with the mom for a long time, which is kind of parallel to ancient humans where the men used to go hunting and were gone for a long time, understandably, and women would stay back and take care of the kids and the elderly.

Shawn Stevenson: And the men might not come back too.

Dr. Lisa Mosconi: They may not come back too, that's true. So there's this stereo, which I think is really cute, it's called the "Grandmother hypothesis" that says that at some point Mother Nature thought, "Well, I don't want these women to die when they're no longer fertile. I want them to stay with their daughters and become grandmothers and really help. But in order to avoid a reproductive conflict, I'm going to make them infertile." So, they can stay on, they can help out, but they're not going to have kids anymore because we need the younger generations to have kids because that's much more powerful. The kids are going to be stronger and healthier, and whatnot.

Shawn Stevenson: Yeah. Fascinating.

Dr. Lisa Mosconi: That's what people think, and I think Mother Nature could have made it a little bit better. The transition could have been smoother.

Shawn Stevenson: Oh, man, I love it. Is that the grand... What was it called? The grandmother...

Dr. Lisa Mosconi: The grandmother hypothesis.

Shawn Stevenson: The grammypothesis. Got it. Alright. So, now that we've established that this isn't a sexist issue, this is a fact.

Dr. Lisa Mosconi: No. It's a fact. Yes.

Shawn Stevenson: And menopause is something that is just a normal process.

Dr. Lisa Mosconi: Yes. It's a taboo still in our society we should really break pretty fast. It's crazy.

Shawn Stevenson: Yeah, and it's ridiculous. So, if we can, let's first give a brief summation of... What tends to happen and what we see in the media or even movies, is the hot flashes, we see the unstable emotions. What's going on? When the process actually takes place, why do women experience these symptoms?

Dr. Lisa Mosconi: Right. And that's really a good point. And I was so surprised to learn that that is not common knowledge at all. So, I think it's really good that we get a chance to talk about it. And it really goes back to what we were saying before that the female brain is wired to respond to estrogen, and all these little estrogen receptors are located in very specific brain regions. They are particularly abundant, for example, in the hypothalamus which is the brain region in charge of regulating body temperature. So, if estrogen doesn't activate the hypothalamus correctly, then the brain is not able to regulate body temperature correctly. Those hot flashes that women get, that's the hypothalamus. It's just that the estrogen is going up and down, it's all over the place, and the hypothalamus gets confused and can't keep your body temperature constant.

Or it's the brainstem which is in charge of sleep and wake. So, if estrogen doesn't activate the brainstem correctly, we wake up at night or we have trouble sleeping. And then there's the amygdala which is the emotional center of the brain, which is right next to the hippocampus, the memory center of the

brain. So when estrogen levels ebb in these regions, some women get mood swings, some women get depression, some women have memory lapses. All the symptoms, when women say, "We're having hot flashes, night sweats, insomnia, depression, anxiety, brain fog," that's a big one, "memory lapses," those symptoms don't start in the ovaries. They start in the brain, in those very specific regions of the brain that are adjusting to the fact that your estrogens are all over the place.

Shawn Stevenson: Yeah. This is fascinating because with the hypothalamus, there's so many questions that are being answered in my mind right now. It's kind of considered to be this master gland and it's like an interface, like your endocrine system, your nervous system. But so, of course...

Dr. Lisa Mosconi: It's also the region that regulates the production of estrogen and progesterone. So, it's not been activated correctly, so it basically becomes a loop that is not as efficient as it was.

Shawn Stevenson: And being that it's regulating temperature makes complete sense. But also it's a assistive regulator in your body's use of calories. So, we see the fluctuation with weight.

Dr. Lisa Mosconi: Absolutely. So many women put on weight after menopause. It really starts in your brain.

Shawn Stevenson: Why are you making everything makes sense now? Oh my gosh.

Dr. Lisa Mosconi: Because, as a woman, I really wanted to know. And I was surprised that I didn't know, that nobody would tell me. My mom didn't tell me a word about menopause. I asked her because, for many women, knowing what happened to their mom is a good indication of what's gonna to happen to you. So, I was like, "Mom, how did you make it? How was it for you?" She said, "Some trouble sleeping, but broadly okay." So I was like, "Okay." And so I hope for me as well. But the important thing is yes, there's a genetic component, but then your lifestyle plays a huge role. For example, a personal example, my mom never smoked and she went through menopause at 53, which is on the later side. I smoked in high school being Italian, not nearly as much as my friends used to, but I probably smoked enough to create a problem for my ovaries, because smoking is the number one cause of early menopause. So it's even more of a good reason not to smoke cigarettes, especially for girls.

Shawn Stevenson: Poor ovaries. No.

Dr. Lisa Mosconi: Poor ovaries. Yeah. It's a toxin, it's a very specific ovarian toxin.

Shawn Stevenson: So that, again, I think that highlights a important category of toxin exposure, can affect this process.

Dr. Lisa Mosconi: For sure. Yes.

Shawn Stevenson: We're going to talk about some of the steps to ensure that the brain is well nourished and that we create the conditions for more graceful processes that, undoubtedly, as a woman, you will go through. And even if you've already surpassed that, what can we do to feel better? And we're going to do that right after this quick break. So, sit tight, we'll be right back.

There's a huge wave taking place right now with folks stepping up to try to find how to get a mental edge. There's never been more competition, there's never been more people vying for attention and looking for creativity and performance, and finding ways to really stand out. And so, priming and optimizing brain health is truly the wave of the future right now. And for that, folks who are really tuning into this category of nootropics. Now, nootropics are category of supplements, drugs, other substances that can improve cognitive function, be it memory, executive function, motivation, things like that. But we want to keep in mind that your brain is really operating on a system that has literally millions of years of evolution behind it. So, throwing in a new smart drug that was created last week might not be a good idea. So we want to lean into, "What are some of the things that have historical use, that are also clinically proven to be effective for optimizing and improving the function of our brain when we're talking about mental performance?" And so for that, I want you to know about a study that was published in Evidence-Based Complementary and Alternative Medicine that found that... This little secret. Listen in.

Raw honey possesses nootropic effects such as memory-enhancing attributes, as well as neuropharmacological activities, such as antidepressant activities, and anxiolytic effects, so helping to reduce anxiety. I didn't know honey could do that. Alright, but listen to this. Honey polyphenols are also directly involved in activities that help to reduce neuroinflammation. So, we're talking about

reducing inflammation in the brain. Now, this is another thing that has a parallel wave taking place with inflammation and disorders of inflammation taking place throughout our body, systemic inflammation, but also for the brain specifically, which is connected to issues like dementia and Alzheimer's, but also poor mental performance. And so, honey has that capability as well. But the key is raw honey, the study says raw honey. Now with this, we need to be careful, we need to be mindful.

And for me, this is why I look to Beekeeper's Naturals to get my honey because they're dedicated to sustainable bee practices, beekeeping, and also they have third-party testing for over 70 pesticide residues that are found in common bee products like honey, bee pollen, and the list goes on and on. Now, some of those things that are in conventional honeys include arsenic, lead, mercury, E. Coli. Not good, not good. So, we want to behave and make sure to get our honey. They have an incredible superfood honey, they have a B. Chill Honey also that has hemp in the honey as well. But they have some incredible products that, again, you're getting your medicine, you're getting your nootropic benefits without the harmful stuff on the back side.

Now, if we're talking about nootropics, this one, specifically, you have to know about. There was a study published in Advanced Biomedical Research that found that royal jelly, royal jelly has the potential to improve spatial learning, attention, and memory. Royal jelly, that's what the queen bee eats, alright? Exclusively the royal jelly, alright? So this is taking honey, and this is supercharging it. This is taking honey and doing a fast and furious with it, alright? This is the Vin Diesel version. Now, royal jelly also has antimicrobial, anti-tumor, and anti-inflammatory properties as well. And royal jelly has been found to facilitate the differentiation of all types of brain cells, so helping your brain to create the cells that it needs. And, to top it off, researchers in Japan recently discovered that royal jelly has the power to stimulate neurogenesis in the hippocampus. This is the memory center of your brain literally creating new brain cells. I'm telling you, there are not many nootropics out there that can do something like that.

And the B.LXR product that Beekeeper's Naturals has is phenomenal. It's called B.LXR, L-X-R. Incredible. The basis is royal jelly, but they also have one of my all-time favorite things in there, bacopa. Now listen to this. A randomized, double-blind, placebo-controlled human trial, gold standard of studies, published in 2016, found that after just six weeks of use, bacopa significantly improved speed

of visual information processing, learning rate, memory consolidation, and even decreased anxiety in study participants. Try the B.LXR, alright? If you want to boost your cognitive performance, it's something for you to kick off your day to get focused, if you are about to go into a meeting, or performance, or study, or you just want to improve the function of your brain, reduce inflammation, get your brain healthier. Try the B.LXR, alright? Go to beekeepersnaturals.com/model, you get 15% off everything they carry. Again, I'm a huge fan of the superfood honey, love the bee pollen, B.LXR, game changer, alright? That's Beekeeper's Naturals. So, that's B-E-E-K-E-E-P-E-R-Snaturals.com/model for 15% off. And now, back to the show.

Alright, we're back and we're talking with Dr. Lisa Mosconi about her new book, the female brain, "The XX Brain". And now we know that the X chromosome is bigger, has more genes. So yeah, I'm not saying women are more important, I'm not saying that, but if our chromosomes have anything to say about it. But this book is really special.

Dr. Lisa Mosconi: Thank you.

Shawn Stevenson: And it's a manual for every woman. This is information that you should know, you need to know. And I think that in the next decade, hopefully, some of the things that we are ignoring are going to become common knowledge and it starts with people like yourself.

Dr. Lisa Mosconi: Absolutely.

Shawn Stevenson: So, very grateful for that.

Dr. Lisa Mosconi: Thank you.

Shawn Stevenson: Now, when we think about the transition through menopause, what tends to come up in the public consciousness is hormone therapy.

Dr. Lisa Mosconi: Yes.

Shawn Stevenson: So, I want to talk a little bit about that before we talk about some other real brick and mortar solutions. So, what do you think... First of all, bio-identical hormones, what do you think about this?

Dr. Lisa Mosconi: You live in California. It's such a big deal in California. Well, hormones are complicated, and there's a lot of confusion on whether or not one formulation is safer than the other, and one dosage is better than a compounded dose. And I think we need much better data and more research to really answer all these very important questions. What we know for sure about hormones is what we should not be doing. I think that's the major lesson that we got, that we learned from clinical trials.

And especially what happened historically is that, in 1950ish, the first hormonal formulation became available. And it was met with such incredible joy and expectations, that every woman in menopause was put on hormones, very high doses of hormones, and basically left on hormones for life. And that was before the NIH, the National Institute of Health, even had a chance to run clinical trials to look at safety, and side effects, and efficacy. So, in 1993, the NIH launched the Women's Health Initiative, which was enormous clinical trials with tens of thousands of women who were randomized to take either hormones or placebo for years. And the idea was that taking the hormones that the body was no longer making would really help reduce all these things that we talked about, the symptoms of menopause, not just the hot flashes which were a big concern of course, but especially the trials looked at the risk of heart disease, and stroke, and blood clots, and also dementia.

And what happened is that they were very abruptly stopped in 2002-2003, because very early data showed that the therapy was doing exactly the opposite of what it was supposed to be doing. So there was a much higher incidence of heart attacks and strokes and cardiac events for women taking the estrogens and progestin, which is a synthetic form of progesterone. There was also higher risk of cancer, and for those women there was also twice the chance of developing dementia.

Shawn Stevenson: Oh my gosh.

Dr. Lisa Mosconi: So it was an absolute disaster, the trials were stopped, the news really picked on that and broadcasted this data in a very frightening way. And so, many women stopped therapy basically cold turkey and there were so many lawsuits. And basically research development stopped at that point, and I think it's been really hard to get back up to speed since then. Just recently, we have some new clinical trials, so they're much better versions of that trial in that the Women's Health Initiative had some issues to start with. Especially that the women in the trial,

both trials, were too old to start with. They were pretty much over 65. If you go through menopause at 50-ish, your system shuts down. The receptors are going to shut down because there's no estrogen activating them and so your brain, your body resets and moves forward. But if you then reintroduce the hormones when the system is not ready to receive them, you're not going to get the benefit. You may get a bunch of side effects, which is what happened, especially for the vascular system, which seemed to be the major issue.

And then just recently. I'm going to make it really short. But now we have some clinical trials in younger women. And it turns out that, especially for your brain, if you take hormones within six years of menopause, that it's not harmful. It doesn't seem to be particularly beneficial, yet, but there's hope. And then of course, we need to test different formulations and different dosages and different timelines, and what many of us really believe is that you need to probe the system. You need to see, "Are your receptors active? Is your system ready to take these hormones? When is this the best time to start? When is the best time to stop? And how much of this hormones do you need as a woman?" Because there's no average dose, every woman makes a different quantity of hormones in different qualities. So therapy really needs to be individualized. And I want to, because I get this question all the time, "Should I take this hormone? Should I be on hormone? And so what I did is, of course, described this in detail but then I came up with flow charts. Think a scientist. This is obviously not to replace your doctor.

Shawn Stevenson: Which is in the book, the flow charts.

Dr. Lisa Mosconi: Yeah, the flow charts are in the book and I think you can start and say, "Okay, do you have hot flushes? Yes, no." "Do you have low sex drive? Yes, no." "Do you have blah, blah, blah, blah? Yes, no." And then, it gives you options. Are you eligible for hormonal therapy? Many women are not, some women are. And if you are eligible, then you go to the next thing, do the next figure, and decide whether or not there are risks associated with that based on your age, on your cardiovascular risk score, on your cancer risk score. So there is no universal answer. It's not like, "You're a woman so you do this."

Shawn Stevenson: "Here you go."

Dr. Lisa Mosconi: There are a number of parameters that we need to take into account and I explain them in the book.

Shawn Stevenson: Yeah, it's so important.

Dr. Lisa Mosconi: So it's a good start.

Shawn Stevenson: Yeah, it's creating a broader... I think our tendency is towards, again, one lane or one track thinking just because of the way that our system is structured. And they were giving out estrogen like hot cakes in the 1950s and now the conversation has shifted. And with that said, with it opening up, a lot of people are aware of the genetic component to conditions like Alzheimer's. And so there's a lot of various genetic testing available. And this is a topic you address in the book, because...

Dr. Lisa Mosconi: Yes, 'cause it drives me nuts.

Shawn Stevenson: Taking it upon ourselves to do the direct-to-consumer test, which this bothered me for a long time. This is why people are wondering why don't I talk about it very frequently on the show is because I saw some bad decisions. People were just at cocktail parties, they're talking, it was like, "Oh yeah, you get your genes tested," and whatever, and you can get your ovaries removed or whatever based off of these tests that come in the mail. Now, with that said, I going to share this. This is a quote from the book. You state that the problem with many direct-to-consumer genetic tests, which again, there's some benefits, but you said that the tests might only be slightly more accurate than horoscopes.

Dr. Lisa Mosconi: Yes. In some cases.

Shawn Stevenson: Alright, now with that said, let me tell you my horoscope today. I went and looked it up and this is my true horoscope today, which I don't know anything about horoscopes, but this is what my horoscope said, "Enjoy lighthearted socializing among friends and colleagues, striking a good balance between one-on-one contact and group activities."

Dr. Lisa Mosconi: How's that even a horoscope? This is like a fortune cookie.

Shawn Stevenson: That's so general, but guess what are we doing right now? One-on-one. Come on.

Dr. Lisa Mosconi: For two introverts.

Shawn Stevenson: Somebody that's about that horoscope life they're like, "See, I told you." But yeah, so that's a thing. There's a lot of guesswork involved.

Dr. Lisa Mosconi: And that's the problem, yeah. Well, I think as a scientist and as a person who is responsible for a lot of patients, I want to know what the test-retest reliability is for any test. So if you're being tested today and tomorrow and in a month, I need to have the same result. And we have CLIA certified labs with known test-retest reliability, which is never perfect by the way, there's always a margin of error. But usually it's quite low, and it's known for the tests, but most TDCs tests do not even share that information. I looked at a few because their patients would come to us and say, "I have this APOE genotype. I'm terrified, it's the bad Alzheimer's gene." And I was like, "How did you even get it done?" They're like, "Oh, I did 23andMe," for example. And very often we repeat the test, actually we always repeat the test if they are our patients, and very often they don't match. But we use a CLIA certified lab, so I'm much more confident that the results we get are the right ones. There was this study published in Nature showing how even the BRCA gene gets really misdiagnosed with these tests. And then women...

Shawn Stevenson: That's the breast cancer...

Dr. Lisa Mosconi: Yeah, that's the breast cancer gene, the BRCA 1 or 2. And if you don't go to a specialist to have it confirmed, and it turns out you don't have the genetic mutation, women can make a decision to have their breast removed or their uterus removed and then find out, "Oh, actually, perhaps." Although, any reasonable doctor would repeat the test. But it was incredible how inaccurate those tools are.

Shawn Stevenson: Yeah. And even the APOE gene, A-P-O-E gene, by the way, which is largely but not appropriately linked to Alzheimer's, because I think you shared there's maybe 60% of...

Dr. Lisa Mosconi: Alzheimer's patients who do not have it.

Shawn Stevenson: Alzheimer's patients don't even have it, don't even have that gene.

Dr. Lisa Mosconi: Yeah, absolutely, absolutely.

Shawn Stevenson: And it creates so much fear. And this is what I wanted to highlight, is that you mentioned that receiving genetic information without counselling is dangerous.

Dr. Lisa Mosconi: Yes. It is very dangerous. Receiving any medical information or clinical information without guidance, I think, is potentially a problem, because what do you do with the information? With some tests, like if your cholesterol is high, at this point, more likely than not, you know what you're supposed to be doing. You watch your diet, you exercise, and other parameters, you ask your parents did they have high cholesterol, is it genetic or not. But then, there are all these new tests, which the test is only as good as the doctor who's going to manage your response to the knowledge of the test and who's also going to know what to do about it. I'm super intolerant about peppers and it is a genetic thing, it's a genitive variant that makes me intolerant. So I avoid bell peppers, that's very straightforward. I can't touch them. But APOE is complicated. We know that the gene comes with three different variants: E2, E3, E4. Well, epsilon 2, epsilon 3, epsilon 4.

And the E4 variant has been associated with a higher risk of Alzheimer's. Whereas the E2 variant seems to be protective against it. And the E3 variant is kind off neutral. Does it mean that if you have this E4 genotype you're going to get Alzheimer's? No, it does not. And this is something that a genetic counselor should be able to explain and to really provide accurate statistics. Yes, your risk is a little bit higher. And why does that matter? Because there are things that this APOE gene does. That potentially put a risk for Alzheimer's that, at least in part, we have some control over. And so that's when it's really important not just the counselling to avoid panic, but also that a doctor talks to you about managing your genetic risk.

Shawn Stevenson: Yes. And that's what you really focus on in the latter part of the book.

Dr. Lisa Mosconi: Yes.

Shawn Stevenson: What are the things we can do to manage this risk, to make all these processes much more graceful, and just to help you to feel better, perform better? And so I want to talk about that. You mentioned one earlier which is a risk factor, which is smoking and the impact that can have on ovaries.

Dr. Lisa Mosconi: Yes, ovarian health, yeah.

Shawn Stevenson: But some of the things that we can do that you talk about in the book, steps to a well-nourished brain, specifically. And I want to talk about some of these. One of them is to protect your brain with antioxidants.

Dr. Lisa Mosconi: Yes.

Shawn Stevenson: Why does that matter?

Dr. Lisa Mosconi: That's a good one. Well, I think it really matters for a number of reasons. Number one, that the brain is the most metabolically active organ in the body, and by virtue of being so energetically active, it's also really sensitive and really vulnerable to oxidative stress. And oxidative stress is something that happens in your body and your brain as you age, it's a natural part of getting older. And it is, in fact, a product of glucose metabolism creating oxygen-peroxide or these oxidants. But the good news is that you can balance it out by importing antioxidants into your body and your brain by means of a healthy diet, which is really one of the few ways that we can reduce oxidative stress, is through the diet. And then the other reason that oxidative stress is such an issue, especially for women around mid-life with menopause, is that we show those energy reductions in the brain that are potentially related to oxidative stress or to the brain becoming even more vulnerable to things like oxidative stress and inflammation. So antioxidants are really important. And the good thing is that they come from foods that actually taste good. We were talking about Noni juice and it's not exactly palatable. But many veggies, and fruits, and nuts, and seeds contain anti-oxidants. Even caviar contains a little bit, but just a little bit.

It's mostly really vegetables and fruits, which one should be eating anyway. But the important thing to know is that for women, specifically, we have evidence that three vitamins, in particular, are really helpful against oxidative stress. And these are vitamin A or beta carotene, which is the precursor, and then vitamin C and vitamin E. And the interesting thing is that vitamin C and E are also really helpful to alleviate the symptoms of menopause. So, see how everything seems to be really going hand-in-hand?

Shawn Stevenson: Yeah, absolutely. You mentioned in the book, there was a large-scale studies found that elderly people consuming a good amount of vitamin E had nearly 70% lower risk of developing dementia.

Dr. Lisa Mosconi: Yes, especially when taken together with vitamin C. So if you have both. And the

thing is, they had it in their diets. So we need more research on that, but it looks like obtaining these nutrients, the antioxidants from the diet, is actually better than getting the same nutrients from supplements, because they're more biologically active and they contain more varieties of the same vitamin. So vitamin E comes in eight different isoforms and each one of these isoforms has a slightly different effect on the brain. The alpha variety is more for oxygenation, the gamma variety increases blood flow a little bit more. So when you eat almonds, or olive oil, or other fruit, other nutrients, other foods that contain vitamin E, you get all these different forms, whereas usually when you buy the supplements, it's just one of the variety. But also there's a lot more in food, not just...

Shawn Stevenson: Yeah, the cofactors just...

Dr. Lisa Mosconi: The cofactors, the interactions between different nutrients, and the experience.

Shawn Stevenson: I hope everybody heard that. There are different forms of vitamin E. It's not just one thing, same thing. We know about vitamin D, but it's the same thing with vitamin C, it's the same thing with vitamin E.

Dr. Lisa Mosconi: The B vitamins are little different.

Shawn Stevenson: B vitamins, we know about that category. And so when you're taking a supplement and it says I'm getting 300% of my daily value of vitamin E, is that the kind you really need? Which is, again, if you lean towards food. And so you mentioned olive oil, almonds, so nuts and seeds, avocados, and other sources.

Dr. Lisa Mosconi: Avocados are great.

Shawn Stevenson: So, yeah, that's so good. So that's the first one.

Dr. Lisa Mosconi: Food is medicine, yes. It's really important.

Shawn Stevenson: Hippocrates said it.

Dr. Lisa Mosconi: Yes.

Shawn Stevenson: Another one here is to manage your carbs. So this is an interesting dichotomy, because you're saying we need glucose for the brain to be able to do its thing,

but we got to be cautious.

Dr. Lisa Mosconi: Careful, yes. There's interesting research that was done in women that never really gets shared outside of academia, and I didn't even know that much about it until I really started looking into it. There are these beautiful studies mostly done at Harvard. The Nurses' Health Study is a huge one, really fabulous, and they looked specifically at women and clearly showed that carbohydrates are good for women. And I think it's good to talk about it right now, because with all these high-fat diets being so popular and so trendy, there's a tendency for many, obviously men but also women, to really stay away from carbohydrates and almost be fearful of carbohydrates. So I think it's important to know that they're not necessarily bad for you, as long as you eat them, obviously, in reasonable amounts. And also, it's important to talk about the quality of the carbs. There are carbohydrates that really negatively impact your body, mostly by negatively impacting your hormones. And then there are the refined carbohydrates like white sugar, white bread, and refined pasta, pizza. All the good things. And then there are the so-called good carbs that don't impact your insulin levels nearly as much, but they do provide enough glucose and fiber, like complex carbohydrates.

And that has been shown in a ton of studies to be really correlated with improved health in women. So, a lower risk of cognitive decline, a much lower risk of heart disease and stroke, lower risk of depression. And for context, I'm not saying that one shouldn't be eating the fats. It's more like, because women's bodies and brains are so dependent on estrogens, so at least prior to menopause, it's helpful to know that estrogen is a carbohydrate-burning hormones. So it really helps you burn the carbohydrates as a woman. So even if you're in a high-carb diet, as a woman you're still going to burn all those carbs. Whereas men, because they have more testosterone and less estrogens, tend to put that away as glycogen in their tissues. So the metabolism of carbohydrates differs between the genders. Not completely, but a little bit. So I think it's good to know that. Go for fiber, fiber-rich foods, that also provide glucose for your brain. I would also like to mention that of all the diets out there, the Mediterranean diet has been shown to really support health in women, overall health.

Women on this diet have a much lower risk of cognitive decline, as compared to those in more Western diets, they have a much lower risk of heart disease, of stroke, of depression and of cancer, and they also have 30% fewer hot flashes.

So I think it's something good to know, because the Mediterranean diet is a flexible diet. It's mostly vegetables and fruits and whole grains if you eat them, legumes if you rather have legumes, or don't have them. But have your veggies and your fruit, and then fish is a big part of the diet, healthy fats. We don't have avocados, but let's throw it in there, but extra virgin olive oil is a really good source, and meat and dairy products are consumed in moderation. Which is not you shouldn't eat them, just not breakfast, lunch and dinner. They should be more like a treat, I think. And of course, no processed food.

Shawn Stevenson: And this is a good segue because you mentioned one of these is to choose the right fats. And in our last conversation, which we'll put in the show notes, one of my favorite episodes, we were in New York for that one.

Dr. Lisa Mosconi: Yes.

Shawn Stevenson: And you talked about the difference between our dietary fats, and the fats that actually make it into the brain, and the fats that the brain is made of. But we won't get into that. Listen to that episode, I promise you'll love it. But it's one of these clear things here for brain health, for having a well-nourished brain is "Choose the right fats." And in the Nurses' Health Study, you noted that when we are looking at women taking full-fat milk versus low-fat milk, there was a big distinction there.

Dr. Lisa Mosconi: Yes, in that the full-fat milk was actually better for fertility. That's a study...

Shawn Stevenson: Specifically for fertility.

Dr. Lisa Mosconi: That was really very specifically for fertility. However, fertility is related to ovarian health and hormonal health. And the longer you're fertile, the later you go through menopause. So in some ways, it must be good for your brain as well. And the point being that cows that make milk are pregnant cows. And so they have all the hormones beyond lactin, but they also have a lot of estrogens in the milk. But when you remove the fat from the milk, you're also getting rid of the hormones that are bound to fatty particles, hormones bind to fat. And what you're left with is more like a bizarre, hormonal cocktail that is more androgenic than estrogenic. So there's this theory that by drinking low-fat or no-fat milk, you're effectively getting a lot of androgens inside your own body. I don't think their quantity, really, is that much, but it does seem to play some some kind of role.

Shawn Stevenson: Yeah. And it's a simple principle to follow as well, and you outline it very clearly, go for the full-fat version.

Dr. Lisa Mosconi: Yeah, why not? It tastes better.

Shawn Stevenson: This is how nature would produce it. Right, it tastes better. But we know we suffer through, growing up, we had one of these, like a WIC program here in the US, where it's basically like government food stores. We would go to food pantries and we'd get these government handouts. In one of the programs, we got skim milk instead of the Vitamin D, full-fat milk which is great. But I remember pouring that skim milk over my cereal and literally feeling...

Dr. Lisa Mosconi: Feeling really sad.

Shawn Stevenson: Yes. Why don't I just use water? This is just white water. And it would piss me off as a kid, and so I would eat the cereal dry rather than suffer through the white water.

Dr. Lisa Mosconi: Oh, you poor thing.

Shawn Stevenson: But now we know.

Dr. Lisa Mosconi: But I agree. What's the point? It doesn't taste good for sure.

Shawn Stevenson: Yeah. They were probably like, "Let's give it to the poor kids." So again, there's so many different important facets of having a well-nourished brain that you outline. I want to talk about maybe one or two more. I thought it was really fascinating when you mentioned, "Feed your microbes." And how does that relate? When we're thinking about brain health, how does that correlate with the microbes?

Dr. Lisa Mosconi: Yeah, that's a really good question. And as usual, I go to, "How is that specifically important for women?" But the point is that the microbes in your gut, the health of your microbes has an effect on the health of your brain. So we know that if you have more of the bad microbes and fewer of the good ones, there's a tendency to suffer more from anxiety, for example, and depression. And sometimes anyone who's ever had food poisoning knows that you can't think straight. So they do cloud your mind. If you have a problem in your gut, it can

have an effect in your brain. And something that is interesting to me as a women's brain advocate, especially, if you will, is that fiber is excellent for really supporting gut health and also stabilizing hormonal levels. So, by feeding your gut the right way with fiber with oligosaccharides, which are the specific carbs that, they're non-digestable for us but they feed the microbes in the gut. And taking prebiotics and probiotics, hopefully from foods but also from supplements, you're not only supporting digestive health, but also you're supporting your hormones. And I think this is something really interesting and important to keep in mind. You're doing something good for your tummy, for your hormones, and as a result, for your brain as well.

Shawn Stevenson: Yeah. It makes so much sense. We've been sprinkling in this conversation for years just about how powerful these microbes are in influencing our health. And just even understanding, we have all of our human genes, but then all of these microbes, these trillions, they have their own genes.

Dr. Lisa Mosconi: They have their own genes.

Shawn Stevenson: And we're still just scratching the surface on our understanding. So definitely much more to come there. And I was like, "Of course, it has to be highlighted in your book as well."

Dr. Lisa Mosconi: You know what's interesting to me about microbes and how they're related to the brain, is how surprising that was. When that correlation came out, everybody was skeptical or not quite sure. And now everybody's really into that, and I think that's a major flaw with Western medicine, how we tend to think of our bodies as a bunch of separate organs that don't speak to each other. And that's the same for women's health, because it's not about your brain or your ovaries or something else. They're a system. They speak to each other. And in my opinion, if you have a problem with your foot, your brain knows about it.

Shawn Stevenson: Oh, God. Yeah, absolutely.

Dr. Lisa Mosconi: Even sciatica. For sure your brain must be like, "Ah!" And any big change in any organ of the body must have an effect on the brain. And I think we should really move towards a more integrative approach to health that considers all of us.

Shawn Stevenson: Yeah, absolutely. This is a perfect segue to the last thing I want to ask you about, which is addressing the stress component of brain health.

Dr. Lisa Mosconi: Let's do that.

Shawn Stevenson: And this is definitely not talked about enough when we're talking about the female brain and how stress plays a big part in this.

Dr. Lisa Mosconi: Yes. Well, stress plays a really big role for men and women, of course, and is the silent killer. And our society really puts people at risk for heart attacks, and strokes, and inflammation, and it impacts your brain as well. And for women, in particular, there are some very interesting brain imaging studies that's showing how if your cortisol levels are really high, the levels of your main stress hormone, your brain suffers, even already in mid-life. And those really high cortisol levels correlate with brain shrinkage and memory impairment already when you're 50 years old. But the brain shrinkage was only found in women and not in men.

So in men, if you have high cortisol levels, your memory might suffer and your performance might suffer, but your brain is still compensating for it. Whereas women's brains, especially post-menopause, show signs of shrinkage as a response to high stress levels or chronic stress levels. And this is telling, I think, because we know that stress can literally steal your hormones. Cortisol, again, the main stress hormone, works in balance with your estrogens. So if your cortisol goes up, your estrogens go down. Your cortisol goes down, your estrogens go back up. And this is because they have a common precursor which is called pregnenolone. So the body needs pregnenolone to make both, cortisol and estrogens and testosterone.

And if you need to make more cortisol, the body's going to steal the pregnenolone away from your sex hormones and shuffle it towards the cortisol levels. And so your hormones plummet. And unfortunately, there's a ton of evidence that women suffer stress or experience stress in a more severe way than men do. And again, it's not about comparing. The point is that women are stressed out and it looks like the peak is somewhere between the age of 25 and 45. And for most women really maps onto the perimenopause, which is honestly when most woman have small kids, and they have full-time jobs, and they're trying to hold on to their husbands as well, and they may have elderly parents who need help. So there's a whole lot going on. And then stress levels really go up and you don't have time for yourself. And that also really has consequences. Not just on your health, but also on your brain health. So for all husbands out

there, partners or friends, help them out. Help those women out.

Shawn Stevenson: Yes. It's good advice.

Dr. Lisa Mosconi: Make dinner.

Shawn Stevenson: We mentioned this earlier with your daughter breaking the boards and you taking that break, having that teamwork, because this is something we evolved having. We evolved having a tribe, community. But now we're isolated, we have our little family nook somewhere and oftentimes we're not by our parents anymore, or other caregiver support systems. And sometimes we don't even have two parents. And so I think it's important for all of us to open our minds. Because no matter what situation you are in... First of all, if you do have access and support, it's a blessing.

Dr. Lisa Mosconi: Yes. Use it. Absolutely.

Shawn Stevenson: Use it. Be more proactive in it. And even understanding how much stress and being tied up in all that stuff is hurting your brain. But if you are in a position where you don't feel like you have that, make it an intention, open yourself up to... Because for some people it's like, "Well, I don't like my mother-in-law," or whatever it is. Another stereotype, I love my mother-in-law, alright? But that might be a situation where you open yourself up to better communication and understanding that that is another vital influence for your child to have that wisdom input, and also for you to have some time to yourself while your child is in the hands of somebody who you trust. So open yourself up, friends and family, expanding your communication, your community, is super important. Our genes expect that of us.

Dr. Lisa Mosconi: Yeah, it's true. And also for introverts who perhaps don't want to go that way, there are other things, there are other stress reduction techniques. Like green time over screen time seems to be a big one. Meditation helps a lot of people. And especially for women, there were some interesting clinical trials showing how a regular meditation practice, even just 12 minutes a day, really lowered cortisol levels and improved oxygenation to the brain, improved blood flow to the brain, and also reduced the symptoms of perimenopause and menopause.

Shawn Stevenson: Blood flow's super important, oh my gosh.

Dr. Lisa Mosconi: It is important. If anyone is into meditation, I think it's a great asset, it's a great tool to cultivate.

Shawn Stevenson: Yeah, well this has been awesome. I'm so grateful we got to do this in New York and now here we are in LA. And next I guess we're going to do it in Italy next. That's going to be the next...

Dr. Lisa Mosconi: Yeah, that would be great.

Shawn Stevenson: But this book is very important, as we've mentioned, it's ground-breaking science that's contained in this book.

Dr. Lisa Mosconi: It's a lot of work. It's been a lot of work, the science behind the book.

Shawn Stevenson: And with you putting...

Dr. Lisa Mosconi: That's 20 years of research.

Shawn Stevenson: This together and even having the audacity, because I know this could be even like... The market, it's very... This is direct. This is for women's health.

Dr. Lisa Mosconi: It is unapologetically for women and about women, and I think it's about time that there was a actual brain book just for women.

Shawn Stevenson: So what was the driving force? What was the catalyst where it was like, "I have to write this book right now"?

Dr. Lisa Mosconi: I think we got to a point with the research where I felt that the data was really strong enough to share. I'm a scientist so I'm very cautious about talking about anything that I don't feel has the strength or validity to really make a big impact. And I really wanted to write this book for so long because these are all the things that I've been looking into for myself. To be honest, I saw my grandmother just spiral into dementia and I was like, "I just really hope this never happens to me." And if there's anything that I can do, not just to prevent dementia, but also to feel good and just really be the best version of myself that I can possibly be for my parents, for my daughter, now that I have a little girl, and I'm really doing this for my generation and her generation as well to come, and any woman of any age, really.

I think these tips and recommendations are divided by age. Because there are some recommendations that will work better for younger women who have some specific needs, and perhaps pregnancy, it's a huge one that I talk about a lot in the book. It was quite shocking to me, honestly, to have a baby. Beautiful, but really such a major change in your life and it impacts your brain, as well. And then I have other recommendations for women who are past menopause. And there are so many things that all of us can do today to support our brains, and I think it's really important that we get to hear about them.

Shawn Stevenson: Yeah. So awesome, and who better to hear from than Dr. Lisa Mosconi? Can you let everybody know where they can pick up the book, which is available right now?

Dr. Lisa Mosconi: Yes. The book is available right now, on March 10th, and it's found on Amazon, Barnes and Noble, and all major book stores.

Shawn Stevenson: Sweet. And where can people connect with you online?

Dr. Lisa Mosconi: With me online, so I'm on Instagram. I'm too sensitive for Twitter. I just say I can't do it, I tried, I can't do that. So on Instagram, my handle is dr_mosconi, M-O-S-C-O-N-I. And my website is lisamosconi.com. It's probably the best way to get in touch.

Shawn Stevenson: Perfect. We'll put all that in the show notes. Thank you for coming and hanging out with me.

Dr. Lisa Mosconi: Thank you for having me.

Shawn Stevenson: Awesome. Everybody, thank you so much for tuning in today. I hope you got a lot of value out of this. Again, I'm not saying this lightly. This is a important book and it's really shifting the conversation because men and women, we're different, alright? We are different. We know this from culture. But a lot of these things we see as different between men and women are cultural constructs. And she highlights that in the book as well. You get the blue, you get the pink, you wear this thing, I wear that thing. These are cultural constructs. We're talking about what's happening with our biology. It is very different and we need to start to address it as such, so that we can have comprehensive data for every man and woman out there, and make this a part of our culture, a real culture of health and wellness.

And so, again, I'm really excited about this book. It's available right now. So you can pick up your copy anywhere books are sold. And make sure, if you enjoyed this, tag your friend and let them know what you thought about this episode. Tell them to check it out. You could share this on Instagram, Twitter. Tag Lisa as well. And tag me and let me know what you thought about the episode. And if you're checking out YouTube, and you're hanging out in the studio with us, leave a comment. Please let us know what you thought about this episode. And listen, we've got some power-house epic shows coming your way very, very soon. So make sure to stay tuned. Take care. Have an amazing day. And I'll talk with you soon.

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