Dr. Lisa Mosconi:

You know, 850 million women have just entered or are about to enter menopause.

Dave:

That's globally?

Dr. Lisa Mosconi:

That's globally, yes.

Dave:

Okay, got it. Yeah.

Dr. Lisa Mosconi:

And for many of them, it's an incredibly confusing, upsetting, and potentially enraging time of their lives because they need help and they don't really know where to go for help. I mean, you can go on the internet and then you end up with a bag full of supplements that won't necessarily help you. And if you go to your doctor, they'll just be like, "You know, it's just a couple of years. Try maybe get a patch or try this lotion." But there's more that can be done.

Announcer:

Bulletproof Radio, a state of high performance.

Dave:

You're listening to Bulletproof Radio with Dave Asprey. Today's cool fact of the day is that Alzheimer's disease targets the brain cells that help you stay awake. This is new research that just came out that finds that disordered sleeping isn't just an early indication of Alzheimer's, but troubled sleep is part of the disease, according to neuropathologists at UCSF. And these researchers looked at post-mortem brains, in other words, brains of dead people who died with Alzheimer's Disease. And they looked at the brainstem and the hypothalamus. And these are parts of your brain that have jobs like keeping you awake and helping you pay attention. And they looked for Tau, which is a protein that can form tangles inside of nerve cells. And they found that there were three small regions of the hypothalamus and brainstem that were packed with Tau. And two of the three areas had lost over 70% of their neurons. And they think that may be why if you have daytime drowsiness, it could be an early sign of Alzheimer's Disease or maybe it's just lack of sleep. But there's probably more of an association from that.

Dave:

And I had massive problems with much of my life with daytime sleepiness back when my biology didn't work right. And this is most likely an early sign of Alzheimer's if you have one of those sleep problems that you just cannot hack. It doesn't mean that you are going to get Alzheimer's. It just means that if you're sleeping like crap for 40 or 50 or 60 years, you might expect a little bit more risk there, not to mention a risk of every other one of the diseases of aging that I wrote about in Super Human. So, you've got to fix your sleep. And it's interesting that there's that interaction between Alzheimer's and sleep.

Dave:

Now, you're probably asking yourself, "Is this going to be an episode on Alzheimer's or an episode on sleep?" Well, you'll have to find out. If you guessed that today's episode is going to be about Alzheimer's Disease, you were right because today's guest is a neuroscientist and neuro nutritionist and someone who has a degree in nuclear medicine as kind of just a little thing, and a recognized contributor to the fields of Brain Science: The Microbiome and Nutritional Genomics. We're talking about Doctor Lisa Mosconi, who is the founder of the Women's Brain Initiative and associate director of the Alzheimer's Prevention Clinic at the Weill Cornell Medical College in New York and an adjunct member of New York University's Department of Psychiatry.

Dave:

She's looked all into early detection of Alzheimer's Disease. So, we're going to talk about brains, Alzheimer's Disease, the gut, and all sorts of cool stuff. Lisa, welcome to the show.

Dr. Lisa Mosconi:

Hi. Thank you so much for having me.

Dave:

You've published more than 100 peer reviewed papers.

Dr. Lisa Mosconi:

Yes. Why are you laughing?

Dave:

Well, I'm just laughing. That's pretty darn prolific.

Dr. Lisa Mosconi:

Thanks.

Dave:

And you've done a ton of research on this. And there's all kinds of directions you can go, especially when you have a strong background in imaging like you do. You can actually look at people's brains, which I think is fascinating. And you started looking at food. And you published a book called Brain Food: The Surprising Science of Eating for Cognitive Power. And that was your last book, and you have a new book out called The XX Brain, looking at women's brains. I want to understand, how did you get into Alzheimer's Disease? Because you could have gone in so many directions. I mean, microbiome and all this, it's sort of like this tangled mess of topics. But you ended up where you are now. How did you navigate that world of possibility to come up with the focus that you have today?

Dr. Lisa Mosconi:

So, I've been looking into Alzheimer's Disease ever since I was 18. And the reason being that I was studying neuroscience. So, university had started a little bit earlier, and I was studying neuroscience. And around that time, my grandmother started showing very clear signs of cognitive decline. I'm Italian from Italy, and our healthcare system is not the best, right? So, there's no real support system for patients with Alzheimer's Disease. They stay in their home pretty much forever. And so, I experienced

her decline in a very direct , fairly scary way. And just a few years later, her two sisters also started showing exactly the same symptoms, whereas the brother did not.

Dr. Lisa Mosconi:

So, as a neuroscientist, my question was why is that? Is there a connection between Alzheimer's Disease and female sex, for example? Is it just my family that more women than men are effected? And am I at risk, right? What can I do given my familial history to really make sure that I protect my brain? And where should I start? And what should I do? And so, from the very beginning, I started looking to Alzheimer's Disease. And back then, very few people actually acknowledged the fact that Alzheimer's Disease affects more women than men. We know since 1994 that about two thirds of all Alzheimer's patients are women. So, in other words, for every man suffering from Alzheimer's, there are two women. But for so long, people would just say, "Well, women live longer than men and Alzheimer's is a disease of the old, so here you go."

Dave:

Got it. So, people were basically bad at science.

Dr. Lisa Mosconi:

And dismissing the problem.

Dave:

Okay.

Dr. Lisa Mosconi:

Well, I mean, it's kind of a logical thing to say, but it's really underestimating the process and the problem. And it's also in part incorrect information.

Dave:

You can also very easily look at the age of onset and determine that it's not just an aging thing. But they didn't do it, for the same reasons that most studies, if you go back 20, 30 years, they're done on white males. And so, we kind of miss women and 51% of the population. And then, all these people aren't white. So, we're fixing that in science now. But it's confounding too because it turns out sometimes if you have dark skin or you're not equipped with a penis, you might have completely different results. And so, when you mix these people up, you have to start looking at these, not to mention looking at your gut bacteria, which might be different. Science is hard, right?

Dr. Lisa Mosconi:

Science is hard. But I also think that we have an enormous gender bias in medicine that is not really acknowledged. Like, it doesn't take a scientist to really denounce the fact that women's equality remains up for grabs in so many ways, financially, socially, even physically. But it does take a scientist to really explore how women are overlooked also in medicine. And this is something that other fields have been better in doing, like cardiology has done incredible work of really bringing gender medicine into the picture. And I think as neurologists, so people who work in the brain theorem, we should also be able to do the same, right, fast.

Dave:

One of the things that became really interesting to me was that Alzheimer's connection. When I wrote Headstrong, which was my book about mitochondria in the brain, which ended up sandwiched on the science best seller list between ... What were the books? Sapiens and [Homoduce 00:08:25], two of my favorite books. I was the little meat in the gluten free sandwich there on the list, which was a really happy day for me. But I got into Alzheimer's because a lot of the research about energetic production of the brain is Alzheimer's, Parkinson's. And I read thousands of papers. And it became really clear, yeah, we do have a gender bias problem and that women do get more of this, which led me to become ... At least Maria told me that I was the largest individual private donor to the women's Alzheimer's movement. And Maria Shriver's been on the show.

Dave:

And so, I donated some 40 years of Zen sessions at auction and some other financial things because I think it's such a big deal. My grandmother is a nuclear engineer and she's 97-ish, maybe 98, something like that. But you can see when she gets her things that produce ketones or brain octane, her brain is much sharper. And other times, she's a little off sometimes. And it's probably in the spectrum of Alzheimer's, but I wouldn't say she fully has Alzheimer's because she's fine some of the time. But she's getting there.

Dave:

Also, it's impossible to get your grandmother to do anything nutritional. I don't know, did you experience that when your grandmother was having Alzheimer's? It was a little bit hard to-

Dr. Lisa Mosconi:

Yes.

Dave:

Patient compliance.

Dr. Lisa Mosconi:

It was impossible.

Dave:

Yeah.

Dr. Lisa Mosconi:

Yes, all she wanted to eat was ice cream and prunes.

Dave:

Wow.

Dr. Lisa Mosconi:

It was really bizarre, yes.

Dave:

Yeah, it still bothers me. My grandmother says, "I don't like fat." And she's just decided in 1970 or something she didn't like fat. So, how do you restore cell membranes in your brain if you won't ever eat fat? So, I'm sneaking brain octane into whatever she's eating. It's funny. So, you got into Alzheimer's because you had a personal interest from your family in this. And you went to school in Italy and you said, "All right, I want to hack this." Do you know why? Like, why is Alzheimer's hitting more women's brains than men's brains?

Dr. Lisa Mosconi:

There are many theories. There are many theories. And the fact that women live a little bit longer than men, of course, is not something that we should underestimate. But I think there are a lot more ... There is a lot more to that than meets the eye. And all my research since the past 10 years has been focused on that. And what we have shown is that it's not just women live longer, but it's more like that women tend to develop Alzheimer's earlier than man. So, we have done a ton of brain imaging studies and we have shown two things. Number one, Alzheimer's Disease is not a disease of old age, but rather the disease starts with negative changes in the brain years, if not decades, before any clinical symptoms emerge. So, we're looking at midlife, rather than when you're 70 or 80. And the second factor we have shown is that women tend to develop these negative changes in their brains before men do, and specifically as women go through menopause. And that was a big finding.

Dave:

So, does menopause cause Alzheimer's?

Dr. Lisa Mosconi:

No. No. It looks more like-

Dave:

I-

Dr. Lisa Mosconi:

Yeah, of course. No, but it looks like ... So, there are a lot of changes that happen in a woman's body and brain as we go through menopause, changes that are not usually recognized as being neurological in nature. So, we associate menopause with the ovaries. But when women say that they're having hot flushes, night sweats, insomnia, depression, anxiety, memory lapses, those symptoms don't start in the ovaries, they start in the brain. They are neurological symptoms. We're just not used to thinking about them as such.

Dave:

Because of the hypothalamic connection, the control over those?

Dr. Lisa Mosconi:

Two major reasons. The first one being that the brain and the ovaries are connected via the neuroendocrine system. And this system is run by hormones. And we know that hormones differ between the genders. So, men have more testosterone and women have more estrogen. But what really matters here is that these hormones differ in their longevity. So, for men, men testosterone declines

very gradually over time. And usually, it doesn't run out until very late in life. And that's pretty much a slow, quite symptom free process, right? Men can suffer from some irritability or reduced sex drive.

Dave:

Okay, I'm going to have to stop you right there. Symptom free. Have you ever seen the movie Grumpy Old Men?

Dr. Lisa Mosconi:

No.

Dave:

Okay, it's a famous movie. A lot of people listening have seen it. That is what testosterone deficiency looks like. It is a portrait of it. So, you say it's symptom free because it's just aging. No, if you give an older guy testosterone, they get their brain back. They get their zest for life back. So, it's not without symptoms, we just think the symptoms are aging, just similar way that we think lots of diseases are aging. No, it's just testosterone deficiency. So, you put a pellet in, give them some testosterone cream and they get their lives back.

Dr. Lisa Mosconi:

And that's super important. Our observation is not to discount that at all. It's more like, like you said, grumpy old men, right?

Dave:

Yeah.

Dr. Lisa Mosconi:

So, it's something that happens later on in life.

Dave:

There you go.

Dr. Lisa Mosconi:

That was my point, you get the symptoms when you're older.

Dave:

We don't get menopause where we spend five to nine years of hell, right?

Dr. Lisa Mosconi:

Yes. From a female perspective, estrogen declines quite rapidly in midlife, right? When women are usually in their early 50s. And the decline is pretty sudden relative to testosterone. Also, it makes no sense to compare, if you will. The point is that women go through menopause in midlife. And that calls for a reset of this neuroendocrine system, which is really important because we think of our sex hormones as involved in fertility and reproduction. But in reality, estrogen, like testosterone, really serves a number of functions in the brain that have nothing to do with having kids, but everything to do

with having energy. So, estrogen and estradiol in particular, serves a number of functions that have everything to do for energy production in a woman's brain as well as the immune system's stimulated by estradiol, and neuroplasticity as well.

Dr. Lisa Mosconi:

But every importantly, estrogen is key for energy in the brain. So, at a cellular level, estradiol literally pushes neurons to burn sugar and glucose to make energy. So, if your estrogen is high, your brain energy is high. But when your estrogen declines, if you don't do something to compensate for that, your brain energy also declines in some way. So, your neurons kind of slow down. And the problem is then, you start aging faster. And research, including my own work, has sown that these declines in some women can even lead to the formation of Alzheimer's plaques. So, when women are in their early 50s usually, but they can also be earlier because many women go through menopause earlier than age 50, very often because of medical interventions like a hysterectomy or an oophorectomy, which is the surgical removal of the uterus and/or the ovaries.

Dr. Lisa Mosconi:

When so many women have these procedures, almost one in eight American women that have their uterus and/or ovaries removed. But the problem is then, there is a connection between having these procedures and the higher risk of dementia later in life.

Dave:

Dementia or Alzheimer's, or both?

Dr. Lisa Mosconi:

Both.

Dave:

Okay. That's fascinating.

Dr. Lisa Mosconi:

Yes.

Dave:

Now, in the UK because of the way medicine works there where it's a public health system, they did some math and they have billions of dollars of lost productivity every year from menopause. And they're one of the countries funding research into menopause most heavily. And I know about this because my wife does work with women around fertility and is really looking at research on hormones and menopause. And one of the ... She's a medical doctor, Karolinska Institute background. And what they discovered and they're actually now doing in the UK is that if you take a small amount of ovarian tissue out surgically when you're young, store it, you can implant it 20 years later and you put off menopause by 20 plus years.

Dr. Lisa Mosconi:

I heard about it. It came out recently, right?

Dave:

Would you do that?

Dr. Lisa Mosconi:

I think I would wait until we have better confirmation that that is really viable.

Dave:

But then your ovaries would be over-

Dr. Lisa Mosconi:

Yeah, not for me, not for me. Maybe for my daughter or for somebody else.

Dave:

Yeah, you're ageless. I have no idea how old you are. You have great skin.

Dr. Lisa Mosconi:

Thank you, well I'm not close to menopause at all. But I want to prepare for it in a way that is as natural as possible. I think all women go through menopause, but there's a lot of diversity in the way that each woman experiences menopause, right? So, like 20% of women have no symptoms whatsoever, cognitive symptoms, mood symptoms, they're totally fine.

Dave:

Those are the lucky ones.

Dr. Lisa Mosconi:

Those are the lucky ones, yes. And then, the other 80% of women have some symptoms ranging from hot flushes and night sweats all the way to a combination of things, including memory changes and brain fog and attention issues.

Dave:

Migraines.

Dr. Lisa Mosconi:

Yes, migraines and headaches and increased risk of depression and anxiety. So, there are many studies showing that these symptoms are at least in part related to your lifestyle and all the changes and all the choices that you make for yourself. So, it's not just genetics, but you have some control over whether or not you'll be the lucky 20% or at the other end of the spectrum. So, for me, which is also why I wrote The XX Brain, it's really important that women of all ages really start engaging in prevention, not just Alzheimer's prevention, but also really doing everything that we can to support the health of our brains and maximize our cognitive health for the long term.

Dave:

I'm really happy that I got an advanced copy of the book so we could actually release this interview the day that your book hits shelves, which is really cool. So, if you're caught up on Bulletproof Radio and

you're listening to this the week it was released, you can now purchase The XX Brain. And if you're watching it after that because you're a little backed up on these two episodes a week, well you'll be able to buy it then too. And it's got a lot of good stuff in it specifically about what we're talking about. That's why we're talking about it. So, my wife is in menopause or she's perimenopause, you know? Working on being in menopause, but it that way.

Dr. Lisa Mosconi:

And being in the 20%, right, of not having issues?

Dave:

Yeah, exactly. And so, she's looked at all kinds of research on this. And you have other friends, Sarah Gottfried knows a lot about hormones. She's been on the show. She's got a recommendation on the back of your book.

Dr. Lisa Mosconi:

Yes.

Dave:

And I'm looking at all of this, and what are the simple lifestyle things that women of any age can do that are going to reduce Alzheimer's risk?

Dr. Lisa Mosconi:

There are many. And I think that it's important to really focus on the research that looked at women in particular. So, we have a lot of literature on lifestyles and lifestyle's effects on brains. And then, there's actual research done in women separately from men. And what's interesting is then the factors that really matter are somewhat different between men and women. And that's helpful because you can't do everything at once, right? Otherwise you get overwhelmed and it's just too much and it's not sustainable.

Dr. Lisa Mosconi:

So, I think what we all can do is to really take a good look at our lifestyle and choose a couple of things that you can do reliably and consistently over time that are known and scientifically proven to really matter for the health of your brain as a woman and as a man. Maybe you write the book about men. I got the women for now. I think something that everybody's very interested in is diet, right? We all eat three times a day, if not more than that, unless you're fasting.

Dave:

Or less.

Dr. Lisa Mosconi:

Then perhaps you're still-

Dave:

Intermittent fasting, come on. Three times a day, that's so 1990s.

Dr. Lisa Mosconi:

Oh my goodness, I'm so old fashioned. But most people still do, right?

Dave:

Of course, of course. I'm just teasing.

Dr. Lisa Mosconi:

So, diet is really important in so many ways. We know that there's very direct connection between the nutrients that we choose to put into our bodies and the health of our brains for the short term and for the long term. And research in women's health has shown that some very specific nutrients are really important for women. And for men as well, but the research really shows strong correlations between specific nutrients, actually antioxidants, like vitamin C and vitamin E and women's brain energy levels. And what we know from the brain imaging studies, especially my studies, I guess, at this point is that brain energy levels can drop during the transition to menopause. Can I show you?

Dave:

I would love to see it. And as you're pulling that up, I run or own or founded or whatever you want to call it, a neuroscience facility that does five day intense brain training with custom hardware and software, EEG based stuff.

Dr. Lisa Mosconi:

Nice.

Dave:

In fact, my lead neuroscientist is a former nuclear submarine engineer. And we actually measure voltage changes in the brain. And you really can pick up brain energy directly. So, I don't know what you're going to show me, but I'm hoping it's EEG, or is it something else that's more dye based? What have you got for us?

Dr. Lisa Mosconi:

No, this is a technique, it's called Positron-emission tomography.

Dave:

PET.

Dr. Lisa Mosconi:

Yes.

Dave:

All right.

Dr. Lisa Mosconi:

And this is what I do. So, my background, like you said, is in nuclear medicine. And what we do is that we use tracers that go in the brain and mimic a specific physiological reaction. Like, in this case we're

looking at brain glucose metabolism in the brain. And this is a brain scan where very bright colors mean high brain energy levels and darker colors are low. This is the way you want your brain to look like when you're in your 40s as a woman. So, really nice and bright, a lot more red than green. And this brain here belongs to a woman who was 43 years old when we scanned her the first time before menopause. Now, let me show you her brain just eight years later after menopause.

Dave:

All of the red, like the high energy areas in the prefrontal cortex, it looks like.

Dr. Lisa Mosconi:

Yeah, it's prefrontal, parietal, temporal, and posterior cingulate cortex. So, all the regions that are usually affected by memory loss in Alzheimer's have turned green.

Dave:

It's like looking at a different brain. The energy is just sucked out of it.

Dr. Lisa Mosconi:

Right, so it's the same shape pretty much. You can see it's the same, anatomically speaking, it's the same brain. But that's a 30% drop in brain energy levels that really occurred during menopause. And this is not an isolated finding. This is what the average woman looks like at least in our heads. So, for some women, the changes are very mild. But for some women, they're more severe than this.

Dr. Lisa Mosconi:

And what's interesting is that this is really correlated strongly with the decline to premenopause to perimenopause and then post-menopause. Your energy levels drop. And that's for the reason that we're discussing, that estrogen is an energizing hormone. So, as estrogen declines, your brain reflects that, which I think is really important information to have because so many women can feel these changes. And they really worry so much. Like, so many of our patients have said to me that they're worried that they're going crazy. They feel like their mind's playing tricks on them, to put it lightly.

Dr. Lisa Mosconi:

So, it's so important, I think, that we're doing this science because we're really ... We're validating what women have been saying for centuries, right? That something is happening, that they need help overcoming or even better that they need help preparing for, because this is avoidable in many, many cases. This is avoidable.

Dave:

Now, taking vitamin C and vitamin E and getting some sleep and not smoking, that doesn't hack it for most women that I know who are dealing with these symptoms. It seems like they need a little more, maybe some estrogen cream. Is that where we're going with this?

Dr. Lisa Mosconi:

No.

Dave:

Okay.

Dr. Lisa Mosconi:

Actually, we may. We may go there too. So, hormonal replacement therapy is very complicated.

Dave:

Yeah, I've had several episodes on it.

Dr. Lisa Mosconi:

Yes.

Dave:

And I've written about it. Yeah.

Dr. Lisa Mosconi:

Right. So, as far as cognitive health is concerned, for many years we thought that hormonal replacement therapy actually increased the risk of dementia, which is why we don't usually prescribe it. But recent evidence shows that there's a window of opportunity to really initiate hormonal therapy, which is prior to menopause, or at least-

Dave:

Before.

Dr. Lisa Mosconi:

Before menopause or within five years of menopause onset where therapy does not have a negative effect on cognitive performance, but might actually make it better. So, we're now trying to test with clinical trials in more accurate, more precise, and more thorough studies if that is indeed the case. So, hopefully soon enough, we'll be able to at least be able to offer these options to women who can tolerate it and for whom the treatment really works well.

Dr. Lisa Mosconi:

For everybody else, we're back to lifestyle because you can take vitamin C supplements and perhaps vitamin E supplements. But we also know that taking supplements sometimes is not as helpful as obtaining these nutrients from the diet in a consistent way all the time. So, taking supplements for a couple of months may not be as effective as eating the right foods correctly for years. So, it really depends.

Dave:

Or not eating the wrong foods.

Dr. Lisa Mosconi:

Yes.

Dave:

The bucket of French fries every day is going to trump any other good foods you eat.

Dr. Lisa Mosconi:

100%.

Dave:

Or a bunch of sugar and all of that, which is missing from all of this. People say, "I ate the good stuff. I had my little kale salad, which wasn't good anyway." But then they cancel it out with the diet coke and whatever else.

Dr. Lisa Mosconi:

You're right. But this is so true. It's so important to just look at your lifestyle as a whole. And if you eat a super healthy diet or you're incredibly stressed out and can't sleep at life, there's only so much that broccoli can do for you, right? Because stress is a major issue, especially for women's brains. There is a lot of studies showing how cortisol, which is the main stress hormone can literally sink your estrogen and that's because they work in balance. So, if your cortisol goes up, your estrogen goes down. If your cortisol goes down, your estrogen goes back up to normal. It's called the [inaudible 00:28:14].

Dr. Lisa Mosconi:

So, it's really important to reduce stress. It doesn't just help your day, it also really helps your brain. And studies have shown, brain imaging studies have shown that this is particularly the case for women's brains. So, women's brains seem to be more sensitive to long term stress than men's brains, at least in midlife, and especially in connection with menopause. Women who were chronically stressed and they were having issues with menopause show higher rates of brain shrinkage as compared to women who are still going through menopause, but they're not as stressed out. So, that's really important, not just for your brain, but for really overall health.

Dave:

It's such a complex situation where people think they're doing things that are healthy for their brain, but they aren't doing things that are healthy for their brain. What do you recommend in The XX Brain? What do you say women should do?

Dr. Lisa Mosconi:

So, there are many things that women can do. And my point was really to provide sort of a view of the literature and also say, there's so much conflicting information out there. And it's really important to look at things that have been scientifically validated, that means vigorous research and really solid studies, and start with those. And then doing it for yourself, and just make sure then even if a supplement is not proven in clinical trials to be effective, but it works for you, fantastic. The point is, so many women don't know where to start.

Dr. Lisa Mosconi:

So, my recommendation is to first really understand what's happening to you and to your brain and to your hormones. And then look at what science has shown so far that is really effective and proven to work and safe, right? Do you need to use HRT? Because for some women hormonal therapy is actually a godsend.

Dave:

Yeah.

Dr. Lisa Mosconi:

Right? So many really swear by it. But so many other women swear at it.

Dave:

Exactly.

Dr. Lisa Mosconi:

Yeah.

Dave:

If you do it wrong, it doesn't work.

Dr. Lisa Mosconi:

Or even if you do it right but your body just doesn't respond correctly. And I think a major problem we have in the field is that we can measure our hormones in blood, and even those tests are not that great. But we can't measure it in our brains. So, that's a major issue for clinicians because you need to dose the hormones to work inside your brain. There is no correlation between hormones in blood and hormones in brain. They're almost two separate symptoms, systems that talk to each other. But the amount of hormones and their activity in brain is not the same as the hormones in the rest of your body. So, we need to have tools that allow us as clinicians to go into a woman's brain and measure that woman's hormones to really find the right dose for that particular woman's brain and understand are your receptors still working? Are they still using the estrogen? Because if they're closed, if it's too late for you, then there's no point initiating. There may be no point initiating the therapy for the brain symptoms, and we should look at something else.

Dr. Lisa Mosconi:

But if you are in a good position to respond to therapy, then let's dose it correctly, let's do it correctly, let's time it correctly based on your own brain. And this is something that we are doing now. So, this is a tool that we're developing, also thanks to Maria Shriver who's funding part of the research. So, yay for Maria and the Women's Alzheimer's Movement.

Dave:

It's a really big angle that I think is missing. It's that, look, all women know at a certain point, "Wow, menopause, it's either wrecked me for a while or really affected my quality of life or the people around me," if they're one of the 20%. And not that many people yet know that women get Alzheimer's more than me, although Maria's work has really helped to escalate that message, so we're all starting to go, "Oh, this is actually a problem for everyone. But it's more of a problem for women," which also makes it a problem for the people who care about the women too. So, it's a human problem.

Dr. Lisa Mosconi:

It's a human problem, yes. And women are more likely to be caregivers to somebody else with dementia as well. So, we really need to make sure that everybody receives the best possible healthcare for them.

Dave:

It is about healthcare. But you're saying something that ... Look, anyone who's dealing with the hard parts of perimenopause, they'll do almost anything to feel better because, like I said, they feel like they're going crazy. They're actually physically in pain, and it can be a miserable experience. It doesn't have to be. But for some people, it is until they really get on top of it. But if we all were to acknowledge, this increases your risks later in life, it increases the urgency of it. So, instead of saying, "Oh, it's just something. I'll just kind of feel miserable for a while and get through it," that isn't an adequate response. It's actually a more urgent situation if you're dealing with severe symptoms. You've got to figure out what it is because if you don't figure out what it is, they're costing your brain later in life.

Dr. Lisa Mosconi:

Yes.

Dave:

And that is a message that I haven't seen anywhere out there. And that's the work that you're pioneering. And that's why I like The XX Brain.

Dr. Lisa Mosconi:

Thank you. And it is so important. And 850 million women have just entered or are about to enter menopause. It's a huge amount of women. And for many of them-

Dave:

That's globally?

Dr. Lisa Mosconi:

That's globally, yes.

Dave:

Okay, got it. Yeah.

Dr. Lisa Mosconi:

Yeah, sorry. Yes, and for many of them, it's an incredibly confusing, upsetting, and potentially enraging time of their lives because they need help and they don't really know where to go for help. You can go on the internet, and then you end up with a bag full of supplements that won't necessarily help you. And if you go to your doctor, they'll just be like, "You know, it's just a couple of years, try maybe get a patch or try this lotion." But there's more that can be done.

Dave:

Or let's take your ovaries out.

Dr. Lisa Mosconi:

Yes, they say that. It's incredible to me because I work in neurology. And we know that having the ovaries removed can increase risk of Alzheimer's up to 70%.

Dave:

Wow.

Dr. Lisa Mosconi:

Yes. And I totally understand if you remove your ovaries because you have cancer, like ovarian cancer.

Dave:

Of course.

Dr. Lisa Mosconi:

Of course you have to, totally. But the number one reason to have the uterus removed with the ovaries is fibroids. I mean, there has to be a better way to address fibroids than just getting rid of everything. I was reading then, I was talking to my colleagues in gynecology, you would just need to take the uterus out, right? For fibroids. You wouldn't necessarily need to take the ovaries out. But sometimes you just do it all at once just because it's easier. And maybe these women are more like, they don't want to have kids anymore, so the doctor is like, "Shall we just do a full hysterectomy?"

Dave:

Yeah.

Dr. Lisa Mosconi:

But that doesn't take into account the fact that these are not ... You know, they're not things that you can just get rid of easily. They're connected with the body. They have a strong interaction with your body. It's a whole system in place that is being disrupted. And I'm not saying that women should decline these procedures at all, of course. It's more the fact that we need to better understand what happens to our brain.

Dave:

I'll say it. If it's not medically necessary, don't do it. Women are not baby making machines. It's like, "Oh, you're done with that usefulness, let's just rip out those parts that aren't useful." Make a considered medical decision. And if you're in serious pain, you have fibroids that don't respond to nutritional intervention and anti-fungals and ozone therapy and all the mitochondrial things that usually work, and if they don't respond to hormone therapy, fine. Then you made a medical decision. But if you just do it because it was convenient, it's because you didn't know, right? And if you've already done it, fine, take your hormones, you'll probably be okay. But if you hadn't done it, now you know. But no, make sure it's medically necessary, not convenient.

Dr. Lisa Mosconi:

And I wouldn't blame it on the women necessarily. I think it's just that the information is not out there.

Dave:

Now, there's no blame here. It's that if you have the information, use it. If you don't use it, you're going to do what your doctor says, and then you've got to blame it on the doctor.

Dr. Lisa Mosconi:

Yes. So, I think there is an educational component here that is missing, right? So, neurology doesn't speak to gynecology. Gynecology doesn't know anything about Alzheimer's.

Dave:

Of course.

Dr. Lisa Mosconi:

So, I think as scientists and doctors, we need to be better at talking to each other and really, for me personally at work at the intersection between neurology and neuroscience and women's health. But there aren't that many people who do this kind of work. And so, it's really important that the information is out there so that doctors, gynecologists or surgeons can really be informed about the brain research and be able to provide better perhaps advice to patients and really be able to inform the patients about their risks, because eventually it should be up to us to decide, do I want to take this risk or not? And if I do take the risk that way with the medical intervention, how do I offset or how do I minimize added risks that can happen to me down the line, perhaps to my lifestyle or if something happens? They're taking hormones after surgery, which is a very viable option and very important as well to reduce the risk of Alzheimer's, especially for premenopausal women. It's a puzzle. There still needs to be-

Dave:

It's systems medicine, it's functional medicine. It's all coming together where we're looking at this network.

Dr. Lisa Mosconi:

Right.

Dave:

And if all you look at is the urinary tract and you're just there, you're not going to know that changes the brain 25 years from now, until you listen to this episode or you see a study and you realize, it's time to evolve medicine, even though it's not what I learned in medical school. What are the lab tests that you look for? Because you do blood work, cognitive testing, genetics, brain scans.

Dr. Lisa Mosconi:

Yes.

Dave:

I mean, what is it, $10,000 worth of testing per woman?

Dr. Lisa Mosconi:

More.

Dave:

How does that work?

Dr. Lisa Mosconi:

It's more, and it's actually all coming out of my own research funds. So, I'm pretty much applying for grants all the time. But it's so wonderful and it's so rewarding and all of the patients said it's incredibly important information to them. So, that's good.

Dave:

But now, there's a lot of people listening, $10,000. No.

Dr. Lisa Mosconi:

We don't charge. I pay for everything.

Dave:

Yeah, you don't charge. But you have a few number of patients because you're doing this for research grants. But there's people listening saying, "All right, I am desperate. I feel like I'm losing my brain and I don't want to get Alzheimer's." Given that we don't have certainty, but we have directional accuracy, what are the most likely blood work tests that I can order for $500 right now that are going to tell me what to do? What are the most likely blood work tests that I can order for $500 right now that are going to tell me what to do?

Dr. Lisa Mosconi:

Well, there are no blood tests for Alzheimer's at this point in time.

Dave:

But there are blood tests for hormones, right?

Dr. Lisa Mosconi:

Yes. Also, I don't think you need to know if you are in menopause or not.

Dave:

You'll know it. Yeah.

Dr. Lisa Mosconi:

Yeah, you don't need a blood test to really tell you. You can probably find out different ways, unless you have medical conditions that make it hard to really know if it's perimenopause, if it's a polycystic ovarian system, you know? If it's something else. So, blood tests could be helpful. They're not necessarily the most helpful of tests. I think a very thorough medical evaluation done by a specialist is perhaps the best way to invest your money in.

Dave:

What kind of specialist?

Dr. Lisa Mosconi:

It depends on what you're concerned about.

Dave:

Okay, so a woman's either entering perimenopause or in the middle of perimenopause and doesn't want to get Alzheimer's Disease. What does she do?

Dr. Lisa Mosconi:

Then you should come to us.

Dave:

Okay.

Dr. Lisa Mosconi:

Because we're very specialized and not a lot of centers offer this kind of support. So, we're open to enrollment.

Dave:

Okay, but there's a quarter million people listening to this episode. Is your office big enough? And do you include air fares for them to get there? Because a lot of them can't afford it.

Dr. Lisa Mosconi:

No.

Dave:

What do you do? How do we take what you're doing in the lab and make it somewhat actionable now? Because right now, we'll just keep doing pizza and beer and hoping we'll get better later, and it doesn't work. So, we already know pizza and beer are probably poor choices. So, we can take those out. But there's got to be some nuggets that we can take and say, these are likely, but not yet proven to be the good steps you could take to reduce your risk. Give me three nuggets.

Dr. Lisa Mosconi:

I'll give you three nuggets. They do not require testing though because testing is a little bit expensive. But I would say if you do want to talk to a medical professional, then look for somebody who specializes in Alzheimer's prevention. There are more and more clinics around the United States. We are based in New York City. We are The Alzheimer's Prevention Clinic at Weill Cornell Medicine. There are clinics in California. There is one clinic in Kansas. There are more clinics in ... I have every city under the book in the appendix. So, that could be a good first step to really enroll in an Alzheimer's prevention program.

Dr. Lisa Mosconi:

If it's more about doing things at home, then what I usually mention is this saying in Latin, which is [foreign language 00:41:53], which means a healthy mind and a healthy body. And if you take just the first eight letters, [foreign language 00:42:00], that gives you a breakdown of all the things that you can actually do. So, M for mental stimulation. I know that your audience doesn't need to be reminded of that. But really keeping your brain intellectually stimulated is very important, especially in terms of learning. Learning is to your brain what exercise is for your muscles. So, your neurons become stronger the more you activate them and the more you stimulate them to form connections.

Dr. Lisa Mosconi:

So, if you are great at chess, playing more chess won't help you as much as if you start playing bridge. You need to challenge yourself intellectually. If you like to watch movies, then perhaps watch a documentary or a Ted Talk where you're learning something. So, that would be my number one thing that everybody can do.

Dr. Lisa Mosconi:

Number two for E, for mens, M-E-N-S, E would be exercise. Exercise is really important. And we know that women tend to exercise less than men. And very often it's because we don't have time. However, research has shown that exercise can reduce risk of Alzheimer's Disease substantially and perhaps even more in women than in men, probably because we don't exercise as much as men to start with. So, everybody needs to find some way to keep their bodies moving because that also stimulates the brain and supports hormonal production in the body and the brain.

Dr. Lisa Mosconi:

Then there's nutrition, diet and nutrition. And for women, we were just starting to talk about it, but eating a diet that is high in fiber seems to be incredibly important, not just because it supports digestion and regularity. But mostly because it really stabilizes the levels of the sex hormone binding globulin, which is this molecule that in turn stabilizes estrogen levels in blood. So, it helps you and your hormonal health.

Dave:

By the way, people who go, including women and men, who go on the dirty keto diet, I'm going to call it, this is the unending keto where it's like, "As long as it's not a carb, I'll eat it," or even to a large extent, paleo, you're not eating enough vegetables, you're not getting enough fiber, and it's really common to see SHBG levels go up. So, that means, yeah I have testosterone, but it's all bound up, or I have estrogen, but it's bound up, so it's not available. And the cure for that, pretty obviously, like you're saying, eat more fiber.

Dr. Lisa Mosconi:

Eat more fiber.

Dave:

So, you could say, "I'm going to eat even more broccoli," except that you can't get broccoli at a restaurant. If you say, "I want two pounds of broccoli," they're going to charge you $80 and they're going to deep fry it. Like, it just doesn't work.

Dr. Lisa Mosconi:

Don't go to the restaurant, just do it yourself.

Dave:

Yeah, but we travel, you know? We work.

Dr. Lisa Mosconi:

That's true. There are fiber supplements.

Dave:

That's what I started doing. I actually made one, it's called Inner Fuel. It's a Bulletproof one. And I take 80 grams of soluble fiber every day. And in Superhuman I show the research on not just Alzheimer's, but every disease of aging, feed your gut bacteria, get rid of lipopolysaccharides by using fiber. It's normal, it's just missing from your diet. So, if you're keto, you can take that stuff. If you're paleo, you can take that stuff. And if you're just on a normal diet, you still should use a fiber supplement. But tell me, soluble, which is what I like, versus insoluble, the Metamucil sawdust kind of side of things, which one is more important? What's your thought there?

Dr. Lisa Mosconi:

I think both. I think both are really good. I think it depends on what you want to do. Like for hormonal regulation, I think soluble, like you said is really important. But insoluble is also helpful to really improve digestion and clean up your gut.

Dave:

As long as it's not too rough on the gut.

Dr. Lisa Mosconi:

Yes, yeah. But you know, it's very unlikely that the problem is having too much fiber. I think if you take the supplements, it's good that you go insoluble as well because it's more gentle on the stomach.

Dave:

Yeah. There's issues with cilium, which is the most common type of insoluble fiber. And there's studies that show it's too rough on the digestive tract, it gets caught in little folds and things like that. So, that's one that I don't recommend, even though it's in a lot of supplements, especially the cheaper ones. But if you're eating broccoli and all that, you're getting insoluble fiber, right?

Dr. Lisa Mosconi:

You get a lot of that. It's really hard to find a good fiber supplement. Like, I was looking in the store. I went to three different health food stores. And it's very limited, the choice that you have.

Dave:

They're almost all junk. I only make stuff I can't buy. So, that's my inner fuel is ... I put it in my Bulletproof Coffee. I get half my day's fiber in the morning in my coffee and you can't taste it. And so, that's been something that tripled almost the number of gut bacteria species in my gut when I measured it before and after taking Inner Fuel. And I put the data in the book because, I mean, you've looked at microbiome, you know species diversity, number of species is an important variable.

Dr. Lisa Mosconi:

Yes, super important. Yes. And robust, yeah.

Dave:

And I'm looking for things that are actually doable for most of us because going to your clinic, if people are in your area or they can fly in for it. By the way, where is your clinic?

Dr. Lisa Mosconi:

It's on the upper east side.

Dave:

Upper east side.

Dr. Lisa Mosconi:

On 72nd street in New York.

Dave:

Okay, so got it. So, go to New York, enroll in the study. That's amazing.

Dr. Lisa Mosconi:

Yeah. So, if you have the opportunity ... So, this is what happened to me as a scientist. We need to have grants in order to do the research. And for many years it was apply for grants and get rejected, rejected, rejected because I was looking at women's grants. And then, just recently all of a sudden it's becoming acknowledged that we have a problem. And I got like 10 grants all at once. And I keep saying, "This is never happening again," you know? So, we have this money, we can help so many women if you can come to us and we'll help you. And no cost for you either than coming to New York City. You get brain scans, you have professional reads. And it's cool, actually, to see your own brain. I think it's a really nice thing.

Dave:

It's super empowering.

Dr. Lisa Mosconi:

Yes, no, it's wonderful. And yes, Sarah Gottfried is in the study and she's just the coolest. She was in the MRI machine and I was like, "I'm going to take a picture of you, just do some yoga poses." And she started doing all these crazy things and everybody was absolutely in love with her.

Dave:

That sounds like Sarah so much.

Dr. Lisa Mosconi:

Yeah, I was going to say, why don't you come and do a brain scan? We have men, too.

Dave:

Okay, next time I'm in New York, I'll totally do it.

Dr. Lisa Mosconi:

Please, because we're just ... Also, I mean, really it's important to me to try to find is not just about women. We care about the male patients and research participants just as much. And we need to understand what happens to them as well because the other third of the Alzheimer's population is male.

So, what we really want to understand is what kind of risk factors are most important for men and for women and how we can best help everyone. So, we also have a whole thing for men.

Dave:

I imagine that the microbiome and the hormone pictures can be very different.

Dr. Lisa Mosconi:

And heart, yes.

Dave:

In Alzheimer's for men and women. But it is ultimately ... I mean, Dale Bredesen's been on Bulletproof Radio. Ultimately, there are toxins that affect men and women in our brains, things like heavy metals, mold toxins, pesticides in your metabolic dysfunction. So, I would love to have my brain scanned. I will absolutely come in and do it. And the first time I had my brain scanned in my 20s, I thought maybe I was going crazy or maybe I'm just not as intelligent as I thought I was. And when I got one of Daniel Amen's SPECT scans, this was 20, 22 something years ago, I looked at the brain scan and it had these big holes of lack of activity in it. And then I said, "I have a hardware problem. I can fix that." Before, I just thought it was like a deficiency in my effort or my willpower.

Dave:

And for people listening who, okay, you're thinking, "I am going through menopause, or maybe my partner is," look, it actually is a hardware problem. And it's something that's hackable. But if you're like, "They're just not trying hard enough," it's not that. And blaming fat people for being lazy is wrong. It's a metabolic disorder. I can tell you as a 300 pounder, I used to blame myself. No. And blaming people who have brain problems for being lazy or dysfunctional or whatever, that's not how it works.

Dr. Lisa Mosconi:

Absolutely. No.

Dave:

So, seeing the image solves it right away.

Dr. Lisa Mosconi:

Yes.

Dave:

The first second you see your brain and go, "Oh." It throws a light switch in your brain. And then all of a sudden now it's just a problem to solve, just like a broken leg. And it's very liberating to do that. So, I'll absolutely come in and see what's going on. Now, for a PET scan, I don't know what contrast dyes you use. Is this like a radioactive tag sugar? Is it gadolinium? What do you use?

Dr. Lisa Mosconi:

Yes, so we do different types of brain scan. And actually, we do one that you would be very interested in. We do MRIs as well, magnetic resonance imaging. We do seven different sequences, and one is the troscopy. So, we look at mitochondria in the brain, which is-

Dave:

That gets me all excited.

Dr. Lisa Mosconi:

I'm sorry?

Dave:

I said that gets me all excited. I love mitochondria in the brain.

Dr. Lisa Mosconi:

It does. I know. Yes, so one of the major challenges that we've been having in neuroscience is that there are very few techniques that allow measurement of mitochondria activity in the brain.

Dave:

Yeah.

Dr. Lisa Mosconi:

Right? So, this one is one of the very few that actually works. And we just started doing it a year and a half ago with one of the few centers that do them. And the data is fantastic. I'm really excited about it. So, that is completely without contrasts. There are no contrast agents. You're just sitting in the machine and we switch the coil from hydrogen to phosphorus-31. And that allows us to measure ATP production. So, energy production.

Dave:

Wow.

Dr. Lisa Mosconi:

Yes, directly from the mitochondria. You get these beautiful three dimensional maps of ATP production inside your head. And it takes 20 minutes. It's totally safe.

Dave:

I want to do one in a fasted state. Then I want to do one on ... I have a sweetener I use called Mito Sweet that I formulated for Bulletproof. Plus all the mito-hacking supplements like Keto Prime and Unfair Advantage. I want to take all of those and do it and just see if I can melt the machine with my mitochondria activity. That's my goal.

Dr. Lisa Mosconi:

Great.

Dave:

What fun toys you have.

Dr. Lisa Mosconi:

Yes, we do. I think it's actually fantastic. We have a fantastic chemistry department. That's why I moved to Cornell. And then we do the PET scans where we actually use radioactive tracers. But it sounds scary, but it's really a minimal amount of fluorine-18 is the compound.

Dave:

Okay.

Dr. Lisa Mosconi:

And we also look at Alzheimer's plaques in the brain. So, this is the newest thing that we've been doing that you can be 40 years old and we can already see if you have Alzheimer's plaques in your head by looking at your brain. And I just got funding to repeat all these evaluations over time. So, we're going to be able to get a really good baseline on all our participants. We have hundreds already. We have fundings for a lot more. And we're going to then repeat all the evaluations over time for as long as I have funding.

Dave:

Awesome. It's likely that there are a few people listening to the show who are interested in the work you're doing, even to the extent of funding it. I have been continuously surprised and grateful sometimes when people who are from very influential family offices say, "Hey, I listen to your show." I'm like, "Seriously? Wow. Thanks."

Dr. Lisa Mosconi:

That's wonderful.

Dave:

So, perhaps there's someone who's dealing with this, either menopause or Alzheimer's or both in their family who's in a position to be a donor. Wouldn't surprise me. And I mean, Maria Shriver backs your work and I certainly back Maria Shriver and her Women's Alzheimer's Movement, which was it the Women's Alzheimer's Movement who funded the research directly? Okay, beautiful.

Dr. Lisa Mosconi:

Yes. And yeah, directly. And we are funded by the National Institute on Aging and National Institute of Health and the Acute Alzheimer's Fund, and CTFC. So, it's serious. It's very serious research.

Dave:

Wow, this is world changing.

Dr. Lisa Mosconi:

Yes.

Dave:

Right? Like cracking the code of what it means to be human. And it's at the core of what bio hacking is. So, I'm really ... I'm excited about it.

Dr. Lisa Mosconi:

Yeah, in a way.

Dave:

Yeah. I have another question for you. And it has more to do, not just with Alzheimer's, and I'm going to preface this. In Superhuman, there were four big killers of people. If you just look at statistics, what's going to take you out if you live a long time and you don't get hit by a truck or something? It's cardiovascular disease, cancer, diabetes, which is a precursor to everything, and Alzheimer's Disease. So, pretty much you avoid diabetes, you're going to reduce your risk of everything else. And then, you lower your risk of all of those things, you'll have a much greater chance of at least having a good health span. And maybe then you do some lifespan things.

Dr. Lisa Mosconi:

Yes.

Dave:

So, given that you know so much and you can look at your brain and hormones and you have unlimited access to the coolest toys you can think of and you have all this expertise, how long do you think you can live?

Dr. Lisa Mosconi:

Oh my god. I am Italian, you know? Never ask that to an Italian. You'll see me completely panic, you're going to jinx me.

Dave:

Just pick a really big number, then you can't jinx it.

Dr. Lisa Mosconi:

No, no, no. There is jinxing.

Dave:

You don't have to answer if you don't want to.

Dr. Lisa Mosconi:

I really don't know. I'm doing everything I can to be as healthy as I can possibly be. You know, it's interesting. I haven't seen my brain yet because I was too young to be part of any of my projects. And now I'm actually old enough that I'm going to get my brain scanned in a couple of months.

Dave:

I am fascinated by our whole conversation here and just looking at the long term Alzheimer's risks of hormonal fluctuations in midlife. You're the first person I've ever talked to, and I talk to a lot of people, whose done research on this and called it out. And I'm grateful that you're doing that work because the effects that are 10 and 20 and 30 years down the line are the hardest of all things to detect and to measure and to track. And you're successfully doing that. So, thank you for just going out there, raising the funding, doing the work. It's very meaningful what you're doing.

Dr. Lisa Mosconi:

Thank you so much. I really put my heart and soul in the research and I really believe it is important.

Dave:

It definitely shows. And it shows in your book too, The XX Brain is what it's called. People can find it at lisamosconi.com, that's L-I-S-A-M-O-S-C-O-N-I.com. And I would say seriously read this book. If you're saying, "I don't have to worry about menopause, I'm still young," you're going to learn some things that you want to learn now so that you will never have to worry about it. If you're dealing with menopause and perimenopause right now, you're probably not liking it and there's some things in the book for you.

Dr. Lisa Mosconi:

Yes.

Dave:

And if you are with someone who is likely or is afflicted with the symptoms of perimenopause, this is a book worth reading because it shows that it's worth getting on top of now. And being patient and seeing what happens isn't a good strategy. So, thanks for highlighting that and writing a really good book about it. And if you are in a position to fund things like this, this is work worth funding. And I'm sure there's information on Lisa's website for that. Anything that I didn't ask you that you would like to tell people listening to the show?

Dr. Lisa Mosconi:

I would just like to say that brain health is women's health. And that we really need to take care of our brains as well. I have so many friends who are like, "I just don't have time for me. I have to work. I have my family. I have my kids. I have my husband. I have my parents. I have everything else going on in my life. And me, I am just not a priority at this point." And we really need to make sure that we are also part of the picture because so many women just lose themselves in everything else that is going on. And I find ... I don't know if you notice that too, but women are incredibly generous in that way, almost too easily making a sacrifice in some ways, right? They just put everybody else before me. And then I get a health issue and then I don't know what to do.

Dave:

Yeah.

Dr. Lisa Mosconi:

So, it's really important to take care of ourselves as well. And our brains are really one of our most important assets. And the best way to engage in prevention is now. It's never too late to start. But the sooner we start doing it, the better.

Dave:

All right.

Dr. Lisa Mosconi:

All right.

Dave:
Keep doing what you do. Thanks for being on Bulletproof Radio.

Dr. Lisa Mosconi:
Thank you.

Dave:
Have a beautiful day.