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That's BulletproofTrainingInsitute.com. I really hope to see you there. This is one of those world changing things I'm so excited to be doing.

Voiceover: Bulletproof Radio, a stage of high performance.

Dave Asprey: You're listening to Bulletproof Radio with Dave Asprey. Today's cool facts of the day is that sexual arousal actually starts in the gut. It's because your gut has a bunch of bacteria, the probiotics and all the stuff that grows in there and those things make some of your hormones, although your mitochondria make other hormones. They make enzymes and neurotransmitters like serotonin which is something you need for sexual health. Maybe 80 to 90% of your serotonin comes from your gut, not from production inside the brain. Serotonin's active in different areas of female sexual arousal. It's in several of the nether regions of the woman to use a technical term straight of the Victorian era.

Also known as girl parts if we're going to go a little bit deeper into the scientific jargon here. What that means is that basically having enough serotonin can absolutely enhance your organisms. The female orgasm starts with stimulation of nerves which leads to contractions of smooth muscle in those same areas and that's where the serotonin lives. You get a healthy gut by doing stuff in the Bulletproof Diet and eating lots of vegetables, eating lots of fiber and not eating lots of antibiotic tainted meats and things with glyphosate and things like that in it. Who would have thought you could also get more serotonin by taking 5-HTP? Yes, Bulletproof has a 5-HTP supplement that also strangely enough reduces sugar cravings.

Kind of a cool thing. All right. That was not meant to be a plug because my plug is actually much more benign than that today and it is FreshBooks makes ridiculously simple cloud accounting software that's completely transformed how millions of freelancers deal with their day-to-day admin and paperwork. Here's how they've done it. FreshBooks has basically taken all the really annoying admin and paperwork tasks small business owners hate doing and turn them into simple intuitive and dare I say it even enjoyable moments. You can use FreshBooks ... Enjoyable. Okay. It's accounting. No one ever enjoys accounting except accountants. Let's just say that, but FreshBooks makes it good. You can use FreshBooks to create and send invoices in about 30 seconds.

There's no formatting and no formulas. Just really simple, clean and professional looking invoices. Your clients can pay you online which can seriously improve how quickly you get paid. If a client forgets to pay on time, FreshBooks will handle the awkwardness with customizable late payment reminders. FreshBooks has also cracked the code of effortless expense tracking by importing expenses directly from your bank accounts. Next time you do a debit card for that business lunch, watch the transaction magically appear in your FreshBooks account. That's totally liberating. Their mobile app lets you take pictures of your receipts and FreshBooks organizes them for later.

It can create expense reports for you and also make claiming expenses at tax time a breeze which is really important for entrepreneurs. This is only a tiny sliver of how FreshBooks can transform your entire perspective on dealing with your paperwork. To feel the full effect of FreshBooks and to claim your 30 day free trial, just go to FreshBooks.com/Bulletproof and enter Bulletproof Radio in the how did you hear about us section. That's FreshBooks.com/Bulletproof and enter Bulletproof Radio in the how did you hear about us section. Need some motivation in your life? Listen to an audio book.

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The reason is that *Headstrong* just had the huge honor of hitting the New York Times monthly bestseller list which is only 10 books that are top in the month and this is in the science category, not the advice category where you normally find health books. I was amazed to find it's sandwiched between *Homo Deus* and *Sapiens*, two very well-known books by the same author and it shared the list with *The Undoing Project* and *The Hidden Life of Trees* and some other very net worthy books. That's something that literally just blew me away. If you like *Headstrong*, if you already read *Headstrong*, what you could do is you could go to Amazon real quickly and just leave a five star review and tell people that it's worth reading.

People decide what to read based on reviews. I fundamentally believe that when people do a few things to make their mitochondria work better, that they're nicer. We're all nicer when our mitochondria work because we're wired to be nice and kind to each other. If you read the book or you share your experiences with the book and make some notes with the book, they'll be nicer to the people around them. Maybe even you. All right. Today's guest is Dr. Lindsey Berkson. Dr. Lindsey's been a functional medicine gut nutrition and

hormone doctor for almost 40 years. You wouldn't know by looking at her because she looks like she's like maybe 32 at most.

She specializes in complex cases like high risk hormonal patients, people with like severe gastro issues who are trying to avoid surgery and has been doing this for a long time. She comes at it from a weird perspective because she lost seven and a half ovaries and 18 lymph nodes and was told basically that she's probably going to be weak and old because of her health history. This happened because of a drug her mother took while she was pregnant. She learned from personal experience much like I did how to hack our health and just to work on what's going to work.

She does things like hormone replacement therapy, nutrition and all the other things that cause rejuvenation, things tied to functional medicine and functional neurology and very specifically hormones and sexual health. She teaches doctors, pharmacists, nutritionists and other people who are getting their licenses on how they can avoid some of the medical stuff they do. Dr. Lindsey, welcome to Bulletproof Radio.

Dr. Lindsey Berkson: Oh, I'm so excited to be here because I saw you at Mind Share last year, but you kind of stand above the clouds and I was in such awe of you which I am with the status right now of your book that I didn't go up and talk to you. Now I get to hang out and have a dialogue with you. I'm pretty excited to be here. Thanks for having me.

Dave Asprey: I stand above the clouds. You're making tall person jokes already. Jeez. Just because I'm 6'4 people are always saying so many thing ... No, I'm kidding.

Dr. Lindsey Berkson: No, it's a triple entendre.

Dave Asprey: Mind Share for people listening, this is my dear friend JJ Virgin's group of highly influential health authors and celebrity types where we get together once or twice a year usually about 100 or so, 150 people, and talk about how we can better serve listeners, people like you, in just in getting information that's impactful that's out there that maybe is missing because all of us are sort of just tired of or even disgusted by some of the things that big industry is telling people to do. The people like Mark Hyman and Daniel Amen and you and just many of the guest on the show, like we're all working on the same team.

We might not always believe the same things, but we're all directionally working to change the health of the nation without using insurance companies at all. Anyway, that was the introduction for what Mind Share is in case people didn't know. What I wanted to chat with you today was I want to talk about hormones and the brain because you write a lot about that. Then you also tie that beyond the cognitive performance and like just having enough energy to bring an everyday perspective that I had in Headstrong. You're tying it all the way to

human connection. First, let's talk about hormones. Let's talk about how hormones cause a human connection.

Dr. Lindsey Berkson: Okay. Well first of all, most people think of hormones as just sexy things and reproductive things and when they get older, they're relieved that maybe they don't have to talk about them anymore, think about them anymore. People do not realize that your body has a physiologic internet system and what sends emails to most of your cells, that's the genes in your cells to turn a cell off or on, to turn the gene off or on. What does that are your hormones. Your hormone robustness affects your lung health, your gut health, your kidney health, your vocal chords, but it especially affects your brain. This is not well appreciated.

In fact, there is a group of scientists at UCLA at the Department of Neurology headed by one of my heroes, Dale Bredesen, and he is literally reversing mild to moderate dementia and other cognitive diseases and he's got a whole protocol that's not pharmaceutically based so it hasn't made it real big even though he's published it in peer review. One of the key foundations of his treatment is to balance the hormones of the individual no matter their age. People don't realize that nature wants us to be flooded with hormones. Not just to have babies, not just to have libido, but in writing this book I discovered that nature wants us to have ... We're built and designed to experience authentic human connection.

When that happens, hormones as well as a number of other singling molecules like neurotransmitters which you began this talk with are released and they have very definitive brain care taking effects, but due to endocrine disrupting compounds that we're exposed to on a daily basis that are hormone disrupting and even sociologic ways that we now live differently with texting being the new talking so there's less one on one connection, there's a lot more anger, there's many people starting to write books on this, our human connection is, and I love your book very much, our human connection is waning. It's waning. Our brain health is waning and the human brain is really under attack.

Shockingly enough if we go through the story of how I came about to write this book, intimacy was one of nature's ways to create hormones in your body to protect your brain.

Dave Asprey: It's true. Intimacy ties to hormones and hormones tie to health, but also environment ties to hormones and hormones tie to health and then hormones tie to intimacy. It seems like we've kind of got the dragon eating its own tail, pushing a string, all those different analogies. Where do you start?

Dr. Lindsey Berkson: That's really great. I wrote one of the very first breakthrough books that came out 18 years ago called Hormone Deception. All about this toxic cocktail that we're now living in and what are the effects on your children, our kid's brains. Based on that book I was invited to be a hormone scholar at an environmental estrogen hormone think tank at Tulane University where I really worked with the guys who were developing this new field. I had written books on the gut and I'd written books on hormones, but I was shocked to see how they converge in

the bedroom. In *Hormone Deception*, I said, "Girls are having menstruation earlier than ever. When you change milestones of reproduction, this is huge.

Menopause is happening earlier than ever. When you change milestones of reproduction, that can be adverse and that could be very huge like the canary in the mind." It appears as though this chemical soup that we're in is also an ... I explain this. I give it a name environmental castration for the very first time and Mark Hyman wrote a really cool paragraph on that of that concept that our hormonal soup of chemicals that we're exposed to from the time we wake up until we go to bed are also creating havoc with our hormones. We have to start taking a look at this differently than the academicians because they're all about regulation and what should we do with the government.

Here when you have a patient come into your office because I'm a clinician or you're ill yourself, how do you get this stuff out of you and how do you co-exist with it in a world where the given is we have over 80 to 90,000 chemicals. Only 2% of them have ever been tested. A lot of them are hormone disrupting. *Lancet*, very prestigious journal, came out with an article in October of 2016 saying that in America, which we have the most endocrine disrupting chemicals, we have an 11 million IQ points lost every year from exposure to these chemicals.

Dave Asprey:

That was just in my immediate family. All right. Sorry. I had to say that. I love statistics like that because just lead exposure, iodine insufficiency, those are costing millions and millions of IQ points. Those are toxins, but when you talk about endocrine disrupting chemicals, what are the big ones? The things that people should watch out for?

Dr. Lindsey Berkson:

What are endocrine disruptors? They're chemicals that conflux with our hormones. They can block them. They can mimic them. They can amplify them. They can block our metabolism of them. They fuz with our hormones. Our hormones are set up to take a signal in the internet email system at parts per billion and trillion. Itty bitty. The human brain can't write itself around how small that is. Low level exposure is the issue here. Different than our understanding of carcinogens which was higher level exposure being an issue. The things that we now have been examining for what are the chemicals that we have that are problematic. First thing is plastics. Plastics are very estrogenic.

In fact, one of the people who developed plastic, Sir Charles Dodd, he also developed the chemical that was given to my mother that was the most powerful estrogen. He kind of loved to make molecules that had an estrogen zing and fling to them. He did that with plastic. A lot of plastics are estrogenic. There are many compounds that are antiandrogenic. They can amplify the feminizing effect and down regulate the masculine androgenic effect. There's also chemicals that are antiprogestine. There's phthalates. Phthalates are very commonly in almost all perfumes and a woman takes a shower in the morning and she has all her pores open.

She walks out of the shower and sprays her underarm with perfume or her body or her wrist with perfume and the phthalates gain entry into the body. In fact, most healthy American pregnant woman have phthalates in the amniotic fluid. It's a hormone affecting the baby's development as it grows. In fact, that's all of our concern is what is it doing to our kids. In 1980s, there were 3% complications with pregnancies. Now one out of every four pregnancies has complications which according to Harvard and the School of Public Health they feel is due to these chemicals. When you get a floor that's not a wood floor, but it's a laminate, that can out gas. If you get paint that has BOC's, that could be endocrine disrupting.

When you get brand new furniture, some of the real big guys with the foam inside the furniture or the flame retardants that you sit on and you love to have these stain resistant flame retardants. California set really high levels a number of years ago to protect us from fire, but those flame retardants are very endocrine disrupting with the issue being with the brain. We live in a chemical soup. The thing I found out the other day was if you go to Whole Foods and you buy almond milk or soy milk, there's an inter plastic lining ...

Dave Asprey: Why you would buy soy milk again? Because you don't like your hormones?

Dr. Lindsey Berkson: Oh well, there's a huge debate about soy. There's good stuff about soy and there's bad stuff about soy. Soy does a lot of positive things and I know there's a tremendous polemic discourse. We could probably have a really good ... We'll get on our gloves and have a good discourse about soy. If you go to buy a milk alternative, those cartons are lined with polyethylene that is a low density plastic. You don't even think of that. You think okay, cans have bisphenol A. We're going to try and have less canned food, less soda food because bisphenol A is an endocrine disruptor like we've been saying and it increases our risk of being fat. It's also an obesogen.

Bruce Blumberg at the University of California named these endocrine disruptors that make our fat cells not work well and that's contributing to our obesity. The heavier you are, the smaller your brain volume. In another indirect way, endocrine disruptors if they make you fatter can also make you lose more IQ. That's a really scary replicated fact. When I go on a date on Match.com and a guy sitting across from me and he ends up having too big of a gut, I know too much so I'm thinking his brain volume might be decreased and that might not be on my bullet list.

Dave Asprey: I've got to ask though. You see a guy with a guy. You're thinking about dating him and you're a hormone expert. You're like okay, gut means his brain is going to be smaller, but what about the other parts?

Dr. Lindsey Berkson: Yeah, you're exactly right. When a man excess has fat cells, fat cells are estrogen factories. All men and women have the same hormones. The difference is the amount. Usually a man has a low level of estrogen that protects his brain and heart, but when he has a lot more fat, that estrogen level goes up in ratio to his

manly hormone testosterone that goes down and usually the heavier the guy, the more the erectile dysfunction, the higher the voice, the more feminized behavior, the more difficult it is to live out the hormonal destiny.

Dave Asprey: What's a feminized behavior in a fat man?

Dr. Lindsey Berkson: Well, it can be ... I'm making discussions about this ...

Dave Asprey: I'm curious. I used to weigh 300 pounds. I want to know how feminine was I.

Dr. Lindsey Berkson: You look so fantastic now. Testosterone according to Michael Baker whose one of my gurus who's made the hormones his whole entire life career, he's a scientist at the University of California, testosterone is the stabilizing hormone. It's rocklike. It pretty much compare to estrogen level all day long. Men have more testosterone. They're meant to be more rocklike, more stable, whereas women are designed to be more emotional and a little bit all over the place by nature so that she can hear the baby if the baby's in danger. That's one of the reasons women ...

Dave Asprey: Did you just piss off every women listening to Bulletproof Radio or here, Dr. Lindsey?

Dr. Lindsey Berkson: No. No. It's just that we're more prone to be open and a little bit ... I don't think they're pissed off. I think they're going I'm relieved to understand why my emotions can swirl.

Dave Asprey: You said men were more stable than women. I think I heard that. Did I not?

Dr. Lindsey Berkson: Well, that's what we are designed in essence to be, yet these days when there is so much hormonal imbalance and change, you were asking what a man that has a lot more estrogen might do. He might not be living out his testosterone destiny. He might feel a bit more prone to depression because women are much more prone to depression. He might feel a little bit more insecure about closing that deal or interactions with people where he has to get his courage up. Things that ...

Dave Asprey: Testosterone's tied to aggression, right?

Dr. Lindsey Berkson: Well, that's when it's in excess. Hormones are all about balance. If you get more testosterone than you need, you will get a lot of aggression definitively and that's why it's so important. Hormones have a goldilocks mean. When they're too low, it's an issue. When they're too high, it's an issue. Plus they're in consort with their family of hormones which also plays a role in how they act out. Balance is everything. We're kind of out of balance because we're exposed to so many hormone altering chemicals.

Dave Asprey: All right. A guy whose exposed to hormone altering chemicals, we get some these xenoestrogens which are a thousand times than normal estrogen. By the way, they're not all just manmade. One of the strongest xenoestrogens out there come from mold toxins. It's a micro toxin.

Dr. Lindsey Berkson: Definitely.

Dave Asprey: They use it cattle to make them fatter because estrogen in excess makes you fat. Oh, put a little bit of this mold toxin into the ear of the cow and it will wax repel it. It will melt it to their fat. Of course, you'll eat it later. Then it causes that nice marble defect in the meat. You can cause marbling of your tissues with fat with synthetic estrogens or with Mother Nature's estrogens or with just onboard estrogen from being obese, right?

Dr. Lindsey Berkson: That's definitely right. In fact, the drug that my mother given it was given to millions of women from 1938 to 1971 until it was labeled a class one carcinogen. It was dumped by the millions of tons into feed lots to do just that, to marble the meat. It was the most powerful estrogen and it marbled the meat of cattle and made it taste really good. In fact, we state a lot of farmers do this now under the legal limit because it does make meat taste so good.

Dave Asprey: What's it called?

Dr. Lindsey Berkson: Well, the acronym for it is DES and the polysyllabic term which is a little bit hard to say is diethylstilbestrol. A few years ago, Sweden is the only country that still test any meat shipped to it if it's got some DES in it. That's supposed to because it's banned in the United States, but they tested our meat that was sent a few years ago and found that much of our meat today still has a lot of DES in it which is a carcinogen and it marbles your fat and just like you said, it makes you fatter.

Dave Asprey: One of the cool things about these synthetic estrogens that you write about in your book is that there's a metric in ranching. I run a small farm. We have three sheep. I'm not exactly a rancher, but I've studied this extensively. A rancher with a thousand head of cattle, they look at something called feed efficiency which is how many calories can I give the cow and cause it to gain weight. They found that by adding synthetic estrogens to their cattle allows them to get a 30% improvement in feed efficiency which means they got fat on 30% less calories. If you still believe calories in calories out and you're listening to the show, you have to be able to accept that fact which absolutely invalidates calories in calories out at its core.

You have to look at that and say there are environmental inputs to weight gain like that. Hormones are clearly one of them. When I weighed 300 pounds, I have lots of extra fat and lots of extra fat as you wrote about in your book, it causes you to make extra estrogen. It causes you to turn testosterone into estrogen. When I had my levels tested at 26 and this was almost 20 years ago, I had more

estrogen than my mom and I had less testosterone than my mom which was not exactly encouraging you could say. It does give you a nice soft skin I guess that might be a side effect. That kind of pudgy soft skin. It wasn't so attractive.

When I went on testosterone and I've been on testosterone on and off since then for antiaging purposes, if I'm really careful nutritionally, I'm in my mid-40s, I can keep my levels almost where I want them, but I do supplement testosterone. I've been very open about this since I started blogging because I'm an antiaging guy. I expect to have 30 year old testosterone when I'm 140. I'm totally down with that. I did notice, I'm just kind of going back to your description of what happens when you have extra estrogen, I definitely was less secure than I am now, but then again I've done a huge amount of neuro feedback and personal development and [inaudible 00:25:23] meditation and understanding your software.

There is something to be said for the amount of just power that comes from having adequate testosterone as a man. What about for women though? What happens when women are low in testosterone?

Dr. Lindsey Berkson: It's very, very similar because we think of estrogen protecting bones, but testosterone protects our bones. One of the biggest places where testosterone affects both men and women is the cool little shape, a little cool shape that's just a shape of a seahorse deep inside the brain called the hippocampus. Nature prioritizes the hippocampus so much that it has the most blood flow of any tissue and the most mitochondria which you love to talk about. There's more mitochondria in there than anywhere and that's because that's where our sense of who we are, our motivation, our meanness, all our memories are stored. In both men and women, testosterone greatly signals and keeps that hippocampus volumized, fluffed up.

Before cognitive diseases, there is something scientifically labeled hippocampal shrinkage. In both men and women, testosterone keeps our hippocampus fluffed up so we feel stronger emotionally. In writing *Sexy Brain*, I discovered every single time a man and a woman make love, they both have higher levels of testosterone. This was done by the Department of Psychology at the University of Georgia State, excuse me. They had 11 heterosexual couples and they measured their T levels before and after making love for 11 nights and then before and after when they didn't make love and every single night you make love, both men and women make more testosterone. A woman makes it more just by hugging, but when they didn't make love, it didn't stay flat.

It went lower. Why would nature do that? Because she wants intimacy to be brain protective especially at the hippocampal level.

Dave Asprey: Now I actually track my hippocampal volume because no man wants shrinkage. Let's just face it. Why are you laughing? I'm shocked that you would think about that having a book called *Sexy Brain*. I'm kidding. My hippocampal volume is at the 86th percentile for people my age. The strategy of having your hormones

right and honestly I believe some of my hippocampal volume comes because I artificially enhance BDNF, brain-derived neurotrophic factor. You do that with exercise and cold therapy, all the stuff in Headstrong, but I take a supplement. It's one we make called NeuroMaster that raises BDNF four times more than exercise. It's like I do that and I exercise. I do everything I can to make sure that I have neuroplasticity.

Make sure my testosterone levels are high, but not off the chart high there. 75th percentile thereabouts for a 30 year old. Not a 44 year old. I don't want to perform like a 44 year old. It seems to work. Quantitatively, okay, I'm in the upper percentiles. I'm not at 100%, but I'm doing pretty well. We're talking about hippocampal volume and then we shifted gears on testosterone to love making. Now I'm going to ask you some detailed questions on this. A while back I did a year's study. I was looking at some Daoist antiaging practices involving ejaculation. There's an equation for living a long time and they'll tell you take your aging years minus seven and divide by four. This is only for men.

It yields the number of days that should happen or you should go between ejaculation. I'm like all right. I'm going to test this. I'm going to test my daily happiness and I didn't do like hundreds of testosterone draws and all that, but there's pretty good evidence that if you ejaculate too frequently, your testosterone will drop. What I found was even going as long as 30 days without ejaculating. It wasn't I didn't have sex. The less you ejaculate as a man, the more you want to have sex surprisingly because you're like oh, I'm not going to finish so maybe we could do it again later today. Overall for the women's oxytocin perspective, this seems to be good.

For the men's perspective, your testosterone levels go up because you're making love more frequently, but you're ejaculating less. Have you come across anything around ejaculation frequency and testosterone levels or any of the intimacy sort of things that you're studying in Sexy Brain?

Dr. Lindsey Berkson: Yes, that's a great comment. I was a yoga teacher for 25 years and lived in India a long time ago. One of the practices for male yogis was to intricate to hold the ejaculate and really when you take a look at what's in semen, you start understanding it because semen is very high in zinc. Every time a man ejaculates, he loses the certain portion of zinc. Testosterone can be raised by zinc because zinc is so important for testosterone to bind at the gene level. That's why magnesium can elevate testosterone. Exercise can elevate testosterone. Zinc can elevate testosterone. Certain amounts of vitamin C can elevate testosterone because they have a lot to do with the signaling of testosterone to the domain gene level.

When you lose that with an ejaculation, it can be minimized, but if you take supplementation, it could be maximized. In the yoga circles, they were saying, "Well, if semen has all these wonderful things." It's like a one a day multi mineral. It's high in zinc. It's got a number of hormones in it. It's got prostaglandin, serotonin, oxytocin. In China, they first started hormone therapy

in China by taking the urine of really healthy young men and women and dehydrating it and mixing it with herbs and that was the very first hormone replacement therapy. Making love is a little bit similar to that, the semen. They said, "Well, we won't lose it. We'll intricate it and we'll hold it up." They've got all these different yoga maneuvers to ...

They're called Uddiyana Bandha to bring the movement up instead of down. I had a large number of yogini friends at that time that we're trying these things. It's very difficult to do. They didn't really feel the benefit. I think that because semen is so rich like a one a day that if you just make sure that you eat well and take nutrients you'll replete yourself. That's what I think is going on.

Dave Asprey: There's certainly the mineral loss. Biologically it's expensive to make semen. It takes a lot of your protein manufacturing capacity in the body in order to make new proteins and to fold them properly and all that. That means your environment has to be right. You have to have structured water in your cells, organized water or exclusion zone water. You have to have enough mitochondria energy. You have to be able to read your DNA with your RNA. If you have blocks in any of those, your hormone levels will not be replete. You'll also waste a lot of the electrons, the biological energy that would have gone into maybe taking care of wrinkles or keeping you'd have strong bones to continue generating this stuff.

Healthy animals have more sex. Healthy animals reproduce easily. Animals that are not healthy have less sex. They have lower libido and they have a hard time reproducing.

Dr. Lindsey Berkson: Young people have lower libido. Our young adults have lower libido. That's just really quite extraordinary, but I want to make to mention, you had that product that you said was the NeuroMastery.

Dave Asprey: NeuroMaster. Yeah.

Dr. Lindsey Berkson: There is a nerve growth factor that is very rich in semen that access one of those same trophic or growth factor family and it's because it normally enters the brain in women and helps ovulation, but it also really is brain care taking released into the women from making love.

Dave Asprey: I have to ask to this and I hope iTunes doesn't ban me for it. All right. These compounds in the semen, are they ... How do I put this? Are these orally active? Are they topically active or they just need to go in the vagina?

Dr. Lindsey Berkson: That's a really cogent question. Thank you for asking that. I bet you some of your listening audience was sitting out there thinking about these questions.

Dave Asprey: Actually I think about 40,000 people just spit their Bulletproof Coffee on their windshields right now just thinking of the percentage of people listening to this

driving versus when they're working. Anyway, that was the nicest way I could ask it. There is actually historical people who would use like bull semen or even human semen like facially in order to use the prostaglandins in order to reduce wrinkles and all that. I don't want to be gross about things like that, you're sort of calling it a one a day. Are condoms bad for us then?

Dr. Lindsey Berkson: Well first of all, anyway that a woman is exposed to it she absorbs it. She gets it when she swallows it. The vagina is like a sponge. Whatever it's exposed to goes right into the bloodstream especially there is contractions happening that help push it up into the bloodstream. Even when you talk about people having used bull ejaculate and putting it on their face, well, we know women take bioidentical hormones topically. They call it dermal absorption, although that varies greatly from one person to another. It doesn't matter which way you take it, but what's so crazy is that nature ...

Why I even wrote this book, if you would have said to me why did you write a book on intimacy, this is my 21st book, I never would have told you a few years ago I would be writing a book on this, but I have about 10 or 15 books on hormones and a surgeon and a urologist that were opening up erectile dysfunction clinics, a hundred of them said, "We would love you to collaborate with us to write a book for our waiting room." When I started doing due diligence in intimacy, I'm a healer. I'm a healer so I use natural means as much as possible. I improve digestion. I look at the microbiome nutrients. We're very much in sync about our thoughts.

You wrote that Better Baby book and I've been talking about green pregnancies, but I didn't understand the data and the elegant science that showed that intimacy was really important. At the same time in my own practice, I saw that young people have less libido these days. When they opened the first 5 or 10 erectile dysfunction clinics, they were shocked thinking most of the guys coming in would be in their late 50s or 60s or 70s. Many of them were in their 20s because of the endocrine disrupting toxic soup we live in and a number of other things.

Dave Asprey: One of things that I think might explain that in young people not just the endocrine disruptors because they've been around for 20 years and I don't know that they're that much worst in the last 10 years than they were the 10 years before that. It's that young people now are exposed to huge amounts of blue light. Blue light causes all sorts of problems with sleep and very specifically you have the serotonin we talked about in the beginning which is a sex hormone. Serotonin gets turned into melatonin, but if you're staring at your phone and it's got its full brightness on, you have LED lights all around you, it disrupts the circadian rhythm and it actually causes changes in hormones.

If you're not getting any sunshine because you're indoors all the time, that also causes a depletion of serotonin and melatonin. For people looking at this on YouTube, go to [Bulletproof.com/YouTube](https://bulletproof.com/YouTube) you can find all of these episodes, I'm wearing my cool ... These are the day walker glasses from TrueDark. It's one of

the companies that I've backed. This block half the blue light during the day, but they don't block all the blue light because if you don't get some you have a problem. At night, I switch to the patented ones that filter out all of the light that tells your body that it's time to start making melatonin. Blue blockers are too much during the day and they're not enough in the evening. This for me has doubled my deep sleep on a lot of nights.

It's profound. I think young people might be dealing with light pollution as much as they are with endocrine disrupting chemicals. Do you buy that?

Dr. Lindsey Berkson: I do. It's multifactorial. We could actually talk for 12 hours on all the different things that are playing a role into men not being the same man as their grandfather. In fact, at a conference in the senate when they were talking about money for regulating endocrine disruption, one of the senators jumped up and said, "None of us here today are as much a man as our grandfather." It's a famous quote in endocrine disrupting history. There's many reasons why our hormones are going astray, but they are. We have to think and I love that you guide people on giving them all kinds of positive things. The melatonin is so huge. We think of melatonin as a sleep hormone and you're talking about all the other nuances.

You're a nuance connect the dot guy, but melatonin when I was at Tulane, there was an MD PhD who had made melatonin his life career. He would show that melatonin helps us fight cancer as we sleep at night combined with omega-3 fatty acids. One of the things that it does is pleases our hormones. Melatonin is a powerful antioxidant. It's been shown to be anticancer, fights cancer in over 60 different cancer cell lines, meaning 60 different types of cancer. While we sleep at night, melatonin makes our hormones act better. If we're exposed to endocrine disruptors, it's supposed to be there to help us, but it's being tamped down by the many things that you say, watching TV late at night, being glued to our screen.

In fact, the study came out a few weeks ago that young kids that have monitors as games, infants, they have developmental delays. We don't know how much that's affecting the brain because of constantly staring at that light. There are many factors our hormones are going south. Definitely.

Dave Asprey: It seems like that's one of them. For my sleep, I mentioned the TrueDark glasses. We also have a supplement that just came out with Bulletproof called Sleep Mode where you've got a plant-based melatonin and a bunch of other stuff that's not common in sleep formulas. I take that. It's a very low dose melatonin. The idea is if you control your light exposure, you black out your bedroom, you're eating the right foods, you're getting some early morning sunlight, you're probably going to make a good amount, but you just want to bump it up a little bit. I'm immune to jet lag for the first time in my life. I mean I would use provigil or modafinil. I could always manage. I used to commute from the West Coast to Cambridge, England once a month for a week.

Really bad stuff from a health perspective. I got pretty good. The point now where I literally fly to New York from the West Coast and I sleep eight hours and get two hours of deep sleep, but I'm controlling light and I'm controlling my supplements, I'm controlling my food and I'm controlling actually my exposure to chemicals as much as I can, but when you're in an airplane, you're jacked. You're getting all sorts of crap.

What do you if you're a normal person with a normal job, you got a cubicle with flame retardants [inaudible 00:40:45] in it, you're exposed to stuff in your workplace, you're exposed in your car to whatever the heck is the new car smell which is mostly bad news for your hormones, like you're bathed in this stuff and you got on an airplane, you fly somewhere, what's the protective mechanism? What should I be taking? What should I be doing because I'm not going to be able to avoid all this stuff?

Dr. Lindsey Berkson: I love what you just said about you wear these glasses during the day. Then you wear stronger glass at night. Then you know how to sleep. Then you exercise. Then you're taking hormones. You have all these steps to protect yourself eve if the world is toxic. On one hand it's the doomsday story, but you know we remediate lakes. We brought a lot of lead out of the environment when we changed gasoline. Remediation or cleaning up a terrain is possible. You have to have within your life some things that you do on a daily basis that help rev up all of your HEPA filters inside your body to keep detoxing you.

In the book, I give a 10-day sex hormone receptor detox that you should do a few times a year and do every day some daily gentle because detoxes kind of a way of life now. I mean we're all designed to have detoxification mechanisms. Nature does that, but they're overwhelmed at the moment with the toxic soup we're in. If you could have inserted into your life gentle regular modes of detox and then several times a year like at the equinoxes, my receptor detox was a base ... When I first started doing about it 15, 17 years ago, it was based on literature from firemen because firemen will walk in a burning building and be exposed to more chemicals than any other population that we know. They would get cognitive issues and health issues.

They had to come up with effective detox methods to get them back on the job rapidly and to heal them so that these wonderful human beings that, our firemen, will be well again and be able to continue to protect us. They did come up with some very effective ways of detox and I've merged that into knowing what I've learned by writing books and working at the think tank at Tulane. You have to have certain amount of daily regular things. Exercise really helps everything. Exercise helps us detox. You can up that detox if you take a nice and ... You have to be very careful. Some people get a little welts with it or react to it. You start real low, 50, 100 milligrams, but I usually take before I work out about 300 milligrams of niacin.

People say, "What do you use for your skin," and niacin is an all-time way of just having better skin if you use it regularly over the years along with working out

and eating a colorful diet and all the things that we know are smart. Exercise bumps up testosterone. It improves your health. It improves your neuroplasticity in your brain, but also your brain is made up of the same embryologic cells when you were a fetus as your gut is. It creates gut neuroplasticity in your gut. There's all kinds of supplements that you can take on a regular basis from vitamin C and citrus packed in. There's a variety of things that you do. You probably even sell some supplements for detox.

Dave Asprey: Can I ask you like the top four things I do? Yeah, I make these, but I would like your criticism as well as if you think they're good or not. Help me improve.

Dr. Lindsey Berkson: Okay. Can you just tell me what the one you added to the melatonin was in your new product?

Dave Asprey: It's not just melatonin. There's a whole stack of things like that. One of them is L-ornithine, the amino acid, because ammonia toxicity from excess protein is a major issue and ornithine helps you deal with that. When you're sleeping, when you have excess ammonia, it messes up a bunch of systems in the body. By adding that in there, you're actually able to improve sleep in a way that is completely ... Like you wouldn't believe it, but it totally makes a difference.

Dr. Lindsey Berkson: That is fascinating, Dave. That really is.

Dave Asprey: That's in Sleep Mode. It's just one of those things where you can go to any vitamin retailer and there's like 50 different sleep formulas and they're all pretty much the same. This is pretty different because I have tried a lot of those over the ... Valerian root makes you feel drugged and GABA doesn't absorb that well and all these different things. I like to call myself a formulating professional, but I don't have a license in pharmacy or something, but I know what I'm doing there and I feel confident. I can feel the difference with the stuff. Here's the four things that I build in for my own estrogen and synthetic detox especially ... Well, some of it's when I'm home and some of it's when I'm traveling.

When I'm traveling, I'll jump up and down. Like a whole body shaking, jumping rope or rebounding. When I'm home, I use the Bulletproof Vibe. It's a whole body vibration platform we manufacture. The idea is shaking the whole body it activates mitochondria, but it activates lymphatic flow. I'll go for a walk if I can't do that sort of thing, but the idea is the more gravity you can get, just circulating things like that, it helps the body to get rid of the toxins before you take them up into your cell membranes. Thumbs up or thumbs down?

Dr. Lindsey Berkson: I think that's a fantastic idea. When I work with this integrative internist that died last year sadly, but he was older, he'd been in practice 59 years, we had five or six of the vibrating machines in the clinic and people would come in and use them because it's very good for bone integrity. It's good for mitochondria as you say. I wish you would make one that you could sit on gently while you're working because when I write books and I see patients, I'm always sitting and

I've wanted to get an engineer to design something like that, but I'm probably not going to. Maybe you could take the mantle on that.

Dave Asprey: This is strong enough that if you sat on it for 20 minutes as a woman, you'd probably really like how you felt, but you'll be done after a certain amount of time. We'll just put it that way.

Dr. Lindsey Berkson: It's like that episode Mad Men.

Dave Asprey: Exactly. You might want to stand on it. I might have just doubled the market size for the Bulletproof Vibe there.

Dr. Lindsey Berkson: I love that idea and when I chat with patients, I go in depth about high intensity because most strokes happen early in the morning when suddenly your blood pressure really goes very high and your blood vessels can't handle it. High intensity prepares your blood vessels to be more flexible. They have more plasticity. It also makes more mitochondria. It's kind of like a simulated, but not as good as your vibration. There's whatever people can do to push themselves and have a lot of motion, poetry and motion, I mean the more you can move, the more you can groove physiologically. That would be very helpful for all of your P450 enzymes that are all throughout your body not just your liver.

That's a great idea and I want to see your machine, how it differs from the machines we had in Oklahoma.

Dave Asprey: Oh awesome. This is a 30 hertz. This is the frequency NASA studied the most. You said P450. All right. Trivia question. Do you know why the cytochrome P450 is named P450?

Dr. Lindsey Berkson: Yeah. I used to know how that was. Because I have that in my Safe Hormones, Smart Woman. Let's see if I can go into that file right now and open it up. I think it's a light range, right? It's cytochrome. It's light. Oh God. Thank you. See? Hormones in my brain they're working. Thank God.

Dave Asprey: They are. Very few people know that. The P450 detox pathway in the liver is the primary first line detox for synthetic chemicals and manmade chemicals and foodborne chemicals, mold toxins, anything, damaged fats, damaged proteins, all that stuff. P450 is going to clean it out. Pharmaceutical chemicals at least it's one of the things. It's named because they first discovered this because it would react and absorb light at the 450 nanometer thing. Even like the beginnings of biology or light base which is kind of fascinating and that's a bit of trivia at school that you knew that. All right. Let's talk about P450.

Dr. Lindsey Berkson: Well, I just want to bring a cool thing up because you like cool little ...

Dave Asprey: Please do.

Dr. Lindsey Berkson: Little cool pearl. The body comes down to light and energy, but it also comes down to shape shifting. I love this and I think this is why we're all so viscerally affected by shape. Guys love the shape of a woman and women love the shape of mountains on a horizon or even the shape of a guy. It's because these hormones that are the major signaling molecules in our body for multiple things not just sexy and reproductive things, when they bind into a receptor, they shape shift. Like two people hugging underneath a blanket in a bed. If they were moving around, you'd see shapes moving. Once the shape shifting and shimmering, when you look at it under the microscope setup to see this, it's shimmering and shaking and shape shifting.

That's what delivers the emails and that's why we're all so deeply affected by shape. I think that's a cool ...

Dave Asprey: Very cool.

Dr. Lindsey Berkson: Very cool.

Dave Asprey: It is cool. Some of the reasons that certain designs in the environment they feel good. They make you feel different at a space. We react to the various subtle level to that. All right. P450. There's two things that I do for P450. One of them is I make an activated charcoal product which is the finest particle size on the market. It's washed by acids, remove metals and things like that. It's a Bulletproof Activated Charcoal. What this is there to do is to absorb these chemicals and other things you don't want in your body in the gut.

My P450 detox pathway never sees them. Basically you take it when you're eating junk food, when you're eating at a restaurant, where you're eating stuff you shouldn't eat or take it on an empty stomach for detox because it absorbs bile. Good strategy? Bad strategy? What do you think?

Dr. Lindsey Berkson: I love charcoal. I've been using a variety of detox methods on people who are very ill for many years. I wrote about it in my gut book Healthy Digestion The Natural Way. Dr. Gonzales who just died who was a cancer guru, he used a lot of my detoxes for his cancer patients. Charcoal was a part of that. Sometimes I would also use bentonite clay which has similar ... I use a lot of that. Anytime you're really wanting to clean out and there's so much ... Because we're in constant exposure to low level damaging chemicals, not just endocrine disruptors but many of them, it's much harder to have a regular healthy weight today than it was in the 1980s because of these work like obesogens.

The more you have charcoal, the more you have clay, it does wipe it out of the body. The only thing is you don't want to take more than you need or when you're eating. I think a really great salad or something because it can cut down a bit on the wonderful things that you get out of food. I love that. Love that product.

Dave Asprey: It'll attract to proteins specifically. If you're eating super high quality food, you don't need it. If you're eating questionable food, maybe it's a good trade-off.

Dr. Lindsey Berkson: I think it's a great idea. Great idea.

Dave Asprey: You would support that. The other two things that I do are we make a liposomal encapsulated glutathione which directly supports the P450 pathway. That's one of the things glutathione does. Then it's not P450, but the backup to P450 in the liver is the glucaration or glucuronidation system. We make a calcium d-glucarate supplement you can take that provides the compound required to stick to these toxins that the P450 doesn't get. There's studies of calcium d-glucarate that show that it helps the body to bind estrogen and excrete the estrogen. Good strategy?

Dr. Lindsey Berkson: One of my specialties is breast cancer because DES daughters, Dartmouth proved this with a longitudinal trial and the scientist who was the head of that was kind of enough to give me a really beautiful comment on that book *Safe Hormones, Smart Women*, 85% many women who were exposed to this powerful estrogen in the womb got breast cancer by age 45. I did too. I got breast cancer. Because I had it and I battled it and et cetera, it's become something I loved to work with women when they're diagnosed. It's very terrifying. A lot of alternative doctors recommend calcium d-glucarate as one of the estrogen protective nutraceuticals. I felt like it didn't give me as good a bang for my buck as some other nutraceuticals and it's a little bit pricey.

Dave Asprey: What are the other ones?

Dr. Lindsey Berkson: For example, like melatonin, we'll get a woman who just had breast cancer on high dose melatonin because it down regulates estrogen alpha receptors so that your ... In fact, if you give a very high dose of melatonin to a young menstruating woman, you can get her to stop menstruating because it turns off estrogen so powerfully. Like pomegranate does the same thing. Down regulates estrogen receptor alpha, but up regulates the estrogen receptor that most people don't know about so they think soy is bad and horrible because it's estrogenic, but it up regulates estrogen receptor beta which literally stops carcinogenesis and reduces your risk of recurrence. I kind of use nutrients that do that.

Dave Asprey: With soy, is this just the isoflavones from soy you're talking about or is this entire soy beans and soy milk and all that stuff?

Dr. Lindsey Berkson: That is a perfect question. Soy was a huge debate when I was at the think tank at Tulane. I went to conferences before and after I was officially at the think tank as a scholar. They put on estrogens in the environment seminars for 33 years and soy was debated every which way at almost every single one of those seminars. The last five or six that I spoke at myself were called E.Hormone seminars and soy was usually one of the biggest debates. There were lots of people testing it from every which way. A little short summary of what came out

of those. The first thing is the isoflavones, the separate ones, they don't act so helpfully and they promote ... They look at MCF-7 breast cancer cells.

Those are cells that were taken from a nun many years ago that had breast cancer and they propagated them and they do a lot of the research on this line of cells that actually came from a nun that had breast cancer called MCF-7 estrogen dependent breast cancer. I got to work with the guy who discovered the estrogen alpha receptor. His name is ... I'll think of it in the moment. The guy who discovered ER beta, Yanaki Gustafsson. We got to work all together so you learn so many nuances. They felt that the isoflavones separately were not so good.

If soy was hydrolyzed or processed to as a protein, when soy got put through, it was processed in essence, but if soy was a whole food, there are thousands of epidemiologic research studies showing that soy intake as a whole food lowers risks of gynecologic hormonal cancers such as uterine cancer, ovarian cancer, breast cancer. For every certain amount of isoflavones that you take in that are natural and part of the whole food complex, you have a reduced risk of recurrence. This is from the Nurse's Study. The framing I'm studying, these are large bodies of study.

In fact, I was just lecturing in Oregon with Dr. Tori Hudson and she said to the audience, "I hope everyone's put the soy issue debate to a close," because soy is protective of the estrogen receptor beta, but it's a different issue with thyroid. It's a separate issue and of course if it's GMO soy versus none. There's all these caveats on soy.

Dave Asprey:

I just interviewed Steven Gundry and one of the big parts of the Bulletproof Diet is avoid inflammatory compounds. There's oxalates which come from a certain types of foods specifically raw kale, raw chard, raw spinach, things like that which cause inflammation and they cause a certain degree. Then you have the lectin containing foods which Steven Gundry just wrote a big book about that. Soy is very high in lectins which trigger autoimmunity. Not necessarily cancer, but they cause inflammation elsewhere in the body especially as a whole food. Then in the Bulletproof Diet we have stuff like micro toxins and histamines and other things like that that trigger inflammation in people.

I think that when I look at the system of soy, like the entire effect, would I eat some soy beans if I was dealing with breast cancer? Yes. Would I eat some soy if I was looking to live a very long time and I didn't have breast cancer? Man, I'm having a hard time with that argument. Do you think we should all be like counting the edamame?

Dr. Lindsey Berkson:

No. In fact, men don't handle soy near as well women. There's some studies out of Hawaii and I called up and spoke with some of the researchers, they weren't that well controlled, but there was some thinking that men were getting a little gynecomastia which is getting man boobs.

Dave Asprey: Man boobs piss me off. I got to ask you about those in a little bit.

Dr. Lindsey Berkson: Okay.

Dave Asprey: Keep going.

Dr. Lindsey Berkson: There's some issues. Even in that study when I chatted with him, he saw a little bit of cognitive decline in men that consume soy. Men consuming soy is very different than women. At conferences we had, a lot of the scientists were very alarmed that women were giving it if a baby was reactive to dairy. Very alarmed that the mother was giving soy to a male baby. We don't know what's that going to do and it is estrogenic, but for gynecologic cancers it's different. There's finesse to this. Finesse to this and exactly what you said. Soy is not something to be used by everybody. I went to school with Dr. Peter d'Adamo when I was at national in Oregon and he is the one that wrote based on your blood type and came out with an understanding ...

He was like a visionary about the effects of lectins and what they do, but not everybody's affected by lectins and some lectins are more sticky than others. Like gluten's a real sticky lectin. It's the super glue lectin. That's why whenever you do look for something that's working for you, it's good to work with somebody that knows how do evaluate your situation, your time of life, your goals, your physiology and get it done so it's as safe for you as we know it can be at this moment.

Dave Asprey: If you're using soy as a drug or as a herbal treatment, that's a totally different animal. Same thing with mushrooms. Generally for quite a lot of people eating mushrooms has a big downside that isn't well recognized, but I'm a huge fan of medicinal mushrooms when you know what the mushroom's going to do and you know your biology and you can plug in it. It's one of those things where the specificity matters. I think we're actually agreeing on soy which is I think that they can be useful, but then if you're eating soy as a regular nutritional food source, you might not like what happens because you've got to understand all the different biological things that its doing.

If I had one of the cancers you were talking about, it sounds like I'd be rubbing edamame all over my body.

Dr. Lindsey Berkson: That's for a woman. You wouldn't give soy to a man with prostate cancer. You would give other things. It's so interesting. They're gender specific in terms of using nutraceuticals and herbs and foods and you have to have someone that understands that as well as your own ... Kind of individualize your nutraceutical footprint.

Dave Asprey: That's exactly right. Let's talk about one of my favorite topics, man boobs. Full disclosure, every guy on my dad side of the family has man boobs. By the time they're in their mid-40s, they pretty much should be wearing training bras. It's

got to be a genetic thing. Certainly given that I weighed 300 pounds, I had a nice set of man boobs. I don't generally have them now. I don't know. You can look on video. I can't see myself on the video, but I don't have man boobs right now, but if I get exposed to inflammatory stuff, they'll grow. It's interesting. I was at a conference in San Diego and I stayed in a hotel room that had toxic mold.

Toxic mold causes systemic inflammation in me very dramatically and it causes cancer and it has lots of xenoestrogens in it when you breathe it and you get it on your skin, things like tricoethylene. That's why I did Moldy Movie, the documentary MoldyMovie.com. If you're listening and you're a fan and you think mold might not matter, you have to see the movie because I interviewed like all of the experts, like the big names you've heard of like Mark Hyman and Daniel Amen. All of these people saying, "Good God. It's a problem." I have this great photo of me with ... Oh jeez. I'm blanking. It's one of the luminaries in the field of business and personal development. Because I've been exposed the day before, I have a rack for a lack for a better word.

Like literally I probably have like grown an A cup overnight. I put it up on social media and someone's like, "Oh Dave, nice boobs." I'm like damn it. For me, man boob formation that comes and goes overnight is an inflammatory thing. Because I had lots of estrogen when I was younger, I tend to still grow man boobs. If I am over aromatizing my testosterone when I supplement for testosterone, they will grow. They'll grow within minutes. I take DAGA. I take pregnenolone. Any of the precursor hormones. I always get estrogen. I always grow boobs. How do I stop my man boobs without surgery?

I know that there's like famous actors out there who are kind of public about, "Yeah. I had my glands removed because I got tired of this." What's a man to do to prevent man boob?

Dr. Lindsey Berkson: Well, you know you can have more active aromatase genes that make your testosterone go to estrogen and that can be narrated.

Dave Asprey: I have them all. It's terrible.

Dr. Lindsey Berkson: You've got real active aromatase genes. One of the things that helps wipe ... What happens when you have those genes is you can accumulate estrogens that you don't want to be accumulating in your breast tissue. That's why the incidence of breast cancer is going up in men when they're exposed to certain estrogenic chemicals on the job, but also there can be epigenetic changes of the aromatase genes that make you more prone to not being able to do a good job of rinsing your hormones especially estrogen out of your breast. The work of ...

Dave Asprey: You're suggesting breast massage? I'm kidding. What do I do for these things? Give me the secrets.

Dr. Lindsey Berkson: Well, there's a gentlemen and this research has been replicated. His name is Eskin. In fact, now I remember who did the estrogen receptor alpha. It's Elwood Jensen. I'm getting my names together. Eskin did quite a number of research and maybe 30 or 40 studies basically showing that iodine helps rinse estrogen out of the breast. One of the things in fact that I recommend and work with the doctors of the women who have breast cancer is to do a little bit of DMSO mixed with Lugol's iodine topically on the breast. You can use that with a gent. It'd be used at a different dosage. It would be used only a few times a month depending on how your gynecomastia, which is man boobs, responded to that.

There's also a herb. When I wrote Hormone Deception, I interviewed this real ... I get to interview all these, like you do, these cool researchers that spend their whole life thinking. They're agile thinkers. They have a lot to share. This one man had made lymph flow his entire life study. When people get lymphedema where they get build up of lymphs, they have huge lymphs, they might get it after having lymph nodes removed, they might get it from a disease. It's a terrible disease. You see in some medical books people carrying around the lymph in a wheelbarrow. They're so big.

He tackled this and discovered with years of research that bilberry extract that comes from the bilberry fruit, 80 milligrams twice a day, along with certain weight exercises and then I've added to that the DMSO Lugol's iodine topically, is very, very helpful to get lymph to move because it's very difficult lymph to move. You think it would be easy, but it's not.

Dave Asprey: Funny enough that you mentioned bilberry. Bilberry is part of Eye Armor, one of the Bulletproof supplements for making your eyes strong because bilberry was first used by pilots in World War II to increase their night vision. It's a polyphenol source that is very important for your eyes and your mitochondrial function. I had no idea that it increases lymph flow. That is profound.

Dr. Lindsey Berkson: It is, but it takes ... He said in the people that had very severe lymphedema which is a debilitating, very sad condition and after a woman if she's ... Now we have more sentinel node dissection which means they put a little dye in the breast when a woman has breast cancer surgery. Usually there's a first lymph node that the breast drains with. They'll put this dye and it'll go to the first lymph node. Now they remove that and one or two others, but for many years they removed a lot. It was kind of like putting your hand on a pumpkin and pulling out all the insides. You don't know how many seeds were in there if the lymph nodes were the seeds.

Bilberry does help that move and it's very difficult to treat people, but it takes about six months and in very severe cases I double the dose, 160 milligrams twice a day, along with weights, small weights, so there's pumping, pumping. Probably you're standing on your vibration would be really great, but you still have a tendency even with that. You want to take a look at clearing those hormones out of the breast tissue. One of my favorite ways to deal as a natural aromatase inhibitor is ... There's several articles on grape seed extract that not

only does it act as a natural aromatase inhibitor, it tamps down aromatase genes. Your genes are quieted. You get designer genes.

Dave Asprey: I'm laughing because I didn't know you'd go there, but our Polyphenomenal supplement has a bunch of grape seed extract in it because these are important phytochemicals. Not just for what you're talking about, but for mitochondrial functions. All the research in Headstrong where I didn't know these facts you're telling me, these things are so profound at training up the way your mitochondria works so you have more energy. I did not know either of these effects. You're totally educating me on these things. It's just funny though. I take that. I take that, but not for the reasons that you just taught me. This is cool.

Dr. Lindsey Berkson: I'm going to have to be an affiliate because your product sound really great and they sound right up the alley of the things I recommend based on that person's individual case. I love what you're doing.

Dave Asprey: From my man boobs, you're totally blowing my mind. For people listening, DMSO is this stuff that's been around for a long time. It's a source of sulfur and you rub it on your skin and it'll take anything on your skin and put it into your blood. You put it on like a drop on your hand, you'll taste garlic which is that kind of sulfury smell. It's a great way to force things into your tissues and it's been used much like MSN which is a derivative of it on joints. You don't want to take it if you have a problem with sulfur metabolism. If you mix it with iodine, you put it on your moobs or your boobs as the case maybe, then it's going to basically penetrate the tissues really, really rapidly.

The iodine goes in, does something and we know iodine for thyroid and for all sorts of systemic mitochondrial enzyme reaction that's required. You're doing that and then you take bilberry to make the lymphatic stuff flow. Essentially you're washing the tissues and the breast out.

Dr. Lindsey Berkson: Right. Iodine is the main mineral that the hormones jump on piggyback to flowed on through and go through the whole lymphatic system. It is one of the main mineral drivers of the lymphatic system.

Dave Asprey: Profound. That's very interesting. Now let's talk doses. Lugol's iodine is typically used at very high doses. There's people who do 15 milligrams of iodine a day. It's called the Brownstein protocol for turning on your thyroid. I have played around with that and I am completely off of thyroid hormone now, but my TSH is going up slightly so I may go back on a quarter grain. I used to do like two grains a day. I'm 90% there, if not all the way off. What's the right dose of iodine for the average person versus a breast cancer person which is going to be very different?

Dr. Lindsey Berkson: Well, you know it's funny though, when I was talking to a lot of these scientists writing Hormone Deception and writing Sexy Brain because they all kind of converge, they did talk a lot about breast massage and that's one of the reasons

that breast massage causes more oxytocin, but it also as you make love and if you make love more frequently and you do a lot of robust but gentle, not painful breast massage, you do help rinse these nutrients out which is there's so many beneficial things about making love. Having love and having your breast touched is nature's way of helping you stay on top of the curve of not having an adverse build up or accumulation of hormones in your breast.

Usually with Lugol's iodine, we mix it with DMSO because it's a biological driver. It's terrible and very scary if a woman were to get breast cancer on her axillary, her chest wall and of course, if it travels outside of the primary tumor. We want to get all of that tissue underneath her armpit all through her chest, everything protected. We mix Lugol's iodine and we mix it in different drops and the dosage is all dependent on if she's stage four, what her treatments had been, how well she can handle it. We usually start really low. You do have to track the TSH. I had one of the most polemic discussions.

Dave Asprey: By the way, TSH is a thyroid stimulating hormone for people listening. If your thyroid is too low, your body will secrete more TSH to say, "Hey, I need more thyroid."

Dr. Lindsey Berkson: Right. It's inverse.

Dave Asprey: Keep going.

Dr. Lindsey Berkson: David Brownstein is a really good friend of mine and I love him to death. Alan Gabay is like a brother to me and I love him to death. They both have completely different views which is great because different views make you grow rather than be fearful of difference. Brownstein likes a lot of iodine and Alan Gabay feels that's way too much iodine and it's tamping down thyroid function more than what our worries are about soy. Really with dosage it has to be personalized. Every single thing, the dosage of a nutraceutical has to be personalized in my opinion. You have to try it because nobody knows better than the person taking it themselves.

I think of the wave of the future even with a lot of meds will be you give a person a starting dose be it a nutraceutical or even a med like thyroid medication and say to them, "Titrate it yourself. Go on this dose for a week. Double it the next two weeks. Double it again and let me know how you do." There's a lot of discussion at this on a hormone conference I went to in Utah a few years back, the concept of self-titration, which really just comes down to can you tell how you feel when you are on this. Now a lot of people are cut off from the neck down, but once they're given permission and intention to be mindful, you can give a template of a recommendation to a patient, but you want them to work with you for how they feel as a response.

Dosage to me is an artistic creative and also co-creative thing between myself and the person I have the honor to work with.

Dave Asprey:

Especially with nutrients. That's why it's pretty important to put the pills, take them out of the bottle, put them in your hand yourself until you learn what they do so you can see what's going on. Just a word of warning for people here, Lugol's iodine you can have too much. If you were to like douse yourself in it, you can actually kill yourself. It's hard to do, but it's not impossible. Don't just splash that crap at full strength all over you. You might not like what it does. You might end up in the hospital.

Number two, if you're doing a Lugol's protocol whether it's topical or if you're putting a few drops in water which can help placebo and help to get rid of bad stuff in the gut which certainly is something that I used to do, but haven't done in a long time, you can tell when you've hit your daily limit for Lugol's iodine because your mucus will become completely watery. Not like runny, but like you'll have water in your nose all of a sudden. That means you've basically hit your Lugol's limit for the day which is kind of cool. Someone who doesn't use Lugol's at all and is iodine insufficient, it's going to soak into your skin really fast and you're not going to get a runny nose, but after you've taken it for a while, a dose would have been no problem.

All of a sudden you're like, "Wow. My nose is running." You've finally hit enough. This is just a little what's your body telling you kind of a thing.

Dr. Lindsey Berkson:

Boy, you just connected the dots for me in something. I didn't know that, but when I first studied with Bernard Jensen way back in the '90s at the Hidden Valley Health Ranch, he would say and the same thing that Jonathan Wright, they're always looking at physical signs of what gives you a flashing red light on your physiologic dashboard that you're low in something. They said if you have a lot of boogers in your nose or a lot of ear wax build up in your ears, your iodine deficient. Obviously the more iodine you have, it moves lymph, it moves your mucus. Now you're saying if you have too much, I didn't know that, you have runny. It helps things flow. Your lymph flow. Your mucus flow. That's really good to know and you just put a connect the dots for me.

Dave Asprey:

It's like an endless event correlation thing out there like, "Oh, this and this equals that down the road." It's a fascinating thing. I think with artificial intelligence and machine learning we're going to discover millions of these correlations that even as like the great event correlation humans out there like we're pretty good, but nowhere near what computers can do. There's a company called Viome. Naveen Jain was on the show recently. It's V-I-O-M-E. He's getting more data out of the gut biome than we've ever had in all of history. It's like 99 bucks a month you get four tests a year. I joined the advisory board on Viome because it's one of the things where they're taking all that, throwing it into big data.

They hired the Watson team from IBM to do their big data. It's cool stuff. That's something I'd recommend you check out.

Dr. Lindsey Berkson: I'm going to definitely do that. I think that the focus of course is on the microbiome in the gut, but what's interesting ... Michael Baker is one my mentors. I mentioned him before. His whole career is about hormones and he's now publishing papers to show that endocrine disrupting compounds can paralyze the microbiome. One of the things the microbiome does that Harvard published in 2013 in science was that ... This is why I say that sex starts in the gut. That your microbiome, the teaming microbial life inside your gut, it has lifelong crosstalk with your testosterone and it even makes androgens. We now discovered that parts of the gut make hormones. You don't just make hormones in the prostate and the ovary and the adrenal glands.

You actually make hormones in your gut and your microbiome makes testosterone because it improves your immune system in your gut. That's one of the reasons the people who have higher generous levels of testosterone in their blood has less complications after a gastric surgery. If you are exposed, you eat a poor diet, you're exposed to a lot of chemicals and you don't exercise, you don't do a little bit of general detox, you don't stand and vibrate, whatever the multiple constellation of things you've decided to come together to protect yourself are, then you stop making that testosterone. Why would nature have gut flora make testosterone? Because it's so important.

The gut tissue is so similar to the brain and testosterone protects all that tissue, brain tissue, gut tissue. Why would we both make more testosterone after coming together and hugging and being the budwar? Because nature wants us to have not excessive amounts, but gentle amounts and we live in a society with endocrine disrupting companions. We have an epidemic of low T in young males than we've never had before. It's documented now in research. They've been tracking testosterone and it's going down and people are doing it less. People make love less and the millennia generation is the generation that's making love less than the comparative population in this study several decades ago. Our T is under attack.

Dave Asprey: Amazing. Well Dr. Lindsey, I have one more question for you. If someone came to you tomorrow and they said, "I want to perform better at everything I do as a human being. Not just athletic or whatever else, but like everything, what are the three most important piece of advice you'd have for me?" What would you tell them?

Dr. Lindsey Berkson: This reminds me of being on a radio show in Oklahoma where I debated the guy that owned ... He owned Bodies by Michael. We said, "What's more important, exercise or nutrition?" Here he was a trainer all his life and he said nutrition was more important. That he saw a bigger difference. It's so interesting and of course, really putting me against the wall to say just three things.

Dave Asprey: You get three of those so at least it's not just one.

Dr. Lindsey Berkson: It's the Holy Trinity. I would say the first thing is exercise and the second thing is nutrition. The two are head in head, neck in neck. Then the next would be

hormones because they run everything. They run your microbiome. They run your gut. I'm giving a four hour conference in front of several thousand medical doctors at A4M in September in Chicago. I have my next new book called Nutritional Gastroenterology and it's all about the unappreciated role of hormones in the gut and our brain. I guess I would say those are the main three, but you didn't let me say digestion or gut robustness. I hate being minimized.

Dave Asprey: There's thousands out there, right?

Dr. Lindsey Berkson: What would you say? What would you say the top three are?

Dave Asprey: I would actually say that the number one most important thing you can do is gratitude. Because when you can express gratitude, it takes out a fighter flight and then your body digest your food better, it makes hormones better, your brain works better. It's one of the highest level things you can do to send a signal to your body to chill the hell out and do its job. The second one would be and I've answered this lots of different ways. The second one right now would be follow something like the Bulletproof Diet. You need to get low toxins and you need to be in cyclical ketosis, right? Ketosis with toxins just doesn't work.

Straight ketosis all the time for people doesn't work. Sometimes have ketones, not all the time, is part of it. The third thing there would be ...

Dr. Lindsey Berkson: Do you sell ketone products or do you do it mainly through diet? What is your preference?

Dave Asprey: I sell the largest selling exogenous ketone in the market right now. It's Brain Octane Oil. It's part of Bulletproof Coffee. When you drink the amount I recommend if you have an average metabolism, you can make ketones up to about .5 which is what turns off ghrelin and turns on CCK. You're full for hours and you get ketones to start enhancing mitochondrial function. I recommend nutritional ketosis, but I do not recommend ketone salts because half of the ketones in them are not bioidentical and according to one of the world's expert there appeared to be some risks there that aren't well quantified yet.

Dr. Lindsey Berkson: That's so interesting because CCK is such a caretaker of the gut. I love that. I love that. I'm going to have to try that.

Dave Asprey: Well, I'm happy to send you some Brain Octane. That wasn't meant to be a plug there. It's just that you've got to have some ketones present. Some of the time you're just not going to like it. All right. Well, this has been a fascinating interview. Dr. Lindsey, where can people find out more about your latest book?

Dr. Lindsey Berkson: They can go Sexy Brain System. Somebody else had SexyBrain.com so I have SexyBrainSystem.com. I've got all kinds of free gifts and some videos on the one thing to make sure you don't do when you detox and the one thing you should. They can find out a lot of fun things about the book. SexyBrainSystem.com. At

my website, DrLindseyBerkson.com. I have over 2,200 blogs. I'm a very active blogger and I'm always doing new things. I'm putting on a new free webinar in about two weeks. I have so much information that's coming out about how the human brain is under attack and how mitochondria are under attack. I've gone beyond even the book which of course is very cutting edge. It just came out in February.

I decided to do a course called Sexy Brain: Why You Want One, How To Keep One. That's the first time I've ever launched a real online course. It's a little nervous and it's a little wonderful. I have that launching sometime in the near future. If they go Sexy Brain System or DrLindseyBerkson.com, they'll be able to find out. If they sign up, I'll be sending out messages when these free things are happening and when the course will be happening. I'm also going to take a look at your products and write maybe a little blog on that and maybe a blog on our fun experience of talking today.

Dave Asprey: Thank you, Lindsey. Have an awesome day. I appreciate you taking the time to get on Bulletproof Radio.

Dr. Lindsey Berkson: Thank you very much for having me. It was a great and I love room with a view. Thank you.

Dave Asprey: So welcome.