

Speaker 1: 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 polar bears have fast metabolism. A new study just came out where they found that polar bears in Alaska have a metabolic rate 1.6 times greater than they thought. With bodies that burn energy that fast, polar bears need to eat a blubbery adult ringed seal, or 19 baby seals, every 10 to 12 days just to maintain their weight. This is kind of cool, because they put video cameras on the polar bears and figured out their metabolic rates just going about their lives in spring and found that female polar bears need to eat a little bit more than 12,000 calories a day just to stay even, and they found that female polar bears, walking around in the ice, have extreme weight swings, some losing 10% of their body mass in just over a week. This is the first study that puts firm numbers on the basic needs of these polar bears, who are interesting because polar bears are the most fat-burning ketogenic animals on the planet.

When we look at what happens in those extreme conditions we can learn more about what happens in our own bodies when we're going into fat-burning mode. These animals have lives tied to the annual shrinkage of Arctic sea ice, and since they live on fat we're learning a few things, but we're also finding out that since they have to swim more, and they have to go further distances to hunt now, with a metabolic rate that high, there are disadvantages. For instance, sometimes they can't eat enough and we're losing some polar bears because of that. We're learning more about fat burning from some of the best and toughest fat burners on the planet.

Before we get into today's show, if you haven't heard about Bulletproof cacao butter, you're in for a treat. This is basically the fat, the precious fat, that's in chocolate. What's interesting about chocolate, or cacao butter, is that the fat melts at exactly the temperature of your body. That means that when you blend it into your Bulletproof coffee, when you use it in a recipe, when you use it in a dessert, it has just this perfect amazingness that it's hard to explain. If you put a little bit in your Bulletproof coffee, along with butter, brain octane oil, what happens is that the final notes are the subtle chocolate hint that isn't like a mocha. It's just a hint, and it tastes amazing, it feels amazing, and it's awesome. Of course, it's lab tested and from a special-processed chocolate like you'd expect from Bulletproof. Go to bulletproof.com to find the cacao butter. Try it in recipes, try it in desserts, and try it in your Bulletproof coffee. It's awesome.

Today's guest on the show is Dr. Kate Kass, a Functional Medicine physician in Seattle, Washington, and she treats a bunch of different things including sexual health and function, regenerative medicine, and looks at men's and women's hormone. The reason that we are talking today is that I'm in her office to try a new treatment called GAINSWave, and GAINSWave is ... Well, it uses sonic sound waves, or sonic pulse waves, on the male penis (as opposed to the female penis) ... Sorry about that. Anyway, ... to increase blood flow, and to increase the growth of new nerves, and to increase nitric oxide signaling, and things like that. We're going to talk about things you can do as a man to either treat erectile dysfunction, or stop it from happening in the first place. Dr. Kate, welcome to the show.

Dr Kate: Thanks, Dave. Thanks for having me.

Dave: All right. Dr. Kass, what made you go into hormones and erectile dysfunction, and sort of sexual health? What got you into this in the first place?

Dr Kate: I originally got into Functional Medicine when I was really in my 20s. I thought I was going to go to a traditional medicine school, but I was struggling with a lot of my own health issues. I had severe fatigue, anemia, I'd lost my period. I had all the sort of strange constellation of symptoms that were going on, and no one could really figure out what was going on, honestly. I went to probably four or five doctors by the time I was 25, and really just got birth control thrown at me, and I was actually put on a bone density medication because my bone density was too low at that point. Eventually a Functional Medicine doctor figured out that I had what they believe is an autoimmune gut condition, most likely Celiac, and I fixed my gut and, sure enough, all of these symptoms resolved, which probably isn't a surprise to you, but at that time it was a big surprise to me.

Dave: So, this transformed your perspective on how you could go about your career and saying, "Well, if it worked for me ..." because you were clearly suffering. I've had autoimmune. I had Hashimoto's thyroiditis and even had arthritis since I was 14 in my knees. When you've dealt with that stuff and you realize, "Oh, this can be reversed," and you realize, "Wait, the doctors didn't help me on this stuff," it does inspire you to go in a different direction, and that's really kind of what got you here?

Dr Kate: Yeah.

Dave: What did you study to learn about how the penis works, and how hormones work, and all that stuff? How do you go about transitioning, or how do you go about focusing a medical career on that?

Dr Kate: Well, I was licensed as a primary care doctor. I went to a more integrative medical school, but licensed as a primary care doctor, and I knew the hormone system, the endocrine system, really fascinated me, and so I spent a lot of my time in extracurricular, and outside of medical school I really sought out mentors that focused in this area. Sexual function, obviously, goes along with that, particularly for men and women post 40 with hormone decline comes sexual dysfunction, so it was an easy adjunctive tool for my practice.

Dave: So, this is the first podcast I've ever done with someone who's actually seen my junk, so to speak, so that's kind of odd. Does that make you nervous?

Dr Kate: Not me. I treat a lot of male, and female, patients for sexual dysfunction, so in the medical industry it's just a body part for us.

Dave: My wife's a doctor, too, and it's funny, there's nothing that bothers doctors because you're like, "I've seen a lot of those." The reason that Dr. Kass has seen my penis is that she just treated me with GAINSWave, one of the technologies that she focuses on here

in her clinic, and we're gonna talk about that a little bit later in the show. Literally, we're recording this right after she ran the whole treatment on me. We'll get into those details, but I want to understand more about sort of why erectile dysfunction is such a problem for men, and guys listening, I don't have erectile dysfunction, hasn't been a problem for me. I'm 45 and I'm functioning better cognitively and physically than I have like ever in my life, which is awesome. This antiaging stuff seems to work.

I also know a lot of guys who are 60, or heck 80, who have issues with it, and who have reversed it, and I also have a huge number of friends who are already popping Viagra, and pills like that, which may have a place in your life, if that's the only thing that works, but I believe that there's functional ways. In this case, this is a really cool biohacking technology that uses sound waves to change what's going on inside your body. This is really about taking control of your biology. Let's kind of talk about erectile dysfunction, because I know a lot of guys are thinking about that and aren't really just probably talking about it. Why do we have an epidemic of erectile dysfunction?

Dr Kate: Well, gosh, that's a can of worms, but I actually want to address something you just mentioned earlier. You said you're 45 and you don't have erectile dysfunction, which is great, but actually 40% of men in their 40s have erectile dysfunction, and 50% of men in their 50s have erectile dysfunction, so probably all of the healthy things that you do, and exercise, and the regenerative tools that you've utilized, have prevented you from having any issues in that department, but you're not the average American.

Also, I thought this was a really interesting statistic, and I actually don't fully understand how they gathered this statistic, but they said 80% of men ED go undiagnosed, and that's because either the patient feels uncomfortable and/or the doctor feels uncomfortable talking about it. That's a huge percentage of men with ED that, A. Don't talk about or, B. Don't even get treated for it properly.

Dave: All right. You reminded me of a story. I don't think I've talked about this. It's tough, because we've had like 500 episodes now. If you're like a die-hard fan and you've heard all 500 and I'm repeating myself, I apologize. But, I got to ask you about this, because you might know the answer. This is going back to my mid 20s. I decided, "I'm 300 pounds. I have to lose this weight. It's the most important thing in my life. I'm gonna work out an hour and a half a day, six days a week. I'm gonna cut my calories. I'm gonna go on a low-fat diet. All of my energy will go into this."

Sadly, it didn't work. After a year and a half I was still 300 pounds. I could just max out all the machines at the gym, but what I found is that when I maxed out the abdominal crunch machine with whatever it was, 170 pounds or something, I was sitting on the machine, or laying on my back doing these crunches and, of course, there's a line waiting for the machine, and an attractive woman, as the case may be, and I'm doing the crunches and all of a sudden I'm like, "That crunch feels really odd," and I like full-on had an orgasm. Fortunately, I think I hid it pretty well, but I was sort of like twitching on the machine for a second there. All right, this is embarrassing to talk about but whatever.

I went to the doctor. I was like, "Oh, my god, something's wrong with me. This shouldn't happen." Just like you were saying, the doctor was kind of like embarrassed and he's like, "Um, um." I'm like, "Do I have like a prostate infection? Is something wrong with me," because I don't think crunches are supposed to do that. You could tell he was genuinely embarrassed. I'm like, "I thought you went to medical school," like I should be able to talk about this with my doctor, right?

Then, he finally said, "Well, I've never heard of this. I don't have anything to say." This was pre-internet so he couldn't Google it like we would today. Finally, I just looked at him and I said, "Well, I guess you mean I'm gonna have really good abs." He just started laughing. It was like, "All right, you're good to go." I just remember walking out of the appointment going, "Why is there embarrassment about this," and also, "What the heck just happened?" I found out years later, in fact, now I remember I posted on Facebook about it, this isn't that uncommon of a thing, it actually happens more in women than in men, but apparently if you like clench your stomach muscles enough weird things like that can happen. I just realized, "Okay, maybe I'll back off on the abs a little bit." Why would this be an area of embarrassment for doctors who are like trained to like look at poop. You guys do all sorts of weird stuff?

Dr Kate: I don't know. I don't think we're really taught to address these issues, and unless it's something that's like a real pathology maybe doctors just feel uncomfortable. I don't think they ... It's very personal for people. It's uncomfortable with the conversation about sex. It's sort of a taboo topic. I don't know, but it actually is a disservice to the patient.

Dave: If a guy wanted to go into a doctor with erectile dysfunction, what do you say?

Dr Kate: Well, I would say, "Make sure you go to a doctor who is well equipped to treat you." I guess I have a biased opinion on this, but find a Functional Medicine doctor. Go to someone who has a good bedside manner, someone that you really resonate with, I think, is probably the most important piece. If a doctor doesn't have a good bedside manner, he can't talk to you comfortably about an upper respiratory infection then he's probably not going to be able to talk to you about erectile dysfunction comfortably.

Dave: How would someone know that they're about to get erectile dysfunction? What are the early symptoms that mean you should go to your doctor, or go to a Functional Medicine doctor, and start taking steps before you start taking pills?

Dr Kate: There may be a few signs that you might be creeping into that category, maybe less frequent nocturnal, or morning, erections potentially. I do get a lot of patients that are even in their 30s and 40s, young 40s, that say, "You know, I don't officially have erectile dysfunction I just notice that my quality of my erections aren't as good," or "I don't maintain erections quite as well." Sometimes that prompts men, especially men that are sort of biohacker guys like you that are really interested in performance and improving function, and getting ahead of things. Quality erection might decline, or maybe less frequent morning and nocturnal erections, that'd be an early sign. I think some of these regenerative treatments, that I'm sure we'll get into later, can really be beneficial to

anyone kind of in their 40s, or even late 30s potentially, just for helping to get in front of, or prevent, vascular decline in the penis.

Dave: All right, so erectile dysfunction is an early marker for vascular function, so if you're eating the right foods, you're getting enough exercise, enough sleep, and things like that, if you're not getting erections it's a pretty good sign that there may be something else going on in just the vascular system. It doesn't mean you have plaque, it doesn't mean you have a heart attack, it just means that like your endothelial layer might not be doing what it could be doing. What can people do in order to keep things flowing, so to speak, in order to avoid this problem happening in the first place?

Dr Kate: This is sort of the foundational stuff that I think needs to be addressed for men, all men, especially men that might be worried about erectile dysfunction. You need to address testosterone levels. That is foundational and not always necessarily appropriate for everyone, but needs to be looked at. Cardiovascular health, if your cardiovascular health is not good, you're not going to have good erectile function. Your thyroid could be out of whack. That's definitely going to cause erectile dysfunction, maybe a more common cause for men in their 30s, diabetes or even elevated blood sugar can cause damage to the vasculature, as you know. These are common things that I think that even get overlooked by your primary care doctor. High blood pressure, hypertension, that's going to cause erectile dysfunction, anything that negatively impacts your cardiovascular system. All of those things need to be addressed. Look for any low-hanging fruit before getting into anything fancy, or even taking a blue pill.

Dave: All right. What should we eat if we don't want erectile dysfunction?

Dr Kate: Well, I think this gets into the topic of endocrine disruptors and hormone disruptors, or even inflammation, so a lot of the foods with pesticides and chemicals in them are going to, of course, impact our endocrine system, so our hormone system. That is never going to do you any favors in the erectile function category. Any food that's anti-inflammatory, doesn't cause inflammation, that's going to improve erectile function, too. It's going to reduce inflammation and improve vascular function. That's a no-brainer, I think, some of those basic healthy lifestyle choices like eating clean, eating foods that are low glycemic that are going to give you good blood sugar control and be healthy for your vessels in that way. Avoiding pesticides, and chemicals, and things that disrupt your endocrine system. Those are all going to be helpful for your erectile function.

Dave: What about ketosis, good for erections, bad for erections?

Dr Kate: I think it could only help your erectile function, because, again, that's such a great way to tightly regulate your blood sugar, which is only healthy for your vessels at the end of the day, right? Tight blood sugar regulation equals healthy blood vessels, low blood sugar.

Dave: Beautiful. I definitely have that experience. All right, let's talk about GAINSWave, because I first heard about this a while back. Because I run an antiaging nonprofit group

I hang out with people sometimes twice my age now, and I think learning from my elders is incredibly powerful, and a lot of the people I've interviewed on the show have decades more experience than I do, which is a fantastic way to just have a shortcut to knowing more. They're definitely interested in this kind of stuff and so they say, "Hey, have you heard about this? They're using these sound waves ..." Like, very high-intensity sound waves, "... to cause these changes in the body." Tell me what is GAINSWave, like how does it work?

Dr Kate: GAINSWave is, in the medical literature called shockwave therapy. It's been around for a long time, and it has tons of, mountains of, data on it, really over 50 plus studies on it that support it for erectile function. The technology was originally sort of taken from a technology called lithotripsy, which is what they use to break up kidney stones. GAINSWave is far less potent, or shockwave therapy is far less potent, or powerful, than lithotripsy, but it's a similar process. It's used in Europe. It's approved by their version of the FDA for erectile dysfunction there, and shockwave therapy really works in three ways. It helps improve nitric oxide production through increasing nitric oxide synthase, it increases new blood vessel formation called angiogenesis, and it also is neuro-regenerative, so it helps form new nerve tissue, which is sometimes a sensitivity issue for men. Then, actually maybe additionally it also breaks up little micro plaques in the vessels. Between all four of those actions, it actually can be quite effective at treating erectile dysfunction.

Dave: What about the opposite problem. If you add nerve tissue ... I haven't thought of this, so I just had it done, but if you add nerve tissue is it going to give you premature ejaculation?

Dr Kate: That's a great question. Not that I've ever heard of. I've had patients that are complaining of PE come in for GAINSWave, and most of them report that they have improved performance afterward. It hasn't necessarily made that worse for them.

Dave: Okay, so it's basically a sonic workout for the penis that's going to take premature ejaculators and, possibly, make that less of a problem, and then certainly people who are having a hard time getting erections ... How many treatments does it take to do this?

Dr Kate: The literature shows that we're trying to reach this threshold of 24,000 pulses, so in layman's terms we need about six treatments to get there.

Dave: Okay, about six treatments. Maybe if you're lazy like me, maybe we can squeeze it into four treatments?

Dr Kate: That's right, yeah.

Dave: Okay. What does a typical treatment cost?

Dr Kate: I would say on average they are about \$500 per treatment.

Dave: Okay, so this isn't particularly cheap, so you're looking at \$2000-3000 in order to get it done. Compared to the cost, and the risks, of taking pharmaceuticals, though, might not be a bad move. Are there systemic effects from doing this? Like, if you changed nitric oxide locally in the penis, is it going to like cause other changes that are good in my endothelial layer?

Dr Kate: Not systemically, necessarily. It's really sort of in the localized treated tissue. But, GAINSWave is actually being used, or shock wave therapy is actually being used, in Japan and Asia to treat cardiovascular dysfunction, so treating the coronary arteries, which I think is really fascinating. It can be applied to other types of tissue, but you don't necessarily get a systemic effect from it.

Dave: That's fascinating. I've long wondered why would people have calcified arteries, we don't just go in and break up the calcium. You can do things with agents that absorb calcium, but if you were to break it up and absorb calcium it just seems like that might be better than cutting it open and adding new parts. You're kind of hopeful that might work?

Dr Kate: Essentially, yeah. Well, see, like I said, Japan and China are using it for atherosclerosis, so hopefully we'll see what comes from that.

Dave: Well, if that was a problem that I had, or I think had any risk of having, I would absolutely be hopping on a plane in order to try that before open-heart surgery, because I've had family members who've had that problem. Open-heart surgery is a big deal. Even just going in with placing stents, it's not something you want to go through. It should be a last resort, so maybe shockwave therapy applies to more than just the penis.

Dr Kate: Absolutely, nice noninvasive treatment, not to mention other Functional Medicine approaches to prevent cardiovascular disease in the first place.

Dave: You treated me. This was definitely one of those be your own guinea pig professional biohacker sort of things. I probably wouldn't have come in for a treatment if I wasn't a biohacker, just because I'm like, "Things are working pretty well," so I'm curious to see what the results will be from this. This is my second treatment now that we're doing in the office, and the first time I definitely noticed some changes for a couple days afterwards, but it usually takes a couple of these in order to see like really strong effects. You could definitely tell, all right, something's different here. If you're a long time listener, you know I've also had like stem cells injected in my penis, and pretty much I've had them injected everywhere else in my body I can think of, as well.

The idea here is, if you're going to live to 180, you want everything in your body to be as young as possible for as long as possible, and I don't want to be a young, healthy-looking 150 year old with an old 150 year old penis, just to be perfectly honest, because I'd like to be still using it when I'm 150, because sexual health is one of those three most important things that we deal with. You look at how you're wired from your

mitochondria on up in your system. There's these three things that you have to do, and this is part of Head Strong, the book, if you've read it.

Number one is you got to run away from a kill, or hide from scary things, because they'll kill you right now. So, your body's optimized to do that without permission, and without your permission anyway. The second thing that your body is wired to do is to eat everything, because starvation will kill you in a month. The third thing that your body will do is it will make sure that you reproduce, because if you don't reproduce the species dies out in one generation.

So, our order of operations for most important things are those three things. If you're not able to do those three things, your body gets stressed and you basically start to die, and that's why having a healthy sex life is important for you, whether-or-not you have erectile dysfunction or anything else. We've got to take care of this, because as we live way longer than we needed to live to have kids, and to allow them to grow up old enough to reproduce themselves, our job from an evolutionary perspective is just to get out of the way.

Part of the antiaging story behind doing GAINSWave and coming in here to see Dr. Kate is that I am planning to break those rules, and completely do it entirely, and that means I've got to make sure that those three mitochondrial biological needs are fully met for the length, and duration, of my entire life. That's a different perspective, and it's one I would encourage you as a listener to take in. It's like, "Look, you're going to need to manage those three things forever, and if you manage them effectively it lowers your stress. When your stress goes down happiness goes up. Happiness goes up, you perform better at everything you do as a human being." Now, I just said that, that's the question at the end of every episode that I've ever had is, How do we do that? That's why I'm doing this. All right, I have more questions for you, Dr. Kate.

Dr Kate: Okay, shoot.

Dave: Let's talk about the other side of keeping erections up and, yes, I just said that. That's not what I meant to say, but oh well. Let's talk about the other side of keeping erectile dysfunction away, or treating it, and this doesn't have to do with using GAINSWave, which I think is a really potent, interesting new technology, but it's basic hormone replacement. The reason I'm asking this, when I was 26 I had my hormone levels done.

That's almost 20 years ago, and you couldn't do that as a young person back then, so I went to an anti-aging doctor, and he's like, "What are you doing here." I'm like, "Look I have all the diseases of aging, like help me out here. I'm pre-diabetic, a high risk for a stroke and heart attack, and things are not working well." He took my hormone levels and he said, "Dave, I've got bad news. Your testosterone levels are lower than your mom's." I had like very, very low testosterone, because I was obese and my body was taking testosterone and dumping it into estrogen almost as soon as I would make it.

Dr Kate: Right.

Dave: I've been on bioidentical hormone replacement therapy since I was 26, going on 20 years now. I went off it for a couple of years. I played with my levels. I can keep my testosterone up if I balance everything really, really carefully with diet, and sleep, and everything else, but I actually perform better when I get physiological replacement doses of this, but I'm probably not normal because I was inflamed, had autoimmune stuff, and I was obese as a kid, all this weird stuff, toxic mold. For people who aren't coming from behind like I am, what is the role of hormone replacement, or just getting testosterone up in order to keep erections functioning?

Dr Kate: Testosterone is really foundational for good erectile function. Not only does it affect libido, the drive or desire piece, but it also affects your physiological erectile function process. It's vasodilatory. It helps the blood flow to the penis. It helps with nitric oxide, so it's really foundational. If you don't have good testosterone you may have erectile dysfunction. Now, I see men that come in all the time that might have low testosterone that still miraculously are having good erectile function, but I would say that's the exception, not the rule.

Dave: So, when someone comes in for GAINSWave treatments with you, do you also pull a hormone panel and look at their testosterone?

Dr Kate: Yeah, absolutely. Every patient that comes in the door we're doing a pretty comprehensive program with, because we're trying to avoid just the one magic bullet for everything approach. I tell patients there's really four pillars to treating erectile dysfunction. It's removing those underlying problems like hypertension, thyroid disease, diabetes, or even removing medications, or trying to remove medications, if possible, that are going to get in the way of erectile function. I think that's something that probably is overlooked frequently, as even things like antidepressants, or blood pressure medications, or statins, can cause erectile dysfunction. If possible, removing those items, removing any of those underlying chronic diseases that can contribute to erectile function. I do a full blood panel for men, a really comprehensive blood panel for men that looks at that, in addition to testosterone, free testosterone, inflammatory markers, and you absolutely want to address those items.

The second pillar to treating erectile dysfunction is optimizing hormones, which I mentioned before. Then, you have shockwave therapy, or GAINSWave, that falls into this regenerative category. In addition to shockwave I'll use PRP, or the P-shot, platelet-rich plasma, which I'm sure you've talked about extensively on the podcast.

Dave: Just to define it for people that haven't heard it before. Platelet-rich plasma is a procedure where you pull some blood out and you pull out a very thin layer of the blood plasma that's full of platelets, and you re-inject it in places where you need extra healing.

Dr Kate: That, surprisingly, just like GAINSWave, was angiogenic, meaning it forms new blood vessels. It's neurogenic. It helps with formation of new nerve tissue. It's great for men who have had their prostates removed and have had damage to their nerve, or pudendal arteries, or pudendal canal. That also has a lot of literature behind it. So, like I

said, removing underlying variables, treating testosterone deficiency if you have it, these regenerative treatments, and then there's the medication route, of course, too.

A lot of men have tried that, or dabbled with Cialis or Viagra, and it can work. It sort of takes the spontaneity out of things, but it's a tool. I think what's cool about the regenerative treatments is that if you suddenly became resistant to Viagra, or you're finding yourself needing bigger, and bigger doses to Cialis or Viagra, or it stops working for you, which is fairly common actually, these regenerative treatments can actually allow men to have those medications work again for them, or have them work in lower doses. A fair portion of men that come in say, "I take Cialis and it just isn't working well for me anymore." After these regenerative treatments like shockwave, or GAINSWave treatment, and/or PRP, men are coming in and saying, "Actually my Viagra works again," or "My Cialis works again," or "I need a much lower dose," which is a win in my book.

Dave: I've never tried any of those ED drugs, and I have lots of friends who've at least tried them once, and it seems like there can be some side effects that just maybe aren't worth it and, also, there's something called priapism where you can get a hard on that doesn't go away, and that can be medically bad. I'm like, "I don't think I want to experience that." Is that something that you find happens in patients?

Dr Kate: No priapism is really uncommon. You have to take a good amount of Cialis or Viagra to have that happen, so that's not that common, but side effects of those medications very common, congestion, stuffy nose, headache, backache. These are not desirable qualities and certainly don't put you in the mood if you're having those experiences every time you have to take Cialis or Viagra.

Dave: That's like, yeah, no I'm ready to go but I have a cold. Sounds sexy to me, all right. I got that. So, the point for you when you're listening here is that, the strength of your erection is a huge indicator of how well you are doing from a Functional Medicine perspective. If the system in your body is working well enough for you to reproduce, then things are working, and if it's not working well enough for you to reproduce that's a bad sign, because, remember, you're optimized to do those three things, run away from stuff, eat stuff, and have sex with stuff. The least important of those three is sex.

If the body is taking resources away from sex that means that there's a problem. You don't have enough resources, because now it's allocating them to keep you alive, so you can run away from things, and you can eat things. So, you've got to really watch the strength of your erection as an indicator of the strength of your biology in general, and maybe this is a bit of a hack, because if you go and you approach, well the penis directly with GAINSWave, okay fine maybe there's still some underlying problems, but an approach like this that looks at your hormones, and looks at what's going on locally in blood flow, it does restorative things, so you can be younger for much longer than maybe Mother Nature intended. I think there's really good science behind that approach. One of the things you do that I'm also interested in is you do hormone pellet therapy. Can you tell me what that is?

Dr Kate: That's a crowd pleaser around here. We have bio-identical pellets that we put in kind of the glut area, hip area, on men and women and it's a nice what we call biorhythmic

release of testosterone, or hormones, estrogen for women, and testosterone for men, that slowly releases over three to four months, which can be a great tool, a nice easy way to deliver hormone replacement. It's bio-identical. You don't have to worry with creams or injections, so men and women love the pellets.

Actually, sort of bouncing back to something you said earlier about our need to reproduce, libido, desire, sexual function, it is a result of how much stress you have going on, or how well you're taking care of your body, but a lot of these hormone replacement doctors, or age management doctors, what are you, that we weren't really supposed to live this long, right, so our hormones start to decline really in our late 30s, 40s, because our bodies weren't really meant to reproduce after that point. I think doing proper, safe hormone replacement can be a great tool, so that you can continue to function optimally.

Dave: When I filled out the paperwork to get the procedure in your office here, a lot of the questions were, "Do you have emotional-related erectile dysfunction?" How do people know if they have emotional erectile dysfunction versus physiological erectile dysfunction?

Dr Kate: Great question. I think I get patients in their 30s coming in here complaining of erectile dysfunction, and I think culturally the way people eat now, and lack of exercise, and stress, I think it's absolutely possible from a physiological standpoint for a man in his 30s to have erectile dysfunction, but I would say men that don't respond well to GAINSWave, or regenerative treatments, are often men in that younger category where I think there's more of a psychological variable going on, you know trauma, stress. If you've ever had problems performing in the past, or had premature ejaculation, those play on you psychologically, and it plays into performance, too. I think particularly for younger men, or men that have a history of performance issues, those psychological variables need to be addressed. I actually even send patients to hypnotherapists for help with that.

Dave: It's funny, because we have that order of operations that rolls up from our mitochondria, and if you have a fear associated with erections, or with sex, or whatever else, then your body's going to say, "Okay, shift all resources to running away from scary things," so if sex is scary, you're not going to have enough basically biological energy going there, because your body's like, "Ah, no, get ready to run. Get ready to run," instead of get ready to have sex, so in order to have sex effectively you got to feel safe, and you need to be well enough fed, because starving people and scared people generally aren't having sex. So, we have that psychological loop that happens there. So, hypnotherapy works for that?

Dr Kate: Yeah, and reducing stress, right, but by the same token, if you're stressed all the time, you're a CEO, and you're constantly under the gun, you're erectile function is going to decline.

Dave: I did an experiment a while back where I looked at the frequency of ejaculation in men. Specifically, I tested Taoists equations for how frequently they think men should ejaculate in order to live a long time. There's a whole equation. This is a part of a book

I'm working on, and there's, I think, a few podcasts about this going way back, but what I found then was doing things like heart rate variability exercises would actually control your body's fight or flight response, was a way that I could definitely make sure that I didn't ejaculate during sex when I didn't want to, because the deal with the Taoist approach is you can have sex a lot as a man, just don't ejaculate very frequently, and the Taoist approach for women was you should have lots of orgasms, because orgasms cost men biologically but for women they actually are supportive. It's one of those fundamental differences between men and women.

I just found, that's kind of a hard protocol to go down, because like, "How does one do that?" So, for me heart rate variability training was a way to just like, okay calm things down when I wanted to, but that same approach works for people who are really stressed about it. You clip a little sensor on your ear, like the HeartMath sensor, been an advisor to that company for almost 10 years now, and you do that and you breathe in, breathe out, and sort of just get rid of that fear response, and then suddenly things start working when they wouldn't have worked before.

Dr Kate: Yeah, absolutely. Learning how to put your body into parasympathetic mode is going to be helpful. That's necessary in order for you to be able to relax and have good sexual function. Heart rate variability actually does have some studies around erectile dysfunction and performance, so for younger men, or even men that think there may be a psychological variable involved that's a great training, or some sort of mindfulness practice, at the very least. Just learning how to be in your body and remember, or realize, when you are not relaxed, when your body is under stress, which, amazingly, a lot of people sort of forget what that feels like, and they don't know that they're constantly under stress.

Dave: Do you have any other hacks for erectile dysfunction practices, lifestyle practices, strange dances we should do? I don't know, give me the stuff that you wouldn't tell me.

Dr Kate: This isn't glamorous, but exercise. At the end of the day if you're not exercising, you're sexual performance could be better. Exercise, it improves your cardiovascular function, which is then going to improve your erectile function, period.

Dave: I know you're a Functional Medicine doctor, not an exercise trainer sort of thing. Is there any flavor of exercise that you like more than another? Frequency, duration, intensity? What do you find works?

Dr Kate: Yeah, I'm always a fan of High-Intensity Interval Training, or HIIT training. I think from a hormone prospective that's always a great idea. It is going to boost your testosterone for men and women and boost your growth hormone. If you're a long-distance endurance athlete, they actually have done studies where long-distance male runners had a decline in testosterone and a decline in growth hormone transiently after a marathon, so those long-distance exercisers I often find have lower hormone levels. So, HIIT training. Even pelvic floor work, just strengthening muscles, bringing blood flow to your pelvic floor, for men and women, is a great tool.

Dave: Since part of the GAINSWave treatment is applying large amounts of numbing cream to those areas, you reminded me of that, so I just tried to do a Kegel exercise, which is where you tighten, basically, the muscles at the base of the penis, and all that stuff, but I can't feel anything because it's so completely numb, so I can't do a Kegel exercise right now, but you're reminding me to do that. For guys listening, you can Google how to do Kegel exercises.

Dr Kate: Male Kegel exercises.

Dave: Yeah, yeah.

Dr Kate: Not just for women.

Dave: There are women ones that are probably much more known, but if you learn how to clench a few muscles down there, and you just do that when you're at a stoplight, or in a really boring meeting, no one will know you're doing it. In fact, I do it on Bulletproof Radio all the time. No, I don't. But, like the deal is you just don't know, and if you build that as a habit it actually does ... It's like lifting weights, it's something that's valuable. All right, so we talked about exercise, High-Intensity Interval Training. What about making mitochondria work better? I've noticed huge differences when I up-regulate mitochondrial function. Any tricks there?

Dr Kate: Well, exercise is going to up-regulate your mitochondrial function. I think targeted supplementation is going to help. Antioxidants are going to prevent any kind of oxidative damage to the blood vessels, which just happens over time with age, right. I think a lot of the supplementation you talk about is going to be helpful for overall vascular function. I often also will put men on a nitric oxide supplement, or precursor supplement of some kind. I know everyone has their different opinions about which work the best.

Dave: Beets and things like that?

Dr Kate: Yeah, absolutely. So, I think some supplements can be ... Smart supplementation can be effective. For improving mitochondrial function I think any of your supplements Unfair Advantage, KetoPrime, even Brain Octane, all those are going to be helpful for not only improving mitochondrial function, reducing oxidative damage, but also blood sugar stability, which at the end of the day is always going to help vascular function.

Dave: Why is high blood pressure such a big deal? You'd think if you wanted to have a strong erection you'd want to have high blood pressure, right, because well you need blood there.

Dr Kate: Yeah, well, high blood pressure over time is going to cause damage to the vasculature. It's going to cause rigid vessels that don't dilate properly, so that is not a good combination for erectile function.

Dave: So, you want high blood pressure in the penis for short periods of time, sort of like High-Intensity Interval Training of the penis.

Dr Kate: You want vasodilation in the penis, proper vasodilation in the penis, and nice blood flow into the penis, so that those mechanisms within the penis can work properly.

Dave: That is super cool. What other pieces of advice would you have for people who are saying, "All right, I am in my 20s, things are working great right now, and I don't want to deal with this later in life." What could they start doing right now so they could just avoid ever having to come in and do GAINSWave, or anything like that, so when they're 80 years old like, "I'm sure glad I did that in my 20s."

Dr Kate: Yeah, I think read Head Strong.

Dave: Thanks.

Dr Kate: Do Bulletproof, because, honestly keeping visceral belly fat off, keeping your blood sugar tightly regulated, improving your mitochondrial function, exercising, and also going back to the things we discussed before around stress, learning how to recognize stress in your body and manage stress better, because all of those things are going to ... If you do those things properly, they're going to lower oxidative damage to your body. They're going to keep your hormones healthy. They're going to keep your brain healthy, so you're going to be much better set up for good sexual function as you age, and educate yourself, and advocate for yourself, and find a good doctor.

Dave: That is great advice, even if your main focus isn't having a penis that works long into old age, it's just good advice for performing well now. That's why this is a really interesting biohacking topic, because we're talking about a symptom of biological weakness, rather than a symptom of you're not being masculine, or something like that.

Dr Kate: Absolutely. That's something I think we didn't touch upon, but I think the psychological impact in men, and women for that matter, that have sexual dysfunction is huge, right? That's why maybe there so much shame around talking about it, but if men don't have good performance, they don't have confidence. They may not perform as well at work. They don't show up in the relationship the same way. Like you said, it's a symptom of a greater problem, a bigger disease.

Dave: Dr. Kate, if someone came to you tomorrow and said, "I want to perform better at everything I do as a human being." Tell me your three most important pieces of advice just from your life. It doesn't have to be just from your medical practice, but what are the three things that matter most?

Dr Kate: Yeah, again these aren't the glamorous things, but they work. I know you can attest to this, but exercise, eat clean, really educate yourself on what eating clean is, because there's a lot of misinformation out there about that, and sleep.

Dave: The big three, ...

Dr Kate: Yeah, not glamorous.

Dave: ... exercise, eat, and sleep. Not glamorous at all.

Dr Kate: But they work.

Dave: You are not going to tell me to like go on a meditation retreat in Cambodia somewhere, because I was going to write that off if you could just tell me.

Dr Kate: I can write you a little note for that, no problem. Go to Hawaii more often.

Dave: There we go, yeah. I think having a tan helps.

Dr Kate: Yeah, that's right. The tanner you are, the happier you are.

Dave: As someone who's treated many, many patients at all different ages, and you could have said hormones, or lab tests, and all that stuff, you came down to those big things. None of those are expensive.

Dr Kate: Right.

Dave: Right, all of those are achievable, and I agree, those are terribly important. Thank you for sharing that advice with all of our listeners, and thanks for being on Bulletproof Radio.

Dr Kate: Yeah, thanks, Dave. Thanks for having me.

Dave: Where can people find out more about your clinic?

Dr Kate: My website, it's just drkatekass.com. My last name is K-A-S-S. We have all my info on there, talk a lot about the treatments that we provide, and Functional Medicine, so-

Dave: And, people who want to hear more about GAINSWave, is that gainswave.com.

Dr Kate: Yeah. There's also GAINSWave information on my website, too.

Dave: Okay, awesome. Thanks again.

Dr Kate: Yeah, thanks Dave.

Dave: If you enjoyed this episode, do yourself a favor. Go out there and exercise, eat, and sleep, because those are good for you, and after you're done with those things, if you liked this episode, go to bulletproof.com/iTunes, and that'll take you right to the iTunes website where you can leave a review for this episode that says, "Hey, this was worth my time, and it's worth telling other people that it's good."

I really appreciate it when you take the time to do that, and there's a side effect that you don't know about. When you express gratitude, it changes your neurochemistry, so by leaving a review like that, well, I certainly appreciate it and I'll feel gratitude, but by expressing it you're actually helping your nervous system. It takes all of 10 seconds and, hey, we just recorded this whole episode for you, so thanks for taking the time to do that.