

How Trauma Travels Through Generations and Changes Your Genes – Rachel Yehuda, Ph.D., with Dave Asprey – #769

Announcer:

Bulletproof Radio, a state of high performance.

Dave Asprey:

You're listening to bulletproof radio with Dave Asprey. Today's guest is really, really interesting, and she's a big recognized leader in traumatic stress studies and has a very distinguished career as an academic psychologist, researcher, lecturer, author at Mount Sinai in New York. Her name is Rachel Yehuda, and she's a professor and vice chair of psychiatry and a professor of neuroscience at that interesting place where neuroscience and understanding what's going on in the brain ties into our emotions and how we respond to things.

As you know, as a longtime listener, or maybe a new listener, part of that being Bulletproof, the State of High Performance and Resilience, that's a big focus for everyone today, it's what's going on up there. When your biology is working, what's going on in your psychology, and it's that border between neuroscience and psychology where there's a lot of room for improvement for all of us as human beings, which is why this can be so super cool. And we're going to get to focus on PTSD, and epigenetics, and intergenerational trauma, which some of you may not even believe exists, we're going to see if it does. I think you're going to find it's pretty darn convincing because this is someone who's really smart. Rachel, welcome to the show.

Dr. Rachel Yehuda:

Thank you very much.

Dave:

Let's talk about trauma in general. A lot of times people say, "I didn't have any trauma happen to me. My life has been great." How often is that actually true?

Rachel:

Well, that is such an interesting question right off the bat because what you're introducing is the concept of subjective assessment of life events, right? So, does trauma get defined based on the actual experience like combat, or violence, or rape or something like that, or is it in the eye of the beholder? And this, right off the bat, is one of the big debates that are swirling around in the field about whether there is even any objective event that would be so traumatic that everybody who experiences that event would have something like PTSD or post-traumatic stress disorder.

I think that if you look at the statistics, they'll tell you that about three quarters of the world's population will experience at least one trauma, as defined currently by the DSM-5, as an event that is potentially life threatening, and event that could have resulted in a loss of life or a threat to one's physical integrity, or if not to your own life or your own physical integrity, watching such an event happening to a loved one or knowing that it happened to a loved one. So, these events, depending on how you define them, are very common, but the truth is that everybody will have their own way of defining whether something is, what I like to call, a watershed that really divides your life and kind of shatters your life. And for some people, an event like an interpersonal violence or rape can do that. For

somebody else, it might be something else. So, there is a subjective component also when we talk about trauma.

Dave:

When I interviewed the people from the HeartMath Institute a very long time ago around heart rate variability, which is one of the many ways of measuring how resilient your body is, they said, "You know what..." This is Rollin McCraty, said, "We've seen that some combat veterans, they go into combat and they experience something and they don't come out with PTSD, and other people that are right next to them do come out with PTSD." Can you tell me what clinically PTSD is and why are some people getting it and some people not when they're right next to each other?

Rachel:

Sure. PTSD is a type of response to trauma. It's one type among many different kinds of responses to trauma. It's very, very common after combat, about 30% of combat veterans develop PTSD. And what PTSD really is, is a change in the way you look at the world as a result of being traumatized in very specific way. People with PTSD have a lot of traumatic memories about what happened, and they have nightmares, and the reason that these nightmares and memories are so disturbing to them is because they actually sometimes recreate the physiological fight or flight that they had at the time when they were experiencing the real trauma. So, the memories recreate all that fear and the helplessness and the horror. And so as a result of having these uncontrollable memories, people with PTSD want to avoid thinking about what happens, so they restrict their lives a bit or a lot, they restrict their range of emotions, and yet the emotions that are often available to them are anger, rage, shame, guilt. People with PTSD don't sleep very well, they don't concentrate very well, they're constantly scanning the environment for signs of danger.

And what happens is, because they're constantly having these symptoms, they develop this narrative about the world and about themselves that becomes what I like to say, an immutable narrative. So, they kind of get stuck in this way of thinking about themselves and the world, and they just can't progress. Obviously, it does not happen in everybody who is trauma exposed, but I would say that trauma affects everybody, maybe not necessarily in this specific way, but having a traumatic event will definitely change you in some way in terms of how you view the world.

Dave:

I've had so many senior executive type A types come through working with my neuroscience company, and one of them actually came out, my friend Craig, and he said publicly about this, "I didn't realize that all of my entrepreneurial success was as a result of being bullied in seventh grade."

Rachel:

Yeah, that makes sense to me.

Dave:

Now, is bullying trauma? Even if it's not PTSD, is that enough trauma to change the way you see the world? Does it matter what age?

Rachel:

Yes. I personally think that it is highly traumatic, especially the kind of bullying that comes with a physical threat. And I think that until recently, it wasn't really discussed as a trauma because when you compare being taunted to being sexually abused or physically abused, in some frameworks, that will seem far less disturbing, but bullying really gets at something that's particularly abusive to people, and that is emotional abuse. And when people are constantly being put down and constantly being told that they are inferior, they start to believe it, and it really digs deep and erodes one's self esteem and one's sense of self, and certainly changes the way that one views oneself and the world, make you very angry and rageful. For some people, it might make them say, "I'll show you," and they can develop a highly successful way of making those bullying narratives untrue. So, it can work to be motivating, but it's a hell of a way to achieve success, and yet that happens.

Dave:

That was what happened to me. I mean, had earlier birth trauma stuff that triggered PTSD for me as well. But that idea that I'll show you, and it's a real painful way to become successful. So, most people who do that, like, "I'll show you," but inside, it's all chaos and you're really not a very happy or a nice person, but you did it.

Rachel:

But really, you're showing yourself. I mean, there is an aspect of, "Yeah, I'll show you," but more you're saying it to yourself that I am not worthless. And in essence, although it's a terrible way to become successful, there's mastery involved in it, and so it can be very important.

Dave:

I'm generally of the opinion that anger is not something that I want to cultivate because I feel like there's better ways to motivate myself, and regularly, people come in... and my own judgment there, I'd say people who appear to be traumatized to me, will come and say, "No, I rely on my anger because this is what lets me get things done, and it's a great motivator. I'm only going to stop being angry when I get what I want." To what extent is it healthy to use anger as a motivator versus something else?

Rachel:

Yeah, that's a really good question. I've given it a lot of thought. I think that if you have controlled anger at injustice, for example, and that that galvanizes you towards change, or to changing society, or to not accepting a status quo that is unacceptable, then anger can be a really positive emotion. But the kind of anger that's destructive is usually uncontrollable, it's usually very visceral, and not really well thought out, and also there's a difference between feeling anger and expressing anger. So, sometimes it might be justifiable to feel anger, but we have to be very careful about expressions of anger, including verbal expressions, by the way.

Dave:

Well, we don't have to worry about verbal expressions because we have masks on so we can just be fast and loose, right?

Rachel:

Well, we still can hear each other through our masks.

Dave:

I'm totally kidding. This is a question about the psychology of that, and I've done a lot of personal development work and I'm very happy with where I am and who I am and my feeling of safety and all that, I'm sure I've room for improvement, but it feels odd to me when I'm in a room full of people and I can't see their faces and it actually feels less safe. And when I do those tests... and you'll know the name of them, I'm forgetting right now... where you look at angry faces versus happy faces, I identify the angry faces four times faster than the happy faces, whereas someone who hadn't been traumatized is pretty much even between, "Oh, that guy's happy, that guy's angry." So, I still have some programming in there. But I can't tell for any of those people, and it's a sense of unease. Is that because I have a history of PTSD or is that what all humans do when we can't see the full face?

Rachel:

Well, I don't know you very well-

Dave:

Fair point. A little bit of guess work here.

Rachel:

But I think that it is not uncommon for people that are traumatized to want to err on the side of this person's not safe, this person might pose a danger to me, "Ooh, they're angry," that might be very threatening. So, that does make sense as a response to the environment. So, if you don't know and you've been traumatized before, your safest bet is to assume maybe that you're in danger, so if somebody looks threatening, and an angry person is probably more likely to be a danger to you than somebody who's smiling at you. And that is a response that is very understandable. That's the problem really, with PTSD, that you tend to see the world, not for what it is, but filter through the lens of really negative experiences so that you really can't give new experiences a chance. And so it becomes very, very hard, and even when something good happens, you second guess that you question it because you're seeing something through a negative lens.

And there's some sense in which this is... this is a show about biohacking... in some sense, you want to learn from the past. I mean, part of why we have fight or flight responses is so that we can remember danger, we can remember what was dangerous and try to avoid those mistakes or those situations. So, it's a very interesting compromise that you have to make with yourself between learning that the world can be unsafe and not overly applying it or over generalizing it.

Dave:

What's the role of gratitude or forgiveness in working with people who've been traumatized?

Rachel:

Yeah. I think that most people who have been traumatized need to forgive themselves, most of all. And one of the things that don't get talked about so much are feelings of shame that people have because they have been victimized and even when it wasn't at all your fault, even a little, the idea that somebody could have taken advantage of you or could have hurt you provokes a lot of shame. There's also a lot of guilt that can happen to trauma survivors because they may not feel that they acted in the best possible way that they could have acted. Many people feel they were more cowardly than they wanted to be, or if they're frozen, they second guess that. In many contexts, freezing keeps you alive, and then you wonder why you didn't shout out and cry for help, but your body reacts in the moment and probably

makes the very best choice it can under the circumstances. There's a lot of room for second guessing after the fact.

So, part of healing is forgiving yourself those responses that you think are subpar, or suboptimal, and really forgiving yourself for having been victimized. Not to mention that there can be forgiveness towards the perpetrator, that can also be very freeing and liberating, if that comes from a place where maybe you're feeling sorry for that person, or you're looking down on them, or you're gaining some sort of a true acceptance for the fact that their action to hurting you is their cowardice, or their limitation, or something lacking in them. So, that's a great place to end up, where you really begin to defang your victimizer or your aggressor and see them for the bully that they are, the helpless bully, the person who didn't have better options or better ways to self-actualize themselves. So, if you can do things like that, that's probably very positive. But you shouldn't be too hard on yourself if that isn't a step that you're at yet because it's a really, really difficult step to achieve.

Dave:

Have you come across the work of Lieutenant Colonel Grossman on physiologic responses to combat situations?

Rachel:

No, but tell me about it.

Dave:

Oh, I was thinking you might have. He wrote a book called *On Combat* that walks through the neurological stages of what happens when first responders and people in service in the military, what they go through, and that fight, flight, freeze, wet your pants, things that are actually normal for SWAT team people before they go in but no one would talk about, and I found his work was really amazing for removing shame, like, "Oh, wait, everyone has that."

So, he spent many, many years in service and then studied some psychology around it, and was a guest on the show hundreds of episodes ago. But because you're so interested in PTSD, and you just described that freezing thing as something that's normal, so if people are feeling guilt about it, just knowing, "Oh, that's fight, flight, freeze," of course, you did that, especially if you were five, or seven, or 10 or something. I'd love that you brought that out.

Rachel:

Yeah. Trauma survivors tend to think of themselves as victimized but they're actually survivors. They survived something terrible. And it's hard to get to a place where you flip over from seeing yourself as somebody that was victimized to somebody that survived something, but often, just that little shift can make a very big difference in your self perception and in your symptoms.

Dave:

When I first discovered that I had PTSD, I was about 30, and I had just left a really bad relationship and had really great career success, and then really great career not success, and I looked at the people who were actually volunteers at something called The Star Foundation, and they said, "Oh, you have PTSD," I'm like, "How can I have PTSD? I've never been traumatized. I'm not feeling fear right now. There's nothing to be afraid of, therefore, logically, I'm not feeling fear." And they looked at me and they said, "Dave, fear is a feeling. Doesn't to be a reason for it, you just have it." And I almost fell over and I said

like, "Really, I never thought of that." What percentage of people with PTSD walking around right now have no idea they have PTSD?

Rachel:

Well, that's not the kind of PTSD that I'm very familiar with. The kind of PTSD that I'm more familiar with is somebody that knows that something bad happened to them and they have the memory of that thing that comes back. And I think that for people that have PTSD symptoms in search of a trauma, they can't quite pinpoint why they are acting like they're vulnerable, or that there's fear in the environment, it could be a suppressed memory or it could... This is where we might get into the conversation of intergenerational trauma.

Dave:

I hoped you were going to say that.

Rachel:

Yeah, it could be. I'm not saying that it is, but it is something that I have heard, especially adult children of Holocaust survivors say that they live their lives as if somebody is gunning for them, as if somebody is hunting them down, as if somebody wants to hurt them, even though they've never actually had that experience consciously, but it's almost as if they're feeling hunted anyway, or feeling vulnerable anyway. So, when you said that, that is the context in which I have heard that kind of thing. But people will argue about whether or not that is true PTSD.

Dave:

It could be some other form of anxiety that's not actually PTSD. What about birth PTSD, when you come out of the womb and you're all smushed with clamps and things like that?

Rachel:

Yeah, I don't know.

Dave:

Is that real?

Rachel:

I don't know.

Dave:

You're not sure?

Rachel:

Not my table. I mean, I think that some births can be traumatic, but those kinds of traumatic births might be affect the mother who is actually having conscious thoughts and experiencing that trauma around the birth. I don't rule out anything, especially things that I don't know that much about or that I haven't studied. So, again, if somebody thinks they have had a birth trauma, I would stay curious about what that meant and try to unpack that a little bit, maybe see where it leads.

Dave:

The reason I'm asking is I was born with a cord wrapped around my neck and I-

Rachel:

Oh, wow, that's [crosstalk 00:19:51].

Dave:

... I didn't have any conscious recollection of it. And the woman who was working with me at the time, Barbara Findeisen, the head of the American Peer and Perinatal Psychology Association, I found out later, so she definitely had some knowledge, she just picked it up when I walked in the room, "Tell me about your birth." And I'm like, "I don't know. I have this fact, but there was no oxygen loss. I'm fine." And she said, "No, you're not." And with one regression session with her, there were some really big shifts, and I actually was able to recall the feelings without anything being suggested. It really freaked me out because I didn't know as much as I know now. But I was able to really feel... It'll sound kind of dumb, but I was able to actually really feel safe after just a couple days of that work in a way that I didn't know was normal. So, for me, I feel like there was a difference.

But to the intergenerational thing, my wife was raised by a Holocaust survivor. Her grandfather raised her who was put in for a couple years in one of the concentration camps because he was caught helping to liberate train cars full of Jewish people in Czechoslovakia, and he almost died. And the traumatic behaviors that he had were just over the top, and of course, they enter the family. Is intergenerational trauma something that you believe comes because the parents were raised by people who were traumatized so the trauma behaviors get passed down sort of subconsciously, or do you think it's even a genetic DNA, RNA, spiritual, whatever? I don't know. What's the mechanism of transmission of intergenerational trauma?

Rachel:

Nobody knows for sure what the mechanism is. The one thing that I'm certain about is that there is an effect of parental trauma on the child, starting from an early age, and it kind of sticks, and in some way, it really imprints a person to have been raised by a person that was very traumatized. But obviously, there's more to it than that. Our work started by finding that there were similar kinds of stress hormonal changes in the adult children of Holocaust survivors as we had seen in Holocaust survivors, and then after pursuing this line of work for several years, we also found that there were epigenetic changes. Now, in animals where you can really study things intergenerationally and really manipulate the environment, there is evidence that epigenetic changes that occur as a result of trauma exposure in a parent, particularly a male parent, can be transferred through the sperm of a rodent to its offspring.

Dave:

Wow.

Rachel:

And studies of people and animals have shown that it is possible that there are in utero effects that help explain how trauma effects can be passed from the mother to the offspring. So, it's definitely possible that happens. But when you do the kind of work that I've done, which is simply measure a person at time X in their adult life and not before and after that, and you find a finding, it's super interesting, but we can't talk about mechanism. What that kind of finding does is, A, it makes it real for people that think

that this stuff is all in their head. It's not only in your head, it's also imprinted on your genes, and it's also in your physiology and in your biology. But what it does is it creates kind of a real justification to do more work in the field.

So sometimes, you can have a finding, and I think that this finding of the epigenetic differences in adult children of Holocaust survivors was such a finding, that in of itself doesn't tell the whole story, but it begins a line of inquiry that can then result in a deeper story and a deeper understanding. I think that the story has resonated so much because people feel like they're walking around with more than just the stuff that happens to them and more than just the genes. It's not just that you carry the genes of your parents, you carry their history. You carry a lot of the sum total of their experiences, and that culture matters, where you came from matters, what happened to your people matters, your ancestors matter. You are a link in a chain. And so the idea that there is a biology associated to this is very resonant because people don't feel that life begins just with them.

And in therapy, some therapists ask, "Tell me about your parents, tell me about your grandparents," and some people just start out with, "Well, let's start out with your childhood." And really, there's a real argument for starting earlier than your very own childhood, if possible.

Dave:

Is the mother's lineage more important than the father's lineage?

Rachel:

I think they're both important, and I think that what the work we've done has shown, that they might be important in different ways.

Dave:

What are the differences? That's so fascinating.

Rachel:

Well, look, I mean, there are biologic differences between men and women. So, women can affect their offspring through their eggs and through their gestation in uterine environment, and let's say males can affect through their sperm, and let's say both can affect their behavior, right? Well, sperm are made throughout the male's life, so you have a trauma in adulthood, and you mate before you have a chance to sort of get over your trauma, there might be an epigenetic change in that sperm that might be there at one time in your life, but maybe not in other times of your life. Basically, females are born with their eggs, and they're released one at a time post puberty, and so something that happens to a girl in childhood might have really long lasting effects on the old side, which then becomes the mature egg. So, there are potential differences. But in the work that we've done, there's no way that we can say that fathers don't count or that mothers count more.

As a matter of fact, a lot of animal work is showing now that a lot of changes that occur in the placenta are really regulated by male sperm, by the contributions of the male DNA. So, again, sorting all of that out requires very careful science, requires a combination of animal work and human work. We haven't done that kind of work to sort out the mechanisms. We've just said, "Hey, this is a thing. It seems like I can measure something in the adult children of Holocaust survivors and I can really see it." And following on the heels of that first finding that got a lot of attention, we've just replicated this and we've published a paper this year in the American Journal of Psychiatry that really showed, yep, it's a stable finding. It's a small finding in terms of the effect size, but it's a stable finding, that one epigenetic

mark that we looked at. And so if there's a change in one gene, there's probably a change in others, and it's just a matter of really kind of gathering the kind of sample that you need.

Dave:

It's really interesting to me because the mitochondria come from the mother's line, and some religious and spiritual traditions really focus on the maternal lineage, and you see that more like in Judaism and some of the more older shamanic religions, and then you get into Europe and it's all about, "Whose son is this?" And it's more of the paternal lineage. And I believe, like you, that they both probably matter and they both probably met in different ways. I don't know, but I was hoping you might have some extra little tidbits of wisdom there because I think it's such a fascinating field. And we're going to figure this out at some point, maybe over the next 20 or 30 years, I think. Am I nuts when I say in 20, 30 years? Do you think we can get there that fast? Is it going to take longer or is it going to come faster?

Rachel:

It's going to be shorter.

Dave:

I love your optimism. Okay, I'm going to go with you on that even more about this than I do.

Rachel:

But the maternal and paternal lineage stuff has nothing to do with science, it's cultural-

Dave:

It is.

Rachel:

... yeah, and there are cultures that might be saying to themselves, "Well, I always know who the mother is."

Dave:

There's that.

Rachel:

There's that. So, again, I don't think that these kinds of societal cultural differences are rooted in science, I think that they're just rooted in with they are routed in.

Dave:

That is a very fair point. I have noticed from studying ancient things that more often than 50%, when we do the science, we find that, for some reason, that was the right decision to make back then, even if they didn't have the science to do it, but not always, to your point. So, we can't trust that 100%. My original computer science mind as a young man would have been a lot more skeptical. So, I'm at least neutral, and if I don't know anything else, I'll probably say an ancient practice has more evidence to it than no practice whatsoever, but I show like sciencing the heck out of it, which is what you spend your life doing, which is cool.

Rachel:

Yeah, thank you.

Dave:

Now, you've also done some really groundbreaking work on cortisol, one of my favorite hormones. Can you talk about cortisol and trauma and just what's it good for, what's it bad for, and what have you learned about it?

Rachel:

Well, yes, sure. Cortisol is a stress hormone that is released by the adrenal gland under stress, it's also a hormone that is kept very, very busy throughout the day, being involved in lots of things, including digestion, including immune function, a lot of different activities, but it's notorious for its role in the fight or flight response. And for many, many years, and certainly when I was in graduate school, what was taught about cortisol was that in response to stress, when the body releases adrenaline and also releases cortisol, the higher the cortisol level, then probably the more intense the stress response was, so that if you measure cortisol, you can get an idea of how stressful an experience was subjectively, for someone.

And in fact, when I was in graduate school, how did you know if a rodent was feeling stressed? You didn't interview the rodent. You took their cortisol levels, and if it was very, very high, you said, "Oh, man, that must have been really disturbing to that poor little rat." And if the cortisol levels were lower, you said, "Not so bad. They can tolerate this." So, cortisol and stress became kind of synonymous.

When we did the very first work on the biology of PTSD, and this is in the 1980s, it's a really long time ago, the very first study that was done about the biology of PTSD was done by my mentors, doctors John Mason and Earl Giller, and they had a very paradoxical finding that combat Vietnam veterans had lower cortisol levels compared to patients with other kind of psychiatric disorders. And this was a time when the diagnosis of PTSD was precarious. People weren't buying it, they weren't believing it, there wasn't a paradigm for understanding how effects of a stressor lasted beyond the threat of the stress. So, that was a politically incorrect finding that had the potential of even weakening the political status of the diagnosis of PTSD. If your cortisol levels are low, "You got over this. Don't give us that." Fortunately, the adrenaline levels were high, so you had this paradox between two hormones that usually travel together and are usually both higher, both low, and here you had high levels of adrenaline and low levels of cortisol.

So, for me, that was so intriguing. I had just come from six years of graduate school, and I knew that high cortisol levels were associated with stress, and here's this disorder that calls itself a stress disorder. With low cortisol, what is that about? And what it's about is maybe cortisol isn't a stress hormone, maybe it's an anti-stress hormone. Maybe you need to release cortisol to help you do all the positive things that happen when you are in fight or flight. And indeed, one of the things that we learned subsequently was that cortisol has a really important role in containing the sympathetic nervous system, so that when you're stressed, you want to have stress hormones. The problem happens when you're stressed and you don't have your ammo, you don't have the body's ability to fight off the stress.

And so with the low cortisol, what we started to think about with the low cortisol is that maybe this is the root of the problem. We began looking at people before they're exposed to trauma very early on. In fact, one of our biohacking ideas right now, we have a big grant from the Department of Defense to study the effect of a single high dose of cortisol administered in the emergency room to persons who had just been exposed to trauma within the first few hours following trauma exposure. And what we think, and what we hope as what we hypothesize, is that having a big bolus of cortisol administered in

the golden hours following trauma exposure will help your body calm down, will bring down the sympathetic nervous system activation.

So, again, sometimes something that is released under a bad circumstance isn't bad, it's good. It's there to help you. And just this idea of understanding that a lot of the responses of our body in bad situations are good is a very important thing that we don't do enough in science. We tend to really put everything together, stress is bad, so everything that I see in response to stress, well, that's bad too, because stress is bad, but it isn't so. And that's really, I think, what the contribution of our work has been to kind of the conception of things.

Subsequently, cortisol becomes really less important, and what's really important about the original cortisol finding is that there is a molecular biology of how cortisol response reacts with the glucocorticoid receptor, the cortisol receptor, and how that kind of changes the kind of program of stress responses and how that impacts other kinds of functions like immune functions or physical functions. Now, it's not an accident that people with trauma also have a lot of physical ailments, that they often have cardiac problems, that they also have immune problems, that they also have cognitive issues, and all of those things are influenced by cortisol.

So, when you have a change in the way that the hypothalamic pituitary adrenal axis, the cascade that results in cortisol release functions, then this is not just going to affect your PTSD or your mental health, it's going to affect a lot of things. But some of those things may actually be part of the body's way of coping to kind of forestall something that might even be worse for you. So, I'm a really big believer in the wisdom of the body, but I think that sometimes you can't have everything and you have to make some decisions, this at the expense of that, or that at the expense of this. And so I think the body tries to do the best it can, sometimes it gets stuck, sometimes we have to unstuck it.

Dave:

I might be the world's only cortisol fanboy, but I found out many years ago that I have a genetic propensity for low cortisol and my cortisol levels are always low. And when I started supplementing cortisol, it was amazing. My resilience went up, my resilience to infection went up, my sleep quality improved, my brain got better, my blood pressure raised a little bit, which is why I wanted it to be because it was actually a little bit too low, so you don't get as much oxygen in the brain.

And I found a book by a guy who was I think 88 when he wrote it called Safe Uses of Cortisol, who was talking about bioidentical cortisol hormone replacement for people with autoimmune issues. And the fact that a little bit of cortisol calmed me down and made me more focused, but wasn't jacking me up into a stress state whatsoever, but just getting me to where my body was trying to get and it couldn't get was very fascinating. So, I love it that you're saying, "Wait, maybe there's a good side to cortisol. High cortisol constantly is bad, but low cortisol constantly seems like it also is bad for resilience," from what you're saying.

Rachel:

Right. But I'm also going to say this, and it's not about you, it's just cortisol and hormones are things that you really want to take under the supervision of a medical professional.

Dave:

This was medically supervised, to be clear.

Rachel:

Really good. I'm not talking to you personally, honestly, I would never do that, never judge, but hormones are really, really, really tricky, because unless you're replacing hormones because your body can't make them anymore, what happens is the body recalibrates and readjusts. So, you want to be under a doctor's care always. But I am also a big fan of cortisol, and it's also my favorite hormone.

Dave:

Oh, awesome.

Rachel:

So, we actually have that in common.

Dave:

I love that. I know you've done a lot of research on it.

Rachel:

But I don't want your audience to think that this is a biohack that they can do on their own, because-

Dave:

Thank you for saying that.

Rachel:

... I really think it's very, very important not to... I mean, there are hormones in the products we use to make sure we keep our hair, they're hormones, there are performance enhancing hormones, steroids, they are classified as scheduled three compounds by the DEA and FDA, but hormones are really potent and hormones can really affect so many other things that are going on. Hormones are running the whole show, honestly, and so we want to be so respectful of hormones and not do this unless you're working with someone who's really smart about hormones.

Dave:

Yeah. Thank you for saying that. And there are a lot of people like me who are willing to be experimental, I would just double down on that, in that if you're not getting labs, you're not working with a functional medicine, an anti-aging or a hormone specialist, the odds of you screwing something up are very, very high, and sometimes it can take a long time to come back from that.

Rachel:

And it might take a while for you to notice.

Dave:

Yeah, it could take months and months. Even DHEA, which is not prescription, I tried that when I was 18. I was obese as a kid and I tried that, and immediately, libido is gone, right? And just great. My man boobs just got bigger. And that's the way my body does that. And even DHEA isn't something you should mess with without labs, in my opinion, even though it's legal to do that, [crosstalk 00:40:43] along the other one.

Rachel:

I totally agree.

Dave:

So, to guys listening, no joke. You really want to know what you're doing but work with someone who's more than you.

Rachel:

I mean, steroids are really powerful, and even after literally spending decades studying one hormone, I still have a lot to learn about it because it has such far reaching consequences and it's so complex. I have been humbled by what our endocrine system can do, and I think that we all have to understand it.

But the other point, the wisdom of the body point is a really important point, especially for an audience of biohackers. Perfect is the enemy of the good sometimes, it depends on the circumstance. But before you want to improve things, try to really figure out also, what purpose is being served by having things the way they are and you need to be really thoughtful about it. If you're having even a symptom like not being able to sleep, right? So, the general idea is you go to somebody and you say, "Can't sleep," chances are you will walk out of that office with a prescription for sleeping pills. Really good chance. And yet, what I would wonder is, "I wonder why you can't sleep."

Dave:

Yeah. Maybe it's something in your environment, the whole epigenetic thing.

Rachel:

Yeah. Maybe you're drinking a lot of Red Bulls, and maybe you have a problem, and maybe you're worried about something, and maybe somebody moved in next door that is really making a lot of noise, or maybe you are keeping your phone next to your bed that keeps generating a lot of light. So, before reaching to the conclusion that I must take something so that I can sleep more, I would spend a lot more time trying to understand what everybody's trying to tell you something, whether there is something that you should be thinking about. And, again, our bodies are magical places that the workings of... I'm Jewish, and Orthodox Jews say a blessing when they go to the bathroom, about every time they come out of the bathroom, thanking God for making the body so magical that it knows when to eliminate things, it knows when to take things in. It has all these passages, ins and outs. And it's such a charming prayer to really be mindful of the fact that everything that our body does is miracle. And you know this when your body stops doing those things, right?

Dave:

Yeah. That is so well said. And as someone who had chronic fatigue and fibromyalgia and all that, I grew up not even knowing how much energy it was possible to have. And so to regain something that I might have had when I was young, I don't really know. I don't know what the upper limit is, but you can be really grateful for wherever you are, but if you've lost something you know you've lost, you feel that even more. I really appreciate that.

There are some compounds that people are using for PTSD and all that. In fact, it was Dr. Dave Rabin who suggested that I talk with you who was just on from Apollo Neuroscience, and we talked about psychedelic therapy in PTSD. And one of the things that can do is help you become more aware of what your body is doing. Can you talk about the role of psychedelics in PTSD in the state of science?

Rachel:

Well, I could talk about the role of MDMA, certainly, because that's been designated by the FDA as a breakthrough therapy, and so it's a very exciting time, and I know that it's just going to be a matter of time before other psychedelics like psilocybin or maybe even DMT are also going to be examined for their therapeutic potential.

So, we're going to be doing research on this at Mount Sinai, and I'm very, very excited about doing this research. I think that when you look at history, you see that there is a therapeutic legacy for psychedelics. And before they were banned in the beginning of the middle '60s and through the '70s and '80s, people were studying their therapeutic potential. And in fact, on the down low, many people were prescribing MDMA before it was banned, before it was made illegal. They were prescribing it to their therapy patients to help them open up their hearts and achieve better awareness of themselves or talk about things that perhaps might have been too hard for them to talk to. And it's just this idea that that psychedelics are illegal that caused a lot of fear in society, and then instead of funding clinical trials, the government began funding studies about the adverse effects of taking psychedelics, not in the way you're supposed to, not in a therapeutic context. And some of that research, especially research giving very, very high doses of psychedelics chronically to animals began to raise the question of whether there was neurotoxicity associated with psychedelics.

So basically, the field kind of said, "Okay, this is really dangerous. A lot of people that are on LSD, that will completely ruin your brain." And now it seems to be a renaissance where people are realizing that, not only might there be therapeutic potential for psychedelics, but a lot of the things that we've been trying don't seem to work that well, and so we just can't afford to take anything off the table right now. And that's kind of my position on it. We cannot afford to take anything off the table that might be very helpful. And if psychedelics work as well as they seem to be working in the phase two trials, then we have a potential therapeutic modality that can really do a lot of positive change in a short period of time, which is the opposite of what we have now, which are very incremental changes over a long period of time.

So, I'm very enthusiastic about the research. But that being said, I am not advocating psychedelics, I'm advocating psychedelic research. And I think that there is a really big difference, so I just want to make that point because I think a lot of the work is ahead of us, but that we really want to advocate governmental agencies and academic institutions to take a look at this, to take it really seriously, to consider this a really important frontier in medicine and psychiatry because it could be a game changer.

Dave:

I feel like we owe a debt of gratitude to Stan Grof for his early work, and I had a great chance to interview him on stage at an event that I did with him a few years ago, and with Rick Doblin, who just tirelessly did this. He's also been a guest on the show. So now, we've entered this era where at least we can research these. It always struck me as shockingly ant-science to say, "Thou shalt not look."

Rachel:

Yeah, thanks to them, and it cannot be overemphasized how brave Rick Doblin has been and how important MAPS has been to this whole development, really not taking no for an answer. And when the DEA classified MDMA as a schedule one compound, even though... A schedule one compound, just in case your audience needs to know, is a drug that is deemed to have absolutely no medical benefit but a very high risk for harm potential. And that's just like sending a drug to the graveyard because the government won't fund research into the therapeutic potential of a compound.

And a lot of drugs we use, if you get a schedule two classification like you do for opiates or you do for amphetamines, what that means is, okay, just be really, really careful. Not everyone can use this drug, but there might be some circumstances where you'd want to use a drug that also has tremendous downsides when it's not used properly. But Rick would not take no for an answer and established MAPS, and I think that he's given the world a gift. We still have to do the work, but he's made it possible so that we have taken a fresh look at, certainly MDMA, but I think the entire psychedelic movement has been really influenced by a few brave people who just refused. And the important thing is that they didn't just say, "Okay, I'm using it anyway. Nobody can tell me what I can put in my body." The idea of really trying to go through legal channels for these drugs, that's the gift. That's really a gift.

Dave:

It really is.

Rachel:

People want to feel like they have a right to take anything they want to take, but the truth is that people who are prescribers go to school for a really long time to learn about how to prescribe medicine. It's like a lot of conversations we're having lately about following science versus what your personal rights are. Again, should the government restrict things that are bad for you is a really important conversation, but drugs that have the potential to hurt you, if they are not taken in a certain way or under certain conditions or in consideration of other factors and that need a prescription, all such drugs are drugs that we have to be very, very careful about.

And so, again, there's a part of me that really does believe in personal freedom and that you should have every right to do what you want, but there's this other side that is so important to have the right public information. I mean, even a compound like aspirin is lethal. And so things that we buy in the drugstore, in our medicine cabinets, can also be lethal. We have to be careful.

Dave:

There's a fantastic article in the British Medical Journal talking about aspirin, and some very credible research saying that at least a portion of the 1918 flu epidemic deaths were from massive over prescription of aspirin. They were getting 50 grams of aspirin and then they were bleeding out. And we'll never know for sure how many of those there were, there's lots of details there, but yeah, aspirin itself is pretty dangerous even at lower doses for gastric bleeding. I'm with you there. My wife, who's a medical doctor, and I are always debating, and she's on the, some drugs should only be prescribed, I'm more on the personal freedom sides. If I'm allowed to ski at 60 miles an hour into a tree, then I'm allowed to harm myself, therefore I should be able to make stupid decisions that harm me. And there will never be an answer to that debate. It depends on your society and [crosstalk 00:53:01].

Rachel:

There will be an answer to that. I mean, honestly, because both sides are right, and it's just one of those things where the true libertarian view might be that if you just put the information out there, but as we know, from today, there's no such thing as putting out the information there. There's so many competing facts all the time, there's so much spin on the information that we produce that it is hard, it's sometimes really, really hard. And as a scientist, sometimes I am just stunned at how things that we put out as being very neutral facts can kind of get this topspin and just be weaponized pieces of information. And so, again, that puts a very big responsibility on scientists to not only put facts out there, but to also anticipate all the ways that people can misunderstand things too.

Dave:

If someone listening to the show says, "Oh, wow, I probably have some trauma, or maybe even I know I have some trauma that I just haven't dealt with," and this show was the thing that made them think, "I want to do something about it," what would you recommend are the first steps for someone who says, "All right, I'm going to step up and work on my trauma"?

Rachel:

They should probably find a mental health professional to talk to and really clarify their diagnosis. I think that if you think you might have been traumatized, you probably won't get a PTSD diagnosis from that-

Dave:

Yeah, of course not.

Rachel:

... but it's probably worth talking to somebody about what kind of problems you do feel you're experiencing as a result of some event that haunts you because you don't know what it is. So, after you get a good beat on what the issues are, then you should take a pause and figure out what you want to do about it. And a lot of people run straight from diagnosis to treatment with the same person, and I would encourage people to sit with the information from a diagnostic session for a little while, unless of course, it's an emergency, and really explore their options. How do I want to approach this? What do I want to do about it? Did I feel fully comfortable with the person that I just talked to?

Mental health is a very interesting discipline. A lot of the people that are super sharp at diagnoses may not necessarily be the people that you want to enter into a long term therapeutic relationship with, so you want to consider that. Not every mental health professional is trained in every kind of modality. So, you may go to somebody that, let's say, is an EMDR specialist, the eye movement thing, or somebody that really believes in alternative approaches and mindfulness and meditation, or you might get other people that think you should do cognitive behavioral therapy. So, I would read up after I get a kind of diagnosis after somebody that I've paid money to tells me what they think the issue is. If it sounds right, I would read up on those things. If it doesn't sound right, I would try another person. And then really figure out how you want to solve the problem. What feels right to you? Do a little research on the different kinds of approaches that are being used for the problem that you have just gotten feedback on that you really have that's real.

And so I would take that step. I know that that's really not a conventional answer, [inaudible 00:56:59], "Well, just go to a therapist." But I think that therapists come in many, many, many flavors, and it's like every relationship that is going to be a long term important relationship, you want to do a little work. You don't want to just swipe right and have a one night stand, you want to really do some... Or is it swiping left.

Dave:

I don't remember which way. My Tinder game is weak.

Rachel:

It has something to do with swiping. But you want to really think about who you're going to and what kind of work you're going to do, understanding that you, the patient, have a lot of agency here in working in a modality that you will feel good about. Don't just accept a prescription, especially on a first

day, officially, we say on a first evaluation, without really understanding how long this medication is being prescribed for. Do you really need it? What are alternative approaches? And really understanding that there is some research that should be done. If your gut says you're comfortable, great. A lot of people are very overwhelmed. It is a very, very, very common phenomenon for somebody to go for an evaluation, they get another appointment to begin treatment, and guess what, there's a 30% chance that they won't show up.

Dave:

Wow, just because of their inner fear.

Rachel:

For whatever reason. Maybe it was too big a dose of information, maybe they're reluctant. Because what we should be telling people is, "Take this in as information. You're not getting married on a blind wedding date. Take in the information. Sit with it. If you have a close friend or you're in a close relationship and you feel like you can confide in somebody about what you learned, talk it over with them, say, 'You know what, this therapist I went to said I have anxiety issues, Do I seem anxious to you?' And try to see whether or not these things matter." The exception to that is that if you feel like you are going to hurt yourself or hurt someone else. In that case, this is an emergency and you don't have the luxury of doing anything other than getting yourself in treatment. Almost every provider can handle this. And that that should be a very, very big red flag to initiate treatment immediately and put yourself in the hands of a mental health professional and do what they say, because those are extremely serious feelings of wanting to hurt yourself or hurting somebody else.

Dave:

That idea of treat it like dating, interview a couple therapists and see the one that resonates with you is really, really valuable advice, and I'm so glad that you brought that up.

Rachel:

If you can afford it. Assuming that you can do it, and assuming there's not a shortage of mental health providers in your area, and assuming you didn't have to wait three months to get the initial appointment, and assuming all of the things that are such barriers to healthcare, maybe you feel lucky that you finally got someone to see you and you don't want to take that chance. So, of course take that advice with a grain of salt and also in consideration of kind of the reality of how hard it was for you to get there in the first place. But in a situation where you're it's not an emergency, and you know you need help, and you have a choice, and you have time, and you have the resources, you probably can be a little more choosy than you think.

Dave:

Rachel, thank you for coming on the show and sharing that really important piece of advice, and just for your years of reading searched across peptides, and hormones, and feelings, and PTSD, you've really done an enormous body of research. And like a true scientist, you're not on social media.

Rachel:

I'm not.

Dave:

You have your academic page that's up there-

Rachel:

Terrible, I know.

Dave:

... and that's what you do. You generate knowledge and you put it out there, and it's actually hard to get you on the show, because like, "I don't really want to do that."

Rachel:

Yeah, sorry about that.

Dave:

But this was and will be heard by hundreds of thousands of people and I think you've shared some valuable stuff from your body of work, and thank you.

Rachel:

Thank you. Thank you for having me. It was delightful. Nice meeting you.

Dave:

Nice to meet you.

If you liked today's show, you know what to do. You can do what you always do, do something every day to make yourself a better person. And if this stuff resonated with you, I have done therapeutic work. In fact, the most powerful CEOs I know of all have done work in order to become senior executives, to become leaders, to become better human beings, and countless people who aren't CEOs don't want to be CEOs, don't want to be entrepreneurs, just want to be happier, better parents, better whatever else, this is part of biohacking. It's understanding what's going on in there, and just like you use a mirror to see if something's caught in your teeth, you work with a therapist to see what's going on that you're not going to be able to see otherwise and then to figure out what to do about it. So, definitely in the world of biohacking, and it's sometimes the scariest hardest thing to do. It's like you just put butter in your coffee, but maybe want you to do...