



Transcript: #351 Wearable Devices to Improve HRV, Stress, Focus, and Sleep with Dr. David Rabin

Wendy Myers: Hello everyone. My name is Wendy Myers of myersdetox.com. Thank you so much for joining me today for the Myers Detox podcast. Today we have Dr. David Rabin on the show. He's going to be talking about a very simple way to reduce stress with a wearable device that he developed called the Apollo. He's a neuroscientist and a medical doctor. It will be a really good show today, as we talk about all the different types of stress that we are under. Meditation and breathwork, maybe a hug, only really last or reduce your stress for a few minutes, maybe an hour. Then you're kind of back where you started.

Wendy Myers: David developed a really ingenious device that uses frequencies and parts of frequencies, on your body, much like music, to help change your state. They can help you get into a more wakeful state, sleep state or meditative state. It has about seven different options or settings, depending on what your goals are. These help you dramatically reduce stress and train your nervous system to get into that parasympathetic rest, detox, digest, and immune state. You have to be in a parasympathetic state to have optimal immunity. We'll talk more about that.

Wendy Myers: Stress is one of the biggest bottlenecks to people getting better. There are those of you who have struggled with trying to find out what's going on with you. You've tried to get better and nothing's really working. One of the very first, simple steps that people have to do is get into a parasympathetic state. How do you do that easily? You can do that with an Apollo tracker, and many other things that I talk about on the show. I try to give people lots of tips because as a clinician working with clients, that is the biggest wrench in people getting better. Not being able to de-stress. There are tips like that and more, on the show today.

Wendy Myers: I know some of you listening are trying to find out what your toxic body burden is. How to detox, how to get rid of these toxins, heavy metals and chemicals, how to reduce your symptoms and even get rid of diagnoses. I created a very simple quiz called heavymetalsquiz.com, where you can take a two minute quiz. After that you get a free video series that answers your frequently asked questions regarding how to detox, what type of testing to do for detox, what are the most effective supplements for detox, where do you start and how long does it take to detox. All of those questions are answered, and more, so go take the quiz at heavymetalsquiz.com.

Wendy Myers: Our guest today, David Rabin, is an M.D., Ph.D., a board-certified psychiatrist and translational neuroscientist. He is the chief innovative officer, co-founder and co-inventor at Apollo Neuroscience. Apollo is the first scientifically-validated wearable system to improve HRV, or heart rate variability, focus and sleep. It provides access to meditative states by delivering gentle, layered vibrations to the skin. Dr. Rabin is helping to organize the world's largest controlled study of psychedelic medications, in collaboration with colleagues at Yale, the University of Southern California, Mount Sinai and MAPS, or the Multidisciplinary Association of Psychedelic Studies. This study will help to determine the mechanisms of the dramatic therapeutic benefits observed following psychedelic-assisted psychotherapy, in treatment-resistant mental illness. You can learn more about David and his revolutionary device, the Apollo, at apolloneuro.com. Dr. Rabin, thank you so much for joining the show.

Dr. David Rabin: Thank you so much for having me, Wendy. It's a pleasure to be here.

Wendy Myers: Tell us a little about your background, and how you got into the study of treatment-resistant mental illness and wearable technology?

Dr. David Rabin: I've always been interested in resilience. Resilience is what helps a lot of us bounce back from stress. It helps us bounce back from challenges, overcome them and grow from them, rather than being challenged and having the challenge hold us down or hold us back. My parents are physicians and they practice very traditional Western medicine. They have helped an enormous number of people, but even as a child, I saw that there were always some people who tended to get better and some people who didn't. Sometimes, you can do everything for people and it's still not going to make much of a dent. That always fascinated me. When I asked people that question, including my parents, nobody really had a good answer and the answers were always different.

Dr. David Rabin: It made me realize that there were a lot of gaps in our knowledge about what actually makes us resistant to illness, better able to bounce back and better able to recover. How do we train our bodies and our minds to be at our peak, not only for performance, but also for recovery? I'm a psychiatrist and a neuroscientist by training. I predominantly see patients with treatment-resistant depression, PTSD, anxiety, substance use disorders and also some folks with

chronic pain and traumatic brain injury. These disorders have always been disorders that typically don't get better with the standard of care in our society. Like the diagnostic manual, DSM, that we use in psychiatry, the treatments that we're taught are supposed to work but typically don't work more than 50% of the time.

Dr. David Rabin:

As physicians and care providers, we're not trained to deal with futility. We're trained to provide a treatment and we expect that treatment is going to have some benefit. When it doesn't, it's not just the patient that's disappointed, we are as well. We really want to try to help our patients and our clients better. I started studying chronic stress and the chronic stress response, because it really seemed like chronic stress, the way we cope with stress over time and the coping strategies themselves, had a lot to do with determining how well we recover.

Dr. David Rabin:

I started evaluating that during my college and graduate work. I looked at dementia and more physical illnesses, like age-related macular degeneration in the eye. I realized that I learned an incredible amount about the way that our cells work to cope with stress. I also realized that I really wanted to work with the whole person. I much preferred working with not just your brain cells, your eye cells, your neurons or your organs, but the whole thing. That really drove me into studying mental health with a particular interest in not-novel, new, non-invasive treatments that were promising. Wearable technology, in particular, is interesting because it is incredible at tracking outcomes.

Dr. David Rabin:

It also has no side effects or almost no side effects, unlike opiate medicine or antidepressants. Opiates are extremely addictive and they impair our insight and our judgment, kind of like alcohol. Antidepressants can prevent us from having orgasms and they decrease the negatives and the positives, not just one or the other. I saw people suffering with these medicines and suffering from the side effects of the medicine. I thought, if people knew that they could try something else that didn't require a medicine, would they do it? After talking to a lot of people, my patients and colleagues, I realized that if we had better alternatives that could provide a benefit without having such a risk of side effects, most people were quite excited to try them. Wearable technology really stood out and not just from the standpoint of tracking people's data more effectively, giving us better ways to make decisions but also as a way to intervene more easily.

Dr. David Rabin:

That's where Apollo came from. It was a way to help deliver a stimulation to the body. This is in the form of a sound wave vibration that improves balance in the autonomic nervous system, the stress response and the recovery response system. This effectively boosts safety signals in the body which boosts recovery, which helps us to improve heart rate variability. This is one of the key measures that most of our wearables track, like the Oura Ring or the Apple Watch, or the WHOOP or Polar straps. They all track HRV, heart rate variability, because this

has actually been proven to be one of the best measures of our ability to respond to and recover from stress.

Wendy Myers: I think people don't realize how much stress that they're under. It is coming at us from all angles. Stress is the number-one killer for a reason. It's the number one cause of chronic health issues and a lot of physical health issues. It's not just about mental health at all. In our bodies, when we're experiencing so much stress, we have maladaptive responses to stress. Our immune system doesn't respond properly, or what have you. Why do so many of us struggle with sleep and energy? How does that come into play here?

Dr. David Rabin: That's a great question. I think the first thing to start with is, for everyone listening to this podcast, it's not your fault that you're stressed out. I think that is the first place to start. When we're stressed and we're not dealing with it well, or we're stressed and we feel really badly about feeling stressed, then we shame or guilt ourselves about being stressed out. That ultimately makes it worse. It's not about blame and it's not about guilt or shame. All of us are stressed out, right? Everyone is stressed out, particularly right now, at a time where we have the threat of a global pandemic going on and there's a lot of uncertainty. It's really important, first and foremost, to recognize that it's not your fault. We all deal with stress.

Dr. David Rabin: We all deal with it in different ways. Most of the ways that we deal with stress come from watching other people during our childhood. We watch our parents, we watch our family members and our friends. We watch people on TV and in movies. All of these inputs are subconscious because somebody's not saying, "When you're stressed out, do X, Y and Z." If you've watched somebody who is stressed out, we learn from what we see them do. Sometimes those strategies work but other times they don't.

Dr. David Rabin: One example that we see all the time is when people get stressed out, or their kid starts screaming or crying and they're upset. Instead of trying to figure out what is the source of the stress or the problem, they give them food or sweets or something like that, instead of the child or the person learning to self-soothe and learning how to understand what's going on in the stress-response in that moment. What is that stress response? It's a signal to our body that we are struggling with something in that moment, not necessarily over time but in that moment. In that moment, when we sense that signal, that's an opportunity not to repress the signal or suppress it but it's an opportunity to engage with it. Try to figure out why you are feeling this way, not to numb or distract ourselves from it.

Dr. David Rabin: I think, unfortunately, in our society we're often surrounded by numbing and distracting behavior. That can be anything from alcohol use to drug use, medication use, video games, gambling or any of these things that take our minds off of the thing that's really at the core of what's causing the suffering or stress at that time. What this does is cause an imbalance in our nervous system.

Our nervous system is really divided into two parts. One of them is the sympathetic fight-or-flight system, and the other one is the parasympathetic rest-and-digest system.

Dr. David Rabin: The parasympathetic system is responsible for everything our bodies do to help us thrive and have good lives, when we're at rest and feeling safe. That's digestion, reproduction, sleep, energy, recovery, creativity and immunity. When we are stressed out over time, these are the first things to go. The first things that get decreased in priority, in our bodies are sleep, creativity, mood regulation so you get irritable, reproduction and digestion. All of these things happen as a result of stress.

Wendy Myers: Heavy metal detoxification is not a priority any longer.

Dr. David Rabin: Right, basically anything that is not directly related to survival in that moment, is totally deprioritized. The way the body interprets survival is actually very reptilian. It's not as complicated as we often think. The body and the fear center in our emotional brain don't really know the difference between the perceived threat and the real threat. For example, with our kid screaming or being in traffic, the body sees it as it does a survival threat that's real, like running out of air or running from a lion. Our body reacts the same way. It diverts all of our blood flow, all of our oxygen and energy to our motor skills; our muscles, our heart, our motor coordinates of our brain. The parts of our bodies that are critical for fight-or-flight or survival first.

Dr. David Rabin: Once we get to a point of survival, we're safe and we can establish safety, then we should rapidly see the activity in those parts that we just described, decrease. They get re-routed to the reproductive system, digestive system, the detoxification system and our creativity. All of these systems that we want to be active when we're in a safe environment, to help re-establish balance in our bodies.

Wendy Myers: I think when people are trying to meet their health goals, they're trying to lose weight, sleep better, detox or whatever they're trying to do, they have to get into that parasympathetic state first. I try to use a lot of different tips, tricks and techniques to quickly and easily get people into that parasympathetic state. People that have tried a lot of different things. They go from a protocol to a supplement to a program, trying to do different things to get better. It's not that what they're doing isn't correct. It's just that their body isn't in healing and regeneration mode, so that what they're doing can actually work.

Dr. David Rabin: That's exactly right. I think you summed it up really well. We need to feel safe enough to allow the recovery and the healing systems that we already have, hardwired into our bodies, to turn on. When we're running from a lion, or we're in our cave, or in our tent and historically there might be a predator lurking outside, we don't want our resources to be in a healing state. We don't want

them to be focused on recovery. We want them to be primed to get out of that situation safely.

Dr. David Rabin: That is not something that's unique to humans. This actually goes back probably over 300 million years to ancient primordial sea snails, that only have three neurons in their brains, which is really critical to understand. I think this is one of the greatest discoveries in neuroscience. Eric Kandel discovered and won the Nobel prize for this, in 2002. He discovered that how we build learning and memory in our brains is actually no different than the way these ancient sea snails do it. The reason that's important is because if we understand how these mechanisms have been conserved over time, we also understand how to retrain the mechanisms, right?

Wendy Myers: Yes.

Dr. David Rabin: We can work with people to train them to learn how to turn on the recovery system in the body, naturally, whether it's through deep breathing, meditation, yoga, biofeedback, strategies like Apollo, even psychedelic medicines used in the proper way might be able to do this. There's lots of different ways to do it. Soothing touch from other humans, soothing music, all of these different recovery modalities are critical to establish safety in the body so that we can feel safe enough to allow ourselves to heal.

Wendy Myers: I love that this Apollo device is so simple. I'm wearing it right here on my wrist. It's such a simple tool. I'm "pro" anything that can quickly and easily get people into parasympathetic mode. I talk a lot about this on the podcast, because that's the biggest roadblock or bottleneck to people getting well. They don't realize that we have so many stressors in our environment. We have blue light, we have the EMF from computers and wireless and appliances in our walls. We have all these expectations to work so many hours, our kids are after us, the nutritional stress, all these viral threats and all these infections that people are dealing with. It's just layer upon layer upon layer. People are getting sick today because they are stressed. Tell us about the Apollo tool. Why is this a unique tool?

Dr. David Rabin: Apollo is unique because it's the first wearable technology that improves heart rate variability, which basically rebalances the sympathetic parasympathetic nervous systems. This is something that you can talk a lot about. I really appreciate you talking about that, because the more education that our communities have about this fundamental way to train our bodies and our minds to be more resilient, is critical. I think there's nothing more important than understanding this fundamental balance, because most of us are sympathetically up here most of the time. Even people who practice safety techniques on a regular basis, like meditation or mindfulness, or yoga, et cetera, we're still oftentimes out of balance and we don't realize it.

Wendy Myers: It's not enough to just say, "Hey go meditate". A lot of people can't maintain that feeling. They might get into it temporarily, but they can't sustain it.

Dr. David Rabin: Exactly, the average meditation or breathwork technique really only lasts for about 15 minutes to an hour, after you stop. If you are a standard practitioner, a soothing touch, for instance, lasts for about 30 minutes to two hours after about 15 minutes of touch. These are not things that last on an extended level. The good news is that the more we do them the longer the effects last, and the quicker the effects come on. The body starts to get trained to feel safe in situations that used to be out of balance.

Dr. David Rabin: The reason why Apollo is so unique is because up until this point, the major techniques and strategies we've had as clinical providers to get our community, clients and patients back into balance, are these things like meditation, deep breathing, mindfulness, biofeedback and flow tanks. All of these things are great but they are really hard to do a lot of the time, particularly if you're already stressed out.

Wendy Myers: They are also very time consuming and expensive.

Dr. David Rabin: Extremely time consuming and some of them are expensive. I think what we forget is that when we're already in a high sympathetic state, the sympathetic state of fear inhibits our ability to change because it gives us tunnel vision. It prevents us from seeing the forest through the trees. We forget, because there's so much going on around us, about other choices that we have to make in that moment, and other things we can do to establish a sense of certainty and control. We're so focused on that thing that's driving our anxiety, in that moment.

Wendy Myers: I think people are also kind of addicted to that cortisol and adrenaline. I've had clients who, I'm giving them minerals or telling them to do certain things, and they don't like that. They don't like coming down off of that. They don't like that feeling of relaxation. I think that can throw a wrench in things too.

Dr. David Rabin: I think that's a great point that you bring up, because this really goes back to this idea that fear and stress, chronic stress, inhibits our ability to change. It makes us not just afraid of things that are around us in our day-to-day lives, it makes us afraid of change itself. What Apollo is, and why it's so unique, is because it's clinically proven to help facilitate and accelerate the body's ability to change. One of the major metrics that we use for change is we measure the body's ability to adapt to stress by heart rate variability. I mentioned this before, heart rate variability or HRV, is the measure of how the heart rate changes in response to the environment.

Dr. David Rabin: What we want is, as Bruce Lee says, "When stress comes, we detect it early". The heart rate goes up quickly, the blood pressure and breath go up quickly to feed the body and change resource demand the way we need, to get out of that situation. Ideally as early and quickly as possible. When we go back into a safe environment, we should have the heart rate, the blood pressure and the

respiration rate come down very quickly, to reestablish homeostasis and balance. To reactivate that safety and recovery system, the parasympathetic system. However, low heart rate variability is the opposite of that. What we see is people with post-traumatic stress disorder, depression, severe anxiety, chronic pain, insomnia and all these disorders that I focus on quite a bit, they all have low HRV.

Wendy Myers: That's like being stuck on the gas pedal. They can't relax.

Dr. David Rabin: Right, they take longer to ramp up or they're amped up all the time. They misjudge threats more of the time and they react too quickly to the wrong things. When the threat is gone, their body does not recognize it's safe and they stay amped. They stay amped a lot of the time, which keeps resources diverted away from the parasympathetic system, from the recovery system and we see this measured now as low heart rate variability. Our elite athletes, our elite meditators, people who are well-practiced and well-versed in self-recovery and healing techniques, these people have an HRV that is somewhere between 100 and 200 plus. We don't even know what the peak limit is. Whereas people who are having depression, PTSD, substance use disorder, insomnia or chronic pain, these people tend to be at the 40-or-less level.

Dr. David Rabin: What we know now is that we have this measure of stress and the effect of stress on the body, and recovery on the body. We took people with these conditions and gave them some of these techniques like soothing touch, meditation, breath work or Apollo which delivers and activates the touch receptors in the skin, just like a hug or just like somebody holding your hand on a bad day. It was scientifically developed by us at the University of Pittsburgh, and then tested in double-blind, randomized, placebo-controlled trials, to actually verify that it did this. We thought if we could figure out basically, from mapping, how music and touch go from the ears and the skin all the way to the brain. How they interact with the sympathetic and parasympathetic nervous system, through the emotion pathway, could we then replicate that effect with wearable technology?

Dr. David Rabin: We started this in about 2014. Then starting in 2017, we started to get the first results back from our big studies. We found that without a doubt we actually got the patterns right. The research showed that when we stimulated the body with these sound waves, in a very specific rhythm through the skin, the body recognized it just like a hug from a loved one. Almost instantly it settled down and almost instantly boosted heart rate variability.

Dr. David Rabin: The metrics are great but that cannot relate to what we saw. Not only does heart rate variability go up within three minutes under stress, but we also saw that as HRV goes up. Cognitive performance under stress goes up, so people have better focus, better attention and control in general, better emotion regulation and better ability to bring themselves up or down depending on the demands of the environment. This is exactly what HRV is trying to tell us. That is

why Apollo is so unique. There's nothing else currently out on the market that can deliver that path.

Wendy Myers: That's just fantastic, it's really interesting. When I first heard about you, I wanted to try the Apollo. I started wearing it when I just had a very, very stressful period in my life. Forget coronavirus, I'm kind of over that at this point. I'm done with fear, living in fear and whatnot, but if you want to learn more, go to [coronavirussupportseries.com](https://www.coronavirussupportseries.com). In addition to all of that, and trying to educate people about that, I moved across the country. The Apollo really helped me take a deep breath and keep my cool, where I might have snapped on numerous occasions, because it's just stress upon stress upon stress. I thank you for developing this. Why don't we give people some tips on how to use it. You have an app that goes with it. Tell us about that.

Dr. David Rabin: Maybe I can show people the way the app works on the screen, but I'll talk through it as well. I don't know if people can see this, but basically there are seven settings. On our original research team, we all had a musical background or loved music, and recognized the effects of music on our bodies. We listened to different music when we wanted to wake up, work out and dance; and other music when we wanted to calm down and meditate; and other music when we wanted help to sleep.

Dr. David Rabin: We realized intuitively, that music in and of itself, when you change the rhythm and the pattern of music it helps ease the body or nudge the body into different states more effectively. This is something that I think all of us have experienced. It's very common for most people who listen to music. We started to analyze the patterns of music. We thought about what kind of music people typically listen to when they're trying to meditate, versus workout, versus party or socialize, et cetera. We realized that the patterns were actually different, particularly in the rhythm section of the music.

Dr. David Rabin: We realized that if you increase certain components of the speed and the intensity of the music, you can generate more. Music doesn't have to go through your ears. The music that we deliver through Apollo, is effectively songs that I composed based on the neuroscience of the pathways of touch. That's like music composed for your skin sensors instead of for your ear sensors. It's still just music.

Wendy Myers: It's frequency.

Dr. David Rabin: It's frequency, yes. What we found is, similar to music, as we change the patterns of the vibration to be faster and more intense, it tends to generate a more wakeful experience. We gradually brought it down and we can give you a more social experience. We can then go down from there, and it's like more of a sustained-focus experience. Then going down from there to like a recovery post workout, or post intense stress. Then going even down from there, we get to the really deep parasympathetic boosting settings, which are like meditation and

mindfulness. These work really well for significantly enhancing calm. It's great for aches and pains. It's great for just generally feeling a calm, flow state. Then down from there into deep relaxation, and then down from there into sleep.

Dr. David Rabin: From a lot of user testing on about 2,000 people with our prototype technology, which we built after the first clinical trial results came back, we asked people to track their data. We asked them how they are using this and how is it affecting them? We saw that people were using it for basically these seven purposes.

Wendy Myers: I'm doing a screen share right now of a little PDF that you give people.

Dr. David Rabin: Yes.

Wendy Myers: People can have a certain setting for “energy and waking up”, “meditation”, “mindfulness”, “rebuilding and recovery” if they want to stay clear and focused while they're working, then “social and open”, that's party mode. I kept mine on party mode when I was moving.

Dr. David Rabin: I like that mode.

Wendy Myers: Then “relax and unwind” and “sleep”. This is a great little guide.

Dr. David Rabin: Thank you.

Wendy Myers: It tells you what intensity to put your Apollo at, based on what you're trying to accomplish, or where you're at in your day.

Dr. David Rabin: It's really a personal preference with intensity and how you use it. This is just an example. The nice part about Apollo is that it can't hurt you. I think that was the main thing that we really wanted to focus on. Making a technology that's founded in safety, because if you have something that's founded in safety, it takes a lot of the disempowerment out of it. It doesn't make a lot of sense that I require this to make me better, and if I use it too much or too little it could hurt me. The real point of it is that this can't hurt you.

Dr. David Rabin: We've never seen significant side effects in any of our studies. All the frequencies we use are well founded in literature, to not cause side effects at the intensity levels we use. That's really great because for people like my patients, who are people who have severe trauma, chronic pain, substance use disorders, elderly folks who can't take the medicine, pregnant women or children, all of these people are able to use this to create benefit. That's been extremely rewarding, particularly when working with the kids.

Wendy Myers: I think people discount the adverse childhood events that they experienced growing up. We all have stuff. We all have things that we deal with that maybe we're not emotionally ready to handle, that are traumatizing. Just like a pandemic. Actually this has traumatized hundreds of millions of people, for sure.

What happens when you're growing up is your amygdala, that's perceiving threats in your environment, is forming and growing.

Dr. David Rabin: That's right.

Wendy Myers: It can get tuned, if you have a lot of trauma or abuse of whatever kind, to see more threats in your environment than say the next person, who didn't experience that trauma. These people are constantly in this stress mode. I think this will be helpful for so many people that have suffered trauma and abuse in childhood.

Dr. David Rabin: We have a lot of people and that's originally what we developed it for. Again, we have people of all different backgrounds using this. We have CEOs, elite athletes, fighter pilots, a lot of military folks and people of all different backgrounds, using this. Most people who use it aren't actually ill. When we built it, the whole purpose was to come up with a better way to treat trauma for kids and adults, that doesn't require a therapist. It doesn't require a pill. It doesn't require someone else to be there with you.

Dr. David Rabin: It literally is something you can just strap on your body and then it will help you get through the day. You might be familiar with Cognitive Behavioral Therapy with exposure works, which is the leading treatment of PTSD. Which is basically using safety techniques to reduce parasympathetic activity, naturally. Whether it's through thought or through behavior, when we're in situations that used to trigger us into a stressful situation.

Wendy Myers: That takes a long time

Dr. David Rabin: It helps most people.

Dr. David Rabin: It's a very difficult practice. It's very effective, but it's very difficult.

Wendy Myers: It does. I did probably 10 years of talk therapy, just looking to seek self-improvement and work out the kinks and whatnot. It's very expensive, it's not practical. A lot of people are not consciously aware of how their trauma is affecting them. They can't talk about it because they're not consciously aware of it. So, things like this are fantastic and address things in more ways than one. What do you see about the future of wearable technology? What is this role that it may have in medicine, coming in the next five to ten years?

Dr. David Rabin: I really appreciate that question because I think that's a question that a lot of us are asking right now. Especially given that the way that we typically used to get medicine or get treatment, by going into a doctor's office, is kind of going by the wayside. A lot of us are probably trying to avoid going in to get treatment in a doctor's office, if it's not an emergency. I think that the future of healthcare, in a lot of ways, after this is going to be digital. Involving AI and wearable technology,

but also psychedelic. When I say psychedelic, I mean not crazy '70s dance party, but really mind manifesting, which is what the word psychedelic means.

Dr. David Rabin: Mind-manifesting is a really powerful term and psychedelic, in general, is a very powerful term. Unfortunately, it's only attributed to psychedelic drugs but actually it's the way that we as therapists work with our patients to heal them, or to help them heal themselves. The way that we do that is mind-manifesting which means bringing the things from beneath our awareness, so becoming aware of things in our subconscious beneath our typical level of awareness. These are habits or patterns of behavior that we've adopted over time. Through role models or through watching other people, or just through practice, because practice makes perfect. When you practice doing something, good or bad, you're going to get better at it. That's what Eric Kandel has shown us.

Dr. David Rabin: Every time we practice, we train those neuro pathways to get better and better at being stressed out, or treating and coping with stress. That's a very hopeful understanding, I think, of the nervous system. We are now understanding that we can retrain the brain, no matter what age you are, we can retrain the brain. This is an incredibly powerful tool. We can start to use artificial intelligence or computer intelligence to learn, through wearable technology, how the body changes over time in response to the environment. Then how the body changes over time in response to things like this, right?

Dr. David Rabin: If I can see that within three minutes your heart rate variability goes up and your heart rate comes down and your respirations come down, by measuring things from an Oura Ring while you're wearing this. Measuring things from other wearables or what have you, then I can effectively customize and curate over time how this works for you. That it is delivering to you what you need when you need it, which, when you think about it is pretty powerful.

Dr. David Rabin: The first iteration of this that will be coming, is the goal of truly personalized medicine. That helps us be more mindfully present with ourselves in whatever moment we're in, so that we can recognize what is beneath our level of awareness? What are these habits and these things we've been doing for a long time, that may no longer be serving us? Bring those up into our level of awareness, our conscious awareness, so that we can process them and work through them. Understand that we actually have a choice about whether we're doing this or not. That is, I think, where the future of medicine is going. It's going to be very personalized.

Dr. David Rabin: Medications themselves are not easy to personalize. With technology, when we start to understand, "Hey I can send this signal to your body and this signal helps you stay asleep, and this signal helps wake you up", then I can automatically start to understand over time, six months to 12 months before the first versions of it come out with Apollo, but starting to understand what your body looks like when you're waking up from sleep and having poor sleep, versus having restful sleep. When you start to move in such a way that results in you looking like

you're about to wake up in the middle of the night, we can send a signal to your Apollo that turns it on and helps you fall back asleep, before you even know you're waking up.

Dr. David Rabin: What an incredible tool. There's nothing like it out there that can do that. That's all because of constructive artificial intelligence that's literally personalizing medicine for us on the go. I think this is really where medicine is going to be moving in the future. Over time these techniques will train the body, just like breath work or meditation, to understand how we can improve our wellness and our well-being on our own.

Wendy Myers: I just love biohacking. It's so exciting because I've been tracking things with my Aura Ring. Trying to figure out what my body responds to, how much sleep I'm getting and how much deep sleep. Where my stress levels play into all this, my compulsive eating, low blood sugar or because I didn't get enough sleep. All of these things have profound impacts on our behaviors, addictions and whatnot and how we deal with stress. It's really important, I think, for people to start tracking this stuff. They can use these super simple tools that hack into our primal brain, for our benefit. Tell us, where can we get one of the Apollo trackers?

Dr. David Rabin: You can get Apollo at apolloneuro.com, or apolloneuroscience.com. That's A-P-O-L-L-O-N-E-U-R-O.com. I will say that Apollo doesn't track much right now, but it will start to track more over time as the artificial intelligence component of it gets developed. We're actually working on that now. We're hoping that within about three to six months, we'll start to be tracking your activity and your sleep. We'll also be intaking data from Aura Ring and from other wearables, that will be assistant trackers, and also your mobile phone.

Dr. David Rabin: The nice thing about Apollo is it's kind of like the Tesla model. It will evolve over time to become a better user experience as you use it. It's not going to stay the same. As we use it, we see people change, right? So as people change, we want to change with them, grow with them and facilitate that growth. I think that's going to be really amazing to see over time how medicine shifts, particularly in light of the challenge that we're facing today.

Wendy Myers: Fantastic, well, Dr. Rabin, thank you so much for coming on the show. Everyone, thanks so much for joining us for the *Myers Detox Podcast*, where we cover all types of topics related to stress, diet and detoxification and tools, simple tools like the Apollo, to help you live a better life. Thank you so much for joining us. I'm Wendy Myers of myersdetox.com. Talk to you guys next week.