

Announcer: Bulletproof Radio, a state of high performance.

Dave: You're listening to Bulletproof radio with Dave Asprey. Today's cool fact of the day is that three spider species experience the equivalent of five hour jet lag every day, and if you think it takes you a few hours to recover from lost sleep or flying across the country, just be glad you're not an orb-weaver. Three different species of orb-weavers may have the shortest natural circadian rhythm discovered in any animals so far, at least according to researchers at East Tennessee state university. Most animals have natural body clocks that run closer to the 24 hour day/night cycle, plus or minus a couple hours, and light helps reset your body's timing each day, but these spiders average about 17.4, 18.5, and 19 hours respectively. Well, they also look like aliens, so maybe they're not really from here.

Dave: What that means is they have to shift their cycles of activity and inactivity. Their equivalent as spiders of sleep and wake cycles by about five hours each day just to keep up with the sun. And that's like flying cross more than five time zones and getting that much lag every day in order to stay synchronized according to the researchers. And theoretically, researcher say those spiders should not exist. As far as the researchers know, the short cycle doesn't seem to be a problem for those spiders, in fact, it might even be useful since they become more active at dusk and begin spinning their webs three to five hours before dawn, they can avoid predators that hunt during the day, which may explain why they're that way.

Dave: Determining the differences between short and normal period clocks in spiders can actually help us find out why different circadian clocks are suited to different environmental challenges for humans as well. So from where I'm sitting, if the spiders can do it, I ought to be able to do it too, we just have to learn how.

Dave: Before we get into today's show, Bulletproof Radio just surpassed its record in monthly downloads and listens, which is really cool. And that's all thanks to you and you taking the time to tell your friends that the show's worth your time or telling me that it's worth your time by leaving a review on iTunes. So thank you if you've taken a minute to do that. If you haven't, you can go to bulletproof.com/itunes, that'll take you straight to the Apple page where you can say, "Hey, this show gets five stars and it's worth your time." I appreciate it. Put a lot of energy into the show because I get to learn and you get to learn along with me.

Dave: Today's guest is actually not a spider, which is a particularly cool thing, and his name is Harpreet Rai. Although, that said, he is gluten free. He's also the San Francisco based CEO of Oura Health. A company that developed the Oura ring. You might've seen me on social media wearing a distinctive looking shiny black ring, and I've never been a fan of wearing rings because they tend to get in the way unless they're doing something really valuable.

Dave: I was CTO of one of the wristband sleep tracking companies called Basis that was acquired by Intel a while ago, and I've been tracking my sleep very carefully for more than a decade because it's allowed me to write some of the very first blog posts about how to hack your sleep, how to take control of your sleep, how to get more out of the

amount of time you spend with the lights out and your eyes closed. And for me, the pain point has been wearing an ugly headband, that my wife didn't really like, or a chest strap or even a wristband that didn't get great data, and there's been an evolution in the technology of that.

Dave: And when I saw the Oura ring about five years ago, I got really excited because it's a ring that does all the tracking that I was hoping to do with these other devices, and I've been using one for quite a while. So I wanted to bring Harpreet to talk about what they're doing, to talk about what heart rate variability does to help you control your sleep, know how well rested and recovered you are. And he was nice enough to come and meet with me live and Alpha labs so we can get deep on sleep, circadian rhythms, and why Harpreet believes that sleep is the foundation of your body and your mind instead of coffee. Harpreet, welcome to the show.

Harpreet: Thank you, Dave. It's awesome to be here, and honestly, just gratitude also as a listener. The information you put out there just helps people learn every day.

Dave: Harpreet, you've been in investment banking, you've been an entrepreneur, and you decided to join and lead Oura given a bunch of different things you could have done. What made you decide you wanted to focus on sleep?

Harpreet: I think sleep is honestly one of the greatest bio-hacks or biggest performance enhancing thing that you can do. I think in today's society, it's harder to get sleep. I think we're constantly being pinged by our phones, pinged by social media, there's Netflix, there's all these things to sort of distract you from it, but I do think sleep is the foundation of our health and the foundation of our body and mind.

Dave: All right. That was a great PR canned answer, but here's the deal, man. Sleep kind of sucks, and sleep has pissed me off for years because it keeps taking away time from stuff that I want to do that seems like it's higher value. And I've had to change my perspective on sleep from, screw that noise, I don't want to do it and I'm not going to do it, and you can get away with that when you're young especially, and just say, I'm just going to soldier through and you do have a performance decline, one you can measure on various tests of executive functions, short term memory, things like that.

Dave: But you can also learn the way navy seals do a to be resistant to lack of sleep, to perform well even if you're tired by taking certain functions from your conscious brain and sort of making them go into automatic mode, reducing load on the brain, taking Modafinil like did for eight years, which by the way is a heck of a way to handle a poor night sleep. But I also realized every time someone said, "You should get eight hours of sleep," I'm like, "Yeah, I tried that. I didn't feel that much better in the ROI on the extra two hours of sleep," I slept six hours and five minutes, just never seemed like it was there.

Dave: So you're saying how sleep is the foundation, sleep is good. We all heard we should sleep eight hours. Our moms told us that when we were five, but what's different, what's new about sleep that we didn't know before?

Harpreet: Sure. I think what's new about sleep is a ton. So it's not just the length as you mentioned, but it's actually the quality of sleep. So we can, and some people, I would say two thirds of the population do get eight hours of sleep, but the quality of the sleep is actually probably what's lacking. And I think it's this quality of sleep that we're learning more and more about as a society, how much deep sleep do we need? How much REM sleep do we need? What do those two different things even do to a body and our mind? And having information on sort of seeing the different choices you make during the day, what time you eat, when you have that last cup of decaffeinated Bulletproof coffee can have an impact on your sleep.

Harpreet: And so I think learning how you decide to make these choices on when you exercise, when you eat, what supplements you take when, which supplements are the most effective, a lot of these things can be reflected in your sleep and the quality of your sleep.

Dave: I found that they're really highly individualized, and a lot of my work in Headstrong and even the early blog posts on Bulletproof have been around, here's the biochemical explanation given what we know, which is a very small amount of what we will know about the human body, and so given this auto work, let me test it for my sleep, let me test it on a few friends for their sleep and then writing hacks about using raw honey before bed, and the Bulletproof blog was the first one to do that. And then a lot about lighting in the room. What actually happens if I black things out obsessively? It turns out I noticed massive changes on my score and sleep and if I had a few LEDs on are the curtains cracked, I didn't sleep as well even though I still slept the same amount. And so I started sharing that knowledge. But this was from the perspective of biohacker.

Dave: You've got a substantial amount of data. Can you disclose how much data you have in the Oura database on sleep?

Harpreet: Oh, we haven't disclosed that yet, but if you-

Dave: Come on. Just do it now.

Harpreet: I actually am trying to think because the numbers are growing every day.

Dave: Yeah, you can ballpark it.

Harpreet: The company started five years ago and our gen 1 ring, some of the first shipments probably were made two and a half to three years ago. And so the amount of nights that we have seen cumulatively on what we consider pretty highly accurate data, yeah, has been tremendous over the years.

Dave: It's got to be hundreds of thousands of hours.

Harpreet: Oh yeah. Millions.

Dave: Or tens of millions of hours.

Harpreet: Yeah. We haven't disclosed how much, and unfortunately, I'm not going to disclose it today, but I will say-

Dave: But you could, you're just not going to because you lack respect for Bulletproof radio.

Harpreet: No, it's not that.

Dave: I'm just teasing.

Harpreet: No, I think we will actually be releasing a lot more this data and actually sharing the data from different cohorts of people. And frankly, even one of the things you've brought up in the past trying to show sort of tags of people and certain things that they're doing in their data. So you will be seeing this self manifest, seeing these thoughts manifest itself in something in the Oura community, and that's going to be coming soon, I just don't want to spoil it for everyone.

Dave: I totally get it. So based on the data, who sleeps better, men or women?

Harpreet: Actually, mostly women.

Dave: So women have an unfair advantage for sleep?

Harpreet: I don't exactly want to say that, but yeah, the data would indicate, yes.

Dave: Okay. Why?

Harpreet: Look, I think a lot of it has to do with just type A personalities we probably have in our database. We do have more men, so that probably skews the data, but I also think men are probably drinking more, they're probably eating later. I think they tend to work sometimes way late into the night, which can disturb their sleep. Women do those too but we just don't see it at the same numbers. I would actually ask you from all your experience in tracking sleep over the last 10 years, 10 plus years, why do you think men sleep poor?

Dave: I don't know that ... my experience is that men sleep more poorly than women. You have more data than I do, but I find sleep problems are very different. So you don't see nearly as many men who say I wake up between 3:00 and 5:00 AM and I can't go back to sleep, that tends to be a problem with women.

Harpreet: Sure.

Dave: Right. And that is usually a blood sugar regulation issue, and it can actually change based on monthly cycles, right? And then women tend to be negatively impacted by longterm, unending ketosis or intermittent fasting every single day, instead of doing an alternating schedule the way I recommend in most of my books. And there, if your blood sugar crashes in the middle of the night, the brain is like, "Well, I need some glucose here," especially if you have no ketones present, you didn't get a little bit of brain octane

before bed or you're not fat adapted, when you run out of energy, the brain says, okay, doing sleep is mission critical, and if I have no energy, the organisms at risk, I know a really fast way to make glucose. Let me secrete adrenaline and cortisol."

Dave: And when you do that, it has the great effect of turning muscle into glucose. And there you go. Brain is happy. I got glucose and you're sitting there going, "Why can't I go back to sleep?" It's because you just got stress hormones to stabilize your blood sugar. And for more women than men, that trick of one to two teaspoons of raw honey, not cooked honey, and by the way, if you put raw honey in your hot tea, it's not raw anymore. So just eat it on a spoon and do that right before bed and brush her teeth and all that, and that tends to solve that problem, or for some portion of men and women, they can do collagen and brain octane, and that combination can be very calming. And this is because glycine, the amino acid, in collagen the primary amino acid, unlike muscle protein can be calming and relaxing, at least I think that's why it works.

Dave: And so it's kind of funny. You can do that and that's a bioenergetics problem. And there's also, depending on kids, if you have mommy brain, guys don't normally get this. And so if you have young children in the house, mother nature wires women to wake up at the slightest sound because it could be a tiger eating a baby. And this is really useful if you live in a cave or on the savanna and it sucks if you have kids under two or maybe even five years old because it's just going to happen. So then, quiet in your room is really important, oh, but you're in a city, you probably don't get that.

Dave: So then I recommend tracking your sleep so you know how many times you're waking up that you may not notice, and there of course, the Oura ring is fantastic. And I also recommend things like Sonic Sleep, which is an app that measures the sound level in your room and then makes white noise based on the volume of level in your room, and then when you're in deep sleep or REM sleep, it makes changes to the sound to cause to you get more REM sleep and more deep sleep. And that's one of those a couple of bucks for the app sort of thing, and I use that when I'm traveling, especially. You do the same thing.

Dave: And so that's another area where like, okay, what's going on with men versus women? Is it a noise thing? Is your brain primed because of hormones? Do you have some other dysfunction or maybe it's just bright lights, which I think affects men more than women?

Harpreet: Yeah. Actually, that is one thing we have seen in our data that men do tend to have, actually, it seems like more sensitivity to light. What we do find though from actually the women in our database is they tend to go to sleep at a more consistent time ironically than men. I don't know if it's that they're more maybe in tune with their bodies or listening to it more, and part of it just has to do with the demographic of our user.

Harpreet: We probably have women that are slightly older and past their first child, so they're probably just in more of a schedule. And part of the problem is we probably have, like so many listeners on this audience on the male side, men who are pretty focused type A personalities, we'll work hard late into the night and wake up in the morning and work out. So some of it can always be skewed just by the data we have based on our user

base, but there's tons of interesting, I think, correlations and tidbits that we'll be releasing in the future through the app.

Dave: It's really interesting, a little bit more than half of listeners of Bulletproof Radio are women.

Harpreet: Wow. I would not have guessed that. I would not have guessed that.

Dave: Yeah, it's neat. On the website, it's I think 55% men and on Instagram it's 60% women. So I go to great lengths to talk on both sides because biohacking is different depending on which sex you are. And even my first book was on fertility and pregnancy because we have common goals which is how do we get control of our biology. And we saw the same thing with fitness trackers, and the Oura ring does some movement tracking on that but the focus is on sleep and recovery, which is like, you nailed that.

Dave: And in the early generation of, the first fit bit, the Basis wrist band, where I was CTO, that was cross-fitters and marathoners and heavy duty athletes coming in first as early adopters. And I think for sleep tracking, we've all heard, oh yeah, you should get eight hours of sleep. It turns out the data doesn't support that from big studies, but you should get quality sleep until you're rested and your heart rate changes, and I think that's crossed over from crazy biohacker early adopters into wait a minute, if there's one thing I could do today in order to feel better, it would be sleep better instead of exercise more.

Harpreet: Yeah. Look, I think the stats actually speak for themselves, right? 15% of the population works out on a weekly basis, but 99.9% of the population is sleeping on a daily basis. And that sleep that you get every night, whether it's going to work out or not work out the next day is going to have a huge impact on how you feel, how you perform mentally, emotionally, and physically. So I think one of the reasons we focused on sleep too is that sleep ends up being a leading indicator and sometimes activity can be a lagging indicator, right? If you get enough sleep and your heart rate variability is high, right? And you're in that parasympathetic state, you're gonna perform better in activity the next day, right? And there's numerous studies that actually show that.

Harpreet: So I think trying to get people in this mentality of focusing on tomorrow, today, right? By focusing on sleep first, gets you ready in this mindset for what's going to happen tomorrow.

Dave: I would support that in my own experience. And it's really easy to say, Wednesday is when I've scheduled my heavy workout for the week and if ... you've read the recommendations in the Bulletproof diet and all, high intensity interval training once or twice a week. So you've got it scheduled, you're meeting your friends, you're going to go do something that makes you cry for 15 minutes and then you're done. But if you got crap sleep the night before, you actually will be better off standing on the sidelines and cheering your friends on and taking it easy, and that is not something that is convenient to schedule ahead of time.

Dave: And if you thought you were going to get a great night's sleep and something, even if you don't know what, just jacked that up, you might wake up and say, "Oh, I'm a little tired, but I'm just gonna shake it off." But if the data that I see on my phone when I wake up, says, "God, I didn't recover last night even though I wanted to." And Oh, I'm just going to go whack myself over the head with heavy exercise today. It doesn't give you the return on investment in the time and energy spent exercising, you're better off to get a massage.

Harpreet: Exactly. Yeah, look, I think matching sort of load and recovery is one of the hardest things or has been one of the hardest things for people to do. I think you're seeing this now in the pro athlete world and obviously, you know a bunch of people there as well. And they're starting to get smarter about, okay, football players had a tough game on Sunday, does it really make sense for them to come back in, they were on the road, they had a game that went into overtime, they got beat up and have them hit deadlifts the next day. Probably not. Their nervous system is fried, right? They're probably in a sympathetic state, right? Their circadian rhythm is thrown off by the travel.

Harpreet: And so I think what you're starting to see as people realize that, wait, I want to break down that muscle, I want to work out hard, but the time to do that is actually when I'm most recovered, that's what I'm going to get the best ROI.

Dave: I was really impressed when Nick Foles came on the podcast and talked about being a super bowl MVP, but his recovery stuff was at least as obsessive as what I do at Bulletproof labs. And we even started the Bulletproof upgrade labs and spun it out as a new company because I think recovery is as important as exercise and no one recovers without sleep. So you see pro athletes come in, even some of the WWE pro wrestlers like Nikki Bella who's been on the show as well, talking about a hard life. They fly to a different city every night, every other night and have these incredibly grueling bouts and then they're on a plane doing it again, 250 days of the year. You want a crucible for human performance and recovery, it's at those extremes where you learn the most data. And I'm helping Nikki with her recovery so she can be a better professional recovery artists so she can be better in the ring.

Dave: And it's fascinating because all of them, how do you sleep? And every single celebrity pro athlete, it's jet lag, it's time zones. I need more sleep or I need better sleep. So if they get their data, and I usually recommend to these types of people, you need to track this. It's not optional. Get a ring. But when they get the data, what do they do with the data? What does anyone listening to the show who says, "Okay, I got a great night's sleep, what do I do with that? Or I got a crap night of sleep. What do I do with that, like, what's actionable from this?"

Harpreet: Sure. I think that's one of the biggest questions in wearables, and frankly, I think focusing on sleep makes it a lot easier and understandable. So, what we're seeing is actually something that we talk about, sort of the pro athlete world, right? Their trainers are there helping them interpret the data, but I think we've made it pretty easy in the Oura app to look at and say, hey, did I get a good night's sleep score? We give you a number based on all the different characteristics we see during your sleep, right? Looking at your REM sleep, looking at your deep sleep, looking at the amount of time in

bed versus the amount of time you're awake, how efficient you were. And we will actually tell you that, "Hey, your sleep score is really good today. Today's a good day to push yourself and actually get some activity in," or vice versa.

Harpreet: Take today. I had to wake up pretty early to come out here to Sunny Vancouver Island, and unfortunately, because of that, I didn't get to bed early enough. I had a dinner meeting unfortunately, and I only got six hours of sleep, actually more like five, right? And for me it's like, okay, my readiness score is low, my sleep score is low, today is not a good day for me to exercise because I'm actually probably gonna do more damage. And the science actually supports that, right? When we're getting less than six hours of sleep, our risk for injury goes up by over 50%, right? We know that if I'm not getting enough deep sleep, I probably don't have a high level of free testosterone that day, right?

Harpreet: So I think we're seeing people take our data, take our scores and adjust honestly how they train and what they do, and frankly, because of things like Upgrade labs, we're starting to see people go and spend more time on recovery, spend time doing hyperbaric chambers, spend time doing float tanks, spend time doing IV therapy or even infrared light therapy. And I think as more and more of these things come out that help people actually recover, we're just going to see that industry grow. I think if you look at sort of the sleep industry as a whole, it's now 40 billion dollars, all the things that people are spending money on to help improve their sleep, and it makes a ton of sense, right? How you perform physically, how you perform cognitively is all based on your sleep.

Dave: What about weight gain and sleep? Talk to me about your own experience there.

Harpreet: Oh man. So yeah, I graduated college. I did study electrical engineering, a hardware engineer, but I decided to go into Wall Street. It was 2006, it was just getting to sort of the peak right before the crash in '08. And I actually ended up going into investment banking and I probably averaged about four hours of sleep a night. I came into investment banking weighing 140 pounds, guess how much I weighed after one year?

Dave: 200.

Harpreet: 185.

Dave: Wow.

Harpreet: I almost put on a pound a week, almost. And I was eating less. Yes, I wasn't working out, but I was still eating pretty healthily. I'd have mainly Keto diet, low carb, or at least Paleo, but just by the lack of sleep, and we can talk about some of the hormonal stuff, I know, yeah, that'll be a ton of fun, but I just saw it in myself. I was literally gaining almost a pound a week. I mean it's pretty infuriating to just all of a sudden, not really doing anything, not eating that poorly. Yes, I don't have the time to exercise because of my job at the time, but just gaining that weight was extremely frustrating.

Dave: What I found and what the data supports is exercise really doesn't help you lose weight or if it does, it's very painful and you don't keep it off because of hormone changes. So you're nowhere near 185 pounds now, or that you're carrying it pretty well. So you're not 140, Where are you now?

Harpreet: I'm probably 150 right now.

Dave: Okay.

Harpreet: Yeah. I'm also 12 years older.

Dave: You look healthy. Yeah. And your way ripped so it's all good. I'm just kidding. But you look like you're in reasonable shape.

Harpreet: Thank you.

Dave: And what did you have to do? Clearly, four hours isn't enough and I'll tell you my own four hour night story. But how did you shift from four? How much do you sleep? What was the effect on your weight when you did that?

Harpreet: Yeah. So, after that one year of actually starting ... in the age of 22, seeing my hair gray and lose some hair, and most people probably can't tell just because I wear a turban. But I was starting to lose some hair, I gained a ton of weight, and honestly, my parents looked at me, they're like, "Are you sure you want to be doing this?" And they were absolutely right. So I did leave investment banking. I still went into a stressful job, but at least started to get seven hours of sleep. Actually, right around the same time, I started adopting a Keto Diet, so back in 2009, 2010, and frankly, I wish I'd known more because I would have done it more in cycles. But started doing Keto, started doing Bulletproof coffee. Ended up working out, not a ton, but at least three times a week, two to three times a week.

Harpreet: And I just found that sleep became such a central part of my life that it determined how I could work out the next day, it determined how I'd perform at my job the next day. And so for me, just honestly learning and having that experience with sleep and just sort of seeing that weight come off with almost less effort than I would have thought just because I was focused on sleep was a huge eyeopener.

Dave: And the amount of sleep you get is well documented to control how much fat you put on. When I finally perfected the Bulletproof coffee recipe, I was just starting the company, and I decided that I would do an experiment. And I was really, frankly, still kind of angry about the fact that I'd weighed 300 pounds and the fact that I'd exercised every day, six days a week for 18 months, hour and a half a day. Went on a low calorie, low fat diet and still was fat, and just fat and tired all the time.

Dave: And when I realized I could lose weight eating a lot more food and feeling good, I said I'm just going to do an experiment for the blog. My son had just been born, so there's a really good time to do a sleep restriction experiment. And I said I'm going to eat 4,500

calories a day, sometimes 5,000, sometimes 4,000, but an average of 4,500, way more, that's about twice my body needs and my current, at least my heavily detailed quantified basal metabolic rate is 2,292 calories a day or Kcals I burn. So I'm eating a lot, and I said I'm going to double my calories spend and eat the Bulletproof diet because I'm writing this book on it, I'm doing the blog on it, and I'm going to restrict my sleep to always less than five hours a night, and the goal is four.

Dave: And I said, well, I'll use this extra time, even though I'm a VP at a big company, I'll put it into the blog. I'll put into Bulletproof and sharing all this knowledge that no one told me. And then I thought, okay, I'm going to gain three pounds, and the data is going to say I should have added 10 pounds, therefore calories in, calories out has some asterisks. So I stacked the deck against me, I took digestive enzymes, make sure I would absorb all the fat, and I was like, yeah, I'm going to gain a few pounds and I actually lost weight, and I was really surprised at this because it should not have happened, but it did. And I ended up continuing that for a long period of time.

Dave: And that said, my telomeres were probably shorter as a result of doing it, but I did start what's becoming a successful company while I was a VP and a new dad, and it was a great use of time and I felt energetic the whole time. There were times when I was tired and I'd just kind of power through it, but it's doable. And what I realized over the course of time, I wrote about how do you squeeze every drop of sleep out of that four or five hours you're going to get, and became militant about every little thing. And since then, I've been tracking my sleep reliably for the past five years, and I get six hours and five minutes a night of sleep. I think I have in the latest thing about 1,950 something days worth of data.

Dave: And I was sort of thinking, all right, is this bad? But all my labs are getting better. I'm 11% body fat and my energy is really good. It's better than a lot of the people who I work with or at least on par, and I'm getting older, right? So what's going on there?

Harpreet: I frankly think it's everything you've done to optimize your whole day and everything you do before you go to bed. So I think part of it is you're wearing blue light blocking glasses, right? You're getting your body already primed to be the most effective when you go to sleep. You're doing things like a hyperbaric chamber, right? You're doing things like infrared therapy both at night and perhaps even in the morning, right? So I think-

Dave: Oh yeah. I live at the first Bulletproof labs, right?

Harpreet: Exactly, Alpha. So, I think what's great is you have found and discovered and brought all these different tools right to your audience on hacks that you've done to figure out how to optimize your sleep. So modern man has access to these tools, we didn't have access to most of this stuff frankly even 30, 20 years ago, right? So, I think as more and more of these things get commercialized, access is available, right through things like Upgraded labs, I think people are gonna be able to hack their sleep and get more and more efficient, and I think that's going to work for a lot of people.

Harpreet: Everyone does react differently, I know you're a big believer in [inaudible 00:29:02] as am I. And so for some people, six hours of sleep and doing all these things probably will help optimize the time in bed, and for others, they might find that actually, like Lebron James or a Tom Brady, where hey, given the high load that they have in their life, they actually need more, right?

Harpreet: So I think people, the hard thing is how do you know what's working? How do you know what part of your diet is working? How do you know if honey is actually working for you before bed? And so you need access to that data to be able to see what's working, what's not. And we designed Oura literally for this, for people to figure out, yeah, I'm in a pretty, I would say, ambitious part of my career, right? I'm trying to run a start up. We have most of our team overseas, right? So for sure, I think I'm probably getting less sleep on average than I used to in the years prior to this. That being said, the amount of things that I've learned in the amount of hacks that I've done as well, have helped me really get a good quality six hours when I get it.

Dave: One of the blog posts that actually made people really mad in the early days of Bulletproof is, I might've chosen inflammatory headline, but it was something like 1.2 million people prove that eight hours of sleep is too much or something along those lines. And I found a study where the data was collected in the 1980s and it was so much data, they couldn't crunch it on 1980s computing, so they put it in a drawer, and someone found the data and crunched on modern compute. And it was the first study that allowed you to have granular data to see the difference in outcomes over even a half hour difference. And they found that the people who lived the longest slept six and a half hours a night, and people sleep eight hours a night consistently die more than people who sleep seven hours a night.

Dave: And of course, the conclusion that you could draw from that is clearly, sleep less to live longer, which would be the wrong conclusion. But what I took away from that is that people who live the longest are the healthiest people, and the healthiest people require less sleep because they require less recovery because they're not dealing with some chronic thing, they're just dealing with the stress of life and they probably have healthier, happier outlook on life. Their anxiety levels are lower, and they're getting higher ROI on their sleep or they have a lower burden before they need to sleep.

Dave: So for me, lowering the burden was a big part of my practice there, and when I hear someone who says, "I just can't get by without nine hours of sleep," it's possible there's a genetic thing going on or something like that, but the more likely thing is you're sick and you don't know it, or you don't know how to get quality sleep.

Harpreet: Yeah. Look, I have a personal experience with that. My girlfriend has lyme disease, and she was sleeping and always sleeping longer. We've been dating for almost five years, and she would always sleep longer than me, but yet wake up feeling like crap, right? And basically, when we started looking at her data, she had no deep sleep. And we went and got a full sleep test done, got it done at, I believe it was Cornell, great medical school, and what we found is actually she has something called hypersomnia, where she would fall asleep really, really quickly, not actually fall into the correct cycles of sleep, and even though spending eight hours in bed plus every night, she woke up feeling

tired. And you were right, it was because she was fighting something off that she didn't know about at the time. And so I would completely agree.

Harpreet: I think it's a balance. Really what we're striving for at Oura is helping sort of balance this load and recovery. And that load can be sort of self induced. It can be working out really, really hard, it can be working till 2:00 AM every night, trying to run a few companies probably like you've done at different points in your career, or it could be actually that there's something not right. There could be a chronic disease that you're fighting, right? It could be some type of, in this case let's say, mold related type infection. So I think having access to that data will let people sort of know is there something else going on with me?

Harpreet: How do you really know if you're sleeping better? Oftentimes, it's really hard to tell, right? You're actually unconscious when you're sleeping, so how do you know how you really feel? Most of us sort of guess based on how we feel the next day. And I think the Pittsburgh sleep test, right? Done on the University of Pittsburgh where that sort of qualitative assessment came in has just been proven to be inaccurate. People don't really have good memory recall on how they slept.

Dave: Yeah, you're just not going to be great when you wake up in the morning. Although, I did find after a year or so of tracking my sleep with real data, I did learn how to correlate how I felt with the quality of my sleep, so I could wake up and say, based on how I'm feeling, here's what I think my sleep score on my Oura ring would be. And you can be reasonably accurate because you've learned. What could people who don't want to go out and buy an Oura ring do to more accurately gauge the quality of their sleep when they wake up?

Harpreet: I mean, there's different types of tests you can do. I think some people have been doing this that don't have an Oura ring will do a heart rate variability tests in the morning. For your users who or your listeners who don't know, you put on a chest strap, you lay in bed for five to 10 minutes, and you use some type of app to connect that chest strap to your phone and get an assessment of sort of where your HRV is. So that could be something ... and some of the chest straps are cheaper than an Oura ring.

Dave: Some of them are 20 bucks.

Harpreet: Yes. Yeah.

Dave: In fact, in the Bulletproof diet, which came out in 2014, it's first print before it went into paperback, I had a heart rate variability based app because it can tell you the quality of your recovery in your sleep, it can also tell you a what's going on after a meal if you eat something you're allergic to. So there's all sorts of interesting data points there, but very few people are going to sleep with a chest strap on. It's not something that will happen unless you're either an extreme high performer, professional athlete type, or if you're really sick and you're desperate.

Dave: And I've never been a professional athlete, I like to think I'm a professional biohacker, but I've definitely been really sick with lyme disease, which comes as a result of toxic mold exposure and fibromyalgia and arthritis, and high risk of heart disease, all these things, obesity. And having said, "I'm not gonna do this anymore. I'm done," it was that motivation that made me be willing to sleep with a chest strap and all that, I just never liked it. And to be able to just have a ring that I don't notice, that gives me better data than I was getting from that anyway because I actually use it, whereas the other thing I'm going to bed, screw that, I won't do it tonight. So I'm grateful to have that ability.

Dave: I just think about all the people who aren't going to go do that, is there something to pay attention to? Maybe here's a hack that I know definitely correlates with toxin exposure and very likely with sleep, is grip strength in the morning. So when you wake up in the morning, if your grip is weak, you probably got bad sleep or you ate or breathed something the night before that messed with your system. So you can get a digital grip strength gauge which will do that. I have one, but that's 100 bucks or something, and now you're like, okay, that's a pretty weak metric compared to a ring, and at least in my case, I pretty much max the thing out, and it says I have a strong grip for an 18 year old. So I don't know that I'm getting good data anymore, but I'm n=1, right?

Harpreet: Yeah. Actually some of our team, they do an orthostatic test in the morning, so checking sort of the heart rate change after you stand up. So, that could be one. And I've seen people estimate that just by sort of counting their pulse as well, so there's things that you can do for that. I mean, there are different sort of CBT type, reaction time test also as apps. That's another thing that people do in the morning to sort of just test cognitive function. So, that could be a quick hack, something that you try.

Harpreet: And frankly, I think a lot of it is you can just ask yourself over time, and this does get harder in today's society, but how are you feeling every morning? And I think if you do that consistently, if you take the time to do it, you really have to look inward. Like if you're not feeling great and you have low energy, then okay, maybe you should start looking into this. Maybe that Oura ring might be worth it, or maybe you start doing an orthostatic test first, see if that data jumps out is irregular, and then maybe decide, hey, I should look into this further.

Dave: And for the dedicated biohackers amongst our listener base, which is a minority of people, but there's lots of us out there, we'll totally do that because we're curious. But I liked the idea of I put a ring on, I wake up in the morning, I get a sleep score that takes into account my heart rate variability, amount of sleep, and all the other data available and says, "You're about this rested, your sleep was about this good," so use that and move forward. When I compare that to the daily, how am I doing metric? Part of the research that went into my new book, Game Changers that is on Amazon right now as a pre-order ... by the way, did you guys notice the plug right there? That was, go to Amazon and pre-order Game Changers. Thank you.

Dave: Anyway. It is, I did a daily satisfaction with life metric. It was how much energy do I have? Do I like my relationships, my job, just is life good or not? And I tracked this every day for a year and tracked it and compared it to frequency of male orgasm and came up

with data to test some [inaudible 00:38:43] equations. And it turns out there is all sorts of data you can get if you take what you know, whether it's how rested and recovered are you from your ring or just your observation of do I like things? As long as you track it over time, you can correlate it to all sorts of things, probably including what you had for dinner, including how much social interaction you have. And you start to realize the things you do in your life affect the quality of your sleep and the things you do in your life affect the quality of whether you like your life or not.

Harpreet: Yeah. I mean, there's scientific papers, numerous of them sort of correlating mood and quality of sleep, right? For sure, there's lots of hormones that are released when you sleep, and a lot of them do have to do with emotional balance and cognitive balance as well. So, that makes a ton of sense.

Harpreet: We've seen it actually from our users. When you asked me earlier how are people using the Oura ring? Well, people are starting to realize that actually if you eat a pint of ice cream before you go to bed, you ended up having a low heart rate variability, a high resting heart rate. Most people won't get that great deep sleep or REM sleep, and as a result, you sort of feel like crap the next day. And so I think you will start to realize that it's actually your lifestyle actions, right? What did you eat last night? When did you eat last night? Did you drink? That do have an impact actually on how you sleep.

Harpreet: And part of that can be just also cumulative stress. You could be in a stressful relationship, you could have a super stressful job where you're really not jiving with your boss, and those things are going to have an impact on your sleep, and then vice versa. It's an unfortunate negative snowball that if you're getting a poor night of sleep on top of all this other stress, then the next day is just going to be that much harder.

Dave: It is definitely the case that eating after dark will screw up your sleep, and Satchid Panda, a friend who's a researcher at the Salk Institute just wrote a book and was on the show talking about that. And I went into his lab and looked at rat retinal cells called melanopsin sensors, and actually like saw them in action with PhD students and had a great time, and it's true the time you eat matters, but if you got crappy sleep the night before, something that would not normally raise your blood sugar a lot will raise your blood sugar, because you can have up to a 50% decrease in your ability to handle something with carbs if you're sleep deprived.

Harpreet: Yeah. I think that hormonal chain that happens with sort of not getting enough sleep and sort of your glucose response to food is insane. I think Satchin Panda talked about this, right? But for those of you know this quick 32 second summary, all right, your pancreas is responsible for making insulin, and some of the research Satchin has done has shown that actually when melatonin is released, the Beta cells in the pancreas are starting to go to bed themselves, right? So they're not going to be as effective if you start eating something that's sugary late in the evening or late at night. And that sort of again, starts this negative snowball. So you eat something that's poor, you have a high sort of glucose spikes, you had a postprandial glucose spike, then you get poor quality of sleep, and then that cycle repeats itself the next day.

Harpreet: Two other hormones, right? Ghrelin and Leptin. Ghrelin is controlling your hunger and Leptin is actually controlling your satiety, how full you feel. The studies show that if you get four hours of sleep, those hormones are working against you the whole day. So you then are craving more food, you eat that food, you have a higher glucose response and you don't feel as full. So I think, yeah, as far as your body is actually working against you when you're not getting enough sleep.

Dave: There is a hack for Ghrelin and Leptin and the other hormone that goes with them, cholecystokinin or CCK.

Harpreet: Yeah, I always forget how [crosstalk 00:42:41].

Dave: Cholecystokinin, I always miss the middle thing. And there's something I wrote about in both of my books, but if you get mild ketones, just 0.5 on a blood test, which is not full ketosis, it's enough to shift those so you have a reduction in Ghrelin. And so if you're really tired and you were to do something like brain octane oil that raises your ketone levels, you probably won't suffer from those hormonal effects as much as you would if you were eating pancakes for breakfast.

Harpreet: Yeah, totally.

Dave: Even low carb pancakes. Now, I was able to use my Oura ring and test the true dark sleep glasses called Twilight glasses. This is a company that I co-founded and funded but a company that I don't run, and I've become so interested since all the sleep hacking that led up to the Bulletproof diet, and I've been wearing dorky looking blue blocker glasses since 2008. And I remember the first time I wore these pair of Oakley glasses where I put custom lenses in, and the first time I wore them on stage, I'm like, I completely I'm the biggest dork ever. It was at a tech conference, not talking about biohacking, I was talking about computer hacking and big data and things like that. And the benefit there was I felt a lot better, my sleep quality went up when I wear these during the day under crappy lighting.

Dave: But at the conference, I got about 10 times as many business cards because people recognized me afterwards because I was the weird guy in the orange glasses. And I've continued the tradition today with True Dark where I have the yellow glasses which ends up blocking half the blue light during the day, helps me sleep better, because if you block all the blue light during the day, you don't get a wake up signal so your sleep isn't as good.

Dave: But the Oura ring blew me away because when I tested the very first prototype pair of the patented sleep glasses, that True Dark makes, I doubled my deep sleep at night by wearing these dark red, it's four different layers of optical filters in the classes, wearing those before bed for one to two hours, and yes, I looked like cyclops or something. But when I saw the data, like it's not just all in my head, this is what our understanding of circadian biology and melanopsin cells, now, this is what we thought would happen, but until you actually do it, you don't know. And I actually use the Oura ring as my data set.

Say, what does this do? And now we've done some EEG studies and we've got some other data that supports. There's massive stuff going on there.

Dave: So for me, the Oura ring has been something that's allowed me to fine tune my sleep and my jet lag protocols to the point I don't have jet lag anymore. I can fly anywhere in the world and I don't get it, but it's a question of what do I eat when? Am I in Ketosis? Am I fasting? Am I controlling my light exposure? Am I using the sleep mode supplement that I formulated for Bulletproof? And when I stack all of that in just the right order, I fly to Europe, wake up, I feel like it's morning, I do what I want to do. I haven't done all the blood sugar tests and all that stuff, but the deal is do you have the energy that you normally would have anywhere you go? And it is still a bit of an art and it's not just science because different biology does different things. Without a ring, you how would I know?

Harpreet: Yeah. No, honestly, that's why we've made ... we focused on two things when we were designing the Oura, and I would say the number one thing was accuracy. So a lot of people ask us why I a ring, why not just a wrist strap, why not a watch, like so many other people do? That's the main wearable form factor. What we found and something I'm sure you saw from your time at Basis was that actually, there's a reason why every hospital is measuring your heart rate on your finger, right? It turns out that those arteries on the inside of your wrist go into your palm and, if you look at your hands, they're red often, and the skin is very, very thin. And sort of the net result is that that pulse signal from your finger is about 50 to 100 times stronger there than it is on your wrist where your watch sits.

Harpreet: So that was one of the things that we focused on Oura, was picking a place where you could get the most accurate data. The second thing we focused on was actually something that's just easy to use, right? Something that's comfortable, something that people are going to do and not sort of get in the way. And that was another thing when we tested chest straps and we tested things on your head, they weren't attractive, they weren't comfortable, and as a result, people just wouldn't do it. And so what we've found is with a ring form factor, you sort of don't notice it's there. We designed the rings, actually our gen 2 with titanium, because we wanted to make it as light as possible so you really can't feel it.

Harpreet: And we just found that actually now that it's that easy and it syncs just right to your phone and it's accurate people, the retention ends up being really high, which is sort of what you need, right? You need that data over long periods of time, or even short of time, you can start to hack stuff in a couple of weeks. And it was those two things that we really focused on and we think that's paying off.

Dave: When I wrote Game Changers there, one of the rules that came out from all these different interviews when I did the statistical analysis was track what you hack, and it is something that saps your attention and your decision making to hack something in biology. So you have all these contraptions that you can use that are difficult and take effort to track and you get people who become, I call them data fetishists, and some of these people are dear friends and founders of the Quantified Self Movement and all,

like, "I have all this data." It was like, "Yeah. What did it cost you to get the data and how actionable was the data?"

Dave: And for me, lowering the cost of getting data means I'll get more data and then I can learn something from it. And if it's expensive data because you took a chest strap or a headband or things like that, I'm only going to do that when I'm actively trying to hack my sleep, whereas getting a signal every single day that was nearly invisible and effortless becomes much much more valuable. So even a wristband when I was at Basis, we didn't hit that convenience level. And when I first saw the ring I just looked at and said, "How did you get the sensors and the battery in there?" Because we couldn't do that. I was just salivating for a ring, but engineering wise, it was just too early. So what made it possible for you to stick all that stuff in there? Because it doesn't look like you could fit a battery much less of a sensor in there. It looks like a normal ring.

Harpreet: Yeah, no. Look, I think what makes that possible first is a great team. So we have a tremendous engineering team and hardware team and an algorithm team, people that have years of experience. Our chief scientist was actually the chief scientist at Polar for 17 years, so there was a ton of obviously work that he had, and we have great hardware engineers from Nokia as well. So I think that was part of it is just you gotta have the right team.

Harpreet: I think it was that singular focus on sleep. I think when you're making a wrist based device, you focus on how much battery should I leave for the display, right? Do I want to track other things during the day? Do I want to get notifications? And all those things use power, and so I think as a result, you can't dedicate as much sort of that battery life just to focusing on sort of sleep and HRV. And I think the third thing is just really advancements in technology, right? So curve batteries weren't as easily readily available when you were at Basis, right? I think advancements in sort of micro processing power and power efficiency, that's improved quite a bit as well. Even from our gen 1 to our gen 2, our battery is almost a third, yet we're actually sensing more data and the life of the device is almost 3X. So we've even seen just huge improvements over two years.

Dave: When you put on your hat about what a gen 5 Oura looks like, paint a picture for me five or 10 years in the future. How small or how good are we going to get?

Harpreet: Look, I think the future's really exciting. You're seeing these things go from wearables to potentially even more embedded, things that have even more bendable type batteries, greater power density on batteries. You could have multiple form factors, you could have two rings and actually be taking something like a constant EKG passively.

Harpreet: So I do think one of the things we do realize the pain points today, one of the pain points is charging, so if you just think about power efficiency and being able to not really have to charge a ring as much, even though people charge an hour once a week, we do see that as a pain point. I do think even more data, it sounds a little ridiculous, but there's all types of additional sensors you can be putting in there. Things like, I would say, optical, just different types of ambient light sensors that could provide additional data. EDA sensors or GSR sensors to test sort of the quality of what's happening with your sweat or the preparation.

Dave: GSR is Galvanic skin response, which can tell you whether you're in fight or flight mode right now. It's one of the earliest forms of biofeedback. 25 years ago I was saying, "Oh, if I put this thing on my arm, I can control micro sweat, which is a form of advanced meditation." It's an accelerated way to meditate anyway. So to have that in a ring, that was also on my, "Oh, I hope to have that some day," when I was a CTO in the space. Because getting all that data without having to pay attention over time, you should be able to get to a point where you can use your Oura ring and compare it to your calendar, say, meetings with that person always raise my stress levels and all this, and then you can start examining why, and the reason is probably going to be something to do with personal development or maybe the person is really just not a good human being and you need not work with them.

Dave: But whatever the deal is, raising awareness of the subtle signals that ... really, we have onboard signals, processing and sensors to do all this anyway, but plugging your brain into those, it takes a lot of self awareness and personal development work and spending time with Gurus in Tibet and sitting fasting and caves in Sedona, and I've done all that work and I still get value from having data that helps me see the things I wasn't aware of.

Harpreet: Yeah. Look, I think sensors are exciting, but as you just mentioned, context is another big thing, and that's something that we will be doing more of. Frankly, even before we do things in the hardware, just from the app perspective, getting to know syncing with your calendar, right? Knowing, okay, this happened that day, maybe it's your ... I have a friend who works at one of the biggest tech companies out there, and every quarter when he's doing budgeting, I mean, it's like pulling teeth, and he sleeps like crap, he's super tired, and just being able to sort of see that pattern and let them get ahead of it, that kind of data, that reflects your life. I think we're going to see more of that come.

Harpreet: One of the cool things we've thought about is meditation, introducing a meditation mode, which we are going to do. So being able to see that when you actually do meditate, how does your heart rate variability change and your respiration rate change and honestly, the correlation between meditation and the quality of sleep you get. So I think we'll start bring into more of these things during the day. Some of the context tags, different sort of data hookups into third party apps that will help people sort of understand their data more on a day to day basis.

Dave: I've done a couple podcasts with people like Dr. Mercola and Tyler, the expert on hydrogen. I think you're a Bulletproof radio listener, so you know where I'm going with this question. Electromagnetic frequencies don't seem to be very good for our mitochondria. There's clear data that mechanism of action and studies that show that, I wish that was not the case, but there's definitely something going on there. What level of concern do you have with EMF and what are you doing with the Oura ring that lets people control that?

Harpreet: Yeah, look, it was one of the critical thing things that we saw as an issue with all these wearable devices. So there was two things that we did. One, we introduced a airplane mode, so that allows you to turn off the Bluetooth and actually the ring will sync data or

store data for up to six weeks without ever syncing with your phone. So we were one of the first wearables to actually do that.

Dave: That was why I started wearing it. To be honest, I don't want a radio transmitter turned on my body 24 hours a day. I don't think that's good for my lived to 180 at least goal. And maybe I'm wrong, but I bet not.

Harpreet: I think you're right. One of the other big things is we specifically chose infrared light. So we only use infrared light on our transmitters, on the LED transmitters. Most of the other wearables in space use green light. One of the things that we know is, as you mentioned, light during night especially, can be disturbing to your sleep, especially if that's close to your head. And just the thought of even cuddling with a loved one, and just that that green honking light really just sort of disturbing the mood was another thing that we we're pretty conscious of.

Dave: We did have green lights when I was at Basis, and it was one of the things ... at the time, you couldn't do with infrared. Infrared is good for your biology and doesn't disrupt sleep. But there are studies going back to 1998 where they took a group of people and they had them sleep and they monitor their levels of REM and deep sleep, and they put this red and blue light on the back of their knee and wrapped it in a bandage, so you couldn't tell if the light was on or off. And so they did a fully blinded test, and what they found was that light on the skin without knowledge from the person who was sleeping had a measurable impact on REM sleep.

Harpreet: Yeah, that's crazy.

Dave: So we know our skin is photo sensitive, and for listeners who've read my book *Headstrong*, I talk about like which parts of the cells are light sensitive, and we've known for years that the body is light sensitive. For instance, listeners may have heard me talking about a set of cytochrome P450 pathway in the liver, but most people don't know that it's named because 450 nanometers is the frequency of light under which it fluoresces. And you can activate it with 450 megahertz ... megahertz? What the heck? [inaudible 00:56:57] light. Sorry, I'm losing my engineering mind right there. And what that means for me is, I don't know the impact of bright green light on my skin. My guess is it's probably not that big of a deal if it actually is on your skin and not in your eyes, but from the work of Satchin Panda, looking at the data in *True Dark*, I don't want green light, even little bits of it entering my eyes at night.

Dave: And so if you have a wristband that's on tightly or something like that, it's probably okay, but if I can get it in airplane mode and infrared light and you don't have to sync it every day if you don't want to, for me, that met the reward risk where the risk was as minimal as I could think of to engineer it and the rewards are very high because the convenience is high and the data set you collect is high, which is why I wanted to have you on the show because like you finally made something that's awesome, and I'm just wondering, is this going to be like a cuticle embedded sensor? Like where's it going?

Harpreet: Yeah, look. We're exploring sort of miniaturization, I think that'll make it more convenient. And look, it does get hard to do. We've made a huge leap between gen 1 and gen 2, but we'll continue to push forward. But we've just started shipping our gen 2, so I would say we're not going to be like Apple, every year is not a cadence that we're going to come out at, but every two to three years is something that we want to do to keep innovating.

Dave: I think that for a startup, every two to three years is still pretty aggressive. And I'm just grateful that I don't have to think about it and I get good sleep data, so I wanted to have you on to share the current state of sleep monitoring technology. And I look at the Zeo headband where I did a lot of my original work, this is a company that's not in business anymore. My buddy, Ben Rubin started it and is now at 10 Percent Happier, a meditation startup. But it was so hard for that company to succeed. You know that the sales weren't going up because wearing a headband regularly didn't work. But that's it.

Dave: I know some wonderful headbands out now. I have a review of them going up on the Bulletproof website that are actually looking at your sleep and then tweaking things there, and those are good for some certain circumstances, I just don't imagine a future five years from now when most of the world, at least the Western world who has the incredible good fortune to be able to buy a piece of technology like this, will be sitting down and going, "Okay, it's time for bed. I brushed my teeth, I put on my sleep hat," and went to bed. It's just not gonna happen. It may happen at pro athletes, it may happen in extreme circumstances, but a ring, I think I can see that becoming something like having a phone, say I have a biomonitor there.

Harpreet: Yeah. It's actually really funny. Look, we tried. You are going to get better data, slightly better data using a headband. That's EEG sensors, it's actually measuring the way your neurons are firing. But what we found is just people weren't willing to wear that every night, right? Sleep is sort of a time when most people take things off, not when they want to put other stuff on. A chest strap we found actually was constricting. A lot of people didn't like the feeling of that on their skin all throughout the night, and even just that risk form factor, right? A lot of people actually sleeping with something on your wrist, especially when you're sleeping on your side that can actually dig into your skin and actually can hurt your wrist, it can be a little sore the next day.

Harpreet: And so I think the convenience form factor of a ring, it's subtle, right? You wouldn't notice it if you saw an Oura ring, someone wearing it, you wouldn't know that that has all this technology on the inside, but at the same time, what we found is actually it's a great form factor that people don't mind wearing to bed, and of the call it 2 billion people in the world that are married, most of them do wear their wedding rings to bed. So it's actually something we're used to doing, just most people don't think about it that way.

Dave: Well, Harpreet, I appreciate it that you've come to Bulletproof radio and you know, because your listener, what the next question I'm going to ask is. But before we get there, you actually are offering a pretty amazing thank you to Bulletproof listeners who heard this interview and I wanted to make sure that we announced that. So if you've

listened to the show so far and you're thinking I want to do this, you're offering \$50 bucks off on the ring, which is a massive discount, and thank you for that.

Harpreet: Of course.

Dave: So go to Oura ring, O-U-R-A, ouraring.com, and use code Bulletproof stealth to save 100 bucks on a ring for the first 100 people.

Harpreet: That's for the stealth black ring, yeas.

Dave: Okay, good deal, on the highest end one. And that's a limited number of people. And then 50 bucks off any ring for everyone using code bulletproof. That's a pretty strong gift. Thank you for that. And I've just got to tell you, knowing how recovered you are, not just how recovered do you feel, but how recovered your biology is, is one of the biggest things you can do to tweak your food, tweak your meditation, tweak everything you do, and it's been one of the things that's really helped me dial in my own biology in a way that's meaningful, which is why Harpreet on the show today. Now Harpreet, thank you for the code and I want to hear your answer.

Dave: If someone comes to you tomorrow and says, I wanted to perform better at everything I do as a human being, based on your whole life, three pieces of advice. What are they?

Harpreet: Three pieces of advice. So the first one, improve your sleep. Look, it's going to affect, do you want to be better in the gym? Do you want to be better emotionally? Do you want to be better at work? Do you want to be more productive? That all starts sort of with getting enough sleep. So that's the obvious answer.

Dave: All right. And people were certainly predicting you'd say that, but from a data perspective, after analyzing 450 answers to that question and making them into game changers, we could look at what high performers routinely do, not just one person, but many of them, you're hitting one of the top three. So that was not a plug there as much as that's actually what high performers do.

Harpreet: That's interesting.

Dave: You get credit for that one because the data supports what you said and it's all in Game Changers. All right, and you got two more.

Harpreet: Two more. Actually, I think one of the other big ones, and I'll credit you Dave to being a huge help here, is find mentors. Find someone that you can learn from that's been through it before, been through more than you before. I think that's one of the easiest things you can do to sort of just up your game in life is learn from others. Don't be scared to learn and find people that know more than you and be willing to take their advice. So, that's my number two.

Dave: Nice. That's also a rule in the book, believe it or not, and it's one of those things that hearing that from people and even hearing that from you, continues to help me hone

my own abilities. Like why don't I just ask the questions I want to know so I can use it. So there you go. You hit another one on the list, which is cool. So you're doing something right. What's your third one?

Harpreet: My third one is, it's actually a phrase that someone, a mutual friend actually told us at JP, JP sears.

Dave: JP Sears.

Harpreet: Yeah. And honestly, this was really great advice for me but I think it's great advice for everyone, is that, look, you're not here to meet someone else's expectations. You're here on this earth at this point in time, hopefully we can all be there for 180 years-

Dave: At least.

Harpreet: ... At least 180 years. But I really think it gets back to asking yourself why and sort of what makes you happy, right? You don't have to be doing something to just climb the corporate ladder to climb the corporate ladder just because that's what society expects you to do. You don't have to be working out so hard if that's not what we're truly makes you happy. So I think, really ask yourself deep down inside like, why? What makes you happy? And just remember that you're not here to meet someone else's expectation and that this life is yours.

Dave: Beautiful. I love those answers and thanks for being on Bulletproof Radio. If people didn't catch it the last time, it's ouraring, O-U-R-A, ouraring.com. Use Code bulletproof to save 50 bucks on the best tracker I've seen so far. Nice job on the engineering. Nice job on making it easy for me. Thank you.

Harpreet: Thanks Dave. It's a pleasure to be here. Appreciate it.

Dave: If you liked today's episode, you know what to do. Actually, get something to track your sleep. It's worth your time and it will make you a better human being. But if you decide not to do that and you're into gratitude the way I am, take a minute to go to Amazon and leave a review for one of the books, Headstrong or better yet, order Game Changers and get it sent to you.

Dave: When you order the book right after it comes out or right as it's coming out or pre-order it, it really helps others find the book quickly, it can help it hit the New York Times list, and as an author, I've been on the list of a couple of times, but it's always an honor and a privilege to do that because it means that more people will be able to benefit from that distillation of knowledge, there's thousands of hours that went into the book and interviews and calling interviews, and getting the data out of them for you. So check out Game Changers, get yourself an Oura ring and leave a review. And if nothing else, just have an awesome day.