TEMPERATURE HACKING FOR BETTER DEEP AND REM SLEEP – MATTEO FRANCESCHETTI – #879

Dave Asprey:

You're listening to The Human Upgrade with Dave Asprey. Today, we're going to go deep on sleep. No, I did not plan to sound like a poet here, but if you'd like more of my ridiculous humor and one-on-one time with me, at least one on few time with me, check out the Upgrade Collective, which is my mentorship and membership group that is been so much fun.

Every couple weeks, I get together with everyone in our group and we learn bio-hacking and I teach you all of my books and you get to be in the live studio audience for most of the podcasts. Upgrade Collective members know more about sleep than the average person. If you're saying, "Dave, I am pretty annoyed. I don't know how to sleep." This podcast episode is for you. You might even want to check out sleepwithdave.com. This is a gift for you, which is me teaching you how to sleep over the course of a couple weeks.

You're going to learn more in this episode than I've included in that sleep challenge. That's a gift where we're going to go very, very deep on me of the latest technology for sleep, which I'm really excited about. Our guest today is an international level competitive skier from Italy, whose raced cars across Europe and started two clean tech companies before he was 30. This is a guy who's, I'm going to say a high performer.

He also had a problem that's near and dear to my heart like me as a young entrepreneur who really outperformed almost everyone, is that I slept like crap. This is a guy who had the same problem and decided to do something about it. His name is Matteo Franceschetti. He is from Italy, if that wasn't abundantly cleared by both his name and his skiing in Italy things. Matteo, welcome to the show.

Matteo Franceschetti:

Thank you for having me. I'm really excited to be here.

Dave:

Matteo, the reason I wanted to have you on is that you maybe were better than I was at figuring out that sleep was one of the things I sucked at that was a performance inhibitor for me. You've started a company around sleep called Eight Sleep. Time named you Best Invention for 2018 and 2019. You've made some trails in this. Given that sleep is such a problem and that I've been working on my own with great success, you've put together a whole bunch of different things that I like all in one product.

I want to share your story with listeners and also your learnings along of the way, which is really cool. When I say a successful sleep company, your recent funding around series C raised 86 million for improving sleep quality. When did you start Eight Sleep?

Matteo:

Yeah, we started in 2015 with a crowdfunding campaign on IndieGoGo. At that time we were really selling a mattress cover that was a sleep tracker and we sold around 8,000 units just in pre-orders. It was a pretty successful campaign at the time. Then, from there we kept building. To date, we have raised 150 million total and the last run was 86 million.

Dave:

That's impressive. Some people I know were in there, the Founders Fund Guys, Naval Ravikant... Actually his brother was on the show here. You've attracted a huge number of investors. Why do you need that much money to fix sleep? How hard is it? That's more than I've raised for Bulletproof.

Matteo:

Yeah. Hardware is hard.

Dave:

Yeah.

Matteo:

It requires a lot of money. In particular, in the supply chain manufacturing. Then, the last round, we were also lucky, we were, I think the right guys at the right place at the right time. There was a lot of demand and, in hardware it's always better to raise more than less. We took even more than what we really needed.

Dave:

Okay. I think you're wise to do that. You want to make sure you have some dry powder. You're just an interesting dude. Okay. Yeah. Race car driver, downhill skier, entrepreneur. Oh, and a member of the bar, practices as an attorney. Are you one of those born superhuman guys who could just do whatever you want and win, or has it been a bit of a struggle for you? Some people just seem like everything they touch just works. Are you that guy?

Matteo:

No. It looks like that. When you look from outside, it seems, "Oh, so cool. All this and that," but there are plenty of failures, plenty of struggles, but I like to try new things. Right? I have a lot of energy. I'm always up for challenges. I have been a ski racer, but then I have been a tennis player from when I was 12 to 18. Then I raced with cars because my dad was a gentleman driver racing with cars, became a lawyer. Then finally I became an entrepreneur, which I didn't really know what an entrepreneur was, at least what a startup was, at least when I was growing up in Italy, but I ended up there. That's pretty exciting.

Dave:

It is a French word and all of Europe, even though it's a French word, all of Europe was slower to the entrepreneur side of things than the west. Even in the UK and all, it just seems like the entrepreneurial wave caught on about 10 to 20 years later and swept through Europe. It seems like in Italy, the entrepreneur scene is hot now, though, right?

Matteo:

Yeah. It's changing. Things are improving. It's still really hard to raise money, at least compared to the US. Even when I started, I was lucky that I was able to start a company that was immediately profitable. I don't think otherwise we would have been able to really become entrepreneurs, my co-founder and I. We're still working in a law firm. It was an international law firm. I was working until 10:00 PM there. From 10:00 PM to 2:00 AM, I was working on my own company. I was not calling it a startup. It took me

a year to make enough money for both the two co-founders to have the salary for the following year. Then is when I jumped.

Dave:

Okay. Very similar to what I did. I was a VP at a publicly traded computer security company. I started Bulletproof from 10:00 PM onward and took it out of my sleep. To be perfectly honest, I slept usually four hours, sometimes five hours a night for the first two years of starting my company, because when I left Trend Micro, I was able to replace my salary from my own company and keep it running at least at break even.

Matteo:

Yeah.

Dave:

Then I raised a bunch of money as well. You did that same thing. Do you regret doing that now? You were burning the candle at both ends. Was that the right choice for you?

Matteo:

Yeah. Hundred percent. I love my job now and there was a funny story at the time, because my mom didn't want me to quit my career as a lawyer.

Dave:

Of course not.

Matteo:

Yeah, "Oh you're doing well in the law firm. It's a great law firm. Just keep going. Now you might become a partner. This thing of entrepreneurship, it doesn't make any sense," but then I did it.

Dave:

Well, you're not alone there. My in-laws who are European, my wife's parents, they still think I'm unemployed because I'm not a doctor or a lawyer.

Matteo:

Yeah.

Dave:

There's that. Entrepreneurs are foreign to the way of thinking that most people's parents or grandparents grew up with. That's fine.

Matteo:

My mom still tells her friends that I'm a lawyer. If she introduces me to someone, she says, "Oh Matteo, he's a lawyer." Okay.

Dave:

He's a lawyer who raised a hundred plus million for his startup, but he's a lawyer. Right. That's okay. Right? We don't do what we do as entrepreneurs to make our parents happy. We do it to make stuff that you couldn't buy. You could have done anything, two clean tech startups. Okay. Attorney, sports, already successful. You chose sleep. How did you know that sleep was the thing for you, given have you... Apparently you were sleeping well enough. Look what you've done and that it was the right business for you. What were the signs of sleep was the thing?

Matteo:

There were two things. On one side as an athlete, I have always been into recovery performance at rest. I wanted to improve my sleep quality. Right? As you were saying, my sleep was not working. I also used to have a lot of restless legs. In the middle of the night, I wake up multiple times. The quality of my sleep was not good.

Second, as I realized, there was a problem in sleep. I started wondering why there is no technology. Musk is taking me to Mars. I have technology in two third of my time. Then I go to bed, I pretend to stay there for eight hours and wake up refreshed. There is... No, it doesn't make any sense.

That is when I started looking into the space and with my co-founder, we built the first prototype in a garage and we had a pajama party. We called some friends, they came and before the end of the night, one of our friends gave us a 25K check, "Matteo, I would like to invest in this startup," but we didn't have a company. We didn't have even a name. That is when we realized, "Well, maybe we should really work on this." That is how everything started.

Dave:

What year was that?

Matteo:

2000, late 2014.

Dave:

Okay. This was the very early days. I'm going to walk listeners through some of the innovations in sleep monitoring. I'm going to call sleep interventions, which is what Eight Sleep does. Well, actually do monitoring and interventions, but those go together. You go way back in the day, pre-2010, we have this quantified self-movement, which was, "Hey, let's get a bunch of data off the human body," but this was oftentimes a little of the coin collector, stamp collector mentality.

"Look, I got a bunch of data, but I don't know what to do with it, but it's really cool. Because I can draw this pretty graph that shows my sleep," but you're a victim of your sleep. At least you have a picture of how bad you're sleeping, but there wasn't a lot to be done about it. Then you start saying, "Well, maybe if I have less beer, maybe it'll change things." You could look at these things, but you didn't get a clean signal.

Then a few companies came out that were looking at that. I was a co-founder and CTO of Basis. This was a wristband company that was purchased by Intel. First guys get heart rate from the wrist and we had primitive sleep scores that came only from heart rate. As you know, that isn't that good. Then I started sleeping with a thing on my forehead, this really attractive headband, not attractive at all from a company called Zeo, that's also defunct.

I've been tracking my sleep for now almost 15 years. I would say 99% of nights, to see it, see what I'm doing. When I started out, I was getting about five hours or sorry, five hours, five minutes of

deep sleep and five minutes of REM sleep in an average night. No wonder I felt like crap. As it is today, using all of the stuff that I have, including Eight Sleep, I get usually an hour and a half to two hours of deep and an hour and a half to two hours of REM.

I've been sleeping an average of six hours and 28 minutes over the past, since from that system about 20... I think that's since 2016, that number is really, almost exactly six and a half hours. What I've learned is that you can compress sleep times. You need less sleep. A study came out two days before we're recording this. I don't know if you've even seen it, that said sleeping more than six and a half hours a night leads to negative neurological performance. Did you see that study?

Matteo:

I just saw the headline. I didn't go through it completely, but yeah, I saw the study.

Dave:

Okay, the evidence is out and people yelled at me and I'm hoping that my first blog post, which would've been about when you guys were starting. Actually, it would've been probably 2013. When I said guys, 1.2 million people can't be wrong. The biggest sleep study ever shows that sleeping eight hours a night, you die more than sleeping six and a half hours a night, which appears to be the peak for longevity.

Since then, I would say at least a dozen studies have come out that says healthy people need less sleep. What I now understand, this is very recent from looking at your work and looking at some work on my next, the research for my next book, which is not about sleep at all. But it turns out that the effectiveness with which you do something seems to be the primary driver, not the amount that you do it.

Running a long period of time, isn't that effective versus running really fast for a brief period of time? If you're a Rockstar high quality sleeper, you need less time. But the value you get is actually better than if you had had the same amount of good quality stuff over a longer period of time. It's like bursts of performance seem to be what makes people high performers. How many data points have you gathered with Eight Sleep at this point?

Matteo:

Yeah. If we step back for a second with our mission and also our name, right, the reason why we are called Eight Sleep is because we really want to compress sleep and move away from this concept that you should sleep eight hours. Now our whole vision is, "Okay, how can you compress your sleep? In particular, how can you keep a deep REM the same, but substantially compress all the inefficiencies of your body in transitioning across all the different stages?"

When you look at medical evidence, right, temperature is the big elephant in the room, is the one that has the biggest impact on your sleep performance. What we see in our data is our customers, they fall asleep up to 20% faster. They can get up to 40% more deep sleep, and this is also reported with other...

Dave:

Okay, I'm going to pause for a second there, 40% more deep sleep. I get questions every day in the Upgrade Collective on Instagram and more recently on Telegram where it looks like there's actually open conversations happening without censorship. It's quite often, "How do I get more deep sleep?" Because people are recognized as soon as they get any sleep tracking system, they go, "Oh my God, I suck at it. But what do I do?"

What you did is you built something that has the tracking built into the mattress so you don't have to recharge anything, but it also controls temperature and some other stuff as well, so that you're able to do something about it. But if you're listening, I would say half of people who are listening to this have a problem with getting enough deep sleep every night. I'm making up that half, but that's just from talking to people. From your data, what percentage of people have a problem with deep sleep? It's probably more than half, isn't it?

Matteo:

Yeah, and is the No. 1 request, "How can I improve my deep sleep?" That is the first thing everyone asks for.

Dave:

All right. How many data points do you have now? How many of sleep have you measured people's sleep?

Matteo:

Oh, several millions.

Dave:

Several million sleep nights worth of data. Okay. You're a credible source, because No. 1, you believed enough to quit your job as an attorney, which made your mother proud.

Matteo:

Yeah.

Dave:

You started a company and you've gone all in. Some people listening, usually the people with a narcissist problem are going to say, "Well, you just did it to make money." Guys, entrepreneurs, don't start companies and stay up all night long starting companies to make money. Yes, we get paid for it. We do it to make stuff you can't buy and to make something to do something that matters. You believed in it enough to do all that stuff. That in and of itself says you know something and you believe. But if I combine that with a science side of a couple million or several million, probably more than a couple nights of sleep data, okay, when I ask you questions, they're coming from a lever passion side and from a science data side.

I want to focus on the science data side because you and I are both we'll call sleep evangelists. So is Arianna Huffington, who has been on the show. So many people who are friends. Jim Quick talks about sleep. We all talk about sleep as being something important, but what to do about it, okay, don't have dinner late at night, stuff like that. But to actually go in and tune the knob, explain how you are getting data from people when they're sleeping with the pad that goes on their mattress and then what you're doing to change it. Walk me through data, gathering what you can see and then walk me through what you do after you see it.

Matteo:

Yeah, absolutely. As you were saying, our product is a cover that you can install onto any mattress and you can retrofit it. The cover has multiple sensors embedded in it. We use a technology called

ballistocardiography. It's like sleeping on stethoscope over simplified. We can pick almost anything about your heart rate, your respiration and your movement. Through these three factors, we can incur sleep. We are within 100 heart beat per minute compared to a medical grade EKG.

We are extremely accurate at tracking your heart rate. Again, you don't have to wear anything. You don't have to charge anything just go to bed as you did last night. In the future, we'll be able to see cardiovascular diseases. We'll be able to see sleep apnea snoring, but by combining all these factors together with movement, we can provide you with all the information about your sleep. What time you felt at sleep, all the sleep stages, percentage for each of these stages, number of hours slept.

Then what do we do? For us, data is just the starting point. It's not the ending point because historically customers always say, "Oh, all this data is really cool, but so what? The so what is the intervention. That is, you were mentioning at the beginning of the episode. Based on your sleep stages and based on your biometrics, we adjust your body temperature during the night. It's not that we are inventing the wheel. Your body is already changing temperature during the night. It's part of your physiological process. We just enhanced that process during the night to maximize your sleep performance.

In the first part of the night, when you tend to have more deep sleep, we cool you more because it's proven that a colder temperature has not a bigger benefit or a bigger impact, positive impact on your deep sleep. In the second part of the night, particularly while you are in REM, we try to provide you what is called thermal neutrality. When you are in REM, you want to be in an environment that is neutral from a temperature standpoint, it's not cold and is not hot. The reason is, while you are in REM your brain deactivates all the temperature controls in the body. It doesn't let you fall into REM if it's too hot or too cold because you could potentially die. Changing the temperature based on your sleep stages and the different stages of the night is fundamental to maximize your deep and REM stages.

Dave:

How many hours of sleep per night do you think you can save people, by just changing temperature? If without temperature control, I set my thermostat to whatever the middle of the road is in the US. It would be 72 Fahrenheit in Europe, it's whatever 20/21 centigrade, I think. Let's say that I just have that pegged. I'm going to get some quality of sleep in eight hours. If I'm using the Eight Sleep algorithms that change my temperature to lower it in that first half of the night, how much less sleep is the average person going to need to still get a good night's sleep?

Matteo:

Yeah, let me start with me stats proven by our numbers. Our customers, they can fall asleep up to 20% faster. They can get up to 40% deep sleep. They get up to 40% less toss and turns and up to 30% less wake ups. We don't have a hard number yet of how much we are compressing your sleep in terms of minutes or percentage. But if you start putting all the pieces of the puzzle together, you understand that there is a substantial improvement in your efficiency. The end goal, what I always say in the interview, is can we compress it down to six hours and get in six hours the same amount of rest and recovery I used to get in eight hours?

Dave:

One of my ultimate fantasies is what the Russian astronauts used to do. The Russian perspective on bio-hacking is awesome, because and just in terms of mindset, there's a downside to this, but they look at humans as meat robots. If you're from Russia saying "That's not true, there's a deep Russian spirituality." Yes, there is. I'm not trying to say anything negative there, but the engineering space program, military

perspective there is, "Oh, what if we could have our astronauts only sleep two hours a night, we could send less astronauts into space and we could use less fuel. Wouldn't that be in nice economic savings? Yes. Let's hack sleep like crazy." Right? Then the same thing with pilots, "Oh, what, what if pilots just didn't have to breathe? Then we wouldn't have to pressurize airplanes. We could make more airplanes."

Just, the mindset is so different from what we have in the west, that they tend to do things. The dream there has been, "What, if we could use electricity and who knows whatever else and get sleep down to two hours?" I'm going to just raise my hand and say I'm all over that. Given that you've got a few million nights of recorded data, you have an incredible advisory board, a professor of biology is at Stanford and Harvard and U Penn. All the people who know what's going on, Mount Sinai, when you put on your 10 year, 20 year future hat, given what you know at Eight Sleep, how little sleep do you think someone could get by with, on a regular basis, when we've just pulled out all the stops? Everything you could think of in your wildest fantasies, what is the number?

Matteo:

I think a reasonable but bold case scenario is really to go down to six hours. To me.

Dave:

Just six hours?

Matteo:

I think so, because based on what we see is you don't want to be too aggressive on compressing and deep and REM. Right? A good proportion of deep and REM is 25% call it out of eight hours. Together there are four hours. Then what you can compress is all the rest, which is really not the light sleep. If you can cut that in half, then instead of four hours, that would become two. Two, plus two, plus two, that is how you get to six.

Dave:

What if you could do all three of them at the same time? Heat up the top half of the body and cool the bottom half, have you guys ever played around with stuff like that? I'm not satisfied with six, come on, Eight Sleep has all the data, you guys have to be able to give me below six, come on. Even in 20 years?

Matteo:

I think there are other ways, for example, at least what we are exploring. Right? Another area that we are exploring that is close to sleep, but is not exactly sleep is how can we also manipulate other parts of your body while you're asleep? Think of altitude tents. We reduce the amount of oxygen that will increase the blood cells in your body and by the time you wake up and you're exposed to the right amount of oxygen, again, you will feel reenergized.

Other areas for sleep that we are exploring is light noise. There are me studies that prove that playing certain sounds, you are in deep sleep, increase the quality and the depth of the deep sleep. Then I think there is electricity, as you were saying. There is some brain manipulation that might happen in the future where you will be able to trigger certain phases or stages faster.

Dave:

I have had a few nights where I was using some old Russian tech for sleep that runs current over the brain, where I woke up after two hours going, "I can't believe I feel like this." I feel like I got a full night's

sleep. I'm not sure that that wouldn't give you cancer and heart disease, if you did it for 20 years, but in a pinch, it seems like there's some stuff that's out there floating around the edges, but the what you're painting there, is a future for Eight Sleep where you're able to continue saying, "How do we squeeze more out of our sleep?" Which I think is really good.

The point isn't necessarily to get less sleep, but it's to live more. Right? If you just got everything you needed and it was as good as what you have today, but you had enough time to do two hours of reading or learning every day or meditating or parenting or whatever else, it's not about working more necessarily. It's just about living more. Right?

Matteo:

Exactly. Yeah. We want something we always discuss internally, we want to give two hours back every single day to you that you can invest in whatever you like the most.

Dave:

I would not have started the six companies that I've started and written all the books and done all the podcasts and all the stuff that I've done that I think a pretty substantial volume had I had to get eight or nine or 10 hours of sleep. There were times in my life when I had fibromyalgia and chronic fatigue where I could sleep 10 hours and I still felt like crap. I am living proof. I think you are too. How much sleep do you get every night, Matteo? What's your number?

Matteo:

Yeah. It's around eight hours and a half right now.

Dave:

Eight and a half? Don't you know that raises your all-cause mortality? What's going on, man? You over exercising or something?

Matteo:

I need to readjust it, [inaudible 00:28:02].

Dave:

Do you feel a deep sense of shame over getting that much sleep?

Matteo:

No. I feel just great. Then I can push all day. I love it.

Dave:

By the way, sleep shaming is the latest trend on social media.

Matteo:

Yeah, right.

Dave:

No, I am kidding. There is no moral superiority to sleeping more or less, is that if that's what your body actually requires. It is at the higher end of the spectrum, but if it's what's working for you, look at the results you're getting. Right? Because you feel great all the time and that's what your body needs.

Matteo:

Yeah.

Dave:

Talk to me about what you've seen with data from Eight Sleep, just because you have all the monitoring built in. You get it every single night. What is, what do you learn about consistency of bedtime?

Matteo:

Yeah. Consistency is still a big problem for most of the customers. The biggest swing is obviously during the weekend.

Dave:

Yeah.

Matteo:

People tend to go to sleep two, three hours no later and they wake up later. That is why they struggle so much on Monday morning, because substantially they jet lag themselves for two days and now they pretend to go back to the original routine. One of the things I always tell our users, one of the most important things you should do is just to be consistent. Even if you go to sleep later, when on Saturday night, just still wake up at the same time over and over again. I got to a point where my body just wakes up at the same time, every single morning without the alarm.

Dave:

I love it. That you mentioned that. That's something I haven't talked about on the show before. When I decided, geez, this was before I had kids. This had to be like 14 years ago. I decided that if you wake up early in the morning, ridiculously early, clearly you're a better person because that is part of the sleep shaming culture that we have. The early bird catches the worm and all that.

But as the reality, the early bird works for the late bird. That's how the world really works. I'm kidding. We have biology that drives our wake time. I decided, I would, even though I am wired to be a night owl, that's my biology. My bedtime for my entire life until the last couple years when I wrote Fastest Way, I figured out how to hack it my bedtime has been 2:04 AM. When I'm left to my own things, every night I go to bed at two and I get all my writing done between 11 and two. It's this amazing magic time. No one bothers you and there's stars and moons and all that stuff.

But I have a job and I have, now I have a family and it's a problem if you're going to sleep in a whole bunch. I did what you recommended, Matteo. I said, "All right, I'm going to set my alarm for five. I don't care if I go to bed at two, I'm going to wake up at five. Eventually I'll be so tired, I have to go to bed earlier, even if I don't want to." Okay. I did become, for two years, a 5:00 AM wake up guy and I did it.

But at the end of two years, I was like, "I'm less creative. This is, yeah, I've pulled it off. I've done it. I'm unhappy. It's not natural." Then I had kids and at that point you have no chance of sleeping regularly anyway, for a couple years. I quit. But the only way I could achieve that after a lifetime of

trying, was your advice that you got from all the Eight Sleep data, which is wake up at the same time, even you don't go to bed at the same time.

That's a core piece of sleep advice that I haven't shared in my books or on the podcast before. I'm happy that you highlighted that, because I hadn't actually seen that in my own experience either, until you just brought it out. The joys of millions of nights of data. What about meal timing? You're Italian. You're supposed to have dinner at like 9:30 at night. Right?

Matteo:

Yeah. I adjusted that too. I made a couple of changes, let's talk about meal, alcohol and caffeine.

Dave:

Yeah.

Matteo:

First of all, alcohol has a major impact. What you don't realize, or at least I was not realizing a few years ago is, you feel, "Oh now, I relax my mind. I will sleep better because I'm a bit looser because of the alcohol." But the reality is when you look at your metrics and HR and HRV, now they're all over the place, HR goes up, HRV goes down. The quality of your sleep is worse and you don't realize that. I completely cut alcohol. I didn't have alcohol for the past two years and a half now. It's massive. The other big thing is the meal, as you were saying. There are a couple of things that have an impact, first, the time of the meal.

The best would be to have at least three to four hours before going to bed. We see a lot of our customers tagging late meal and we see correlations with the drop in the quality of their sleep. Another factor that has an impact on the quality of sleep is carbs. What we see is that people tend to fall asleep faster if they have carbs, but the quality of the sleep during the night and also their heart rate change in a negative way. Heart rate gets accelerated and sleep quality drops.

Dave:

Oh, this is interesting. Is this any carbs? This like a sugary dessert?

Matteo:

That is a good question. We don't have that level of detail, it could be both, but yeah.

Dave:

With all the data that I've seen in myself and with working with people on sleep, it seems like having some carbs at dinner allows you to make serotonin, which then gets methylated to make melatonin.

Matteo:

Yeah.

Dave:

When people are on a no carb diet, keto for more than a couple weeks, there's sleep quality seems to go down is the keto trap or the fasting trap because cortisol goes up. Right? There's got to be some time of day. I know it's not morning, when carbs are good. It seems like it's dinner, but it's not a spike in blood

sugar that you'd want. What my dream here is that at some point down the road, you're going to have this amazing set of data about sleep from Eight Sleep. Then maybe we get our levels, blood sugar data.

You guys meet up in at a conference somewhere with machine learning people around. You say, "What if we mixed our anonymous data and just found the keys of humans, saying, 'Oh, this anonymous person had blood sugar levels like this and ate this kind of stuff and had this kind of sleep.' We put it all together and go, 'Oh my God, it turns out that everyone should have two grams of pasta at dinner. If we do that world peace is achieved.'"

Matteo:

Yeah.

Dave:

I don't know that we quite have that much data, but do you see a world where this is going to happen?

Matteo:

Q1. This Q1 it's going to happen. We're already working on that.

Dave:

Spoken like an entrepreneur. Tell me what's happening in Q1?

Matteo:

We're going to start pulling in all the data from all the other devices. Any device that is connected from Apple with Apple health, or even not, could be levels, it could be Garmin, it could be any wearable. We are building a pretty large data science team. The idea is to start working on insights and correlation between the data from day. It could be fitness data could be on non-tradition and correlate with your sleep quality at night, and also your heart rate, your and HRV and respiration at night. Obviously by the time you start, then you need time to analyze the data. Call it six months after is when we will know if it's 2%, 5% or 15% carbs that is right enough to help you fall asleep, but without having a negative impact on your sleep performance.

Dave:

We're going to get that data.

Matteo:

Yeah.

Dave:

It's a big challenge. I wrote, in fact, I funded Bulletproof in the very, very early days before I had any venture funding. I wrote, it's called a blue book for hedge fund managers and investors about bio hacking.

Matteo:

Mm-hmm (affirmative).

Dave:

Saying, what are the investment opportunities that are going to happen here? Then I flew around and presented that and talked to investment managers. I painted a picture where what you're proposing there is going to happen. The scary part is that we have this thing called the exposome. I just mentioned that in a podcast the other day. It's a word that most people don't talk about. We talk about our, genetics and our genome, and we talk about epigenetics, but we never talk about the exposome, which is the entire sum of everything you're exposed to over your life, including glyphosate here, injections of whatever you didn't chose to inject over there, or all sorts of things that you don't even know you're getting exposed to, the cycle of the moon, just everything in the universe.

It's like a life size map of the universe. Even with your data science team, well-funded company, how do we know which variables we don't know matter? I feel like we're to the point where we're over that at first hump where the data is now being gathered, but it hasn't been brought together. Yet Apple health and Google health are working to bring it together. I totally trust Google to just use all my data only for my own good and to never use it against me, because they would never do that.

Because they're Google and they're nice people and it says right there be evil or in their strategy. Right? But maybe on the Apple side, there's a little bit more privacy. We'll see if they adhere to that, but you are going to then take your own set of data, which is private. How are you going to be able to mix that with people without giving away the farm? Which is always the big concern.

Matteo:

The interesting thing is, as you were saying, I think phase one of... Phase zero of the self and all 25 people, was 10 years ago. Right? Now, I think for the past five years, multiple devices collected a lot of data. We finally start having data. Then the next phase of the industry will be to start analyzing and correlating this data, which is what we're doing. At the end of the day, for us, the key is to really start discovering what are the correlation. Even, because they're really, really personal.

Dave:

Yeah.

Matteo:

That is another thing I don't like, when you read on the book, "Oh, you should sleep at this amount. You should sleep at this temperature. You should stop eating at this time." It's completely different. Right? I'm on a keto diet. I fast and I use CGMs and my wife as well. I notice that fasting for me works really well. Well, instead for her, it's terrible and her glucose levels, they drop away below the minimum. Right? You understand that when you hear people saying, "Oh, you should be fasting." It's bullshit. You might, maybe you and I, we should, but someone else shouldn't. Everything is different for my wife.

Dave:

Or they should fast for 12 hours, not 24 hours. Maybe they should fast in the middle of the day, not the middle of the night. We just don't know to your point, but you have the data to know.

Matteo:

Yeah. We want to create a personalized profile, health profile for nutrition, fitness, and sleep.

Dave:

Now, do you have people who sleep... Okay. Full disclosure, I am a bio-hacker and I've worn four different fitness trackers at the same time. A lot of people who are friends and followers are constantly looking at multiple data sets. I've got to ask you, I've talked about Aura. I'm wearing an Aura ring on here. Aura is a fitness tracker. It also does sleep tracking. Right?

It's pretty darn convenient, but I do have to charge it. I don't think it has the same amount of data that you can get from an embedded sensor in a bed. It certainly can't change the temperature of your room or anything like that. Do you get people who get data from another sleep tracker and then compare it with a mattress? Have you done studies? Do we know that your Eight Sleep mattress pad tracker is the highest quality data? Have you compared the other ones? Is there a good enough level? Tell me why I would want to go with an embedded sensor on my mattress versus one on my finger, my wrist, my necklace, or whatever the heck else insertables someone's going to come up with somewhere.

Matteo:

Yep. Yep. We compared ourselves multiple times to medical grade devices. We respect Aura. We respect other wearables, but really the gold standard is a medical grade device. Compared to a medical grade device, like in EKG, we are within 100 per minute of detecting your heart rate, which is a core piece of them detecting sleep. The same is happening with respiration. We run analysis against polysomnography. What you know really well is, the best way to really detect your sleep would be through EEG through your brain waves.

Dave:

Yeah.

Matteo:

Only through brain waves, you can really reach gold standard accuracy. That advantage that we have compared to me of these wearables like Apple, first, obviously the user experience. You don't have to wear anything, charge anything. I wear any device you can think of and it's...

Dave:

You have six of them on right now. I love it.

Matteo:

Yeah. It's really annoying at night, because I put my hand under the pillow, or sometimes my blood pressure, my fingers becomes a bit bigger. You have all that kind of problems that you don't have with us, but the biggest advantage...

Dave:

You have to do something every day with any wearable, you have to put it on, or you have to charge it or do whatever.

Matteo:

Yeah.

Dave:

When it's on your mattress, you never have to do anything it's invisible.

Matteo:

Exactly. The other big advantage is this and you will see over time, we have a lot of space and our price point is higher. For us adding a sensor for five bucks doesn't move the needle in our margins, while instead wearables, they don't have the space and they don't have the margins to do that. What you'll see in the next year and the following is that the amount of sensors that we will embed, we start being 10, 15, 20, 50 X, more than what the wearable can do.

We are working on technologies for body scanning. In three, five years from now, while you're asleep, we'll be able to scan your body, and by the time you wake up in the morning, it would be better than going to your doctor for an MRI. That is how we leverage space and price and how we will gain an advantage from a health standpoint.

Dave:

I absolutely believe just having used, I think every sensor on the market and been a CTO of one of the companies, I think I'm credible here. Having a platform of the entire bed surface, you can get better data than you're going to get in most other ways, other than maybe blood oxygen levels. It's hard to get that without shining a bright light through the skin. I'm with you there just the granularity of the data will yield more results and you're going to get anywhere else. Kudos on that platform.

The only other guys who did this approach that I've seen were the Beddit guys about oh eight, nine years ago, the company is out of business, I think it got acquired somewhere. But when I got to use one of those for a little while, I was really impressed with the data you could get. There's a tiny fraction of what you guys are getting with modern sensors and all, this is a much older tech, but it just speaks to that notion of, "If you have the mattress pad, you have so much to work with." I'm with you there.

I got to ask one other question that I know listeners are paying attention to. Dr. Mercola had been on, we've talked about EMFs. Right? All bedrooms have some degree of electromagnetic frequencies there. When people say, 'Okay, if I'm sleeping on an active sensor, what's the load on the body? Is there a load on the body?" Do you guys do EMF sensing?

Matteo:

Yeah. Great question. First of all, our technology comes with the hub on the side. All the Wi-Fi connectivity, and we just connect to your Wi-Fi is not that we create a new waves. Sits on the side.

Dave:

Is it Wi-Fi or is it a Bluetooth?

Matteo:

It's Wi-Fi. We connect to your Wi-Fi. There is no Bluetooth.

Dave:

Can I wire it with ethernet if I want to?

Matteo:

Not in the current product.

Dave:

Okay. Is that something you're thinking about? Just having a wired connector?

Matteo:

Yeah.

Dave:

Okay.

Matteo:

Something we're exploring for the future. Then when you think of the cover, obviously you're not in contact with the sensors. The only sensors is again, this what is called a sensor street where we use ballistocardiography. It works with a very minimal amount of energy, is less than, way less than a USB, of what a USB power could drive. You're really talking about a very minimal EMF impact.

Dave:

It's minimum EMF that's touching the body. EMF drops off with or the strength of the EMF drops off with a cube of the distance. It drops off relatively rapidly. A lot of listeners have definitely heard the advice to turn off Wi-Fi at night. But you guys have Wi-Fi on, are you transmitting constantly or is it an occasional blip?

Matteo:

It's occasional in chunks of the night, is when we transfer the data back to the server.

Dave:

Okay. What if...

Matteo:

Again, yeah.

Dave:

What if the Wi-Fi is turned off in the house at night and there isn't connectivity. Do you still gather the data and upload it in the morning?

Matteo:

Yeah, we can. We still gather the data we can upload later.

Dave:

For people who are Wi-Fi sensitive or want to do that, the answer would be, you can still have the Wi-Fi off and upload in the morning. Is that going to change the wake up algorithms or the cooling algorithms or are those built in or are those all cloud based?

Matteo:

No, they are cloud based. It would have an impact on the automatic temperature adjustment.

Dave:

Okay.

Matteo:

The device would just follow the original plan.

Dave:

Okay. Got the original plan. If you want dynamic adjustments, you need to have internet connectivity. If you want the standard algorithms that you guys know work for the majority of people, then your WIFI's off, you're still going to get it. Or if there's an internet outage or something like that. It works both ways.

Matteo:

Right. Yeah.

Dave:

Okay. Got it.

Matteo:

During the days when we readjust the temperature settings for the following night, you will still get 90% there is just a real-time adjustment that occurs.

Dave:

Okay. Got it. Some people are more sensitive to EMF than others. Other people have no issue with it. I would just encourage anyone who lives in an apartment building, you already have plenty of EMFs. This probably isn't going to move the needle. If you sleep in the middle of the forest, that might be the only Wi-Fi source. If your WIFI's off in the morning, you'd do it and you wouldn't get the full advantage of the algorithm, but you'd get me of the advantages of the algorithm.

Matteo:

Correct.

Dave:

Okay. Got it. I'm hopeful that this is putting a little bit of pressure on you to allow people to wire it in so that then they don't have to worry about it at all. I wouldn't, I would have no concerns at all about the EMFs from the sensors themselves that are on the mattress. Part of this is that the return on investment for the data you're getting, it's so valuable and so precious. This data, to know how you're doing and to be able to adjust it over time. It's actually really important.

   If there is something from the very low levels there compared to the world we live in, I don't think it's actually going to be anything that moves the needle at all, which is why I'm definitely a fan of getting this level of data. What else is affecting our sleep? You have this, this intriguing data that makes me just excited. We've talked about alcohol. We're full alignment, alcohol is just bad for sleep, it doesn't matter if it's tastes good or it enhances GABA or you feel like you fall asleep. It screws up your sleep. We know this. A late meal screws up your sleep. Do you have date on lighting?

Matteo:

We don't have direct data on lighting. We all know that switching to orange lights or wearing blue wave glasses, help you to stimulate melatonin. One area that where I'm seeing personally a major impact is the time, at what time you train. For example, what I notice is if I do, if I exercise in the evening, the quality of my sleep will drop. The reason is you start accelerating your heart rate, you start changing your body temperature. It will become way harder to fall asleep. The quality of sleep will drop. That is something I don't hear people talking about enough, but to me it has a major impact. Yeah.

Dave:

It's cool that you bring that out. I have a theory about why all these things affect sleep and it goes back to, billions of years ago, mitochondrial evolution. If you think about it, when the sun was right above us in the middle of the day, us being ancient bacteria, that was when we got a very strong and I think our predominant timing signal is from light. Right?

Then the next thing is food availability. Because when the sun is up, there's the most algae to eat. It's like, "Oh look, it's bright and there's food and it's warm." Right? The temperatures are all there. "Oh, and we move around a lot because we're eating and the sun is out there." All four of those probably in that order are controlling our circadian genes and making sure that every part of the body knows what time of day it is.

Because if your liver thinks it's daytime, because you just ate, but your eyes think it's nighttime, because it's dark, you have a mismatch and your sleep quality would go down. Then when you look at the Eight Sleep data set and you're saying, "Oh look, people block not just blue, my too light stuff are too dark, the glasses are about all the different colors and spectrums and angles and all that stuff for light, that's sun signal. Then there's, as you said, don't eat three, four hours before dinner because it throws off the timing.

Then you're living the temperature problem, which is a major, major thing. Because if your body doesn't feel that the water that the ancient bacteria were made out of was bathing... If it doesn't get cooler at night, we missed that timing signal. If we're crazy and we say, "Oh look, let's exercise right before bed." We just told our body, "Oh look, it must be daytime, because I'm moving around a lot."

But when you line all four of those things up, it seems like that's when you get the highest quality of sleep. What you are teasing out with your data from Eight Sleep, is you're saying how important is each of these. The one that most people miss that's hardest to do is temperature. Because if I make it cold at night, then I'm cold all night long and then I don't get enough dreams. Right?

Matteo:

Yep.

Dave:

If I get warm at night, I don't get enough deep sleep and I might get more dreams. Right? If it's not too warm. Right?

Matteo:

Yep.

Dave:

You just can't do it. I feel like doing all that together and they're saying, "Oh look, here's the data on late night movement. It doesn't work very well. Let's go for a walk after dinner, but let's not go for a sprint. You line all those things up, you've nailed it.

Matteo:

Yeah.

Dave:

What are the other sleep enhancers that you've noticed, just from the data that people tag when they're putting their data into Eight Sleep?

Matteo:

Two things that could be interesting for you. One, I don't know if you know it, but 50% of the couples, they fight around temperature. One of the major problems we solve is, because again, temperature is personal and my temperature is different from yours because of metabolism, because of age, because of gender, whatever. 50% of couples, they have a problem there. We help them there. We can optimize the sleep of each member of the couple.

      Another thing we see, or at least I see, which is major as a sleep enhancement, is what I call a thermal shock. Doing a sauna and a ice bath in the late afternoon, it just kills me. After that I sleep like a baby that night. In particular, the sauna, I would say if you want to say an 80-20, the sauna is the most impactful.

Dave:

Yeah.

Matteo:

But if you can combine the sauna with the five minutes of an ice bath, it will just take the stress away from your body. Sometimes that is how I close the day. Then I have dinner and by 9:30, I'm asleep, sleeping like a baby.

Dave:

Do you ever do that right before bed, where you do either the sauna or cold or both?

Matteo:

I do a hot bath right before bed sometimes. But the most impactful to me is, let's say if I go to sleep around 9:30, 10, I go pretty early to do a sauna, like at six. Then immediately after an ice bath, then let the body rest, have a healthy dinner and you go to sleep. It's amazing.

Dave:

That's neat advice. I've never heard on the show before. Do sauna, followed by ice and then dinner. I've seen a group of people who tend to do really well with a super-hot bath or a sauna right before bed. That's probably an endorphin thing most likely, but then they sleep really well, but then their body temperatures elevated when it should be low.

      They might get less deep sleep...

Matteo:

Exactly.

Dave:

But then they get better REM sleep. But for people who aren't getting enough REM, that's probably really good for them.

Matteo:

Yeah.

Dave:

Then there's other people who take a cold shower, which you would screw up your sleep, but it's dropping your body temperature. Then you're going to get better deep sleep. You're not maybe going to get as much REM sleep. Unless of course you have an Eight Sleep that then dials or temperature up and down. Then you still got whatever you needed to get.

Your idea of doing it before dinner, probably improves blood sugar regulation as well. Because it creates longer demand for either heating or cooling and HR proteins. Then you eat and you don't get a blood sugar spike, which also ruins sleep, because when your blood sugar goes up and then it crashes in the middle of the night, you get a cortisol spike. Okay. I'm loving that advice and I think it makes great sense and it makes sense in the model that I use for figuring out how to improve someone's sleep. This is really cool.

Matteo:

Yeah.

Dave:

The thing about sleeping with someone, if you're not sleeping with someone, in the recreational sense of the word, but you're actually sleeping-sleeping with someone, is it actually good for your sleep or bad for your sleep?

Matteo:

At the end of the day, it's bad because it creates noise. Right? The is movement. The optimal would be, and it will be in the near future, to really sleep in an environment that is fully controlled and optimized for you. The bed needs to have your own, know your personal temperature, the air quality, humidity and temperature needs to be personalized. Oxygen needs to be personalized. It needs to be completely dark. To wake you up, there will be a simulation of the sunrise. This is how you should sleep, if you want to maximize and get down to six or four or two hours.

Dave:

Everything you said, I support a hundred percent, but what does your wife think about that?

Matteo:

What I tend to answer is this, "If we could save two hours per night and use those two hours together during the day, is it way better to not sleep with me, but have two hours together a week?"

Dave:

What you're saying is supported by a study. They ask people across the US, whether they really like sleeping with a partner and Texas surprisingly had the highest percentage of people who said they wish they could sleep alone, which was around 49%. If memory serves maybe 43. At least half of people are saying, "I recognize this." A bunch of other people don't recognize it. I will tell you a hundred percent, if I sleep by myself, I sleep better. Right?

What Lana and I do is we have separate beds and both beds are large enough for both of us. If we want to sleep together, we can. But on a normal night, when one of us is going to wake up and help the kids get ready in the morning or do whatever and neither one of us wants to pull the cover off the other ones and all of that, it's not just about temperature control. I think separate beds, if you can swing it, even in the same room, separate beds are beneficial.

But most people saying, "But physical touch and all of that, you still have to get physical touch," but sleeping separately, if you get another couple hours of quality life, don't wake up like a zombie. I would do that all day long or all night long as the case may be. I love it that that's your answer. Yeah. In the meantime, since most of us aren't going to do that, having one of the Eight Sleep pads on the bed that has control for each half of the bed for each person solves the problem of temperature. There's also less tossing and turning. You said 30% less?

Matteo:

Mm-hmm (affirmative).

Dave:

That means if you're like me, Lana will steal the covers or just pull them off of me. I don't know why she does that, she's asleep. But I don't like it very much, because it wakes me up. Then you look at my sleep score in the morning and it's not good.

Matteo:

Mm-hmm (affirmative).

Dave:

You solve that problem with separate covers, which we've done. But if you have separate temperature regulation and separate covers, that seems best. We're getting into the nitty gritty of sleep. But this is what people are asking about. This is what no one talks about like, "Oh yeah, make it dark." Yes. Make it dark. You already said that. I already said that we all believe that. But if your partner kicks you in the face, it doesn't matter if it's dark.

Matteo:

I agree.

Dave:

What's going on with your app, your sleep OS? Does that work if I'm not sleeping with the pad, because people travel? What's the difference between the app versus the cover on the bed versus the hub that controls everything?

Matteo:

Yeah. Right now they're all tied together.

Dave:

Okay.

Matteo:

You need all of them. Then there is a future where we will start supporting you, even if you're not sleeping on the pad. The end goal again is to compress your sleep and save your life. That is how we pitch our vision. What if you could sleep only six hours and get more rest than when you are sleeping eight hours? Save your life is how can we scan your body while you are asleep? Because if you go back to the first principle as an athlete and an optimizer, once I started thinking about compressing sleep, I say, "But look, six hours is still a lot of time. What else can technology do for my body during the six hours, because I don't waste the time?" That is how I started thinking about the body scanning. Maybe there will be rejuvenation or other activities that we will be able to deliver while you're asleep. But if you could wake up fully refreshed with your skin looking great every morning.

Dave:

Yes, we're wasting six to eight or more hours a night where we're only sleeping and we're getting low quality sleep. Step one...

Matteo:

Yeah.

Dave:

Get the highest possible quality sleep in the time you got in bed. Step two, can you get an oil change, your tires rotated, your windows cleaned or whatever the heck else needs to happen to your body from a biological perspective. You wake up and like, "All right, this was better than I could have done." We are absolutely going to get there.

Matteo:

Yep. 100%.

Dave:

Are you worried about a future where, everyone has a sleep capsule that looks something like in the matrix and you go to sleep in conductive gel that nano bots clean yourself and it's a little bit too robotic?

Matteo:

The way I think, because, personally, I would love that.

Dave:

I knew you'd say that.

Matteo:

I cannot disclose too much, but I already sleep in something like that. But I think in terms of product portfolio, and there will be that product and people like you and I will sleep there.

Dave:

Yeah.

Matteo:

Other people will not want and they want to share with the partner. We will offer different products based on the needs of everyone. But if you want maximum sleep, because tomorrow you have the big interview of your life, just get into the capsule and we'll take care of you.

Dave:

I think that this is inevitable. I think that it is something that we will want to have everyone on the planet have access to because when people sleep better, they start less wars and they feel less hate and they're nicer to each other. This is fundamental to being a good human is being able to recover as much as possible.

I think we want to put this, first of all, are you ready for this? In prisons. If we did not have a prison industrial complex, where people make money from creating suffering and other people, which is evil and must be stopped, then what we would do is we'd say, "You know what? Let us fix your sleep so you can be less violent and then you'll have a little bit more energy and we'll fix your food too," that you can actually learn whatever the heck it is you didn't learn that let you end up in prison in the first place. We could actually help people recover in the deepest sense of the word recovery. That may happen, but this is the world that we can create by fixing sleep. The first step is getting the data. The second step, which you're doing an admirable job of is doing something with the data.

Matteo:

Mm-hmm (affirmative). Yeah.

Dave:

Instead of doing something now, which is I get all my data and I go, "Okay, based on all this, I'm going to choose to do this. I'm going to plan to do this. I'm going to do this, do this." All the doing is my work. But when we outsource our doing to our technology and say, "Okay, I'm not going to do this, because my bed is going to do this for me, the Eight Sleep stuff is going to do its thing and I just know it's handled. That means that my doing well, let's see, I got two hours a night back. I was worried about my oxytocin levels."

That means you can have two hours of sex every day. Right? With your extra two hours of that's, what you choose to do with your time. Right? That is more connection and more endorphins and more of the good stuff from relationships than almost anyone gets anyway and more than most people would want. You're not going to be lacking human connection. You'll just get more conscious human connection, which I think is something that is also a side effect of getting higher quality sleep.

You can wake up, you can cook breakfast for your partner because you had the energy to do it. I'm a big fan of this idea and it's very radical and very futurist to say, "Yeah, better sleep, less time. Take the time, do something that matters with it." Matteo, I think Eight Sleep is doing really cool stuff, man. I appreciate you for doing it.

Matteo:

Thank you. Thank you. No. Just to reinforce what you were saying, you will more time, you will have more energy, and you will be healthier. Because sleep is a pillar, a fundamental pillar for your health. In terms of health span, lifespan will impact all that. Just need the time to execute, keep building, keep shipping new products. What you see, I always tell my, we are at 1% of our product vision. Every year you will see new products coming in and key to what you were saying is intervention. Data is not the end point, it's just the starting point. Technology needs to do the job for you, based on your data, because sleep and health, they need to be personalized.

Dave:

I'm with you there. Guys, you know the rules, anytime someone comes in, who's building cool stuff, I always ask for a discount for you. You can go to Eight Sleep. E-I-G-H-T sleep.com/dave and use code DAVE. They'll save you $250 on the system. This is the highest end that you can get in terms of all of the data that you're getting and all the interventions that you can get with it.

It is definitely going to be more expensive than a risk-based tracker or something like that. But you're getting changes to your sleep environment versus just measurement of it. Remember the rule from Game Changers, the book it's track what you hack and in this case, it's tracking and hacking stuck together. You're going to see more and more companies coming out saying, "Step one was to figure out what was going on. Step two is to do something."

Eight Sleep is at the very forefront of that movement. Eightsleep.com/dave and save some money. If you want to get the nitty gritty on your sleep and then figure out, "Okay, I got an hour, or maybe two hours a day back. This is pretty worthwhile." Guys, I hope you learned something about your sleep. There were two things in here that I haven't talked about before in this interview about sleep, that are interesting and data driven, and I hope you enjoyed this episode. I will see you for the next one.