



**Transcript – Lions, Dolphins and Bear, Oh My! With  
- #344**



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Female: 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 ... Today's cool fact of the day is that there's actually a small dog in our guest studio who just interrupted the show. That is was so funny, we're leaving that in there.

Today's cool fact of the day is that if you've wondered why you feel so bad after an all-nighter or after a red-eye flight, there are reasons. There are studies that show that screwing with your circadian rhythm, or your internal clock, upsets the majority of the genes that rely on it to function properly. About ninety-seven percent of your clock genes affect everything from mood to blood sugar, to hormones, to body temperature, and to the cellular level of activity in your mitochondria, which is the subject of my next book.

When these things fall out of sync you feel like you got run over by a big truck. We say run over by a Mack truck but now it actually feels like you're run over by a Tesla truck, even though they're not released yet. When you get run over by a truck that's the truck you want to hit you just because like, you know. Anyway, these clock genes are so dependent on circadian rhythm that if you were to live in total darkness, you could develop sleep patterns of twenty-five hours or more unless you got some sunlight, or maybe just a subset of sunlight. Maybe ultraviolet, maybe blue lights, maybe red-light. Who know? Different lights, different times of day, huge part of biohacking.

Did you know that if you go to bulletproof.com we actually have a low blue nightlight. This is something I've carried for years. I started using it when my wife and I worked on the Better Baby Book, and this was part of restoring her fertility. You may not know this but my wife was infertile and we had both of our kids late in life using the program that was in the Better Baby Book. She's a trained physician. One thing we did is we used low blue night lights and these are available on the Bulletproof website.

The other thing that we didn't have back then that we have now is smartphones, so we have the Zen Tech filter which blocks out a narrow spectrum of blue light that most suppresses melatonin through interacting with the melanopsin sensors in the eyes. We'll talk more about that kind of stuff in here, but bottom line is, if this podcast absolutely blows you away, which I think it will, then you might want to just head over to bulletproof.com and check out the Zen Tech Filters and the low blue nightlights. Those are things I use everyday in my biohacking.

Today's guest is ... He's someone you've might have seen on Dr. Oz. He's a clinical psychologist, a diplomat of the American Board of Sleep Medicine, a fellow of the American Academy of Sleep Medicine. He specializes in sleep disorders, he's one of only a hundred sixty-three psychologists in the world to do this kind of stuff. He's written about this stuff for years. Recently he wrote a book that I read, actually I stayed up really late reading it which apparently I'm not supposed to do, last night called The Power of When. It's none

other than Dr. Michael Breus. Michael.

I'm doing well. We actually connected in person two days ago at JJ Virgin's mind-share event. JJ Virgin is also a mutual friend. She's been a guest on this show. She wrote the Sugar Impact Diet, and helped me learn how to be a New York Times best selling author. It was really cool to run into you at her conference. Then be like, oh wait, and say I got a pre-released copy of your book where the back of the book doesn't have all the endorsements on it yet. I took my quiz last night in the book just in preparation for our interview. I was up until 4am. I had coffee and I used bright blue lights but not on my eyes, was that harmful?

Michael: You know it probably wasn't the best idea in the universe. You're looking pretty good right now if you've been up all night and had blue lights shining on you and quite a bit of caffeine in you.

Dave: The truth is that I didn't use any caffeine last night but I did use decaf, a Bulletproof with Brain Octane in it, and Unfair Advantage. I was up until three thirty last working on my Mitochondria book. This is my third interview of the day and I'm sitting underneath LED studio lights, which frankly pisses me off, but I'm blocking the worst of the blue with something in these glasses. I don't need corrective vision, these are just here to keep my eyes happy. I'm feeling okay.

Michael: Good. We like it when you're feeling okay Dave.

Dave: As America's sleep doctor, it's your fault because your book was really good. I can't say I read the whole thing but I definitely got the gist of it. I actually spent more time reading it then I wanted to because I was supposed to finish more of chapter nine in my own book. Thanks for actually a really well-written, impactful book that actually made sense. Tell me about The Power of When.

Michael: It was kind of bizarre because I was seeing patients, and I've been seeing patients for sixteen years, and I specialize in insomnia which isn't always the easiest thing in the world to treat. I'm not a big fan of pharmaceuticals, so I'd rather do that with natural supplements or with cognitive behavioral therapy, several different techniques that wouldn't require a pharmaceutical. I noticed that some of my techniques, which have worked for years, were just not working with my patients, and I couldn't figure out why. I brought them in and I said, "All right, let's figure this out. What could possibly be going on here?" One of the things we realized was that their sleep was actually pretty good, it was just at the wrong time.

They were able to sleep 6-1/2, 7-1/2 hours but they either wanted to go to bed too early or wanted to go to bed too late, and socially that just wasn't working out well for them. I said to the folks, especially the ones that wanted to stay up later, I said, let's get your boss in here and let's see if your boss would allow you to go to work a little bit later, just to see if your productivity levels would change. I had a pretty good suspicion based on a whole lot of data, that they would.

We actually ran the experiment with two or three of my patients and their bosses were thrilled with their levels of productivity, because these people were actually sleeping on what was considered to be their chronotype. Many people may not have heard the term chronotype before, but they probably all heard of the idea of an early bird or a night owl. Those are actually chronotypes. What I decided to do was look at: Could your chronotype affect, not just when you wanted to sleep, but literally everything else that's going on in your day? That was where it got really cool really fast.

When I started to continue to interview my patients, one of the things they said was, "You know, I find there's certain times of day when I'm better at this or better at that." When we looked at their hormonal distribution based on their chronotype and the hormones that were necessary to do those activities, I started to be able to match things up and henceforth came *The Power of When*. Most self-help books tell you what to do, or how to do it, they don't tell you when to do it.

Dave: It's something that's intuitively obvious to me. I've looked at ... There's research, you must know about the research, that looks at the distribution of the average length of circadian rhythm. I have a long circadian rhythm. I have never been a morning person, but we've all seen those shaming-style blog post about how the early bird catches the worm and you're lazy if you wake up late. For two years I trained myself to wake up at 5:00 am and meditate for an hour. You can do it, right?

Michael: Yeah.

Dave: It didn't make me more productive, it didn't make me happier, it didn't make me a better person. It didn't make me miserable, but it was work. I am at my most creative, I perform better when I sleep till 9:00, actually.

Michael: You're probably a Wolf.

Dave: I am a Wolf. When I read the chapter on that, and for people listening, when you read this book, and by the way, I'm fully endorsing Michael Breus's book, *The Power of When*, because it explains that there is no moral failing for waking up late, for waking up early, for being stronger in the afternoon, or stronger in the morning. It's not that one's better than the other, they're just different. Just like some people can eat lentils, and other people can't. You should be suspicious of lentils until you know which kind of person you are, because they mess with some people. You should be suspicious of waking up early in the morning because it messes with some people. Just like you should be suspicious of sleeping in because it messes with some people. You got to test it to know.

Michael: I always tell people you can't mess with mother nature. This is genetically pre-determined. This isn't something that you just have a preference for. Its actually the PER3 gene actually determines your sleep drive and then your circadian rhythms are genetically pre-determined. When you take those two things and you stick them together, it gets real interesting real quick.



- Dave: Being a Wolf chronotype, you just told me I can't do something, like you can't mess with mother nature, which immediately makes me say with crisper gene editing, couldn't that change my chronotype?
- Michael: You could, actually. Here's the thing that's really interesting is you can mess with it, but you aren't necessarily going to change it. I've got people who come to me all the time and they say, I'm a Wolf, which folks out there, if you're not familiar with the terminology, it means that your basically a night owl. By the way Dave, I'm a Wolf too, so is my wife and so are both of my kids.
- Dave: All the best people are, I know what you mean.
- Michael: I think you're right. It's interesting because using light and caffeine and melatonin, you can actually shift yourself, but you would literally have to do that almost every night or every third night in order for your body to actually stay in that rut, if you will, as opposed to just going with how you were born and what you should be doing.
- Dave: One of the things that makes me mad is that sales people usually wake up in the middle of the night, like around 6:00 am, or something, and I used to work as a sales engineer in Silicone Valley. Engineers disproportionately, I believe, are more wolves. There aren't that many early-morning engineers. There are some and they're fine, but there's a more of distribution towards staying up late at night hacking computers, not waking up early to hack. Who does that?
- Michael: Yeah, nobody does that.
- Dave: They would hold these 8:00 am Monday morning sales meetings. I'm like, seriously, why would you do this to people? Apparently sales people like that stuff. I started showing up at 8:30, 8:45. I'm an engineer, they don't need me to sit there when they go through their quota numbers, who cares. I'm going to go in and do the actual work that they get paid for. By the way, every sales engineer ever has said those words, I find that my boss got in my face about it. He's a sales guy. I'm like, it's not that I'm being disrespectful. It's that I'm really tired. I don't do anything in this meeting, so why are you making me beat myself over the head and shoulders? Do you want me to actually write million dollar proposals, or not write million dollar proposals? If I'm sleeping at my desk ... He didn't believe me, but that's okay, I just showed up late anyway, and he didn't fire me, so it all worked out.
- Michael: You know what, your plight, is actually one that I hear all the time. I hear from my most creative patients. My musicians, my artists, my writers. It was kind of also interesting when we were talking before, you were saying how you didn't want to read as much of my book as you did because you were interested in writing your ninth chapter, which is exactly what a Wolf would do in the middle of the night, is that they would be working on a creative chapter. You're very Wolfish in many ways.
- Dave: What I did that's different, though, and I want to get your take on this.

Michael: Please.

Dave: I have switched to entirely red led lighting at night. It looks like I'm either in a vampire submarine or a whore house. Seriously, there's no other light. It could be a vampire submarine whorehouse. I taped over all the blue LEDs a long time ago, that's part of my sleep hack recommendations. Those things are destructive. When I'm working, my monitor is all the way down, I'm running flux at its highest color density, or I'll wear glasses if I'm not. All of the light around me is just pure red LED spectrum. I don't suffer from circadian disruption when I do that. I can stay up late, but I work up this morning at 8:45, felt great, then either with my kids or on a phone call are recording every second of the day without a break except to pee, and I totally feel great. You can see. I'm not zombified. I slept, I went to bed at 3:30, so, five hours.

Michael: Yeah.

Dave: What did the red lights do? Was that a good idea, was that a bad idea. Should everyone else be-

Michael: It's a great idea. Especially for somebody who is a Wolf like you, and the thing is that you actually got up in a reasonable amount of time from what I see with a lot of my Wolf-type clients. A lot of them, if I can just convince their boss to let them wake up at around 8:30 and get to work by 9:30, 10:00, they are so much better from an energy standpoint. When you're talking about red light, there's a lot of data that's starting to come out now. You know, we know a lot about blue light, that 460 nanometers that hits those melanopsin cells and tells your brain, "Hey, turn off the melatonin faucet." What's nice about the red light spectrum is actually it does the opposite. It actually helps induce sleep in some people. Also, it can help be a relaxant. A lot of my people who are at night when they have a lot of energy and a lot of anxiety, actually red light has a tendency to calm them down quite a bit.

Dave: When I don't have to perform the next day, like today is a big recording day for me, what I prefer to do to really just download the entire book into my head, is I start writing at 11:00 pm and I'll write straight through till 7:00 am and I'll have caffeinated bullet-proof coffee at 11:00, which I know is bad, but I'll do that and I'll do a stack of smart drugs, I'll have lots of Brain Octane to get the ketones going and I'm like, I don't even know where I go, but I'm in the zone and I can pull off 10,000 words that way on a good night. They're good words too.

Dave: That, though, has a recovery period. You're going to have to sleep in, it's disruptive. When people hear that, most of them say, I'm probably manic or something. There's something wrong with me that I do that, but half the authors that we hung out with at JJ's event, literally when I talk about this, half of the authors, are like, oh yeah, I do my best writing after 11:00 too, but I think I'm a bad person. How bad of a person am I?

Michael: No, you are not a bad person. I know you might want to be, but I'm here to break it to you that you're not. It's really interesting because at that event, I was talking with a lot of people too, and they were taking the quiz. For everybody to know, you can actually take a quiz online to learn what your chronotype is.

Dave: In fact, I'm being a little bit rude because the folks that have Wolf chronotype, which is about 15% of people, 20% or something like that, this is your own research, where you've named these chronotypes. It's actually, at least for my chronotype, I recognize it and I recognize other people and these other ones, so your categories just intuitively makes sense. Walk through the categories, because I just dove in on the Wolf thing because I just read your book last night and I'm all excited about it. That's what Wolves do, we just jump in an rip meat off things.

Michael: Yeah, exactly.

Dave: Tell me about Dolphins, Lions and Bears and tell people who are listening the characteristics so they might already be able to place themselves in one of these categories before they take the quiz. The URL for the quiz, what it is?

Michael: The URL for the quiz is [thepowerofwhenquiz.com](http://thepowerofwhenquiz.com). The title of the book with the word quiz on the end so [thepowerofwhenquiz.com](http://thepowerofwhenquiz.com). When you go, it's about 35 questions or so, let's go through what the different chronotypes are. Many people have heard of the idea of an early bird or a night owl, or was we're calling a Wolf. First of all, when you look at the data, the data was really in those two big categories and it didn't cover the insomnia patients that I have, which are Dolphins, and then the people in the middle which I call Bears. First of all, I'm going to back up and say, "How did I come up with these categories, why did I name them what they were?"

First of all, I'm not a bird, I'm a mammal and I didn't relate to being an early bird or night owl, so I looked for mammals that were actually in the animal kingdom that had these circadian rhythms themselves, so that people could identify with them when they thought about these animals, and also the animals are all actually pretty cool.

Lions are people who have a tendency to wake up early in the morning. These are very go-getter leadership types of people. They have a medium level sleep drive. They don't have any problems waking up early, but socially they have a tendency to not be able to make it out late. If you want to go to dinner and a movie with a Lion, you're just going to dinner, because they're probably not going to make it through the movie. They're probably going to fall asleep. These people are often times the people who are very oriented towards a focused challenge. They go from A to B to C, boom, no problem. That's kind of how they are and how they live. Again, they go to bed early, wake up early. That's what I call a Lion. In the animal kingdom, Lions actually do wake up very early, that's when they have their first kill, so it kind of made a lot of sense.

Bears are the majority of the community. Bears make up 50 to 55% out there, so don't be surprised when you take the quiz, there's a high likelihood you could be a Bear. Bears are the people that get shit done. Bears are the people in society that actually get things to happen. They work within the society. They're the people who kind of make things flow. These are people who are great at a party, people who you want to hang out with, people who are really friendly. They may or may not be as focused as a Lion might be, but they're





certainly kind of this affable, enjoyable character that rises with the sun and kind of goes to bed a little bit after.

Dave: So to play that back to you, Bears are the bad people who cause my kid's school to start at 8:30 in the morning?

Michael: I don't want to call them bad people. However there's a whole movement about changing school times. There's a lot of data on that which is pretty interesting. We can talk about that for sure. No, they're not bad people, but yes, they did come up with those school start time. I'm sorry to say.

Dave: I know they're not bad people, and I have actually, I hope that in fact, some of the parents in my kids school are listening, I have seriously thought about home schooling my kids because I watch what waking up at the middle of the night, I live very far north, so it's dark in winter too. What waking up very early does to kids, especially what it does to parents. If my kids start school at 9:00 instead of 8:30, my kids would be happier, healthier kids. I absolutely know that.

Michael: Interesting what happened to me. I live in just outside of Los Angeles, and we just moved here about a year ago, and our kids have a late start day on Wednesdays. Instead of having those crazy half days you have through the year that drives everybody crazy and people have to figure out what to do with their kids, they just start at about 9:30, 10:00 on Wednesdays. Wednesdays was the best day in my house every single week. I've got two teenagers. I've got a 14-year old and an almost 13-year old. When they got to sleep that extra hour, hour and a half in, there was no worries in the morning. Nobody was yelling at anybody, nobody couldn't find their homework. Everything had gotten done. It just went better because teenagers are wolves. That's our next category.

You and I are the same category, which is a Wolf. Wolves are interesting. We're night owls, we're night people we're very creative but we can also be somewhat introverted. There are times where we might find ourselves not wanting to be the life of the party but more kind of hang back a little bit and kind of observe and see what's going on. We're some of the most creative people that I've come across. Artists, writers, you name it, and that kind of category of people seems to be the Wolf.

The entrepreneurs, it's interesting, I find entrepreneurs in both my Lions and in my Wolves. I find them in both categories, but different kinds of entrepreneurs. Entrepreneurs that are at the very start of starting up a business can either be in either category, but people who lead a business, who are like the ones that are getting there at 7:00 am, and once the business has started up and then somebody has to take over, Lions do a great job of that, whereas Wolves a lot of times are the people who are starting up the business late at night, you know, scratching it all out on the napkin, that kind of thing.

Dave: A Wolf might be CEO and a Lion might be a COO.

Michael: Yeah, exactly. That would be a great way to think of it actually.



Dave: There's your next book. How your chronotype determines your business leadership.

Michael: Well, actually that is going to be the next book. We're already talking to people about it.

Dave: Are you really? Cool.

It makes good sense and I mean, I do, Bulletproof is growing and I'm hiring my executive leadership team and hiring other positions in the company and I absolutely do look at that, are you a morning person, are you not a morning person. I don't actually care if you are or aren't. From my perspective I'm a night person. You have to be comfortable with the fact that you're going to get emails at 2:00 am and that you're not going to pull your hair out, and that you're not going to stay up till 2:00 am if that's not natural for you, but if you want to Skype with me at 2:00, I'm probably going to be there.

Michael: Well, here's what's really interesting when you look at chronotypes for business, this might be something that might be a fun experiment to do at Bulletproof, is when you look at what the task assignments are, and then you can actually look at different times during the day when you can have different chronotypes are actually either more creative or more analytical at different times of the day. That gets really interesting for brainstorming sessions on your creative side vs. on your more operational side.

Dave: If you're listening to this, by now you've got to be going, I'm dying to now what kind of chronotype I am. The quiz is really fast, it's [thepowerofwhenquiz.com](http://thepowerofwhenquiz.com), and by the way, Michael hasn't paid me anything, or anything like that. I just read the book last night. I know Michael, we've known each other for a couple of years now. I am a sleep hacker so, of course I follow those sleep doctors, that's just kind of how it works. I found the book to be way less full of bullshit than I expected.

Michael: Alright.

Dave: I don't say that because I thought you were going to product bullshit but just because there's a lot of stuff out there where it's just sort of recycled. This is original research and the chronotypes you've identified are way more useful than I wake up early, I stay up late. Now, okay, I'm just going to straight to it.

Michael: Sure.

Dave: Tell me a little bit more about Dolphins. I don't think you covered them very well.

Michael: Dolphins is the last one, and Dolphins were the ones that started all this for me. Dolphins are my insomnia patients. These are my people who are the type-A personalities but they are so obsessive/compulsive that they don't get nearly the amount of production done that they want. These are the people that are showing up in my office who have tried different sleep medications. These people, it's really interesting. Their sleep schedule is pretty whacked out. Sometimes they're up, sometimes they're down.



Often times, what I'm finding, if I can just kind of surround them with some parameters and educate them the right way we seem to actually do better. They're super intelligent folks and sometimes that could be to their detriment, because they've looked up literally everything there is to know about sleep and they come in and they say, well I'm doing this and I'm doing this, and I'm taking this herb and that herb. I'm like hold, slow down a second. Let's just figure out what your natural body rhythm is for sleep and let's work with that.

Dave: Now, does it make sense to not hire Dolphins because they're all over the place?

Michael It makes sense hire Dolphins for very particular job functions. Dolphins are super smart people, so sometimes if you don't put work parameters around them, if you say, here's the task, I want you to go and do it, Dolphins are great at that. They're good kind of loner type of people and then, and if you give them some time parameters, they actually work fairly with that. When you give them that parameter, don't tell them but you're going to lie to them, and it's actually going to be a week later, because they're probably going to come to you right at that time parameter and say, "I'm almost there," but their perfectionist tendencies are going to want them to do a little bit more. If you can give them that fudge factor without them knowing, it will work out pretty well.

Dave: At Bulletproof, we use a couple different profiling tools to help people know how to work with each other. We use the Kolbe score, which is a measure from Dan Sullivan, a strategic coach taught me about that. It's Kolbe, and you probably know about it because we hang out in the same mastermind groups where we all know about this, but listeners maybe don't. The Kolbe score tells you your instinct, like how quick are you to start things, how much information do you need before you're willing to make a decision.

You can talk to someone, and go, "Oh, this is someone who has to have all the facts before they'll move." It sounds like you've got the beginnings of the chronorhythms because these sleep patterns actually determine a lot more about your personality than I would have thought. It sounds like you could blend this or you could use it as another way of helping employees relate to each other. I would love to know the chronotype for everyone in my company. In fact, we may put that on our list.

Michael: Let's do it.

Dave: Cool. In fact, we're going to add this, and I'm sure that our head of culture right now is going, Oh my God another one. Every employee at Bulletproof has a baseball card.

Michael: That's awesome.

Dave: We don't really play baseball, but it's like, on it it has your name, what you do and it has your Kolbe score, it has your color code and a few other little things like that but we could easily add your chronotype, which is cool. What if all your co-workers knew, don't mess with this guy in the morning.



- Michael: Exactly.
- Dave: It's so cool. I just want to roll that out. We're absolutely going to do that. It's really cool to just to have these tools, especially for someone who's remote. I schedule an 8:00 am meeting, and they're like, "Please don't schedule 8:00 am meetings."
- Michael: They don't even want to tell you that because you're the boss and even though you probably have an awesome relationship with your people and they can tell you just about anything, everybody's kind of got that fear factor of, oh gosh, I don't want to tell my superior not to do something, but yet, if they knew, these guys would be so much more productive for you. If we were scheduling the right things at the right time, Oh my gosh, I'm telling you it would fly.
- Dave: All right, so is there any reason that, there's a bunch of CEOs, including some really big company CEOs, who listen to Bulletproof Radio, I only know that because they told me. Is there any reason that a company couldn't just tell their employees to do the test and give them the results? It's a free test.
- Michael: It's a free test. You can go on the website. I'm happy explain it. One of my goals is to have this become part of different ecosystems and cultures. The workplace ecosystem. Like I said, that's what I want my next book to be, *The Power of When For Business*. We could use Bulletproof as the beta test and we could roll it out and we could see some, I guarantee that we'd see some really cool stuff.
- Dave: That could be really cool. Let's talk about that after the show because we are a group of biohackers. Everyone in the company is always working for their own improvement. If you're listening to this right now, okay, yet another experiment, but here's the deal. It's like a five-minute test. I'm guessing, I didn't do the online one, I just checked off and added up the numbers up in the book. By the way, you need to make it so that the scoring and the letter and the scorers don't always match. Because it was pretty clear that you were trying to get a higher number to make me a Wolf. It was a little easy to game that test. Just as a hacker.
- Michael: Well hopefully you didn't try to game it, although our hacking background would make it such that you probably did.
- Dave: I was like I want to be a Lion Wolf. Anyway, this is a free thing you can all do. I highly encourage you all to do it because you will learn something about other things. When I said, I was just get right to it earlier, was I forgot Dolphins, one of the things you talk about in the book is the best time for sex. As a wolf, tell me, when should I be getting some?
- Michael: This is fascinating. If you look at the data on when do people have sex, 73% of the time, it's based on availability and not during a work schedule. That's it. It has very little to do with desire. I believe that sex is another form of communication, and there's different kinds of sex that are going to communicate different kinds of messages between you and your

partner.

When we start to look at this, we want to understand what could be the best time to have meaningful sex vs. more kind of throwaway sex. They're different things but from a performance standpoint, it gets really interesting really quickly. Looking at the hormones that you need for sex, what do you need? You need testosterone, you need progesterone, you need, hopefully you get some oxytocin that comes in there a little while. Maybe even a little bit of serotonin, and you want to have low melatonin.

What are the things that are low at night and high at night? Low at night is testosterone, progesterone, oxytocin and what's high at night? melatonin. Nighttime sex could arguable be the worst time for you to have sex just from a pure performance standpoint. I'm telling everybody needs to get it on Saturday mornings around 9:30, 10:00 in the morning.

Dave: But most of us are working around then, except on Saturdays or Sundays. So, you're talking like once a week sex is enough?

Michael: No. What I've done, I've actually created a matrix in the book. Because different people are married to different chronotypes. I happen to be married to somebody who's a wolf.

Dave: How convenient.

Michael: It is convenient. We didn't really, we actually, you know, now that I think about it, we kind of did know because when we were dating, we would be the couple that we'd go to the 10:30 movie and we would, it would be 12:30 when we got out and we'd be like, well we need to get something to eat. It wasn't like we were going to go crash. We kind of both fell along that path anyway. I created an actual matrix so you can put your chronotype cross the top and your partner's chronotype across the bottom and it actually gives you times when the hormones will be in the right space for you or not. I also have second matrix, for homosexual couples and lesbian couples.

Dave: Are you obsessive compulsive?

Michael: I'm not, you know.

Dave: I'm just kidding. The matrices were really well done, I was like you spent a lot of time thinking about this.

Michael: I did.

Dave: This is all I'm saying.

Michael: I spent a lot of time thinking about it. You know what? It's the number one question that I get asked about the book.

Dave: Is it, okay, cool. I also as a former teacher I have a lot of respect for the amount of time it

takes to make a clear communication vehicle like that, like the road maps and stuff that I did took almost as much time as writing the book to get all the info in there. I looked at it, I was like, "I could look at it in 10 seconds and figure out what I wanted to know," so thumbs up on the matrix.

Michael: Thanks. I was going to say, we also did a similar matrix for when to ask your boss for a raise.

Dave: That's a big one. Tell me about that. If your boss is, we said a lot of bosses are Lions, right. If your boss is a Lion, and if you were to roll the dice, maybe that's true. These are morning-oriented optimists with medium sleep drive, if memory serves, so when should you ask a Lion for a raise?

Michael: It's really interesting. There's actually three different studies that have kind of helped us confirm this. One, was looking at positivity or in terms of positive mood throughout a week, the most positive day, surprise, surprise is Fridays. Probably because you've completed many of your tasks, you're moving towards the weekend which is obviously a more social time. As you tick down the hours, the closer you get into after the noon factor, again, people get more and more positive in terms of their mood, assuming something major isn't going on and there isn't something big, some deadline that hasn't been missed.

Fridays after noon is good for anybody. Then you can get your boss's characteristic in there, whether they're a Lion, a Bear, a Wolf or a Dolphin, there's a little bit of factor here. If you've got a Lion boss, you want to hit him about 2:00 because that's where the last of their good concentrative energy is going to be. Then for Bears, you can actually hit them closer to like 3:30, 4:00.

Michael: Then, Wolves, believe it or not, it's better to take your boss out for drink after work at around 6:00 and talk to them more socially there. Again, not many bosses are wolves. You happen to be one, but most people aren't. Then for Dolphins, you can actually catch them somewhere between, like around the 3:00 to 4:00 range. You never want to go past 4:00 because everybody is ready to go home and people don't want to talk business on 4:00 on Friday.

The second factor is your ability to communicate. Not only are you looking at their chronorhythm but what is your chronorhythm and when are you best able to put your case forward. Say look, "I'm awesome and I need more money."

You know the other person's chronorhythm, but you have control of your own state. If you're going to ask your boss at the best time of them, pop some modafinil, have some Bulletproof Coffee, do some jumping jacks,

There you go and rock and roll.

Dave: Shine some blue lights in your eyes, just kidding. But not even really kidding, okay, so you want to be in a peak state. Do your heart rate variability. Have the universe spinning above your head when you walk into that room.

I already read at least part of the book, so-

You have some tools, maybe quite to that extreme. How would someone who's at a low performing part of the day turn themselves into a high performer for a critical situation like asking for a raise or giving a speech at a time that's not good for them?

Michael: The easiest thing that people can do is walk outside and get direct sunlight.

Dave: Yes.

Michael: There's just no other way. I mean, vitamin D is certainly helpful, but that sunlight, what it really does is many people don't know, but between 1:00 and 3:00 in the afternoon, there's a small core body temperature dip and that actually causes a small release of melatonin which kind of fogs out your brain. Also, if you've had too many carbohydrates for lunch, that serotonin which is going to be kicking up due the carbohydrates is going to mellow you out. You want to be fairly articulate. Go outside, get that sunlight, and the day that you want to ask for the raise, instead of having a carb-related lunch, I would say have a more of a protein related lunch or have a protein snack right before, because that can kick you in gear. Then you've got some cool supplements that actually could be pretty helpful at that point in time as well.

Dave: Thanks like the Mitochondrial stuff?

Michael: Yeah, the Mitochondrial stuff would work awesome right then.

Dave: It totally does. I do have one bone to pick with you.

Michael: Fire away.

Dave: You come from the medical side of things and all. I hear you talking about protein and carbs but you don't talk about fat very much in there. Protein is a terrible fuel source. Protein is building blocks, but it's metabolically expensive and it turns into sugar anyway. Where's fat in all this?

Michael: Fats are actually really interesting when it comes to energy sources and levels. The reason that I was talking more about protein, and you're right, I didn't talk about fat, and I probably should have. The reason that I was focusing more on proteins is that we know that when you have a protein uptick then you actually have an insulin uptick and that actually makes you feel more alert and can actually make you feel more focused.

Dave: You get orexins from it too, modafinil triggers orexins as well. You want protein as a stimulatory thing.

Michael: Exactly. That's the reason I'm saying it.



Dave: Okay you don't mean protein without fats?

Michael: Gosh no, Oh my gosh no. I mean, that's stupid. That doesn't make any sense.

Dave: All right now we're talking Bulletproof bars. 11 grams of collagen protein, 2 grams of carbs and a ton of brain octane.

Michael: I actually wasn't familiar with that product. I would say that would actuality work quite well.

Dave: That's what I take when I travel. The way brain octane metabolizes, it's almost like a carb, but it goes to ketones instead of glucose pathways.

Michael: Oh, so you bypass that whole-

Dave: All the liver, long chain path things. That's why I bring octane-

Michael: Oh, that's awesome.

Dave: Yeah, so you get a mitochondrial stimulation thing. I would propose that those are probably a good thing, but also I think if I was going to go in, especially in the afternoon, I might eat one of those bars and have a couple of squares of dark chocolate with sugar. Like 70% just to get a little bit of glucose, because glucose and ketones at the same time are good. The brain is really happy, right.

Michael: Yeah, I mean there's nothing wrong with that. You're going to come across better. You're going to come across confident, energetic. Your boss is going to see that in you and be like, "Oh why haven't I promoted you earlier.

Dave: The other thing, what about people that get a little bit amply. You might be at a point in your day where you're like a little bit jittery, especially if you are one of these Dolphin people. What should they do before going in for a big ask or going on stage?

Michael: Believe it or not, with my Dolphins, I actually, I would probably look at a carb/fat kind of combination.

Dave: I absolutely believe that's powerful. What kind of carbs, what kind of fat do you like?

Michael: Well, personally,

Dave: Ice cream?

Michael: I'm an ice cream guy.

Dave: I knew you were going to say that.





- Michael: Personally I'm an ice cream guy. I would have no problems telling my Dolphins to swing out and get a scoop. If there's a Ben & Jerry's nearby. I know that's not necessarily the best, but you know, you could definitely do far worse. I actually think that Greek yogurt. Frozen Greek yogurt is actually another really good one. That's one of the things I do with people. The hard cheese and crackers can also be another good one. Stay away from the softer cheeses because I think those have, the have something in them.
- Dave: Pyromine
- Michael: Pyromine, thank you and that can slow people down. I would say those could be some great snacks that you could go in for right before, if you're a Dolphin
- Dave: Are you concerned at all about casomorphin or gluteomorphin? I see so many people who eat milk and then they get tired after they have milk protein specifically.
- Michael: What's interesting is I worked on a project and product years ago that was actually trying to identify and isolate the caseins in breast milk because they thought that the breast milk made babies go to sleep faster, and so they actually created a couple of products from it. We found it made people super sleepy.
- Dave: I tried a product like that a couple of years ago, milk protein derived something or another. I didn't feel a thing from it. It doesn't mean it doesn't work, it just means I didn't feel a thing.
- Michael: If I was looking at you as a test subject, number one, I'd want to know what time of day you took it, because of your chronotype.
- Dave: I took it before bed.
- Michael: What time did you go to bed?
- Dave: I can say that my bedtime is on average for the last three and a half years on the same monitoring app, it's exactly 2:00 am. It varies on average. I sleep six hours and one minute per night. That's what I do. I didn't used to. I used to need eight hours. I need six when my biology works well. I need six. When I don't take of myself, I need eight.
- Michael: That's really an interesting point that we talk about, a little bit in the book, but just in general one of the thing that I talk about to people is eight hours is a myth.
- Dave: Hallelujah, say that again.
- Michael: Eight hours is a myth. Okay? I'm board certified sleep specialist. I've been seeing patients for fifteen years, I get six and one half hours a night. That's my number, it works for me, it always has. You know what, I've said it on national television, I've said it everywhere I can, not everybody needs eight hours. As a matter of fact, most people don't.

- Dave: There's a study that I've talked about lots of times on the show and on the blog. 1.2 million people, many years of data, they showed the people who lived the longest get six and half hours of sleep.
- Michael: There we go.
- Dave: They live longer than people who sleep eight hours a day.
- Michael: I know.
- Dave: I think it means that healthy people need less sleep. Is that a reasonable assumption, or a reasonable assessment.
- Michael: Well, here's what I would say, is I find that there's at least two, maybe three different categories of people who sleep less. One are anxiety/neurotic people that aren't necessarily healthier. Those anxiety issues actually can peel years off the back end of your life if you don't get them treated. Then there's this this interesting kind of health groove that people get into. People I know who are daily exercisers, they rarely, rarely get more than six and a half hours sleep. Seven hours is a vacation for them and most of the time they actually feel like crap if they do it which I think is also another really interesting factor.
- Dave: A lot of times if you try to get their recommended amount of sleep, you feel worse, which seem super counter-intuitive to me. The third group of people that get six and a half hours sleep. What ends up happening is that they get six and a half and then they're up for a couple of hours and then they go take a two and a half to three hour nap. I don't know if I would count them in the six and a half group just because they are going and getting extra sleep there. They probably fall into those two categories, one of which I would say is probably very healthy.
- Michael: What do you think about bi-phasic sleep, this idea that we used to wake up in the middle of the night, have sex, or have a meal. Speak to people.
- Yeah. Then you would have your second sleep. That's what it used to be called. It's so messed up because from an evolutionary perspective ... Like we were doing great by the way before the light bulb was invented.
- Dave: Amen
- Michael: Life was good. There's a great study where they took 20 insomniacs and they took them camping for three weeks. Guess what happened? They all slept fine. It was truly, they were out in the woods. They had no screens. All they had was a camp fire. They were doing activities during the day. Physical activities during the day, gathering stuff, creating their shelter, and their fire, and things like that. Literally within two weeks, all of these people did extremely well with their sleep.
- Dave: The light bulb really messed us all up. It's kind of ironic because if you look at any of the

work of Edison, he thought, he didn't value sleep at all. He claimed that the further into the future we get, the less sleep we will need.

I think Edison had some wisdom there. If I could, tomorrow, flip a switch so that sleep was entirely optional, it would be an absolute gift.

Michael I'm going to go against you on this one.

Dave: As long as I didn't have to pay for it. Right?

Michael: Well, okay.

Dave: That's what I'm saying, I'd don't just amping myself and getting cancer and all the stuff that happens when you don't sleep. I mean that if we could reduce our need for sleep and still perform and perform and live as well. There's a lot of time spend on sleep that isn't particularly productive. You can say we need that time, we're dreaming or whatever. Yeah, I'd like to choose whether I spend the time on that without health impacts. Are we going to get there?

Michael: Well, number one, we might. Here's the thing. If actually you look at sleep architecture. You do the EEG, you do the fully polysomnogram and you look at somebody's brain waves all night long. The most productive wave forms are stage 3-4 sleep or REM sleep. Stage 3-4 is the physically restorative and REM is the mentally restorative. Stages 1 and 2, which makes up 55% of the night is a waste. It's fucking filler.

Dave: All right, I'm clapping, I'm jumping up and down, if I had pom-poms, I'm doing them. Its the filler that I don't want. I want that time back. I could play with my kids during that time.

Michael: All right, so people ask me this all the time. Can you hack your sleep? The answer is you can. There are different schedules that can be done that people have tried historically. People come to me all the time and they're like, Michael, I want to get my eight in four. Can I just sleep for four hours and get what would be considered eight hours of sleep? We're not quite there yet. There are some schedules out there that are interesting. There are two big problems that I have found when I've tried this with my patients. This was under their insistence, not mine.

Dave: Is this poly-phasic?

Michael: Yeah, more like a poly-phasic type of schedule. Number one, they get super lonely, because they're up when nobody else is. Even with the internet and even if they have friends in European countries, there's just so many times that you could Skype with somebody because you're up when literally everybody that you care about is asleep and so that is a very, very, that can be a very isolating feeling.

Number two, anybody who has any proclivity for depression, it pops right out. I'm not talking like a little bit of depression. I'm talking about major depression, where you need to



get yourself back to where you need to be. If you have a proclivity for depression, I would say no to poly-phasic sleep schedules. Be prepared. The longest I've had somebody do it was for about nine months and they just got so bored and lonely. The other thing that's weird about it is that you basically have about three hours in between your naps and it's not time to do a whole lot. You can't go see a movie and have dinner. It's just not going to work.

Michael: I did it for a couple of weeks a while ago and decided it was absolutely a waste of time because it takes so much focus and energy and tracking and I'm not convinced that it's going to allow you to have the right hormone fluctuations. What I have done that's been really successful is, I've slept two hours a night and woken up feeling really refreshed. I've done it multiple nights in a row, believe it or not. When I do that, I put a Cerebral Electrical Stimulation on, it's a Russian sleep machine. I run a 1.5 hertz. This is stage 3-4 sleep. A current back and forth between my ears, which forces my brain to spend two hours in that phase, then I wake up and I'm like, damn I feel pretty good, and I get on with my day.

Michael: Forced delta sleep, I love it.

Dave: Absolutely.

Michael: Okay, I want to try your Russian sleep machine. I'm coming up to where you are and we're going to do it.

Dave: Okay. There's only 2,000 of these they ever made and it's possible to buy a similar one today that allows you to choose the frequency. Most Cerebral Electrical Stimulation is set in alpha brain wave thing for depression and-

Michael: That's not a sleep wave, that's a wake wave.

Dave: I know but that's what most CES is today and I have one where I can pick the frequency and the wave form and it's just one of those weird things that you buy when you're a crazy biohacker. If they still made them, I would-

Michael: Is that crazy machine that's behind you that keeps having those wave forms?

Dave: That's actually, I've got a rectal monitoring system, I'm kidding.

Michael: Oh, good to know, I'm not coming to your house now.

Dave: No, that is actually part of the set. It's meant to look like my brain, but I have a 24 channel EEG but it's not next to me right now.

Michael: Oh, okay.

Dave: There's a lot of monitoring equipment up here right now but that machine, next time we meet at a conference, I'll bring it. It's the size of two decks of cards. I've traveled around the

world with it multiple times and it's actually one of my probably foremost important pieces of biohacking technology and you can't buy it anymore, which is annoying.

Michael: Wow, that's fascinating.

Dave: Sorry to get off track there a little bit but I just like I want to know, A) Have you ever tried Cerebral Electrical Stimulation, or TDCS, the more current type of that on sleep disorders?

Michael: There's almost no data on push technology. Right now most sleep scientists are doing pull technology. What information can I get from your brain that I can record? Almost nobody is putting a signal in to see what happens because they're scared. There's a really interesting group out of St. Louis that I'm associated with and they've created a pillow that actually send signals, auditory signals in-

Dave: Bi-neurals?

Michael: Yeah, It's much better than a bi-neural. It's a lot more high-tech. What they did, they actually did to surgical patients during surgery.

Dave: Smart.

Michael: The anesthesiologist found they needed less anesthetic to keep these people out.

Dave: That is not too surprising.

Michael: Which is fascinating. Right, it makes perfect sense once you understand how it works.

Dave: I've been experimenting with bi-neural beads and similar technology for a very long time, since I started paying attention to all the stuff that the brain could do, which is another pushing a signal into the brain. For listeners, you make a sound in one ear and you make a sound in the other ear that's almost the same but offset a little bit and as the brain tries to line them up it sets up a wave in the brain. If I wanted a 1.5 hertz delta, I would just have 200 hertz in one ear and 201.5 hertz in the other ear, and it would just, if you listened to it in just one ear, it just sounds like a constant hum, but when you put it on each ear, it sounds like it's going wvroom, wvroom, wvroom, wvroom, wvroom.

That does change your brain state. Bill Harris has been on the show, he spoke at the Bulletproof conference last year, and I think maybe the year before. He's a friend. Centerpointe Technology is another type of tech like that. Do you have patients that listen to Centerpointe or binaural beats when they're going to sleep in order to fall asleep faster or in order to get less of this wasteful sleep and more of the good stuff?

Michael: The first part of your question is, yes, I do have people that listen to that. I can tell you whether or not it actually filters out some of the Stage 1, Stage 2 that they've got going on.

Some of them do report to me that they sleep less time, so I would argue that there's a great possibility that that's what occurring, because I'm not seeing typical signs of Stage 3-4 deprivation or the typical signs of REM deprivation, so if I had to guess, I would say there's probably a possibility. I don't have any hard science to prove it though.

Dave: Okay that's a totally fair point. Another big target for my sleep hacking, and when I say sleep hacking, I don't mean sleeping less, I mean sleeping so well that I need less. It's a very different perspective.

Michael: Yeah, well sleeping better.

Dave: Yeah, there you go. It's kind of like if you have a car and you could go really, really fast and get there, or you could go really slow and get there, but the point is you want to get there and not stop halfway, which is what happens when you wake up early without enough sleep. The other big question I have for you is an area where I've really targeted my own sleep hacking lately, is around the glymphatic system. Not the lymphatic system. A lot of people have heard about the lymphatic system, the lymph nodes and all that. This drains interstitial fluid and puts it back into circulation. It's a waste management thing. You know this stuff well. Well there's also glymphatic system.

Michael: I'm not familiar with that.

Dave: This is only like 2013, they discovered this, maybe 2012, the first paper came out, and they figured out that at night, the cells in the brain lose about 60% of their volume. The mitochondria pump fluid out of the cells that contains some waste proteins that happen during the day. This fluid is then flushed with cerebral spinal fluid and they call that the glymphatic system and they found the glymph ducts and all that stuff.

Michael: Then, they had all this stuff, "Oh, there's not lymphatic system in the brain, the glymphatic system does all the work, and it's special for the brain," so there's all this rigmarole. Then last year, in 2015 they said, "Oh we found the lymphatic system in the brain, we just didn't look for the right thing." Apparently the brain is connected the lymphatic system and at night we are exchanging fluids and draining basically metabolic byproducts. The brain is very metabolically active at night.

Michael: For sure, look at REM sleep, it's actually almost as active in REM as it is during wake.

Dave: Totally, so what turns out there's an extra system on top of lymphatic, there's glymphatic to pump the cerebral spinal fluid in and that the cellular volume changes a lot at night, which is a mitochondrial mediated thing.

Michael: For sure.

Dave: What that tells me is that if I can turn out my mitochondrial function, or if I can reduce the creation of oxidative byproducts, I'm going to be more effective at expanding and shrinking my cells. Essentially I'm going to wash my brain at night better. I find when I take

mitochondrial enhancers before bed, I sleep better and I wake up earlier feeling fully refreshed. I think it's because the basic toxin removal process is better.

Michael: I mean, there's no question that it sounds like the toxin removal process would certainly be better. I wonder, well, the only way we could really do it would be if we stuck a bunch of things inside your head and we kind of watched what you did.

Dave: I down.

Michael: Just drill a hole right in there.

Dave: I have one. You're not trepidated? Come on man.

Michael: I am not, I am not. You know, I can't say I know about the glymphatic system, but what I can tell you is that it certainly would make sense. We know that a lot of stuff is going on during REM sleep in particular. If people don't know, that's where you move information from your short term memory to your long term memory. That's where you create this organizational structure inside your brain for all the information that you've got. It also helps pull out all the crap.

You've got so much stuff that's coming in all the time into your eyeballs and your nose and your ears and your mouth and your sensors, that information gets kind of built up, and one of the things that REM sleep does, and a little bit Stage 3-4, is that it actually pushes all of that extra stuff out and kind of washes out the brain. It would be really interesting would be to look at mitochondrial function in the brain if you enhanced it. What I would want to look at is a pre-post. I would want to look at your REM sleep before hand and your Stage 3-4 sleep beforehand in a given time period and then do it post. You know, an A-B test. That would be interesting to see.

Dave: That would be interesting to see. I suppose we would need some high quality sleep monitoring.

Michael: No, it wouldn't be that hard, we could use your EEG.

Dave: Oh, that's a fair point although my EEG it's a big helmet with no, it doesn't have glue and electrodes, it has contactless electrodes, so it's easy to put on and off, but it would be really uncomfortable to sleep in. Maybe I need more gear.

Michael: You could. It's certainly a possibility.

Dave: Okay, another question about sleep. I love to get to pick a real sleep expert's brain.

Michael: Sure.

Dave: When we were at JJ Virgin's mind share event, it was in San Diego. I find there's a lot of environmental mold in San Diego for whatever reason. Lots of air conditioning, lots of

moist air. The hotel I was in had toxic mold. Not the kind that makes me feel it right away, I've lived in houses with toxic mold before. I've done a documentary called Moldy, quick plug, moldymovie.com, if you haven't seen it, Daniel Amen and like all these ex-vets going-

Michael: It's really cool. I've seen it, it's excellent.

Dave: You've seen it? I woke up, I'd been staying up till four or five in the morning, I knew I was behind on sleep when I got there, I was going to get eight hours of sleep, wake up feeling refreshed and be there for the conference. I went to bed and I woke up and I felt like I was very hung over. I had weird nightmares, which for the first time in many years. Bizarre, self, like pieces of glass stuck in my hands kind of nightmares. Very out of character for me. I had headaches, swollen sinuses. Essentially all the symptoms I was sleeping in a moldy room.

I'm absolutely certain I had a toxic moldy room because those are the symptoms. Especially the weird dreams. Actually I got a hotel room in another hotel so I could get a good night's sleep and I slept a full normal sleep cycle the next night, but it did take me out of commission for about a day where my brain wasn't working that well. One of the biggest things I ask someone who comes to me and says, "Dave, I'm not performing well, I don't know what's going on." I'm like, "Are you having nightmares?" Then the next question, if they say yes, is that, "Did they start recently?" "Is there a recent history or leaks in your house?" They always say yes.

Michael: That's fascinating.

Dave: Why do environmental toxins like that cause you to have creepy weird dreams?

Michael: I'm not a dream researcher, but I do know a good bit about dreaming. One of the things that we know is that dreams are a manifestation of sensory information. Just because you consciously didn't see something to make you feel fearful to cause the dream, your body is interpreting those signals all the time. If I had to guess, I would say that your body in particular was put into a scenario that number one it's not used to. Because your home is probably super mold free. You've gone through all of those things to get it that way. You go from what would be considered a "sterile" environment to a mold-ridden environment. That's number one. There's an exposure factor. Even though you kind of thought there was some mold there, you weren't 100% sure, your body damn well knew that there was.

Dave: Oh, it knew.

Michael: That information is rolling round in your head. It was interesting that you said that you felt like you had glass in your fingers. Is that what you said?

Dave: That was actually what I dreamed. I dreamed that I had shards of glass in ... I even had a nightmare, in so many years I can even remember, but nightmares are so universally correlated, unusual bizarre strong nightmares that aren't the recurring kind, they're correlated with toxin exposure.



- Michael: What's interesting about that one in particular, is I've heard of that dream before and that dream often times has to do with inflammation.
- Dave: It was indeed.
- Michael: That's probably what you were feeling. That was your brain's representation that there's inflammation, and my guess was that it was probably caused by the mold and toxins that were in your hotel room.
- Dave: You could actually my forehead was inflamed, my skin got little pimples that I never get. I had a little bit of a spare tire. My man boobs grew a half a cup size. It was like, man I'm not looking so good here in San Diego at the pool, but fortunately the 70s disco party night, by the way if you guys are not following on Instagram there is a picture of me in the 1970s outfit that is truly epic. I think dave.asprey on Instagram. Anyway, I survived is the moral of the story, but I notice that people have recurring bizarre, heavy duty disturbing dreams. I have never heard a physician or sleep expert saying tell me about the toxin level in your diet or in your sleep environment.
- Michael: There's two reasons for that. Number one is 90% of the sleep specialists out there are sleep apnea doctors. They're just looking in your throat, they just want to see if you have apnea, they're going to send you for the test, they're going to put you on a CPAP, that's their gig, that's what they do. The other 20%, 25%, are actually interested in all of the different sleep disorders. There's a very, very small percentage, I happen to be one of them, that's interested in things like insomnia, nightmares, things like that. Number one, people haven't been trained in order to even think about looking for that stuff because it's fairly new, even though it makes intuitive sense, it's fairly new. A lot of the practitioners out there haven't gotten any training on it. When I have people who say nightmares appeared out of nowhere, if there's not a traumatic event that has occurred it, I start going down all those kinds of paths. I start looking at allergies, food allergies, things like that. What have you eaten lately. What have you experienced lately. It is part of my protocol to ask some environmental questions, but I'm going to start including the water damage question because I think that makes a lot of intuitive sense.
- Dave: I think you'll find that your hit rate is astoundingly high there. When I'm dealing with coaching patients. Not patients, I don't have patients, I'm not like that, but coaching clients, who are also sleep patients with sleep doctors and all that stuff, I've never had one of them say, you know, "Oh, they asked me about it." It's almost predictable. To the point of 80% of the time after I've talked to someone for a few minutes, you can guess that it's happening because they have so many of the statistical things that are unlikely in a general person but they are so spread across the multiple symptom bucket that you wouldn't know unless you knew.
- Michael: It's frustrating for patients too, by the way because they come in and they're like, "I don't know what's wrong with me. All of a sudden I moved into a new house and I'm having these nightmares." I'm like, "I don't think there's a ghost." There's something else going on.



- Dave: Even in our community here, our medical here at Bulletproof had toxic mold when he moved into a new house. He didn't know it and he saw Moldy and we were talking and I'm like have you tested? Underneath the carpet where his home office was, of course he replaced it and everything was fine. That was really cool.
- Michael: Note to self, when you live at the beach, hardwood floors.
- Dave: Amen and look out for the air conditioning. You get warm moist air coming into a cold air conditioner. It happens regularly. I believe at least half of buildings have water damage, either in the h-vac or in the walls, it's just there.
- Michael: Yeah, absolutely.
- Dave: That's one thing to look for. Change in environment does that. We haven't talked enough about LED lights though. I am predicting a wave of Macular degeneration because blue light is really hard on mitochondria. In sunlight it's different because you're getting full spectrum light that includes blue. When you're under these white LEDs, there's tons of blue light and not very many of the other spectrum. It's like you can see, but it's almost like junk food. It tastes like food but it's got way too much sugar and hydrogenated fat and not enough of the good stuff. Are you paying attention to the difference in your patient's sleep when they install all LED bulbs in their house vs when they had halogens or incandescent?
- Michael: I'm glad you actually brought this topic I up because it's a kind a pet peeve of mine. I work with this company called lightening science group. These are the guys that actually developed all of the light for the space station for NASA. They're day runs every 45 minutes up there. The sunrise, sunset every 45 minutes. You don't want astronauts to not have a good nights sleep because that's how people die in space. It's very hands-on. They make a commercial product. We decided to put warning labels on light bulbs because I believe that light is medicine.
- Dave: Amen.
- Michael: If you think about the effects of light. If you want to know what the next cutting edge thing is, it's not the next hottest pharmaceutical. It's how to use wave lengths of light for the good and to get the ones that aren't so good out of your way. Light is medicine. I can't say it clear enough. In my house, we actually have specialized bulbs that are melatonin friendly bulbs that I have in my bedside table lamps. It's probably similar to your sleep nightlights that you have. Then we have awake bulbs in the bathroom I actually get what would be equal to sunlight. Obviously it's better for me to walk outside and get sunlight assuming I'm wearing a robe. At the end of the day, you want to use light to your advantage. A lot of people don't realize you get halogen bulbs, you get all this stuff. Especially at work. I believe there's a thing called light poisoning. I believe it's out there and people don't realize it. It's kind of interesting because it kind of brings us back to the power point and chronorhythms because many people can't even figure out what their true chronorhythm is because they've got so much influence of light that it's throwing their chronorhythms off in different ways. I use light to actually help people development their chronorhythms and figure it out.



- Dave: We use light extensively in my house. We dim everything. We have these nightlights. Even my exterior lightning on my house is sea turtle friendly. It's also red. I have owls that live 200 feet from my house.
- Michael: That's so cool.
- Dave: I would poison them with bright white light all night long. My research for headstrong on mitochondria, mitochondria make biophotons. These are little tiny bacteria that run things in our bodies and they use light to signal each other. If you soak yourself in light, they never see, it's trying to listen to someone in a room, you keep turning up the noise and the signals don't get through. I am with you there. My kids sleep all night, every night. They don't have sleep disturbances. The rooms have been pitch black with black-out curtains that are real forever. There's no nightlights in there.
- Michael: Yeah, there's no need for them.
- Dave: They wake up at night, there's no white light in the bathroom. It's a red light, or an amber light. It doesn't really matter for that purpose. When you say light is medicine, coming up here at the Bulletproof labs, it's a new type of facility that I'm opening there in Santa Monica that has hundreds and hundreds of thousands of dollars of biohacking equipment for people to come in and change their own biology. Non medical stuff. One of the things that we're unveiling is called the red charger. Its got 40,000 red and infrared LEDs on it. It's like a time-
- Michael: Oh that's cool.
- Dave: It's actually a Bulletproof product. You lay down on this thing for 20 minutes and you get a mitochondrial recharge. One of the things I believe is happening and there's lots of arguments, whatever, but we're getting so much blue light and in nature red's the opposite of blue, right?
- Michael: Exactly.
- Dave: We're at least balancing them out. As skeptics come out and say, "Oh there's no evidence you need to balance them out." Whatever, I just feel good when I do it. I'm totally fine. There's also water structure changes that happen as a result of light exposure. Gerald Pollack, who did a lot of that science, he's speaking at the next conference. Light changes your body.
- Michael: Light is medicine. It's a pharmaceutical like anything else. You have to respect it, you have to know what it is and you have to know what the effects are, otherwise it's going to run your life, not in a good way.
- Dave: Last year, at Peter Diamandis' Mastermind, it's called Abundance 360, really fascinating, he brings the world's top experts in things together to talk about them. On stage we had four



CTOs from the world's largest consumer technology companies who did virtual reality. Guys I believe like Samsung, and Sony and probably Oculus people, I don't remember. You get to ask them questions.

Michael: That's so cool.

Dave: It was really cool. It's like guys, "Okay, given that 25% to 70% of your brain is visual processing and we know that blue light exposure ruins melatonin, is rough on the mitochondria, and your strapping bright blue lights, these white lights to people heads, which changes visual processing and changes light exposure, whose job it is to make sure that this stuff is not going to, and I said this in front of a bunch of people, is not going to fuck us up? I don't usually f-bomb on the show, but that was what I asked them and people laughed. The answer scared me. They said, "Not us."

Michael: Really.

Dave: There is no one regulating it and I don't like regulation, but there is no one measuring it.

Michael: That's the point of having these warning labels. Just like on food, where you list the ingredients, lighting science wasn't to have warning labels on light bulbs to say, "Here's how much LED exposure you're getting, and here's what this can do to you, and you need to really take a look at this. It's a big frigging deal.

Dave: It is indeed. I absolutely support, in fact there's probably a non-profit to be done around that. Support just lighting awareness because if there isn't an ingredients label on your light, you go to, I won't name the big box stores, but you go there, the light's in the big box stores, all have incredibly bright lights that make you confused so you buy more crap, and then if you buy the bulbs there that say they're warm light and they're LED, when you look at the actual ingredients and what comes out of them, it is not warm light, it's hyper blue light, even though it says warm. It drives me nuts.

Michael: Yeah, but I mean thinking through that whole model, if you wanted to go into a business and you wanted to talk with them, I guarantee you that I could put lights in a business and I could make the whole business more productive by using specialized lighting and specialized timing. Things like that. There's no question.

Dave: Guess what, at the Bulletproof coffee shops, we got two opening in L. A. that do this, two more opening in Seattle and a bunch more around the country. We actually do this. We have circadian compliant lights. We've got red in the morning, blue in the mid morning-

Michael: That's smart. You're the only one that does. I guarantee you.

Dave: I want people to go there to feel good. We build other stuff in, but it's required for my employees. I take care of these people, and for my customers. How could I not with this knowledge? We'll have to talk more offline. There's probably probably some cool stuff to be done there.



Michael: Okay, for sure.

Dave: We're coming up on the end of the show and we'll have to do another show in a few months just because talking about sleep is always so popular.

Michael: Happy to do it.

Dave: Before we go, there's a question that I've asked everyone who's been on the show.

Michael: Okay.

Dave: The question is, if someone came to you tomorrow, and said based on everything you've known and experienced in your life, I want your advice. I want to perform better at everything. I want to kick more ass at being a human being, what are the three things I need to know?

Michael: Number one you need to know your chronotype. That way you know when to sleep, when to wake, when to do certain things. I would say that would certainly be one. I think you got to know and understand what your diet needs to be for you. Not all diets are made equal for everybody and I think that that is important. Number three, you need to know how much sleep you need personally. I think if you have those three things, you're going to rock it.

Dave: Beautiful. Your book is called The Power of When. People can take the quiz we talked about on [thepowerofwhenquiz.com](http://thepowerofwhenquiz.com). Tell me you registered [powerofwhenquiz.com](http://powerofwhenquiz.com) also and redirected it.

Michael: I did.

Dave: Let's see. Your book is in bookstores now?

Michael: Yeah, it will be.

Dave: When the show comes out it will-

Michael: When the show comes out it will be right in there and we're really excited about it. We've got a lot of really interesting things for people to check out and there's even like when you go to the website, there's different schedules for people who are Wolves vs. Lions vs. Bears telling them about all the kind of cool stuff they can do during the day. It's going to be a lot of fun, and I think it's going to help people a lot.

Dave: One thing we didn't to talk about and I meant to, you actually tell Wolves not to have coffee until 11:00 am.

Michael: I knew you were going to come up with that. I thought that was going to be the thing-

- Dave: What's up with that. It seems almost disturbing. Almost like you're trying to make Wolves weak.
- Michael: Hers the thing, we know when you wake up your cortisol level is one of the things that helps you wake up. It's one of the things that slowly builds up in your body and helps you enter that state of consciousness. The recommendation is not to not drink coffee at all , it to wait until your cortisol begins to come back down, because when you add caffeine, on top of cortisol, it makes some people extremely jittery. All I ask people to do is approximately 90 minutes after they wake up and their cortisol is starting to his the downside, that's when you can have a nice cup of coffee, and it will actually bring your energy level up and you can do that multiple times throughout a day and actually keep your energy level quite high.
- Dave: It's interesting. There's definitely a timing thing. Actually, based on an acid alkaline circadian rhythm, I recommend the people who wake up early and just bounce out of bed at 6:00 am, I forget, those are the Lions.
- Michael: Not us.
- Dave: Those strange creatures that dwell in the light, for them waiting an hour after they wake up, because they already have all the energy, they already have an acid spike that comes. I find that people who wake up slowly, like I do, that they generally benefit from the, acid spike. What coffee does, this myth of acid coffee it BS, coffee always had fruit acids which increase acidity in the short term and then they increase alkalinity in the long term, which is what gives you power and then endurance. I find a cup of coffee in the morning for people who wake up slowly seems to help get the cortisol level up so they are fully awake.
- Michael: It's interesting because Wolves unfortunately a lot of times have to wake up before their body wants them to. Wolves actually, the probably could benefit from coffee a little bit earlier in general, but as an overall recommendation, if you're following your chronotype and you're waking up at the time that you're supposed to, you should have enough cortisol to get you there without having-
- Dave: I hear you.
- Michael: Do you see what I'm saying?
- Dave: Timing of coffee matters and it's did you get enough sleep and wake up at the right time? I totally buy it there and by the way I've had other people on the show who are like, "Coffee's bad for you." Most of them-
- Michael: No, I don't thing coffee is bad at all. I drink it every day.
- Dave: Most people who say that, they generally look weak and frail and it's okay, we love them anyway. I show compassion.



Michael: Absolutely.

Dave: All right, on that note, Michael, again, [thepowerofwhenquiz.com](http://thepowerofwhenquiz.com). For people listening and a lot of writers and a lot of authors on who do a lot of cool stuff. Some books I recommend more wholeheartedly than others. I don't have anyone on here who's just pumping out crap because your time is just too valuable for that. There's some books, I'm like wow, that's something I've never come across. This is one of these cool books. I haven't come across this way of thinking. It is much more accurate than early bird, night owl. It takes into account a lot of good stuff and I think this book is actually worth your time. If you are into biohacking, you really, really want to read this book. It's one of the ones that belongs on your shelf. Thank you Michael.

Michael: Thank you Dave, this has been awesome.

Dave: If you enjoyed the show, you know what to do. Go to iTunes and click like and say, "Hey, I really appreciated this." While you're at it head over to [bulletproof.com](http://bulletproof.com) and make sure that you've tried some of that unfair advantage we talked about. I am firmly convinced that charging up your mitochondria before you go to sleep can help you wake up feeling amazing. That's what I do before I go to sleep. That's unfair advantage at [bulletproof.com](http://bulletproof.com).