Speaker 1: Bulletproof Radio. A state of high performance.

Dave Asprey: 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. But that 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.

Dave Asprey: About 97% of your clock genes affect everything from mood, to blood sugar, to hormones, to body temperature. 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 were run over by a Tesla truck, even though they aren't released yet. When you get run over by a truck, that's the truck you want to hit you, just because 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 25 hours or more unless you got some sunlight. Or, maybe just a subset of sunlight, maybe ultraviolet, maybe blue light, maybe red light. Who knows? Different lights, different times a day, huge part of biohacking.

Dave Asprey: Before we get to today's guest, who I am really, really looking forward to chatting with, today's guest is... he's someone you might have seen on Dr. Oz. And he's a clinical psychologist, a diplomate 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 163 psychologists in the world to do this kind of stuff. He has 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.

Dr. Michael B.: Hey. How are you, Dave?

Dave Asprey: I'm doing well. I took my quiz last night in the book, just in preparation for our interview.

Dr. Michael B.: Oh, good.

Dave Asprey: I was up until 4 A.M., I had coffee, and I used bright blue lights, but not on my eyes. Was that harmful?

Dr. Michael B.: Well, 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 light shining on you, and quite a bit of caffeine in you.

Dave Asprey: 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 3:30 last night working on my mitochondria book.

Dr. Michael B.: Oh, good.

Dave Asprey: And 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. So, I'm feeling okay.

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

Dave Asprey: 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. And thanks for actually a really, a really well-written, impactful book that actually made sense. Tell me about The Power of When.

Dr. Michael B.: So, it was kind of bizarre because I was seeing patients, and I've been seeing patients for 16 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. And I noticed that some of my techniques, which had worked for years, were just not working with my patients, and I kind of couldn't figure out why. So, I brought them in and I said, "All right, let's kind of figure this out. What could possibly be going on here?" And so one of the things we realized was, is that their sleep was actually pretty good, it was just at the wrong time.

Dr. Michael B.: They were able to sleep six and a half, seven and a half 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. So, I said to the folks, especially the ones who 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." Because I had a pretty good suspicion based on a whole lot of data that they would. And so 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.

Dr. Michael B.: So, many people might not have heard the term chronotype before, but they've probably all heard of the idea of an early bird or a night owl. Those are actually chronotypes. And so 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? And that was where it got really cool really fast. And so when I started to continue to interview my patients, one of the things they said was, "You know, I find there are certain times of day when I'm better at this, or

I'm better at that." And so 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. You know, most self-help books tell you what to do or how to do it. They don't tell you when to do it.

Dave Asprey: It's something that's intuitively obvious to me. I've looked at... there's research on, you must know about the research that looks at the distribution of the average length of circadian rhythm.

Dr. Michael B.: Yep.

Dave Asprey: I have a long circadian rhythm. I've never been a morning person, but we've all seen those shaming style blog posts about how the early bird catches the worm, and you're lazy if you wake up late. So, for two years, I trained myself to wake up at 5 A.M. and meditate for an hour.

Dr. Michael B.: Okay.

Dave Asprey: You can do it, right?

Dr. Michael B.: Yeah.

Dave Asprey: 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.

Dr. Michael B.: Right.

Dave Asprey: And I am at my most creative, I perform better when I sleep until 9:00, actually. That-

Dr. Michael B.: So, you're probably a wolf.

Dave Asprey: I am a wolf. And 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' book here, The Power of When, because it explains that there is no moral failing for waking up late.

Dr. Michael B.: Exactly.

Dave Asprey: 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.

Dr. Michael B.: Yeah.

Dave Asprey: Just like some people can eat lentils and other people can't. But you should be suspicious of lentils until you know which kind of person you are, because they

mess with some people. And you should be suspicious of waking up early in the morning because it messes with some people.

Dr. Michael B.: Right.

Dave Asprey: Just like you should be suspicious of sleeping in because it messes with some people.

Dr. Michael B.: Exactly.

Dave Asprey: You got to test it to know.

Dr. Michael B.: I always tell people you can't mess with Mother Nature. This is genetically predetermined. This isn't something that you just have a preference for. It's actually, the PER3 gene actually determines your sleep drive, and then your circadian rhythms are genetically predetermined. So, when you take those two things and you stick them together, it gets real interesting real quick.

Dave Asprey: Now, being a wolf chronotype, you just told me that I can't do something, like you can't mess with Mother Nature. Which immediately makes me say, with CRISPR gene editing, couldn't I change my chronotype?

Dr. Michael B.: You could, actually. And here's the thing that's really interesting, is you can mess with it, but you aren't necessarily going to change it, right? And so I've got people who come to me all the time and they say, "I'm a wolf." Which, for our folks out there, if you're not familiar with the terminology, it means you're basically a night owl. And by the way, Dave, I'm a wolf, too. So is my wife, and so are both of my kids.

Dave Asprey: All the best people are. I know what you mean.

Dr. Michael B.: I think you're right. And 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 kind of how you were born and what you should be doing.

Dave Asprey: One of the things that makes me mad is that salespeople usually wake up in the middle of the night, like around 6 A.M. or something. And I used to work as a sales engineer in Silicon 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 more of a distribution towards staying up late at night hacking computers.

Dr. Michael B.: Mm-hmm (affirmative), yep.

Dave Asprey: Not waking up early to hack. Who does that?

Dr. Michael B.: Yeah, nobody does that.

Dave Asprey: Right. So, they would hold these 8 A.M. Monday morning sales meetings.

Dr. Michael B.: Ugh. I had them, too.

Dave Asprey: And I'm like, "Seriously, why would you do this to people?" Apparently, salespeople like that stuff. So, I started showing up at 8:30, 8:45, because I'm an engineer. They don't need me to sit there while 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. And so finally, my boss got in my face about it. He's a sales guy, and I'm like, "It's not that I'm being disrespectful, it's that I'm really tired."

Dr. Michael B.: Exactly.

Dave Asprey: "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? Because if I'm sleeping at my desk..." And 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.

Dr. Michael B.: You know what? But your plight is actually one that I hear all the time.

Dave Asprey: Yeah.

Dr. Michael B.: I hear it from my most creative patients, like 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 they would be working on a creative chapter. So, it's really, you're actually, you're very wolfish in many ways.

Dave Asprey: So, what I did that's different though, and I want to get your take on this.

Dr. Michael B.: Please.

Dave Asprey: I have switched to entirely red LED lighting at night. It looks like I'm either, like I'm in a vampire submarine or a whorehouse. I mean, seriously, there's no other light.

Dr. Michael B.: Take your pick.

Dave Asprey: It could be a vampire submarines whorehouse [crosstalk 00:10:07]

Dr. Michael B.: Yeah, it could be.

Dave Asprey: But it's kind of funny. I taped over all the blue LEDs a long time ago, that's part of my sleep hack recommendations. Those things are destructive. So, when I'm working, my monitor is all the way down. I'm running f.lux at its highest color density, or I'll wear glasses if I'm not. And all of the light around me is just pure red LED spectrum, and I don't suffer from circadian disruption when I do that. I can stay up late, but I woke up this morning at 8:45, felt great. Been either with my kids, or on a phone call, or recording every second of the day without a break except to pee. And I totally feel great, you can see.

Dr. Michael B.: Yeah.

Dave Asprey: I'm not zombified because I slept, I went to bed at 3:30. So, five hours.

Dr. Michael B.: Yeah.

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

Dr. Michael B.: It's a great idea.

Dave Asprey: Okay.

Dr. Michael B.: Especially for somebody who is a wolf like you. And the thing is, is that you actually got up in a reasonable amount of time. From what I see with a lot of my wolf type clients is 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, but also, it can help be a relaxant. And a lot of my people who are at night, when they have a lot of energy and a lot of anxiety, actually that red light has a tendency to calm them down quite a bit.

Dave Asprey: 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 P.M. And I'll write straight through until 7:00 A.M., and I'll have caffeinated Bulletproof 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 am... I don't even know where I go, but I'm in the zone. And I can pull of 10,000 words that way in like a night.

Dr. Michael B.: Yep.

Dave Asprey: And they're good words, too.

Dr. Michael B.: Yeah.

Dave Asprey: So, that, though, has a recovery period.

Dr. Michael B.: For sure.

Dave Asprey: That 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'm talking 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?

Dr. Michael B.: No.

Dave Asprey: Aw.

Dr. Michael B.: 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. And it's really interesting because at that event, I was talking with a lot of people, too, and they were taking the quiz. So, for everybody to know, you can actually take a quiz online.

Dave Asprey: Yeah.

Dr. Michael B.: To learn what your chronotype is.

Dave Asprey: In fact, I'm being a little bit rude because I'm focusing on the wolf chronotype, which is about 15% of people, 20% or something like that. This is your own research where you've named these chronotypes.

Dr. Michael B.: Correct.

Dave Asprey: At least for my chronotype, I recognize it, and I recognize other people in these other ones. So, your categories just intuitively make sense. Walk through the categories.

Dr. Michael B.: Sure.

Dave Asprey: Because I just dove in on the wolf thing because I just read your book last night, and I'm all excited about it. So, that's what wolves do, we just jump in and rip meat off things.

Dr. Michael B.: Yep, exactly.

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

Dr. Michael B.: The URL for the quiz is ThePowerofWhenQuiz.com. So, the title of the book with the word quiz on the end. So, ThePowerofWhenQuiz.com. And when you go, it's about 35 questions or so. And so let's go through what the different chronotypes are. So, many people have heard of the idea of an early bird or a night owl, or what we're calling a wolf. So, 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. So, 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?

Dr. Michael B.: So, first of all, I'm not a bird. I'm a mammal, and I didn't relate to being an early bird or a night owl. And 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. And these people are oftentimes the people who are very oriented toward a focus challenge. They go from A to B to C, boom, no problem. That's kind of who they are and how they live.

Dr. Michael B.: 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. So, bears make up 50% to 55% of people out there. So, don't be surprised if when you take the quiz, there's a high likelihood you could be a bear. Bears are the people that get shit done, okay? 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 [crosstalk 00:15:51]

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

Dr. Michael B.: So, I don't want to call them bad people. However, there's a whole movement about changing school start times.

Dave Asprey: Yeah.

Dr. Michael B.: You know, there's a lot on that, which is pretty interesting. We can talk about that for sure. But no, they're not bad people, but yes, they did come up with those school start times. [crosstalk 00:16:12]

Dave Asprey: I know they're not bad people, and I have actually... and I hope that, in fact, some of the parents at my kids' school are listening. I have seriously thought about homeschooling my kids because I watch what waking up at the middle of the night... I live very far north, so it's dark in the winter, too. What waking up very early does to kids.

Dr. Michael B.: Yeah.

Dave Asprey: And especially what it does to parents. And if my kids start school at 9:00 instead of 8:30, my kids would be happier, healthier kids. I absolutely know that.

Dr. Michael B.: So, interesting what happened to me. So, I live in just outside of Los Angeles.

Dave Asprey: Okay.

Dr. Michael B.: And we just moved here about a year ago, and our kids have a late start day on Wednesdays, right? And so instead of having those crazy half days that you have throughout 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 a 13, almost 13-year-old. And 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, and that's our next category, right?

Dr. Michael B.: So, you and I are the same category, which is a wolf. So, wolves are interesting. We're night owls, we're night people. We're very creative, but we also can 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.

Dave Asprey: So, if you're listening to this, by now you've got to be going, "I'm dying to know what kind of chronotype I am." The quiz is really fast. It's 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. And I am a sleep hacker, so of course I follow sleep doctors. That's just kind of how it works. Tell me a little bit more about dolphins. I don't think you've covered them very well.

Dr. Michael B.: Yep. So, 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're 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.

And these people, it's really interesting, their sleep schedule is pretty whacked out. Sometimes they're up, sometimes they're down. And oftentimes what I'm finding is that if I can just kind of surround them with some parameters and educate them the right way, we seem to actually do better.

Dr. Michael B.: They're super intelligent folks, and sometimes that can 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, and I'm taking this herb and that herb." And I'm like, "Hold on, slow down a second. Let's just figure out what your natural body rhythm is for sleep, and let's work with that."

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

Dr. Michael B.: It makes sense to hire dolphins for very particular job functions. Dolphins are super smart people, and so sometimes if you don't put work parameters around them, if you say, "Here is 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 if you don't give them... If you give them some time parameters, they actually work fairly well with that. But then 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 perfectionistic tendencies are going to want them to do a little bit more. So, if you can give them that fudge factor without them knowing, it'll work out pretty well [crosstalk 00:19:49]

Dave Asprey: I would love to know the chronotype for everyone in my company. In fact, we may put that on our-

Dr. Michael B.: Let's do it.

Dave Asprey: Which is cool. What if all your coworkers knew, don't mess with this guy in the morning?

Dr. Michael B.: Exactly. Exactly.

Dave Asprey: It's so cool, so actually, we'll roll that out. We're absolutely going to do that, and it's really cool to just have these tools, especially for someone who's remote.

Dr. Michael B.: Right.

Dave Asprey: Like, "Oh, I scheduled an 8:00 A.M. meeting." And they're like, "Please don't schedule 8:00 A.M. meetings." Right?

Dr. Michael B.: Right, but they don't even want to tell you that, right?

Dave Asprey: Yeah.

Dr. Michael B.: 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 has 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.

Dave Asprey: Totally.

Dr. Michael B.: If we were scheduling the right things at the right time, oh my gosh. I'm telling you, it would fly.

Dave Asprey: If you're listening to this right now and you're like, "Okay, yet another experiment." But here's the deal, it's like a five minute test.

Dr. Michael B.: Right, if that.

Dave Asprey: And I'm guessing, I didn't do the online one. I just checked off and added the numbers up in the book. By the way, you need to make it so that the scoring and the letter in the scores don't always match. Because it was pretty clear that you were trying to get a higher number to make me a wolf.

Dr. Michael B.: Right.

Dave Asprey: It was a little easy to game that test. Just as a hacker, I was like-

Dr. Michael B.: Well, hopefully you didn't try to game it, although your hacking background would make it such that you probably did.

Dave Asprey: Are you concerned at all about casomorphin or gluteomorphin? I see so many people who eat milk and then they get tired after if they have milk protein specifically.

Dr. Michael B.: So, 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, and we found it made people super sleepy.

Dave Asprey: 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, but that doesn't mean it doesn't work. It just means I didn't feel a thing, right? We're all different.

Dr. Michael B.: Yeah. Well, 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 Asprey: Yeah. I took it before bed, but yeah.

Dr. Michael B.: Right, but I mean what time did you go to bed? And...

Dave Asprey: I can say my bedtime is, on average, for the last three and a half years on the same monitoring app, it's exactly 2:00 A.M. It varies on average, but-

Dr. Michael B.: You're such a wolf, it's unbelievable.

Dave Asprey: And I sleep six hours and one minute per night, and that's what I do.

Dr. Michael B.: Yep.

Dave Asprey: And I didn't used to. I used to need eight hours. I need six when my biology works well. I need six when-

Dr. Michael B.: Right.

Dave Asprey: I don't take care of myself, I need eight.

Dr. Michael B.: Well, you know what? That's actually a really interesting point that we talk about a little bit in the book. But just in general, one of the things that I talk about to people is eight hours is a myth, okay?

Dave Asprey: Hallelujah. Say that again.

Dr. Michael B.: People, eight hours is a myth, okay? I'm a board certified sleep specialist. I've been seeing patients for 15 years. I get six and a half hours a night. That's my number. It works for me, it always has. And 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 Asprey: There's a study that I've talked about lots of times on the show and on the vlog. 1.2 million people, many years of data, and they showed that people who live the longest get six and a half hours of sleep.

Dr. Michael B.: There we go.

Dave Asprey: They live longer than people who sleep eight hours a day.

Dr. Michael B.: I know.

Dave Asprey: Right? And I think it means that healthy people need less sleep. Is that a reasonable assumption, or a reasonable assessment?

Dr. Michael B.: 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, and they have... Those anxiety issues actually can peel years off the back end of your life if you don't get them treated. Then, I

think there's 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 of sleep. Seven hours is like 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. That a lot of times, if you try to get the quote recommended amount of sleep, you feel worse, which seems super counterintuitive to me.

Dr. Michael B.: The third group of people that kind of get six and a half hours sleep, what ends up happening is 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. And so I don't know if I would count them in the six and a half hour group just because they're going and getting extra sleep there. So, I would say they probably fall into those two categories, one of which I would say is probably very healthy.

Dave Asprey: What do you think about biphasic sleep? This idea that we used to wake up in the middle of the night, have sex, or...

Dr. Michael B.: Yeah. Have a meal, speak to people.

Dave Asprey: Yeah.

Dr. Michael B.: Yeah, and then you would have your second sleep, right?

Dave Asprey: Right.

Dr. Michael B.: That's what it used to be called. So, it's so messed up because from an evolutionary perspective... We were doing great, by the way, before the light bulb was invented.

Dave Asprey: Amen.

Dr. Michael B.: You know? 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. I mean, it was truly, they were out in the woods. They had no screens. All they had was a campfire, and they were doing activities during the day, physical activities during the day. Gathering stuff, creating their shelter and their fire, and things like that. And literally within two weeks, all of these people did extremely well with their sleep. So, the light bulb really messed us all up, and 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'll need.

Dave Asprey: You know, 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. As long as I didn't-

Dr. Michael B.: I'm going to go against you on this.

Dave Asprey: As long as I didn't have to pay for it, right? In other words-

Dr. Michael B.: Well, okay.

Dave Asprey: That's what I'm saying. I don't mean just amping myself up and getting cancer, and all the stuff that happens when you don't sleep.

Dr. Michael B.: Right.

Dave Asprey: I mean that if we could reduce our need for sleep and still perform, and perform as well and live as well, there's a lot of time spent on sleep that isn't particularly productive. And you could say, "We need that time. We're dreaming," or whatever. But yeah, I'd like to choose whether I spend the time on that without health impacts. Are we going to get there?

Dr. Michael B.: Well, number one, we might. But here's the thing, is if actually you look at sleep architecture, right? So, you do the EEG, you do the full polysomnogram, and you look at somebody's brainwaves all night long. The most productive waveforms are stage three, four sleep, or REM sleep. Stage three, four is the physically, you know, restorative, and REM is the mentally restorative.

Dave Asprey: So-

Dr. Michael B.: Stages one and two.

Dave Asprey: Okay.

Dr. Michael B.: Which makes up 55% of the night.

Dave Asprey: Yes, it's a waste.

Dr. Michael B.: It's filler.

Dave Asprey: All right, I'm clapping. I'm jumping up and down. If I had pom poms, I'd be doing them. It's the filler that I don't want. I want that time back. I could play with my kids during that time.

Dr. Michael B.: Yep, all right. So, let me... 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. And people come to me all the time, and they're like, "Michael, I want to get my eight in four." Right? "So, 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've found when I've tried to do this with my patients, and this was under their, you know, insistence, not mine.

Dave Asprey: Was this polyphasic? Or ...

Dr. Michael B.: Yeah, more like a polyphasic type of schedule. Number one, they get super lonely because they're up when nobody else is. And even with the internet and even if they have friends in European countries, there's just so many times that you can 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. And I'm not talking a little bit of depression, I'm talking about major depression where you need to get yourself back to where you need to be.

Dr. Michael B.: So, if you have a proclivity for depression, I would say no to polyphasic sleep schedules, and 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 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.

Dave Asprey: Yeah. I did it for like a couple weeks a while ago and decided it was absolutely a waste of time. Because it takes so much focus and energy and tracking.

Dr. Michael B.: It is a big effort, yeah.

Dave Asprey: And I'm not convinced that it's going to allow you to have the right hormone fluctuations. [crosstalk 00:28:12] What I have done that's been really successful is I've slept two hours a night and woken up feeling really refreshed. And I've done it multiple nights in a row, believe it or not. But when I do that, I put a cerebral electrical stimulation on, this sort of Russian sleep machine. Sorry to get off track there a little bit.

Dr. Michael B.: No, it's fine.

Dave Asprey: But I want to know A, have you ever tried cerebral electrical stimulation or TDCS, the more current type of that, on sleep disorders?

Dr. Michael B.: So, there's almost no data on push technology. So, right now, most sleep scientists are doing pull technology, right? So, what information can I get from your brain that I can record? Almost nobody is putting a signal in to sort of 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 sends signals, auditory signals, in-

Dave Asprey: Binaurals?

Dr. Michael B.: Yeah, it's much better than a binaural.

Dave Asprey: Okay.

Dr. Michael B.: It's a lot more high tech. And what they did was they actually did this to surgical patients during surgery.

Dave Asprey: Smart.

Dr. Michael B.: And the anesthesiologist found they needed less anesthetic to keep these people out.

Dave Asprey: That is not...

Dr. Michael B.: Which is fascinating.

Dave Asprey: ... too surprising.

Dr. Michael B.: Right, no. It makes perfect sense once you understand how it works.

Dave Asprey: I've been experimenting with binaural beats and similar technologies for a very long time, like since I started paying attention to all of the stuff the brain could do. Which is another push, pushing a signal into the brain.

Dr. Michael B.: Right.

Dave Asprey: For listeners, the idea is you make a sound in one ear, and you make a sound in the other 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. So, if I wanted 1.5 hertz delta, I would just have 200 hertz in one ear and 200 and 1.5 hertz in the other ear.

Dr. Michael B.: Right.

Dave Asprey: And it would just, if you listen to it just one ear, it just sounds like a constant hum. But when you put it on each ear, it sounds like it was going, "Woom, woom, woom, woom." Do you have patients who just listen to Centerpointe, or listen to binaural beats when they're going to sleep, in order to fall asleep faster? Or, do you get less of this wasteful sleep and more of the good stuff?

Dr. Michael B.: So, the first part of your question is yes. I do have people that listen to that. I can't tell you whether or not it actually filters out some of the stage one, stage two 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's occurring because I'm not seeing those typical signs of stage three, four deprivation, or those 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 signs to prove it, though.

Dave Asprey: Okay, that's totally a 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.

Dr. Michael B.: Yeah.

Dave Asprey: It's a very different perspective.

Dr. Michael B.: Well, sleeping better.

Dave Asprey: Yeah, there you go. Yeah. But it's kind of like if you have a car, it's like you could go really, really fast and get there, or you could go really, really slow and get there. But the point is, you want to get there, not stop halfway, which is what happens when you wake up early with not enough sleep. The other big question I have for you, this is an area where I have really targeted my own sleep hacking.

Dr. Michael B.: Okay.

Dave Asprey: Lately, is around the glymphatic system, not the lymphatic system.

Dr. Michael B.: Okay.

Dave Asprey: And so 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, and kind of, it's a waste management thing. You know this stuff well.

Dr. Michael B.: Mm-hmm (affirmative).

Dave Asprey: Well, there's also the glymphatic system.

Dr. Michael B.: I'm not familiar with that.

Dave Asprey: So, this is only like 2013 they discovered this, maybe 2012 the first paper, it came out. And they figured out that at night, the cells in the brain lose about 60% of their volume. So, the mitochondria pump fluid out of the cells that contain some waste proteins that happened during the day. This protein or this fluid is then flushed out with cerebral spinal fluid, and they call that the glymphatic system. And they found the glymph ducts and all that stuff, and then... So, they had all this stuff. Oh, there's no 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, and 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."

Dave Asprey: So, apparently the brain is connected to the lymphatic system. And at night, we are exchanging fluids and draining basically metabolic byproducts. The brain is very metabolically active at night.

Dr. Michael B.: For sure.

Dave Asprey: It's just repairing.

Dr. Michael B.: I mean, look at REM sleep. It's actually almost as active in REM as it is during wake.

Dave Asprey: Totally. And so it 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.

Dr. Michael B.: For sure.

Dave Asprey: So, what that tells me is that if I can turn up my mitochondrial function, or if I can reduce the creation of oxidative byproducts...

Dr. Michael B.: Right.

Dave Asprey: ... I'm going to be more effective at expanding and shrinking my cells. Essentially, I'm going to wash my brain at night better. And I find that when I take mitochondrial enhancers before bed, I sleep better and I wake up earlier, feeling fully refreshed. And I think it's because the basic toxin removal process is better.

Dr. Michael B.: Well, yeah. I would, 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 is if we stuck a bunch of things inside your head, and we kind of watched what you did, and-

Dave Asprey: I'm down.

Dr. Michael B.: Just drill a hole right in there and [crosstalk 00:33:28] Yeah.

Dave Asprey: You're not trepanated? Come on, man.

Dr. Michael B.: I am not. You know, I can't say that I know much about the glymphatic system.

Dave Asprey: Okay.

Dr. Michael B.: 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. Because 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 of the information that you've got. It also helps pull out all the crap. So, you've got so much stuff that's coming in all the time into your eyeballs, and your ears, and your nose, and your mouth, and your sensors, that that information gets kind of built up. And one of the things that REM sleep does, and a little bit stage three, four, is it actually pushes all of that extra stuff and kind of washes out the brain. So, what would be really interesting would be to look at mitochondrial function in the brain. If you enhanced it, then what I would want to look at is a pre post.

Dave Asprey: Okay.

Dr. Michael B.: I would want to look at your REM sleep beforehand and your stage three, four sleep beforehand in a given time period, and then do a post. You know, an A/B test. That would be interesting to see.

Dave Asprey: That would be interesting to see. Okay, another question about sleep. I love getting to pick a real sleep expert's brains.

Dr. Michael B.: Sure.

Dave Asprey: When we were at JJ Virgin's Mindshare 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, and the hotel room 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.

Dr. Michael B.: Yeah.

Dave Asprey: And I woke up... Okay, I had been staying up until 4:00 or 5:00 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 hungover. 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.

Dr. Michael B.: Okay.

Dave Asprey: And I had a headache, swollen sinuses, and essentially all of the symptoms I was sleeping in a moldy room.

Dr. Michael B.: Yeah.

Dave Asprey: In fact, I'm absolutely certain I had toxic mold in the room, because those are the symptoms.

Dr. Michael B.: Right.

Dave Asprey: Especially the weird dreams. So, I actually 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?" And then the next question if they say yes is, "Did they start recently?" And if they say yes, I say, "Is there a recent history of water damage or leaks in your house?" And they always say, "Yes."

Dr. Michael B.: That's fascinating.

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

Dr. Michael B.: So, I'm not a dream researcher.

Dave Asprey: Okay.

Dr. Michael B.: But I do know a good bit about dreaming. And so one of the things that we know is that dreams are a manifestation of sensory information, right? And so 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. And so 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, right? Because your home is probably super mold free. You've gone through all of those things to get it that way, right? So, you go from what would be considered to be quote a sterile environment to a mold, you know, ridden environment. So, that's number one. So, there's an exposure factor.

Dave Asprey: Yeah.

Dr. Michael B.: And 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 Asprey: Oh, it knew. Yeah.

Dr. Michael B.: And so that information is rolling around in your head, and it was interesting that you said that you felt like you had glass in your fingers. Is that what you-

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

Dr. Michael B.: So, what's interesting about that one in particular is I've heard of that dream before. And that dream oftentimes has to do with inflammation.

Dave Asprey: It was indeed.

Dr. Michael B.: Right?

Dave Asprey: Yeah.

Dr. Michael B.: And so that's probably what you were feeling, was 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 Asprey: You could actually see my forehead was inflamed. My skin got little pimples that I never get.

Dr. Michael B.: No.

Dave Asprey: I had a little bit of a spare tire. My man boobs grew half a cup size. I was like, "Man, I'm not looking so good here in San Diego at the pool." But I survived, it's a long story.

Dr. Michael B.: Well, that's good.

Dave Asprey: But I noticed that people who have recurring, bizarre, heavy duty, disturbing dreams...

Dr. Michael B.: They do.

Dave Asprey: ... I've never heard of a physician or a sleep expert saying, "Tell me about the toxin level in your diet or in your sleep environment."

Dr. Michael B.: Yeah. So, there's two reasons for that. Number one is 90% of the sleep specialists out there are sleep apnea doctors.

Dave Asprey: Okay.

Dr. Michael B.: 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. And so number one, people haven't been trained in order to even think about looking for that stuff because number one, it's fairly new. Even though it makes intuitive sense, it's fairly new, and so a lot of the practitioners out there haven't gotten any kind of training on it.

Dave Asprey: Okay.

Dr. Michael B.: When I have people who say, "Nightmares appeared out of nowhere," if there's not a traumatic event...

Dave Asprey: Yeah.

Dr. Michael B.: ... that has occurred, I start going down all those kinds of paths. I start looking at allergies, food allergies.

Dave Asprey: Yeah.

Dr. Michael B.: 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 Asprey: I think you'll find that your hit rate is astoundingly high there.

Dr. Michael B.: 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." And I'm like, "I don't think there's a ghost. There's something else going on."

Dave Asprey: We haven't talked enough about LED lights though.

Dr. Michael B.: Okay.

Dave Asprey: So, I am predicting a wave of macular degeneration because blue light is really hard on mitochondria.

Dr. Michael B.: Right.

Dave Asprey: When you're 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 spectrums. So, 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 between, in your patients' sleep, when they install all LED bulbs in their house versus when they had halogens or incandescents?

Dr. Michael B.: So, I'm glad you actually brought this topic up because it's kind of a pet peeve of mine. So, I work with this company called Lighting Science Group. These are the guys that actually developed all of the light for the space station for NASA.

Dave Asprey: Cool.

Dr. Michael B.: Because their day runs every 45 minutes up there, right? I mean, sunrise, sunset every 45 minutes. And so you don't want astronauts to not have a good night's sleep because that's how people day in space, right?

Dave Asprey: Right.

Dr. Michael B.: And so it's very, it's very hands on. And we decided that for... And they make a commercial product, and we decided to put warning labels on light bulbs because I believe that light is medicine, okay?

Dave Asprey: Amen.

Dr. Michael B.: Right? And so 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 wavelengths of light for the good, and to get the ones that aren't so good out of your way, right?

Dave Asprey: Yeah.

Dr. Michael B.: Light is medicine, I can't say it clear enough. And you know, in my house we actually have specialized bulb that are melatonin friendly bulbs that I have in my bedside table lamps. And then we have awake bulbs in the bathroom, so when I go into the bathroom I actually get sun, what would be equal to sunlight. I mean, obviously it's better for me to walk outside and get sunlight assuming I'm wearing a robe. But you know, at the end of the day, you really want to try to get... You want to use light to your advantage. And a lot of people don't realize, but you get halogen bulbs, you get all this stuff, especially at work.

Dave Asprey: Oh yeah.

Dr. Michael B.: I believe there's a thing called light poisoning.

Dave Asprey: Yes.

Dr. Michael B.: I believe it's out there, and I [crosstalk 00:41:40]

Dave Asprey: There is.

Dr. Michael B.: And people don't realize it. And it's kind of interesting because it kind of brings us back full circle to The Power of When and chrono rhythms, because many people can't even figure out what their true chrono rhythm is because they've got so much influence of light that it's throwing their chrono rhythms off in different ways. I use light to actually help people develop their chrono rhythms and figure it out. 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, and not in a good way.

Dave Asprey: Yeah.

Dr. Michael B.: Just like on food where it lists the ingredients, we want to have, Lighting Science wants 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 really need to take a look at this."

Dave Asprey: Yeah.

Dr. Michael B.: It's a big freaking deal.

Dave Asprey: It is indeed, and I absolutely support that. There's probably a nonprofit to be done around that.

Dr. Michael B.: Yeah.

Dave Asprey: Support just lighting awareness. Because if there was an ingredients label on your life, you go to, I won't name the big box stores.

Dr. Michael B.: Right.

Dave Asprey: But you go there, the lights in the big box stores all have incredibly bright lights that make you confused so you buy more crap.

Dr. Michael B.: Yep.

Dave Asprey: And then if you buy the bulbs there that say they're warm white and they're LED, when you look at the actual ingredients and what comes out of them, it is not warm white. It's hyper blue light even though it says warm.

Dr. Michael B.: Right.

Dave Asprey: It drives me nuts. So, one thing we didn't talk about, and I meant to, but we're coming up on the end of the show here, is you actually tell wolves not to have coffee until like 11:00 A.M.?

Dr. Michael B.: So, I knew you were going to come up with that. I thought that was going to be [crosstalk 00:43:07]

Dave Asprey: What's up with that? That seems sort of disturbing and almost like you're trying to make wolves weak. I mean...

Dr. Michael B.: So, here's the thing, is we know that when you wake up, your cortisol level is the thing that's helping you... one of the things that helps you wake up, right? So, that's one of the things that...

Dave Asprey: It is indeed.

Dr. Michael B.: ... slowly builds up in your body, and helps you kind of enter that state of consciousness. And so the recommendation is not to not drink coffee at all, it's 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 hit the down slide, that's when you can have a nice cup of coffee. And it'll 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 Asprey: It's interesting, there's definitely a timing thing. I, actually, based on an acid alkaline circadian rhythm.

Dr. Michael B.: Mm-hmm (affirmative). Yeah. [crosstalk 00:44:06]

Dave Asprey: The people who wake up early and just bounce out of bed at 6 A.M., I forget, those are the...

Dr. Michael B.: Lions.

Dave Asprey: The lions?

Dr. Michael B.: Yep. Not us.

Dave Asprey: Yeah, exactly. Those strange creatures who dwell in the light. For them, waiting an hour after they wake up, because they already have all the energy.

Dr. Michael B.: Right.

Dave Asprey: They already have an acid spike that comes. But then I find that people who wake up slowly like I do, that they generally benefit from the acid spike, which coffee does. This myth of acid coffee is BS. Coffee always has fruit acids in it.

Dr. Michael B.: Right.

Dave Asprey: Which increase acidity in the short term, and then they increase alkalinity over the long term.

Dr. Michael B.: Correct.

Dave Asprey: Which is what gives you power and then endurance.

Dr. Michael B.: Right.

Dave Asprey: So, I find a cup of coffee in the morning, for people who wake up slowly, seems to help get the cortisol up enough that they're fully awake.

Dr. Michael B.: Well, so it's interesting because wolves unfortunately a lot of the times have to wake up before their body wants them to. And so wolves actually, they 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-

Dave Asprey: I hear you.

Dr. Michael B.: You see what I'm saying?

Dave Asprey: Yeah, I hear you.

Dr. Michael B.: But it's-

Dave Asprey: The timing of coffee matters.

Dr. Michael B.: Right.

Dave Asprey: And it's, did you get enough sleep and wake up at the right time?

Dr. Michael B.: Yep.

Dave Asprey: I totally buy it there. And by the way, I've had other people on the show who were like, "Coffee is bad for you." And most of them are-

Dr. Michael B.: No, I don't think coffee is bad for you at all. I drink it every day.

Dave Asprey: Most people who say that, they generally look weak and frail. And it's okay, we love them anyway. I share compassion.

Dr. Michael B.: Absolutely, absolutely.

Dave Asprey: On that note, Michael, again, ThePowerofWhenQuiz.com. And for people listening, you know, I have a lot of writers and a lot of authors on who do a lot of cool stuff, and some books I recommend more whole heartedly than others. I don't have anyone on here who is just pumping out crap, because your time is too valuable for that. And there are some books I'm like, "Wow. That's something I've never come across." This is one of those 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. So, if you are into biohacking, you really, really want to read this book. It's one of the ones that belongs on your shelf. So, thanks Michael.

Dr. Michael B.: Thank you, Dave. This has been awesome.