

Ben Greenfield: If you're just walking through the airport, you see the next best diet book on the bookshelf, pick it up and start eating, obviously, that's a far less scientific process in my opinion, because what you put in your body is what your cells are going to be made out of. It's almost like playing with fire. In my opinion, that's the same as just taking some medication willy-nilly because it worked out for some person that you know. That's not necessarily what's going to work for you.

Robert Glazer: Welcome to Elevate, a podcast about achievement, personal growth, and pushing limits in leadership and life. I'm Robert Glazer and I chat with world-class performers who have committed to elevating their own life, pushing the limits of their capacity, and helping others to do the same.

Robert Glazer: Welcome to the Elevate Podcast. Our quote for today is from Robert Kennedy, "In my judgment, physical fitness is basic to all forms of excellence." Our guest today, Ben Greenfield, has spent his entire adult life as an elite performer in all facets of physical fitness. Ben's been named multiple times as one of the top 100 most influential people in health and fitness and for the past several years has coached the world's top CEO's, biohackers, professional athletes from all major sports, including the NBA, NFL and beyond, on optimizing their health and fitness. He's a former top ranked triathlete, a New York Times best-seller, author and a world-renowned speaker. Quite a renaissance man. Ben, welcome. I'm excited to have you join us on the Elevate Podcast.

Ben Greenfield: Hey, what's up, Robert? It's been a little while.

Robert Glazer: It has been. Sorry to miss you at the event a few weeks ago.

Ben Greenfield: Wait, which event?

Robert Glazer: MMT event.

Ben Greenfield: Oh, yeah, yeah.

Robert Glazer: Were you there? Yeah.

Ben Greenfield: Yeah, down in Cabo. It was good.

Robert Glazer: Yeah. All right, so you have a unique story, including for starters that you were homeschooled until you were 16. Can you share a bit about that experience and some of your early days?

Ben Greenfield: Well, being homeschooled was... it works for some people. I am, and always have been, a pretty self-motivated learner, meaning total bookworm. Growing up I loved to read, I loved to write, I loved to study. I was happy as a clam, kind of like my own twin boys are, just curled up with a book 24/7, so for me it worked out pretty well to be homeschooled. I was able to learn at a pretty accelerated pace and graduate high school when I was 14. Homeschooling for

me, back in that day, was largely curriculum-based. I'm actually a bigger fan now of more life-based, experiential education, which is what I'm doing with my boys. It's more unschooling than homeschooling, in which their math curriculum is building a tree fort and chemistry is cooking in the kitchen and culture is traveling around the world.

Ben Greenfield: We just returned from Dubai last night and I kind of like that mode of education even more than sitting around the kitchen table in kind of a stereotypical traditional homeschooling environment, but it turned out okay for me just because I got lucky. Just I'm wired up in that I just love to study, I love to read, I love to explore and I'm intensely curious. Yeah, it was a good experience. Most of my social outlets were playing sports, a little bit of theater, a little bit of music thrown in, but yeah, it was a good experience.

Ben Greenfield: I grew up in North Idaho, which has pretty liberal education laws, so there was no risk of a social worker showing up at the door and throwing me into school. It was good. I feel like it probably gave me a little bit of a step up when it comes to being able to think creatively outside the box, being a little bit more of a leader than a follower. Yeah, I think it served me pretty well.

Robert Glazer: Did you go right from homeschooling to college?

Ben Greenfield: I did and I should have taken one or two gap years because college was a rough transition for me when going from a pretty traditional homeschooling, Christian, conservative family, into the environment of frat parties and beer and women and a lot going on for a few years that probably held me back. I feel like I could have used that tuition money and bought an around the world plane ticket and gotten the socializing and all of that out of my system, so that I was able to focus and try in a more academic setting. Nonetheless, it is what it is, so yeah, I went from high school into college.

Robert Glazer: You were valedictorian of your class. Right?

Ben Greenfield: I was and I was also the king of the prom party and-

Robert Glazer: Every year.

Ben Greenfield: ... yeah, the most popular kid in my entire grade. Yeah, every year.

Robert Glazer: That is quite a jump. Well, clearly you made the transition pretty well because you applied to and got accepted by several medical schools, but then decided not to go. You had been studying science and as you said, we're kind of a bookworm. It sounds like that was your goal. What changed your mind once you finally started applying?

Ben Greenfield: Really, just the complete disillusionment with modern medicine based on me working in the private sector in hip and knee surgical sales for about six months

prior to what would have been me going on to and attending medical school and just been getting a very nasty taste in my mouth from medicine, for the way the insurance system is run, the unnecessary paperwork all the doctors have to do, the fact that most of the physicians were burnt out and had very little time to even focus on relationship or quality of care with each patient. Had I known more back in the day, I probably would have pivoted and gone more towards like concierge medicine or functional medicine or naturopathic medicine.

Ben Greenfield: Knowing what I knew back then, which was I was already a personal trainer and a nutritionist and a strength conditioning coach, I got back into fitness for a little while and just never wound up leaving it. Finding a great deal of success, especially in the media component of fitness and wellness and wound up doing a lot more eventually of what I do now, which is media production, a lot of online consulting with a small number of executive clientele, then writing, investing in the health and fitness and wellness space, and advising companies. Also, owning and operating my own supplements and functional foods company.

Ben Greenfield: I feel like I'm still able to help people in a way that I kind of wanted to help people or wanted to help people with the idea of becoming a physician, but now I actually research and network with a lot of physicians and wind up referring a lot of people to good medical care, so I feel like I'm still scratching that itch to be a caretaker and to help people out.

Robert Glazer: You had all these jobs then when you were in college. Right? You were running these businesses.

Ben Greenfield: Yeah. I think being homeschooled, again, kind of gave me a skewed perspective on productivity and on what a young human mind might be capable of. I was working four jobs as a bartender, a barista, a personal trainer, a tennis instructor in college and taking about 28 to 30 credits a semester. Wound up doing a master's degree in five years between the time I was 15 and 20. I squeezed a lot into those few years.

Robert Glazer: That's pretty incredible. Did you give out your fitness training card to people at the bar and tell them to call you the next morning?

Ben Greenfield: Well, it was kind of funny. I also worked at a French bakery across the street from the gym, so I'd go to the French bakery about 4:00 AM, open that place up. Get all the baked goods prepared and begin selling croissants and eclairs and 6:00 AM to the same people that I would wind up personal training for fat loss at about 6:00 PM that evening. Yeah, I did have a little bit of a hustle going there.

Robert Glazer: Did you sleep?

Ben Greenfield: Not much, but when you're that age, as you know the human nervous system is pretty resilient. I've warned my children about this, that you'll go for a period of time when you feel as though you're unstoppable and relatively bullet-proof to the assailants that you throw at your immune system and nervous system, but you've got to pay your piper eventually whether it's your gut, whether it's your immune system, whether it's a lack of melatonin production or pineal gland issues later on in life. It's best to not burn the candle at both ends despite your body being able to during certain phases of your life.

Robert Glazer: Well, that's interesting. We'll dig into that more. I want to flip back to the athletics because clearly, you've always been... [inaudible 00:08:10] you've even been a high-level athlete. How much of what you've achieved do you think is innate talent or how much is it the training regiments and things that you have developed?

Ben Greenfield: From an athletic standpoint, purely the latter. Like I mentioned, I grew up as a complete bookworm, a total geek. Played violin, I was president of the chess club, I was good at speech and debate, but probably par or even sub-par at most sports, aside from tennis, which I wound up going onto and playing in college. Even tennis, that was my initial foray into physical culture, was learning how to become faster, stronger, more powerful for tennis by utilizing smart training. Just watching a lot of movies and videos on training, reading a lot of books on training, and periodization, and how to properly structure your programming and really putting a lot of that science into my tennis practice, so I could almost use book smarts to become a better tennis player.

Ben Greenfield: Really, for me, from triathlons to body building to obstacle course racing, volleyball, swimming, everything I've done, I've taken knowledge and hard training and smart training and applied that to sport because I've always fought and uphill battle. I do not come from an athletic family, I am not naturally talented when it comes to body awareness, when it comes to strength, power, and any of that stuff, I actually do have to work pretty hard for it. Really, at my core, I'm a hopeless romantic who loves to sit around and read. I cry during drama movies and I'm anything but a jock at heart, but I kind of had to paint myself into this hardcore athlete going through college and trying to prove myself. Then, the next 10 years doing all these masochistic death races and Iron Man triathlons and train with the Navy Seals.

Ben Greenfield: I was doing all these crazy things I think partially because I wanted to prove that I was a hard-core athlete and not just like this kind of like soft nerd. Now, I've wound up I guess in a way giving myself the best of both worlds. Meaning, I taught myself how to be tough, how to be resilient, and how to be athletic, but I still retain some of the intellectualism that I think comes far more naturally to me.

Robert Glazer: Who did you want to prove it to?

Ben Greenfield: Myself and also the world. Being homeschooled, you are kind of like the odd man out, so I would show up at practices for basketball or tennis or soccer, whatever, really have to work hard to prove myself, almost harder than a lot of the other kids. Then, once I realized that I really liked sports, that they seemed to kind of like fuel me, that I loved to train, etcetera, I stuck with it, but still had to fight that uphill battle to constantly challenge myself to become better because none of it came naturally to me.

Ben Greenfield: I think a big part of it, too, is that myself and many other young men growing up in today's culture do not go through a rite of passage, do not go through that marked identification of crossing the threshold into manhood. I would hope that my own boys, who will definitely go on their own rite of passage, who will, they'll have a week out in the wilderness on their own when they're 13-years-old. They'll be recognized as having become men after going through that little vision quest. I would think that after going through something like that as a young... and being identified as a young man, being given that nod of approval that they've crossed the threshold, they might feel less pressure to say, so maybe when they're, whatever, 17-years-old to go sign up for an Iron Man triathlon or some hard-core spartan race. Not for fun, not for challenge, but to [inaudible 00:11:40] prove to the world that they're a certain something.

Ben Greenfield: I think that to a certain extent I fell into that during much of the hard training and masochistic type of competition that I did. It was trying to prove to the world versus me doing it to challenge myself and I think part of that was just the same thing that a lot of guys face these days and that's the question of am I a man, am I good enough, do I need to prove myself, do I need to feel my ego because they never actually feel like they became a man at some point. There's not that marked transition from boyhood into manhood that I think should be there, the cultural standpoint.

Robert Glazer: From not being athletic to running 120 races, 12 Iron Man's, and winning a gold medal in the long-course triathlon, to someone listening to this who maybe has never done even one of these before, how do you keep up the motivation. Now, I know you talk about where it comes from, but to compete at that level so many times, both the mind and body to be ready for a challenge like that. Has it gotten easier or is it as hard every time for you, but you've just learned how to power through it?

Ben Greenfield: It's always hard. You do have to learn how to deal with the suffering, the pain. You just have to roll out of bed and train even when you don't want to feel like rolling out of bed to train. For me, being a CEO of a company and putting in in many cases 12 to 16-hour workdays and trying to squeeze in the training in the early morning or the late evening or in between everything else, yeah. I mean, it's as Teddy Roosevelt would have called it, the strenuous life. The work never stops and if you really want to have a strong physical body, in addition to let's say a strong possession of mental faculties and good financial status and fulfillment of Maslow's hierarchy all at the same time, it does take a lot in terms of just focused training, consistent training, smart training.

Ben Greenfield: I really do for myself quite a bit of like high-intensity interval training, heavy weightlifting and kind of like quality over quantity, so I don't do a lot of long runs. For me, a run might be 20-minutes on the treadmill of two minutes as far as I can go, one minute recovery between each. I wouldn't go on a five-hour bike ride like a lot of my Iron Man triathlon competitors in my category. I would instead go out on an hour and a half long bike ride, but it would be indoors, on a Compu Trainer with the power extremely, precisely quantified with very quantified intervals and blood lactate testing or hypoxia, that type of thing.

Ben Greenfield: Even back in the day, I really started doing a lot of biohacking with something like triathlon or endurance sports just to get that advantage due to limited time availability to train, but yeah, I mean, it's not easy. Just like anything in life, you've got to work for it, but I mean, if an Iron Man triathlon was easy, it really wouldn't be something that people would see and think, oh, that's quite the accomplishment or that's really like climbing your own personal Mt. Everest. Yeah, it does take a lot of focus.

Robert Glazer: Interesting. You mentioned biohacking and you've established yourself as an expert on biohacking and then have extensively experimented on your own body. There's a lot of misinformation out there about I think what biohacking is and what we should be doing or not doing. I'm curious how you define it and the methods that you've actually found to be... some of the methods you've found to be most successful.

Ben Greenfield: Sure. I think biohacking has become like a popular, slightly annoying kind of catch-all term for everything from like jumping on the trampoline to get fit to putting butter in your coffee to lose weight. Really, the original biohackers were truly like computer hackers. They were doing things like implanting chips in their fingertips or magnetic implants in their ears to hear better or compasses in the chest to vibrate every time you'd face true north. They actually would use hardware to enhance what they would call the wet wear, right, their human body. I don't think that you have to go that extreme to be considered a biohacker or to incorporate something like a biohack, but really it's just using science or technology to enhance your biology or to get results in a more efficient or fast manner than you would be able to without said hack.

Ben Greenfield: For example, it doesn't have to be something completely unnatural to be a biohack or at least you don't have to get like, I don't know, like a bionic arm and install it over your forearm. Instead, for example, if you take something like sunlight, we know that sunlight is good for you, we know that UVA and UVB radiation is good for the skin and we know that it enhances vitamin D production and normalizes your circadian rhythm. When you get sunlight early in the day, it enhances your sleep cycles and increases your nitric oxide production, which is like Viagra for your whole body and it helps out with your collagen, your elastin, your thyroid, your testosterone. At the same time, many of us living in the post-industrial era, because we're relegated to indoor work or indoor jobs or don't get as much sunlight as our ancestors might have been

exposed to or perhaps we live in Seattle or Portland or it's winter or whatever, we don't get that amount of sunlight, but you can biohack that.

Ben Greenfield: For example, like I mentioned, I just flew in from Dubai last night, so I had to work this morning indoors in my office, but I have a special pair of glasses I put on that simulate sunlight. Similarly, I have a special pair of in-ear earbuds that also simulate sunlight, so I'm getting sunlight in my ears, sunlight in my eyes, and I also flip on these infrared and red light panels [inaudible 00:17:09] office that simulate the infrared light that you get from the sun. I'll stand in front of those for 10 to 20 minutes a day every morning. I'm trying to like biohacking sunlight where I'm getting the equivalent of sunlight in my own office using what one could argue to be biohacking technology.

Ben Greenfield: Another example that would be we know that our ancestors spent a great deal of time outdoors barefoot because the earth actually emits an electrical field that's actually anti-inflammatory and there's an enormous body of research on the anti-inflammatory benefits of touching the planet earth and going outside barefoot, walking barefoot, climbing trees, climbing rocks, etcetera or even swimming in the ocean, walking on the sand, but again, that's something that might be difficult to do living in a post-industrial era. For eight hours last night, I slept on the ground by plugging a mat into the wall next to my bed that just pulls all the negative ions from the earth up through the copper grounding plug of the house and allows me to sleep on that on a mat during the night, which would be also a biohack. That's not necessarily unnatural, it's just like simulating something that we get in nature, but that we're unable to get based on our modern lifestyles.

Ben Greenfield: For me, most of the biohacking technology I use, whether it's cold or heat or light or earthing or grounding or supplements or anything like that, they're really just meant to kind of mimic a more concentrated sources or in more convenient sources what we get from nature. I think that's really the best way to biohack.

Robert Glazer: Those are good examples. I understand the sun and the glasses, I understand the sun and the other thing, can you explain the sun and the earbuds because that one's not intuitive to me?

Ben Greenfield: Yeah, well, you have photoreceptors all over your skin. This is why, let's say if you're wearing a sleep mask and you have blackout curtains in your bedroom to help you to sleep better due to the absence of light, because we know that artificial lights can shut down your melatonin production, but let's say there's the computer on or another light on somewhere in the room and your skin is exposed to that, well, you'll still get poor sleep despite you say, wearing a sleep mask or having blackout curtains, which is why it's important you just unplug everything in the bedroom or even buy LED light blocking stickers off of Amazon that you can place over things that light up a room. Whenever I go to a hotel room and it's lit up like a Christmas tree when you turn off the lights in the hotel

room, I kind of like go through and unplug a whole bunch of stuff just because of that.

Ben Greenfield: Now, you do have photoreceptors all over your body. They did a study that showed that a tiny, tiny light shown at the back of knee actually affected sleep cycles even in the absence of all other factors. Those photo receptors also exist in your ear and the research in Finland has shown that when you target the photo receptors in the ear, it affects seasonal affective disorder, meaning can eliminate or lower occurrence of seasonal affective disorder and they can also regulate the circadian rhythm by shifting your circadian rhythm meaning that at whatever time of day that you were to put lights in your ears, it's going to tell your body that it's bright sunlight, that it's daytime, and that it's morning.

Ben Greenfield: Ideally, if you travel, then you're a few hours off your time zone, when it is morning wherever you happen to have traveled to, you put those in your ears and [inaudible 00:20:25] you can't get outdoors into the sunlight, it's going to send your body a pretty strong message that it's daytime. You can also use it as a hack for other situations like let's say you are someone who typically goes to bed at 10:00 PM, but you've been invited out to a party and you know you're going to need to be up to 1:00 AM at that party, well you put those things in your ears right before you go to the party and that gives you a little wake me up. Right? It sends your body a message, says, "Yo, it's daytime. You can keep on rocking and rolling." That's the idea. It's just based off the fact that photo receptors exist all over your body on the surface of your skin and they're pretty dense inside the surface of your ears.

Robert Glazer: It's a light. That is fascinating. If you're under the covers, does that block the light?

Ben Greenfield: Yes.

Robert Glazer: Okay.

Ben Greenfield: Yeah, if your body is under the covers, that would theoretically block the light, but many of us have arms or legs kind of-

Robert Glazer: Yeah.

Ben Greenfield: ... kind of strewn out from underneath the covers or the face, etcetera. What I do is in the bedroom, I make sure that there's really not a lot of lights and if a device does emit light, then I'll buy those, like I mentioned, LED light-blocking stickers off of Amazon or something else that will cover up the light. Then, the other thing that I do is I just got rid of all the light bulbs in the bedroom and replaced them with red incandescent light bulbs, which basically simulate torch light or fire light or candle, so when I click on the light, if I need to pee in the middle of the night or whatever, I'm not getting my melatonin level suppressed

because all it is, is red light and it's really the blue light from traditional LED lamps or your normal light bulbs.

Robert Glazer: Everything's blue these days I've noticed, yeah. It seems like every, ironically, like every light, every clock is blue.

Ben Greenfield: I know. Yeah.

Robert Glazer: Every button on the printers, they're all blue.

Ben Greenfield: Yeah. Obviously, the other hack would be just to get those mildly unattractive blue light blocking glasses that are kind of like a red or the orange tinted lens that you can wear in the evening, but again, like if you get up during the night to pee, it's easier just flip on the lights and have red incandescent then to fumble for your glasses and try to find those on the bedside or maybe you left them in the kitchen or whatever.

Robert Glazer: Interesting. Another challenge people have, I think, in understand health and nutrition is the fact that there are consistently new fad diets coming out and I know, ketos talked about a lot and you've written, talked a lot about keto. Do you think that keto is something that is a short-term thing, or can it be long-term solution for people because I've read really opposite opinions on this?

Ben Greenfield: The idea behind ketosis is, returning to the discussion of our ancestors, kind of natural in that if the human body were to need to go for a long period of time without food, it can rely upon these ketones, which essentially are produced through the burning of your own adipose tissue and free fatty acids rather than utilizing exogenous sources of fuel for energy. The cool thing is that our growing body of research has demonstrated that these same ketone bodies, whether you're getting them through burning your own fat or whether you're getting them from any of these fancy new supplements like ketone esters or ketone salts actually can be very anti-inflammatory, they can serve as a stable fuel source for the liver, for the heart, for the diaphragm, most notably in cases of Alzheimer's and dementia for the brain, so there's like this mild health therapeutic effect of these ketone bodies as well.

Ben Greenfield: Now, the issue is that a modern ketogenic diet is not producing ketosis through say fasting and high-intake of plants and vegetables and low-level physical activity throughout the day, but is often instead of achieving it through heavy creams, fat bombs, half a stick of butter in your coffee, and a bunch of supplements. The problem is that with that type of scenario, especially a high saturated fat type of scenario, many people genetically do not do well with that. Many people, for example, up to 20% of the population in some areas, they have familial hypercholesteremia, which means at a ketogenic diet, high-fat, low-carb is going to shove cholesterol levels through the roof. Those people would do better on something like a Mediterranean diet, for example, or for example a Catawban diet, meaning there's a group of islanders, the Island of

Catawba where almost everybody has familial hypercholesteremia, but no heart disease. The reason for that is because their diet is highly protective. It's not ketogenic. It's like a lot of fish and fresh citrus fruits and tubers and vegetables and coconut, like coconut meat, coconut flesh, coconut water, so that would be a diet more appropriate for people with natural high cholesterol levels.

Ben Greenfield: Some people actually have a very high inflammatory response to saturated fats, and it can damage the gut microbiome and it can cause rampant inflammation. For those people, sure, perhaps they can get away with the ketogenic diet, but it shouldn't be like cream and cheese and butter and lard, but should instead be almost like a low-carb version of a Mediterranean diet, where lots of fish oil and olive oil and avocado and olives and seeds and nuts and things like this. Some people have poor gallbladder or poor liver function due to high alcohol intake or perhaps they've had their gallbladder removed, etcetera. Those people just can't digest a high amount of fat. It gives them fatty stool or gives them stomach upset. Perhaps they can do a ketogenic diet, but they have to supplement with a lot of lipase or a lot of bio supplements or things to help them to digest all these fats.

Ben Greenfield: Ultimately, the takeaway message is that ketosis can work if you're genetically adapted to that type of diet and even then, if you have high levels of physical activity like me, I exercise a lot, but I also limit carbohydrates. However, I'm not fully ketogenic. I use what's called cyclic ketosis, meaning that I don't eat many carbohydrates the entire day. I'm forcing my body to burn fatty acids the entire day. Then, at the very end of the day, I do an exercise session, like weightlifting or high-intensity interval training or something like that, and then I have all carbohydrates at dinner.

Ben Greenfield: The reason that works out really well is because A, dinner is kind of like the one meal of the day that tends to fluctuate the most, that tends to often be social, or it tends to be that meal that we might be more likely to cheat on, so saving all your carbohydrates for that meal, rather than using your carbohydrate paycheck earlier on in the day, can be a way to ensure that you are able to have your cake and eat it, too. Then, two other things about B, if you do exercise in the later afternoon or early evening and then have all your carbohydrates at the end of the day, those carbohydrates don't stay in your bloodstream for a long period of time. They don't spike your blood sugar that high because you've just exercised, so they're more likely to go into muscle or go into the liver and get stored away as carbohydrates for the next day's activity. Then three, some amount of carbohydrates at night can help with your melatonin and your serotonin production, so you sleep a little bit better.

Ben Greenfield: I think cyclic ketosis like that, especially for an active person, is better than ketosis and I also think there's a large portion of the population that just should be careful with the high-fat, low-carb diet anyways, especially if the high-fat, low-carb diet is like this modern new-fangled version of the ketogenic diet that's like these keto donuts and butter and lard and all that jazz.

Robert Glazer: All right. We're going to take a quick break for a word from our sponsor and we'll be right back with Ben.

Robert Glazer: Whenever I'm doing an interview and someone asks me about the best productivity tool I use, my answer is SaneBox. I've been using SaneBox for four years and cannot manage my email without it. SaneBox artificial intelligence monitors your inbox and moves email you don't need to read right away to your Sane Later folder. All that's left in your inbox is the important stuff. You can also snooze emails and have them come back to you in your inbox at the right time. If you know how email folders work, then you know how SaneBox works. Find an email in the wrong folder, just move it. There's nothing to learn, nothing to install. SaneBox works directly with every single email server or service that's ever been created. Get a free two-week trial and a \$25 credit by visiting SaneBox.com/Elevate, that's S-A-N-E B-O-X dot com, slash Elevate.

Robert Glazer: We're back with Ben Greenfield. Right before the break, you were talking about all these variations and there was something that I was going to ask you anyway. What I've seen, it just shows how personalized this stuff is, so I'm curious how you would advise people because what I see on these days of social media and stuff was when people are doing something, they're very in other people's face often about it. You'll see them do one last year and then everyone has to be vegan or has to be keto or has to be this or paleo or whatever. It seems like there's actually some danger in that. There's a line I've always heard, "One man's medicine is another man's poison." How do you advise people here with some of the disconnect between some of the Eastern and Western medicine in terms of where do they go to? They might go to their doctor and they don't even want him to do any of this stuff or they might do it themselves and they really should get their blood checked.

Robert Glazer: I actually had a friend who had that cholesterol thing, so he went on keto, his cholesterol went through the roof, but he was having his blood checked by his doctor, so he caught that. This seems like a difficult thing for most people to navigate who are trying to work on their health.

Ben Greenfield: Yeah, a few things. First of all, just a quick aside. I'm not saying high cholesterol is bad, but hypercholesteremia where we're not talking high cholesterol, like I purposefully keep my cholesterol levels above 200, my total cholesterol above 200 because a high cholesterol in that range has been shown to be favorable for testosterone and hormones, for cognition, and even for overall longevity, and reduced all cause risk of mortality. What I'm talking about is familial hypercholesteremia where it's literally like 400, 500. 600, like super high. That's where you need to be careful. It's just a quick clarification there. Now, with regards to question about diet, yeah, I mean, the dirty little secret in the fitness industry is that if you want to make a lot of money, you write a diet book and preferably it be some myopic diet that says this is the perfect human diet for everybody because you can sell more books that way and your diet will become more popular and brandable.

Ben Greenfield: I literally just finished writing a book that comes out this January called Boundless and, in that book, there is no one size fits all diet. There's actually an entire chapter on how to customize your diet to you, but I do have in that book an explanation of the 10, 10 different diets that I use with people who I consult with just based on what their needs are. Like, lowering inflammation or increasing sports performance or increasing fertility or pregnancy or something like that, so I pick and choose from a large number of diets. From a ketonic diet to a low-carb Mediterranean diet to a vegan diet to a carnivore diet, there's a lot of different variants that work well for different people, but if you want to figure out what is the best diet for you, there are a few steps that you can take.

Ben Greenfield: Number one would be just a basic salivary genetic test, right? Test your DNA. You could use 23 and Me. They don't test for a huge variety of snips. You could test with the Health Nucleus in LA and get your whole genome sequenced. There's a company up in Canada called The DNA Company that tests for a decent number of snips, but basically, once you know your genetic data, you know A, where you came from, so you can get a decent idea of what your ancestors ate, whether it's Hispanic or sub-Saharan African or Southeast Asian or Northern European. You can look at the Indigenous diet of the people that came before you and roughly approximately that's going to be close to what your body is equipped to eat.

Ben Greenfield: Meaning, like I'm largely Northern European, so I do pretty good with salted foods, fermented foods, wild caught fish, decent amounts of meat, not a huge amount of saturated fats, but 10% to 12% of total fat intake from saturated fats and some small berries. Not a ton of starches and vegetables. Whereas, somebody from sub-Saharan African or Southeast Asian population, they might be more rice-based or fruit-based or less of the big, fatty animals and more small game or more fish. You're entirely dependent on ancestry and genetics and furthermore, if you take your genetic data that you test with and export it to one of these websites that will give you a deep dive into certain predispositions that you might have, let's say like diabetes or heart disease or prostate cancer or anything like that, you can dress up your diet with certain supplements and certain foods that can decrease risk of those diseases.

Ben Greenfield: If you have a high risk of atherosclerosis based on your genetics, you can include a lot of green tea or flavanols from berries or fermented foods or some of the things that could decrease risk of that actually manifesting and becoming an issue. Websites like that, that you could export your data to, would be like Genetic Genie or My Heritage or StrataGene or any of these other companies that will take that genetic data and really allow you to go more deeply into health data that you can get from that. Furthermore, certain people have food allergies. There are certain foods you just shouldn't have regardless of which diet you're eating and there's a really, really good food allergy test you can get. Most kind of give you a laundry list of false positives.

Ben Greenfield: There's one company called Cyrex, your physician would have to order for you from that website, C-Y-R-E-X, but it's a very good food allergy test that gives you

good data, well-verified, scientifically robust, that does not result in a laundry list of false positives on a hundred different foods that you shouldn't be eating. Now, it's not only be a food allergy test. Just a full-spectrum blood test where you look at thyroid, white blood cells, red blood cells, doing inflammatory markers, what's my vitamin D status, what's my magnesium status. That can be really good for knowing which supplement that you might need to fill in the gaps. Like, if your vitamin D are high and you start taking a vitamin D supplement because it worked out well for your neighbor, then you might develop vitamin D toxicity because vitamin D is a fat-soluble vitamin that can actually become toxic or if you feel like you should get on some strange, whatever, Ayurvedic herb for increasing testosterone and your total testosterone is just fine, then that might not be what you need to do. It might be that your free testosterone is low, so you should be going after cortisol and yoga and breath work and stress management because you're making testosterone just fine. It's just that you're so stressed out that it's not becoming bio-available and free.

Ben Greenfield: You've got a genetic test, you've got a food allergy test, you've got a blood test, and then a couple others that could be helpful would be, A, a stool test to look at your gut, like yeast, parasites, fungus, whether or not you need to take certain strains of probiotics, whether or not perhaps you need to some kind of a gut cleansing diet for eight to 12 weeks before launching into whatever other diet that's going to be more of your long-term diet for life. I think gut data can be really, really eye-opening because the gut in functional medicine is kind of like where you start for all health because the gut has an effect on the brain, has an effect on the immune system, has an effect on the hormonal system. I think that the stool test is really good and there are companies that will test the entire biome of a stool, like Viome or Onegevity. There are other companies that will just give you a basic idea of the most important inflammatory markers in the gut. I like one from Genova Diagnostics called the GI Effect Test, but stool is really good.

Ben Greenfield: Then, finally, if you want a really, really clear picture of what's going on with you hormonally, like melatonin, cortisol, testosterone, estrogen, progesterone, maybe you want to know if you should be on a bioidentical hormone replacement or you want to know why you can't sleep, etcetera. There's a urinary test called the Dutch test and the Dutch test is really good, so it will test for neurotransmitters for hormones, for a lot of this stuff that you can't get from blood or that you get an inaccurate picture from, from blood. Once you put all this together, so when I have a client come to me and they're asking me for a diet program, that's the first thing I do is they'll due at minimum a saliva test, blood test, food allergy test, urinary test, and stool test.

Ben Greenfield: Then, armed with that data, and then basically their activity levels, their body size, their body fat, etcetera, I can then sit down and say, "Okay, this is a diet you should be on. This is how many calories you should eat. These are the supplements you should be taking, the supplements you should be avoiding," etcetera, but yeah, if you're just walking through the airport, you see the next

fad diet book on the bookshelf and pick it up and start eating, obviously, that's a far less scientific process in my opinion because what you put in your body is what your cells are going to be made out of. It's almost like playing with fire. In my opinion, that's the same as just taking some medication willy-nilly because it worked out for some person that you know. It's not necessarily what's going to work for you.

Robert Glazer: Interesting. Yes, I think that proves how personal this stuff has become and I always say I'm going to write an award-winning book called Eat Less and Workout More. See if I can make the New York Times best-seller list. Let's talk about fasting for a second. I know you recently led a fast I think where 10,000 people participated this year. Can you please explain why it's beneficial, some do's and don'ts for people who are maybe thinking of trying it? Also, this feels like another thing that pendulum shifted to me. Years ago, it was like eat lots of small meals, don't eat big meals because of spiking your blood sugar. Now, people are talking about fasting and having these windows. I don't know whether it switched, but I know you know the answer to this, so I'd love to understand it more.

Ben Greenfield: Okay, got it. Yeah. Another multi-faceted question.

Robert Glazer: There are a lot of pieces in that, yeah.

Ben Greenfield: Yeah. The latter part of your question is the easiest to answer. Yes, there was a time when the fitness and wellness and diet industry used to say snack and graze to keep your metabolism elevated, which seemed to make sense based on the idea that there's a mild, very mild thermic effect of food. Meaning, every time you eat, it does take a certain number of calories to digest that food, but it turns out that the amount to which that fluctuates your blood sugar and the amount to which that takes you out of the potential for ketos or fatty acid oxidation, research has since shown that eating any more than two square meals a day is not necessary to keep the metabolism elevated and, in fact, that constant snacking and grazing might be deleterious to your blood sugar levels and your metabolism.

Ben Greenfield: We know that that's no longer true based on science even though it seemed to make sense at the time it was being said. It's since been discounted. Now, regarding fasting, we do know from religious practices to modern science that there is something called cellular autophagy and a full-body cleanup, clarity of mental function, relief of gut symptoms, normalization of blood sugar that occurs when you go through certain periods of time where you limit the number of calories that are being shoved into the pie hole. Now, some people take this to a pretty far degree, meaning that there are people doing now five-day plus water fast, three-day fast, it seems like sometimes there's almost like this little bit of a competition to see who can fast the most or the longest or he's got the coolest fasting protocol.

Ben Greenfield: I had Twitter CEO, Jack Dorsey, on my podcast and within a week he was painted as having an eating disorder because he mentioned that I think he's on the one meal a day protocol and does something like a 24-hour fast once a week. All of a sudden, he has an eating disorder. I don't necessarily think that's the case. I think that there can be, especially for a busy person, cognitive and productivity benefits just saving all of your calories until the end of the day provided that that end of the day meal is a pretty glorious meal with adequate calories to sustain your body. Maybe it's a ribeye steak with some sweet potato fries and a glass of wine and some dark chocolate and some gelato and a nice salad, so you're shoving all your calories into that very end of the day protocol. It can work, but that being said, there are all sorts of different types of fasting protocol that we can now find in the literature.

Ben Greenfield: For example, a researcher named Dr. Valter Longo found that something called a fasting mimicking diet can have the same cellular autophagy and longevity enhancing effect as a long strict fast. Meaning if on a twice a year, up to quarterly basis you simply restrict the amount of calories that you eat until about 40% of what you normally eat, meaning if you normally eat 2000 calories a day, you go for five days you only eat 800 calories a day, that can be just as good for cleaning up your body as doing a five-day strict water fast for those five days, so it's very interesting in that mild calorie depletion can mimic what we might get through total calorie deprivation.

Ben Greenfield: That's step one is that two to four times a year I think that it is beneficial to do about a five-day washout where you're only eating about 40% of the calories that you normally eat. That would be just brief periods of time during the year that you do that. Furthermore, we know that having a compressed feeding window as many days of the year as possible is beneficial. Meaning, consuming most of your calories during an eight to 12-hour window, rather than all day long. This would be considered like a 12 to 16-hour overnight fast. Women seem to do best metabolically keeping that window closer to 12 hours while men seem to do best keeping that window in the 12 to 16-hour window with the more active men only needing closer to 12 hours and the less active men who might be more sedentary during the mornings, not doing a CrossFit workout in the morning or some hardcore workout in the morning, doing better with 16 hours.

Ben Greenfield: As many days as possible of the year, you have about a 12 to 16-hour period of time where you're simply not eating calories, such as 8:00 PM dinner, shove yourself away from dinner at 8:00 PM and you don't eat again until at least 8:00 AM and possibly, especially if you're a man, even until lunch. Then, finally, regarding the 24-hour fast, I am actually a fan of about two to four times a month simply having a 24-hour-ish dinnertime to dinnertime fast. Meaning, for me it would involve eating Saturday's dinner, then not eating until Sunday dinner. You're basically skipping Sunday breakfast, skipping Sunday lunch. You get kind of hungry on Sunday around 2:00 or 3:00 PM and then you eat Sunday's dinner.

Ben Greenfield: Because I travel so much and because fasting can have a pretty profound impact on limiting a lot of the effects of jet lag and the inflammation that builds up during travel, I'll often time that 24-hour fast, so that it occurs during overseas travel or a long travel period because it's simple for me to just drink a bunch of water on the airplane, not eat on the airplane because the food is crap anyways, and then just wait until I get to wherever I'm going at in the world to have my first meal. If you travel a lot, you could simply time that longer, 24-hour fast when you happen to be traveling, but in a nutshell, I think a quarterly, five-day, calorie deprivation period, a daily 12 to 16 hour regiment and fast, and then one to two times a month or when you travel, a 24-hour-ish fast is a very simply and sustainable way to get a lot of the benefits from fasting without being cold and hungry and libido-less your whole life because you're just eating like a rabbit.

Robert Glazer: What you're saying, that's very good advice. One of the things I'm laughing at is that I think about what the airlines do, which is on an overnight flight, you get on, they give you alcohol, you serve you dinner, they serve you breakfast two hours later. This doesn't sound like it's going to set you up for success.

Ben Greenfield: No. I mean, like I mentioned. I flew in from Dubai yesterday, so I flew Dubai to Amsterdam, which is six and a half hours. I had five bottles of water on that flight and then, had four hours in the Amsterdam airport. Then, flew, and didn't eat anything during that time. Just had two more giant things of sparkling water with some mint and some ginger for the stomach. Then flew 10 hours Amsterdam to Seattle and drank a copious amount of water on that flight. About halfway through that flight, I did have something in my bag that I'll sometimes have in there if I do happen to just get super hungry, can't sleep or whatever where it makes you more hungry if you're awake that doesn't spike my blood sugar level.

Ben Greenfield: In that case it was macadamia nuts, so I had about 10 to 12 macadamia nuts about halfway through that flight and then, finally, when I got home, unpacked, etcetera, I had a lovely meal last night with my wife. Some nice, like, half a roasted chicken and some sweet potato fries and I had a little bit of a homemade gingersnap molasses cookie that she made for dessert and a glass of wine. When I break the fast, I break the fast and I give my body the nutrients that it needs, but yeah, I mean, from a jet lag standpoint, you feel so much better when you don't face stuff during a long haul flight.

Robert Glazer: How much water per hour should you have on a flight?

Ben Greenfield: Well, it depends on if you're sleeping. If you're just crashing out and sleeping hard, which I'll often do. I like to use CBD, high-dose CBD to sleep on a flight, so in that case it wouldn't be that much water because I'm sleeping. In this case, I was in the UAE and I travel like a month when I'm in the UAE. I don't bring any drugs or anything like that because I'm very careful in that area of the world. In this case, I was more like napping on and off during the flight, so in a situation like that, my goal is about 16 ounces of water per hour. A standard, kind of like one of those large plastic water bottles they have on the flight.

Robert Glazer: Yeah.

Ben Greenfield: Then, there's like a special hack you can use to maximize the anti-inflammatory benefits of that water and it's these dissolvable hydrogen tablets. You can buy them from a lot of different websites now. You take these hydrogen tablets, you dissolve them in the water, and that amplifies the anti-inflammatory benefits. What I do is a hefty serving of the supplement glutathione both before and after the flight, fasting as much as I can during the flight, and then I use that hydrogen rich water during the flight. Then, when I land, for a long-haul flight, I have a whole bunch of stuff that I do. Like, I get outside barefoot or use that grounding or earthing method that I talked about. I use the infrared light that I talked about earlier. I have a hyperbaric oxygen therapy chamber in my basement, so I'll usually get in that for about one to two hours because it just drives oxygen into the tissue. It helps you recover really fast. It's also very, very good for [pec 00:46:46] injuries. Then I have what's called the Pulsed Electromagnetic Field Table, a PEMF Table, and I lay on that for about an hour and it just shuts down all the inflammation. For me, back in the day, a long-haul flight like that really is, to fully recover, four to five days. Now, I'm typically good to go the next day.

Robert Glazer: That is a lot. I will take down the notes it's all it takes is all that stuff and a hyperbaric chamber, but I can understand why it works and yeah, I can see typically what people do on a flight is probably not helping them. Well, you've alluded to recovery a lot and I think recovery time is probably a big aspect of training and health. What kind of damage can be done when people don't properly recover? I know you talked about this more if you burn at both ends, you pay the piper eventually, but in terms of thinking about fitness regiments and intervals, how should people think about recovery time?

Ben Greenfield: Well, there's a lot to unpack there, but the biggies are that that people should take into considerations, A, best way to know if you're fully recovered is not necessarily to pay attention to muscle soreness, but to instead pay attention to your nervous system. For example, professional European football teams, which tend to be ahead of the curve when it comes to recovery and also performance, for the past decade they've been using a metric called HRV to track that. Very simple. You can use a ring or wristband, a ring like Oura or a wristband like Whoop or an app like Nature Beat. You simply put that on in the morning and it actually spits out a score for you, like a readiness score or a recovery score. What it's measuring is the actual nervous system, specifically HRV or heart rate variability. What it measures is the amount of time in between each beat of the heart. That indicates how well your sympathetic and your parasympathetic nervous system are balanced.

Ben Greenfield: I look at my HRV every morning because it tells me whether I'm truly recovered. Typically, your nervous system takes about 24 to 48 hours longer to recover than your musculoskeletal system and furthermore, your nervous system starts to give you clues in advance if you have some immune system dysfunction or impending injury or illness type of issues, so it's a really good way to nip any issues in the bud. I encourage everybody and I do this with all my clients, I keep

track of their HRV levels, so look at HRV every single morning to give you an idea of whether or not your body is ready to train.

Ben Greenfield: Then, some of the better ways to recover aside from sleep, which is, that's the elephant in the room, that's the biggie. You sleep in a quiet environment, in a dark environment, in a cold environment. That's the best way to amplify your sleep levels through the roof. A few of the things that you can do for recovering more quickly, number one would be that carbohydrate [refeed 00:49:32] that I talked about in the evening. It helps to restore your glycogen levels and your body can bounce back a lot more quickly if you're not completely restricting carbohydrate and doing like the full-on ketosis thing, especially if you're an athlete or someone who likes CrossFit or heavier amounts of exercise.

Ben Greenfield: I'm a huge fan of infrared therapy. I use a lot of infrared sauna and a lot of colds. Meaning cold and heat really help to move blood flow around the body, so as many days of the week as possible I'll hit the sauna, then after 20 or 30 minutes in the sauna, do a cold shower or a cold bath or a cold soak. There are a lot of companies now making done for you cold baths that you can have in your house. Like, this is a newer company, I think I'm getting one this weekend. It's called the Morozko, M-O-R-O-Z-K-O and it's like this big, beautiful cold tub that you can just jump into. Just two to five minutes in a cold tub is amazing for recovery.

Ben Greenfield: I'm also a huge fan of doing some kind of magnesium bath or some kind of float tank. Float tank and float tank centers and facilities are getting a lot more popular now. You can usually become a member and get in the float tank once a week. Your body soaks up all those minerals, it's just wonderful for the body. If you don't have that, you can just buy magnesium flakes and dump them into a bathtub and take a bat one or two times a week in those. That's really great for recovery.

Ben Greenfield: Then, one other that I'm a huge fan of is regular deep tissue work, whether self-inflicted or via massage. What my protocol looks like is every morning when I get up I'll listen to a podcast or audio book or the news and I'll foam roll during that time and use lacrosse balls, foam rollers, anything that allows me to really dig into tissue. That's like 10 to 15 minutes every morning. Usually while the coffee is on or the water is heating for tea, I'm doing that, so I figure by the end of the week I'm getting like 75 minutes of good deep tissue work that keeps my body nice and supple. Even if I don't get a massage that week, that really helps. I do that every single day. I even travel with little massage tools and massage devices or hit the foam roller at the hotel gym. That's just like every single morning. It doesn't count as my workout. That's just how I start my day.

Ben Greenfield: Then, on a weekly basis, I try to get a massage. Usually for me, I schedule a massage on Wednesday night. I have my massage service come over after my wife and kids have gone to bed, so I still get some family time. She'll pop in and usually my massage will end 11:00 PM or midnight. It's just like, that's an amazing thing to work in each week if you can just because the massage

therapist can get into areas you really can't hit yourself with a foam roller or a lacrosse ball or something like that.

Ben Greenfield: In a nutshell, test your HRV to know if you're truly recovered and pay attention to that to decide how hard you're going to train that day. Work in cold, work in heat, work in something like a mineral bath, getting outside barefoot, grounding in earthing, some kind of infrared light, and then daily deep tissue work and at least a weekly massage. That's, for me personally, how I just... I crush it hard year-round and knock on wood, stay pretty injury free and I really don't get sick very often at all.

Robert Glazer: All right. Well, that is a long list. I'm sure now that... I'm going to let everyone absorb all the things that they need to pay attention to. Obviously, you do this at a very high level, and I think some people are going to half to figure out which things work for them, which things don't, and if there's probably like hack versions of each of these.

Ben Greenfield: Yeah. I mean, honestly though, I hear that excuse a lot. I'm not trying to be rude by saying excuse, but I work, like I mentioned, 12 to 15 hours a day. I'm running two companies full-time, I'm writing books, I'm on a plane twice a week and I just squeeze all this stuff in. Yeah, I don't watch a lot of Netflix and I'm not wasting a lot of time. I don't watch movies on the plane. I sleep instead. I'm extremely busy, but even when I'm talking about stuff like the sauna or a massage or laying on a PMF table, during a massage I'm listening to team calls from my employees or audio books or podcasts to help me catch up on a topic I've got to study for the next day. If I'm in the sauna, I'm like catching up on a book that I need to read. If I'm on the PMF table, sometimes I'm banging out emails on my phone. I figure out a way a lot of times to combine my recovery or any of these other things that I'm talking about, with productivity. It's not like I'm spending my whole life just like recovering. I'm instead just living my actual life.

Ben Greenfield: Even just during this past hour I've been talking to you I've walked three miles on my treadmill. I've gotten my aerobic activity in because I've been walking the whole time I've been talking to you. If you start to stack these things, there's no reason you can't still be a productive individual and have a "real life" and be a busy... Most of the executives I train, they're doing all this stuff, too, but they're still running companies. That's the idea is you just figure out a way to combine this stuff with your normal productivity during the workday.

Robert Glazer: That is really good advice, integrate it. I'm standing the whole time. I'm impressed. You would have heard it if I was walking three miles, so clearly, it takes a lot more to get your heart rate elevated. Ben, what's... and this could be singular or repeated, what's a personal or professional mistake that you've made and learned the most from?

Ben Greenfield: Trying to do too much myself. I used to pride myself on knowing how to program my own website, write my own PHP script for fulfilling orders and

layout the design for my books and all that jazz. You started off by saying I was a renaissance man, but I think it's best if you can specialize in the things that really move the dial for you and that really allow you to be most impactful, then surround yourself with an amazing team of people who can do the rest. That's what books like Gary Keller's One Thing or Tim Ferriss' 4-Hour Workweek or any of these other books. I'm like, focusing on the one thing that you're good at and outsourcing the rest or automating as much as possible. I would really point out this idea that you can waste a lot of time just trying to micromanage everything and I did that for the longest time. Now, I don't even know how to log into my own website to change something. If I write an article or I'll write it a lot of times in Google and then send it over to the person who's actually laying it out and formatting it and posting it.

Ben Greenfield: For the longest time, I used to do all that myself and once I started pretty much taking anything, anything that I know does not make the most impact for me and does not fulfill my purpose the best, it gets outsourced. I mean, now I have a full-time handyman at my house, I have someone who goes and gets the mail out of the mailbox and opens the packages, I don't touch my own lawn. I just outsource, outsource, outsource and I'm constantly asking myself is it something you need to be doing and if not, it gets outsourced within a couple of days.

Robert Glazer: Wow. That's very good advice, so then where can people learn more about you and your work?

Ben Greenfield: Well, the new book I just mentioned, that's available now at BoundlessBook.com. It's about 650 pages, just jam packed with more of these biohacks and everything from recovery to immunity, [inaudible 00:56:27] and jet lag, you name it, it's in there. That book is now out at BoundlessBook.com and then, if you just Google my name and you'll find my website and my podcast. You can just Google Ben Greenfield, you'll find the rest.

Robert Glazer: All right. Well, Ben, thanks for sharing your story with us. You're clearly one of the top physical performers in the world today and have done remarkable work helping others build their physical capacity and get more out of each day.

Ben Greenfield: Awesome. Thanks for having me on, man.

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