#22: Ben Greenfield - Transcript

Podcast transcript for Episode 22 of The Portal Podcast. Once this is completed, it will be incorporated into the public wiki page for the episode.

Transcript in Progress

Eric (00:00:08):
Hello, you found the portal. I'm here today with my guest in studio, Ben Greenfield down from Washington state. Ben, welcome to the program. Thank you. And hello and hello sir. So you are the first health guest I think that we've had on the program and we can talk about other things, but you've had healthy guests. We've had health dish. Yeah. and what I wanted to talk to you about is a little bit this issue of how we sort through our bodies and our minds as mechanical systems. What do we do with integrating the tremendous amount of, of information? Some, some of the literature in the biomedical field is almost unreadable and it's extremely confusing. You have small studies, you don't have a lot of discipline across different different fields to keep any kind of interoperability. And so I've always been afraid to enter this space, but you've been recommended as one of the countries, or if not the world's top trainers. You've been an extreme athlete. You've been studying this from an academic perspective and you seem the ideal person to be our jungle guide into the wilds of what is known about us

Ben (00:01:23):
Aside from the extreme athlete piece. I don't think masochism lends any, any great deal of credibility to one aside from a little bit of of time spent testing things like, you know, ketones and carbohydrate mixes in the trenches and finding out what might give you explosive diarrhea. But but I, I do love to read, I love to study this stuff. I've always been a veracious and curious consumer.

Eric (00:01:46):
I just figure if we can profit from your pain, that seems like a pretty good, yeah.

Ben (00:01:49):
Well, yeah, yeah. Maybe a little bit. But yeah, you're right. It is difficult with, you know, closed access to many of these journals and you know, the ability to be able to review an abstract. And as we were discussing before we started recording, you know, an inability to, to determine whether or not a fasting study was done on a male or a female population. Or you know, whether or not a headline that might say vilify red meat is actually looking at at the lifestyle practices of the people consuming said meat or the sourcing, you know, process versus unprocessed. There's just so many, so many nuances to take into consideration. And I think the saving grace though is that we live in an era now where the type of self quantification that would have been prohibitively expensive 10 years ago is now readily affordable and available in the comfort of your own home in many cases. And so I think that, and we can delve into this if you

would like the ability to be able to gather data, your own body and then decide what type of nutrition or exercise I loved imitation protocol would be appropriate for you, allows you to bypass a lot of this epidemiological data that paints with the very broad brush. So

Eric (00:03:13):
These are all great topics. I mean, one of the great mysteries, since you've already brought up explosive diarrhea, we've probably lost that for our listeners with that one is why is my, you know, why is my toilet not a laboratory that is always taking data away from what I'm passing through me,

Ben (00:03:29):
Right? Or, or your, your toilet paper example, your toilet paper and a dongle on your iPhone and you know, that, that's, that's one of the tests. That's certainly very helpful. I, I think actually more helpful than these newer microbiome companies that are making a lot of predictions based on biome data collected from stool that don't have a lot of research behind them. Such as, you know, we've tested your stool and determine that based on your biome data, you should be onX , Y, Z probiotic that we are by the way, manufacturing and selling. But there are other tests that you can do that I think are very helpful and we could start with the bathroom since we're there already. Not literally. We're going to have to get back to the like just introduce to you, but we're already, you're not actually sitting on porcelain.

Ben (00:04:15):
These chairs are more comfortable. The there are tests like you know, I run once a year, a test from Genova diagnostics. It's a three day stool panel in a multi-day collection is important because your everything from parasitic activity to yeast, fungus, bacteria, all that changes on a day to day basis. And you can learn a great deal about your gut and inflammatory markers in your gut, bacterial balance, the presence or absence of parasites or you know, a yeast or something like candida for example. A by simply on a yearly basis doing, doing a panel like this, you literally for three days in a row just swab and it goes into a little tube. You keep that much to the chagrin of my wife typically in the refrigerator until all of your, your poop is ready to ship off to FedEx, right? And you receive a beautiful PDF in two weeks. That's got everything you would need to know about whether or not you might need to say supplement with a digestive enzyme because you have low pancreatic enzyme production or whether you actually do need to take that popular cleansing supplements because you have some kind of a parasitic overgrowth or something like that. I, I actually want to get back

Eric (00:05:27):
This issue of your wife because I think the, the issue of whether or not your behavior is viewed as bizarre by your family has a lot to do with whether or not most people can stick to a regime. I mean, I am someone who believes that in general institutional wisdom is usually so polluted by the economic incentives of the institutions that I'm always open to the idea that the conventional wisdom is what you would expect when institutions have perverse incentives. But if everyone in your family or your social environment doesn't worry about these things the same way you might

and isn't sort of willing to take responsibility for, you know, you break it, you bought it. A style approach can be very difficult to you know, to get somebody to go along with putting your stool in the refrigerator as if that was normal. Let's, let's get to that in a second so I can at least sort of get some background from, can you just give us a very quick sketch of your academic and nonacademic experience that brings you to being one of the most sought after fitness experts?

Ben (00:06:44):
Yes. academically I attended university of Idaho, not necessarily known for its, its rigorous health and, and medical program, but I studied exercise physiology and biomechanics there because for, for most of my younger years I was most interested in exploring the boundaries of human performance and how to maximize human performance, which in retrospect is a far cry from enhancing health or longevity. And there are many people who are, you know, fit on the outside, but once you take a look at blood and biomarkers and make it go exactly, yeah. Some of the self quantification we were talking about earlier, it actually can often fly in the face of longevity to, to be operating at peak performance. However, I, I studied that at university of Idaho and competed in in tennis and in bodybuilding and water polo and volleyball. Just played a lot of sports and progressed from there to almost 20 years of competing and professional endurance sports and doing things like iron man triathlon and Spartan racing, obstacle course racing and adventure racing and just all sorts of kind of masochistic, multi-day type of events, which were interesting to me just from a pure physiological standpoint because those are, those are really sports if attrition, right?

Ben (00:08:08):
Where you must have pretty robust management of everything from macronutrients to things that would affect fatigue more dramatically than say, you know, baseball, where you might be, you know, sitting in the dugout and if you, if you stop moving, you know, many cases you're still going to be okay. And, and that, that was a great playground for me to explore a lot of the nutrition and the performance and the recovery concepts that I've been toying around with and, and still utilize. But I also am just a voracious consumer of content. You know, I, I pour through research every morning. I read a lot of journals. I read try to read a book every day, you know, typically it's in the health or the performance or the nutrition realm and I podcast a blog. Can we plug your podcast? It's just the Ben Greenfield fitness podcast, the horribly narcissistic title that doesn't lend itself well to branding. But that's, that's that's my podcast and I write books. I just finished a a 650 page book on, on all things anti-aging, longevity, gut, immune system, hormones. Just kind of delved into every nook and cranny of human physiology. Quite a bit in there. And variability. That's an interesting, interesting topic that you bring up. Or is that something you're interested in or

Eric (00:09:32):
You must know Joon Yun of Palo Alto partners who is a physician turned sort of hedge fund manager. I do not. So we were talking about how to make radical on Jevity a normal part of health and physiology and because it had this sort of bizarre patina of, I don't know, a quixotic desire to find the fountain of youth. There was a period of time where it had to be de-risked by

Silicon Valley, so it was sort of almost seen as being immoral to pursue radical longevity as a research program. And arboreta gray and Peter Thiel and various people were instrumental in kind of taking, taking the slings and arrows from the outside world said, Oh, this is rich people trying to live forever on the backs of everyone else. But June was instrumental in trying to work through the system by giving some money for the Palo Alto prize.

Eric (00:10:35):
He asked me to give the keynote. And it was a lot about talking and we were talking a lot about if you strip off things like environmental insult or the burden of disease or self harm or all of these other things that one can die from, are you left in the end with tradeoffs between cancer and aging senescence and do we understand that essence? And so June's perspective was that variability was the best concrete marker to target, to proxy for improving longevity in a meaningful way because he, his theory was about homeostatic capacity.

Ben (00:11:24):
You get back to him. He said, absolutely. I would say pushing aside some of the more fringe markers out there that you can track for longevity. Let's say there's something like telling me your length or, or a Horvath methylation clock or any of these things that are close friends. I would say that they're just bad proxies and subs. Yeah. They're, they're poor proxies. They're also less they're less available and less scalable and less affordable for the general population because they're snob appeal. Yeah. Compared to what I would consider to be three very useful markers to track overall health and longevity and that would be glycaemic variability. And how often is the blood sugar fluctuating throughout the day. And to what extent is the sugar remaining in the bloodstream versus transiently passing due to, you know, physical activity or good insulin sensitivity or good blood sugar management, something that can be measured via a 20 to $30 blood stick from CVS or Walgreens or some, I wore the entire year last year and gleaned a great deal of actionable data from a Dexcom G six continuous blood glucose monitor, which allowed me to see everything from blood glucose response to a cup of coffee to mr amazing plate of green beans, to to, you know, exposure to heat versus cold.

Ben (00:12:44):
And I learned some very interesting things. For example the, the blood glucose rises dramatically in response to a cup of coffee, which is actually what you'd want. You know, it's mildly hypercortisolism and you know, it gives you a surge of energy in that sugar or assuming that the coffee is black and doesn't have a lot of calories in it that sugar is mostly glycogenolysis. It's released from the liver and it's a short spike in blood glucose and doesn't contribute a great deal to glycaemic variability. But I found it interesting how high the blood glucose rises after a simple cup of black coffee in the morning. So there's a narrow peak, narrow peak.

Speaker 3 (00:13:24):
Okay. You still think of yourself as a book person, but you really haven't been reading as many nonfiction titles as you would like. Enter Blinkist, they're your secret solution. Their team of

readers reads the books that you're interested in and synthesizes them into 15 minute blinks that you can either read or listened to that allows you to spend your increasingly micro chunked attention span in the places that it matters most. For example, if you're thinking about the four hour workweek by my friend Tim Ferris, you're probably interested in saving time, but they've gone Tim one better. So rather than reading his relatively long book, what they're going to do is condense it into 15 minutes. Take that Tim Ferris. So with blankets, you get unlimited access to read or listen to a massive library of condensed nonfiction books, all the books you want and all for one low price right now for limited time, Blinkist has a special offer just for our audience.

Speaker 3 (00:14:06):
Go to [inaudible] dot com slash portal to try it free for seven days and you'll save 25% off your new subscription. That's a blanket spelled B, L, I, N, K, I S T blinkist.com/portal to start your free seven day trial. And you'll also save 25% off. But only when you sign up at blinkus.com/portal experts agree there's no way to eat yourself into a perfect diet. Returning sponsor athletic greens knows this and makes it powder, which when I mix it with water, turns into a tasty, fulfilling, all-in-one nutrition drink with 75 vitamins, minerals, prebiotics, probiotics, and other ingredients. But without the binding agents and fillers that your body doesn't need. And the 10 plus capsules that would replace. It's easy to use on a constant basis allowing me to skip unwanted calories by filling me up with nutrition I need, which makes me feel healthier, virtuous and fulfilled all at the same time without to break.

Speaker 3 (00:14:51):
My train of thought is it's so easy to make. In fact, I'm almost all the way through the huge bowl of the greens that they send to me initially and just less than 10 pounds lighter. That's proof to me that once introduced, I've been choosing to stick with this product having nothing to do with the sponsorship, so whether you're taking those first steps towards a healthier lifestyle or you're already a seasoned athlete pushing for peak performance, athletic greens has you covered by taking the guesswork out of everyday good health and nutrition, why not try it and support the show by going over to athleticgreens.com/portal to claim our special offer today, which is 20 free travel packs valued at $79 with your first purchase. That's athleticgreens.com/portal

Ben (00:15:30):
I also found a that that my blood glucose responded quite dramatically to green beans of all things which, which were kind of a staple in my diet. And so because of that, I went out and got what I would consider to be one of the gold standard food allergy tests out there. That doesn't give you a laundry list of false positives. It's called a Cyrex a food allergy panel, C, Y, R, E. X. And it turns out that one of the only foods that I produce a significant immunoglobulin reaction towards is green beans. And the blood glucose response that I saw after eating a vegetable was actually my body mounting an inflammatory autoimmune based response to the vegetable. Right. But it gave me, it gave me a clue that I was able to dig more deeply into. I also found something very useful and quite useful for us since we're sitting in a cold room right now.

Ben (00:16:23):

The best thing I could do to lower glycemic variability and keep my blood glucose stable the entire day was a brief bout of cold in the morning, just two to five minutes. Cold shower, cold soak, jump in a cold river, dramatically controlled blood glucose the rest of the day. So glycaemic variability would be one thing that I think is important to measure. Inflammation would be a second. Inflammation is a little bit trickier because it does require a blood measurement that typically right now requires you to go to a lab to do a blood draw. But I'm talking about getting a measurement of something like HS, CRP to see if your, your C reactive protein is low. There are other inflammatory markers like fibrinogen or homocysteine or, or sidechains that you can measure. But by doing something like a quarterly measurement of just your HSC RP levels, you know, that's, that's a 30 to $40 lab test that you can run.

Ben (00:17:21):
That also is because inflammation is so tied to stress and a variety of other health conditions you see that responded at something like dairy. It can respond to food allergies, it can respond to stress, it can respond to, and this is something to be careful with in terms of the timing of when you run the test exercise can elevate it significantly, which is why sometimes if someone does a hard weight training session or a run, then does their fasted lab test the next, the results come back, show elevated CRP and a doctor wants them to go in for a heart panel and spend a whole bunch of money when their CRP was just elevated due to what side of the day is monitoring is that it has really shown us just how inadequate it is to pick some random moment and then decide that that is where your body is because your body may just be passing through that value of whatever it is.

Ben (00:18:13):
It needs to be precisely controlled. And when you look at hormones, it's even more important because if you look at the, the gold standard right now for hormone measurement at least what's used predominantly, and then we can get back to variability, which I would consider to be the third measurement to look at in addition to glycaemic variability and inflammation. But when you look at hormones for example, you know, most tests are, are running a fasted blood draw in the morning of you know, testosterone, estrogen, DHA, what have you. But hormones fluctuate widely throughout the day. And because of this, I think that that a urinary measurement for hormones. You know, there's another test that that I think is great for self quantification. It's called a Dutch panel to dried urine test. You pee on a stick five times during the day and you get a running value of where your hormone levels are fluctuating throughout the entire day so that you can see if you're truly whatever high cortisol, low cortisol, high testosterone, low testosterone, et cetera.

Ben (00:19:10):
And furthermore, a urine test will show you the upstream and downstream metabolites of a hormone. And the reason that's important is because many people will, for example, get a blood measurement of their cortisol levels and see that they have very, let's say very low cortisol and some, you know, functional medicine doctor or naturopathic physician or something like that will tell them they have adrenal fatigue. You know, your adrenals are pooped out, you're not making

cortisol. You need to stop exercising and go to a Vipassana retreat for 10 days or whatever. And it turns out that for example, in a highly active exercising individual who is producing cortisol just fine, cortisol gets turned over very quickly and you aren't going to see this on a blood test. But on a urine test you would see high levels of cortisol metabolites mean a cortisol is being produced just fine by the adrenal glands, but it's being cleared very quickly and so, so paying attention to the actual, the, the, the fluids being used to, to run the test is important as well.

Ben (00:20:09):
You know, so something like hormones should be tested via urine, but for the inflammation piece, you know, just running like a quarterly blood panel to see if your inflammation is staying under control. I think it would be the second most useful measurement that is low hanging fruit for a lot of people in addition to the blood glucose. And then the final would be variability. And more about that given that we started to fully define it. So variability, you know, I wear for example, a ring to track it. There are wristbands that track it. Bluetooth enabled. A strap is, is a little bit more of a gold standard, more accurate measurement, but it is simply a measurement of the Delta between your heartbeats. You know, the, the, the inter beats variation from heartbeat to heartbeat, which should display mild variations from beat to beat, meaning that your vagus nerve, which innovates the sinoatrial node of the heart and monitors or, or, or controls to a certain extent the electrical activity of the pacemaker cells of the heart by feeding into the sinoatrial node.

Ben (00:21:16):
That should be giving good sympathetic fight and flight and parasympathetic rest and digest information to the heart. And if someone is able to control stress well is in a relatively low state of inflammation and a high state of health, well rested, et cetera, and has good vagal nerve tone. The variability tends to be high. And I originally became interested in variability because it is an excellent predictor of injury and illness in athletes, meaning that if your, if you're training a team or an individual athlete and the variability begins to drop, typically you can predict injury or illness about two to three days later with surprising accuracy. And so that's a situation in which you would adjust the training program and give someone a rest day or recovery day. Well in a, in a person who's just tracking this for health, maintaining a high variability and maintaining good vagal nerve tone is one of the best things you can do for decreasing stress, for controlling inflammation, et cetera.

Ben (00:22:19):
And the vagus nerve itself is just fascinating. I mean it, you know, we were, we were briefly chatting about the gut brain connection earlier and the Vegas nerve is largely responsible for that. I mean, it, snakes throughout the entire body innovates. Those, we should just say for the listeners that there's two very strange things about the gut. One is that it's a home to a large number of people who sort of are you but aren't you? Yes, exactly. In your microbiome. And the other is, is that it has a very extensive nervous system, all its own, which has been called, that was Gershwin's title the second brain, second brain. You know, the enteric nervous system and the, the efferent fibers of the vagus nerve will feed from the central nervous system to a wide

variety of organs. You know, the pancreas to control insulin, the the kidneys to control blood pressure, the liver and the gallbladder to control bile production and detoxification.

Ben (00:23:15):
And then the afferent fibers will travel from all of those organs, including the biome back to the brain. And so there's this constant interplay occurring between the gut and the brain, which is why for anyone who wants to, to maximize cognitive performance, you know, care for the gut is actually very important. And vice versa for anyone who wants to limit things like a gas, bloating, gut motility issues, et cetera. Paying attention to the, the hypothalamic pituitary adrenal axis, the amount of stress that [inaudible] of the HPA axis, the amount of stress that you're placing on your central nervous system, AFX digestion quite dramatically. You know, that's, that's why when we have family dinners at our house, we all take a deep breath in through our nose through our mouth three times. And we prepare our parasympathetic system for digestion. We're activating the vagus nerve and settling down stress from the central nervous system, which would impact the, the enteric nervous system. And when you look at research done on vegal nerve tone, there a variety of things that tone the Vegas nerve, that increased variability because a lot of the Vegas nerve travels through some of the muscles around the throat and the neck chanting, singing gargling. So how much are

Speaker 3 (00:24:35):
Religious and cultural traditions are cryptic health programs that we throw out

Ben (00:24:41):
Or at our peril, they, they are indeed. I mean that, that fasting originally was, was a religious practice, not a, not a weight loss or a ketogenic fad. You know, it's tied into, for example, the Mediterranean diet that's the often neglected. The thing that people don't bring up when they talk about the health impact of the Mediterranean diet is if you look at the way that, say the Orthodox church practices, the Mediterranean diet, there's a great deal of fasting or there are periods of time spent in protein restriction. You know, we know that catabolism and the cellular cleanup, the what's called the autophagy that takes place during those periods of protein restriction. That's what has life extending properties. And fasting is a, is a big part of that diet as well. It's not just about, you know, unlimited breadsticks and goat cheese and you know, oodles and noodles of extra Virgin olive oil.

Ben (00:25:29):
I mean there, there are other components of that diet tied into the, the religious aspect. And arming, you know, such as in in meditation or the, the breath work in yoga. These things can tone the vagus nerve cold water, the mammalian dive reflex that you know, when a baby is first born in in many cultures would splash cold water and the baby's faces are for several months dunk a baby and cold water to tone the Vegas nerve to activate digestion to activate the building of that biome. We talked about all of these things are wonderful for the Vegas nerve breathwork and so you can, you can train and control variability. And I really liked that because it's so easy to track in real time. And I would say if you're tracking glycaemic variability, inflammation and

variability, those would be, those would be the three biggest things when it comes to health and longevity.

Speaker 3 (00:26:25):
Friends, they say that bromance is dead. But a hundred years ago, Arthur Pitney who invented the first commercially available postage meter fell madly in love with Walter Bose who was obsessed with stamp canceling. And his hatred of the postage stamp around the falafel is a fantasy equity Eastern society. There was a business merger that dare not speak its name, Pitney Bowes, but that was a hundred ago. What's going on now? Well, with SendPro online from Pitney Bowes, it's just click, send and save for as low as $4 and 99 cents a month to save up to 40% off USBs priority mail. Plus. For being a portal listener, you'll receive a free 30 day trial to get started and a free 10 pound scale to ensure that you never overpay. Just think of it. Friends, print free shipping labels and stamps right from your computer. Schedule. Package pickups and track shipments from departure to arrival. Save up to 5 cents on every letter and up to 40% off as priority mail and starting at four 99 a month.

Speaker 3 (00:27:13):
You can also calculate exact postage online and avoid trips to the post office. How fabulous is that? Go to pb.com/portal to access the special offer for a free 30 day trial, plus a free 10 pound scale to get started. That's pb.com/portal and experience the savings and your shipping costs with a free trial of SendPro online from Pitney Bowes returning sponsor Skillshare is a huge hit with the portal audience of autodidacts because their approach to learning is to create a university and a website taught through small instructional videos organized into targeted and focused classes. I myself had a problem. I have an Instagram account, but it has fewer than 30,000 followers. Yet I noticed that many young people seem to get millions of followers simply by putting great photographs where they ask what bathing suit they should wear to the beach or perhaps would anyone like to meet them for drinks.

Speaker 3 (00:27:59):
Clearly my photography was suffering. That's why I found Instagram where the photography shoot, edit and share with Brandon Woelfel. He explained that there's actually a magical hour of the day in which to take your photographs, that you can edit some of the photographs in the camera, but others might benefit from Photoshop, which I had never even considered. I found it to be a really easy and interesting introduction to Instagram where the photography skill share is a proud sponsor of the portal. Explore your creativity at skillshare.com/portal to get two free months of premium membership. That's two whole months of unlimited access to thousands of classes for free. Get started and joined today by heading to skillshare.com/portal that's skillshare.com/portal well that's very helpful. That you're narrowing it down to three things that many people will never have heard of or thought about, but that are easy. But the thing that I want to get at, and maybe this is a good place to break most of us don't know how to think about these things. I can't tell you the number of times I've been walking down the street and somebody says, wow, would you look at the nerve tone on that? I mean, nobody, nobody talks about these Vegas nerve on that bed. That

Speaker 3 (00:29:07):
We don't know how to think about all of the messaging chemicals. All you know, the, if you ask people to break down the body into three layers, how many people would come up with cytology, histology, physiology and anatomy. We don't, we don't remember all the cranial nerves. We don't, can't quite keep straight with the pancreas, the gallbladder and the liver up to radial nerves. W w w I, I remember that. The, the, the pneumatic on old, the pneumatic on old Olympus's hiring tops of feminine and viewed some hops.

Ben (00:29:42):
Hey, I never get it. Just don't ask me to name them all. Yeah, that's funny. I hadn't thought about that all the time.

Eric (00:29:50):
We don't know how to think about our bodies and prioritize these things. In other words, if somebody says, look, I don't want to get this deep into what it is that you're talking about. Here's my time budget, here's my mental budget. What can I afford to think about without feeling lost? Because I think one of the things that I find very off-putting is that there seems to be kind of a Rubicon. Either you go in for this health thing and it becomes a large part of what you discuss every day with your health friends or you're sort of frozen out on the other side of this thing, not quite sure of yourself. You know, in some ways people feel the same way about this as they feel about mathematics. They're lost.

Ben (00:30:33):
[Inaudible] Yeah. I don't necessarily think that you need to be immersed in the data of self quantification. I think that there is a great deal of value if you do want to learn about your body and do something like a yearly comprehensive blood panel, a yearly gut panel, variability, tracking measurement and reclamation. I've done some of these things. I get it back, I scratch it

Eric (00:31:04):
In my head. Somebody tells me what something means. I start doing that thing to rectify the situation. Somebody else says,

Ben (00:31:12):
Well, that's not what that means. Right. And so my question, I mean, here's my ideal. I'd like to get the 10 sharpest minds in the field into a room and then ask questions and watch them Duke it out intellectually. So somebody could say, well, you know, that's true in general, but if you condition on this variable, then that's no longer true because that's just part of this natural response and it's, you know, fair or not fair. Well that study, you know, really only looked at a very small sample. That's the tricky part is the biochemical individuality and, and Roger William, I believe it was back in the 60s wrote a wrote a book that dictated the, the 12 different shapes of, of a liver and a stomach and a pancreas in the fact that some people have extremely robust vitamin D excretion rates and should therefore get plenty of sunshine and perhaps even

supplement with vitamin D. Whereas other people would get arterial calcification from supplementing with vitamin D. Some people have very high rates of, of exotic acid and uric acid excretion and can eat, you know, nuts until the cows come home. And other people will get gout and pain in their big toes from having a few handful of almonds each day. So it varies widely from person to person. I mean a, that's the variability of the person under study. I'm saying that's part of the whole quantified self thing, which is understanding which particular you've inherited

Eric (00:32:40):
And what you can do with it and what you can't. But then there's the other issue which is sort of sensitivity analysis for information that is if there is a slight change in our understanding of something, does the prescription flip wildly or does it move a small amount? You know, so the eye and then just to, to get really into where I think a lot of these problems go will go wrong, go wrong. I want to hear many more of these things talked about in terms of tradeoffs where, well this is good for you in this regard, but probably bad for you in that regard. Whereas a lot of the advice is phrased in terms of that's a great thing for you. And I just don't even believe in general,

Ben (00:33:29):
The, the ketogenic diet is a perfect example of that same way. Many of the studies on it myopically focus upon weight loss, you know, or sometimes upon lipids, you know, your, your, your cholesterol values. When you look at you know, the ketogenic diet that may have helped your neighbor to lose 20 pounds, you know, putting coconut oil and butter in their coffee every morning and having, you know, some kind of ketogenetic fat bomb after dinner every night. Some people have a, for example, an FTO gene that would predispose you to very high levels of inflammation, which we talked about earlier in response to high amounts of saturated fat, particularly the levels of saturated fat that exceed 10% of total daily intake of fat, which is which on a, on a standard modern ketogenic diet, you know, it's common to eat 30, 40, 50% of your total fat intake from saturated fat.

Ben (00:34:23):
Others have familial hypercholesterolemia, which would dictate your cholesterol values. And, and this would be, I don't necessarily think LDL cholesterol is, is indicative of cardiovascular risk, but in people with FH, it actually is so very rampantly high levels of cholesterol and response to a ketogenic diet. Other people have poor liver and gallbladder function, which would dictate that they're going to have, you know, horrible bowel movements and a great deal of digestive distress. And response to that diet. But if you look at it at a meta analysis of ketogenetic diets that say that this is favorable for the general population, in many cases they're looking at weight loss, not inflammation, not bowel function, not not lipid panels. And so the problem could sometimes be the value being measured,

Eric (00:35:12):
Right. What I'm trying to get at is I don't see a solution for muggles for civilians, for the average person who's not a hit, a high net worth individual, not a fitness geek. They want to avail themselves perhaps of whatever the best thinking is, but they don't know what happens when

people conflict. I mean like, all right, if I listened to physicists or mathematicians, you could very quickly usually tell who's talking sensibly, you know, they're willing to give up. Well, you know that's absolutely, that's technically true, but in this case, blah, blah, blah. When I listened to health people, the conversations are usually dyadic. It's usually two health people talking to each other and with a great deal of conflict of interest because there's a contraceptive diet book or a supplement company involved. Right? So conflict of interest is terrible within the health institutions. It's terrible within the Anstey anti institutional experts as well because of the fact that there are products on the other side of this thing. And then there's this question that every single biological system I've ever studied is incredibly complicated. If you look at the cascades, you know, just from one homologous system to the next, they're totally different. It's very hard to figure out what we're talking about and tradeoff space. You can measure a bunch of stuff, but even there, if it doesn't, if it doesn't lend itself to continuous monitoring through a cheap device, relatively cheap device you can be pretty unclear as to whether or not those values even really represent you.

Ben (00:37:10):
Right. And, and, and from one standpoint, it's a frustrating conversation because it is such a soft science and because there is so much biochemical individuality at the same time, to me it's a, it's an exciting and promising conversation because I believe we're on the cusp of everything from, you know micro-needling patches that can be, you know, slapped on and you forego the trip to a laboratory, you put an envelope, you mail it off and you have all the data, right. There are hundreds of blood biomarkers from the comfort of your own home to, you know, iPhone dongles or anything else that could be used to collect this data. If we were to combine that with AI or algorithms that can actually feed through that data and produce digestible information that's understandable to the general public and people can take their health into their own hands using easy self chronification combined with, you know, essentially using, using AI and algorithms, which I have a hunch, you know, a great deal more about than I do.

Ben (00:38:14):
I think that that is, that's the promising future of healthcare and self-management. Jevity we're in an intermediate state and there are companies working on this. But I think that the difficult piece is curating and collecting all the laboratory measurements that are going to give the most useful and actionable data. Cause it can't just be, you know, I said like a microneedling, you know, a, a patch that you could, you could put on your arm, but we already talked about the urine. We talked about the stool, right? You have to collect more, more fluid from the body than just blood. And it should be done passively. What do you mean my toilets should be a laboratory? That'd be amazing. It'd be absolutely amazing. I mean, if it can have a, I mean, I'm confused as to why he's gonna have a cold, warm but day vibration and wipe your ass for you.

Ben (00:39:11):
It should be able to collect the Japanese thought about all sorts of aspects of my comfort and luxury and what I really want to know is my Mark and it shocks me that that doesn't yet exist. The ability to be able to more easily and precisely quantify this and then have it fed into an

algorithm that will spit out actionable data that's easy to understand. But the fact is I should say, to my knowledge, it doesn't yet exist and I'm pretty plugged into this sector when it comes to all the different ways out there that one can test and the different companies that are doing the testing and the, and the information they're putting out and there's, there's no platform yet that's doing blood gut, urine, saliva, variability, and some of the other metrics you'd get from a wearable device. Then taking that, putting it through an algorithm and then pushing out the exact lifestyle, dietary and supplementation or medication steps that someone could take to aspect the biomarkers at tested.

Eric (00:40:13):
Well, another thing that I would love to see this coupled to is some sort of a software product that has the 15 leading health and performance experts. I'm talking about the same data. So just the way you have market analysts and you want to see whether the market analysts are all talking to each other or whether they're disagreeing and then you want to listen in on the disagreements. I mean, one thing I'd love to do is to have you back with three or four other people in your field who, if you all respect each other and say, well, you know, I think that that could easily be misinterpreted or you're taking us too far into the weeds or I think that that study has been given far too much weight and

Ben (00:41:00):
Yeah, and, and, and be, you know, people have toyed around with that. I think you know, Joe for example, has hosted a meat plant debate, you know, and, and there, there's some chatter like that going on. I, personally don't really use my own podcasts as a platform for, for argumentation or debate as much as exploration of ideas. But you're right, it would be interesting. I think it might just lend more confusion to the matter.

Eric (00:41:27):
I don't think so. I think this is a big, big miss. I think that one of the things that I'm finding is that the public wants to listen in on conversations between people who are talking almost in tongues and then because they have the ability to slow it down and annotate. Like right now there is a, a discord server that pours over every episode that I release of this podcast and these guys dissect everything that gets said. They hyperlink it and they teach each other. They're forming reading clubs and the whole thing. And in the audio searchable now too. Well audio, Google is,

Ben (00:42:14):
Is searching audio. I use an app called cast box. It's fantastic. I use it for all my podcasts, not only because you can, you know, it's got good smoothing algorithms where he can play one, two, three and four times speed and it still sounds good, but I can use the search function on that and it will search the audio. Let's say I want to learn about if some random health concept like small intestine bacterial overgrowth, I can search, it'll scrape, not just the show notes and the title and the description, but the actual audio itself. And I can go directly to the timestamp where that discussion begins and jump right in

Eric (00:42:47):
If fidelity is high enough. It depends what the, with the nature of how the fidelity feeds into it. But I mean, no, sorry. Fidelity of the transcript.

Ben (00:42:54):
Right, right. No, it's not searching the transcription. It's searching the actual audio. It's an audio search engine.

Eric (00:43:01):
So if you say something that's technical, I mean I guess I'm just confused as to how, how you're saying [inaudible].

Ben (00:43:13):
No, what I'm saying is that let's say someone is searching for **glycemic variability**, a term that I've already used two or three times and whoever's producing the show notes for your show or the title or the description isn't actually typing **glycaemic variability**. It's not scrapable by a search engine in terms of the text that the audio is now being searched as well. And that phrase will be picked up on the audio and display in search results.

Eric (00:43:42):
Okay. But it has to have. So if you, if you put in the search as a sound and then it's looking for some comparable sounds, but it may miss in a highly technical and highly technical speech. I don't know that we're there that it's 100%

Ben (00:43:54):
Yeah, I don't, I don't know the level of accuracy, but I, I've found it to be of great utility.

Eric (00:43:59):
So leaving that aside, I mean the, the, the point that I was trying to get at more was just that if you had like health UFC where experts go at it with each other. Both, what's the old MTV that the death death, death battle. Oh yeah. It's called the death battle. That's Claymation. Exactly. Yeah, exactly. Well, but I think that's what people want that and they, they believe in some sense that once they can hear a group of experts sort of handle their concerns, it's, they don't have to be the one filtering. What's, what's durable and what's ephemeral, what's, what's a fad, what is fairly solid. I think, you know, that's the, that's the great appeal of listening in on an expert conversation when you have a community that's actually dissecting it and is able to do more with it.

Ben (00:44:53):
Yeah. I think as a, as long as people are aware of any preexisting bias, you know, cause there's a thing from the investments that that expert might be involved in to the supplement companies, they might own to the, the dietary books that they wrote five years ago that they're still married to. Even though research has changed because those diet books have certain than quite well

from a monetization standpoint. I mean there's, there's a lot of kind of backend issues you got to pay attention to. But, but yeah, I mean it would be interesting, at least

Eric (00:45:23):
Let, let me do something dangerous for my own podcast. I have a few products that have a health implications that some of which I've come to really like. Are you familiar with any of these cooling systems for mattress pads so that you don't wake up in a pool of your own sweat?

Ben (00:45:39):
Yes. the, the bed jet, I'm familiar with that one. Which uses air to cool. And then I personally use one called the Uhler. My wife has one as well. I don't think it's ever been flipped on, you know, returning to your, your illusion to to the, to the bizarre health practices that spouses sometimes don't adopt. But I, I think about the [inaudible] as you and your wife don't have to have the same sense. Yes. Yeah. And, and I, I find it useful. Yeah. I can set it at 55 degrees. You know, I would say just when you look at a lot of the wearables out there, one of the sleep metrics that people struggle with the most is deep sleep, right. During which a lot of the, the nervous system repair and recovery is going to take place. I mean, memory consolidation and learning are termed along things like that.

Ben (00:46:27):
What occurred during dreaming during the lighter REM sleep stages. But deep sleep is particularly important for recovery and seems to be the one that people struggle with the most. And the two things I have found at impact, deep sleep, the highest are sleeping in a cool room, sleeping on a cool surface. If I've done anything to heat the body, such as a heavy meal or heavy exercise session within three hours prior to bedtime, some kind of cold walk or cold shower or something to cool the body back down and wearing wool socks to bed. And the that where when you wear socks to bed, it actually cools the rest of the body. So that and higher dose CBD have been the two things that have increased my deep sleep the most. So yeah, I sleep on one of those pads. By the way, that's the spot. The one that you sleep on is my spot, which I didn't mention. Yeah. Yeah. I'm still confused about whether they're calling it the chili pad or the Uhler, but,

Eric (00:47:19):
So I think they have two different products, but that was my favorite find of 2019 because I didn't know. And I, I, again, I liked the pad. Cool.

Ben (00:47:30):
Yet I like the comforter to be really warm. I don't even know what it is that I'm interested in. It's, it's interesting because there's, there's actually a couple of interesting things. A, I think it is at Stanford that they have research now that cooling the forehead is particularly helpful for sleep latency, meaning shortening the time that takes you to fall asleep. So they've just developed a, this company called, I think it's ed. I'm, I'm not financially affiliated with them at all, but it's, it's a, it's a headband that cools the head as you're falling asleep and, and it's similar to the chili

paddocks if you wear it on your head. And then the the, the other piece, tell me I've to wives, do wives think this is attractive looking? No, no. On the laced the, the chilly pad can be set to, to switch to a, a warm setting at whatever time you want to wake up.

Ben (00:48:27):
So of slowly warm the bed as you wake. I haven't messed around with that function at all. I just set it at 55 degrees and pass out. But it's useful. So, so I would say yes, there's something to the idea of sleeping on a cool surface. Absolutely. The, I remember the other thing I was going to say is you know, people talk about sleep hygiene, you know, absence of light, presence of cold, a silent room. And I Lula right? My, my entire bedroom is red incandescent light bulbs because you don't have any suppression of melatonin levels when you flip off the lights at night to pee or when you're getting ready for bed at night. But I think one thing that folks neglect in sleep hygiene is safety, right? This comes all the way back to the Vegas nerve and activation of the parasympathetic nervous system.

Ben (00:49:11):
The same reason that you would take three deep breaths and chew your chew each bite of food with, with, with pretty high frequency. If you are sleeping and your brain is convinced you're in a safe environment, you sleep much better. You know, this is why so many people struggle with sleep when they're traveling. I have found one of the best things aside from never having my laptop in the bed because if my brain associates the bed with work, you get sympathetic nervous system activation and lack of safety. The left end bumping into the metal of a laptop. Even if I'm in a small hotel room, the laptop, I just don't allow it near the bed. It's always somewhere else in the room. If I want to lay on my stomach and work on my laptop, it's on the floor. But the other thing is a gravity blanket. I don't know if you've ever used the Heights impression, 20 to 25 pound, like breathable cooling, gravity blankets. But I do is I have the chili pad underneath me. I pull this gravity blanket over top of me and it feels like you're just blanketed in safety. It's amazing. I totally believe in this madness. It's one of the best sleep hacks I've, I've adopted over the past year. Okay. Another one of my sponsors. I'm curious. I hate mushrooms like with a vengeance and a passion that you can

Eric (00:50:28):
Scarcely believe the one way which I can get mushrooms as a system. Is this is silicide of an experience in college or no, no, no, no. This is a experience with my parents growing up, putting things in my spaghetti. I don't think it was psychoactive spaghetti. I actually love this company that puts mushrooms and coffee and tea and because I'm able to get it, and I think that it has some kind of a psychological impact. I can't prove it, but I believe that mushroom chemistry is incredibly powerful. Are you a devotee of any of these particular, like chaga, lion's mane, and other mushrooms?

Ben (00:51:04):
The, the cognitive piece I find particularly intriguing because if you, if you look at this idea of the doctrine of signatures, it's this idea that the way that things look in nature indicate the, the

biological impact they might have on the body. So we know those are Maddix. So we know walnuts have high amounts of Coleen and DHA in them and they're good for your brain. We know that pomegranates are good for cardiovascular functions or tomatoes, and when you cut them open, they almost look like the ventricles in the atria of the heart. You know, a serious mini written County thing, crack it open in a pan and you know, kind of looks like an eye. And we know that, that, that, that the lutein in the eggs is good for the eyes. And when you see a lion's mane mushroom in nature growing, it looks like a cluster of axons and dendrites.

Ben (00:51:50):
And it turns out that it's chockfull of a nerve growth factor, which is actually wonderful for neurogenesis and neuroplasticity and cognition. And so, yeah, there's, there's something to be said for, for lion's mane, for cognition. Some of the beta glucans and say Turkey tail have been demonstrated to be anticarcinogenic and anti-angiogenic to tumor growth. So that, that's another useful one. I use reishi mushroom for relaxation, you know, quarter steps is good for, these are all the ones that pre-workout. Yeah. Yeah, there's all sorts of interesting blends out there. So, so yeah, I'm a fan of, I'm a fan of mushrooms. I think, I think they have a lot of utility.

Eric (00:52:32):
Are you in, are you a fan of psychedelics? And I'm happy to and ask the question if I should. Yeah.

Ben (00:52:37):
Yeah. I mean silicide been particularly when, when combined with lion's mane in small doses, I'm a fan of that as a nootropic blend. My concern with psychedelics is that they have become, it seems of late, so culturally acceptable and also culturally acceptable and, and more and more accessible. That I think there, there's some rampant abuse going on that is now justifiable, you know, whereas whatever dropping into aK hole or doing ecstasy on the weekends, you can now say you're, you're using ketamine to manage some mild depression issues and you know, using MTMA for, for some self therapy work that you're doing for, for PTSD,uor you know, you're, you're, you're using LSD with, with great frequency, you know, many people using that as a, as a, as a microdose every day. And the problem is, you know, you look at something like, like ketamine or MTMA, which people are using a lot of, that's neurotoxic. And,uif you look at something like that,

Eric (00:53:45):
It, it's one of those things that I keep hearing going back and forth. The neuro toxicity [inaudible] how neurotoxic MTV

Ben (00:53:52):
It is in a trip notes. It's definitely neurotoxic. I would say a microdose of ketamine for something like managing mild depression or anxiety is relatively safe, but there are people using a lot more than that. I mean, I know people who are addicted to their ketamine nasal sprays and they're, they're ketamine trophies now and, and using the [inaudible].

Eric (00:54:09):
So I think there was initial issue that a lot of the sort of schedule one treatment of some of these drugs was so preposterous given the twin criteria and that are supposed to define what goes on schedule one that had a high propensity for abuse when, you know, LSD is weirdly self-limiting, for example, and that the high degree of harm and in fact the, I was shocked to find out that I had been propagandized and that the harm had been exaggerated.

Ben (00:54:43):
Dose of LSD is, is through the roof. Nobody's ever found it, I think. Yeah, I think, I think the one elephant that they were able to kill and find a lethal dose of LSD for a, it turned out that it was actually the drug they were co administering with the LSD, some kind of a, it was some kind of a tranquilizer or something that you want to think about. Keep the elephant from Brazil working, but, but my, my concern is potential for neurotransmitter depletion and imbalances due to overuse of psychedelics as well as potential for neurotoxicity.

Eric (00:55:12):
Let me, let me just clarify the question. So my guess is that we've gone through, there was an initial lie, the lie was found out to be a lie. Then there was a new lie that was told by those using the psychedelics that effectively these are not that dangerous, that the, the load is quite modest and there are ways in which that might be true and there are ways in which that's not true. Even for something where the physical load is modest. I mean I don't think we know how we're reordering the mind. Even if you don't find a strong physiological impact of something like LSD. And your,

Ben (00:55:54):
Yeah. That, that's my concern is serotonin imbalance, dopamine imbalance, dependency. It, there, there is a biological impact that I think a lot of people do not take into account. But, but you know, to reply to your initial question, yeah, I'll, I'll microdose occasionally with psilocybin. I wrote a fiction book last year and I'd write every Friday on a micro dose of LSD. I will, what's apprentice for you? For LSD about 20 micrograms. It's a fairly large micro to, I tend to have high tolerance. Yeah. And on a quarterly basis I will, I will journey with my wife. Actually we, we do couples therapy every quarter and our facilitator uses a variety of different Amazonian medicines. There's always a great deal of preparation going in, a great deal of integration going out. And even then there's, this is actually fresh on my mind because I, I have a journey coming up in, in six days.

Ben (00:56:53):
I take vitamin C, I take five HTP, I take [inaudible] donors are methyl donors like Sammy. I, I use a NAD, IVs and injections. I, I completely prepare myself for the talks. They're pull out to be honest. They're gonna experience. Exactly. And then I supplement going out with everything I know my neurotransmitters need to repeat themselves, you know, a dopa Macuna and more five HTP, more vitamin C for the toxicity. So there's a great deal that I do to reduce the biological

impact that I know even a single journey can produce. This is a DMT based journey or is this more of a Mescalin this, this would be similar to something like a MDM, a Iowasca and silicide then over the course of, you know, anywhere from 10 to to 20 hours. And it was, it'd be isolating though, wouldn't it?

Ben (00:57:48):
Well, it w it's, it's a similar feeling. It's not Iowasca that's being used. It's, it's actually the, the person who facilitates this for me, they're using a series of injections and pills that, because of legal reasons, they actually won't tell me what they're using. But I can tell you it's, it's similar to the same type of feeling as you'd get from something like a five MEO combined with Iowasca or MTMA or suicide. Five MEO is the extract isolated Sonoran desert toad. Yeah. Yeah. But what concerns me are the people doing their 38th Iowasca treat and some New York city loft with their personal Sharman and, and just completely abusing, you know, in terms of frequency of these things and not taking them as seriously as they should. What do we do

Eric (00:58:32):
About explaining quickly to the government that it's in everybody's interest to stop bullshitting about schedule one designation and to start talking about really coming up with some regulation that is beneficial that recognizes the health benefits. It seems to me that we've got sort of a, a wrong new culture in place around the abuse of these things to compensate for the wrong culture that we have at a legal level.

Ben (00:59:01):
I think Johns Hopkins and the and the maps foundation, they're beginning to roll out good research that that's actually being paid attention to. I think academic institutions are doing good service for that. I think that the implementation of physician in way you at the same time, NYU physician assisted PTSD and trauma clinics that are using ketamine or, or I would imagine pretty soon we'll be silicide and under physician supervised protocols with proper integration and proper medical management going in and going out. I think that that will will be something that we see with increasing frequency, you know, actual physician overseeing clinics. I would think

Eric (00:59:36):
There's an aspect where we're expecting the physician to step into the role that a shaman previously inhabited and that maybe physicians aren't really, they may be more medically skilled but that a lot of the impact is not at the level of needing it or there's a need for physician. Yeah.

Ben (00:59:57):
Education programs. Absolutely. I know that you know, field trip, which I think is rolling out in Toronto, LA and New York over the next year, they're combining like physician education programs with physician clinics for things like PTSD and trauma using plant medicines or using ketamine. But yeah, I think we're going to see this strange kind of like hybrid physician ShawMan type of model where folks are actually educated in clinical management, medically

educated, but also have a working knowledge of things like Amazonian medicines and you know, integration and musical to facilitate as well. I think the music is huge and I think that when you look at, you know, I was even toying around with some apps cause I love to play hand pan and guitar and ukulele and there are somatics apps that you can download that will translate the music into recognizable geometric patterns. And I think that the use of music in conjunction with some of these therapies can elicit almost like a, a vibratory response within the cell that's, that's based on a response to these sound frequencies that can enhance a journey. Right.

Eric (01:01:05):
I don't know if certain stays sell. You really think there's like a cellular level for sure.

Ben (01:01:09):
I think there's a cellular level, and I'm not speaking based on science or research or anything like that, but I suspect that we are actually impacting ourselves with sound frequencies and that these geometric patterns are, that, that we're seeing that you can visualize that music is producing and you know, like an app are actually occurring within our bodies as well.

Eric (01:01:33):
Have you looked at these [inaudible] from the perspective of frequency analysis?

Ben (01:01:39):
No, but I can tell you that I feel amazing. I have a hand pan that I'm learning to play right now. I place it in my lap each night and they're impossible to sound poorly on because they're all tuned to a specific scale. Like mine is a B scale. Well, I can strike it anywhere and it sounds great and it's very calming in the end. Look

Eric (01:01:59):
At this. And my understanding is, is that if you think about steel drums steel drums have that very muddy kind of sound and that with the hang, which was sort of the great innovation in this area coming out of Switzerland, the problem is that a two Metalla phone doesn't have good harmonic discipline relative to a one dimensional media. So that if you think about a flute or if you think about a vibrating string that you would have, let's say on a violin or a guitar, the harmonics have to sort of line up in some well-defined fashion because of the one dimensional nature of the medium that's vibrating. When you have a two dimensional medium, everything is off. And what the Swiss did was to figure out how to get enough precision to get the two dimensional medium to sound, at least for the first few harmonics as if it was a one dimensional meeting. Hmm. I don't know if I exactly have that right. But that's why it's impossible to sound bad because you're hearing something that effectively would never be found in nature by just taking a metal plate and banging on it.

Ben (01:03:12):
Yeah. That makes sense. I was always under the impression that it was simply the, the, the tuning of the instrument itself in that each place where you, where you strike, where, where

each of the different locations, for anyone listening who hasn't seen a hand pan, usually there's eight or nine different locations that you strike. It's basically all tuned to the same scale. And so

Eric (01:03:32):
Like you may have a pentatonic scale or something like that where it's hard to find a wrong note. Right.

Ben (01:03:37):
You know, tuned to the same route, I guess I should say, you know, in this case B.

Speaker 4 (01:03:41):
Yeah.

Ben (01:03:43):
Well, I think you can tune a any, yeah. Oh yeah. You can, you can do it to see you can do to a D, but when once you buy a pan, it's you're buying your pan that's tuned to a specific vertical and you can't play and sound good a pan that's tuned in be, you know, with someone who's got a pan tuned to, to, to see for example.

Eric (01:04:01):
What can you leave my audience with as the best way for somebody who's not familiar with a lot of the words that you've used or concepts we've discussed. But they're realizing that the processed food that they're eating might not be good for their lipid layers. They know that their, their sleep is off or stress is too high. They don't know enough about physiology, anatomy to understand everything that's being said. What is the best way of handing off from the show to somebody who wants to enter a kind of more mindful and intentional space and feels unsure that they have what it takes to digest the information and confusing signals that are coming out of this?

Ben (01:04:54):
I have two thoughts. The first is be patient and wait. When it comes to the self quantification piece because as we discussed, I think we're in an intermediate phase and I think it's moving quickly and I D I don't think that the frustration and confusion is going to be around much longer as we roll out tools that allow for easier self quantification and interpretation of that data. For now I would pay attention to eight things. The first would be regardless of the exercise program, just regular low level physical activity throughout the day. We know this concept of neat a non exercise activity thermogenesis regardless of whether you go to the gym, just moving throughout the day as much as possible. That, that's the first thing. The second would be of all the diets that I've seen out there in terms of good research, I think one of the best ways to eat would be some semblance of a relatively low carb Mediterranean diet.

Ben (01:05:57):

I think that that's the one that seems to be the best for most people because it controls glycemic variability, introduces you to some elements of fasting, has lots of herbs, spices, supportive oils, et cetera. I would be out in sunlight frequently because we know that photons of light are very healing to the body. And there's, there's this amazing new concept of human photosynthesis and our ability to create electrons and ATP and response to photons of light. I'm immersed in a few books right now in that and it's, it's absolutely fascinating. In the same way I would be outside barefoot or touching the ground every day. There's a, there's, there's this great, or this is still three. This is four. Okay. So we have low level physical activity. We have some kind of a low carb Mediterranean type of eating approach, exposure to sunlight being outside barefoot or in touch with the planet, which allows for, if you look into the research on earthing or grounding, a great decrease in inflammation and improvement in a, in a wide variety of health parameters.

Ben (01:06:57):
Fingered Vibram type B's are not grounding shoes but, but going outside barefoot without big rubber soled shoes on. Introduce heat and cold. We know from Finnish longevity studies, for example, that sweating or being hot on a frequent basis is very good for the body. And we know that cold thermogenesis, cryotherapy, cold showers, things like that are wonderful for things like weight stability, nitric oxide production, blood flow, et cetera. Low-Level physical activity, some kind of a low carb, Mediterranean diet, sunlight grounding, earthing, heat cold. And then finally good clean water and minerals. Like a good salt, good trace, liquid mineral, anything like that. I would say that if you address those eight parameters, the movement and the relatively leak didn't get a little bit, let me see if I got it. Okay. All right. Here's a low level physical activity regardless of the exercise, regardless of the exercise program, a low carb, Mediterranean diet. Yes. then there's going to be sunlight. Then being barefoot and alternating hot and cold regime. Heat and cold would be five and six. Oh five and six. Okay. I didn't realize I asked who there. Yup. And then minerals and minerals and water, minerals and water are seven and eight. Okay.

Eric (01:08:15):
Now I got it. Yeah.

Ben (01:08:17):
Largely, and I, I know we're running a little short on time, but largely the idea behind those latter six photons of light negative ions from the surface of the earth, the movement of electrons via heat and cold and the carrying of electrons with water and minerals essentially treats the human body as a battery. And because each of the cells operate on electro-chemical gradient of a negative charge inside and a positive charge outside, one of the best things you can do to charge your human battery is light, earthing and grounding, heat, cold water and minerals. So that's where I'd start.

Eric (01:08:51):
All right. This is pretty intense. Ben, we would love to have you come back and potentially we'll pair you with somebody who is more up to your level of knowledge of the human body is the amazing machine when we decided to call it the death match. Yes, the portal Deathmatch health

UFC for the moment. Do you have anything that you'd like to tell people so that they can come find you and get some more wisdom if they're hungry for more? Other than the Ben grid Greenfield, the podcast,

Ben (01:09:21):
I would take a dive into my new book. It's called called boundless, and you can get it anywhere.

Eric (01:09:27):
Fantastic. Yeah. All right. You've been through the portal with Ben Greenfield. Thanks for tuning in. Remember to subscribe on Apple, Spotify, Stitcher, Castbox where we listen to podcasts. Also meander over to our YouTube channel and remember to both subscribe and click that bizarre bell icon so that you're notified whenever we get around to dropping the next video episode. Thanks for being with us and be well.