Your Body, Your Choice: Take Control of Your Personal Health Data – Base with Dave Asprey – #761

Announcer:

Bulletproof Radio, a state of high performance.

Dave Asprey

You're listening to Bulletproof Radio with Dave Asprey. Today we're going to talk about sleep, stress, energy, and diet, but how you use data, like lab testing, and real data science from Silicon Valley to give yourself more ability to have control over your own biology. The guest today got frustrated as a software engineer with personal health issues and said, "You know, there's got to be something I can do."

Dave:

It turns out when you apply technology towards solving human problems, there is something you can do. It doesn't mean I can conjugate my verbs properly. What she did is, she realized that blood test data was so important but that it's very fragmented, and it still is today. Her name is Lola Priego, and she said, "I'm going to do a data-driven approach to monitoring my own health, like you would servers anywhere else."

Dave:

She's now CEO of a company called Base, and left the world of tech, in a path that you guys may know something about if you're long-time listeners. Where you realize, "You know, if we can manage millions of servers, couldn't we manage just a few cells in our bodies?" So, Lola, welcome to the show.

Lola Priego:

Thank you, Dave. Thank you for having me. I'm thrilled to be here.

Dave:

You were a software engineer at Amazon and Facebook and Instagram and places like that. And you actually worked in one of my favorite areas where you looked at application network performance. Like how does the network affect that? That was the big focus for 10 years of my career. So I feel like I'm talking to someone who's from this bizarre tribe of people who talk about latency, and packet delay, and all that stuff. I'm just going to go deep on this first question for you. Is there such a thing as mitochondrial packet delay?

Lola:

I hope not. These days, everything is delayed and not only your body takes time to regenerate and keep producing. But hoping that there's not too much packet delay, you can get you [inaudible 00:02:14].

Dave:

What I found really interesting about your path and why I wanted to talk with you today, to educate our listeners on how you think about blood, is you went from some big companies with a successful career path and all that, and you said, "All right, I'm going to move to a coastal backed startup in the blood biomarker industry backed by Vinod Khosla," who's a really noted tech investor. I've only met him once a long time ago, when I was looking at joining one of his companies. You were there and you said, all

right, so tech, social media, basically e-commerce, social media and then blood. What did it feel like to go from being deep tech at these giant companies to working with blood? Was it kind of a jarring difference or was it the same old game?

Lola:

It's definitely different. I guess that, for me, it felt right. If I were to summarize it with one word, it would be right. I experienced a few health issues when I was working there. And what fascinated me and you mentioned network and network [inaudible 00:03:20] things, was that we get so, so deep in a lot of concepts, and we use technology to make people be hooked to their phones for two or three hours a day. And optimize for sales and messaging and communication.

Lola:

Of course those things are important to a certain extent, depending on how you look at it. But what shocked me was, how neither of these tools and the latest advancements in technology were not applied to health. They were not applied to help people feel better. And the result is, these that there were so many people being out there not knowing what to do, being overwhelmed about, you have to sleep one hour more and do this and that. Eventually they get lost in translation. They suffer from symptoms and they just don't know how to get to the root cause of it.

Lola:

When I was working at Instagram, what happened to me, was that I started experiencing brain fog and fatigue. I turned to Bulletproof, so I'm going to blame you here.

Dave:

Sorry.

Lola:

I went online and I tried to find sources that would help me navigate the situation. I actually landed on a blog that was not Bulletproof that they were talking about how the full keto diet it's great for you, you will be super energetic and so forth. Of course I turn to the full keto diet. Cut carbs out of my diet-

Dave:

I can predict what that did to you over time. How did it work out for you?

Lola:

Four months later, I was just feeling really crappy. And of course, I hit major thyroid imbalances, my LDL skyrocketed because I didn't pick the right fats as well. It turned out that my brain fog and fatigue were stemming also from severe vitamin deficiency. So there I was, after I got some lab results back, finding myself stupid. And like, "Hey, I went, I did all of these and of course I Google after that Dave Asprey keto diet, and you find your take on the keto diet and white carbs are important.

Dave:

It's kind of funny. Cyclical keto is not keto. I'm aghast at where the world of keto is today. Because I did all of the things you just did back in the '90s where, "Oh, I feel so good." And then you get wrecked by it. And that was why the Bulletproof diet was something different, because it was like, you just go in, go

out, go in, go out. But you broke four months, especially for a woman. I'm guessing your other hormones were like your reproductive hormones, estrogen, and all that were also completely wrecked?

Lola:

Yes. They were slightly imbalanced.

Dave:

They were slightly imbalanced. So what all lab tests did you run and how much did it cost you to run all these lab tests to find out what was going wrong with you?

Lola:

The journey was wild. As you can imagine, the health care system is not designed for these kind of things. You can just imagine the endocrinologists face, when I showed up there and I told him that I was doing the keto diet, to feel more energetic. He looked at me like I was the biggest weirdo ever. And he was actually not even that familiar with the keto diet back then. This was early 2017, so you could tell that he was still lost as to why are people doing keto diet? It was just like becoming a trend.

Lola:

And then eventually, because I pinged my colleagues from med school, I actually went to med school for one year, side note. I realized quickly in reading your clinical evidence, that there could be hormonal imbalances and so forth. So part of the hormonal imbalances was covered by the insurance, the vitamin tests was not, which shocked me. I think that the total was about $250 for the vitamin tests, which shocked me now that I know the price and the cost. And then for the hormone test, I had to pay a copay. Keep in mind that I was working at Facebook. So top tier healthcare insurance, too. It was really painful. It also took one month and a half to get all of that data back.

Dave:

I found it really disheartening when I was working on all this. I ended up spending, the very beginning of [inaudible 00:08:00] I spent $300,000. I spent more than a million, but a lot of that was on upgrades versus just getting back to base. What I really found out was that, if I was all excited about working on something and I asked for data and I got the data back, like I said, six, eight weeks later, it's really frustrating because by then your motivation is a little bit kind of flagged. And so I found that rapid feedback is really important for making personal change. That's why I like my Oura Ring or any tests where, "Oh, I sent it off. I got it back in a few days." You got all your stuff, you spent some money and then you had a bunch of different, really just written reports. As someone who knows a little about manipulating data and all that stuff, what did you do?

Lola:

You touched on motivation and this is one of our core pillars here at Base. Really quickly, before answering your question, something that I did after all of that was, after looking at Bulletproof as the brand, that was the most informed on the clinical field from a data perspective, keto diet, like how to basically craft the diet that it's balanced and makes sense with your biology, I started studying your books literally.

Dave:

Thank you.

Lola:

Kind of like underlying like, "Okay, I have to do this and that." And as a super busy person an engineer, what also struck me was, "Hey, I know that I have to do all of these things, but if I could only know what to prioritize right now, is it like my magnesium is too low? So I have to make sure that I incorporate these things into my diet or my vitamin deficiency? Is it that like I should be focusing more on balancing my fats and my carbs? What is it really the thing that it should be prioritizing today?

Lola:

And I found data as that source that would keep me motivated. For example, right after that, and then you mentioned that start-up that it went to, that I transition into at [inaudible 00:10:19] in the lab industry and so forth, what I quickly learned was that, knowing that you have that monitoring and that lab test coming, is really motivated. It kind of helps you to stay on track and to break things down for humans that have other things going on, but still want invest in being healthier and feeling better.

Lola:

So that's the part that it's really interesting for me. To tie it back to the story, and to answer your question, what I did back then, and this was the shocking part, I mentioned that my cholesterol was high. Can you guess what the doctor told me?

Dave:

Let me guess, he told you that you needed to go on a low-fat diet. If you eat fat, it should be corn or soy oil or canola oil, and then wanting to put you on statins. Am I right?

Lola:

Yeah, pretty much. The fact that really shocked me was that, he wanted to put me on medication. Like, "Just keep an eye on these and if he keeps being high, we'll put you through medication." To me that was shocking, because-

Dave:

But you're from Spain, right? Things are more sane on the other side of the ocean, aren't they?

Lola:

Exactly. Healthcare is so different there. One of our coaches at Base is, healthcare data should be affordable, should be accessible. It should not be managed by these middleman that they just want profit from drug prescriptions, and a few other things. I think that ultimately not to really bash doctors again, I went to med school and I know where they're coming from. They just have too much on their plate. You cannot be the best at like helping someone not to die, or like bringing someone from death to life, and then also helping someone with nutrition and exercise and having the user interface to be the coach. It's just too much. I think that's what we also know at Base, that doctors have too much going on.

Dave:

We should mention Base. I've kind of walked through your path and how you became aware of what was going on, how you solves the problem. And you started a company called Base in 2019. And congratulations, you raised $2.1 million, but now you have board members, don't you?

Lola:

We actually raised a little bit more lately that we are announcing that round a little bit down the line. We have really VIP people coming onto the cap table, which makes me super excited.

Dave:

Congratulations. That's amazing. So you took this experience and you said, "All right," and I'm going to paraphrase this, but you're thinking really appeals to me, but your stack ranking what to do, so that you can tell someone, "The most important thing, that'll give you the most ROI," I know that's kind of language out of superhuman, "But what's going to give you the most energy to do first." And that actually creates relaxation in people.

Dave:

The biggest thing I hear from people like, "Oh my God, Dave, you have 3,000 blog posts and 900 hours of podcasts, and that's two years of college worth of content. How would I know where to go first?" And you're saying, "Well, let's look at your blood tests, and then we can tell you where to go first." Which is something that I absolutely support. Are you working with doctors to do this? Are you going direct to consumers? Both? I know you have a consumer play, but is this something that my doctor could work with you on?

Lola:

We work with doctors in algorithm. So what's going on a Base, in the background is, and you mentioned your audience's like, "Okay, there's a lot of content here. Where do I start?" So there are two starting points, typically. Typically someone is struggling with a given symptom. Let's say they are brain fogged or fatigued like me, or they can't sleep. They feel really weird when they eat or on the other hand, you're feeling okay, but you just want to feel better and be on the driver's seat of your health.

Lola:

Now, what we do is, we combine data, we use the data that has been out there for many, many years. Maybe it's biochemistry in clinical trials. And basically what we are doing, is sitting doctors at the table and being like, "Okay, if someone comes to you and they are fatigued and brain fogged, what would you be looking into?" At the same time, we compliment that opinion with data. And we looked at 80% of US, adults are deficient in vitamin D. So chances are that when someone is trying to understand what's wrong with their energy, vitamin deficiencies, typically the first spot to look, which by the way, we are seeing crazy deficiencies these days after COVID, which is super interesting.

Dave:

Vitamin D, because everyone's indoors, you're saying? Specifically D deficiency?

Lola:

Yes. We are really seeing the average on 18, like under 20, which the lab rate starts in between 20 and 22. It's really interesting to see how COVID is affecting people's lives.

Dave:

Where do you recommend, based on the algorithms that you're using, what's the target level for vitamin D that you guys are supporting?

Lola:

Typically, we say around 50. Depends on the profile and the medical history and so forth. Because we don't want to have vitamin D high for people that can have certain, heart disease risk, and a few other things. So we typically aim for something above 50, between 50 and 70.

Dave:

My number is 70. I just tell people that around 70 and up to 90, but only if they're taking K2 with it as well. Do you guys talk about vitamin K in your stuff as well?

Lola:

Slightly, I have to check. But I'm not super familiar. I know that we talked about magnesium, K and A. And we are talking about-

Dave:

So ADK, I put those together without magnesium in a formula, because magnesium is so many pills and people need varying amounts. But it's cool, because you're going to show someone data-wise how to do this. I wasn't sure about your doctor interface. But what I do like is, you're going to look at blood and saliva, but not the vials. And this is something that makes me really angry about old school lab testing. You can get a test kit. In fact, one time I had $1,000 test kit from some company, and I went into one of the two incredibly rigid and dumb lab analyzing companies that are out there. Companies like LabCorp.

Dave:

They're set up kind of like a convenience store model. There's kind of everywhere. But you can't come in and say, I need someone to pull my blood and stick it in this vial so I can mail it off. Like, "Oh, we don't do that. You have to just do our test." So even getting my blood drawn, took several hours to call around, find the right place and go do it. And that's not sustainable. Most of us have a life and a job. So the fact that the tech has moved along, so you're just getting an at home, just prick your finger kind of thing.

Lola:

Mm-hmm (affirmative).

Dave:

And you can get your vitamin levels from that just as well as you could from liquid blood the way we used to have to do, right?

Lola:

Exactly. And remember I worked at the lab industry, briefly, for around a year and a half. I can speak more to that process. But at a high level, they are getting slightly better Quest and LabCorp and so forth. We indeed work with quest as well. Let's say that you are really versed with finger prick, you can, In

theory, go with your Base app, and walk into a Quest center and be like, "Hey, I'm a Base patient." They can-

Dave:

Wow. Quest is actually going to let you do that?

Lola:

Yeah.

Dave:

That's amazing. Did you torture them to make them do that? Or are they nice?

Lola:

There were a lot of conversations teaching them this is how the market is moving forward and this is more customers for them. And we really want accessibility and ease of use for our patients. It was multiple conversations, escalating those conversations too, but eventually they got there. I think that they generally, they get it. They just are not able to coordinate to move in that direction. But they are they're learning now that consumers have needs and they have a minimum bar that you should be meeting. And I think that the problem of the health care system, is that it was not designed with the consumer interest in mind. But now, things are changing. So it's truly great to see companies like LabCorp and Quest, collaborating with companies from startups like Base.

Dave:

That makes me happy. The experiences I had were several years ago. What's happening is that, I believe that you should have the right to get any data you want at home without needing a permission slip from a doctor. And it's a fundamental human right. No one has the right to say, "You're not allowed to measure your own heartbeat." Like, no. This is my data. And if I want to know what's going in there, and if the test isn't licensed by some government agency, I don't actually care. It's my data. And if I want to take my blood and send it to an astrologer, who's going to say, "Your blood is influenced by Venus." Hey, maybe I'm just being a little weird there, but it's my right.

Dave:

And so by democratizing access to data and just saying, "Look, we're going to send you a kit. We're going to run your numbers for you, and we're going to show you what's going on." I just support that as it should be as free and as fast and as widely available as possible. It's never going to be free, but I love it that you're making it understandable. Because the number of random lab tests I have in a folder, all in different formats on my computer, going back 20 years, it's insane. And it's just not something that I ever want to deal with. And I feel like you're making the simplest decisions, data guided, instead of just a shot in the dark.

Dave:

I've often said that, the reason I had to spend a million dollars to upgrade myself, I didn't know which quarter million dollars was the right quarter million of that to spend. Because I didn't have a [inaudible 00:21:06] rank list. So I'm like, "I'll just do the whole list." And I recognized that, I'm very fortunate to have been in a position as a tech engineer and all that, to be able to afford it. But also, I didn't think I

could keep working, if I didn't do it, because my brain wasn't working. And if you're doing deep tech work and you can't think, you're going to be unemployed. And I was very worried about that.

Dave:

So there's a sense of desperation, that led me down this path. How desperate were you when you decided you were going to go down to the data science for health path or start Base?

Lola:

On a scale of one to 10, probably an eight. And as you said, you were someone that was super motivated to learn and improve. And what we believe is that, you're on the side of the spectrum that was super, super motivated. But what we also want to help is, the people that cannot afford it, they need that little push to start improving, getting to the root cause of their symptoms. And as you said, I was desperate in a way that it's, "Hey, I've been brain fogged and fatigued, and I cannot do the things that I love. I finished work, I have these plans and I cannot do them."

Lola:

I physically can't do them. And it's so frustrating because you feel like you're missing out in life. And it's just so frustrated that I have all of the tools in the world to buy things, as we said, like for social networking and a few other things, and I just cannot look at my body data to learn why this is happening to me. It's really hard to even know where to start. You're blocked, you're fully blocked. So what do you do? You went to Dr. Google, you start trying out random things. I think that you get it right, right? You went and you build the building blocks of knowledge and understanding the medical side of it.

Lola:

And as you said, for those that don't have that time to start learning from scratch, you go to that Dr. Google, and then you start to randomly try out things. Chances are that, typically, you're not going to solve it using Dr. Google. So we see a lot of users that come to us, because they've been trying melatonin for months and they still cannot sleep. And guess what? When we go and give their first test that we typically look at into their circadian rhythm, they are not producing enough melatonin. They have really, really low levels.

Lola:

And it's like, "Hey there's something here going on. You were taking a lot of melatonin a few months ago, you were overdosing. Now your body's not producing that melatonin. Let's go and understand, why are you not producing that melatonin? While in the meantime, let's give you fixes that could help you get to a better quality of life." So we definitely see a lot of people desperate. I was desperate myself, but I was even more frustrated, just seeing all of the tools that I have available at a big tech company that were not used for the right things.

Dave:

I want to mention now, too, that you're kind enough to offer 20% off for listeners to get-base.com/dave. You guys can go there, use code Dave and save 20%. It's pretty affordable. What do you guys charge for signing up?

Lola:

We are $59.95 a month. We believe in continuous monitoring and testing to get to the root cause of your symptoms or to just monitor the things that you care about.

Dave:

Wait a minute. Are you saying that if you make a change, you should test again, after the change?

Lola:

Yes, of course.

Dave:

That's pretty radical. You should just take some drugs. I mean, come on. This idea of make a change, see if it went the right direction, make a change, see if who in the right direction is how you do it. And it's just inconvenient. At least it was. But the idea that how often do the tests come?

Lola:

You can choosing between monthly or quarterly, depending on the type of user that you are. Depending on those, you would go into these two types of subscriptions. I think that also, something that you mentioned, if you have a specific symptom, we can go and run a $1,000 worth of tests, or we can look into the highest ROI type of thing. So for example, looking into vitamin deficiency first, and then depending on those results, let's say that your vitamins are low or they are high, or they're pretty much in the middle range, we'll know, depending on your profile, where to keep looking. So it's more like a continuous path to start looking into your data, instead of running a lot of tests, you get your results and you go on one way and we go in a different way.

Lola:

What we do, and the way Base works, is that we believe fundamentally, that it's going to take a little bit of time, let's say two to three months, to get to the root cause of certain symptoms and fully understand the full picture. And then as you said, in order to improve, it's not a one size fits all. And you also need to know exactly to what extent is certain supplementation or diet change is working for you. Not only that, let's say that you're monitoring your health. For me, I use Base today, as a way to like check with my health.

Lola:

For example, a funny story, I just got my diet track results. For this one, Base was checking my lipids panel and sugar. We look into several things within the diet track. But what's funny was that, during quarantine, they found this drug store that "Be healthy," and I never eat refined sugar. But I'm like, "You know what? This life is hard right now, I'm just going to start cheating and eating ice cream, sporadically at night."

Lola:

At the same time, I reduce my workout activity because we were in a soft launch space. What happened was that my results is got to my Base app, and of course my HDL was low and my [inaudible 00:27:38] rates started to go up. It's a nice reminder that, it was nice cheating and not working out for a little while, but it's time to get back on track. So that's what we fundamentally believe at base, that

continuous testing is the way to improve, really learn about your body and learn what things work for you. Because again, it's not a one size fits all.

Dave:

You know, I so just value that perspective. Because, if you don't test what happens when you cheat, you're going to want to cheat. Anytime you're doing the continuous glucose monitoring, you're doing regular ketone strips or breaths, any of those things just keep you on track, so you can see what you're doing. Are you worried that when you're working with all the algorithms for Base that... Okay, you're recommending a blood level higher than the Mayo clinic recommends for vitamin D, for instance. Are you worried that people are going to come and say, "You're not scientific," or something like that? How do you deal with that kind of, "We must do it the way we've always done it, even though we have more obesity and diabetes and all these other things than ever before." How do you balance that out as an actual company?

Lola:

That's a great question. We actually don't fully recommend a given level because we don't want to get our hands dirty in that that conversation. So what we do is like, "Hey, based on your profile, we'll give you an optimal score." So we gamified the whole process and we calculate 100 around over 50, as you said, we see great reports for people that might be at 70, 80, but then you have the medical community, that's saying like, "Hey, but you can have calcium in your heart, if you have high vitamin D levels," so forth. So we basically show you the laboratory range, and then a healthy range that would go something along the lines of between 30 to 90. And then the 100% optimal score, will be around that 55, 60. Over 50s, as I mentioned.

Lola:

What we do is basically saying like, "You're still going to be healthy within this range," because it's also not our position to go and say that like something that it's outside of the lab range or something that is around lab range is not healthy, but we frame it as an optimization score. And then where we do have an opinion and give people recommendations, is once you get your results, we match your results with clinical trials. So we've actually spent one year data mining thousands of clinical trials, triaging them, because you know the scientific community.

Lola:

Sometimes they publish things, wellness are great for you, and this may be a bad example, but you go and you look at the map of the results of that clinical study and whether you see that 60%, 70% of users had a great experience eating wellness to be preserved triglycerides. Maybe you have like 20% of outliers. So, I think that's important for Base to understand everything that's going on with certain levels and how they correlate with symptoms.

Lola:

And where we do really recommend things is based off your results, as I mentioned, we match your data with clinical trials, healthier, supervised by functional medicine doctors. And then we start telling you what changes to incorporate on your diet, supplements to take, lifestyle and so forth. In a way that it's very digestible. So we only give you the top four things that you could be doing at a time. And those things refresh every couple of days.

Dave:

Honoring inconvenience as an important factor is so important. And I'm 100% with you. 24 hour salivary cortisol, where you do a test four times a day, to see, "Oh, wait, I have too much, or not enough in the morning, but maybe too much at night." It's so much more useful than a one-time cortisol measurement from blood, which is what a lot of doctors would go on. And since it's a circadian hormone, it's kind of a garbage data point, if you just have one.

Lola:

Exactly.

Dave:

So the idea of collecting that, and it doesn't really matter if you're off by 10%. The shape of the curve will be the same. And it's enough to say, "I have a problem. I don't have a problem."

Lola:

Exactly.

Dave:

Now, there's another part of the algorithm, and I want to dig a little deep on this. You're saying, "Okay, we're going to make personalized supplement and lifestyle recommendations." So many times, I've seen lifestyle recommendations that mirror the American Dietetic Association guidelines. These are the people who give you diet Jell-O and like corn syrup and stuff in hospitals. They do not know how to feed you. They should call it the American Diabetic Association, because they cause diabetes with the recommendations.

Dave:

So, where do you get the knowledge on lifestyle recommendations? I started writing all this stuff down because people had told me exactly the opposite of what I should be doing. They told me, "Cut saturated fat." I'm like, "No." Stuff like that. How do we know that your lifestyle recommendations are actually the right ones?

Lola:

Short answer is, we are not certain, but we have a great level of confidence. Again, it's not a one size fits all. And we give you the tools for you to learn that this is actually the right change for you. For you to measure it. So what we are looking into is not other people's opinions. We don't want that. We are directly looking into the data points of clinical trials. Now, take this with a grain of salt. Maybe the scientists that published that specific study, decided to not publish the data points. The concepts could be different.

Lola:

But what we are doing is, collecting those data points of evidence. So let's say that, for example, again, your HDL is super low or your triglycerides are really high. And now we see a lot of evidence that wellness will help you bring those triglycerides down or reducing fruit is actually what you're doing right now, having too much fruit. We are compiling those data points of intervention to biomarker change, with a given direction and with a given intensity. We parse that, we put that into a database that it's

interpreted by an algorithm. We also supervise cases on a bi-weekly basis with functional medicine doctors to also bring that expertise in that opinion, but with the baseline of the data to start with.

Lola:

So that's something that I found really interesting as you said. Because the scientific community is also trying to catch up with the way we evolve. For example, the keto diet, my problem with the keto diet, is that I was relatively early on. You were talking about all of these things, but no one else was. The result that I got [inaudible 00:35:07] issues. Now, if you go online, you find that really quickly. Why? Because the scientific community and people started to pick up.

Lola:

So now what we want these to have an opinion here, is to give you the measuring stick for you, to start looking into how certain things affect your specific levels based off what you care about. And that's all we are thinking or all we care, is that you understand that there's already evidence about your levels, that you can take that, ingest that, but also that you should be measuring that to see how much it's helping you. And hopefully it's helping you.

Dave:

And I think over time, what happens with a setup like you have, you'll see, "Well, if I recommendation is this, and you're asking in your quiz, "What are you doing?" You actually have the data point out that the recommendations don't work, so you can change them. This was, what's been lacking from the world at large in health. It should have been obvious, back when I weighed 300 pounds and I worked out an hour and a half a day, six days a week for 18 months, on a low fat, low calorie diet.

Dave:

By the way, I stayed fat at the end of that, but it should have been obvious what that would do to me. And it did actually break my thyroid and it did add muscle, but I did not lose fat. It was not very much. But the recommendations were something that I followed without good labs in the very early days of this stuff. And it was only after that, that I started getting labs and really digging in on the data. And I had that kind of horrible realization that, "Oh, my God, I have been doing stuff that doesn't work."

Dave:

And if I could have compared my data 20 years ago, with other people doing same kinds of things, we would have very quickly learned as a society that this low fats, eat a lot of Omega six, seed oil, it doesn't work. Our population data goes down. Are you using machine learning or any sort of deep algorithmic analysis to figure out whether your lifestyle and supplement recommendations are doing what you think they're going to do?

Lola:

Not yet. We don't have enough, the sample size is not being enough. And anyone that tells you that they're going to use AI in your health data, take it with a grain of salt. After working in big tech, I can tell you that typically, you want at least 10,000 to 100,000 data points. For example, clinical trials are control. They have certain rules, they have fact lines, but when you're out in the wild for Base. We really cannot be super certain that someone has been taking certain supplements. Really, they may tell you so, but it may not be accurate. So you need a big sample size in order to start plugging in machine learning, which is our plan. And something that we always compared based to each company KPIs.

Lola:

If I gave you the analogy of a company KPI, how does a company fundamentally achieve their goals and get there? They stylish certain KPIs that could relate with that goal, and they just measure that, track that and work towards improving those KPIs. And that's what we basically do at Base. Those KPIs will be your biomarkers, that will correlate with your goal. So depending on what are your goals and what's your profile and what you care about, we're going to decide and determine what they're going to be the major KPIs that we're going to be looking into. And then we're get to work together towards improving those such as you can start feeling better.

Lola:

Now, as you said, in order to give you recommendations based on AI, we are going to need to be able to have at least a 10,000 to 100,000 subscribers, doing those specific recommendations. But in the meantime, we look into those randomized clinical trials and source the data from there, mixing that up with the experts' opinion.

Dave:

In 2006, I started one of the early self-service at home lab testing companies. We were looking for immune activation to all sorts of stuff. So we were doing it like a radioactive, white blood cell counter, which is a really horrible, hard to collect test. So that's why I ran into so many problems with the big lab testing companies who didn't want to deal with drawing blood and whatever. We did end up getting a contract to do it. But then, I always ran into the New York state issue where citizens of New York are not allowed to have access to their health data, only in that one state, because the testing guidelines are bizarre. Can you send test kits to New York?

Lola:

We do.

Dave:

Yay.

Lola:

Actually, yes. And we are in very frequent conversations with the New York State Department of Health. The thing for New York State Department of Health, is that it has feeling complexity, so we have to make sure that we meet with those guidelines for the health data. There needs to be a doctor involved. We went through reviews with the Department of Health. And the fact that as I mentioned, Base they bring the doctors in for reviewing the data, making sure that the recommendations are not too crazy. We clearly say that those recommendations, that they are not medical advice. So meeting certain guidelines, we are able to operate the New York State, which is great.

Lola:

Fun fact, when we launched for the first time, we got a truck, an all glass transparent truck that we did build as a home, and we put that in the streets of New York City for 12 days. And that's when we started talking to the Department of Health, just to make sure that we can have a phlebotomist there, a lab picking up samples from the truck. Again, this looked like a home, take that with a grain of salt. I have found them again to be conservative. I can understand where they're coming from, and I think that if

you really do your homework, there is a way to meet those guidelines and still make health data accessible and also affordable to people in New York.

Dave:

I really appreciate that you've gotten to that work. I know hundreds of New Yorkers I've talked to, who have a separate address outside of New York, so they can get access to lab testing.

Lola:

That's hilarious.

Dave:

I'm like, I just drive across the bridge, pick up my packages or have them forwarded, and then they do it anyway. I'm glad you were able to navigate that because New York needs to become standardized with the rest of the country and just say, "Hey, you're allowed to get whatever lab tests you want." What do I know? That whole health freedom thing, where you should be able to do what you want to your own biology.

Lola:

Exactly.

Dave:

Now, what about the government side of this? Is this something that would be covered by flexible spending accounts, by health insurance? Or is this just entirely like I'm managing my own biology?

Lola:

You actually can use your HSA and FSA dollars for Base today, which is great. We have plans to talk to insurance companies and we're really talking to Aetna and CVS Health and a few others. The plan here is to show them the data, that this is actually helping people's health and helping people feeling better, in order to start having regular insurance cover for Base as well. You always have, as a company of this nature, you can always go directly to employers that they care about their employees and they are more forward-thinking, and open-minded. That's definitely one route that we can go with. In the meantime, I really, really feel passionate about the government path. I'm originally from Spain, so you don't pay a cent when you go to Spain to the doctor.

Dave:

[crosstalk 00:43:48] I live in Canada, same thing up here. You just go in there and they do whatever.

Lola:

Exactly. And it's still so interesting that, I go to the doctor in Spain. I don't go to the doctor here. Every time I go back home, I visit all of my doctors, I get all of my tests done. Which is hilarious because here I'm scared. I have good insurance, but I didn't know what the deal and the copay and whatever they're going to make that going to come back to me, please. I'm scared, which is so interesting about what are they going to charge me this day? And I didn't think that humans should be living that way. At least it should be upfront, that's number one. And number two, I think that the price is definitely inflated, which is really sad.

Lola:

Really quickly, a story that I think it's important to surface, will be some things could be good for you as well, but to what extent? For example, you're seeing a lot of CBD and ashwagandha drinks, that are absolutely excellent for your cortisol levels. Now, when I have too much of that, my cortisol levels go into the lower side, which is super interesting. Again this same thing, how data could also show you how things could be good until you have too much of that thing.

Dave:

I can't believe that you brought that up. That is so cool. A low cortisol, is way more dangerous than high cortisol. And by the way, low insulin is more dangerous than high insulin, which is shocking. So the idea of having the right amount instead of this like caveman level cortisol bad, you do not want to be a low cortisol person. I've been one for a long time. So for me, a supplement that's meant to lower my cortisol at the wrong time, is going to be counterproductive.

Dave:

It's that way for so many people. And you want to brain fog, don't have enough cortisol. You want bad sleep, don't have enough cortisol. So the idea of finding the Goldilocks zone for hormone versus it's good or bad, that's what precision data does. And it's such a big deal. Do you actually see a lot of low cortisol? I'm really intrigued. This is kind of one of my personal pet peeves where people are like, "Good or bad," but it's not like that.

Lola:

We do. I would say, maybe out of the cortisol that it's unbalanced, 70% high cortisol and 30% is low cortisol.

Dave:

Wow.

Lola:

The first thing that they ask in the customer service chat is that, "Wait. I thought that low cortisol was a good thing." And we are like, "No, no, no. We need to get you in a high fiber diet, moving. We have to do a few changes here, but definitely it's not a good thing."

Dave:

What if people say, I don't know, "I ate the Bulletproof diet." So I'm going to avoid nightshades because I figured out they're a suspect food that actually is guilty in my case. Or people were saying, "I'm, mistakenly plant-based, 100%." They usually don't say mistakenly, until they see their data. How do you account for dietary belief systems that may or net be science-based in your recommendations? If you tell a vegan to eat meat, they're only going to do that when they're on death's doorstep from their vegan diet. But until then they just get pissed off. How do you allow people to customize recommendations? Or do you?

Lola:

I'm going to quote you on something that I've heard from one of your podcasts once. That is you don't necessarily tell people what to do, you tell them how you feel better, and then they eventually will get there.

Dave:

There you go.

Lola:

So for example, if someone marks that they are vegetarian or vegan and they have iron and B12 deficiencies, we're going to do everything that's in our hand, to help you fix that. And eventually, if you're not fixing it, when you're doing everything that's out there in the evidence, then you at least know. And then you can start reflecting on doing away with this belief, or like, ultimately what's the long-term effect that I'm putting my body through here? So at least you show them and they'll eventually get there.

Dave:

I love that you can show people what's working. One of my favorite discussion points, and you can be a healthy vegetarian with some work, but to be a healthy vegan, is almost universally impossible. And you might be able to be okay, healthy, but there are levels of greater health still accessible to you. The question is, how's that working for you right now? One is how do you feel? And then the other one is, what do your labs look like?

Dave:

And if there's someone who is vegan and they have great labs and they feel amazing, good for you. But you're the one in a million or whatever the number is. And that's okay. It's just that, how's it working? And most of how it's working is invisible, because until you've done enough lab work that you can actually know, "Oh, this is what it feels like when I have low blood sugar or low blood pressure. Or this is what it feels like when I have too much iron or not enough iron." And I actually know how those feel in my body, because I've had such rich access to the data for that long period of time.

Dave:

But am I going to detect whether my copper is a little too high outside my red blood cells? Probably not, to be perfectly honest. That's why I get my data. And it's so much work and I've become a pretty strong expert in it, because I had a need to do it. And for you to take a lot of that years of study out of the equation, because frankly, no one's going to do that unless they're really sick. I think that's the function of the algorithms and the recommendations you guys are making.

Dave:

I think it's a really meaningful addition to the world of bio-hacking. Because we have companies like [VIAM 00:49:33] doing the gut bacteria stuff, that's really good. And we have companies like the DNA Company looking at functional genomics and that's really good. But then that like checking in, "Okay, I've incorporated all these different pieces of advice, but is it working?" And it's that final piece. And if it's not, how do I directionally change things without knowing everything? I think that's cool. And that means if you want to take some weird peptides or some kind of Russian pharmaceutical, you can still say, "Well, hey, maybe it magically changed my inflammation and I'm superhuman now," but it should show in your labs and maybe it will.

Dave:

Do you have some sort of functionality in the app that lets me take notes of just all the other weird stuff I tried?

Lola:

Not today, definitely in the roadmap. It's interesting because, I want to do that personally, because I cheat. And I start cheating when I'm more busy. And it's just helpful to know like, this is something that will never show up in the lab right? Cheating and what not to do, we don't get too much in there. But at least to be able to mark certain things, and to start noting for myself as months go by and as years go by, "Hey, remember that this is what I ice cream did to you."

Lola:

Or, in order to discover new products, you said it yourself. Maybe there is these new product that comes out of nowhere, that people think that it's black magic, but it actually works. We would love for Base to learn about those scenarios, such as then we can plug in the AI component and we can start with commending that, to other people that are similar to the ones that are having success with that specific problem. So that's something that, as we grow and we get more data points, we would like to start incorporating within the app.

Dave:

Okay. I really like that answer. I like that perspective. And over time I would hope that. Right now, I tend to put it in my Oura Ring app. They have a little ability to take notes and then I correlate it with my heart rate variability. So, I do think that the advanced bio-hackers are going to want to do this. But for people who are listening, who aren't bio-hackers, and there's tons of people were just saying, “I want to be healthy. I want to feel good. I want my energy. I want to lose weight,” whatever. That ability to say, "I wonder whether what I'm doing right now with this bag of potato chips is working." So you can put the bag of potato chips somewhere and track it, and it would probably be helpful if that's in the app.

Dave:

Because then you're saying, "Look, I had 50 doses of potato chips and what did my inflammation markers, my blood lipids and my HB A1C do? Maybe I should back off." So those kinds of things, that's what causes behavior change. What doesn't do it is shame and self-loathing and all of the things that certainly have been a path of almost anyone who's been really obese. It becomes something that's probably there at one point that you may deal with, you may not. And you can deal with it whether or not you lose weight. But I think the data there and the connecting behavior to results, changes behavior. Which is awesome.

Dave:

Lola, if there was one lab test that you think everyone on the planet should do first, given all that you've seen, what would that one lab test be?

Lola:

That's a hard question. I'm going to go with vitamin D today, specifically, just because it's so, so important. And I know that the clinical community just keeps getting research studies out on how it correlates with absolutely everything. Everything's interconnected. At the end of the day it makes sense.

If you don't have the keto points to make energy, everything else falls apart. If your phone runs out of battery, of course, nothing else is going to work well. So I'll go with the vitamin D.

Dave:

I've been pretty active on social media lately saying that if I had a choice between a vitamin D test and a COVID test, I would choose the vitamin D, because I can do something about it. If you have low vitamin D, you have a much higher percentage of getting really sick from COVID. So that's an actionable data point. Whereas, whether you have some PCR tests that may or not be useful, is really just more of a curiosity than something that you can take action on. I'm not saying you shouldn't get a COVID test, I'm just saying vitamin D is what gives you resilience. I love it that of all the things you could have talked about, that's it.

Dave:

Now, if people want to go to get-base.com and use code Dave and save 20%, which of the paths do they need to go down, that includes a vitamin D test?

Lola:

Typically, they would choose energy.

Dave:

Energy? Okay.

Lola:

Yeah. Because you can choose multiple tracks as well. If you do the quiz, you're unsure the specific ways to know which track you should prioritize, depending on what's going on in your life. Once you joined, you have access to our team. You can also specify if you have interest in particular tests and we can make sure to accommodate your opinions and your desires. I think that there's definitely a world out there of people that they are already doing testing, and they maybe aren't interested anymore in one test more than the other one. So you can also, if you are an expert and a bio-hacker and you know everything about this, you can certainly tell us, "Hey, I actually want to go for these tests or these other ones."

Dave:

Well, congratulations on your startup, and congratulations on recovering your own health and ability to think and pay attention and all those things that many people take for granted, but you really only notice them when they're gone pretty far away. If you're listening to this right now, and even once, today, you've been reaching for a word that didn't just pop into your head, there's a reason for that. So there's all sorts of distance and length between, I'm running the way I'm capable of running and I'm running where I am now, which feels pretty good.

Dave:

So it's the little things like that that say, "Maybe there's something that I could do." It doesn't mean need to judge yourself for that, it just means that there might be room for improvement. I've gone from many times a day, grasping for words, where I can't remember that or whatever, to the point that it's

incredibly unusual. And if it does happen, I'm like, "Wow." For me, that's a marker that says something's off. In fact, I can usually predict what I did that caused it. And I can predict what to do to take it back.

Dave:

You do not want to spend a million dollars and 20 years learning how to do that. I think you can do it better with labs, to be perfectly honest. And so, you can get your base stuff handled, see what I did there? You can get that handled relatively easily and for just a tiny fraction of what I had to spend. And I think there's great merit to it.

Dave:

So thank you for putting this together. I know that taking the level of software knowledge and thinking that you have and getting this incredibly messy dataset, putting it into algorithms and doing all the process around getting lab tests available like this, is no small task and I'm really happy you're doing it.

Lola:

Thank you so much.

Dave:

If you like today's episode you know what to do. Maybe get your vitamin D levels tested, and you can probably do that at your local doctor, or if you don't want to go to the doctor and you don't mind pricking your finger, you could do that with the Base test and it's totally worth doing. I already mentioned the code a couple of times, use code Dave there, and it can save you some money. And if you decide you're not going to do any of that stuff, well at least think some kind thoughts. Because if you do that regularly, your labs will improve too. Have an awesome day.