

Analyze Your Gut to Fix Your Health: Here's How – Naveen Jain – #917

Dave Asprey:

You're listening to The Human Upgrade with Dave Asprey. Our guest today almost needs no introduction, but I did promise you before every episode this year, I'm going to tell you exactly what you're going to get out of the episode so you can decide that it's worth your time to listen to it because your time is your second most important asset after your energy.

And today you're going to learn what's happening in the very cutting edge of human biology from micro macro level, your cellular health and even how that connects to broader planetary issues, with a dear friend and a multi guest on the show who's been on my stage of the biohacking conference multiple times, and the guy who's really changing the world of gut biome in very big ways.

It's my friend, Naveen Jain, who's CEO and founder of Viome. And full disclosure, I am an early advisor and investor in the company and they're kicking ass, adding thousands, actually tens of thousands of new bacteria that live in the gut to our databases, just changing the world in many different ways. Naveen, welcome back to the podcast.

Naveen Jain:

But first of all Dave, it's always an honor and pleasure to speak with you and your tribe. I love your tribe. I mean, they are one of the most curious human beings on planet. And curiosity is what drives the humanity forward. The day you stop being curious is the day you die. So I just worry about the people who have lost their curiosity. They refuse to challenge the status quo and they expect to be alive, I mean I just don't get it. I mean, it's okay to be wrong, but it's not okay to be not curious.

Dave Asprey:

Thank you for saying that straight upfront. I mean, I've been wrong about some things. I thought kale was bad for you, but I didn't know how bad for you it was. So it turns out I wasn't anti kale enough early on. I'm kidding, I know you actually aren't a kale hater. But bottom line is, you and I both are almost certainly wrong about some little thing that we're doing, but we're directionally right and we're constantly improving.

And it's the people who say, this is how it is and it will never change, that I think are really stuck. And since I first connected with you years ago at the X Prize 10th anniversary trip with the Ansari family funding it, I was just blown away because I feel like I'm back in fifth grade playing with someone and where, look, what would happen if you did this or have you do this?

So I'm going to ask you that before, if we were get into the future of where everything was going with the biome and with the planet and all that, and I've asked you this before, but you always give me a different answer so I want to hear it this time. What's keeping the curiosity alive? I mean, you're a little older than I am and seriously, you're like a kid, what's going on there?

Naveen Jain:

Well, I just said that to me, curiosity is what keeps you alive.

Dave Asprey:

I mean, you're a little older than I am and seriously, you're like a kid, what's going on there?

Naveen Jain:

Well, I just said that to me, curiosity is what keeps you alive. I mean, curiosity, what not only drives the humanity forward, it drives the individual forward. And to me, childlike curiosity is what allows you to constantly challenge the foundation of what every expert has taken for granted. So as you mention, when experts tells you, this is how it is, and there is someone out there say, why does it have to be this way? Why can't we change it? Why can't we do it differently?

And those are the people who end up disrupting the industry from outside in. The industry never gets changed from inside out, it's always gets changed from outside in. And to me, that curiosity is what takes someone who is not in that industry to say, you know what? I'm going to ask a completely different question. And by asking that question, I'm going to challenge everything the way people are doing it.

And what you end up doing is someone who is an expert is going to tell you are crazy. And 10 years later, they're going to say, you know what? I always told him that was going to work. Right. And that's how it always happens. A day before the breakthrough is a crazy idea and day after the breakthrough is obvious idea.

Dave Asprey:

Yeah. It was that way for flights. It's been that way for almost every big innovation, but you take a lot of hits and I see so many people get kind of bitter about that, but you've skipped that whole step and you're just constantly curious and happy. I've seen you pretty stressed over the years, but even then, you're still curious. You handle it in a different way. And do you think that's your gut bacteria doing it or is that something else?

Naveen Jain:

Well, at the end of the day, our mindset determines how we react to the world around us. And you could argue that our puppet masters who are inside our gut are probably controlling our mindset, but that's for some other day. But the fact really is your mindset determines your reaction. No one can make you angry, no one can make you frustrated. You make yourself angry, you make yourself frustrated. So when you say that this someone else stresses me out. No, no, no, no, you are the only one that has a power to stress you out. There is no one else in this world who has that power and should not have that power.

Dave Asprey:

Now I kind of believe that Naveen, but I have access to a broad array of technologies say at Upgrade Labs. And I'll just pick one at random, the pulse electromagnetic frequencies we use. I know how to configure that system to absolutely stress you out against your will, right? So there's some biological stressors that even if you're a curious good human, it seems like we have the ability to knock ourselves out of that healthy space.

And we can do it chemically. We can do it electrically. We can do it with radioactive elements or pulsing lights, there's all kinds of things. So some percentage of this is within our conscious control, but some of it's just the environment and it feels like we're hurting the environment that hurts us.

Naveen Jain:

I agree. What I meant to say was that it is our conscious decision that we take of what foods we eat, what are the things we are doing to our body, what kind of environment we live in and all those external things obviously impact us. So what we do impact us and it impacts the universe. What we do in the universe impacts everything that happens inside us.

We are walking, talking ecosystem, living within a larger ecosystem we call that universe and everything is interconnected. So what we do and what we do in the universe is always impacting us. So yes, what I meant to say was, no other human beings just because of their presence can change how you react to the world.

Dave Asprey:

Yes.

Naveen Jain:

They can say you are naive and Dave, it's crazy, you're completely out of your mind. And guess what? It's their opinion. As long as you are not looking for their approval, you don't really care what they think of you, right?

Dave Asprey:

Yeah.

Naveen Jain:

These are not the people I'm looking for advice and I don't care what advice they have to give me.

Dave Asprey:

I have seen you exceptionally cleanly blow people off who are trying to give you advice and you don't want it. And you're like, "Nope, next." And you have zero guilt about it, but you're not a jerk about it either. Right? And that's cool.

Naveen Jain:

You don't have to be a jerk. I mean, Dave first of all, I look at you and obviously I have now worked with you for at least more than a decade since we first met, and every interaction we have is always about learning something new. There is never a time when I sat down with you, there is not something new I learned.

There is never a time where I did not come out and say, that time every minute of that was well worth spent, right? And those are the only people you and I spend time with. We just are way past where you spend time with someone because you need something from them, that time has come and gone. I don't spend time with any assholes, I don't care who they're. It's just not.

Dave Asprey:

It's easy to say that Naveen. And if someone's listening to this show right now, Naveen is speaking the truth. I mean, his is not rude, courteous, but just, you're probably the most curated of those relationships. And you can tell, I think that's part of what makes you happy. It's pretty impressive. I don't know that I'm quite at that level, but I aspire to, we'll put it that way.

Naveen Jain:

Well, I can tell you Dave, I have met the people that you associate with and every one of them is a tribe member that I would always be part of.

Dave Asprey:

Thank you, Naveen. I'm grateful to have an amazing community and I still make some mistakes every now and then, I'm getting better at hiring the right people and working with the right people and spotting when people are off the line. And I think your experience as an entrepreneur has taught you that skill probably before I did. So you're pretty darn good at just sniffing that out.

So I'm kind of asking about mindset stuff, but we're here to talk about the latest stuff going on with Viome. And for listeners look, Naveen and I aren't here to sell you Viome. And I'm also going to tell you, yes, you go to Viome, which is the best test of your human mitochondria and your gut bacteria, just your whole Health Intelligence. You can use code Dave, it'll give you \$20 off. It's very rare to get any discount with Viome. So V-I-O-M-E. But that's not the reason we're here. We're here to share really cool stuff with you.

Naveen Jain:

Exactly.

Dave Asprey:

And so I just want to get that kind of off the table there. We're going to talk some about that, but a lot of this is just about the human condition, the condition of the world and where the future's going, because what Naveen shared on stage at the last Biohacking Conference in our fireside chat was the most popular talk.

And it was so mind blowing, because it wasn't about, change your gut bacteria so you have better poop and some better inflammation, although that's part of it, it was kind of major game changing stuff. So tell me the latest Naveen, what's going on in the very cutting edge of microbial gene expression and things like that, keep us all up to date.

Naveen Jain:

Well, so I think Dave, so first of all, I'm just going to step back and let people know that we analyze your whole body and it's not about just the gut microbiome. We look at now very soon we are launching a new product Dave, you're going to be getting the first of it very soon, which is going to be a full body intelligence. So it used to be a gut intelligence, we launched the health. Gut intelligence was actually analyzing your gut microbiome.

We launched Health Intelligence, looks at your human host and the gut microbiome and the interaction between the two. And now we are launching a full body intelligent that takes saliva, few drops off your fingerprint blood, and a touch of a stool and then we analyze the whole body. And what we are realizing is that we thought that gut microbiome was absolutely critical to everything that happens and I'm not taking that away.

But what we realizing now is, your oral microbiome is turning out to be just as important as your gut microbiome, which I think most of the science world has completely ignored. And it turns out that what we are seeing is in your saliva, your oral microbiome is more diverse than your gut microbiome. So think about it for a second. There are more types of organisms in your mouth than they are in your gut. Even though they are trillions, 39 trillion of them in your gut and only couple of trillion in your mouth, but the diversity is much higher.

Now imagine when our mothers would say, chew your food, what does that really meant? That chew your food. Was she really saying, hey, if you take a big food, somehow is going to get stuck in your throat. No, the idea was by chewing your food, you were actually allowing your oral microbiome to pre-process that food. And by pre-processing that food, it was sending the signal down to the gut

microbiome about what is coming and by pre-processing that food, it became easily absorbable by the nutrition, by your gut lining, right?

And that was the fundamental thing. So when we are eating food too fast, or when we are eating food when we are stressed, now think about what's happening. We come from work where most people who are not, I would say fortunate enough to be an entrepreneur or even who are entrepreneurs, they come home, they are stressed from everything that's happening. The boss is chewing them out. And if you happen to be the boss, then everyone else is chewing you out because they all need something from you and you say, "Just leave me alone, I got plenty of my own problems to deal with right now."

Irrespective, you come home, you are stressed and your spouses are stressing you out because they think you are spending enough time with them and you are not eating your food. Guess what happens when you're stressed out, you are actually in a sympathetic mode fight or flight response. And when you are in the fight or flight response, the number one thing that happens, your body sees you don't need to worry about digesting the food.

You're about to become a lunch for someone else, the tiger chasing you, right? Guess what, your digestive system is completely shut down and at that point, the body is in a fight or flight mode. So when you are eating that food, that food is not getting digested at all, right. And that's the reason why many cultures have actually made it a part of actually doing the gratitude. What do we do? We actually calm down. We do the gratitude.

The idea is to bring your body into the parasympathetic mode so you are out of the fight or flight response so your digestive system is not ready to digest, right? And those were the things that you learn anecdotally from your mother to chew your food or always say your gratitude and do the blessing before you eat your food, but they all had a scientific basis.

Another thing that really, really surprised me was about a month ago or so, we were looking at this data and where my scientist is so excited and he's telling me how these many of the inflammation is happening in the gut. And he says, "Look, we can see these microorganisms are converting the corticoid into testosterone." A hormone called corticoid converting them to another hormone testosterone.

And the testosterone locally in the gut lining is creating the lesion in the gut lining. And he's excited about that. And I'm excited about the corticoid, is it come from stress? He say, "Yes." And I say, "So my mother was right when she used to say, stress causes cancer." She was right. Stress causes cancer. Right.

Dave Asprey:

Don't you want though. I mean, don't you want testosterone? That's [crosstalk 00:15:34].

Naveen Jain:

Well you do, but not in the local gut lining because see, the testosterone are really good, but when they happen to be locally around the gut lining, they actually are extremely inflammatory.

Dave Asprey:

Okay. I did not know that. So oral testosterone's inflammatory? I did not know that. So oral testosterone's inflammatory?

Naveen Jain:

The gut testosterone.

Dave Asprey:

Wow. Okay. So how would we avoid having gut testosterone? I mean-

Naveen Jain:

Actually the microorganisms convert the corticoid, the stress, the stress hormone into testosterone. So the idea is to reduce your stress, right? And the idea would be to do the meditation and actually generally be in a calm state of mind. And I think you can go back to the Eastern philosophy of the world where you say, look, it doesn't matter what's happening around you, you control how you react to it, right?

So world around you could be falling apart and which by the way in general is whether it's a political nightmare that you have, whereas everyone else wants to tell you what you should or should not be doing today. Right. You should be going here. You should be sitting here. You should be wearing a mask. You should be doing this. You should be doing that. And God knows another country wants to attack another country. You know what? A shit show is going on everywhere. Now-

Dave Asprey:

And that gives you corticosteroids, right?

Naveen Jain:

Yeah.

Dave Asprey:

That's not what we need.

Naveen Jain:

And then by the way, kids give us the stress. Our spouses give us the stress. Our work gives us the stress. Our bosses give us the stress and our employees give us the stress. The stress is everywhere around us.

Dave Asprey:

It is around us. And it's interesting because we talk about the mouth biome that affects the lung biome. It affects the sinus biome and it affects the gut biome and you feel like that's where stuff comes in. Right?

Naveen Jain:

Absolutely. And by the way, it's not that. It's also affect your brain. So lot of the neurodegenerative diseases are now being directly linked to actually the inflammation in your gum. Imagine what happens when you have a gum lining that's inflamed, you have bleeding. What's happening now, your oral microbiome is going into the blood. What does that mean? Now your cytokines and all of your inflammatory markers are actually now highly inflamed trying to kill those microorganisms.

And when these microorganisms are now in infecting your blood brain barrier. What are they doing? They're inflaming the blood brain barrier that makes it permeable now you have infection in the brain and that's really what leads to many of these neurodegenerative diseases. In fact, another thing we are learning which is really interesting is, several of the diseases including IBD and colorectal cancer.

We saw this thing phenomena in people who have colorectal cancer and people who have IBD, they have this organism called *Fusobacterium nucleatum*.

That is actually 400 fold higher active in the gut in the people who have colorectal cancer and about 24 higher in the people who have IBD, even though the prevalence is same, whether you people have or not. And what's happening is a *Fusobacterium nucleatum* is actually an oral microbiome. So now how does that oral microbiome is actually getting into gut? Well, couple of things. A lot of people are not taking these PPI drugs. They kill the acid and there is no acid in the stomach, what's happening.

There is no, these microbes that are coming from saliva are no longer getting killed. That means they now are transitioning right to the gut where they don't belong. And that's where in some people where they either pass through and the other people where they settle down, they start to cause a whole bunch of havoc.

Same thing happens in the another organ called *klebsiella pneumoniae*. *Klebsiella Pneumoniae* in certain people who have actually types of B27, something that actually starts to produce specific enzymes and proteins amino acid that are bio mimic to the same similar enzymes and that in the protein that's in our joints. So our immune system, it starts to attack the joints and that's how you get a lot of the autoimmune diseases.

So what we starting to see is these inflammation is a chronic inflammation is a root cause of chronic diseases. And many of the inflammation we see in the human body, we are seeing either coming from your oral microbiome or your gut microbiome, so leaky gum or leaky gut. And that's also by the way, turns out to be the number one reason for aging. And we can talk a little bit more about longevity of what we are learning. So one of the thing Dave, we launch biological age.

So when you do a Viome test, you get your biological age, you get your immune health, you get your mitochondrial health, you get your cellular health, you get your gut health, you get your whole bunch of 400 other deep scores and then we obviously tell you, don't eat kale because you have poor oxalate metabolism. I mean, it's true.

Dave Asprey:

By the way, can I point this out? My Viome test straight up says you have a problem with oxalate metabolism. In fact, it's the only problem that it really highlights. And it tells me straight up, yeah, kale bad, raw spinach bad. And I would still say someone who has better oxalate metabolism still doesn't need oxalates in their life, but they can at least tolerate it. So for me it's, seriously, don't do that. And for you, if you're really one of the kale salad, you can take the hit and maybe you just don't like your kidneys or something.

But it's one of those things where the compatibility of foods with you is not the same as with your spouse or your neighbors. And there's a broad spectrum of stuff we can eat that will give us energy that won't kill us right now, which is great for survival. I mean, you changed some stuff. Naveen since I met you, what changes did you make after the latest round of the upgrades you did to the Viome test?

Naveen Jain:

So first of all Dave, one of the interesting thing about your body is constantly changing. So just because a certain food is good for you doesn't mean it's going to be good for you six months from now and the food that are bad for you today doesn't mean it's going to be bad for life. So when I started Viome, in the beginning I thought the foods that were really healthy were the food that everyone tells you to eat. Eat broccoli, either you like it or not.

Eat kale and this spinach is good for you. Eat cabbage and Brussels sprout good for you. And it literally first thing it said when I did the Viome test was, your sulfide production is too high causing inflammation coming from food that are high in sulfate, avoid broccoli, cabbage, and Brussels sprout. Your oxalate metabolism is not very good, don't eat a spinach and kale because you're going to end up getting a kidney stone. Guess what?

If I had known before. I ended up getting kidney stone before I started Viome, if I had known that I could have avoided spinach and kale and never got the damn kidney stone. But any man who has ever gotten a kidney stone, I can tell you that it is as bad as they say it is, a birthing process. It's not fun. It's painful.

Dave Asprey:

So you guys heard it here first, if you don't want to experience birth as a man, don't eat raw spinach and kale there.

Naveen Jain:

Especially if you have a low oxalate metabolism, because if you have high, it doesn't mean it's good for you, but at least you can tolerate it and you're not going to at least suffer through the pain.

Dave Asprey:

It's totally true. And there's an upper limit. So most people can have some oxalates. So you save it for stuff that you really like versus raw spinach, which you probably don't really like. So I agree with you. And some people can probably eat a spinach salad every day and it's not going to be new, [crosstalk 00:23:25].

Naveen Jain:

But the same thing is true for people say the red meat is bad for everyone and no one should eat red meat is going to kill you and you're going to have heart disease. And that's completely bullshit because what we see is, there is a carnitine that is in the red meat. And unless that carnitine is converted by your gut microbiome into TMA, trimethylamine that gets absorbed in the blood and your liver converts them into something called TMA or trimethylamine oxide, that is the one that causes heart disease.

But if your gut microbes are not converting them to TMA and you should eat red meat. There're lot of nutrients in the red meat, but when you have high TMA, you need to cut it down. Right. You and I both know lots of people who live to be 100 years and they eat red meat and potatoes all their life. So what is it about them is because they're microbes and not producing their triethylamine by converting the carnitine into the TMA. Right.

Dave Asprey:

And I have to raise my hand here again. My Viome test shows, I do not have TMAO forming bacteria in my gut. And that's because I don't eat industrial meat, which has the antibiotic residues in it and I don't eat stuff with glyphosate in it, which all those are more likely damage or gut bacteria to cause the bad guys that make TMAO to form.

So if you have those, then you tweak your bacteria in your gut using the data from Viome until, look, now I can eat meat and it's not converting. By the way, fish converts more than meat, more than red meat into TMAO anyway. So like, I'm a pescatarian. Well, that means you're just bad at science [crosstalk 00:25:03].

Naveen Jain:

But the same gut bacteria. But it's not just any food. I mean, I can tell you to, if your uric acid production is high you shouldn't be taking vitamin B3 because that's going to run into GALT. So it's really that there is no such food as universal healthy food. And there is no such thing as universal healthy supplements. So there are supplements that actually would harm you. So for example, if your bile acid production is high you shouldn't be taking cyclamen intrabody because it's anti-inflammatory because that's going to end up converting into bile salt, right.

So same type of thing. You can now look at this stuff and say, not everyone should be taking NAD or NMN or NR is because that's good for longevity only for people where they don't have high cellular senescence, or they don't have the high inflammatory activity. Because if you have a high cellular senescence or high cellular or high inflammation, you don't want to be boosting your mitochondria producing more free radicals causing more inflammation, causing more stuff.

Right. So point really is that you have to look at when your body is able to do and when you are overdoing it versus when you are under doing it. Right. And until you test and that's one thing I love about you and your tribe. It is test don't guess. It is not just, let me just go do it. And I think everyone. My neighbor told me, take this basal, it's got to be good for you or I'm going to test that it work for me or it doesn't work for me. And what we are saying is instead of doing the trial and error, we have actually now built the AI so we can analyze your body so we can tell you, hey, it's not going to work for you and here is why.

We don't simply say, don't do it. We tell you why. Right. So if we see a lot of ammonia being produced in your gut, we know that ammonia actually can see the pathways that are active, are protein fermentation pathways. We say, that means your protein is not getting digested by your upper intestine, you should take digestive and enzyme with that. Right. It's not that-

Dave Asprey:

In fact there's two groups who need to hear what you just said again. One is carnivores and the other is bodybuilders, right? So anyone who's gone to a gym for the real big guys, you don't want to breathe the air in that gym because they're all making huge amounts of ammonia in their guts. And reducing ammonia protects your kidneys and it's profoundly antiaging. And some of the amino acids like ornithine that I recommend are specifically there to drop the levels of ammonia in the body. But you just don't know if you've got that going on.

And the enzyme thing or hydrochloric acid we talked about earlier with sterilizing the bacteria from your mouth that also is tied in. And the thing that I like about this, yes I've spent, geez, I don't know, 100 plus \$1000 on lab tests over the years probably because I'm curious. Probably because I was super sick and I would spend everything I had to get my energy to where it is now. But you're adding biological age, stress response, cell health, immune health, mitochondrial health, and gut bacteria. And it's 200 bucks and then people get \$20 off. So what is it code Dave or code Asprey, I already forgot the code on Viome. What is it? Code Dave.

Naveen Jain:

Code Dave. Yeah.

Dave Asprey:

Yeah. So there you go. So it's 180 bucks, but it's probably the most cost effective test that I've seen. And what I like about your business model is that you sell the test for exactly what it costs to run the test and

the cost is dropped from 400 bucks when you launched at the conference years ago, down to less than half of that. But the amount of data that comes out of it is probably 10 times more data.

Naveen Jain:

In fact, the test we launched four year, so was only the gut intelligence test at that time for 499. Now that thing is by the way, \$99 now.

Dave Asprey:

So there you go. It's \$99 for that test. So the cost have dropped a lot. And when people are saying, where do I get started with testing? I don't think there's a better value than this because it gives you a lot of data and you could say, it's working pretty well. Or, I didn't know I had that problem.

Naveen Jain:

But Dave, one more thing we did, which is really groundbreaking and I think I'm surprised no one has ever done that is ,now once we analyze your body, we can tell you what nutrients your body needs. So for example, we don't say, hey, everyone takes vitamin D, vitamin C, all the stuff, multivitamin, everybody. We say, no, no, no, you need 22 milligram of Elder body every day. You need 27 milligram of Bulbine every day, you need 79 milligram of amylase every day. And we literally give you every vitamin, minerals, herbs, digestive enzymes, amino acid, and guess what?

All the probiotics, prebiotics and we literally make those capsules with only those ingredients that are good for you and with only in that dosage. There is no pre-made capsule. It's not take one capsule from pink draw one from red draw. We literally have these robotic machines, they say, go to bin number 33, take 17 milligram, go to bin number 13, takes 27 milligram and literally take that powder, we mix it up and then we put them in a capsule and we ship it to you that day, that capsule is made for you that day.

And literally every month, when you do a test, when you do a retest, we make them again. So every single month you get that thing made for you on demand every single month. And we are going to do something even better now. This is something we haven't announced yet, but you are always a friend so you get to hear it first.

Dave Asprey:

All right.

Naveen Jain:

We're now launching the next thing. So remember we do the RNA testing. So we literally looking at every transcript that's happening in your body, when your human host and your microbiome and the human host in your saliva and microbial interactions in the human host and microbial activities in saliva is stool and blood. Last thing we are launching is, the proteomics.

Even though you would argue that transcripts should be able to give you the amino acid that tells you what protein is going to be produced, but some of the proteins are not made, they're not in the blood, they're not made by the blood transcript for example, CRP. So what we are doing now is to actually have a proteomics in a blood card, you actually put the touch couple of drops of blood on the blood card and now we are running a complete proteomics and it's going to be a complete game changer, measuring TNF alpha, CRP. We are going to be measuring things like LBP by the way. The only guaranteed way of knowing you have a leaky gut, lipopolysaccharide binding protein.

Dave Asprey:

Yes.

Naveen Jain:

LBP we are doing the things for the Hashimoto disease and we are measuring of course, all the cytokines that we can get from transcript, but in the proteomics we are going to also do all the antibodies for different foods, right. So we are able to do that. And by the way, here is a thing, we figured out instead of one antibody for each protein per vial, how it used to be done, we can do 96 protein into one cell. That mean my cost of doing is going to come down to equivalent of about 10 cents.

Dave Asprey:

Wow. So this is a big tech data play. And you also have data from hundreds of thousands of people, now-

Naveen Jain:

325,000 people as of last year and growing about 15 to 20,000 a month.

Dave Asprey:

Wow. And what was that number again? How many of these?

Naveen Jain:

325000.

Dave Asprey:

325. Wow, it keeps growing every time we talk. So it's now to the point where there's such a rich data set that you can go in and just get more and more value from the data that someone's already sent in. This new test that you're turning on, especially with the food antibodies. I'm really interested is that currently available?

Naveen Jain:

So it's going to be available I will say in the next few months, but that is something that's next test we are launching is as I said, full body intelligence and this thing called immunoassays. So we're going to be launching this whole immunoassays right after that. So it's going to be full body intelligence and immunoassay.

And we are going to actually may just ship it out to everyone at no cost when they buy our supplements. And every month we imagine what's changing because of supplements and we make the supplement next month, based on that what's changed. So as your body changing, we're changing.

Dave Asprey:

Incredible. So literally on a monthly. And what do you have to send in? Another blood sample or is that saliva or what?

Naveen Jain:

Just a blood sample, few drops of blood.

Dave Asprey:

Wow. And the few drops of blood, these are really easy to do now.

Naveen Jain:

Blood card, by the finger prick and blood card. Just touch, touch, touch.

Dave Asprey:

Very simple to do that. So this is groundbreaking. If I had this 20 years ago, just what you have in the current test, not even the new test, would've solved the vast majority of the things I was dealing with. It was-

Naveen Jain:

So next thing we're launching our data that I think since we are giving you an update is cancer detection. So as you know just based on your saliva alone, we got the FDA breakthrough device designation to detect stage one oral cancer, stage one throat cancer. Simply spit in a tube with 95% specificity and 90% plus sensitivity we can tell you have a cancer in your mouth or your throat or not. And by the way, that's going to be another couple of \$100 test. It's not thousands of dollars you spend today. Even company like Grail that launch a cancer test, their sensitivity is 45%. That means there is 55% they're wrong. So think about it.

Dave Asprey:

Wow.

Naveen Jain:

It's no better than tossing a coin.

Dave Asprey:

They're almost like the government.

Naveen Jain:

But our government, if you're looking approval rating less than 30. So I think there's-

Dave Asprey:

Okay. They're better than the government. Okay. I hear you.

Naveen Jain:

But coming back to it now, we are actually going to be enhancing that test for just on a saliva alone to detect other cancers. So we are actually currently working on a clinical research, on colorectal cancer, and we are really hoping Dave, this is going to be a breakthrough Dave here. Is colon polyps. Not only detect the colon cancer to detect something before they become cancerous. So we are going to be able to looking to detect colon polyps before they cancerous, so you can remove them and never have a cancer.

Breast cancer, pancreatic cancer. As you know I lost my dad to pancreatic cancer so it's important to me that we work on that. We are working on genealogical cancer. We are working on all

the GI cancers. Esophageal cancer, the stomach cancer, all the head, neck, shoulder cancer, right? So another thing we are doing a very large research in two continents on pre-Alzheimer, MCI, mild cognitive impairment. And we see extremely strong signals of MCI in your saliva. So we really think that from your saliva we'll be able to say, hey, you are starting to get little bit of early Alzheimer, here are the things you need to do to protect yourself so you don't get there.

Dave Asprey:

Are you working with Maria Shriver and her Women's Alzheimer's Movement?

Naveen Jain:

No, I've not talked to her and think you told me once I have to talk to her [crosstalk 00:35:55].

Dave Asprey:

Yeah. I'll connect you guys. I'm going to do a little bit of fundraising at the next Biohacking Conference.

Naveen Jain:

Awesome.

Dave Asprey:

And donate money.

Naveen Jain:

Dave, Maybe we should get her there.

Dave Asprey:

Yeah. Let's see. We invited her last one. This one's in LA, so she might be able to make it. That would be really cool. We're going to take another mutual friend, Max Lugavere, we're going to auction him off as an eligible bachelor for a date. And we're going to that to Women's Alzheimer's Movement.

Naveen Jain:

I think Dave, if I were you I would auction you off. I think you're looking younger and younger.

Dave Asprey:

Well, I suppose we could do that. It'd be a heck of a date though. The idea though, we have this world where Alzheimer's is about drugs and there's nothing you can do about it. And you have to break up these plaques and you're using data in true biohacker fashion to just blow that out of the water and say, we can see it so long before.

And what excites me about talking with you every time is that you look at the world through your lens, right? And we can solve this, the data's right there. We've got algorithms already crunching through this and it's obvious. And then you go to a normal Alzheimer's doctor and they're like, well, there's nothing you can do, but-

Naveen Jain:

Exactly.

Dave Asprey:

... have a service animal or a person, a caregiver. Do you think you'll be able to reverse it with this knowledge or just keep it from happening in the first place?

Naveen Jain:

Think about what's happening. What causes these neurodegenerative diseases is not. I mean, fundamentally what really, really makes me angry is we have been preached. You have these genetics and it's nothing you can do, it's bad luck. And that is such a bullshit. because remember, if you have a gene that you're born with, I don't care what that gene is, right. Why would that gene sit there for 60, 70 years and say, you know what, I'm sick and tired of waiting, I'm going to wipe out Dave's memory tomorrow. Really?

Speaker 1:

Right.

Naveen Jain:

I mean, really. My point is something has to trigger that gene to over express or under express before it does something. Right? So my point is, if you take the trigger away that it really matter what genes you have. And that's the part I just keep saying that don't blame that you are destined to get it and nothing I can do is a bad. The answer is, you can do something about it. So here is what I see happening.

The amyloid beta is a protective agent that the glial cells are releasing to protect itself from the infarction that they're getting when you have a permeability in the blood brain barrier. So once the organisms are getting into the brain, the glial cells are releasing the amyloid beta to protect themselves. If you remove them, you have not removed the cause because the infection is still there.

So my point is all these drugs they're simply trying to suppress the symptom, not the root cause and that is a fundamental problem. All these people have autoimmune disease, let's suppress your immune system. Would you like to figure out why the immune system is acting that way?

Dave Asprey:

That's been my whole path, because I know I have autoimmunity since I was a little kid. Right. And Viome's helped a lot.

Naveen Jain:

It does.

Dave Asprey:

I think there's some things I still don't know, but we're going to get there, right?

Naveen Jain:

And that's my point.

Dave Asprey:

It's an iterative process.

Naveen Jain:

That's my point is this idea of, is just a bad luck. And I'm telling you, it's a matter of bad choices, not the bad luck that causes us to have these diseases. So I really believe that not only we'll be able to prevent, but to be able to, in fact, first of all, stop the progression and then also to be able to reverse it. But we should be able to prevent it and stop the progression of it for sure. Right.

And then we want to be able to say, okay, now that we seal the blood brain barrier, we got rid of all that, now let's get the infarction where it is there so we can actually get rid of the cause and reverse the disease. And that's the reason I believe many of these diseases are fundamentally running out to be inflammatory diseases, including aging by the way.

The No. 1 thing that we see in the people who are aging in every decade is the higher and higher cytokines in their body. That constant inflammation is what's causing people to age because when you have a constant inflammation, it is constantly destroying your organs, is destroying every part of your body, that infection and inflammation.

Dave Asprey:

We just had another podcast where we talked a lot about IL-6 interleukin 6. Which is one that goes crazy with certain kinds of viral infections, including the most popular ones. But what many other one as well?

Naveen Jain:

IL-8 by the way. We are seeing IL-8 really, really high in people who are essentially biological age is higher. We are seeing a lot of other interleukins that are playing a key part. And lot of the virus CMV is another one that actually seems to be turning out to be one of the key virus.

Dave Asprey:

CMV is definitely a big thing. And also EBV gets turned on.

Naveen Jain:

Yes, absolutely.

Dave Asprey:

So the Epstein-Barr virus. So there's this weird interaction between viruses that we think don't matter, but are causing all sorts of aging. And then you get the other thing that you're the first person who made me aware of this is that plant viruses are messing us up. Talk to me about plant viruses and aging and human health.

Naveen Jain:

Oh my God. So very interesting cases, that lot of the phages. So I think I'm going to talk about two things that no one wants to ever talk about. One is the phages. And by the way Dave, you were probably one of the few people I have ever talked about phages, and you don't laugh at me because you said-

Dave Asprey:

I said Russia's so important. The Russians know, of course we can't see anything from Russia's good right now, but the Russian research on phages changed the world.

Naveen Jain:

I mean, in fact, a lot of Eastern European countries, I mean Hungary and I mean they have really large research on phages. So what we happening is lot of these viruses including the plant viruses are RNA viruses. So think about it. So when you do the metagenomics, you do all the DNA testing, you never see them because they're RNA viruses. And the only time you get to see them is when you doing the metatranscriptomics. And we are the only company in the world, that's been doing it at scale, right.

So that's how we started to see these plant viruses. And what we see is these plant viruses have an ability to actually get past our gut lining because the viruses can travel where the bacteria couldn't. So now we are starting to see these viruses were actually showing up in the blood, even when the people where the gut lining was not permeable.

So I think what we starting to see is a lot of these plant viruses are just as bad, including they're 10 times more phages in our gut than the bacteria. And by the way, nature is the same. I think in the nature, when you look at, for every single bacteria, there are probably 10 or 100 more phages out there. So phages are all over us. It's not some anomalies out there. This is, we live in their world, they don't live in our world. Let's be very clear.

Dave Asprey:

So well said. And it's really neat when you get to foundational stuff in biology. These are very small molecules. They're very small. Even if you can call them organisms, not quite alive, but they're basically things that are infecting or affecting bacteria, right. And then we know bacteria affect us. So gee, the stuff that's messing with bacteria that mess with us or help us, they seem like they might be kind of important in a system like that, but it's largely overly looked.

So the fact that you can measure them means we can pay attention to it. And this brings me back to the conversation about cholesterol. It was easy to measure a long time ago. So we have kabillions of dollars of research saying, well, we could measure this, therefore it must be in charge of all these other things. It's not in charge of.

Naveen Jain:

Oh my God.

Dave Asprey:

And what you're saying, well, now we can measure this stuff. Let's actually use big data, which you couldn't use in 1945 when they're looking at cholesterol and see what's actually changing things. So let me ask you this. Should I be sterilizing any vegetable by cooking it before I eat it? Because if I eat a raw vegetable, I'm going to get phages all over the place.

Naveen Jain:

Actually I really believe the raw vegetables are including eating some of the dirt that comes with the raw vegetables is actually good. As long as thing is not grown in pesticides and if it's organically grown in your own garden, I would literally pull the carrot out, shake it up and eat it as is because that you want a soil microbiome going into you, you want to enrich your microbiome.

Dave Asprey:

Important asterisk to that.

Naveen Jain:

Yeah.

Dave Asprey:

If you made the mistake even one time of putting well marketed sewage sludge in your garden, in the U.S. do not do that, it could kill you. There's a whole documentary that's largely censored by the Health Ranger who's mostly taken offline because of some stuff he's doing, but literally there's 56 kinds of E. Coli and only one is compatible with you. And in the U.S. they are selling sewage sludge with all 56 kinds of E. Coli in it. Not sterilized, not heated the way it has to be in Europe. You put in your garden and then you eat a carrot it with that on it, you don't that.

Naveen Jain:

If it is grown and you are growing it, you're putting real organic stuff, I think it's-

Dave Asprey:

Good soil. Right.

Naveen Jain:

.... good for you. Yeah. Good soil.

Dave Asprey:

Are you hopeful that we're going to have prescription phages? There was a move toward them '80s and '90s in Eastern Europe.

Naveen Jain:

So I believe, especially for infectious diseases instead of taking antibiotics, I think they're going to be specific phages for specific bacteria that you'll be able to actually kill that only. So if you have strep, you only want to kill that streptococcus, you don't want to kill everything else. So yes, they're going to be phages. And I really believe now these CRISPR phages that are actually designed to actually kill only one and only when something is misbehaving.

So remember the bacteria can be good for you, or it can be bad for you depending on its behavior. So eclampsia can be probiotic and eclampsia can cause multiple sclerosis. C. diff can produce butyrate, C. diff can kill you. So my point is you want to measure not what organisms are there in your gut, you want to measure what they're actually doing. Same thing in your oral microbiome. And now using CRISPR phages, you can only attach when there is a certain functions that are being actually performed by these organisms. And that is fundamentally changes everything.

Dave Asprey:

So you want to CRISPR the phages and make really custom engineered ones. Wow. I'm in support of doing that. Although I'm a little concerned they might replicate and do bad things on the planet. Are you worried about that?

Naveen Jain:

Well, so the only thing about them is that since the only impact very specific bacteria, they can't really run wild, right? Because the phages are very designed to actually find only that bacteria with those functions.

Dave Asprey:

So if bacteria, phages are kind of the sheep dogs that are pushing them around. So having a bioengineered phage that makes your bacteria behave. So the C. diff is the good C. diff not the bad C. Diff. There is no good C. diff, there's good Clostridium but the difficile is always bad as far as I know.

Naveen Jain:

It is actually can be commensal. It doesn't have to be bad in a sense. Most of us actually have a C. diff , but as long as we have enough good environment around it, it keeps the C. diff in check. And it actually becomes C. diff is good for you in some sense, because a slight inflammatory activity keeps your immune system actually primed. So it is good to have a primed up immune system that's always ready to attack, right. Versus an immune system that is absolutely not primed. So actually having a good environment around C. diff actually is good. C. diff can be good.

Dave Asprey:

Yeah. I've got going to ask about parasites. I once took some rat tapeworm egg larva eggs on stage at the Biohacking Conference, because there are some, and these are rat tapeworms, these can't live. The larva can't live in the human body for more than six weeks. And what it was to do was to simulate the immune system and to help heal the gut. And it's a broader class of things called helminthic therapy. But I know there's huge numbers of people walking around with Giardia, with other parasites in their gut, amoebas and things. And are you detecting those? What's your take on maybe even using those beneficially?

Naveen Jain:

So we actually see everything. As long as an organism is alive, we see it. So whether it is a bacteria, virus, fungus, mold, it doesn't matter. We see everything. If it is producing a transcript, we see every transcript. We do a completely unbiased transcriptomics. That means if there is a transcript, we are seeing it, right? So we literally look for everything, whether it's the phages, whether it's any eukaryote, we see everything that's out there. And then we actually run a whole bunch of machine learning to see what's happening with the people when they have this disease.

And that's how we are able to build a predictive model to say, hey, when this is happening, you have this disease, or this is people who have a disease, this is where you are and every time you do a retest, we can tell you, are you moving towards a decision? Are you moving away? It's not a static. It's not you] have six times high likelihood of getting Alzheimer, enjoy your life. We can tell you, here are the things, what you can do.

Dave Asprey:

I know which genetic test you're talking about there, those ones drive me crazy.

Naveen Jain:

I know.

Dave Asprey:

And six times your risk, which was 1%, is still a very small risk. And maybe you don't need to lose your mind right now.

Naveen Jain:

And by way, first of all, it's not even true, APOE4 where they claim to have GWAS, which is genomic-wide association study, which is finding the pattern in the noise. Lot of the peoples they saw in Amazonian tribe, by the way, they had eight copies of APOE4 never get Alzheimer. They in fact, turned out APOE4 was protecting them when they were getting bitten by the mosquitoes. Right. So here it's, elephant has by the way, more copies of APOE4 than anyone. And guess what elephants are known for? Memory. They never lose their memory. Memory of an elephant.

Dave Asprey:

Wow. That's interesting. I've often thought that all of these things, including the people who have auto immunity like I do the HLA-DR4 people were designed to basically survive a famine and to invade some other country and take their food and eat even if it's not familiar to us. So rapid acting clotting and rapid acting immune systems are survival advantage in apocalyptic world, but in this world, they kind of suck, right? So it's getting to be more programmable with changing small things in your gut using the data from Viome-

Naveen Jain:

And by the way, actually typing simply actually is how it reacts to the external environment. So if you actually typing is there, then all you have to do is adjust the microbial activities in your body. And then actually it can be compatible with you actually, rather than actually those microbial activity that are incompatible with you actually typing.

Dave Asprey:

Well there's microbial interactions with HLA that don't worry me as much, but people with differences in their SNPs there usually have mold problems. And we know now, and I've saying this since I started my blog, the fungal biome is a massive thing and it's-

Naveen Jain:

It's called microbiome.

Dave Asprey:

Yeah. The micro not microbiome. Yeah.

Naveen Jain:

MYC.

Dave Asprey:

... fungus. So talk to me about the microbiome what's going on with fungus in our guts.

Naveen Jain:

So again, fungus is as you said, it's like any other species, it can be commensal and it can be absolutely parasitic, right? In general, fungus is just a bad thing. Right. But it's not that if it is a tiny bit of fungus you need to go out and say, God, I need to flush my body out and get a new body. In a sense that if you have an environment, remember it's part of the ecosystem. So don't focus as much on individual thing as focused on this whole ecosystem, right?

This ecosystem actually balances itself out as long as you create a good environment. When the environment is toxic, guess what's happen? Even the good organisms to start to release toxic stuff to protect themselves from the other toxicity. Right? So when you see that you are in a gut environment which is high flagellin activity, high LPS, lot of toxins, every organism wants to protect itself. What did you do?

It releases more toxins to kill those guys. And by the way, we as humans are simply a collateral damage to that problem. Right. But guess what? If you have these fungus and you have it within the good ecosystem, it'll keep everything in check as long as it's in smaller quantity, when it gets into quantity which larger, then the whole ecosystem falls apart.

Dave Asprey:

I think that's reasonable. One of the examples of that is if you're in a house that has toxic mold, in your sinuses and in the back of your throat, you're streptococcus bacteria will shift to protect themselves from the antibiotics that are made by these fungus. Because we all know fungus is where it comes from, right? Mold makes penicillin for instance. And then you get a much higher risk of strep throat because you have more aggressive bacteria that then make lipopolysaccharides in your sinuses right next to your brain, which cause brain inflammation.

So we have some control in our environment, but you don't know if you're eating at a moldy restaurant and if you're sensitive, it'll actually cause these bacterial shifts. Is there something that you're learning with Viome about how to turn that off? I mean, are we going to be doing probiotic nasal sprays or what's the future look like?

Naveen Jain:

I mean, I think ultimately in my opinion, there has to would be a very specific targeted thing for each of these cases. I think they're not going to be a is one silver bullet for everyone. So we have to look at this stuff and seeing, okay, what are the organisms there? What are the specific mold and fungus in there? And how do we attack that specifically, that target rather than do something that actually would destroy everything else around you. So you want to keep the ecosystem as much intact as possible and only get rid of the bad actors.

Dave Asprey:

Got it. So there's more work to be done there I think. And we may end up with-

Naveen Jain:

It is very early release Dave, that part I would be lying if I say that's coming out in the next six months, this is a problem that's going to get solved. What's good thing is data and machine learning is going to solve this problem. They just know two ways about it. Whether it happens in two years from now, or it takes five years from now, it is going to happen. Within a decade I can guarantee you, we as humanity will get rid of cancer.

Because there just no doubt in my mind, we are starting to understand what causes the onset of the cancer and the progression of the cancer and this thing is going to happen. We are going to be able to prevent and stop cancer from happening in the human body period in the next decade. And same thing for autoimmune diseases, same thing for many of these metabolic diseases. Now imagine, I mean, there is no reason any one of us need to actually have a diabetes. I mean, think about it.

It's not diabetes is not something you develop overnight. It happens eight, 10 years where you have high insulin. High insulin leads to high glucose. When the insulin cannot get rid of end of glucose, then you get the HbA1c to go up. So this is a long term problem that you can stop at any stage before you can develop a diabetes. Obesity, and you and I both know it's not that obesity somehow is in our DNA, you are going to get obese.

It may be you are predisposed to it, but you still have control over it. It's not you have to happen. I mean, I've lost 20 pounds and Dave, you lost plenty weight and now you're developing muscles, so it's not you have to lose weight, but you're getting rid of the damn fat and you converting them into muscles. Right.

Dave Asprey:

Right. What have you seen in terms of gut bacteria and muscle growth in people?

Naveen Jain:

We have not done a lot of research on that to be truthfully here. That there is not a lot of research we have done on muscle growth and gut bacteria, but there just no two ways that in some sense, think about what's happening. Your microbes are 99% of all the genes that are expressed in the human body are coming from our microbes, they're not our human genes, right? These metabolites or call them a microbiome poop. The micro poop is what we call metabolites in technical words. They get absorbed in the blood, human body, human host and a human host gene expression is constantly changing.

In fact, we have now shown that as microbial activities are changing what human gene expressions are changing. So now you know if you want to control the human gene expression, what microbial activity you have to control it. So you can see these human host gene expression that control the muscle building activities, what are the microbial features that are directly connected to that and by changing the foods you take, you can actually control further myostatin, right? To be able to actually control the myostatin that builds the muscle growth.

Dave Asprey:

So it does come down to myostatin.

Naveen Jain:

Yes.

Dave Asprey:

Which is a thing that we've been trying to manipulate in the bodybuilding community forever, which is to trigger muscle growth independently of a compound called mTOR, which is something and also independent of insulin. So if we're trying to put a muscle, get insulin or insulin like growth factor up, get mTOR up and potentially inhibit myostatin and then watch yourself turn into a balloon animal overnight.

So we don't have that solved yet, but I think we're moving in that direction. So you can turn that signal on real quickly and maybe just for a couple days and put on enough muscle that it lasts for a

couple weeks, but you can have those things low the rest of the time, which is probably the right thing to do.

Naveen Jain:

I can't believe that Dave, it's been an hour and we basically have barely scratched the surface.

Dave Asprey:

I know, right? I mean, I just want to say thanks for the massive amounts of knowledge about human biology that you're adding to the, even the world of research right now. I mean, cancer detection who've imagined five or however many years it's been since you started Viome, it's more than 5.

Naveen Jain:

Six years.

Dave Asprey:

That it would've led from, hey, let's look at just basically your gut bacteria into this incredible rapid expanding world of mitochondrial health and all. And the fact that it's under \$200 to do all this testing now, it's also very disruptive. And so guys Naveen is brilliant. His research team is actually more brilliant, but maybe less curious. There's some very smart people on the team I've had a chance to interact with.

And what I would recommend is if you're looking to do a lab test, Viome is very, very affordable and it's very, very rich data that's actionable and you can save 20 bucks, use code Dave. So it's worth your time. And Naveen's a real deal if there ever was such a thing. So highly recommend it. And Naveen, Paris Hilton says hi, I was just on her show earlier today and we actually mentioned you on the show because she's a big fan as well.

Naveen Jain:

She is. She has been just great supporter. And by the way, she has been taking Viome supplements and she tells me that she has more energy now than she ever thought she would. So it's really, really helping a lot. I mean, I really tell you that, do the test, but remember eat the foods that are actually good for you, avoid the food that are bad for you and take your supplement, they are actually needed. It's not some bullshit that these guys are selling supplement.

We don't make any supplement with a nutrient that your body doesn't need. We make the custom made for you. That every single ingredient there is designed for you in the doses that you need. So to me, that's just game changer is if you care about your body, go take care of it, because if you take care of it'll take care of you when you need it.

Dave Asprey:

It's totally true, Naveen. Thank you again. And I look forward to having you back on the show whenever you've cracked another code of being human. Have an awesome day.

Naveen Jain:

Thanks a lot Dave.