



# SuperCharged Podcast

## Gut microbiome and wellness with Naveen Jain

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Harry Massey: Welcome to the Supercharged Podcast, where we help you to enhance your energy, health, and purpose.

Wendy Myers: Bioenergetics is truly the future of medicine.

Harry: Imagine having a body charged with energy and a mind quick as lightning. Is that a superhero? No, that's you, supercharged. We'll be talking to experts who have studied the physics of life so that you can have energy for life. Thank you for tuning into the Supercharged Podcast I'm really excited today because we're here with Naveen Jain, who's an entrepreneur and philanthropist, who's really driven to solve the world's biggest challenges through innovation. Although he's been behind a number of really successful companies like the World Innovation Institute, Inome, Talentwise, Intelius and Viome, the reason why I'm particularly excited to talk to Naveen today is really because of his work with Viome and basically how we're looking at the bacteria in the gut, which is also acting as a communication system across the body. Welcome Naveen, and I'm really looking forward to finding out more.

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Naveen Jain: Thanks a lot Harry. It's been a pleasure to be here with you and looking forward to our conversation.

Harry: Perfect. Shall we just go straight in? I think your stated mission is to make illness a choice for as much of humanity as possible. I'd love to know why is that your mission and how did you, I guess, come out from building software companies to wanting to solve the world's biggest health problems?

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Naveen: As you start to look at the stuff and saying for the first time in the human history, the individuals and a small group of people have access to technology that they never had before. A small group of people are now capable of doing things that only the nation states or super powers could do before, whether it is going to space ... that was considered the domain of not only the richest countries, but only the superpowers who could do that. Here, we are sitting here today, where this race is being explored by entrepreneurs. As you know, one of my other companies, Moon Express, which is the only company in the universe that has permission to leave Earth orbit and land on the Moon. Imagine we land on the Moon, not only next year, we become the first company to do so, but more importantly we become symbolically the next superpower, the fourth superpower, to have achieved a feat. Coming back to it, it is just not the space. That is the literal moonshot. My next Moon shot is what if we can clear a world where sickness was a choice. The reason that I say that is I didn't say that we can create a world where no one will be sick because that shows that power lies in me to create that world. What I am trying to say that is what if we can empower each individual, tell them exactly what is going on inside their body, because we are, to a large extent, an ecosystem, and as I think we're going to get into it, and how this ecosystem communicates amongst itself so there is no more compartmentalized subsystem called heart and kidney and liver and your gut. They all work together as one system and they're constantly communicating. There is always the weakest link and, as we know, when you stress the system, it always breaks at the weakest link. Our job is to understand what is going on inside the body? Finally, we have the technology at our disposal that allows you to see everything that's happening in the body, and we're going to get into more detail on that. Not only because knowing that is good, but really what matters is what can you do about it? How do you modulate the communication? How do you modulate the production of different enzymes and different chemicals. If you can control that, then you can keep that body working in balance, because at the end of the day, when your body is in balance, it is at ease, and when your body is not at ease, what we get is dis-ease, which is a disease. Our goal was to empower individuals to make a choice of whether they want to be sick or not. I can't make that choice for them.

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Harry: Perfect, to summarize it, for you to solve this huge health challenge, it's, A, help people get to the root cause and know what's going on in their body, and then B, educate them with what to do about it. Would that sum it up?

Naveen: That's more or less yes, but to a large extent when you talk about the root cause, I'm not talking about that we somehow have the silver bullet and if you can find a silver bullet, everything will be fine. What we're really saying is that all of the chronic diseases fundamentally have one thing in common, which is the chronic

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inflammation. Whether we look at Alzheimer or autism or Parkinson's, you look at anxiety and you look at depression or PTSD or you start to look at obesity or diabetes or autoimmune diseases or even cancer. These are all essentially inflammatory diseases. Inflammation happens when our immune systems says, "I don't know what is going on. There is something bad going on, and one way to get rid of whatever the bad thing is to inflame the body to get rid of this, they call foreign-agent toxins." In their mind it's a toxin. Sometimes they start to believe our own cells ... Our cells really is the one that's causing problem, and that's what's caused autoimmune disease. What's really happening is if we can understand what is inflammation, what is causing that inflammation and if we can reduce everything that's causing inflammation, your body will essentially be at calm, at ease and that is we're going to have no disease.

Harry:

Perfect. Obviously, a massive part of that is then educating people with what to do with that knowledge. Once they've identified what's behind the inflammation ... I think education is also one of your other key passions. I'm curious how that ties into your health mission. How do we undo the negative education from I guess big pharma into doctors and the power of doctors? I was curious how you're thinking about tackling the actual educative part of this mission.

Naveen:

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If you start to think about, whether you look at the health care and you look at our education system, they have lot of similarities in them in a sense that people believe that in neither the education system nor the health care system is working well for them. They believe both the systems are broken. It turns out actually neither of the systems are actually broken. They're doing exactly what they were designed to do except that our needs today are very different than the needs that were there say 100 years ago. For example, our education system was designed for the industrial era, where we wanted to create a certain type of people. That means we wanted the certain skills and it was designed to teach you skills and those skills could be used for rest of your life. It was designed essentially for plug and play system. "I need seven accountants. I need 10 people with machine knowledge. I need five computer scientists. I need 10 of these." It didn't matter who these people were as long as they had those set of skills that could essentially be plug and played into the system. What's happening today is with the word of exponential technologies, it doesn't matter what skill you learn. It becomes obsolete every four to six years, so in many cases, by the time you graduate with this skill, that skill is no longer needed. That skill has already become obsolete. That's why we have this concept that we're going to get is what I call chronic unemployment. That means we're going to constantly be chronically unemployed because the skills that we're learning are becoming obsolete faster than we can learn. That means the education system has to fundamentally change learning to learn, how do you apply the skill? As opposed to having a individual skill, how do you use interdisciplinary knowledge to solve a particular problem? How do you collaborate? Assume that all the knowledge, all the skills are on your fingertips, on your cell phone, what would you do next? It really becomes a completely different system, not having a sage on the stage, assume the knowledge actually being delivered to you in a personalized way to you, then what would you do next?

Harry: Got you.

Naveen Jain: The same thing happens in the health care now. We have this sage on the stage. You get sick and when you are sick, you feel helpless and you feel hopeless. Guess what happens? Any time you are helpless, somebody is going to victimize you.

[00:09:40] Today, our health care system does a great job of victimizing you. We have this health care system that is designed to keep you sick. The pharmaceutical companies love chronic diseases. Chronic diseases means now I have a subscription business and even one of the CEO for a pharmaceutical company said, "The best drug that we develop are the drugs that people have to take for rest of their lives." Imagine for a second what this pharmaceutical company CEO is saying is, "We love keeping people sick. We don't want them to be cured because if they get cured, we can't make money from them." We want them to be cured. Our doctors don't want us to be healthy either because they only get paid when we are sick and we go to them. Our hospitals want us to be sick. Our insurance company wants us to be sick. The whole health care system is really become an organism where the survival of the organism is what matters and the purpose is out the window. The patient to large extent in this system has become a nuisance that they have to deal with just to collect the money. They would rather not deal with the patient if they don't have to. What our goal was for the first time, we actually have technologies that can tell you what is going on inside your body better than the doctor can ever know. Today, to large extent, our medical system, even the doctors who graduate today, are told simply, "Find the set of symptom. If you can name a disease after it, get a insurance code for it and there's your drug for it." That's all. "Match the symptom to a disease and then match it to a drug and your job is done." What surprises me most is that in the last three years to five years, every single research paper is showing that every single chronic disease ... You can look at it from Parkinson's to autism to Alzheimer, obesity, diabetes, anxiety, depression, autoimmune diseases or even cancer is not caused by our genes. It's actually caused by the microbiome in the gut. I'm going to come back in a second and get more into it. We are a walking ecosystem. Our medical system believes the healthiest body is the one that is devoid of all the bacteria and viruses. Nature had something else in mind.

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In fact, from nature's perspective, the bacteria and viruses are around for billions of years. The humans are very new to this ecosystem. The humans only evolved as hominids 250,000 years ago. Bacteria and viruses been around and to large extent, if you look at it from the perspective of the nature, we are really a portable container for this ecosystem. They are the ones that are inside the body. Our human DNA only produces 20,000 genes and the trillions of these micro organisms that are largely inside our large colon, the large intestine, the gut, that's where all these trillions of organisms reside. They produce 5 million to 10 million genes. Think for a second here. We are 99% microbial ecosystem and less than 1% human. To large extent, it's when you look at the doctor who's graduating today, they're not even taught about the microbiome. Imagine here it is, where every disease is being caused and influenced by them. A month ago, there was a research published by the Cleveland Clinic that shows that breast cancer is caused by the microbiome. Then in the last two weeks, in two research that were published, one clearly shows whether the chemotherapy drugs works or it actually kills the patient depends on

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your microbiome in your gut. Immunotherapy, whether it's anti-PD-1 or anti-PL-1 drug, whether it actually works or it's completely useless depends on your microbiome. They did this study and shows that PTSD and OCD or even things like age-related macular disease or multiple sclerosis. You pick a name you want, every one of the diseases influenced by these organisms that are constantly communicating with our body. The microbiome is communicating with our mitochondria. Microbiome is communicating with our human cells in terms of gene expression by modifying the microRNA not only in our body, but also in our brain. There was a very interesting research that I found that actually shows that how our microbiome is modifying the microRNA in the amygdala and prefrontal cortex. Imagine what that means. That means they're controlling our behavior and they're controlling our decision making. Then it start to tell you who is the master and who is the slave here.

Harry: Absolutely. I guess from a technology point of view, when people do the Viome test and they get results of how they can improve their microbiome, how are you thinking of educating people on all of the healthy habits that'll help them to build up that microbiome?

Naveen: Actually, it's more than microbiome, Harry. What really comes down to is how do you keep the body in balance and where all the things are working properly and communicating well each other. A lot of the diseases happen when there's a communication breakdown. It's no different than humans. We both may be doing the right thing, but if we are not communicating well, we both actually end up becoming the enemies because the communication breaks down. The same thing happens in our body. What we do at Viome is simply look at what is happening in the microbial ecosystems. We are not about telling you, "Here are all the organisms in your gut." We look at every strain of every bacteria, every virus, yeast, fungus and mold, but that to us just the beginning. Then we look at this stuff and say, "How active are these things?" More importantly, what are they producing? What type of short-chain fatty acid? Are they producing too much butyrate? Are they not producing enough butyrate? Are they producing certain chemicals?" These chemicals are basically the signaling mechanism that get absorbed in the blood and they communicate with the rest of the body? Let's call ourselves the host. We are host and they're our guests. Our guests are constantly communicating in terms of what they are seeing. If you look at the human body, to some extent, we are like a donut. We have this tube that goes through us. 70% of our immune system is right around the gut. As we are eating food, our microbiome is analyzing it and actually communicating with our immune system, "Is it a friend or a foe?" It's telling immune system, "Hey, watch out. I'm going to send you the signal, inflame the things and start the kill the system. This is no good." They are constantly symbiotic relationship because these microbiome wants to keep their place in the gut. Any time they see a parasite that they believe is going to take over their place, they call for the air help and say, "Help, help, send the air power. Send the immune system. Kill them. Kill them. Enemy, enemy." My point is they work really well together. What's interesting is many of the neurochemicals that we know of today, like serotonin, most people don't realize 90% of the serotonin is actually produced in the gut. If you imagine what happens when we are depressed, we eat. Think about

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that for a second. Where we're anxious, we get butterflies in our stomach. We don't get the butterflies in our head. What does your mother say when you were ill? "Harry, listen to your gut. Do your gut check." My point is this is something we have known for many, many years. What surprised me was actually I was just going through the things and Hippocrates said 2,000 years ago, "All diseases start in the gut." Think about that for a second. 2,000 years ago he said, "All diseases start in the gut." He said, "One man's food is another man's poison." Think about that. What he's saying is there is no such thing as universal healthy diet. A food which is a medicine, one person's medicine, is other person's poison. That means a diet that's good for you may not be good for me. A diet that's good for me today may not be good for me three months from now because as I change my diet, what's happening? It's changing my microbiome. That means communication is now changing and body is now adapting to one set of things. When we're eating one set of diet, it's only feeding one set of microbiome and it's starving the other set of microbiome. Guess what's happening. That communication is getting weaker and weaker now. That means our body is out of balance. If the body is out of balance again, you're going to have imbalance, unease and disease. Idea is to keep this communication of all the microbial ecosystem in itself communicating well in communication with the host and keeping everything in balance.

Harry: Because the microbiome is basically creating a disease or creating health and I guess, from your viewpoint, you can change the microbiome and change the outcome, but how do you know whether to improve the microbiome that you have now because that microbiome might be suited for you or to try and change the microbiome for a future outcome?

Naveen: Actually, it's not as simple as change the microbiome, change the health. It really is a holistic system thing in a sense that everything we do impacts each other. That means the places we live, the toxins we inhale, the GMO food we eat and all of the pesticides we're eating, that's changing the microbiome, that's changing the disease. Our stress in our body, that is nothing to do with microbiome. Stress is caused because we are unhappy at work. We're unhappy in our relationship. That stress the cortisol releases not only changes our body, our gene expression, it also changes the microbiome. When you change the microbiome, it changes the body's gene expression. Sometimes our gene expression changes our microbiome. It's basically a bidirectional communication. It is not simply a unidirectional communication that says you change your microbiome and that's really where everything emanates from. Everything impacts everything, and what we are trying to do is to really keep all these things working well together, finding wherever the weakest links are, fixing that weak link. Sometimes it's in the communication. Sometimes it's the not having the mechanism to communicate. That means the organism that need to be producing certain enzymes don't exist. That means we have to give you those enzymes artificially until we can build that. For example, if you don't have enough CoQ10, then there are certain ATP cycle that just not going to be completed, so we're going to say, "You need to take CoQ10. You need to take magnesium," or, "You really need zinc," or, "You really need butyrate because your microbiome is not producing enough butyrate right now."

What we do is not just tell you what is going on inside your body, we very specifically tell you that you need these micronutrients and you need these macronutrients. For me personally that was very counterintuitive. I was trying to lose weight and everyone told me ... I was prediabetic. Everyone said, "Oh, that's really easy. You really need to go on a no-carb diet. If you cut down all the carbs and you start eating ... "

Harry: And it made you fatter, right?

Naveen: It did make me fatter!

Harry: I had the same thing. I did the ketogenic thing and I started going diabetic. After nine months of it, I measured by blood sugar. This was last year, and I went, "Yeah, I'm going diabetic." Anyway.

Naveen: That's exactly what happened to me. The interesting thing is then I launched the Viome company and I did my test and it said, "No, more than 50% of your diet really needs to be the complex carbohydrate and by the way, stop eating too much spinach and avocado. Don't eat lentils, legumes and tofu. Start eating apples and start eating other vegetables, start eating other fruits, but don't eat avocado and spinach." That was that personalized. Interesting is not only now I lost more than five pounds, my blood glucose level has come down significantly. My point is this is so counterintuitive and these fad diets are the ones that really are killing people. Remember the Atkin's diet, the poor Atkin's died of heart disease. Then we went on a paleo diet and now this fad diet called ketogenic diet. Then you go into the lactin diet. Every few years, there's another fad.

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Harry: Yes. It's diet madness.

Naveen: What really happens is there is no such thing is universal healthy thing as you were talking about. Each thing has to be personalized for me because our DNA. Think about, our DNA have 99% common between any two human beings. In fact, me and a tree have 90% same common DNA. When it comes to our microbiome, it is extremely unique. Less than 5% of our microbiome is same between you and I because you meet different people. When you touch people's hand, you hug people, the air you are breathing, the food you are eating. Every one of those things changes your microbiome. Your microbiome is more unique than our fingerprint.

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Harry: I guess the bit I'm trying to work out is it the right thing to try and eat for your microbiome in the present or is there a future microbiome that might be more healthy for you and therefore maybe you should be eating to some other future state of microbiome?

Naveen: Interesting thing is you have to introduce that ... There are two types of concept. One is prebiotic, that how do you feed the ones that you have and you may have something that are a very small quantity and others are in very large quantity. If you want to grow the one that are in the small quantity, then you can feed the

right set of food to feed them so they can actually start to grow. If you don't even have to begin with the microorganism, then you have to introduce them through probiotic. It really is not about just feeding to your current microbiome. You have to feed to your current microbiome to keep the balance going. That means really making sure do you reduce the one that are too much and increase the one that are too little. Then you introduce the new set of microbiome through probiotic. There is no one probiotic for each person. You have to find what's lacking. Even then, you have to introduce the idea of these chemicals that are lacking. That means you still have to keep the body in balance so that you can start moving is to give you the zinc and the magnesium. We don't suggest take the multivitamin because you're pissing it off basically. It's to understand exactly what is needed for the body and that really is our key. Our key is to give you the actionable thing you can do today to keep your body healthy. The main thing that I love, Harry, the satisfaction I get is you go today to the Facebook and just type Viome. Our customers are our biggest promoter. They're all telling ... We never say we cure any diseases, and our customers are constantly telling everyone else, "I had this, and my God I feel better today than I have ever felt in last 10 years. I've been on this medicine for five years. I've never had that much success as simply just eating this Viome recommendation." We are using the food as a medicine that a medicine couldn't do.

Harry: That's wonderful. Let's talk a little bit about the communication system in the body. We were having lunch back ... I think it was last August at JJ's MindShare, I think where we were talking about cellular communication and then you just mentioned how you thought bacteria were using a non-local form of communication. I'd love to hear your thoughts on that.

Naveen: First of all, you are one of the smartest guys who actually understood what I was talking about. Most people say, "Oh, whatever. What's for lunch?" It's very interesting that these communication mechanisms are so many different ways these organisms communicate among themselves and to the host, which is the human body. Now we know that even the bacteria are communicating what they call quorum sensing. Quorum sensing is really this decentralized system and the key is each individuals are releasing this signal to say, "I'm here. I'm here. I'm here." Until they get enough of the unity to say, "Okay, enough of us are here now," they change their behavior suddenly. That's when they change the behavior then start releasing. You know the biofilm, the mucousy thing that you see sometime when you are ... You have a wound and you see this mucus thing. That's actually the biofilm and the biofilms get formed when these bacteria start to sense there's enough of them now. They can form a relationship and create a barrier so nobody can get in now. That barrier they create to protect themselves. Once they create a biofilm, it gets very, very difficult to penetrate. By the way, it's not just the bacteria. Most people think that microbiome is about bacteria. Interesting thing is something called mycobiome is the fungal community. The fungal community is actually just as important inside the gut because this all communicates with each other. The yeast, mold and especially the viruses and more than the viruses, the bacteriophages. Bacteriophages are the viruses that only impact the bacteria. All this ecosystem is not something is good or something is bad per se. They

become good or bad depending on what else is there. In a sense, they can keep each other in check and you need all of them for this good ecosystem. Think of it like an Amazonian forest. It's not one thing is good or bad. You take one thing out, everything else changes because people are feeding on each other. If you take one thing out, there's something else who's not getting fed and they reduce and everything else changes. They're also using electrical signal like neurons to communicate with each other. They use the chemical signals that get absorbed from the gut to the blood and they communicate with our mitochondria, which, by the way, used to be the ancient bacteria that's captured by the human cell and it has own DNA. They modify our microRNA and it changes the gene expression of who we are. We are not our genes. We are our gene expressed. What genes are expressed is what makes us who we are, not the genes we have because genes we have is like alphabet. We can write a thriller with that or we can write a poetry with that. What is being written is what really matters.

Harry: It's so fascinating the network of how things communicate in the body. How would I put it? Do you see I guess the different cells have different energy states so they're all communicating at different levels?

Naveen: Yes, to some extent. One of the things that's really puzzling to me that I intuitively believed was there, but never was any sign of it which was that even the bacteria in the gut are using the electrical signal to communicate with each other very similar to neurons. You're starting to really get this picture that we as humans are really using many of the original mechanisms that were evolved as bacterial organisms. If you look at how bacteria communicate with each other, we're starting to develop our brains that communicate using the same thing. You look at our energy cell that the mitochondria ... Mitochondria used to be an ancient bacteria that was captured by the human cell, so if you think about it, it had its own DNA separate from the human DNA and it's performing a task in symbiosis with the human, our cell. Then how microbiome is communicating with mitochondria and how microbiome is interfering in the gene expression? To some extent, we were talking about that to large extent the microbiome is controlling many of the things that are happening in the body and there to large extent you would think of them as a centralized control system or you could call them in a simpler word puppet masters, and they're pulling the strings and the puppet, our bodies, say, "Okay boss. Okay boss. I'm there."

Harry: What makes you think it's a microbiome that's the control system I guess versus than an overall field control system? It's like there's that concept in physics when everything is holographic. You can't necessarily say A causes B. It's more of a synchronistic event.

Naveen: I'll tell you why. They did some of the very interesting, what I would call the causative studies. It's very interesting. There are two studies that were really interesting that is starting to make me believe that the control system is the microbiome. One was they took inter-species transfer of microbiome. They took the mice that is bred to have no micro organism in the gut. They basically killed all the micro organism. Then they took the microbiome from the fat person and gave

it to these mice, and these mice became fat. Then they took the microbiome of the thin person and gave it to the mice and the mice became thin. That started to show the causative thing was really this microbiome, not the holistic system.

Harry: I'm going to challenge you on that. Do you think that's really ... Anything can broadcast inflammation, so if you take the microbiome and it's got that set of inflammation because it's been used to being fat, then it'll broadcast fat. In parallel ... I think you'll find it quite interesting. We've basically been studying what we call information medicine, where we're basically able to put information onto a signal and then that information is transferred to what we would call the Body-Field that's then picked up by every cell in the body.

Naveen: I think it's really what's happening is these microbiomes are releasing the inflammation signal and the inflammation signal is in the form of these metabolites, which are really these small molecules which are getting absorbed in the blood and that are essentially saying the signal to the things, "Hey, start enlarging these fat cells because the famine is coming."

Harry: Yeah, I love that. I love that. I guess what I'm saying is there's other ways you can imprint or transmit information to the body because you can do it through technology, etc, as well.

Naveen: That's absolutely correct. You could potentially have removed the microbiome and taken the information that microbiomes are communicating through other mechanisms and deliver these same results. For example, when you take metformin ... Metformin is a diabetes drug. That actually does not work on the host. It actually works on the microbiome and allows the microbiome information to change. That in turn changes the insulin resistance. My point is ultimately all we're doing is changing the information signal that are coming out of microbiome and by changing that information signal, our body reacts differently. That to me is really the key that we are this holistic system and our Western medicine is designed as these components and the more specialized you become, you look at the components say, "As long as I can make these components work optimally, everything else should work." However, you don't realize to make this system work optimally and at peak performance, then you find a weak point somewhere else and the system always breaks at the weakest point.

Harry: Got you. Have you read ... There's an article in New Scientist ... Goodness me, I think it was about two or three years ago ... Of all of this bacteria that was discovered in the soil that just lived off pure electrons. It didn't eat food. It wasn't digesting anything solid. It was just living off raw electrons.

Naveen: It's very interesting. We find the bacterial organism that are thriving in the radioactive nuclear waste. Think for that for a second, not only that nature has figured out how to protect its DNA from the high radiation. So when people say how can humans live in this space because there is such a high radiation, they don't realize that nature has already built in the mechanism that uses the mechanism so that not only we can protect our DNA. It uses the radiation as a source of energy, so

it doesn't need any more food. It uses the radiation as a source of energy to thrive and replicate. Now imagine if you can take the genes from that bacteria and we will use the crisper technology to modify the human genes and suddenly not only we are protected from the radiation, we don't need to eat pizza anymore. We can just go walk and get the radiation.

Harry: I think slightly differently, but we've already got that gene in a sense. Gilbert Ling, I think it was in the '60s, he wrote this paper where he was basically calculating the source of energy in the cell. He calculated that only 25% of it was coming from the fat and carbohydrate down to ATP route and 75% was basically unaccounted for in the normal ATP cycle. Then his explanation was it's coming from ambient heat and a little bit like photosynthesis and heat's being converted to a source of electrons in the cell.

Naveen: That is a fascinating, fascinating work. I have to read on that because that really is very fascinating. The other thing that I find really fascinating is that how our gut and our brain are actually connected through the vagus nerve and we are constantly communicating back and forth. It's a bidirectional communication system. We're using the cortisol, the serotonin and dopamine as the reaction. That's why you would notice that when you're anxious, you get the butterflies in the stomach, all the serotonin that's produced in the gut. Our vagus nerve is that the communication mechanism and to large extent our behavior is determined by our microbiome. What I find really fascinating is that when we are full is determined by our microbiome, when we are hungry and what we crave is actually determined. I wonder that to large extent they are the one that's pulling these strings. I notice a bidirectional communication mechanism, but to large extent, there's so much of them and there's so many genes that they're being expressed there that they have a lot of impact on what happens in the human body and sometimes I wonder are we really looking at this thing in a wrong way? You remember, long time ago, we used to believe the Earth is the center of our solar system and when Galeleo says that it may be the Sun, they wanted to kill him because he was fundamentally changing that we are not the center. What if we are wrong and we believe our primary brain is here and this our gut, we call a secondary brain? What if that was the primary brain? What if our gut was our primary brain and the thing sitting on the top of our shoulder is simply the motor cortex that follows the direction of ...

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Harry: I'll go one further than that. What do you think if it's even outside the physical tissue per se and it's actually in a field? Like in medicine, there's MRIs, EKGs, ECGs. We know these fields exist and we just think they're interesting from a diagnostic point of view, but it's also possible that the reverse is true. If you take the Einstein quote, "If the field is the sole governing force of the particle." Perhaps actually it comes from outside and it's really the environment that's dictating you.

Naveen: The answer is absolutely true. There's just no doubt in my mind that we cannot live in isolation. Everything around us, the microwave, the WiFi signal, the EMF that is being ... Every one of those things are impacting our body because any time you have energy around us which is now especially in this electronic age. Remember,

we're sleeping with our cell phones, we are bathed with a WiFi signal. If anybody believes that none of it's going to have any impact on the human body, that is completely wrong. We just know that when you impact the energy around us, is going to impact ... Our tissue is going to change the chemical reaction and everything changes. You think about what microwave does. How does microwave heat the food? It's essentially changing and is spinning the things and they're changing the thermodynamics of the thing. How can you possibly believe that it's not changing the chemical part of what you're heating? That's how the heating works? So believe ... My point is you're absolutely correct. Everything around us changes who we are. I'm not trying to get into the voodoo stuff, but the fact is the energy around us changes. Each one of us are emanating the energy and we are absorbing the energy. When you see the two people interacting and the physical proximity of each other, there are a lot of times we can feel that energy and we feel ... Sometimes, we say, "Wow, I like this person. It feels good or positive energy," and sometimes it's, "Oh my God, he just gives me bad vibes." What is that bad vibes? It is us sensing that energy and we're saying, "It's not in tune with our receiver. The transmitter isn't completely out of tune with our receiver. He's not my type." That's one thing, and you could also argue ... I didn't want to go here.

Harry: Sorry, I'm making you uncomfortable. It's good.

Naveen: Could it be that we as human body doesn't really exist? It only gets created through our imagination that we are there. That means what if the hand that we see is not there. Only when I look at it's there because when I don't look at it, I don't see it, right? When I touch it, is it simply the haptic feedback that I'm getting that if something is there, it's very similar to what if you were wearing a full body suit in a virtual reality and you can touch something and you feel it's there even though it's not there? What is our brain is playing the virtual reality game and that we are seeing things that don't quite exist and we're getting the haptic feedback that's built into our somatosensory signals that we get from the touch? What if that touch is actually being fabricated?

[00:42:00]

Harry: When you look into ... I guess into physics, the physics of reality I guess is quite similar to that Matrix idea of simulation because ultimately there's nothing there.

Naveen: It's very interesting that there is very few times the religion and the science are saying the same thing, but in a different word. You look at the scientist or even Elon. Elon believes that we are living ... The chances of us not living in a virtual reality are close to zero. He believes there is a programmer who created this whole thing called humanity and we are simply avatars in somebody's virtual game. That means a programmer created us. The religion says God created us. What if the God is the programmer? My point is we're saying the same thing. In a religion, we call that a God and the science called us a programmer. We called that a creator. Isn't that the same concept? Basically, everyone is saying that we are living in this virtual world and we don't really quite exist. Maybe the Big Bang was nothing but a Mac rebooting.

Harry: I think what that does do is it gives tremendous power to the individual over their

health because, as I say, it's not just from the environment. Your thought is probably the most direct form of control system that you can guess, and that can obviously affect all of your health.

Naveen: I would like to come back to Viome.

Harry: I'm sorry. I know. I'm sorry.

Naveen: [00:45:00] Having gone through all of the things, let's bring it back to the reality. Harry, what did you understand is that what Viome does? I want you to explain this to me.

Harry: Okay, sure. Basically, what Viome does, from a practical ... Let's just take people through the practical side. Basically, they can go to your website. They can...

Naveen: What's the website?

Harry: It is [viome.com](https://viome.com) hopefully.

Naveen: Yes, it is.

Harry: That's good. They can go to your website. They can order a microbiome test and then from that test, they send you back a sample.

Naveen: Actually, it's not a microbiome test. This is really a thing we send that does both the metabolic intelligence and the gut intelligence. We look at how does your body digest the carbohydrate? How does your body digest protein and fat? That's looking at the host side by looking at the blood. Then we look at what's happening inside your gut. Then we're adding couple of more tests that are going to be coming out in the next 60 to 90 days, which are around the mitochondrial gene expression and the blood gene expression and the inflammation and looking at the urine metabolites, which essentially shows you the biochemical reactions of the body. We take all this data and then we put that into the artificial intelligence engine to see what is going on inside Harry's body? What is the right nutrients that he needs? What is he lacking? Then we make very specific recommendation on what food you need and what supplements you need, what probiotics you may need. Again, we're not selling any of the stuff. Our job is to simply tell you what your body's lacking rather than try to sell you anything. We say, "Look, here is what you need and you can go buy them from Amazon. You can buy them from ... Here are the three vendors that we like." The point is our job is to literally be on your side to empower you with information and give you the actions you can take because we want you to believe. You don't need a doctor simply looking at the thing. By the time you walk in, he's already writing a prescription. They don't want to hear your story. They don't even want to know what's going on. "Oh doc, my head has been hurting." "Oh, you got a brain tumor." "No, no, doc. I've been coughing." "Oh, you got pneumonia." "Doc, listen to me for a second." My point is they're simply trying to find out drug to prescribe you. That's all they're thinking about. They're not thinking about what's wrong with you? How do I fix it? They're not looking at the stuff and saying, "Why is the body being inflamed? Why is the

communication between these cells are broken?" Every single drug that you take actually fixes one symptom and causes three more symptom. Surprise, they have a drug for each symptom. To me, once you get into that, you literally are at the mercy of these pharmaceutical companies who don't have your best interests at heart. What we're doing really at Viome is giving you that control. Our hope now in all seriousness really is ... For me, this is my mission because I feel that God has been very kind to us. I came to this country with absolutely nothing. Society has given me so much. God has given me so much. To me, my mission is to help the billions of people remove their suffering from all these chronic diseases. I really believe this is the first time in the human history where we actually have a power to be able to understand what is going on inside our body and keep that thing simply using the food. We don't really need to pharmaceutical drugs. If we do our job right, one day sickness will be optional. I just need your help and everyone who's listening to it to really sign up and understand for themselves what is going on, but every person who signs up also not only helps themselves. It also helps the humanity because more people come together, more information we have. The more information we have, our artificial engine just keeps getting better and better because it just needs more data and more data. Every person helps themselves and helps everyone before and everyone after. To me, it is our duty to come together to take the control of our own health. If we don't do it, I will get frustrated and go out and do something else and the problem will continue to remain the same and the health care system will continue to victimize us. I hope everyone who's listening to it will join us in this revolution and try to take control of our own body and our own health.

Harry: [00:49:30] Could you tell us a little bit more about how artificial ... Well, basically how you're using artificial intelligence to really help solve it?

Naveen: Basically, if you think about it, you start to look at ... We don't come up with the hypothesis that says, "This causes this," because the problem that happens is in the old days, the scientist's idea was you create a hypothesis and then you find the empirical evidence to prove or disprove that hypothesis. In the world of massive data, what happens you have a hypothesis is you can find the pattern in the noise. If you say, "This causes this and if both things exist, then we know this disease is ... This is the cause." What's happening is when you have petabytes of data, you can find any hypothesis you want, and you can prove anything you want. What we do is actually slightly different. We take all the data so we get a lot of the symptomatic information that when person gets onboarded, they're telling us all the things that are going on. If we look at all of the microbial data that means every organism that's there, how active they are, what they're actually producing. We look at all the macro nutrients, information from the metabolic site. As we're getting more information from gene expression, we're looking at all that stuff. Then we say it, "What is common? What is the clustering?" We've gone through tens of thousands of algorithm and then we start to find these group of people that are clustered here, the group of people that are clustered here, the group of people that are clustered here and then we say, "Wow, look at these things. They always seem to be tied together these thousand people. What is so unique about them?" Then you say, "Wow, notice that. They all have diabetes. Oh my God, and look at them. They

all have lack of butyrate production. Hmm, I wonder if that's really what's going on." Then we say if that is the hypothesis, can we run and see the next 1,000 people and see if we can prove that?"

Harry: Perfect. This is a personal question. When you're on stage at MindShare, I think you said to JJ you could teach her to have other people run her companies for her, but you didn't explain any further. I was just curious on that.

Naveen: It's very interesting is that I find that once you become an expert in whatever you're doing, you're only able to improve it incrementally by 5%, 10%, 15%. You can make it better because you're expert at it. If you want to change something 10 times or 100 times, you have to come from outside the expertise because to become an expert, you have to essentially have the foundational knowledge and you can never challenge that foundational knowledge because you're no longer an expert then. When the non-expert comes in, they start to challenge the foundation of everything that people have taken it for granted. I am not a doctor. I am not a scientist. I came from the fundamental belief that you can't have all these different diseases and have these different drugs and works for everybody in the humanity when we know we are so unique. There has to be something else. When I started digging through all the research, it became clear to me the system has been ignoring the microbiome. The reason they have been ignoring is because they want to have mass produced drugs that can be selling to billions of people and they don't want to personalize it. I said, "What is we can personalize it? What if we don't really need the drug? What if the food was the only medicine we need?" That fundamental belief is what caused me to start building a team. Think about it. The head of the IBM Watson Research came and joined me because they want to solve this problem. It is the legacy. It is something that can help a billion people. Dr. Messier, Dr. Perlina, you look at Dr. Banavar, Dr. Vuyisich. All these people came together because they all were aligned to this mission of making sickness optional. My thinking is that if you have an audacious moonshot, the humanity will come together to solve it. If you simply do something to make money, people walk away from it because people don't want to make more money. People want to do what's really good and doing good and doing well should be coming together and there should be nothing that simply does well or simply does good. If you want to do small good in the world, you start a non profit. If you want to do a large good in the world, you start for profit.

Harry: To sum up, with what you do with your time, are you mostly focusing on the why and the who can help achieve the Why? Is it as simple as that?

Naveen: I start with the why. What is it that I want to do? If I do succeed in doing what I'm doing, how would that change the trajectory of how humanity's going to live in the future? If I do succeed, God forbid I'm successful. Would it actually help the billion people across the world? If the answer is yes, I'm willing to dedicate my life to doing it. That's the reason I started Moon Express to really save the humanity from potential extinction because we're all living in this single space craft and we don't want to become a dinosaur if we get hit by a large asteroid. I started Viome for simple reason because we can make sickness as an option, not just a matter of bad

luck. What if it was really a choice that you could make? My hope is that as soon as I finish this, I'm going to go out and fix the education next, create abundance of food, create abundance of energy, create abundance of land because there is no reason we should not be able to have abundance of everything. What if energy was the next air? That everyone has it, it's democratized and it's demonetized? That means it's free to anyone and no one fights over air and oxygen. What if the energy was the next oxygen that's free for everyone? If we have free energy, we can have free fresh water because even the dirtiest water, you can boil and distill. Point is if you can do that, you can solve so many problems. My job is to move away from the mindset of scarcity and move into the mindset of abundance. If we can do that, we can change humanity.

Harry: I was curious. Obviously, it's an extraordinary career and vision. I was curious what's underneath on that. Looking at you being able to go from industry to industry and you've been through awful lot of change. A lot of people get really ... They get stuck and uncomfortable with change. Is it because of your childhood or moving from India to the States I guess that you're able to be unattached in great periods of change so that you can make real impact? I was curious what's underneath all this.

Naveen: I think it's really the intellectual curiosity. I really believe what drives me is that intellectual curiosity. I read a lot. To me, because I'm just driven by why? Why is it working this way? Why can't it be something different? There are times I would spend probably reading hundreds of scientific papers and then it's a book of what cause a body to have a cancer? I spent three years just learning about human brain. What is it that's going on inside this brain that how it works? Then I'll spend the time on genetics and the epigenetics and the microbiome. I just go deep into these researches because it's just intellectual curiosity. What happens is every time I read something, I'm collecting the dots. Any time I see these problems, I'm thinking, "Wow, I have this missing dot. If I can plug in there, that can solve that problem." I'm always looking for what are the biggest societal challenges and what are the dots available in my pocket that I can mix and match to solve a particular problem.

Harry: Thank you. Is there anything more that you'd like to say to the audience? That statement probably sums it up.

Naveen: I really think that as opposed to looking at the world as is, focus on what you want the world to be. Don't focus on is this glass half empty or half full. Focus on do you want to fill this glass? Is this glass worth filling? As opposed to really thinking about taking your kids to the water or making them drink? Find about making them curious. If you can make them intellectually curious, you're creating a thirst. If you can make them thirsty, they will find the water for rest of their life and they will be drinking on their own. Our job as a society is to make everyone thirsty and the thirst come from intellectual curiosity. That to me is how we're going to change the humanity by creating an amazingly intellectual curious society.

Harry: I'm sure from that everyone has got extremely thirsty. I really highly recommend that they go to [viome.com](http://viome.com) and take it from there.

Naveen: Thanks a lot Harry. Look forward to talking to you more. Take care.

Harry: Thank you.

Wendy: Please keep in mind that this podcast is not intended to diagnose or treat any disease or health condition, and is not a substitute for professional, medical advice. Please seek a medical practitioner before engaging in anything that we suggest today on the show.