# The Science of Mitochondrial Renewal: Unlocking Urolithin A Transcript

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## Introduction and guest background

Hello, everybody. Welcome back. This is, episode interview on your life in a and timeline. You need to sit still, take some notes, pay attention, because we're bringing the best of the best.

We're bringing the chief medical officer to talk to us today. So as both an M. D., Doctor Singh and a PhD in immunology and runs a company coming to us to educate us all the way from Lausanne, Switzerland.

Thank you for taking the time, doctor Singh oh, absolute pleasure, Doctor Kahn, for having me. Yeah. And for some of you who've been listening to the, Reversing Heart Disease Naturally Summit, we have had a chance to discuss really breakthrough science before.

I love supplements that have breakthrough science, not just rumor. Your website says at your core, you stand against pseudoscience in terms of the company.

So you guys have really dedicated a supplement company, to do research. Unusual. What's your philosophy about that? Yeah, thanks. That's a great question.

And so we have been at it for 18 plus years. I've been at it for 15 plus years in the clinical world. The company was born with the idea to bring biotech like science, really cutting edge biotech science to the whole field of nutrition and supplements and just not blend vitamins and probiotics and plant extracts together and start selling them.

And so we actually did the hard yards, and we did 15 years of research from, you know, little worms to a road and models to multiple randomized, placebo controlled trials and getting the evidence before we convinced ourselves to last these products.

All the starting founders and myself, we're all scientists and doctors. There and that. Great. So you're an overnight success. It took 18 years. That's the word research.

Doctor Kahn, my mentor, always told me research is two words repeat the search.

## Research-driven supplement philosophy

It's that good one. And for anybody listening, let's just make it clear. Many people like pomegranates, I love pomegranates. There's some data for pomegranate juice having good vascular effects.

Some people like to just put them on a smoothie or on a assemble. And some of us are lucky that as we ingest pomegranates, we have the metabolome. We have the gut that converts, components of pomegranate into a chemical everybody should know.

Call a euro. Listen, a but how come we can't all convert pomegranates? And there are other food sources. But I think we always think compound goes. How come we can't all convert your, pomegranates into your liver?

And, so pomegranates are very rich in in a certain class of, we can call them antioxidants or polyphenols. I call Elijah tannins. So, you know, and you certainly mentioned there other berries and nuts and that are rich in these, dietary precursor.

So that's why not all of us are drinking a glass of juice or eating a bowl of nuts and berries. The biggest factor that decides whether you're going to have your left to name your body or not is our gut microbiome.

And I've done studies in other labs and other groups have looked around. Only one out of ten people in the US,

healthy adults have the right gut microbiome to make this from from their diet.

If you come to countries like Italy and France and Greece, where the Mediterranean diet and more eating fermented foods, it goes up to 1 in 3. So 30, 40%, people, if you go to my country of origin, which is India, a lot of antibiotic use, it drops to 5%.

So not everybody can make it. And that's the problem that we're trying to solve with with direct supplementation. And why would we want a higher level of neural nets.

And a are you a as we sometimes abbreviated. Why would we want more of that in our bloodstream, in our tissues, in our body? Tell us about some of the benefits.

If only 10% of us in the United States have the the proper bacteria to convert the pomegranate and the berries into yuca, why do we want to do better than that?

Sure. So you're Latin, a is a is a post biotic molecule. Now, probably your listeners are aware of prebiotics and probiotics. Prebiotics are the fiber that you take from your diet that is good for your gut health and your gut microbiome.

Probiotics you want to take because it nourishes your gut health into a favorable environment. Post biotics of the molecule. This these microbes in living in our gut are producing from the energy or the diet we are eating.

And these are molecules that are beneficial to us, the human host.

## Pomegranate metabolism and urolithin A

And so over the years, what we have found and others have found is that this molecule is a very potent activator of a mechanism of action called my autophagy.

So what happens with aging is that our cells get stress and damage. And organelles especially mitochondria. They're about thousands of mitochondria, Hartselle or thousands of mitochondria in a muscle cell over age.

They just get damaged. And this process of cleaning the damaged mitochondria slows down. And so what this molecule does is it brings the trash pickup truck in front of your, you know, house or your cells.

And that takes the damage that mitochondria out and makes newer healthy ones. And so people in our trials we are seeing just have more energy. Their mitochondria are better and their mitochondrial health is better.

So, you know, some of us have been hearing the term autophagy in ways of triggering autophagy or self-healing self eating and various things. We've talked about that with a couple interviews on this summit, but this is probably the first time we've heard my autophagy.

And if your listeners can stimulate it, why do we want that? What's the end result of having enhanced my autophagy? Again, for people, losing my toe is also the beginning of mitochondria.

So I think we're going to hear about that. Yeah you got it. So other videos you're very nice to describe. This is sort of the self-cleaning and self renewal of of of a damaged cell out of our bodies.

And fasting helps and exercise helps. My effigy is very targeted autophagy to the mitochondria. So when the mitochondria in our cells get stressed or damaged they put out this eat me signal.

There's a protein called call parkin. And they put this out. And and sometimes this protein or this eat me signal gets mutated. And so what do you do with aging that happens with Parkinson's disease.

That happens. And so what you have is basically a lot of accumulation of damaged mitochondria or zombie

mitochondria in your in your cells. And so you get lower fatigue.

You get lower energy. Now here comes this molecule that stimulates my autophagy by cleaning out the damage. Once out. Now you suddenly have real estate.

And you get building blocks to create near healthy mitochondria that give you more energy or ATP, meaning you have more energy to do whatever you want to do.

And that's how this molecule works. All right. Well, there's not too many people that wouldn't be excited about a bit more energy, except maybe my 15 year old grandson.

He has plenty of energy, but I think as we get older I'm in my mid to late 60s, you know, having energy, feeling, you know, a bounce in our step is a wonderful thing.

Many of us still experience, but not quite as much as we used to. Is there anybody that couldn't benefit from your life? And a and my autophagy improved mitochondrial performance.

Anybody that shouldn't consider this well, the oldest participant we've studied or all the scores have had, 80 year olds and 89 year olds in our trial.

The older adults are definitely the ones who benefit the most because aging is a big stressor on our mitochondria. We've done studies on 40, 50, 60 year olds.

They benefit from it. We've shown that in really top journals like Cell Press and Jama, that it helps their like, strength. Even if they're not moving or having a sedentary lifestyle, it improves their muscle strength.

We recently completed trials in the Lumpkin athletes like 2022 year olds who are runners. It helps them recover from exercise much faster. I would say if there is no real clinical evidence, it would be sort of the pediatric population.

Yes, we haven't really done that yet. So maybe your 15 year old grandson, we haven't done the research yet, but anybody a healthy who should be on at bingo or they can get tested if they have urolift in a and then can be honest.

How do you do that, sir? How do you test so they have it. It's about very low levels. So I have I have invented a test which is not commercial yet, that people can participate in an ongoing clinical study where they'll get a kit, they'll get a pomegranate juice, they can drink the pomegranate juice, and they'll get a kit that allows them to just spot a few drops of blood with the finger prick on, something which we call, a dry blood spot card.

And that will allow us to assess if these people have your alternate gut microbiome. And then the kid will also have, our one shot of our product, and then they can see the before and after levels.

And that's kind of what's missing in the whole supplement industry. Everybody's taking vitamin C and D and omega three, but you don't even know where it goes and how it absorbs.

## How mitophagy boosts energy

And if you're deficient in it. Interesting. What's the, we're, discussing and, presenting this summit in March of 2026. What is your timeline of when you think we might be able to actually do that provocative test that you mention?

Well, I can put, or I can send you the link to if folks want to participate in the ongoing study, it's all over the US. They can certainly do that right now.

But I think once we analyze the thousands of folks who have done this and publish it, and then we figure out how to commercialize it, I think it's in in about a year, right, that people can access it commercially, but till then they can participate in the clinical trial.

Yeah. If you, do share that, I will, for sure share with the whole audience. Yeah, well, certainly volunteer myself. And an excuse to drink pomegranate juice or eat pomegranates are so delicious.

So we, you know, we recognizing that we're not perfect and creating this, metabolite is called your life and aid or your life, and there's many health benefits.

Didn't sound like there were too many, risks to, adding this to most anybody. I mean, people on blood thinners, people, blood pressure medicine, it's okay for them to contemplate using.

Absolutely. So we have done the trials in older adults where older adults were taking antihypertensive anti diabetics, blood thinners or even statins.

And it's all good okay. No, but well we haven't talked about it. And I think people are probably anticipating there'll be a conversation right now. I mean you've been doing this at least the company for 18 years and you have created a product line of purified.

You're alert and a I remember when it was just available as a powder call might appear. Yeah. Oh, you've got the blessed gummies. Everybody loves the gummies.

I appreciate there's actually no added sugar and I'm that I could see. And you've got soft gel capsules, which I also sugar free. And I want to thank you there in a nice vegan covering, which pleases me.

And there are a few people out there with that alpha gal meat allergy syndrome that should be cautious about gelatin capsules. These are all made in Switzerland, I believe, right.

Yeah. So all the technology and the work was done in Switzerland and, we sell in the US. Yeah. Okay. And you, you know, boldly say that according to the science taking might a pure the your life and a product is different than taking coenzyme Q10 or creatine or sperm madine or man things that you do hear a lot about in cardiology and then the longevity field, you activate my autophagy.

We talked about that. You target a root cause of energy decline wonderfully. Can benefit people without exercise. Oh my God. We got everybody in. And you've completed, you know, human clinical trials.

So I remember reading, you know, just about two months, three months ago in the journal Nature Aging that there was a randomized human trial.

## Who benefits and how to test responders

That's again, that's why this supplement, there's a urolift and a supplement called Timeline Nutrition as a parent company and might appear the specific brand is different because you have data.

Tell us about this. I think it was October 2025. And your evaluation in humans of your products and immune function, I think you were definitely an author on the paper.

Yeah. So I'm a trained immunologist, and for many years I was looking at older adults and their declining immune health with aging and all roads crossed.

And I got interested in mitochondrial health. And and so all the trials we, we do is, we called randomized, placebo controlled trials. And in these early trials, that were focused on muscle health, we, we were looking we would always take blood and we will look at what's the changes in biomarker.

So in older adults or in middle aged sedentary folks, we will always see an anti-inflammatory effect of this molecule. So that just CRP goes down in these people.

They're cytokines. These are factors that kind of make our bodies inflamed. They go down. And so I decided to do

this, randomized, placebo controlled trial to look at the mitochondrial health of immune cells.

So folks were randomized into two groups, 25 people in their 50s taking in a random way a placebo, or 25 taking one gram of your platinum I2 pure. And we took blood before and one month after the trial.

And we analyzed every kind of immune cell in the body. Now, there are about trillions of immune cells in our body, and about 20 different variants of immune cells.

We send these samples to the bulk and see of aging. And with professor of I record down, we studied at a single cell level. What was going on. Here's what was going on.

There are immune cells called T-cells. Immunologists are not very clever. They kind of stick to alphabets. So we have T cells that are educated in the times, and we have B cells that are coming from our bone marrow.

With aging, the levels of T cells go down and we can't really mount a proper immune response. We see these young, naive T cells come back into the bloodstream with with the supplementation with your left in a mode of pure.

And they have about 20% more mitochondria. So these were the sort of the biggest findings. And when we challenged these immune cells with a bacterial infection they just engulf and kill this bacterial infection much better.

So the idea is that if you boost your mitochondrial health, you can get better immune health that declines with aging. Okay. That's pretty exciting for people listening to know that you can do something to modify your immune now, boost your immune and health using natural products.

Yeah. Incredible. And tell us about the the statement on the website I just read, if you don't mind, but I sure possible the benefit without exercise.

And again you said earlier studies focused on muscle health and exercise performance which you can many, many people are interested in. And then we just mentioned the latest paper on immune health.

## Clinical trials, safety, and product forms

But you have plenty of papers and lots of what what is going to happen if somebody were to say they have a fractured ankle and they're having to take time off from their usual program, what what might happen to their, you know, mitochondrial health without exercise temporarily, we certainly lazy.

Yeah. Well exercise is the best mitochondrial drug out there. And I always say that when we started, I actually took 70 year old 75 year olds who were running half marathons, and I compared them to 7075 year olds who were very frail.

And sarcopenia. Sarcopenia is this, condition that happens with aging. You're losing 10% of muscle mass and 10% of muscle strength every ten years of your out of life, and this accelerates even more.

And so when we looked at the 75 year olds and the and the in the sedentary, frail, 75 year olds and I took a chunk of their muscle, lower leg muscle with a biopsy procedure.

The top 30 pathways that lit up were linked to mitochondrial health. So it's almost as if just being inactive or or just being active has a big effect on on mitochondria.

So exercise is definitely the best mitochondrial drive. We took the folks that were sedentary, and we gave them a one month long supplementation with either a placebo.

Or you might you're led to need 500 milligram or you're letting a, an increasing dose of a gram. And we showed a very nice, dose response effect compared to placebo of reversing the mitochondrial decline in the sedentary folks.

So it's almost as if by activating my autophagy and reversing the mitochondrial damage you had, like an exercise like effect on mitochondrial health. And that's how we got interested in muscle.

Wow. Now you do how you've actually formally studied athletic performance. You have athletes using your product. What are you hearing from them? Oh, lots.

We started the early research ourself. We, we did the hard yards ourself. And since then once we published these big nature in Jama papers, actually the world's leading sports nutrition researcher from Australia came to us and said, I want to test it in elite Olympian athletes because you may think their mitochondria and their muscle performance is the peak of human performance, but they actually struggle with their recovery.

They are doing five races in a week and they struggle in their performance dips. And I think your product can help. So we have three independent groups who have done different sports runners, middle distance runners.

It lowered the muscle damage. A marker called creatine kinase, which is used to look at muscle damage. And in these athletes also used in the in the clinic for even like heart attacks and stuff.

So athletes on might appear had lower muscle damage and less inflammation. We have now a group showing in elite soccer players. They run more the soccer field this they they cover more of a soccer field distance.

And we also have a study in weightlifters that where the muscle strength and endurance was improved independently of our work. Wow. And you know this is pretty simple stuff.

If you're making a smoothie you can open the powder packets, which are kind of dose for daily use, and just throw it in your smoothie or some other concoction.

Some people prefer capsules. And as I said, gummies are the hardest thing out there for those who just enjoy that approach, you just the dosage they have is, sufficient on a daily basis.

Are athletes taking more or they're pretty much sticking to these recommendations? So a lot of the, you know, the two dose forms we have today out there, one is a 500mg dose, which is found in our gummies, and ours, our soft gels, as you were mentioning, or the powders.

This is for the health strivers. People who already know exercise is good. They watch what they eat. 500 milligram is the right dose. We know it works in the clinic on the at a mitochondria level.

At a muscle level, the gram is the dose that a lot of people with energy and fatigue issues, or athletes who are trying to recover from an injury, are taking.

Because the gram dose is anti-inflammatory, it induces these deep immune remodeling effects and it has an added benefit apart from improving strength and endurance on recovery.

## Immune health and exercise recovery

So that's the you know, how how people are using the 500 versus the gram dose. And we have a, a special, timeline pro for the healthcare practitioner as well with the gram dose.

That's not that I see easily found on your website, but if a practitioner signs up and becomes a affiliated approved practitioner, they can order the 1000 milligram.

Yeah. So there is actually just went live, this this week at, at a conference call, the IHS Integrative Healthcare Symposium. And so if you go to our website, there's actually a link now for providers, which is actually the health care doctors.

And you'll see the website up, with this specific, where practitioners can sign up and then they can sort of work with

us to, to democratize this wonderful product to, to their patient population.

Well, that's very, very exciting because, you know, just talking to people, fatigue is a big issue. And, you know, you look for toxins and you look for sleep apnea.

And, you know, I roid disorders and stress and on and on. But if we can boost people's energy level, we know we're on a great path. And, they're going to be happy and they're going to perform better.

And that's what we should be doing as clinicians. So and as safe as we said. And, you know, there's a lot of people out there, this is a plan to ride product.

But somebody taking a blood thinner for atrial fibrillation no problem. Yeah I mean evolutionary we all made it. It's just that our modern diet and lifestyle is has changed our gut microbiome.

And we've lost the capacity to make it. Wow. And, your production facility is in the clean and beautiful country of Switzerland. Yeah, it's all GMP manufactured at a very high purity level.

And then the finished products are then packaged in the U. S. and around the US and then sold there. You actually start with a whole pomegranate or you're buying pomegranate powder and then transitioning.

Well, that's how we started. And then to upscale, we had to to synthesize the product, at 100% purity to the natural molecule. So it's how all the vitamins today get made.

Vitamin C? No, it's not by crushing a hundred oranges to get vitamin C, it's it's by synthesizing it. Wonderful, wonderful. So I think everybody listening is probably really intrigued.

Now, this is a heart summit. The heart is as in mitochondria as any in the body. I don't think I've seen a dedicated study and congestive heart failure, for example, which clearly is a mitochondrial disease, along with other things.

I think comments on, might appear and maybe even this might appear pro for like your longevity and cardiovascular disease specifically. Oh, yes. This is that, let's say the next frontier we are working on.

We just put out a beautiful paper with the University of Washington on and models of heart diseases. And also we've gone into our trials with older adults where we have we pick up a signature of improved heart health.

So there's a lot of things like lowering crp, of course, but there's a class of compounds called ceramides that accumulate in our hearts with aging that cause all this mitochondrial stress.

## Heart health and future directions

And what we are seeing now is that in plasma, with the regular supplementation, we blunt the ceramide levels that are kind of sort of toxic and stress the mitochondria.

So as you said, we've done animal models as well of heart failure. We've done animal models of of, you know, sort of different kinds of heart failure, you know, have passed have rev and I'm happy to share that publication with you and with the collaboration with the University of Washington that shows the effect is really mitochondrial driven.

And is that in preprints in publication? No, it's published is published. I can share it. It's in the Cell Press Journal called II signs. And we showed that actually in these heart failure models, in addition to heart failure and poor heart health, those models get very poor muscle health there.

As we see in clinical, you know, somebody with with heart failure will have secondary sarcopenia. And so not only did we see a recovery of the heart health in these models, but we also saw an improvement of muscle health, which is we know this molecule does.

So it's hitting mitochondria systemically, whether it's in the heart and the immune cells or in the muscle. Wow. And that is I think, very, very exciting.

Maybe a good place to stop and let people just ponder all they learned. Timeline.com couldn't be simpler timeline.com. You'll see a section on science.

We've been talking about the section about the company and the high quality. And then you'll see of course a shop version. You won't find that pro version.

You have to work through a physician or a practitioner. But I urge everybody time line nutrition doctor saying thank you for beaming in from Switzerland.

What a wonderful, wonderful thing. And thank you for sharing your knowledge. It can be very exciting to see how this all evolves in the next few years decade.

Thanks for having me, doctor Kahn was an absolute pleasure. And yeah, happy to share all the articles and the kit as I mentioned. Yeah, that would be wonderful. Thank you.

Have a great day. Thank you.