Introduction to Dr. Singh and Pomegranate Science

Well, everybody, welcome back. Reversing Heart Disease Naturally. Summit 2.0. We have a very, very special guest today. We did not have a chance to interview and discuss fascinating topics.

So get out your notepads and your pens and take some notes. We're going to talk about how we translate knowledge of natural health into the science that makes it available more readily, more potent.

But let me first give a proper introduction. Double doctor, we have to come up with Dr. Anurag Singh is Chief Medical Officer at a company called Timeline Nutrition.

He has a MD. degree in internal medicine, got a Ph. D. in immunology, did practice as a doctor, but found, you know, working with companies and science and research more to his calling.

So he actually moved to Switzerland and worked for a company we all have heard of called Nestlé. Authored many top articles in top journals, were awarded patents.

Has led many what I call randomized clinical studies. But now he's working with a fascinating company, a timeline nutrition and their product called Mitopure but you need to hear about it.

And I'll just recall it all about pomegranates. How many of you out there love pomegranates? I love pomegranates. There are paying to clean up and eat the kernels.

You can buy the unsweetened pomegranate juice. And there has been data for years that pomegranate has a lot of activity on blood vessels and some actual human studies in Israel that eight ounces of unsweetened pomegranate juice does some good things, the blood vessels.

But then we found certain chemicals that not everybody can make from a pomegranate. And we'll talk about that. And I think at that point I'll say Dr. Singh, thank you for being with us today.

It's my pleasure Dr. Kahn to be here. So tell us a little bit what's so special about pomegranates and what's this unique chemical and why can't everybody make it?

Sure. So pomegranates are, you know, in different, as you mentioned, nine different cultures and civilization really seen as a superfood. And there have been numerous randomized trials done, as you were mentioning.

I'm looking at pomegranate extracts from red juices and sort of the aging process, whether it's on on heart health or a newer decline that happens with aging.

But essentially the studies are mixed. And so when we started out almost 12 plus years back, we took the pomegranate and we said, let's deconstruct the bond.

Let's try to understand scientifically what's inside it. And we found hundreds or thousands of bioactive compounds. The most abundant are is a class of what we call is antioxidants or polyphenols called ellagic tannins.

Now, pomegranates are not the only source of alleged tannins.

Discovering Urolithin A and Its Origins

You have the pecans and the walnuts and the red berries that are also rich sources of these polyphenols, which has now for many years or decades, people thought, well, it's these polyphenols that have the health benefit

associated with.

And it turns out it's not. And so what basically we have been studying for ten plus years is that there is a whole second axis that is involved in harvesting called the gut microbiome and so the gut microbiome essentially digests these polyphenols and breaks them into simpler, less complex compounds that we call those gut metabolites.

So this is what the discovery that we found was, is that from these large tannins, the gut microbiome was making this compound called your tiny, which is the most biotic.

And we found this was really essential for all the health benefits of pumpkin. That's amazing. So Urolithin A came up on some sort of metabolic or metabolite screen and you know, if there were hundreds how come there are now there's so much focus on Urolithin A and let me Spelled it for a minute U R O L I T H I N A and even tell us about the name because it sounds sounds like something you might think about for kidney stones.

Yeah, listen, and I'm just making that up. So why is there such a focus on this metabolite from pomegranates? And where do they get its name, if you know?

Sure. So first question, I'll take that 1 first. How do we zero into this Urolithin, especially to Urolithin A? As in a number of other academic groups, especially America, very well renounced Danish research group of Joan Aspin and Thomas Barber.

And they had been studying and they actually were the first to find your lipids as at that time what they thought was the metabolic byproduct of these polyphenols.

And then when we started studying them, we actually took all these compounds and we put them in what we call live activity screen. And typically this is a screen using nematodes.

So most of the aging studies start with with worms and you put hundreds of these compounds in it. None of the polyphenols were having these health benefits and these nematodes, especially on a lifespan increase or mobility improvement during the worm lives about 20 days.

So if you can actually, you know, very short you screen these the bioactive compounds so your life in a was actually the only compound that extended lifespan by about 45 to 50% which is similar to colored restriction, which was supposed to be the gold standard at that time.

So that got us interested in your life. Now there are a few different your things the body can make depending on the gut microbiome you have your life and A, B, C, the predominant one that our bodies, our gut microbiome can generate involving mostly those who can do this conversion is your life, and the name comes from the Spanish group.

And even before that time finding it in, you know, this your life, the molecule was found in the sort of the urine and the kidneys sort of process in the in beavers because beavers eat and squirrels actually they eat a lot of acorns.

And acorns are also another very rich source of vegetation. And so that's how since they found them in the in the kidney, that was the first discovery.

Did anybody again, is a very rich source of mitochondria. That's how they named it. Your life is like a stone accumulating in, but it's not a stone actually accumulating in the kidney. That's how they found that began.

Interesting. Okay. Well, we don't want to lose people's attention because we just went a little esoteric. But I want everybody to be excited how science happens now.

But let's let's shift gears and talk about the powerhouse in every cell in the body called mitochondria, and that cells have a 1000 to 2000 to 2500 mitochondria in just one cell.

And when I don't know if the latest number is 43 trillion cells in the body. I'm a cardiologist, so I care a lot about the activity and efficiency and health of mitochondria and heart cells and blood vessel cells, but it's pretty much ubiquitous everywhere.

Why, how and what have we learned about your life in a and everybody listening has trillions of mitochondria. If there's 1000 to 2500 mitochondria. Purcell and you got 43 trillion cells.

Oh my God. I can't even think about how many zeros that is after a number. But why? What did we learn about your lithium and all of those mitochondria?

Sure. So mitochondria is like the battery in your cell.

Mitochondria, Mitophagy, and Why It Matters

And as you very nicely pointed out, there are thousands of these, especially in the very metabolic organs, like the heart of the skeletal muscle of the brain. Right.

And now as we all age, a lot of these mitochondria, they accumulate waste and they accumulate what we call this oxidative stress. So they get damaged.

Basically, they become from a good state to a bad state. And the more we age from our 30's, 40's, 50's, 60's and 70's now all our cells are a few thousand mitochondria describe there's more a balance towards bad mitochondria and we just can't clean the waste out because our cellular machinery is slowing down.

And so what we found, what you're lithium does is that it revs up this sort of garbage disposal of machinery, but inside a cell in the mitochondria, the poor ones get then removed.

And now that gives space for newer, healthy mitochondria. So we can actually I know there's a word many people will not be familiar with. Some people know the word autophagy, the cell feeding and repair system that can occur under certain sick situations like maybe prolonged fasting.

But there's a real science word called mitophagy the clean up and repair of mitochondria. And it looks like your life in a is a pretty potent stimulant of repairing your mitochondria.

Mitophagy Correct. Exactly. So that's the term the nerdy term is mitophagy. And it's basically like your garbage disposal machinery inside your mitochondria inside your cell is more autophagy.

Yeah. So I probably got a few people listening that say, Well, I'll go buy some pomegranate juice or go buy a whole pomegranate and clean it up and eat the colonel's a delicious treat for sure.

You can sometimes buy them pre cleaned up at the store, but that gets a little pricey. But why doesn't everybody make urolithin a just by drinking or eating pomegranates as a food?

Sure. So, first of all, the good stuff, the polyphenols, the rich source of the antioxidants is not in these shiny red arrows. It's actually in all the white stuff around that hold them together while we mostly when we are peeling it off, you're throwing it away, right?

Right. But if you actually were to take a whole sort of take the hard part out and then you you brush all the stuff and get pure juice, you may get exposure in that sense, 100% juice to two of these polyphenols.

Now, what happens after that is, as we've been discussing, you need the right gut microbiome. And in our studies, what we have seen is that about 60 to 70% of the human population does not have this, including myself.

I grew up in India, took a lot of antibiotics early on in my life. My gut microbiome never had a chance to make this molecule so I can actually drink six glasses of pure pomegranate juice.

My body has never made this molecule and so that means we think we are eating right in a lot of times that we actually are not getting the right nutrients because of the lack of this gut microbiome.

So that's essentially why we started studying and making this supplementation form of the alternate. So I don't think I can order a urolift in a blood level, but in research studies, it can be measured.

It can be measured. We have actually just developed a test that with a sort of a finger prick, a few drops of blood on a filter card, we can actually very accurately tell you if you're you're making this molecule.

We see we've done studies in the French, the Canadians, the Americans, the French and the Italians. I guess they're eating a lot of Mediterranean diet kind of fermented food.

They tend to have a more higher 30 to 40% coming from the diet. Again, the microbiome may be rich and more diverse. The American population, we actually found only 12% circulating levels, which means that they have some levels, but not enough to give you a sort of health benefit.

And so that's why we've started in this route where we then gave people a blast of pure organic juice, and then we found 30 to 40% of people could make it.

But then when you give it calibrated, you're earlier than a supplement you can actually boost and all hundred participants the blood levels. All right.

So if you want healthier mitochondria, then we're going to talk in a minute. What the implications of that are for cardiovascular and aging health. If you want healthy mitochondria, you might want to trigger something called My Autophagy and you might want to use your life in a but you can't depend and go enjoy your pomegranate juice unsweetened enjoy your pomegranate kernels.

Why Most People Don't Make Urolithin A Naturally

We just learned don't throw away the white pithy part Find something to do with it Throw it in a smoothie But you still might not have the gut and maybe the bacteria kill signature to make your life in a and since we don't have a blood test, you know, you're rolling the dice.

If you're depending only on pomegranate products, not the purified, you're a Lithuanian. So your company in Switzerland, the name of the company is and nobody's going to be quizzed on this.

It's saying Amazon enters AMA Z. A. S. But the products are sold through. It's sold through time line nutrition. Your company in Switzerland takes pomegranates and purifies them to your litany.

Or are you synthesizing Euro? Listen, a. That would be a very tedious and long process to to bring on gram and then get enough material out to to to make.

So what we do is we make 99.99% identical molecule that is absolutely similar to the one that exists in nature. And so that's the origin we have tested in multiple randomized trials.

Okay. Let's talk a little bit about strength and endurance, because what attracted to me and you reminded me just as we were going on here that we chatted about three years ago because papers started coming out.

I love science and I love supplements. When food won't do it, if food will do it, that's even better. But when there's science and published human data for a supplement or a food, you know, it's a whole different level of confidence.

You can have, you know, where are you going to spend your blue chips? I always choose to spend them when there's a treatment of some kind support that has science.

So talk about there's a journal most of us are reading every day, cell reports, medicine, may of 2022, where you

study this chemical we're talking about in a powder.

You're live in a sold as and I know everybody's saying oh my god so many things to remember might appear m i d opi you are e is the product and there'll be an opportunity if people learn more.

But you did a randomized study and you looked at things that people are listening care about. I want to get stronger. I want to exercise better. I want to improve my endurance.

So tell us what you found. Yeah. So we actually the study that you talked about was a study done in in the Canadian middle aged population about 50, 55 years and average.

These were healthy adults. So just the only thing we selected was they weren't too physically active. So they were sort of sedentary, middle aged population.

And we randomized them into three groups, one, of course, taking a placebo. And then we had to different doses, 1 to 500 milligram. You alternate those so might have good builds in our group having even higher dose if a breath of your life and then we made them orally supplement the product in very high compliance they didn't change their physical activity levels.

We followed their dietary records very closely and after four months we assessed what changes had happened at sort of a physiological and functional level on their skeletal muscle function.

And so what we saw was that these people had much more leg muscle strength. So when we, you know, it's kind of a like process when people do it in a jerk.

And when we did that, when they walked into the trial versus four months after the people on both the doses of the model pure supplementation improved their like strength by about 10 to 12%.

So that was without changing diet, without changing physical activity levels. There not many interventions that I'd previously been shown to improve leg strength in sort of sedentary middle aged 40, 50 year olds.

And then the other feature we saw was that they mitochondrial out of these peoples. As we looked at certain biomarkers of mitochondria, we saw better mitochondria, lower inflammation.

A lot of these sedentary folks had very high C-reactive protein. And then we even made things like a walking test. So we asked them to walk for 6 minutes and we measured the distance, walk them and they were walking about 30 plus meters and that in those 6 minutes.

So that that was one of the trials. But we have done a number of them in older adults showing similar effects on endurance as well. Incredible. So, I mean, we have human data for improving muscle strength, endurance, oxygen consumption improvements, the six minute walking test.

And these people took the, as you said, either a placebo. This was a real study, university study.

Clinical Trial Results on Strength and Endurance

They took 500 milligrams of your lithium a or a thousand milligrams, if I recall, the 500 worked almost as well. Or maybe on par with a thousand. Isn't that true. Yeah.

So the muscle data 500 and gram is does that are on the sprint where the grams showed a bit even better effect was on sort of the anti-inflammatory effect the inflammation that I was talking to you about.

And we looked at biomarkers of C-reactive protein, for example, the gram was getting statistically significant effects of lowering CRP in this population.

Okay. Because, you know, that's for the people listening. One of the things you got to get skilled that there just was this week a paper about a supplement called Nicotinamide Riboside and the potential that it has a role and I think it was Parkinson's disease was a neurologic syndrome, but the dose was like ten times higher than most people take.

And even if you wanted to do it, the expense would be insane. And the reason I bring that up is in your study, you know, the product that's out there that somebody could start adding to their life today called might appear and might be you are eat is 500 milligrams so it's the same dose used in this randomized clinical trial.

So you can confidently move forward and say, I might also be able to improve my fitness and my muscle strength and I'll, I'll just tell there's a fair number of the audience listening that do follow or prefer a vegan diet.

So I like the might appear their little package you open you sprinkle it into a water into a smoothie put it on fruit. It's it's your elephant, but it's got blueberry powder and raspberry powder and pomegranate extract.

So actually has a nice little flavor and it's my desire to largely have vegan products in my life. You make a real attractive red capsule and many people prefer that to the powder.

But at the present time, I'm beating on your hair. Doctors saying it's made with gelatin. It's made with gelatin capsules. So maybe one of these days we'll get it available as a we're.

Working on it. There you go. There you go. And the audience is saying, hooray, one more move away from animal based choices in life, if possible. So and again I think I gave the right comments timeline nutrition dot com product is might appear and the component that's active is your life in a now we have to thank Mother Nature for coming up with this we haven't figured out how to alter the gut how we like you said the Mediterranean Diet Basin seems to convert into your anything better than some other groups like American Diet.

But we don't know which bacteria are doing this or we do and we haven't been able to figure out if it really helps. Yes. So we have to actually take a look at taking a look at the microbiome.

You sequence the microbiome of people, as I call them, are blessed. So they kind of naturally make the molecule if they eat balance and pecans, etc., or eat a pomegranate versus those like me, you don't make it minutes.

Six glasses. And we haven't been able to nail the exact set of gut bacteria or gut microbiome constituents that are involved in the interplay. But we know that those who are blessed have more of a rich and diverse microbiome.

They have more akkermansia all the healthy bugs. They have, you know, in their in their gut ecosystem. But we haven't really nailed it down to, say, a one probiotic strain or whatever.

I really think the gut microbiome is very complex and I think it cannot be just one. I think it has to be really a mix of multiple healthy bacteria that is involved in this process.

So it's just it's a work in progress. Yeah. And the analogy I keep making, I've been tracking the Team Mayo data for a long time, which is the metabolite of often eating egg yolk and red meat that may be harmful for the heart, arrogant about a metabolite that's good for your cardiovascular system, but there isn't yet a probiotic to legit egg yolk and red meat without converting to TMAO, so they haven't figured that out either at the Cleveland Clinic, although I know they're working on that.

So Dr. Singh, don't go anywhere. There's been fascinating to the general audience. Everybody probably wants more fitness, more muscle strength, and you still have to go to the gym.

Everybody is still got to lift the weights is they're going to walk the treadmill, you know, walk your dog, do the elliptical, do something. But maybe this is a lift and a stimulation of mitophagy and your mitochondria will be some of your interests.

There's also I didn't mentioned there's facial products with your life in a way but that kind of is a platform.

Biological Aging, Skin Health, and Topical Uses

I wanted to ask you maybe even speculate a little bit. You've written papers, your website talks about the potential that your life in a and mitophagy and might appear might have a role in biologic aging.

You know, we'd all like to stay healthier longer, and maybe we want to stay around longer. How's that going? And what's the what's the thought there? Sure. Yeah.

So in the field, in the longevity field, there are really two camps now, one that wants to live healthier as long as possible is the health span from camp.

And then the other is is the life back that wants to live beyond hundred or 50 years in the most elite ways. I think we are in the healthspan where we want to when you're 80, 90, to have enough mobility to go about doing your groceries and playing with your grandkids and sort of that's the Holy Grail that at least we are following now.

Biological age is a very fascinating concept that emerged recently because these these are these 12 hallmarks of biological aging that happen in the body and if you could tackle one or multiple pathways and I principally believe that mitochondrial decline is one of the central pillars of those pathways that if you can reverse a lot of this mitochondrial decline and as you were mentioning, it just doesn't impact mobility that impacts cognition.

Your your you know, less cognitive decline in the in your seventies and eighties and your heart functions. So where we are is that we know that people in a mediterranean diet, as you were mentioning, have better they may be chronologically 70 years old, but they have the heart and the muscles of a 50 year old.

And so what we have been looking very closely is three kinds of biological aging, sort of the mix of all three. One is looking at what we call immune aging.

So we kind of looked at the immune cells, how they behave once people are taking mitochondrial DNA after a few weeks or a few months. And so that's something work in progress where we can see actually immune aging going down.

So 50 year olds, it looks like perhaps it's now, you know, the immune system of a 40 year old. Then there is something called a skin aging where you can actually using algorithms and facial tools take pictures and actually see are the wrinkles of the redness in the face.

That is changing because a lot of people who are taking our product are telling this and then there is this deep biological aging, what is happening at the cellular genetic level.

And so together with these three, we are seeing known effects of might appear on biological age and slowing biological age. And again, not to promote vanity because we're really trying to stick to good science here.

But you are an author in a paper in 2023 where you did a report. I mean, we won't know if we have extended our healthspan and our lifespan and for most of us for decades and decades.

But we might notice if our facial appearance improves, you know, within two, three, four weeks and you did do a randomized study of applying your life in a to the skin.

You do have commercially available products add timeline, nutrition dot com it's skin nutrition as well as a whole body nutrition. So tell us a little bit about what you found using this fascinating compound and how did it even come about?

You know, because other you think about, I don't know, too many people putting pomegranate on their face and maybe there are oceans, but how do you get to this point of actually proving it helps?

Sure. So we launched our oral the whole body nutrition products about three years back. And so the people who have been on it for two plus years starting, I mean with what I call anecdotal feedback, of course it's not like randomized trials, but they were starting to say, well, it's having an effect.

We see our skin in glowing better and it feels a bit younger. And a lot of times people ask me, Well, how do I measure my mitochondria are getting better, what would I feel?

And I of course say, Well, you'll feel more energy, you'll feel less fatigued. But that's something which becomes very subjective. And so those two thoughts together led us to say, Well, maybe if people are feeling it in their first thing in the morning, then you wake up and see how your rate of aging as you see itself in the mirror.

And so we actually at that point just formulated light of early today and in sort of a regular hydrating cream. And we started testing it in randomized trials.

And while we started seeing that it was impacting on both what I call intrinsic. So the decline and cellular health of the skin skin cells, also hundreds of mitochondria, and we can reverse them to a youthful state through mitophagy.

And second, it was protecting against photo damage. So all the harmful UVA pollutants that in our skin and aged faster. So together the data was so compelling that we launched these topical products in a line of day and night creams and people are loving it as well.

Wow. And I would assume you're are you taking oral products and skin products yourself in your own life? So I think I've been on the oral products. I was probably customer number one on the oral products, the topical oil I take I don't take all of them.

I do take the the night cream.

Safety, Availability, and Closing Remarks

And the day cream serum is more focused to women who like to sort of lay the foundation before they apply the makeup and then public brain style. So I think I haven't planned a trial, but it's in the works to actually see the combination effect of applying these both the oral and topical in a randomized trial and see the synergy.

I think that's coming in the future. The data. Interesting. And is there anybody that shouldn't consider using let's talk about the oral product anyway.

They shouldn't use it. So today we have tested about a thousand participants across ten plus randomized trials, all different age groups even. We just finished a trial at Olympia, Annapolis, trying to see what impact it would have.

No, no, no side effects so far. It's again, it's nature's way of, you know, we all had this when we were eating fresh fruit diets and and not eating and taking a lot of antibiotics, etc..

Our gut microbiome was harvesting it and producing this naturally, and one third of the population still does. So yeah, I mean, it's again, what makes it so great is that it's a very safe, natural molecule and that it can be put into it's very sort of robust.

You can put it in different temperatures. It doesn't smell like omega three. The biggest in other molecules matter molecule. It smells a lot. So that's the advantage this molecule has. Wow.

Wow. Well, this sure has been fascinating. And I don't want to take too much more of your time. You've been very generous. You know, this is a scientist.

When I was mentioning science and trials, Dr. Singh was the author of these studies and they're available and you can read about them the way doctors study science.

So this is the real deal and really distinctive from so many other supplements choices out there. And if you're looking for the strength or you're looking for the endurance or you're looking for the skin and cosmetic aspects, go to timelinenutrition.com and you'll see lots and lots of scientific studies, in fact, human studies and animal studies and basic science studies.

It's a very well-organized website and I've been on many supplement company websites continually impressed. So thank you again for taking the time for people that didn't know that.

Dr. Singh is beaming into us. I think I mentioned from Switzerland. So he dedicated some hours far, far away because that's where the company is from.

And but this is widely available, at least in the United States. How many countries is available in? Right now we sell in the US and maybe a few countries in Australia and Singapore, but US is our main and we've been around for three years.

superb. Well, it will help to support the effort because we got people interested in their healthiest life. Well. So we'll look forward to many years of continuing updates.

I think the future is very bright for what you're doing. Thank you Dr. Kahn And pleasure being with you.