The Brain’s Secret To Staying Young Forever Transcript

(Transcripts are generated by AI and may contain errors)

Introduction to the Exponential Longevity Summit

Welcome, everybody, to this edition of the Exponential Longevity Summit. I'm your host, Doctor Jeffrey Gladden, and we're here discussing leveraging AI to outlive disease and to live yong for a lifetime.

And today I'm joined by I will call him a friend and colleague. Doctor Jordan and I have known each other for some time now. Doctor Sheldon, Jordan is an amazing individual.

He's a neurologist, and when I went to visit him, his clinic, I couldn't believe that he was basically, using fluoroscopy and injecting into people's joints and bones and all kinds of stuff.

I thought, I've never seen a neurologist that's really an interventional virologist. And the interesting thing about Doctor Jordan is that, not only is he a clinical associate professor of neurology at UCLA and USC, but he's been leading the charge on some really fascinating insights into the aging process and how we may be able to reverse it by going after a central clock.

So with that, Shelly, welcome to, welcome to the show. Thank you. Glad to be here. Yeah. So tell us a little bit about this idea of a central aging clock.

The Central Aging Clock in the Hypothalamus

Because when we think about right now, when we think about going after aging, for me it's a little bit like we go after a thousand different phenotypes of aging, right?

Phenotypic expression. And and that's, you know, all the different manifestations of aging for the audience just to understand that word phenotypic. So it's like, you know, your hair changes, your skin changes, your bone, your muscle, your heart, your brain, all these things are changing.

And yet, wouldn't it be great if there was a central mechanism that was kind of controlling all that, rather than chasing a thousand different phenotypic expressions?

Or if we could go after one or 2 or 3 things, wouldn't that be great? So, Shelly, enlighten us a little bit about your thoughts about this. Well, I'd have to say that the granddaddy in this field, as far as I can tell, is Doctor Kai that, see, at Albert Einstein.

He did a really interesting experiment, a few years ago. And this was in mice, not humans. Yeah. And we'll talk about our human experience also. Potentially. Yeah, that for sure.

But so what he did was he was able to, make an immunological, factor that would kill off the stem cells that line the third ventricle in a part of the brain called the hypothalamus.

So and for those listening, they may know that the hypothalamus has a lot of clocks that we already know about. So for example, your sleeping clock is, controlled in the hypothalamus as an example.

But what he did was found out there's actually a clock in the hypothalamus that determines when you age, how you age, and when you die. And the way that he did this was by making this material that would kill the lining cells, the stem cells in the hypothalamus.

The mouse would immediately become old, would fly out though the. Tell me about that. When you say immediate, just so the audience understands this. So you have a young mouse, you go in with this agent and you kill off these stem cells.

And how quickly is this mouse getting old? I mean, is it like. Dating a nowadays in weeks now? Yeah. For those who don't, have mice as pets, you'll probably recognize that mice live only about two years at the most.

Right at one year old, you know, they're sort of middle aged. But what he found was, is you can take these mice that are, you know, so young to middle age and by just destroying these lining cells in the hypothalamus where he believe the clock is, these mice would by immediately within days and weeks rather than over, you know, many, many months.

Yeah. Animals became oh, their hair fell out, their muscles became weak, they became sexually inactive, and they became cognitively impaired. So when you tested their ability to form new memories, they didn't do very well.

They actually have some ways of doing this in mice. So that part's kind of interesting because here these animals became old very quickly without doing anything to the periphery.

Right. Means their diet. We didn't change their exercise pattern. We didn't give them toxins. We didn't do anything that would otherwise produce aging, as we know it from the periphery.

So this is just just working at the central clock area. So that part's kind of interesting. But what's really more interesting in my mind is you take these same animals now, they're growing old, right?

But he would take exosomes from a young mouse. So exosomes are the little packets of information that have signaling molecules that are created by these stem cells.

So he was able to produce a distillate of these exosomes, inject them into the same area where the stem cells had been destroyed.

Melatonin, the Pineal Gland, and Youthful Signaling

And lo and behold, these animals would remain young, their hair would grow in, their muscles would become strong, they would become cognitively adept so they could learn new memories.

They became sexually active. So you could completely reverse the aging process by giving excess arms from a young individual, injecting them directly into this area of the brain where there appears to be a biological clock.

So tell us, tell us. This is absolutely fascinating. I mean, it's it's almost like science fiction, right? Because you can you can accelerate aging at an unbelievable rate, and then you can actually reverse aging at an unbelievable rate is what we're talking about here.

And so in order to do that, tell us about the normal function of the stem cells that are lining that third ventricle. And if you're listening to this the brain has these cavities which are called ventricles.

That's where the cerebral spinal fluid is. It's basically moving through right. The cerebral spinal fluid. And so it's in the lining of those caverns, if you will, those ventricles that these stem cells reside.

So what are those stem cells doing that are keeping us young? So the stem cells are doing two things. First of all, they make these little exosomes that have signaling material that diffuses into the hypothalamus to keep all the hypothalamic cells working at a young youthful capacity.

So these exosomes are released into the ventricle system, and they bathe the whole rest of the brain to keep the rest of the brain young and healthy. And when you take away these exosomes, which is what the experiment did, the animal becomes bold, but also the brain becomes old, they become hair.

And that can be reversed simply by getting new exosomes. Now here's something. The other piece of the clock that's really very interesting. There is something called the pineal gland, which the ancients thought was very important.

Yeah. For life. And the. Third eye. All right. The third. Eye. Yeah. They're not right. So the pineal gland makes, among other things, a, a material called melatonin, which many people are knowledgeable about in terms of using it for sleep, but it does a lot more than, producing sleep.

It keeps the stem cells in the hypothalamus acting in a youthful component. It's very interesting because if you if you take away the pineal gland, what happens is the stem cells in the hypothalamus start to die.

So you can recreate this Chi experiment by simply taking away the pineal and melatonin. And guess what happens when people age normally. Yeah. Melatonin production goes down.

The pineal gland. Health supplies. Yes. Self-destructs in creating melatonin it's self destruct. So if you look at melatonin decade by decade you start getting down to a level like I'm 70 years old.

By my age you don't make melatonin anymore. So melatonin is not just about, inducing sleep. Melatonin is also to maintain a youthful character in this biological clock. So.

So if you think of the clock as being an interplay between the pineal gland, creating melatonin, which keeps the hypothalamus young, and then the hypothalamus producing these exosomes that make a youthful capacity, the hypothalamus.

And then of course the hypothalamus has all these effects over the whole body. Right. So for example, the as you know, inflammation is a big part of aging.

Right? So so, Jeffrey, you know, that a lot of the things that you do in your practice is to minimize the inflammation that occurs with age. We sometimes call it inflammation, right?

That's correct. Yeah. So the two main systems that are naturally anti-inflammatory come from the hypothalamus. So the hypothalamus controls the pituitary which in turn controls the cortisol system.

Great profound anti-inflammatory system. Right. It also the vagal anti-inflammatory network is controlled by the hypothalamus. So if you if you allow the hypothalamus to become age and to become deconditioned, it's no longer able to perform its anti-inflammatory, type of process, contribute to the aging process.

But that's, that's one connection between the hypothalamus and aging.

Clotho, the Choroid Plexus, and Brain Aging

But also think of this growth hormone. Yeah. It's it's created because of the interaction between the hypothalamus and the pituitary. In fact, pretty much all of your hormones are relevance that have to do with body structure and aging and youthfulness and all that is actually controlled by the hypothalamus.

So that's the link between the biological clock and overall aging of your body. Yeah, that's an amazing situation. So I'm sure the audience is wondering, well, if I just take melatonin, will that be enough to kind of reboot my system.

Is that, is that, is that a piece of the puzzle, or is it a total, solution to it? Or how do you think about melatonin? I think that is, perhaps one piece of the puzzle.

And, there actually have been some studies done looking at melatonin in different, clinical conditions. So if you look at, there's a meta analysis done for several series that have looked at melatonin and its effect on Alzheimer's disease, one of the scourges of aging.

And it looks like melatonin has, has an effect there. So it's definitely something you can at least partially, work with that melatonin. By the way, besides being a signaling molecule for the hypothalamus, there's also a very good, antioxidant.

And it does suppress the blood brain barrier. So that's right. That's that's why melatonin is not just about sleep. Melatonin is probably something if you can tolerate it, make sure it doesn't make you too drowsy.

The following morning. But I can only take three three milligrams. But so people take up to 20mg of melatonin at night. But I think it's something that everybody should be on after a certain age, because you don't make enough of your own.

Now, if you're 20 years old, you're making it. You're probably making plenty of melatonin, so you don't need to take, any extra. Yeah, that's a good point.

Although there are many young people that are more and more intrigued by the idea of staying young for a lifetime, and I wonder what's the cut point for them in terms of maybe they should get their we can measure melatonin, levels in people and we do that.

Maybe people start to think about supplementing with melatonin at a younger age. I don't as long as it doesn't make it drowsy. I don't see any, downside to it.

Now, you're asking a very important question there, Jeff, and I don't want it to be less in this conversation. There's one other factor that is critical for the the aging clock.

And that's something called Clotho. Okay, so Clotho. We love Clotho. Is made up. Will tell me how to get it, because I'm very interested. Jeff. Actually, we have an Aids.

We have a nasal spray right now, and we, we can push clothes out, you know, cloth. Those actually increase with cardiovascular exercise. It's also, diminished by resistance training.

And, Thomas Arden, which is an urgent attention receptor blocker, has been shown to increase that says resveratrol, a particular kind of resveratrol called by seed resveratrol.

All those things can have an impact. And Clotho is interesting because the genetics on it are that it's the heterozygotes, and we measure the genes of all of our clients for glow.

So it's a heterozygotes, which represent about 25% of the population that actually have the ability to make the most Clotho. And it's and then the ones that are homozygous for the negative, snip, if you will, the negative allele.

They they are the most challenged. But, you know, most of us are kind of in the middle of the road there, which is which is really kind of intriguing.

So, yeah, we measure that on everybody. We measure closer levels on everybody. So let's, let's, let's, let's fill this in a little bit with some more framework. So, so Clotho was made in two places in the, in the body.

The only two places. Right? Ones. The kidney, as you know. Right. But it's made in the brain, so it's made in the core. Right? Plexus, which, which lines the ventricle system that we were talking about early on.

So this is good reservoir in the middle of the brain. So the entire brain is bathed with spinal fluid, which is made by the choroid plexus, which is also the source of Clotho, is one of the causes of Clotho in the brain, and that is, the hippocampus to the hippocampus is absolutely critical, performing new memories.

If you look at, aging individuals, what happens is, is that the Clotho in the brain is no longer being reduced. And you can actually see this on a standard MRI scan.

So you get calcification of the core plexus, which appears to correspond with the ability to produce Clotho. So, you know, there's a lot of good information and even a standard MRI scan.

So you look for calcification in the pineal gland, which we talked about earlier for. Melatonin. Or melatonin. Right,

right. And then you can look at calcification in the.

Royd plexus. For Clotho. Now here's so here's here's what we have to work together Jeff, is that Clotho is a very large protein. Yes. It does not get across the blood brain barrier very well.

Right. So the question is, if someone is not making Clotho in their brain, which you need to maintain, the youthfulness of the brain. Prevents someone from having memory loss associated with aging.

How do you get the close of their. So by taking it nasal. That doesn't necessarily get into the brain as well as like as, as you probably know when people get older they, they calcify the upper nasal passages so that that potential conduit between the nose and the brain is not necessarily patient.

There are a lot of people. Right. So so my. What he's talking about there, so the audience understands is at the top of the nose, has a curve form plate which is perforated.

And you can by putting things in the nose or very close to that and injecting them or it's healing them or things like that, you can actually push things directly into the brain.

And that's what he's talking about. But that, that, secret back door tends to calcify. And now it doesn't let things. So. Yeah. Yeah. So in a young individual, it's, it's certainly, something that can be considered, but an older individual, it's not going to be.

So, so my dream is to, is to package Clotho as cargo for some of these exosomes that we're talking about.

Ultrasound Delivery of Exosomes and Therapeutics

Nice. Okay. So there's a way of getting Clotho into an exosome as cargo, and then we know how to get exosomes into the brain. So we published in the nature Journal just a few months ago.

If people are interested, we we published our technology that allows us to deliver some of these things in humans. So if we wanted to reset the biological clock of aging at the hypothalamus, we can potentially deliver young or reconditioned exosomes to the hypothalamus using focused energy in the form of ultrasound.

So we're talking about ultrasound, which is the same level of ultrasound that you would use for diagnostic purposes. So that has a very, very long history of safety including safety to the brain, more than 40 years using this technology.

But we were able to show is that you can deliver exosomes safely to the brain without tearing open the blood brain barrier, without causing any edema or bleeding.

You can get exosomes to actually cross the blood vessel barrier by going through the cell. So it's trans cellular migration. So ultrasound makes the vascular endothelium sticky.

It increases the adhesive molecules. So when exosomes are floating through the body, they stick more right through the endothelium. And then they actually go right through the cell into the brain.

And we were able to demonstrate that in our publication in nature. So we've used the technology. So this is fascinating. Just so the audience understands that what he's talking about is using an ultrasound beam.

You know, like somebody would actually image, child in utero or something like that, focusing it on the brain in a particular way, which is actually, activating, a leak, if you will, in the blood brain barrier at a particular site that's therapeutic for these things to cross over and go into the, into the hypothalamus.

Right. So, so it's it's very targeted. And then the exosomes are put in through an IV. But now with the stickiness they know where to go. They get they get stuck up there.

And they trans migrate across the cells and go into the right spots. So just so you understand what he's talking about there. Yeah. That's right. So so here are our plans.

So we have we have three different clinical trials in applying this to humans. So we've been able to demonstrate in humans that we can at least from a safety standpoint, put an ultrasound probe on the scalp where we've been able to show that you can stimulate the brain safely, and, we can get a clinical outcome.

So I think going back to 2019, we had a first publication in humans demonstrating that we could, we could get a clinical effect by giving something intravenously.

So exosomes given intravenously, circulate around the body, and they'll stick to the target zone and they get absorbed in the target zone to produce their effect.

We've also been using this to deliver small molecules. So the small molecules like the, plasma and precursors that are anti-inflammatory, small molecule.

Right. You can enhance their delivery, repurpose, drugs that we've used for Alzheimer's and Parkinson's disease, be delivered using ultrasound. So these are some things that we've already published.

So what are you talking about now, there was also attaching Clotho into these exosomes to get that across as well. Is that is that what you're mentioning? Right.

But if if you just gave your close so by a nasal sniff, right, an IV. Yeah. It's not going to get into the brain efficiently. So. Right. Even if you use the ultrasound because the close though isn't necessarily going to stick to the end of helium.

Right. What the the exosomes. Right. Have a sort of like a lock and key type of impact factor is. So they call it the ligand. So the ligand fits into the key which is the receptor, at the end of filial site that receptor is turned on by ultrasound.

So the expression of the receptors is markedly freezed by the ultrasound energy. And that allows the exosomes to stick. So if you can load something into an exosome you could deliver it into the brain.

So as you're listening to this, think of these exosomes kind of as a Trojan horse. And the way I describe exosomes to clients is that they're basically like letters that cells send to each other, and they have an envelope, they have contents, and they have a signature.

And so this envelope is made up of cell membrane material. And so if you can load inside that little sort of micro cell, that envelope, if you will, things that you want to go into the cell and then it attaches where the ultrasound tells it to attach.

All of a sudden your Trojan horse is now delivering these therapeutics that you'd have a very hard time getting into the brain. So if you do that, are you actually rebooting?

The stem cells in the third ventricle, that are lost with aging or how is that working? Or it's just something that has to be done on a regular basis.

Well, let's let me talk about my cell for a moment, okay. So I'm 75. Yep. And if you look at any of my biomarkers, I'm substantially younger than that.

Nice. And, so I delivered, young exosomes. Yeah. This is something that we did offshore because, to do it in the United States, you have to do it as part of a clinical trial, which is at this point.

But, I was able to do this offshore, and, I used, ultrasound in the way we're talking about to deliver exosomes to my hypothalamus. And I reset my age. So my hair growing, darker and thicker, my skin became clearer.

My, recovery after exercise became better. My, my memory, was sharper. My overall energy level was better. And there was one side effect. Sexual function went up.

Well, you could call that a good side effect, but in which case, of course, I had to treat my wife. Oh, yeah. Well, we'll put that aside, because this is for a G or a a.

G rated audience. Okay. Got it. Okay.

Personal Results, Safety, and Treatment Duration

So let's go to, a lot of your drives are in the hypothalamus, so I drive for food was enhanced. Okay. So I started eating ice cream for dessert. So which I don't normally do.

Right. Usually having a sweet tooth. So, I gained 20 pounds. Okay. So, that was my side effects. So what I had to do is I actually took, a, like Ovi, for several weeks to get my weight down to where it is now, which is my stable weight. So.

Yeah. So it does have some off target effects. I think what's going to happen in the very near future is our ability to target more specific nuclei in the hypothalamus is going to be much better.

So that one to our third generation of ultrasound devices, which are much more accurate, we can preplan exactly where it's going to go. We can make the thickness of the skull any appearances, a skull that might reflect the wave so we can get down to millimeter accuracy.

And then we have advanced imaging for planning purposes so we can find out exactly where the nucleus in the hypothalamus that we want to go after. So we know these biological clock clocks are so I don't have to necessarily turn on the the craving component.

Okay. So the sex craving component type of thing. You can take your libido up and keep your appetite down. Right. So yeah, if that's what you like. Yes.

Well, who doesn't? So anyway, point being this is interesting. So what's the duration of the of the effect here do you think is this, something that's done annually, six months, every three years.

What's your feeling about that. So for me it worked. It worked for one year. And that's what we've experienced in, in other, subjects. The, there are some individuals who have done it as much as quarterly.

I think that's probably more than you need to do now. There's there's an easy way of tracking the effect, and that is to look at your, amount of deep sleep.

So deep sleep. Yep. Is controlled by the thalamus. And as you know, Jeff, it's a it's a very good indicator of overall health. You need deep sleep to kind of reset your whole body.

That's right. And, and actually, the main reason why I was interested in resetting my clock is that when I track my sleep at night, I was only getting a few minutes of deep sleep, which is not enough.

You need more than an hour, right? Deep sleep. So what? I reset my clock. I was getting more than an hour. That lasted for many, many months. And then it started to wane.

And it starts to wane. That's sort of a trigger that other things are going to start to happen. Yep. Now that's fascinating. Like, we're so excited to jump in on this with you.

I know that you've got this clinical trial. We're talking about putting an MRI scanner here in, in Dallas. And jumping in because I think this is to to me, the way I characterize this is kind of cutting off the head of the Cobra instead of basically going after all the phenotypic expressions of aging.

So super exciting stuff. Yeah. Well, I, I don't think this necessarily replaces everything that's done. I think that this is an important, adjunct. I think that's where this is going to go, I think.

And also I, I strongly believe that if you're going to deploy this kind of regenerative strategy that you have to start by detoxing. Yes. I think by by putting in perfectly good exosomes or 60% into a toxic soup, it's a battle.

Yeah.

Detoxification and Preparing for Regenerative Therapy

I think, getting those muscles in the best possible shape because as you well know, Jeff, a lot of the brain derived neurotrophic factor is coming from muscle.

So conditioning your muscles, if there's a leaky gut, you need to treat it. If you have a dysbiosis, you need to treat it. If you have exposure to different toxins or chemicals, try to imitate that.

If you if you have a lack of certain, important, vitamins like vitamin D is too low, everything needs to be optimized. And I think if that could take a few weeks or a month or two.

It takes longer than that. We do this for all of our clients, and it can take 3 to 6 months, actually, to get people cleaned up. For sure. And sometimes there's also latent infections that they're not aware of that are driving inflammation and things like this.

So, you know, seeing the herpes, chlamydia and pneumonia, there may be other Epstein-Barr. That may be other things that may a mold exposure. Yep. No, no, absolutely right.

And I and I think that that's why it takes a village to do this. This is not right that you're just going to pop into a machine, get an MRI and get an ultrasound.

And you're right. I think you're wasting your money and I think you're misdirected if you do that because you need to clean up the toxic soup before you get it right.

We do plasma freezes here. Also, with that in mind, if we're going to be doing any kind of regenerative biologics, you know, stem cells or B-cells or whatever we're going to do is, you know, you can't put your Olympic swimmers into a swimming pool that's full of lawn chairs and logs.

Right? They're not they're not going to work very well. So you got to clean out the pool, put in fresh water. Right. And now let them go. Now let them do their job. Right.

So yeah, I'm 100% no, I think we're totally like minded in this in this way. But yeah, there has to be a lot of good work done first. And and this is going to come after.

Yeah. Beautiful. Oh, I love that. Well, Shelly, what you're doing is super exciting.

Closing Thoughts and Future Collaboration

We're really excited about the collaboration, that we're, that we're embarking on. And, I congratulate you on the work you've done. It's really it's really genius.

And I hope listening to this. You understand? Just how monumental this work is. It's really quite fascinating. So thanks so much for your time. We're having a great time, and I invite people to, you know, give us a give us a call.

We're happy to discuss this further. There is this project. There's a book out there, Regenesis The Brain Doctors Guide to Health and, you know, there going to be, collaborations with amazing people like, Doctor Gladden here that's going to bring this, future capability to you. Yeah, absolutely.

Look forward to it. Super excited. All right. Thanks so much, Shelly. Bye bye. Bye.