What ESS60 Teaches Us About Aging and Cellular Energy Transcript

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Introduction to ESS-60 and the podcast guest

You live in this modern society. You have stressed mitochondria, like, and in some cases, disease states or, you know, tough workouts or tough conversations, flights and airplanes have additional EMF exposed.

We can agree. When it's stressed, it starts producing more reactive oxygen species than the internal glutathione and melatonin can manage. And that's where they would normally go around like little bumper cars and cause this oxidative stress, oxidate of damage.

and that is where we think the ESS-60 molecule comes in. It holds on to up to six of these negatively charged reactive oxygen species, so they can't run around and do damage.

And then when that mitochondria replenishes the glutathione and melatonin, then they could manage them properly. Welcome back to the Think Well, Age Well podcast.

I am your host, Dr. Heather Sandison. Chris is the founder and chief scientist at MyVitalC and his work with ESS60, a molecule rooted in Nobel Prize winning research, intersects chemistry, biology, and human health in ways that continue to spark conversation and curiosity.

Chris is also a published author, a patent holder, and a podcast host who is passionate about helping people make sense of emerging science without hype or fear.

What I appreciate about Chris, is that he's willing to dig into both the promise and the limitations of longevity research, balancing both. While keeping things surprisingly fun, his background in comedy improv doesn't hurt.

So today, we'll unpack the data that what actually tells us about ESN, how it fits into this broader landscape of aging and cellular health, and how you can think more critically and hopefully more hopefully about supporting long term vitality.

Chris, I'm delighted to have you. Welcome. Dr. Sanderson, thank you so much for that intro. That was amazing. Now I'll work to live up to it. I can't promise anything on the comedy side because we are talking science and, you know, longevity here, but I will try and throw in a couple of things.

Well, hopefully they're not mutually exclusive, right? We can have a little bit of fun talking about longevity science. Okay. So I kind of stumbled through ESS 60, I'm getting better at it, so tell us what is this?

Like define this for us. Yeah, so I'm holding up a model of a molecule, right? And if you're listening, just imagine a soccer ball where the lines on the soccerball represent the bonds between the carbon atoms.

What ESS-60 is and its Nobel Prize origins

So you have a spherical molecule of 60 carbon-atoms in the shape of soccer-ball. We call it ESS-60. This molecule was discovered in 1985 at Rice University, and that's here in Houston.

That's where our lab is based. and the three scientists who discovered the molecule won the Nobel Prize in 1996. So a short 11 years from discovery to being awarded the nobel prize.

My company started manufacturing the molecular in 1991, a full five years before they won a Nobel prize They won the Nobel Prize because the molecule is amazing.

It performs as well or better than the current best material in almost every application. So it makes better inks,

better batteries, Better tires, and better photocells.

And this is where people get nervous. They're like, this a health podcast, right? Like we're think well, I'm not sure inx, batteries tires and photo cells really kind of combined.

In fact, i'm pretty certain nobody in your audience woke up today, looked out at their car and thought I wonder what parts of my car battery I should be taking on a daily basis for my health.

And actually the story gets a little worse first. So on the exterior of this cage, there are 20 incidences of the benzene shape of a molecule. It's not benzine because benzane has hydrogens, it's a bit geeky, but it is the same shape.

Benzene is ubiquitous in our society, necessary for modern society. If you want a little bit of evidence, just kind of glance around you, everything that's plastic, gone without the benzene ring.

That is the foundational molecule. Many medications including aspirin, benzine, a lot of detergent. So we don't have modern Society without a benzane ring, but benzène when it's on its own is known to be toxic and known be carcinogenic.

And so because there are 20 of these benzines shapes on the exterior of the cage, they thought the molecule would be They also thought man would be working with it on a regular basis because it performs so well in so many applications, and they decided to do a toxicity study.

In this toxicity studies there were three groups and these are Wistar rats. They gave one group water, that's a control group, one groups olive oil, thats a semi-control group and then one-group olive with the ESS-60 molecule.

Instead of being toxic, this is where the story gets good, instead of be toxic the test subject that they gave it to, in this case again, Wistar Rots, lived 90% longer than the control group.

So the single longest longevity experiment to result on mammals in history peer-reviewed published research is because of this ESS60 molecule dissolved in olive oil.

And I'm very proud to share that my company provided the material in my lab. My company is mentioned in that original study. I'll just kind of summarize it with this.

People are taking their product, the most consistent testimonial is they take the product in the morning, they report mental focus and energy during the day, and then better sleep that night.

Now I am going to throw out there, that's actually pretty fantastic. because most things that'll have a positive impact on your sleep, you might think melatonin, I think valerian is good.

I certainly would stay away from prescription sleep aids, like those I thing are bad. And I wish I got my dad off of them sooner. Those you usually take right before you go to sleep.

So to take something in the morning and have it have positive on sleep means it's doing something more fundamental and we've got some theories I'm sure we'll talk about today about that.

Well, so I want to come back to this DSS-60. So you showed us this molecule, you're making it in a lab, and then it's going out to play all these different roles in stuff that we interact with all the time.

But in this rat study, when was that published? So it was published in mid 2012. Okay. So that's relatively recent, not from the nineties. Yep. But what you're doing is you are taking the same molecule that has a bunch of different utility and then is it now delivered with, you said dissolved in olive oil?

So does it dissolve the molecule? I guess I'm a little confused, like take me through this. Yeah. So first, I think it's

fair to share that my business partner and I, we're as shocked as you.

Like we are just happy-go-lucky carbon nanomaterial scientists. If there is a thing, then that's us. And we, you know, making it and delivering it to commercial, research institutions around the world.

This study comes in. And I'll share, this goes right down a perfect path. So, in mid-2012, the study comes out. We start getting these crazy phone calls from this crazy, wacky group of people called biohackers.

And, I can say that affectionately now because I am a bio-hacker. They would say, hey, i saw that study and I'm calling you, Chris, to find out how much of this stuff should I be taking on a daily basis.

And so my business partner and I, just like I kind of gave the example of the car battery earlier, I was like, wait, what you're asking is that stuff that we sell to research institutions around the world to put into inks, batteries, tires, and photocells, you are asking me how much of that should you consume on a daily basis?

We thought the answer was zero. We added not for human consumption to our labeling in mid 2013.

Rat longevity study and early human interest

So think about from 1991, all the way to mid 2013 we don't have not for human consumption on our labeling because it's not a concern right now in mid-2013 we add not-for-human consumption to the labeling and and that actually continued with another type of wacky phone call so We're getting these phone calls after we've put not for human consumption on the labeling, and the phone call would sound like this, like Joe calls me and he's like, hey, Chris, my knee pain is gone.

And I'm like hey Joe, you mean the knee of your rat because it literally says not-for-human consumption in the labelling. Joe goes, yeah, if my rat weighs 275 pounds and does HIIT training on Tuesdays and Thursdays, should they take more servings on Thursday and Tuesday?

And we knew what was going on, and even though we had put not for human consumption on the labeling, it was clear in the literature, this molecule's safe, right?

In fact, not only is it safe when they threw it in a toxicity study, the rats live 90% longer. And are there human studies that demonstrate safety? Well, safety, we're working on those.

We've actually just finished. So we are a very weird supplement company. And what I mean by that is we actually continue to do research and we continue publish.

Most supplement companies don't research, and they don' publish, right? We published a paper in May of last year and in June of this year. When you think about human trials, one, there will be no longevity human trial, like if we think in terms of a 90% extension of life, the average human would live to about 150. By the way, that's not the oldest human, right?

My brain, the first time I thought about that number, I was like, oh, oldest humans. No, That's a bell curve around 152, Right? So we're probably not going to do a longevity study.

And I think it's even fair to point out this is a very specific type of rat. Right? And because it's a particular type of rat, like maybe what was happening with the ESS-60 was addressing the issues that particular types of rats has.

Do I think humans are going to live, you know, 90% longer? I don't think that's what's going happen with this. Now, I do think it is unreasonable to think, hey, here's something that extended the life of the rats.

It probably didn't have any other benefits. That's extremely unlikely. And then our testimonials and our kind of understanding of how we think this molecule works is definitely supporting that.

I will share, I'm only aware of one trial. It's just kind an ad hoc trial I was in the conversations with a Dr. Benjamin Smarr, well I think it was just Benjamin and Smar at the time.

He was a doctoral candidate out of San Diego, actually. and he was consultant for ORRING. So because our most consistent testimonial involved sleep, Orang, this makes sense, and he was interested in the data, had access to back-end data.

And at the time, This is pre-pandemic, we were going to, with customer permission, get access the back end data and kind of figure out the sleep thing.

Well, it turns out, the Oring is pretty good at identifying COVID. So he just disappeared and I've actually kind lost contact with him. Even when he disappeared, we continued to do the study.

So it's a crossover study, We collected 10 days of survey data while people, before people tried the product, 10 Days when they were on it, ten days back off of it and ten Days back on.

100% is small cohort. It's 10 people. We're working on getting more through it. But at this point, 100 percent of the participants have reported improvements in sleep when they're on the product.

And this confirms with our data. So in terms of human trials, we're about to start a clinical trial on migraines, and that's a very interesting story why we are doing that.

I feel like that story sounds a lot like Chris should have been smarter and started it sooner. but that's okay, I'm happy to tell that story. We're also doing a trial on HSCRP, which is an inflammatory marker, and continuing to do that.

And we also have a, because we have cosmetic product, we're doing wrinkle and age spot study as well. fascinating. It's kind of like there's lots of utility across sort of industry.

Sounds like, there is lots utility for the human body. I mean, you just mentioned migraines, wrinkles, longevity. What is it that makes this molecule behave differently than other antioxidants or supplements?

Like, we think of curcumin or fish oils, especially pro-resolvent mediators, plant-based antioxidants. Like what is Because this isn't a naturally occurring molecule, is it?

You have to manufacture it. You can't extract it from something that already exists, right? Am I understanding that right. It's naturally occuring, so it's not like a methylene blue.

This is pretty cool. So this is really neat. Everybody in your audience has absolutely been exposed to this ESS60 molecule. And not through their tires or batteries.

Right, because we know everyone wakes up and gnaws on their or drink something out of their battery. No, if you collect the soot from a candle flame, right, and you would normally do this by putting a cold steel plate over your candle and that deep dark soote has parts per million or parts for billion of the ESS 60 molecule in it.

So everybody has been exposed to it, in fact, If you go out in space, there's just absolute tons. That was the reason this molecule was discovered is some astrophysicist was looking at spectra in Space and couldn't identify a particular specter.

theorized that it was a type of carbon that hadn't been discovered yet brought the concept to Rice University here in Houston and then they ultimately do well really the grad students ultimately discovered it and Then you know the lead scientists not the Grad students got the Nobel Prize Which is you how it works often, but yeah, it's a naturally occurring molecule for for sure It just turns out you can't, there's not enough to get out of the soot of a candle.

That's, not the best way to make it in order. By the way, our product is not like super expensive and it's. Not

inexpensive.

How ESS-60 is made and why itu2019s naturally occurring

And the reason that is where it is, is because in order to manufacture this ball, this ESS-60 ball you have to vaporize graphite in an inert environment at a reduced atmosphere.

Now it turns out graphites is one of the hardest materials on the planet to vapeurize. So it takes local temperatures of sun to vaperize it. As an example, we have a looking glass to watch the reaction.

If you don't use welders goggles, you will burn out your retina. if you let that light shine on your skin, You will get a sunburn like it is the temperature of the sun.

So that's kind of all some of a nitty gritty. Now, some people, in my mind, as you think about something that's been manufactured, you know, is it bioidentical or is that synthetic or whatever?

It's a molecule with 60 carbon atoms only. There is only one way to put 60-carbon atoms together. And so whether you collect it from that soot of the candle or from our reactor or there's other kind of plasma synthesis techniques that are less efficient, but are useful for manufacturing it, no matter how you make it it's the same molecule.

So there is kind of no difference. And our body knows what to do with it, it sounds like. It does seem like that. Yeah. So I have, you know, I'll throw out some crazy thoughts, right?

Some thought is you've got it in the sort of a candle. Maybe at some point in past, people had a lot more access to it because the light source that they used produced more of the molecule.

Right? So maybe there was some sort evolutionary purpose here for this, there's a book about this. I'm getting pretty out there. Sorry. There's a book out there called The Most Beautiful Molecule which is entirely about this, which I think is a great book, but you know, I might send you in this direction which my book called Live Longer and Better which has a lot of that same story of the discovery of a molecule of its kind of conversion into the health and wellness space.

And is it just for the set of a candle or is that also like a fireplace? Or if we think of an evolutionary perspective, is at a tribe around a fire would also be exposed to it or does it have to be a wax candle?

Yeah. So it would be parts per million or parts-per-billion in the fire, right? So it's not much and we've looked at it even maybe if you're consuming a charred steak, it doesn't seem to be in-the-charred-steak.

And, you know, there are places on Earth where it is known to exist. If you think about the K-T boundary, that's the boundary layer of Earth associated with the extinction of the dinosaurs.

That has elevated amounts of this molecule, but again, not enough to like mine. efficient way to get quantities that you could use for any kind of purpose.

So let's go back to how is this different from other antioxidants, anti-inflammatories? What's happening at a molecular level or at at mechanistic level at least in the body when it interfaces with ESS?

So one unique thing is that it's a selective antioxidant. Now, if it's okay with you, I want to walk through kind of my journey where I had to start figuring this out because this is kind fun, right?

We're getting these wacky phone calls from these biohackers, my knee pain is gone, and every quarter my business partner Robert and I are getting together to decide if we want get into this industry.

It's clearly some sort of opportunity and literally we meet in the conference room right behind me. I think it's generous to say that the supplement industry is challenged, right?

Like it is generous. And it certainly the opposite of delivering commercial quantities of carbon nanomaterials to research institutions around the world.

Right? There's zero intersection on that. Well, there turns out to be some, but I'll talk about that in a second. So every quarter we're getting together and we are like, do we want to get in this industry?

And we were like no, we don't. In this timeframe, and this changed in the latter part of 2017, but in that timeframe I actually found a peer-reviewed published research paper that showed 50% of the supplements this research group had purchased off the market didn't have in them what they say they have, right?

So the supplement industry is definitely challenged. So we didn' want to get into it. Finally, at the latter part of 2017, a guy with a big YouTube following starts talking about all the benefits he's getting, taking it on a daily basis.

And our phone went from ringing two to three times a week to 10 times day. Now at that quarterly meeting, Robert and I are talking it, and we thought back to that paper, where 50% of the supplements on the market don't have in them what they say they have them, we knew that was gonna happen in this space.

We're the oldest and longest manufacturers of this molecule on this planet. We've got the equipment, we've go the knowledge, We got to kind of the engineering skills to be able to do this.

And so we really felt we needed to get into the space, right? And then we asked ourselves two questions. The first is a moral question. Are we comfortable selling it?

I take it, my wife takes it. Everybody on our team takes. By the way, that's not a requirement. You don't clock in and take your shot of my vital C and get to work.

No, and really everyone who works here has access to the research like everybody else. And I think more importantly, they have access. All the testimonials, all the customer calls that are coming in.

So yes, everybody here takes And then the other question is the legal question. In the States, we've got the FTC and the FDA. You've gotta cross the T's and dot the I's.

So we really started bringing this to market at the beginning of 2018. That's when my title officially changes from chief scientist of a carbon nanomaterial manufacturing business to the chief scientists of the health supplement business.

And my first role was like, how is this working? Just the question that you asked you, you are actually asking one downstream question, which is how was it different than others, but how does this work?

And the first place we landed because our most consistent testimonial, people take it in the morning, mental focus and energy during the day, and then better sleep that night.

The first time I kind of hung our hat was, well, we're improving sleep. And we know that if you improve, especially in your space, right? Like I know, that right.

Like Dr. Matthew Walker wrote a book about sleep because he started studying Alzheimer's and dementia and realized sleep was so, you know. Right. Yeah.

Probably half of your protocol is like, make them sleep. Go to sleep and get good sleep Yes. And how do you manifest that? So if you get good sleep, you improve your mental, physical, and emotional wellbeing.

That's where we hung our hat first. Then I was like, how I dress this kind of longevity piece? These rats live 90% longer. I looked at the landscape of the medical community, not everyone agrees, that's how science works, but they tend to think it's an oxidation and inflammation process.

Mechanism: mitochondrial stress and oxidative buffering

In terms of an antioxidant, there's an ad hoc study on the web showing us to be 172 times more powerful than vitamin C. And then there is peer-reviewed published research showing to us be 125 times powerful that vitamin c.

So I live in Texas, we got a big old check mark on antioxidants. When it comes to inflammation, you have to really careful because the FDA equates conversations of inflammation with the diseases of the inflammation which are also the disease of aging.

Alzheimer's, arthritis, cardiovascular disease, cancer. The FDA literally has this perspective. If I come on your show and share that we address inflammation, the FDA hears me claiming we cure cancer and we care cardiovascular diseases, which we are not doing.

There is so much research and frankly expensive research that would need to go in to be able to make those types of claims. What the FDA does allow us to say is that we address inflammation due to exercise, right?

So we've all had a tough walk. We've had, you know, a rough workout or a longer walk than normal and felt that inflammation in our body. The FDA allows us say that address that type of inflammation.

And I'm going to add We are doing an HSCRP study. And HS CRP stands for high sensitivity C reactive protein. It's an inflammatory marker. The reason we're doing this study is because at last year's A4M, a Dr.

Young, Dr Lang Young came to my booth. He actually said this thing and then I was like, you have to say it again and I recorded it. So he said, Chris, I don't care if you're male, female, pre surgery, post surgery cardiovascular disease, otherwise healthy, your product will take elevated HSCRP numbers, and he was talking about nine and we can talk about that in a second, down to normal ranges, 0.9 in four to eight weeks.

It turns out, he also went on to say, it improves char V and sleep. They're seeing improvements between 20 and 60%. And he wrapped it all up with just saying, we think this is something we should keep in the break room for our employees.

And his condition. Yeah. Yeah, so powerful testimonial. And so now we're off and running. We're putting together the design of the HSCRP study, which we'll actually end up incorporating it with sleep because there's no reason not to do that.

So really excited about that, and then we still, once we get good results with that which I'm confident we will, we Still won't be able to talk about inflammation in general, but we Will be about frankly the marker that is most used when talking about Inflammation.

Excited about I have been talking for a while, there is the real answer to your question, but I wanted to turn it over to you in case you steered it in the wrong direction.

Well, I think like I'm still curious, like what's the mechanism? How is it reducing HSE RP? And I whenever we talk about inflammation, and listeners will have heard me potentially say this before, that I worry if we don't understand what caused the inflammation to begin with and we didn't address that, then we're just putting a bandaid on something.

get rid of the inflammation. I mean, this is like getting rid the beta amyloid plaques, right? Amylloid is a manifestation of inflammation in the brain, of neuroinflammation, and we're good at getting of beta-amyloids, but that doesn't get us a better cognition.

And so if we reduce the HSCRP, are we solving the problem or are just putting a band-aid on it? Or are actually maybe even increasing risk because we haven't addressed the actual problem, upstream problem?

Yeah, and I think that goes to something that I've always believed, right? When people, because I played semi-

professional soccer and the strategy when you were to get injured, cause that obviously happens, was to ice it and reduce the inflammation.

And my intuition has always been, this doesn't sound right. Right? Like my body's doing it causing inflammation for a reason. I have a knee sprain. And you probably should let the body do what it's going to do unless you have very significant like the evidence of stopping your body from doing what normally does and there are some times like I think we can even go back to Well, some viral infections.

Our body overreacts to viral infection, right? And so we probably want to manage that cytokine storm and that is where our body is not doing a great job and we actually want a quench what it's doing.

So there are some situations where that's absolutely possible. But I think we can all agree, chronic inflammation, and I agree with you, like if we could address the root cause, I've got a good analogy for this.

If we're going to address to the cause great, let me talk about my boss theory and then I'll think you'll see where we are seeing the benefit. So the boss is buffering oxidative stress system.

So we know from peer-reviewed published research that this ESS60 molecule gets into the mitochondria. We also know, from way back in the 90s when the molecule was discovered, that it can hold up to six negatively charged particles on the exterior of the cage.

And here's how that maps out. Mitochondria, right, powerhouse of every cell. There's between 50 and 5,000 mitochondria in every single cell in your body, except for your blood cells, which have zero, and your brain and neurons, that have two million.

It is amazing how much energy our nervous system uses relative to our… It's just mind-boggling. Yeah, pun intended, mind-boggling. So, like every power source, there is a negative byproduct, right?

That car we've mentioned already, when it's driving down the road, it has exhaust. The power plant has smoke coming out of the smokestack. In the case of mitochondria, its reactive auction species.

Now, I like to picture these like little bumper cars, right? Everything they just, if they're left to their own devices, everything they smack into, they are causing rust, oxidative stress, oxidation damage, ultimately, inflammation aging, is this kind of confluence of inflammation and aging.

Internal to the mitochondria have key antioxidants, which are glutathione and melatonin, to manage those reactive oxygen species. And the question is, is what happens when you stress a mitochondrion, right?

Well, first off, how do you stretch the Mitochondria? I like to point out you live in this modern society. You have stressed Mtochonria, like, and in some cases, disease states or, you know, tough workouts or tough conversations, flights and airplanes have additional EMF exposed.

Like, You've stressed mitochondry. We can agree. When it's stressed, it starts producing more reactive oxygen species than the internal glutathione and melatonin can manage.

And that's where we think, and that where they would normally go around like little bumper cars and cause this oxidative stress, oxidate of damage. That's were we thing the ESS60 molecule comes in.

It holds on to up to six of these negatively charged reactive oxygen species, so they can't run around and do damage. And then when that mitochondria replenishes the glutathione and melatonin, then they could manage them properly.

So I have a fun analogy. Hopefully, at least there's one line that has some comedy into it. I think maybe you would agree all biological analogies should start with Mardi Gras.

I mean, a lot of biology happens. I'm intrigued. Go on. So, with the end of Mardi Gras and it's the drunk reactive auction species on Bourbon Street, right?

Smashing cars, breaking windows, whatever. And you have the New Orleans Police Department, the glutathione and the melatonin coming on to Bourbons Street handcuffing themselves to those reactive action species and getting them off of Bourbons Street.

But what do they do when they're overwhelmed? They take those reactive oxygen species and they put them in a paddy wagon. They attach them to the exterior of the ESS-60 molecule so they can't run around and do damage.

And then when the New Orleans Police Department replenishes the glutathione and replenish the melatonin, then they could handcuff themselves to those Reactive Oxygen Species and get them off of Bourbon Street.

That's why we say that this ES-S60 Molecule is the boss, a buffering oxidative stress system. And the summary here is we believe that we're reducing the negative impact of stressed mitochondria.

If you reduce the impact, then you're going to have what we have, which are systemic head to toe testimonials. Right, right, where you're seeing that yes, it helps with sleep, yes it's helping with pain, and yes its helping me with wrinkles because at a very foundational level, you are essentially allowing the body to create more energy.

If you reduce the stress on mitochondria, your creating more ATP and then you also reducing the oxidative stress so there's less work for everybody to do, Yeah, okay, so that makes sense.

And inflammation, mitochondrial decline, oxidative stress, these are all buzzwords in longevity, right, because of this sort of inflamaging hypothesis.

So is there research that actually shows that ESS-60 is doing this at a cellular level in these different domains? Like what you just described, this like paddy wagon analogy, can you see that under a microscope?

How do you do research on that to understand the mechanism? That is a great question. And I have to tell you, I had an amazing conversation at A4M just this last weekend where I was going back and forth, prodding kind of holes in the theory, supporting the theories, and then saying, well, we can actually research this stuff.

That's one of the things, you may not know this, the reason most supplement companies don't want to do research is because they have a story and the story sells product and they're worried that if they do the research, they'll prove the I didn't end up here, I wish I could tell you as some genius who went back in the lab and I created this molecule.

I don't, didn´t win the Nobel Prize. Wish I can say I'm the genius that put this molecules in olive oil. And then I would say that I am the one who put it in a toxicity study.

But I guess a genius would have known that it wouldn't be toxic, right? Like all of these things. On this journey, kind of with everyone else that's out there, and i just want to know the truth.

The reality is, if this molecular doesn't do what we think it's doing, I think that's highly unlikely because of all the testimonials we have and all of the research in the literature that shows this ESS60 molecule supporting different systems in different animal models.

One example is In Beagles, reducing HSCRP is another reason we're doing the HS CRP study. So I'm confident, but I would rather know that it doesn't do anything and go on with my life in some other direction that actually delivers value to people.

I really would. And so I am not afraid of the research. Well, research is also very expensive and I think that is a hurdle for many supplement companies.

Like where will you get funding for this? Well, I'll tell you, there are four kind of standardized studies that you would need to have under your belt in order to get into like an organization like Whole Foods or Walmart or whatever.

And that's not necessarily our target, but we wanted to, well, really We felt if, if whole foods and Walmart require these studies, there are studies we should do, even if our goal isn't to go into those, right?

Like these are reasonable people thinking about reasonable things. You're like, um, you know, we were even advised, Hey, probably don't want to do these.

And I was like we want do the studies. They're the right thing to. The last study that we did was $150,000 study. Right? So this was, I'm trying to remember what the timeframe, I think it was a three month study on rats.

That's where all these studies are originally done when you're talking about these kind of confirmations of safety. And yeah, it's 150,000, we just paid for it.

Like that's coming directly out of my pocket and out my business partner's pocket, but it is the right thing to do, right? And you go out there and you do the things and then hopefully you get rewards downstream from that.

Research, safety, and translating animal data to humans

Yeah, that is a long term play. Yeah, interesting. So, and do we have any sense of, I know there's this RAT study that shows it increases longevity by 90%. But what about long-term efficacy and safety?

Like, are you recommending that people take this every day for the rest of their lives? And do you understand if there is any risk associated with that long term use?

Yeah, well, I think, there's a couple things here. There are very few instances where you're looking at, and I've heard of them, don't know of, them where, you are looking something that was safe in a rat, but not safe and humans.

They're just not too many situations. In fact, it was kind of an interesting journey. One of my questions kind early on is, hey, what percentage of things that do happen to rats?

happen to humans or that don't happen. The rats also don t happen the humans. And I was on this journey and I ended up actually my business partner kind of farther down the office.

We're back to back and our walls aren't the thickest. So I can hear his conversations and he was having a conversation with a Dr. Paul Kudabek. He was at DePaul University and i heard enough of the conversation that I had to go join it and Dr Kudebek takes rat studies and puts them into human studies.

I went over and I asked him, hey, I'm after this. What's the percentage of stuff that happens in rats that actually happens and humans? We intuitively know it has to be pretty high.

Otherwise, all these organizations require you do studies in rat's first. If that was useless, that would be dumb. That would just be cruel to rats. There's no reason.

It's already bad enough. There's no reason to do it if the data you're getting is of no value. So I asked him this question and it was very interesting.

He gave me a very long response because he didn't, you know, it would have been nice. 80% would've been a great number. But he gave this example. We said, listen, many scientists will use one particular study to tell you that what happens in a rat doesn't happen in human.

And in his case, he talked about there was a morning sickness drug. They gave it to rats. No problem with rats, they started doing a human trial. And it turned out that it was causing deformities in the fetuses, unfortunately.

Right? And a lot of scientists will say, see, what happens in a rat doesn't happen in human. Well, if they had looked at the foetuses of the rats, right?

If they have procreated and they look at fetus, they would have noticed deformity and therefore they wouldn't have brought it to a human trial. So his example is like, they used this one, but it was actually the wrong study.

The rat result was, actually, applicable. They just didn't look at it if they were looking. Well, in the Alzheimer's space, I just want to jump in real quick, because in Alzheimer space what we see is that Dr.

Bredesen has said this over and over again as a neurologist. He was a bench scientist, very much focused on research and mouse-heimers, as he calls it.

And what they saw over and over again was that what worked in mice did not work in humans when it comes to age-related cognitive impairment. Well, so I've got a question because I don't know.

Because I know this is true in some situations. They're genetically modifying these rats for Alzheimer's, right? And so, it's actually a different mechanism.

It's simulating the end result, but when you genetically modify something, then you can treat the downstream effect of that genetics, which is very different than treating the disease, I think.

Well, you would think that, ApoE4 for positive patients, that they're basically genetically set up for Alzheimer's. And so would it translate from a genetically modified Alzheimer, high Alzheimer risk mouse to a high Alzheimers risk human?

I mean, You would hope, right? Like that would be the goal. But what they found over and over again is that it doesn't. Interesting. By the way, I have to ask, why do you think Well, I think mice and humans, although they're, we're both mammals, right?

And it makes a ton of sense. I understand why mice are used, mice, and rats are use. They have, they have quick gestation cycles. The age, you know, the, have short life spans.

And so you can get. you can get a lot of information very quickly, right? Like you mentioned, if somebody's going to live to be 150 or even 125, even 80, like we're talking, this isn't really going be useful in our lifetimes.

Now, that doesn't mean it's not worth doing, there's these long-term Harvard studies, and there are a bunch of studies that have… lasted a long time and we get a lot of information from them.

They're really very helpful, but they're very expensive. they require passing them down and having the people behind you have the same vision for the future of the data that you're collecting and the publishing.

There's just a lots of variables that go into the viability of that. But with mice, they're not humans, right? The variables are going to be different.

Humans live human lives with so many different, I mean, diet and exercise and a mouse is in a cage and maybe there's a hamster wheel or there is a water maze or whatever it is.

And the variables so limited. You can really hone down into one or two things. I think what we see over and over again in Alzheimer's is that this is a multimodal, we need a multi-modal intervention.

There are multiple variables that are not mutually exclusive that lead to this disease process. And so I mean, that is one of probably many reasons that we could come up with of why the mouse studies, at least in the Alzheimer's space, do not translate into humans.

Interesting. Yeah. No, because it's true that they don't all apply, but there is a reason we do studies in mounds.

Now, there one other piece. I found this fascinating, as I was digging down that rabbit hole, is that, did you know that humans are more genetically similar to rats than rats are to mice?

That's fascinating, no. Right, so so counterintuitive, right? Like they look the same, clearly they are the, but we're genetically closer to rats than rats are to mice.

That's wild. Yeah, I mean, we're still just different, right? They're not the same species. So plus both mammals, but like whales are mammals too. But we got to find a way to get the preliminary data that can help us give us the insight so that we can at least make educated guesses about what to put more resources into to study in people.

I think there are ethical things that come up and people get upset about using animal studies, but I think it also makes a lot of sense and we need to do that.

I want to switch gears a little bit. You're in this unique position. Like you're a scientist, you've done some improv comedy, right? I got that right.

And so I'm curious just how humor influences your scientific communication. We've already had a taste of that today. But also I wanna take it even one step further.

What do you think laughter itself can provide as a longevity tool? Wow. You know, I haven't actually, one, been asked that. So great question. And then two, we've spent much time thinking about it.

There are people out there who claim to have cured their cancer with laughter, right? Like they just sat down and I think that laughter probably has, the thing that kept popping up as you were kind of describing these mouse lives and human lives, like these mice just don't have stress.

Right? Like if you were randomly shocking them with societal destruction, like the threat of a societal disruption, they might do better or worse or probably worse, right?

Or those treatments might not work, Right. The things that work on Mausheimers might now work if they're stressing them all the time and humans just live in this stress state.

And I think it's interesting. I've never thought of, is the opposite of stress meditation or maybe it is laughter. Right, maybe laughter is actually the Opposite of Stress.

Yeah, we're social, and meditation is very isolating, typically. And I think that maybe both are the opposite of excessive stress, right? Because some stress is good and important.

But yeah, what we notice And there's data to support this both in a learning environment for children, but also in an engagement environment. For older adults is that when you're having fun, you have more synaptogenesis.

You basically are creating more connections versus when are in under stress. it's just harder to remember things. It's harder create those connections.

And I think most of us can relate to that, right? When we're having a good time and we are emotionally engaged in a positive way, we remember the details.

We remember what people were wearing or exactly what they said and when we have this emotional imprint and then when were under a lot of stress like stage fright, It's harder to remember what we're supposed to say, or it's hard to to what that person just said to you if you're about to go give a talk.

There's lots of different scenarios where we are under a lot of stress and we were distracted, but it is also just hard too imprint memories when you are high stress.

So if actively create fun, than spontaneity, but certainly humor. We see that people, it's easier to create new

memories and to retrieve memories. And that's, It's kind of fun.

Humor, improv, and laughter as a longevity tool

I think I, part of what I like about that story is that it doesn't have to be this grueling homework to go do your brain games and get to sit at a computer and do the latest thing that's come through on Facebook to flex the muscles of your brains.

It's like, no, go play card game and go, play Twister. Go do something fun with people you enjoy. You mentioned, like, studying. I think there's a reason we all still remember our favorite teacher.

Like, however long ago it is, it doesn't… I don't, when I die, I will still, remember my teacher, but I'm not sure I remember his name anymore. But he was my science teacher and also my soccer coach.

All right. Like I, I just won't forget him because it was a learning and I did see a meme, right? Doom scrolling. Don't do that. But I didn't see him mean that was like kids learn, you know, the percentage of how they learn when they're playing a game versus whatever learning time and the synaptic, uh, connections were, 10 fold higher when playing.

It's not a, it's actually learning. Yeah. Yeah, like playing cribbage or cards with your grandkids and teaching them to count and you remembering how to account and like flexing that muscle, it's emotionally engaging.

It's fun. There's laughter there, you know, all these pieces. That is, I think, so much more valuable than going online and doing like brain games or even playing Sudoku or a crossword puzzle where it is very isolating.

Anyways. I thought with you being interested in comedy, You'd have some insights on that. So thank you. Well, yeah, well, and I'll add. I mean, I would highly recommend anybody go take an improv class because I think that the skill, there's a, you know, a couple of skills that you can learn in there, which are incredibly valuable.

And, one of the, the first rule of improv is called yes and where you're on stage with a partner and. anything they say. It doesn't matter how it doesn' fit with the story you created, it does' matter, how crazy it is, just nothing matters.

Your responsibility as the other actor is to say yes to what they said, to embrace it, and then to take it somewhere. That's the and piece. And the word that you are never supposed to use on stage is but.

And I think any time, and butt is a word we use all the time. I'm sure we've used it lots of times and I've out of practice. So I am sure I have used lots a times.

When you stop and you start thinking, one, this is great exercise, good for kind of mental flexibility. when you say, hey, I going to go through days without using the word butt.

Anytime you can hone in on your language at any level like that, it's really good for you, right? Cause it really makes you aware of, you know, how many, the reality is the word, but creates a fence.

It creates in the world and creates. Right. And that's. Yeah, hugely valuable. I remember in undergrad, I had a teacher, a psychology teacher who challenged us to take but out of our language and to use and instead.

And it was a bit stressful because anytime anyone spoke in class, if they use the word but, he would stop them. But it changes the dynamic of the conversation pretty radically.

Yeah. It's amazing. You know, people who are listening, right? Think well, age well. Who are looking to add five good years to their life. And a supplement would be a great way to do that.

But it's, it sounds like an easy pill, Right? I want to, I wanna hear from you, like putting this in the context of living longer, living better. What did you see as the simplest, highest impact steps that you would suggest someone take

with ESS-60 included or not?

So, I mean, the first thing that I would say is if, you know, kind of like the fun, whatever punchy nature of a health dumpster fire. If you're a Health Dumpster Fire, frankly you are not going to take any product on the market and get better, right?

Like that's just not gonna happen. You need to do the basics. I actually did a longevity summit. It's called longevity fast track. it was eight weeks.

The first four weeks were the most important. Week one was mindset. And frankly, if you don't have the mindset to change, you just spend all your time working on your mindset, right?

Like, cause everybody knows that they need to make some changes or maybe you're perfect. And so don' worry. I won't debate you. The next is sleep, Right?

You need improve sleep. the next exercise. Next is nutrition. and you could probably change exercise and nutrition, but I do think mindset and sleep are in the right order.

You gotta get those things right, right? And I think we can help with some of those. Certainly our most consistent testimonials related to sleep, but you gotta those right.

And if you're not getting those thing right don't go out and purchase a bunch of supplements. I'm gonna tell you my supplement isn't gonna be the magic pill.

It can't help in certain areas. The way we really think about our project is our product is more of like a three month time frame. Here's how I'll map that out.

So month one we often hear people talking about focus and energy. And remember our most consistent testimonial, right? Focus on energy. And what really kind of landed me there was one testimonials.

We sent some product to an influencer. She took the product in the morning, recorded her video in evening, and she pointed out that she didn't finish her cup of coffee.

Now, if you're a coffee drinker, that's a big deal, Right? One, If you didn' finish it, That's big a deal. and two, you even noticed that you don't finished it.

Like, THAT's BIG DEAL. And I'll share, I used to be a two to three cup of coffee a day person. I'm now, really I am a half cup a, day, but I actually put some of my product in my coffee.

So then I finish it because it's in there and like I, am thrifty that way. And so, that's what we think about in terms of month one. In month two, it is that sleep.

I think it takes sometimes a while for people to notice. Well, really to noticed that the sleep is impacted by us. The reality is, is every day we're all getting a little bit more, a bit less sleep and do you really notice that that started on Tuesday, right?

Like the answer is no, but they start to noticing and we get a lot of customers who are like, I didn't notice anything at three months. Please cancel my subscription.

And then they write back a week later and they're like oh, please put me back on subscription, and I now know what the benefits were. So sleep is month two.

I'll share, I have a business coach. My business Coach, what he says is that for 50 years, he needed an alarm clock to wake up. And when he started taking the product, He wakes up before the alarm.

Now he's a Business Coach. So he like doing business mixers, doing late night business dinners.

Practical longevity advice and how ESS-60 fits in

None of that matters. He wake's up Before the Alarm Clock. Except with this caveat, if he doesn't get the Product for about 10 days, then he'll start to need the alarm clock.

And then finally, and we just have to be so careful here. If you think about reducing the negative impact of stress mitochondria, this will have systemic benefits.

Like I get on podcasts sometimes and they're like, well, do you it might help, I don't know, the kidney? And I'm like well do the kidneys have mitochondrionum?

Yes, they do. Then it probably will help the kidney, right? And we've got even in the original study testimonials related to antioxidant capabilities inside the liver, which is, you know, a really important detox organ in your body.

So month three is kind of more systemic and we have to be careful about what we say. I'll share my father-in-law was walking with a cane right at about the three month part, actually stopped using the cane and started walking more.

Well, the walking, more caused him to lose weight, not our product, but the And then he lost weight and continued, like he walked even further, right?

So that's kind of the systemic benefits that we see kind month one, month two, and then month three. Fascinating. So do people need to watch out for carbon products that are not this particular molecule, but maybe sound similar?

So in industry, the molecule is often called carbon 60. And there are carbon-60 supplements on the market. Part of the reason that we started thinking about, by the way, ESS- 60 stands for elemental safe spheres and 60 atoms, right?

The element is carbon. We kind of decided to separate ourselves from that and we think of it this way. C60, carbon 60 is for industrial purposes and there's peer reviewed published research that proves if you process it improperly, it's harmful.

ESS 60, is C 60 that's been processed for people and pets. I'll share with you in the C-60 space, there are more than one product that don't have any C sixty in them at all.

and they're marketed as a C60 product. So it's a shame. I don't know how people go to sleep at night, but they seem to. Can you look for like GMP certification or is there something?

I will tell you, one of them is actually G&P certified. Oh, wow. Right. One of the things, the test that the G & P has to do, so if you're a G N P certified…

This is good manufacturing practices. Yeah, yeah, right. To certify supplements. So when, when the raw ingredients arrive for manufacturer, um, and potentially it's the final product, I don't know, in order to be kind of finally produced, they have to figure out how to test for the molecule.

And I can tell you they're clearly not. and, if they are there, They don' know what they'r testing. Cause I've, actually had debates. This guy actually came up to me.

He had a booth at Hack Your Health in Tampa. came up to me and was like, oh, I want to thank you, Chris, for what you've done in the C60 space. And I was, like thank, you but I think you're damaging it, right?

Cause I don't talk poorly about, and I won't even mention his name, but, don' talk, poorly, about companies in general, because I, think it's bad for the industry, Right?

Like they say bad stuff, we say, bad, stuff like that's not good. I actually did a video about this guy's product, Because I Don't believe he's in my industry.

He is just pretending to be in, my, industry and that,'s very frustrating. Yeah. Okay. So it's, I think this supplement world, there's some caution signs, right, around what's out there and making sure that you're getting what it says is on the label.

I remember that study that, you mentioned when that came out and it was like, There might be grass clippings and you, and your like ashwagandha from GNC.

And so just being careful, using brands you trust, talking to providers, making sure that you're getting what you think you are getting. Because it doesn't work if you don't do it, right?

And if your getting grass clippings, it's definitely not going to work. And that's challenging. So navigating that can be an issue. But I think I want to make sure people know how to get your product if they're interested.

How do they find out more about you? You've got a podcast as well, so people want learn more. Where can they go? Well, so we've made a link for your audience and so they can go to myvitalc.com forward slash think well, right?

Cause we all want to think. Well a couple of things as they land on that page, there is a $30 coupon just for audience. You got to go that. Page to get it.

So go there. I did a longevity summit that you participated in. so interviewed 55 experts, including you and Dave Asprey and Ben Greenfield and Dr. Steven Gundry and I kind of consolidated 15, actually it's 18, we give you a bonus, but 18 biohacks.

So for free, you can get that list of 18 Biohacs that are worth kind pursuing. You just need to give your email. On that page, because we think of our product in kind three month timeframe, I've actually put together a good discount.

There's a 40% discount on kind larger quantity. but you can get two bottles at a good discount, three bottles and six bottles. And the six-bottles, our mindset was, hey, we think in three months, why don't you buy some for you, give some to somebody else who probably needs it and enjoy, or keep it, that's fine, and then enjoy that 40% discount.

Every one of those offers has a little bit more discount on subscription. Our customer service team has 1,000 five-star reviews. They are not trained to talk you out of canceling your subscription, you cancel it at any time, they're there to support it.

It just turns out people don' cancel their subscription And then I did briefly mention we have what's called a skin redo-o set. It's an amazing peptide.

We call UTH 29, which is cool because it stands for youth 29. Apparently the age all women want to stop aging at. That's been confirmed by a number of people.

And it's a water-soluble peptides. I wanted to put it with our oil soluble ESS-60 molecule. You can shove things together with an emulsifier. I don't like how emulcifiers sound.

And if you Google the health benefits, there are none. There are only detriments. So we left these as a two-part. right in your hand and you just mix it right into your hands.

So the second thing that's available there is we call it the inside-out set. It's this Skin Reduo Plus R Oral Consumable Olive Oil product. Same offer 2, 3, and 6. And then finally the thing I'm most proud of, the book, Live Longer and Better, is about this whole story is available on Amazon for $19.95. Its also available for that page for For 10 extra dollars, I will autograph the book for you.

100% of that $10 fee goes to Operation Underground Railroad. You may remember the movie, The Sound of Freedom, which is a great movie about a horrible topic, Which is child sex trafficking.

Operation, Underground railroad is doing an amazing job of trying to get child, sex, trafficking off of our planet.

Product quality, supplements, and where to learn more

So a hundred percent of, that signature fee, goes, to operation underground railroad. Well, Chris, thank you for bringing this blend of purpose and scientific curiosity, clarity and, of course, humor to our conversation today.

Longevity research, I think, can feel overwhelming, daunting and complex. And I, think you've helped us zoom out and then look at aging through this lens of possibility, kind of foundational mitochondrial support versus an inevitability.

So I really hope that listeners take away that there might not be one single molecule or supplement or strategy that is the answer, but there's this ongoing commitment to understanding our bodies, supporting our cellular health, and making thoughtful choices so that we can age healthier and live more vibrant lives.

So if today sparked questions or curiosity, that's a great sign. I'm so excited that you're paying attention. And I'm so grateful to you, Chris. Thank you for joining us on Think Well, Age Well.

And as always, take what resonates, listeners, and keep asking great questions, And keep continuing to care for your body and brain with intention. So grateful for you all.

Until next time, be well. If you enjoyed today's conversation, please take a moment to subscribe, leave a review, and share this episode with someone you care about.

It's one of the best ways to help others discover tools and inspiration for aging well. To stay connected, get bonus resources, and never miss an episode, head over to drheathersanderson.com and join my email list.

Until next time, keep thinking well and aging on purpose.