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**Dave:** There's problems with milk protein, but milk fat is like the most important thing.

**Stephanie:** If mom is C 15 deficient, then her milk is C 15 deficient, and her baby's C 15 deficient. If we have C 15 deficiencies, we develop a new form of cell death called phoroptosis that accelerates our aging. So our job to get C 15 back into our lives, slow our aging rates, and then optimize C 15.

Get us a little closer to your goal, which is to live longer. Study showed that people who have more C 15 on their complex lipids had younger biological ages than their chronological age.

**Dave:** How much younger? Dr. Stephanie Venn Watson isn't just a scientist. She's a veterinarian, public health expert, and award winning lipid researcher whose biggest breakthrough started in the most unexpected place, studying the health and longevity of dolphins for the U.

S. Navy. She discovered that the healthiest, longest living dolphins Had something in common, higher levels of a rare overlooked fat that protected their cells, boosted their metabolism, and kept them biologically younger. The Twist humans used to get this same essential fat in our diets. But thanks to modern food processing, we've nearly lost it all.

This essential fat is known as C 15 zero, and it may just be the missing link to cellular health, sharpened brain function, and one of the ultimate keys to slowing down aging.

**music:** You are listening to the Human Upgrade with Dave Asprey.

**Dave:** Stephanie, thanks for coming. Overlooked fat that protected their cells, boosted their metabolism, and kept them biologically younger. The twist? Humans used to get this same essential fat in our diets. But thanks to modern food processing, we've nearly lost it all. This essential fat is known as C 15 0, and it may just be the missing link to cellular health, sharpened brain function, and one of the ultimate keys to slowing down aging.

**music:** You're listening to The Human Upgrade with Dave Asprey.

**Dave:** Stephanie, thanks for coming into the studio to do a live interview in person in Austin. Our last conversation over the remote podcast, uh, was really popular and you've had a few critics come out and really just say a lot of really negative things about your research.

And so I, I just wanted to have you on the show so that we could really have you apologize for saying you've discovered a new. A new essential fatty acid, the first one in a hundred years. What do you have to say to the trolls?

**Stephanie:** Yeah, uh, gosh, Dave, you're, you're right. No, no, that's actually not why, not why I'm here at all.

I, I have to say, we always appreciate skepticism. You know, a lot of crews have, have earned it. And we have to be there to rise to the occasion to help respond to questions. The good thing is that, you know, it's like my whole life, the life of my team, we've all been science first, right? So it's been a road, it's been a 20 year journey of science that has led to today.

It wasn't an accidental. or an intentional finding to go make a buck, right? So, like, you and I, like, we're, this community is in the world for exploration, to be able to find places where you fail fast, but then when you find something, you follow the science when you have an opportunity to help improve health.

So, I think what, you know, a lot of people maybe didn't recognize is that, that there was a decade of science and studies. All offended by that.

**Dave:** No, you, you talked about that. It sounds to me like there was a bunch of young, cynical people saying, I'm gonna get some attention by taking down some new research based on old research that they'd been taught.

**Stephanie:** Yeah. Right. And

**Dave:** it's funny because I, I get a lot of weird requests to be on the show and I say no to them. And when I first looked at what you're doing, I'm like, okay, this is like a dolphin researcher. What the heck? But then I dug into what you were doing. I'm like, this is not a new finding. And I've had a bunch of, of new innovations come on the show.

Like the original urolithin. Researchers came on, the original spermidine researchers. These are major longevity compounds before they're well known, but for every one of those, there's ten people saying, I have this magical unicorn sauce, and no. So I thought you really passed the test and since our last interview, what additional research has come out about fatty 15?

**Stephanie:** So a lot. So there's been a huge year from 2024 for the research around C15, around the pure C15 ingredient that's in fatty 15. So for example, you know, we talk about C15 being the first essential fatty acid to be discovered in over 90 years, right? This is the. giant discovery. We put the stake in the ground and said, and here's why.

And we published that in scientific reports. So, since then, in this past year, we've had now four independent groups come out throughout the world challenging, is C 15 actually essential? Does it meet the criteria of a nutrient that our bodies must have? And if we don't have enough of it, our bodies fall apart.

We develop a deficiency. So what those other, um, groups did is they did the gold standard studies in models in worms and in mice, um, and it, looking at All of the data that are existing in humans. And if every one of them independently concluded, yes, C 15 meets the criteria of an essential fatty acid.

**Dave:** What are the other two?

**Stephanie:** Alpha linolenic acid, so it's an omega 3, and linoleic acid, which is an omega 6. They were discovered back to back in 1929 and 1931 by George Mildred Burr, uh, husband and wife. So it's been a while. So it's, you know, I get, so there's a reason to ask, how come that there's a dolphin veterinarian come out and Make this big claim.

We had the data to support it. We published it in the peer reviewed literature and importantly. Now we have others coming out and publishing the data and showing that it's meeting these criteria that if you give a mouse that is pregnant and you make her C 15 deficient, she has a baby that now has a nutritional deficiency.

And when you restore C 15 back into that baby, the nutritional deficiency goes away. So they're basically the one state that had a worm. But they showed that the worms, if you removed all nutrients from their entire diet, baby worms, then you know, they stop growing and they go into this like this sleepy state.

And they found that if you gave them just C 15, no other nutrients, their neural development matched that of a worm given a full. Wow. So it's like, yeah, so it's, it was good that the dolphins had something to teach us. We put it out there and now having the world be able to come out with, you know, validating studies has been important.

There have been two clinical trials with the PRC controlled clinical trials showing benefits. So it's been a good, it's been nice to see, see the world help validate.

**Dave:** For listeners who didn't hear your last episode, how did you discover C 15?

**Stephanie:** Yeah, so bees. Just kidding. What? Uh, dolphins, actually. Now that makes it sound even better, right?

Yeah, so I'm a veterinary epidemiologist. I was working for CDC, World Health Organization. And was recruited by the Navy to help lead a clinical research program to help continually take good care of older Navy Dolphins, as we talked about before, Dolphin, the Navy's taking care of the sustained population of about 100 bottlenose dolphins for over a year.

60 years now,

**Dave:** that's crazy,

**Stephanie:** crazy, right? And they live in the open ocean and the wild dolphins live on average to about 20 dolphins in the Navy are living to 40, even to 50, some even beyond. So we had this population of geriatric dolphins and that we're getting high cholesterol, chronic inflammation, fatty liver disease, even a deathful suite of changes consistent with Alzheimer's.

And importantly, Dave, what we saw was that some of the dolphins, but not all. we're developing these aging associated diseases. So we were able to use this advanced technology called metabolomics to find out which small molecules predicted the healthiest aging dolphins. We thought it would be omega threes because all they eat are fish, right?

And, uh, instead it was C 15, which was like, well, what is C 15? I've never even heard of this fatty acid before. As the top predictor of of healthy aging dolphins. So that in itself was a 10 year journey of understanding the pathophysiology of this condition in dolphins, understanding what a C15 nutritional deficiency is.

There's actually a clear definition behind it that is well backed by lots of studies now. And we think that is present in as many as one in three people globally. C15 deficiencies, we develop Yeah. We'll be right back. The cell death, new form of cell death called phoroptosis that accelerates our aging.

So our job, this is a movement to get C 15 back into our lives, slow our aging rates, and then optimize C 15 to get us a little closer to your goal, which is.

**Dave:** And it's kind of funny, the number of details you'd have to pay attention to only an epidemiologist could do. And to be really clear, I generally make fun of epidemiologists because you'll see things like, and I apologize Dan Buettner, lovely human being.

Epidemiologist. He's like, well, I saw some data and they beans. Therefore, beans are the thing. And there's no mechanistic evidence behind that. And we talked about that on the show, and I'd have him back on any time to talk about things. And so for blue zones, it Turns out epidemiology, it just shows correlations, but it doesn't show any cause.

So you found, oh, the dolphins, some are old, some are young, even though they are the same age.

**Stephanie:** Yep.

**Dave:** And the type of fish that they like to eat was what was driving this. That's right. And then, what did you like, put the fish in blenders and find out what was in them? In fact, it was

**Stephanie:** a bass o matic. You know, I was just, we're just watching.

A bass o matic. So it's during the 50 year anniversary of SNL, but so, they, What we're able to do is, um, we were lucky enough that the, you know, the dolphins are given options, in some cases, of five different types of fish. So it was the types of fish that they chose that really dictated did they get an adequate or a low C15 diet.

So the fish get routinely tested for, uh, as just part of the preventive medicine program. Could you imagine that? Like if everything that you ate Every day was sent out to a lab to test for all the different nutrients and you knew exactly on every day which nutrients you got.

**Dave:** Have you seen the recent AI studies where they're now able to translate what whales are saying?

**Stephanie:** There's really cool science coming out showing now multiple cetaceans are, have names.

**Dave:** Yeah, individual names and they can't have directional stuff because it's underwater, but they talk about their pods and their family and identifiers and all this cool stuff.

**Stephanie:** Yeah, we just had to get smart enough.

**Dave:** So when our AI systems get a little bit better, do you think bottlenose dolphins, that they're sitting there going, I'm a biohacking dolphin, I don't really like the taste of this pinfish or whatever, so I eat them because I'm a better dolphin than you, do you think that's going on?

Yeah,

**Stephanie:** I'm pretty, I know that they're egging each other. Like you're eating

**Dave:** a junk fish, ha ha, I kind of feel like that must be going on.

**Stephanie:** I'm pretty sure. Pretty sure for even just from the personalities that we would see in the different dolphins that, yeah, you have some smack talk going on in a, in a fun way.

**Dave:** If the dolphins had a nickname for you, what would it be?

**Stephanie:** Oh, data girl. Or, or it would be a vampire because at the point at a certain point we were you know, they actually develop part of this, uh, cellular fragility syndrome. I see 15 deficiency syndrome is they develop. Iron overload in their livers.

And so the way we were treating it, we didn't know the cause at the time, but the way you treat it is the same as what you do in people, where you pull blood out. It's phlebotomy. And by pulling out blood, you can get the iron out of the liver. So same with dolphins at work. So anyway, they, I would always take whatever, whatever blood they had during those sessions, I would put it to work in the labs.

**Dave:** Right away, swim, swim fast. It's funny, in longevity, when people have high iron, it turns out you can reduce iron and you live longer, which is why some people give blood if their iron is too high. So there's evidence for that. But that is intriguing. Does that mean when people have iron overload, they might really have a fatty 15 or C15 deficiency?

**Stephanie:** Yeah, that's it. That's exactly it. So

**Dave:** evidence in humans for that?

**Stephanie:** Yeah, same thing. Holy crap, really? Yeah, yeah. So, so the what we have found is that, and again, what was great about The dolphin, the dolphin patient pie. It was so clean. 'cause if you, if you took, you know a hundred people, that we'd have so much debris.

So you take everybody sitting in this room, right? Mm-hmm . And we have a diverse enough lives. It would be hard to be able to be like, okay, this one thing is gonna mean something to all of us. 'cause you just have very diverse lives. Mm-hmm . But with the Dolphins, it was such a similar. population getting a similar exposures.

So what we were able to show is that when C 15 levels in our cell membranes get low, because we need a certain amount of it just to stabilize ourselves, when it gets below 0. 2 percent of total fatty acids, the cells get fragile, hence cellular fragility syndrome. That includes red blood cells. And so when our red blood cells get fragile, we have Khufra cells in our liver, which is their whole job, not their whole job, but part of their job is to sit there and engulf weak red blood cells.

Which is great, because then they would recycle the iron and put it back in the body. But, when you have a lot of fragile red blood cells, then those cells in the liver get overloaded, and what's left behind is iron. And over time, it accumulates, and you've got a bunch of free iron sitting in your liver.

This now in humans is called Dysmetabolic Iron Overload Syndrome, or DIOS, and it then results in this spheroptosis, this new form of cell death, lipid peroxidation of fragile cells, which is with iron, you get, reactive oxygen species, mitochondria taken out. Oxidized

**Dave:** LDL. There

**Stephanie:** you go. Yeah. Oxidized LDL spills over to the brain, to the heart.

So now it's, and we were able to show that this is the phenotype of C 15 deficiency that causes this. And then we're able to then reverse it, right? Just by putting C 15 back into

**Dave:** our bodies. Crap.

**Stephanie:** Right.

**Dave:** So. Anyone listening with iron overload, it's unlikely to cause harm to test having some C 15 in your diet.

Or, I'm just gonna say this, if you've listened to this crazy guy telling you to have cultured, grass fed butter for the last 15 years, Is there a C 15 in butter that's cultured?

**Stephanie:** That's funny you should ask that. Oh

**Dave:** my gosh. So,

**Stephanie:** so, you know, we now know, as far as like, how did we create, how did we get to where the world one in three people are C 15 deficient?

It's, you know, we've moved away from what you have. The known and appreciated all along, right, which are we have healthy fats in our dairy fat and ghee and in butter when it's when the cow is fed grass, it has twice as much C 15 than cows that are fed corn. And so that is one reason why it's those foods are healthier for you.

And you know, one of our calls to action is to help help the dairy industry to report what it. What are the C15 levels in your product? Because I would, I would buy that product if it had a higher C15 in it. If I was looking at different butters, I would choose the one with the highest C15. So

**Dave:** it's funny if you look back at this group called Weston A.

Price, I'm anthropologist and I think also an epidemiologist if I remember right. This group was originally saying, well, let's look at ancestral foods and the correlation of those with straight teeth and a lack of degeneration. So some of the very early thinking behind my fertility book and my longevity book comes from a book called Nutrition and Physical Degeneration.

Are you familiar with these works?

**Stephanie:** Yes, yes, yes, absolutely.

**Dave:** And he hypothesized that there was a magic factor in butter, and he didn't know what it was. And it was the thing that was causing all these health benefits. And most of us, including me, have said, well, it was probably vitamin K2, right? But there's no evidence that it's just one factor in butter.

It was probably two factors, given what you're saying. So, and they would also tell you fermented butter is better, which is why I always recommend that when you can get it, which is also why unsalted carry gold, which is mostly grass fed. That is fermented and the salted Kerrygold is mechanically separated.

And I, like, I don't know why my intuition tells me and I can feel the difference. You want the fermented stuff, add your own salt later.

**Stephanie:** Yeah, I can actually tell you why the fermented is better. Tell me why. Oh, yeah. So, so when it's fermented, it's great that you brought this up, is that the fatty acids are then broken down and they go into a Free fatty acid form.

So that one. So when you talk about fatty acids in foods, typically they're in the form of triglycerides, triacylglycerides. So they're bound to it. So it requires our digestive enzymes to take off those fatty acids, making free fatty acids so we can absorb them. But when they're fermented, What studies show is that the ferment, the fermentation actually cleaves them off already.

So there are, you have more fatty acids that are already in the free fatty acid bioavailable form. So you get the grass fed, fermented, dairy, fat, and there you go, Dave, you're, you just knew it.

**Dave:** Or you could go one step further, and you could clarify the fermented butter, which makes it all free fatty acids, which is what all of Ayurveda talks about, and which Weston A.

Price talks about, his butter oil was the magic factor to heal you, and all this time we thought it was vitamin K, too, and I think it is, and this was in there all the time, but because as humans, We love to think there's one cause, but for longevity, it's not one thing. It's a recipe. That's right. Right? And I think you've done some foundational work, and the reason you could do it is that you're not an MD.

It's because you're an epidemiologist, and you're looking at animals, which means you have control over them that you could never do with humans, unless it was like a prison experiment in the 60s, like they used to do in the U. S. To like, well, let's feed half the prison. nutritious food and then they'd get less violent and actually start, you know, becoming happier and but apparently that's unethical.

So you were just able to figure this out. What gave you the, we'll say the cognitive or emotional resilience to take this through to humans? Because you've had a lot of people complaining about this. Like, how dare you? I felt the same thing. But not about you, but just people. How dare you do this? You're a computer hacker.

And I'm like, I don't know. I'm not a fat computer hacker anymore. Like you should try it. So how did you go down this 10 year path of making this a human supplement and actually writing a book about it now? Where'd that come from?

**Stephanie:** Grit, you know, and, and it's just, it's a big part. If we talk about What's the why of longevity?

Why do we want to live as long as possible? And just like, you know, you're going shirt, we want to live as healthy for as long as possible to, and ideally to spend that time fulfilling our purpose. And for me, that purpose fell in my lap. Like, so from a kid, as a kid, A super nerdy kid who was like always fascinated with pattern recognition.

So it's the recognition of patterns that I was gifted, by the dolphins and 60 years of dolphin data. So matrix like, you know, it's like, uh, patterns were really clear and clean coming from these dolphins. And then once we moved from, just like you said, from association to moving pure free fatty acid C 15 into the lab.

Going to the world's real skeptics, right? We went to Dr. Edward Dennis, who is the editor for the Journal of Lipid Research for 15 years. This is a world leader in fatty acids. We sat down with Ed, right, as soon as we saw this, you know, hypothesis from dolphins and said, You're a leader. What do you think?

And he's like, well, probably not going to happen.

He's like, you're full of crap, girl. He's like, chances

are, Steph, that a dolphin veterinarian didn't discover something that the entire fatty acid community has missed, but the dolphin angle is compelling. And so if you wanted to test it, here are the things that you would want to do.

So we then spent the next three years doing eight studies in the lab. demonstrating that not only is C 15 a pure and active fatty acid with dose dependent mechanisms of action that are relevant, that it was meeting the criteria of an essential fatty acid. So we wrote that paper, and the senior author is Ed Dennis.

So if, like, you're a skeptic, you're going to have to talk to Dr. Dennis, who, you know, is a leader. We did the same thing in longevity. We brought in Dr. Nicholas Schork, he's head of NIH's Longevity Consortium. And Nick is like, man, I'm watching the science on this, C 15, and it's like, it is, it's meeting the criteria of a geroprotector, right?

Which is like the holy grail of longevity. That it is, Showing evidence of slowing the rate at which we age so that we could slow the onset of chronic diseases and therefore live longer so then Nick and I did a bunch did a couple of studies publish those in PNAS and in nutrients and showed that c15 outperformed rapamycin metformin And a carbo some of the leading longevity mod and and again, this was caught senior authored by dr.

Nick short so it's not just like I have

**Dave:** a pretty good track record of spotting the longevity things early C8 MCT might be one of those things, you know, people have heard me talk about brain octane in coffee. And I have this kind of list of the superhero unusual compounds for longevity, and it includes NAD, I've been using NR and before that niacinamide for 20 years now, right?

And more and more science keeps coming out here, thank you David Sinclair for pushing the science on that stuff. Um, so NAD and its precursors would be there. And then I look at urolithin A, they came on the show and that stuff first hit the market, but 10 years of research on it. A big longevity mitochondrial resuscitant.

And spermidine, spermidine I couldn't even buy it, I was, I knew what it did, and I couldn't get it when I wrote my longevity book, and now that's on the market, and all of them come through the show and, and so, for some reason, I, I've got a good BS detector on that stuff and this, for me, Fatty15, it is one of the preeminent small handful of unusual, unknown longevity molecules, That are worth taking if you're on this longevity journey to live to at least 180 and be healthy and happy and smart and conscious the whole time.

So thank you, just for doing the hard science behind that, because it's not easy to change people's minds. You

**Stephanie:** know, following the science and just Forging forth, right? It's the whole, in the book we mentioned that the whole Teddy Roosevelt being in the arena thing, that it's about being in the arena where you have a purpose, the science is pointing you continually in that direction, that you're willing to get bloodied and marred and bruised.

to be able to do something great and good for the world. It's okay. Like when you're, if you, you know, as we talk about, if you have a true breakthrough, you're breaking the ground upon which people comfortably stand. So you have to expect skepticism. The goal is then again, because the science kept holding.

You just have to hang in there and get it across. And so we're now with the, the book with the longevity nutrient with now over a hundred peer reviewed papers on the benefits of C 15 around the world, anti cancer with like, you know, activities of the whole group working on it, whole group looking at the importance of C 15 to infant growth and development to be able for, with regard to fertility, like.

All of these studies, Dave, are coming out from different groups that are just picking up C 15 and looking different, so it's just been you know, it's worth it. You've got to fight for it.

**Dave:** My very first book, a lot of people don't know this, it's called The Better Baby Book. And it took me five years to write it, and I went deep on the research of everything that will make a father and a mother more fertile and healthy before conception and then during pregnancy to reduce the odds of autism and to have smarter, healthier babies.

And I published that in 2011. And it was because the mother of my children was infertile. And I had to put together the program for that. And there's a lot of cultured butter in those recipes. Because the science was really good for that. And if I was to update that book, I would just say straight up, if you want to get pregnant, Or you are pregnant, or you are nursing, you're crazy if you don't take fatty 15.

Because the evidence is there, you should also take your EPA, and for younger kids especially, DHA. and this is critical, you can change a child's IQ and reduce their risk of neurological issues and behavioral issues for life. Just with, you know, 6 months or 9 months of the right fatty acids, and we didn't even know this existed.

**Stephanie:** And it's, and it's current day now. Like, you know, it's just, we still have things to learn. It's still, we still need to push the envelope even with simple, simple things. Like here's a, it's a saturated fatty acid in milk, right? Which is what every infant mammal gets from birth. To milk, it's like, hmm, we should pay a little attention to, you know, the important nutrients within that perfect food.

**Dave:** Well, the fact that milk has saturated fats, C 15, a lot of C eight. Mm-hmm . Uh, MCTs as well. It's proof that saturated fats are bad for us, right.

**Stephanie:** Oh, uh, unequivocally. So I think it's just, you know, it's just a world where, because we love putting things in a block and white Right. It's like, it's like it's, it's one or the other.

And so what, you know, and, and Fats were in that world for a long time.

All of them. Yeah. Right.

And then it was like. Okay, well, unsaturated fats are good and saturated fats are bad. We now know that saturated, among saturated fats, right, that the, that we have specific ones that you have found, like the short chain saturated fatty acids have benefits.

When they get longer, it's the odd numbered chain versus the even chain, the C15. Is, you know, this Goldilocks essential fat, C 16 and C 18, can be pro inflammatory and have opposite effects. So, we're just learning, still, as we go, that there's massive differences in different fatty acids.

**Dave:** And it's really funny, we love to just make buckets of things, so let's see, carbs are bad for you, protein's good for you, and saturated fat's bad for you, these are common beliefs, and like, well, spider venom probably isn't that good for you and it's a protein, and high fructose corn syrup probably isn't that good for you carb, and all of a sudden it was bad Every different type of sugar and starch has a different biological effect.

Some are probably good, some are probably bad. Every length of fat, whether it's saturated or unsaturated, has a different biological effect. And to lump them all together is lazy, intellectually. And when someone says saturated fats are good or bad, breathing is bad if you're breathing toxic gas. And breathing is good if you're breathing air.

And if you breathe too much air, it's also bad. So, this simplification thing doesn't work. What we have now is we have AI, we have big data, and we have the ability to comb through vast amounts of information. You could have never done this, even in the 90s or early aughts, right?

**Stephanie:** Yeah.

**Dave:** How much did big data and AI help you discover C 15 and what it does?

**Stephanie:** It's mainly big data. So, um, and relative, like for dolphins. Like, just the Navy had amassed an unprecedented amount of dolphin health data throughout their lives, and these archived samples they have. I think at the time they had 10 minus 80 freezers in a room that just held archived tissues and samples that are collected throughout their routine health care.

So It was only because of the foresight that the Navy was able to do that. We were then able to go in, take serum, archive serum samples from their whole lives, and then be able to look at thousands of small molecules in each of those samples to then be able to do relatively simple statistics because, you know, that's where it's where I fall.

I needed to be able to have very clearly rise to the top the molecules that predicted healthy dolphins. Wow. We couldn't. It did, those same trends were coming out in people, people with higher C 15, reportedly lower risk of type 2 diabetes, heart disease, fatty liver disease multiple types of cancers, but again, it's association and there's so much noise.

So it was only because the dolphins were able to do that with big data that were clean. So we didn't even need AI at the time. Just I. Wow. Just a little bit I.

**Dave:** It's kind of mind boggling. You look back on how much the world has changed. I was there at the conference where the term big data was coined.

A guy named Om Malik put on the first big data conference way back in the day. That was probably late 90s if I remember right. And we were just figuring out how to do this and you fast forward. Not that much time compared to human history and all of a sudden, like, oh, yeah, I just used the tool set and look what we just discovered.

And I feel like that curve is accelerating dramatically in the last couple of years because of now AI plus big data. Like, whoa,

**Stephanie:** yeah, that's right. I was a technical agent for DARPA, which is the Pentagon's research arm. That's what it was called at the time. And we had, there was a whole program on big data, right?

And these just best, best mathematical minds in the world, in the room. And the issue they were having was that the technologies were generating so much data that we didn't have the AI component yet. And we were having, it was difficult to just figure out, we have all these data, now how do we actually use them to translate into something that actually positively affected somebody's life within.

Months, right? And yeah, so it's still I think it's still a challenge. But obviously we have evidence now that we can get there faster. Especially when the data are clean, right? Because if it's junk and it's junk out, the data aren't good going in. AI is going to have a, get things confusing, but we're getting a better idea of what clean data look like and enable to get some great excited.

This is, this is just the beginning. I'm certain of it as far as the discovery of other nutrients that are important and essential for us.

**Dave:** You know the military has been collecting blood samples on every recruit for like the last 75 years or something, right? And they save them?

**Stephanie:** I don't know what they

**Dave:** Do they?

Yeah. And someone a few years ago went through and found that they could, by looking at the blood samples, I don't remember what the compound was, they could predict Alzheimer's. Decades and decades ahead just with a little blood sample. I'm wondering if you could get, like, five or ten thousand of those samples and do an analysis for C15 and just, because you can get ones from 50 years ago.

**Stephanie:** Right. And

**Dave:** just be like, are they dead or are they alive? Do they have neurodegenerative? There's probably so much cool science to be done on that stuff.

**Stephanie:** Yeah, there's, there may just be a paper in the works. I didn't even tell you, how did you even know? Is that really, everybody

**Dave:** doing that?

**Stephanie:** There's a paper in the works, so just stay tuned.

**Dave:** I, uh, I, I, I may or may not have psychic powers.

**Stephanie:** That's great. Which, which supplement was doing that?

**Dave:** I actually can tell you that that's largely neurofeedback based, and there is one supplement that has pretty good evidence for that, that I do take, that you cannot buy yet.

**Stephanie:** Oh, all right. I'm

**Dave:** an investor in that company, and I think they'll be at the biohacking conference sponsoring a part of it.

Keep our eye out. So as soon as that one is public, I don't know if they're going to tell you that's what it does, but the lead researcher who's building their tech is this Russian woman, and she's like, I don't believe any of this stuff. She goes, two months after I take it, I start knowing things. I'm like, okay.

**Stephanie:** You're like, all right, we just spend it to the test right there.

**Dave:** And people would say, but that's impossible, therefore it can't happen. I'm like, if it did happen, it's not impossible. Like, you're not very scientific. In the yogic siddhis, this list of superpowers that humans occasionally manifest. The ability to kind of know stuff happens.

I'm not claiming that's what I did. I, sometimes there's just pattern matching, but it's interesting. Sometimes it's just in the field and I think people know it.

**Stephanie:** Yeah. Yeah. One of the projects I worked on at, uh, at DARPA was telepathy. So, oh,

**Dave:** did you now

**Stephanie:** can't, can't say anything more about it, but just say it's, it's, we have things that we're, we have stuff, lots of things to explore.

**Dave:** I am friends with the top remote viewer that worked with the three letter agencies on that. So. That stuff is real. It does happen and it's actually trainable. In fact, she's been on the show. And I don't know if she wants me to say her name. I'm not going to. She was, she was entirely secret about it until someone outed her in a big book on remote viewing.

So this stuff is like, sometimes intuition is a thing and it can be trained and I'm like, it's, it's there. So maybe that was intuition. Uh, maybe I noticed your left eye was twitching and I unconsciously pattern matched that. Let me ask you this. You mentioned you have this kind of unusual pattern matching ability.

Are you neurotypical?

**Stephanie:** Uh, neurotypical. I'll need a definition for that. So,

**Dave:** there's normal brains, and then there's people who are on the spectrum. Asperger's.

**Stephanie:** Oh, got it.

**Dave:** Doesn't have to be Asperger's. You know, anything autism like, synesthesia. But basically people whose nervous systems don't run the standard operating system.

I'm one of those.

**Stephanie:** Yeah. So, my trade off of strong pattern recognition capabilities are very poor physical capabilities. So if you ask me to walk and talk, I could very well trip.

**Dave:** Wow. So you're probably not that typical, and it's a complex and kind of beautiful spectrum. And there's a study just came out on women who are in that direction on the spectrum.

Where quite often they're really interested in a certain kind of animal or a certain kind of plant, and they just tend to know everything about it. And I mention that because I had Asperger's. It runs in my family. Grandmother's a Ph. D. nuclear engineer on the Manhattan Project with my grandfather, and just loves math, and, and she actually Send a thing out to the whole family in the 90s going, Oh my gosh, like I did this, this test and I have this and it turns out all my kids have it too.

And it's actually reversible. You can keep the pattern matching, get rid of all the negative stuff. But it's been a lot of work for me. So I'm always curious when people have an unusual mind.

**Stephanie:** Yeah, what's

**Dave:** going on in there. So there's some unusualness there.

**Stephanie:** There is definitely an unusual. Yeah. And there's a They're trade offs for that.

You know, I think, you know, one thing you're sharing in the book is, is the whole idea that if Longevity is enabling, these advances in longevity are enabling more of us to live healthier longer And right, and if I was like back in the 1700s, I would have been eaten by bears, right? Because like, I

would have to wear

glasses, and I would have been eaten.

But, but now, it's like we now have the ability that like even us nerds can live a long time. And what do we do with our time? Well, we're doing science. Right? It's just, it's just.

**Dave:** And we can eat the bear's gallbladder if it'll have Tudco that makes us live longer. There you go. But if I don't eat bear gallbladders, it's me and you can buy Tudco separately now.

Yep, there you

**Stephanie:** go.

That was nice, nice.

**Dave:** By the way, that is also a longevity molecule, I should say. Now, you wrote your book called The Longevity Nutrient, which is a pretty big claim here.

**Stephanie:** Wow.

**Dave:** So, what, in your definition, is a longevity nutrient?

**Stephanie:** Right. So, uh, so a longevity nutrient, this is kind of thought, what we thought through, um, with Dr.

Nicholas short, right? So it's like what is actually a longevity. So in order in our book the way we define longevity Is it something that slows aging that helps to delay the onset of chronic diseases so that we can live? Longer so it slows the things that inevitably kill us

**Dave:** when you say live longer you're talking about extending lifespan

**Stephanie:** extending lifespan expanding health span and being able to Extend lifespan to some extent, not quite to where you're to your hundred and eighty so but it is a good step in that direction, right?

So it's like let's start with first of all not aging faster than we should which is what looks like what's happening with kids Now because of c15 deficiency. So when we talk about a longevity nutrient, we have these seven Longevity nutrient must haves they are you'll be familiar with all these it must happen to Human Longevity Regulating Pathway.

So C 15 activates AMPK, it inhibits mTOR. So it's like. Right at the mother heart. Those are kind of

**music:** big pathways. Kind

**Stephanie:** of good that it does that. The second is it needs to target key hallmarks of aging. So we, you know, how we age at the cellular level. So we know that it repairs mitochondria. It helps with cellular signaling.

It helps with gut dysbiosis. It decreases inflammation. So it helps with at least six. different hallmarks of aging. We walk through all the science and studies showing that we, we know that there needs to be evidence that it slows the rate at which we age. We now know that C 15, again, by helping cell membranes stay stable, it helps keep this measurement called red blood cell distribution width, which tends to go up as we get right,

**Dave:** bigger and less functional.

There you

**Stephanie:** go. Yeah. So that it It actually, and that is a measurement of how fast we're aging. We know that C15 reverses that.

Whoa. Yeah.

And in one study showing measurements of epigenetic aging, our biological versus our chronological aging study showed that people who have more C15 on their complex lipids had younger biological ages than their chronological age.

How

**Dave:** much younger?

**Stephanie:** I think it was like about two years, like, I'll take that, right? And it's early stages of that study. And then fourth, that it needs to have meaningful clinical benefits within months. So this is not something where you cross your fingers and say, I hope I live longer. That it needs to, like, when you take it, and if you have An aging related condition, there's evidence of reversal of that, of an improvement within months, and that's where these randomized clinical trials have shown that within 12 weeks, C 15 supplementation, fatty 15 supplementation lowers LDL cholesterol.

It lowers liver enzymes in people who have a history of fatty liver disease. It improved red blood cell function and it improved gut health, like all within 12 weeks in two different clinical trials. So, and then the fifth, the big one is you know, that there's evidence and that's where epidemiology comes in.

Oh yeah. Evidence of large scale studies show, repeatedly showing, prospective cohort studies showing that higher levels of this molecule can prevent the onset of the diseases that kill us. So heart disease. type 2 diabetes certain types of cancers, Alzheimer's. So evidence of all of those first three Alzheimer's we'll be talking about later in the year.

And the last two are really simple but really hard to overcome. The first is that we need to we need to know that it's something that we could have access to our whole life. Because something we need to take every day for 75 to 100 years, are we going to have access to it? And the last is that we can do that safely.

So, once you get those criteria, it's real hard to find something that meets all those. And that's where Nick was sitting, he's like, gosh, Steph, he's like, there is no, he was spoke at the ARDD meeting, one of the leading anti aging therapeutic meetings in the world. And Nick stood on the stage and he said, there is no.

single molecule that has more evidence of being a longevity molecule than C 15. And he says, I've seen it all. So it's we really are there. So I love my graduation.

**Dave:** Yeah, that that's a huge accomplishment.

**Stephanie:** Thank you. Well, you've been along for the ride. I mean, You saw it early and it's just the data just keep growing and growing.

So I love those skeptics that we talked about in the beginning because it's like we should continue to challenge and say, what else do we need to look for? What do we need to challenge? The world has taken that on and C 15 has emerged truly as Simon and Schuster gave it the title, like the longevity nutrient.

**Dave:** How do you respond to, like, the minority of doctors who say there is no evidence that we can extend human lifespan? All you can do is hope to be healthy until you die at the age you're gonna die.

**Stephanie:** Two answers to that. So the first is we are, we have, we've doubled our lifespan.

**Dave:** Oops, too bad. Okay, yeah.

**Stephanie:** So like, even if you look at humans and just like, oh, that's how we're doing.

Okay.

That's already, that's so, we already know that. But we already know that that's possible. I know that there's some, you know, controversy around 120, 122. Can we get past that? The other is evolution, right? So you take mammals, we have mice, and then we have humans and dolphins and elephants. You have

**Dave:** naked mole rats.

That's what I'm saying. They're way better than mice. Yeah, even better, right?

**Stephanie:** So in nature today, we have proof that mammals can live, a human can live 37 times longer Or 27 times longer than a mouse. So evolution has already figured out massive changes in longevity. For C15, that's where we've learned it feeds into this whole cell membrane pacemaker theory of aging, that the more stable the cells are.

Yes. This is, right, A. J. Holbert. Blood. Right? The more stable our cell membranes, the longer a species lifespan. Mm-hmm . So C fifteen's just tapping into something nature told us all along. So my answer clearly, I'm like, yes, we can get there, but we really need to be like, that is a big reason why they may be funded development.

V pure free fatty acid, C 15, absent of the pro-inflammatory fats. Mm-hmm . We know what you get from a pill. The Navy funded all this, Dave, like all of the science to help optimize a molecule that they saw a lot of promise in to do a lot of good for dolphins and for public health.

**Dave:** Is the Navy going to put fatty 15 in MREs so soldiers can be more productive?

Wait,

**Stephanie:** shouldn't they?

**Dave:** They paid for the research, they ought to. The

**Stephanie:** dolphins are getting it. No joke, they get fatty 15.

**Dave:** That's so cool. Like here's a bucket of it. Oh my gosh. They

**Stephanie:** get like 20 capsules

**Dave:** a day. Now, you mentioned that in your study of epigenetic aging, I'm assuming using TrueAge or something like that.

**Stephanie:** And it was another group that did the study. Because

**Dave:** you didn't do the study. Even better. I love it when you didn't pay for it, you didn't know the results and they arrive in your inbox. Yeah.

**Stephanie:** Those are the best. I always

**Dave:** feel good about those. okay. Two years of additional lifespan. There are some people who will say, the only thing you can do to be healthy for your health span, which is all that's possible.

is to train, train, train. VO2max is the most important. If you improve your VO2max by 12%, that correlates with a two year life extension. And you have a nutrient that gives you a two year life extension. And get this, if you do an hour of cardio every day, five days a week, you 2 percent improvement in your VO2max.

I mean, you can come to UpgradeLabs and we kind of have a way to do it in 15 minutes. But seriously, this idea that more exercise is going to improve VO2max or muscles. And it's going to make you live longer. The effect is relatively small compared to what you can do with nutrients and other lifestyle measures and exercise is really important and muscle mass is important.

Yeah. And if you had high VO2 max and you took fatty 15, are you likely to live longer or less long?

**Stephanie:** Yeah, I'm going to go with longer and, and the, right, the big point being that it's additive, that there's more and more things we can do that are becoming tangible.

**Dave:** It's not cancer.

**Stephanie:** Right? It's

**Dave:** multiplicative.

You're a good point. We get synergistic effects. Yeah.

**Stephanie:** Yeah. You see how we did synergistic at the same time. I

**Dave:** totally, we were downloading that with our psychic telepathy because we know you're from DARPA. That's right. I had the little device. Nice. You have one of those too? The implant? Now everyone's going, oh my gosh, they really are.

No, we're actually not cyborgs, I promise. What happened to remove C 15 from our diets?

**Stephanie:** So, we did. So there was this 50 year experiment where, you know, somehow congressional recommendations, if you can think about that now. Don't forget,

**Dave:** this is ample keys nonsense. Oh my

**Stephanie:** god. It was, it was like Five senators got together with good intent, right?

Five senators got together. They developed this, these nutritional guidelines for all Americans in 1977.

**Dave:** Their intent was not good. I'm just,

**Stephanie:** I'm trying, I'm trying to No, you,

**Dave:** you know why they did, they were going to lose their committee because they to do. So they made up something to maintain their power.

Like, oh yeah, let's come up with a food thing so that You know that we're gonna have a war on such and like it was nonsense. They're politicians. What do they know?

**Stephanie:** Well, i'm trying i'm trying to have a positive outlook But it did start the committee did start to actually help understand malnutrition in children And somehow it looks you

**Dave:** get elected.

Come on

**Stephanie:** somehow it turned into taking a whole fat milk and butter away from all americans including children So that was 1977. So we've had a good 50 year run of actively removing those. It got even worse in that there've been really two big phases of wars in the 1990s. So these people are who were born in the 1990s and now in their 30s.

So they in the 1990s, the the recommendations got even stricter. And that's where they moved not only to children from children, but they moved to infants. And so if you looked at the 1970s, 100 percent of babies of Children, by the time they were 12 months old, had exposure to cow's milk. Today, less than 10%.

have had exposure to any cow's milk, let alone non fat milk. It's shocking, right? There's

**Dave:** problems with milk protein and allergies, but milk fat is, like, the most important thing.

**Stephanie:** And then if mom is C15 deficient, then her milk, we now know, is C 15 deficient and her baby C 15 deficient and the studies are showing that the more C 15 mom has The less likely that that baby is to develop allergies to develop Type 1 diabetes.

They have better body growth. They have better head circumference and better cognitive abilities with higher C 15 In a study that's looking at kids all the way up to six years old So what happens when we take C 15 out of our diet? unfortunately It's the biggest, you know, some of the biggest evidence is this broken generation, people who are now born in the nineties, now in their thirties, and you see article after article in the media of like, why are people in the thirties?

All of a sudden we're seeing an increase in coronary heart disease, an increase in colorectal cancer, anxiety, an increase in anxiety right there. There's a whole, that whole component, so. What the book goes through is it details and has, again, over a hundred citations of papers throughout the book of just walking through how different studies have been done throughout the world have been laying the path of, we just cannot explain C 15 away anymore, and we just have to be having the conversation.

So taking C 15 away is accelerating aging in our younger people. And so, you know, there's this need to be able to, To bring it back, have a conversation, get grass fed, you know, fermented dairy back to, back to our kiddos.

**Dave:** Well, if you're a young adult, you're in your 20s, maybe even a teenager, and you wanted to really just say, screw you world, one of the ways you could do that would be eat butter instead of the crap food they're trying to feed you.

You can take some C 15 and just have a brain and nervous system that works better than everyone else and just be like, you set me up to fail. And I refused to fail, and I did a few things for my health, and now I'm not so docile anymore. And now you can tell me to do things, and I'm just gonna say no, I'm not doing stupid things because I don't have enough energy because my brain works again.

It's a, it's a big deal, and I do feel like having proper fatty acids is fundamental to showing up with full power in the world at any age. Yeah. And when people choose to do that, willpower goes up. And is that like a mitochondrial membrane C15 thing? It's part of

**Stephanie:** it. We know it helps with the mitochondria.

One aspect that was another big surprise through our studies was, We found that when we eat C 15, it does all these great things, right? Activates everything we talked about, the seven must haves of a longevity molecule. And our bodies also take C 15 and they, and it uses it to make a second molecule, a metabolite called pentadecanoyl carnitine, uh, which is a, or PBC, which is the first.

Sorry, the second discovered full acting endocannabinoid. So it fully activates CB1 and CB2.

**Dave:** So it's just an amino acid carnitine bound to C15. And people in longevity have been taking acetyl L carnitine for, god, I don't know, about for 30 years for cognitive function and fat burning. So if you had, if you took fatty 15 and acetylalcarnitine, you might make some, right?

Why don't you just put the two together and make it a supplement?

**Stephanie:** We're, we're working on that. We're working on it. It's not readily, not readily bioavailable, but uh, we're, so we're working, but our bodies do appear to be pretty good at this. recent clinical trial that happened. We also took a peek to say if the people who took fatty 15 did their PDC levels go up and they did so it did.

That did happen. And by doing so all of a sudden that helps answer this. You know, the questions of just like you were bringing up with David, you know, people who have poor sleep. It's not just a metabolic issues, right? It's also poor sleep of more active depression. We have problems with more mental health.

So there are a lot of things. It's a big question that we have a whole chapter on mental health in the book of could some of those be again part of a deficiency? Syndrome where not only do we has does lower c15 result in faster aging It's actually directly impacting our mental health because we're not making this endo cannabinoid We were meant to have and we don't have these receptors for cannabis.

It's great that it works But I mean, but that's not why they're there dogs have The receptors and they don't,

you

know, use ingestibles or anything like that. So they use endocannabinoids. So it's like, how do we tap into that naturally? So anyway, it's, it's, you know, I clearly very passionate about,

about the movement

and the ability to fix something that has been wrong.

**Dave:** It's completely wrong.

Do you know about Lord Rothschild? No. This is an interesting thing. So. The Rothschilds are a very, very old money family and still pull the strings on a lot of global banking and currencies and wars and they're not the only one. There's Bilderbergs and Rockefellers and probably a bunch of ones I don't even know about.

There's enough evidence for these guys. Like, there's something going on there. I'm not an expert. There's something going on. And so this very wealthy guy has only made two public proclamations in his entire life. So a guy who's kind of a puppet master here. One of them was the creation of Israel, which was an important thing.

the other one was when the first study came out showing that pasteurized milk reduced fertility in rats, that he mandated that we have pasteurized milk.

**Stephanie:** Oh, did not know that fact.

**Dave:** Yeah, and it's funny how there's this insane, like, sociopathic war on something as innocuous as raw milk. And I always wonder, is there an association there?

And that leads to the question.

**Stephanie:** Right. I looked into that too. I have the same question. I have the same question. I looked into the literature. And with regard to C 15, it looks like it's about the same. Does it

survive pastures? It does. It's,

it's, it's, Okay, that was my big question. One of its role is it's a super hardy fatty acid, right?

Because it's

**Dave:** saturated, so it doesn't date down well. Okay.

**Stephanie:** So in this instance, yes, that, that, uh, you're able to get your C 15. Okay,

**Dave:** so I could blend it into my coffee. But if it's skim milk, you're getting less because I took the fat out.

**Stephanie:** Exactly. Okay.

**Dave:** Got it. So weird. Wow, the world's complex. And I do feel like sometimes I'm in my super positive thing and we get emergent complex behaviors from complex systems that look intentional, right?

And an example is a flower. Like, Oh, God must have made this beautiful flower. And you go, well, you can actually make that flower with Three rules in a simulator, repeated an infinite number of times. Like beauty comes out of relatively simple things done over and over. Well, when you have emerging behaviors from complex systems.

Sometimes you can say, well, it sure looks like there's a conspiracy against us, but it turns out the complex system was set up to drive profits or to drive this. And so it looks like an organized conspiracy, but there is no intent behind it. And then other times the maybe the the the devil on the other shoulder is like, okay.

This has to be designed because it's like every decision you could make to make humans weaker. It seems like those are not only being made, they're being mandated and forced, sometimes with regulatory authority. So I love that you're sort of flying in the face of that and going, get your C 15, get your C 15.

**Stephanie:** Yeah, I just, it's for me, it's like. It's just following the data. It's it's taking on the same, you know, the same role as people who are appropriately should go and they should question science. They should because one study showing one thing is never enough, right? You need you need years and years of studies looking in different directions pointed the same thing.

So Yeah, like I, when that happens, then you, you gotta, you gotta start changing your thinking and we need to rework how we, you know, nutritional guidelines, the USDA has nutrition, the current nutritional guidelines for USDA. Mention saturated fat, all saturated fats is bad, 161 times in a 164 page document.

So we have some work to do.

**Dave:** I think that's about to get blown up big time.

**Stephanie:** And we just gotta, we gotta parse it. So I'm not saying all saturated fats are good. But I'm just saying that, just like we were saying, you just, we need to parse it out. We need to get smarter about it. We just. I can't explain it, it's just too urgent of a problem, and there's a possibility to be able to fix it.

Supplement is one way, but it's really meant to be, to bring the science out, help share all the stuff and the work that the world's been doing, you know, have a chance to save the world, right?

**Dave:** Well, we now know six saturated fats I was just thinking of that are actually good for you. There's stearic acid, there's propionic acid, but stearic acid reduces fatty liver, that comes from tallow, right?

It's propionic acid and butyric acid, which are really, really pro keto. And you get those from fermenting veggies in the gut or maybe fermenting collagen. We now have fatty 15 or C15. We have C8 MCT, which is really good for you. That's five. And number six, that's probably good for you, but may increase Parkinson's would be lauric acid.

One of the other MCTs that acts more like a long chain fat. Are, am I missing any other beneficial saturated fats? I

**Stephanie:** went through a C22. And I can't remember the name of it, but that did. Pop out in the dolphins as interesting, but for the most part, we don't get it from our diet. We can, but our bodies are better at making it.

So it's more like eat the good fats that you just mentioned.

**Dave:** Okay.

**Stephanie:** And then our body can help us make more fats. H22.

**Dave:** Now I asked you this last time, but I have to hit you up again. I have a bunch of friends who are making tallow based skincare, and I'm a huge fan of tallow. I cook in it. I wrote about it in all my books, and it's, it's the thing that gets rid of fatty liver.

But towel based skincare works really, really well. So, Fatty15. When am I going to get a skin care Fatty15? I've literally blended it into lotion and used it. And it probably works, but I wasn't doing like, you know, stuff. In fact, I can tell you, I lost 28 square inches of skin on my face since I started taking C15.

**Stephanie:** Well, that is amazing with zero other intervention.

**Dave:** There might have been a little surgery. There are

**Stephanie:** no blades involved at all. It was all just Fatty15. I love it. So we do know that, uh, C 15 gets into our, it gets into all of our cells, right? It helps our cells. It gets in our skin. So I know it cause like I've had atopic dermatitis.

My whole life and problems with hair falling out and just rashes around my skin and dry skin. Just my whole eczema and That c15 gets into the cells and it helps again prevents it drying We know that it stops with leaky gut syndrome And so this whole epithelial barrier hypothesis where we need ourselves to be strong and stable Works at the gut level, it works at the skin level too.

So, and then peri

**Dave:** Where's my body 15

**Stephanie:** I just need to talk about it I guess.

**Dave:** Here's the thing about topicals, the FDA doesn't regulate them.

**Stephanie:** Yeah, yeah, well So you can put

**Dave:** whatever you want in there.

**Stephanie:** Just rub it on, we'll, we'll work, how about we'll work on that. Funny thing about the tallow, That Napoleon had a contest during one of the wars in which he had said, we need to find a cheaper butter because it's too expensive.

So he had a contest for chemists to come up with a substitute for butter. And they came up with margarine. Hydrogen

**Dave:** and fats, right?

**Stephanie:** That's right, and they would call it margarine. And it was called, uh, margarine because at that time, they were using beef ta they were using the tallow, the top of the beef, that was the first version of margarine.

They called it margarine because it was made primarily of C 17, which is called margaric acid.

Oh my gosh. So they

were like, well even back then, this like, some, you know, and then the tallow ended up being Wonderful. Until, all of a sudden, it wasn't. Right? So, anyway, it all comes full circle. We could just rub it on our skin.

**Dave:** I mean, I open up the capsules. It doesn't rub in very well, so I dissolve it into like an

**Stephanie:** oil. Yeah, I put a little

**Dave:** bit of MCT and then I go, I'd mix it in with my other stuff. You could just like sell it to me. I

**Stephanie:** lotion. All right, we'll work on that. Orders, orders taken soon.

**Dave:** It'll be easy. And, and the testing is just use those, those high resolution images of skin.

You should be able to see a difference in six weeks. And you have a little paper, and I'm telling you, okay,

**Stephanie:** well this is a

**Dave:** good thing. Like I, I advise bio racking businesses all the time. Like this is waiting to happen.

**Stephanie:** You heard it here first, Fuller.

**Dave:** Come to the Business of Biohacking conference I put on every year to teach entrepreneurs.

We'll get you all dialed in.

**Stephanie:** Alright, deal. And we'll make the lotion.

**Dave:** Do it. I'll be your guinea pig.

**Stephanie:** That's great.

**Dave:** Now, I have put Fatty15 in my coffee, the Danger Coffee, now, with some butter and some MCTs and blended it up, because you said it was okay last time. But I'm kind of lazy. I don't really do that.

Mostly I just swallow the pills. You saw them on my shelf in there, right? I did. This crazy vitamin cupboard. Closet room, whatever. So is there benefit to dissolving it into smaller particles when I'm going to take it.

**Stephanie:** I think I think it will get absorbed. In fact, we know that in its current form is 100 percent bioavailable.

So the only thing that we're studying now is there are some studies showing that when mice are fed high fat diets, at the same that they're C15 levels are actually go down. So what we're looking into now is is there a possibility that there's better absorption by taking C15 apson of high fat, you know, while you're taking a high fat meal, for example, right.

And it just might be competition that. All the other fatty acids are going to flow through and the C 15 is like, or sorry, will get absorbed and C 15 just Doesn't have as good of a chance, but we're still trying to understand that But in general again, it's it's an essential fatty acid that's in our food And so

**Dave:** it must absorb that it must be

**Stephanie:** able to absorb just fine But it is one aspect that we're looking can we how can we further improve?

Absorption. And again, that's why the Navy invested free fatty acid, 100 percent bioavailable. Okay. Let's increase our odds of, of getting its benefits.

**Dave:** Now, when you eat fat, if your pancreas is working, you get some lipase, which breaks fat down so you can make energy out of fat. So fat can be either a building block or it can be a source of electrons for calories.

Do we know how much C 15 gets metabolized for energy versus goes into lipid membranes?

**Stephanie:** I think, A good part of it goes into the membranes, and is being used for that, but my guess is that we, well, I, let me take that back. We also know that when we absorb C 15, it gets into every nook and cranny of different lipids, complex lipids around our body.

So it's going to all kinds of work. So we know that our total C 15 levels help inform us if we're at the levels we're at. We want some amount of free fatty acid available to target those. AMPK, inhibit the mTAR. Activate PPAR alpha delta, inhibit JAK STAT. I mean, it's just all the great things that it does in the free fatty acid form.

So, we're just, some of the research we're doing now is better understanding what percentage are free fatty acids, which are bound in cholesterols, which are being, are in our membranes, which are being used for mitochondrial energy.

**Dave:** Can you make liposomes out of C 15?

**Stephanie:** You can.

**Dave:** Have you ever done it?

**Stephanie:** We have not yet.

**Dave:** Dude, get with it. Steph, what are you doing? You have this crazy longevity molecule and you're holding me back from my longevity goals. I've been kind

**Stephanie:** of busy, Dave. Trying to save the world here. But that's a good one to add to the list. Yeah. It's on the list. It's on the list.

**Dave:** I'm just imagining you take that with Estragoloside, uh, which is one of the things that lengthens telomeres.

You might as well just blend those up in a little liposome. We got double longevity molecules. My telomeres are so long, they're sticking out of my forehead like little hairs. I love it. I

**Stephanie:** think we just, we needed a whiteboard. Up here and just start.

**Dave:** All the ideas.

**Stephanie:** Work in session.

**Dave:** I, I love advising cool companies.

So, there's so much cool stuff you can do with this. It's, it's a pretty amazing thing to be able to discover this. Now this is going to sound like maybe a little over the top, but isn't this the kind of stuff that like Nobel Prize in medicine came out for?

**Stephanie:** Not the first time we've, not the first time I've heard that.

It seems

**Dave:** like it's at that level from what I'm understanding.

**Stephanie:** It's. When vitamins and essential fatty acids in the past have been discovered, it has resulted in a low price, but it's been a while. It's

**Dave:** been a while. This is a groundbreaking thing. I mean, the first in 90 years and just the whole story. Like, you just notice this weird thing and you just followed it.

I, I think it's really impressive.

**Stephanie:** Well, thank you. I will, I'll pass that thanks to the dolphins. It really was opportunity, just the ability to be there. For that, for that wonderful, that wonderful moment, Dave.

**Dave:** We'll thank the Dolphins and then we'll call the Karolinska and just talk some, send some of those guys.

**Stephanie:** I love it. Keep them coming. Keep them coming. The science just keeps piling on. So it's, it's all good. It's all good.

**Dave:** We have a new administration in the U. S. Bobby Kennedy is part of the Trump administration. Just took over HHS. If you had your, like, magic wand in the new world there, what changes would happen in regulation so that the kind of discovery you just made can get out there and help the most people?

**Stephanie:** I, I do think there are opportunities. Now that of understanding of an emphasis in nutrition and whole foods and whole body health and your C 15 is one example of that, that there's still, if we apply these advanced technologies that were initially developed for, for drug development, which drugs have their role in, in our world and for our health.

If we're able to apply those same technologies like we were able to do, thanks to Nibi funding and this dolphin population, that's what enabled us to make this discovery in nutrition. So, I do think that the hope is that there's greater appreciation of the importance, like you're talking about all the time, the importance of Maintaining and protecting our bodies and our health proactively preemptively, we're not saying preventing, and then to, so that we can better defend and have greater resilience against the challenges and onslaughts that continue to fight us, right?

That's the goal. I do, the best way to get there is to get there naturally through what evolution and nature is teaching us. So. Let's start there and even looking at short lived species and figure out how to help them live longer now for me It's like that's nature's already figured it out. Like we talked about we already know nature's already figured out how to live longer Let's tap into those learnings and Figure out what foods what evolved mechanisms are allowing longevity to happen in longer lived mammals and then push those even further That's I think and I think the It's, it's a good opportunity now to really embrace and pour science into foods and what do foods have to teach us and nature like, like dolphins with names.

**Dave:** You're going to be at my biohacking conference in May, right? Oh,

**Stephanie:** absolutely.

**Dave:** Are you doing a breakout?

**Stephanie:** I am.

**Dave:** Okay, cool. So guys, that's biohackingconference. com. The reason I'm asking is that I want to introduce you to Dr. Hemal Patel from UC San Diego. Are you?

**Stephanie:** Wonderful.

**Dave:** Do you know

**Stephanie:** him? Yeah, I know him.

Absolutely. I know of him, but we have not, we have not connected. So that would be great. Okay.

**Dave:** He runs the best mitochondrial tests I've seen. And this has been a, for a dozen years, I've been looking for really good mitochondrial testing. It's very hard to do without biopsies. And I've been to his lab, but it'd be really interesting to put you guys together and just have him test mitochondria with fatty 15.

I think he would be so fascinated. So I'll make the introduction at the conference. You guys should sit down and have a meal and like pour some fatty 15 on it. It'll be good.

**Stephanie:** That's good. That would be fantastic because we've had the same challenges, you know, with regard to the mitochondrial testing. So that's not just a cells in a dish.

This is great.

**Dave:** Now, anytime someone's on the show to talk about their discovery and their product, there's a bit of a hostage situation here where the audience wants a discount so they can try the stuff. Fatty15. com slash Dave and you're giving people 15 off. Now, I do want to say I've been on this since I saw the first research.

I am an early and aggressive adopter of longevity technologies. And I take two or three a day and have for a while and I think it's really effective. Some supplements, like rhodiola or something, you're going to feel that that day because it shifted a neurotransmitter or a catecholamine. I don't think I feel fatty 15 the first day I take it.

**Stephanie:** Yeah.

**Dave:** How long does it take before people notice the difference?

**Stephanie:** So we have about 50 percent of our customers report feeling benefits, um, within two weeks. Interesting. These are the folks, that was the surprise and delight Dave of fatty 15, but the dolphins couldn't tell us, right? And that was I really think it's the, it's the people who are in which their bodies are good at turning C 15 into this endocannabinoid.

And so these are the people who are like, within two weeks, I'm sleeping better. I have a calmer mood. My joint pain has gone. Like it's endocannabinoid activities, right? And then within, 16 weeks. 72 percent of our customers report seeing or feeling benefits. And what we really encourage people to do is get your labs ahead of time of your routine, you know, CBC chemistry labs ahead of time and then go and get tested.

Reliably take fatty 15, you know, daily for 3 to 6 months and go get your follow up test. And that's really Where, you know, C 15 and again, as part of those geroprotector longevity must haves that you, you will see a benefit, see or feel a benefit within weeks. And that's why our monthly retention rate with customers is 95%, which is unheard of in the, in the supplement.

That

**Dave:** is a very impressive business result.

**Stephanie:** Yeah. Wow. And, and it's, and I, it really is because. Again, it's, it's something that we need. It's essential. It's come out of our diet. We have found a way to optimize. I don't shy away from cheese and from dairy fats. So I was not C 15 deficient. And I, for me, it is, it has helped me achieve higher C 15 levels that are more supportive of longevity, better heart health.

So it's, you know, lots of, lots of good. So, so hang in there. And then there's also C 15 tests you can take. You can test your C 15 there's a blood spot test that Genova diagnostic, so I took that one and then I'm in the longevity zone level of 0. 46. The average person's around 0. 22 percent of C 15s.

**Dave:** I'm gonna have to order that. Yeah, we'll have to get you,

**Stephanie:** get you tested for that.

**Dave:** And I, I was likely not deficient given my fetish for grass fed butter for a long time. Oh yeah, there's no way. Yeah. But. Amplifying something to beyond what would be normal for some things that are longevity nutrients, as your book is called, is probably a really good idea.

**Stephanie:** Yeah, and it's better, for people like you. It's like I'm able to exercise longer. I have greater energy. I'm able to get, you know, have, be able to do more throughout my day. It's my recovery times are faster. So it's those types of things that for people who are really fit like yourself, those are the benefits that they're really excited about.

**Dave:** I think it also means you can be fit with less work.

**Stephanie:** Yeah. That's a great way to put it.

**Dave:** So you get better results per unit of effort that you do. And this is my fifth full length podcast today. Right.

**Stephanie:** Proof isn't the best.

**Dave:** And look at you. My resilience is just fine. I could do another one. And it's, it's remarkable because I did not have this when I was 30, I could not have done this and I don't even feel like I'm working hard and this kind of resilience where you just know you can handle anything that life brings your way, it doesn't come from a single longevity nutrient and this appears to be really foundational, it also comes from having adequate minerals in the body.

And having a whole bunch of different things that are in my unique recipe for resilience and longevity. And the principles are the same for all of us. But the implementation is different based on genetics and lifestyle and all this stuff.

**Stephanie:** That's right.

**Dave:** What do we know about C15 in women versus men?

**Stephanie:** it looks like it's the same.

So, there is a genetic study done looking at how much do genes influence C15 levels. Across, so not just across gender. But also across different people and, and populations. And what it showed is that there are no genetic influences on C 15 levels. Which for Nick, like that blew his mind. He's like, that is what an essential nutrient does.

Because if you are an animal who didn't, who wasn't able to use C 15, you died. So it's like essential nutrients. We're meant to be able to use them. So, so it's equal. If I had to hedge one gender versus the other, I'd hedge toward female, but I honestly think it's because women were more likely to start trying it, but then once it was in the household, Dave, then, you know.

Of course, everybody wants to live longer. Everyone

starts taking, taking the pill. So, and we have the same retention among men versus women. So, equal.

**Dave:** One of the reasons I was asking is that Women will store extra EPA and DHA, and these are not technically essential, but women store them on their thighs.

Inner and outer thighs and on their butt. And with the first baby, the body will drain all of those out and give them to the baby, which is why firstborn children oftentimes have a slightly higher IQ. It's maybe not the only reason, but it is a major contributing factor. And it's why for women who are pregnant or think about getting pregnant, you want to supplement those because you know you're going to lose them.

And you want to get your minerals in because you know you're going to lose them. Not lose them, you have to donate them to your baby, which is a good thing. And then you want to replenish them afterwards for your longevity. And if you're going to have another child, you'd want to do that. And it's probably why men are, on average, more attracted to curves.

Because, not that we consciously know this, but our operating system is like, Hey, if there's curves, there must be some omega 3s in there. And that's probably going to be a really healthy, smart baby. Let's do it. And of course, we're just like, hips. But the underlying stuff there is finally controlled by mother nature, right?

so by the way, guys, if you like curves, now you have a biological explanation. So it's not a moral failing or something. So I'm just wondering, do we know where C 15 is stored in the body? Do women store extra C 15 along with the other fatty acids so that they can give them to their babies?

**Stephanie:** It's definitely an adipose tissue.

So yeah, and whether it's preferential in one area versus the other, I don't know the answer to that. But it definitely does store itself in adipose tissue. One study showed that pregnant women who exercised actually had higher C 15 levels and had babies with healthier body growth, they think that they had higher C 15, for that population.

Because when you exercise, you're releasing the C 15 out in the blood and it got over to baby.

**Dave:** Makes so much sense. Another reason to

**Stephanie:** exercise.

**Dave:** There you go, another reason to exercise. In my longevity book in Superhuman, I found some science about how quickly different tissues in the body will take up different types of fatty acids.

So, we know that if you take linoleic acid, which is a essential acid, unfortunately, if you get a lot of it, it's also pro inflammatory, but you need to have some, and it is present in grass fed beef at 1. 6%, which is all you really need. So, you need some of it. If you take that, or omega 3 and omega 6. The first place it'll go is white fat, subcutaneous fat.

The second place is in the brain. So the part of the brain that's not saturated fat rapidly shifts based on your intake of DHA and EPA. So, we don't have evidence yet for where C15 goes in the body.

**Stephanie:** It just, it's the, as much as we know, it goes everywhere. So

**Dave:** all lipid membranes.

**Stephanie:** All lipid membranes, yeah.

And, and there may be preferential.

**Dave:** It probably follows the same rules.

**Stephanie:** We don't yet know. I don't know the answer to that question.

**Dave:** It's a pretty detailed question. And it kind of matters because If you look at which benefits you get over time from taking C 15, well if you know it goes to your white fat first, you're going to see less of the inflammatory molecules, maybe less estrogen, which is interesting.

The other thing I have to call out here, we talk about these estrogenic chemicals that are disrupting our endocrine systems. And it's usually, oh, fragrances, and All these plasticizers. Well, lavender oil, in six weeks will grow man boobs because it's an endocrine disruptor. Estrogen. So you shouldn't put that or tea tree oil on kids.

Maybe use it for a short period if there's an infection but let me just put it on my baby's pillow it's like, dude, you're estrogenizing the baby whether it's a boy or a girl baby, you don't want to do that. Like, let mother nature do its thing. Well, CBD oil And cannabis also are estrogenic. And that's not saying that you shouldn't take CBD if you're really sick.

I don't have an issue with it, but using it prophylactically. What you're showing is that C15 activates the endocannabinoid system. Is it also estrogenic?

**Stephanie:** We don't know. So the studies haven't been done to show as far as is it its influence on hormones, which means that as far as what the studies that have been done have shown that there's not an effect.

**Dave:** It doesn't seem likely. If it goes to every membrane in the body and increases cellular youthfulness, it should raise sex hormones. Yeah, whatever health things would happen, which is usually more testosterone in men and women and less excessive estrogen, but we don't like saying we don't have a study on that.

**Stephanie:** Exactly. No.

**Dave:** Okay. So if I had a choice between CBD and fatty 15, I would certainly try fatty 15 first because that creates the same system and it has other benefits for longevity that CBD is probably don't. I'm not opposed to CBD, but just like Risks and benefits this any risks that you've found with C 15?

**Stephanie:** It's been remarkably safe, Dave. So we haven't, we've done, we ourselves have done extensive safety studies. So have others at this point. We now have multiple clinical trials and most importantly, C 15 has been in the human diet since. humans have existed. So, so it's the upside is it's it's of many, right?

It's kind of that last longevity molecule must have that it's a molecule we can take that is safe and the dose is worth