

**Nicki:** It's time to make your health an act of rebellion. We're tackling personalized nutrition, metabolic flexibility, resilient aging, and answering your diet and lifestyle questions. This is the only show with the bold aim to help 1 million people liberate themselves from the sick care system. You're listening to The Healthy Rebellion Radio. The contents of this show are for entertainment and educational purposes only. Nothing in this podcast should be considered medical advice. Please consult your licensed and credentialed functional medicine practitioner before embarking on any health, dietary, or fitness change. Warning: When Robb gets passionate, he's been known to use the occasional expletive. If foul language is not your thing, if it gets your britches in a bunch, well, there's always Disney+.

**Robb:** Wife, I think we are live.

**Nicki:** Are we live? Are we rolling?

**Robb:** We are rolling.

**Nicki:** Is this episode 19 already?

**Robb:** It is. We're getting old.

**Nicki:** Nineteen weeks.

**Robb:** Well, that speaks-

**Nicki:** The Healthy Rebellion Radio is getting old.

**Robb:** Yes.

**Nicki:** Nineteen weeks is a good-

**Robb:** It's like a mid-term pregnancy or something like that.

**Nicki:** Is our radio show the size of a cantaloupe?

**Robb:** Approximately, yes. It's probably about the value of a cantaloupe.

**Nicki:** Or a mango.

**Robb:** So what's new with you, wife?

**Nicki:** Oh, goodness, I don't know. Not a whole lot. My back is recovering, which is good. I had a little...

**Robb:** You had a little SI tweaking.

**Nicki:** A little SI tweak.

**Robb:** Man, it... Yep, pretty good. Yeah.

**Nicki:** Yep, yep, but I'm good.

**Robb:** Nice.

**Nicki:** I'm back in the fight.

**Robb:** Cool.

**Nicki:** Yep. Let's see. I did want to mention... I know we've mentioned this in previous episodes, but our CARs focused reset in The Healthy Rebellion, CAR stands for controlled articular rotation, so think joint health. And we're going to do some focused hip capsule and shoulder capsule work, and that all begins on March 16th. So you guys have a little bit of time. If you are at all interested in joining us for that, just sign up for The Healthy Rebellion. And we're also gearing up for our second 30-day reset, which is going to begin in April, and we'll announce firm dates in an upcoming episode.

**Robb:** And just to super-hype and sell that, for the cost of admission into The Healthy Rebellion, where you get all kinds of amazing material that we generate, you get first access to my talks.

**Nicki:** Support.

**Robb:** Support.

**Nicki:** Just a killer group of people.

**Robb:** And you also get a reset based around the Wired to Eat book, and that focuses on food, movement, sleep, and community. We also did a seven-day carb test, and what was interesting with that is lots of people were dialed on their food, but there were other areas that they needed more attention. And I've got to say the results were amazing, absolutely amazing. It's a ton of fun. I actually enjoy my work again because the group of people in there so far have been really cool. So if you are looking for some pretty good value, joining The Healthy Rebellion just for the reset could be worth it for you.

**Nicki:** But we have a lot of fun, too. We just did our live chat in the group yesterday, one of our ones for this first reset that's wrapping up. Well, it's already wrapped up by the time this episode is airing, but we're doing it a little ahead of time here. And we had a woman comment that these live chats... What did she say? She said, "They're so inspired. It's like a... Oh, the immediacy of the interaction." Oh, I'm going to have to pull it up. "It's a boisterous virtual cocktail party," is what she said, Sabina. So that was super cool, and I think everybody feels the same way. We've certainly enjoyed them a lot, so it's just a lot of fun.

**Robb:** We actually look forward to them. Yep.

**Nicki:** Yep, we look forward to them.

**Robb:** Yep, yep, it's pretty cool.

**Nicki:** Yeah, so that's coming up, so you can join us at... You can go to [join.thehealthyrebellion.com](http://join.thehealthyrebellion.com) and jump on in.

**Robb:** Cool. News topic...

**Nicki:** News topic.

**Robb:** ... du jour. The title is Medical Scientists and Philosophers Worldwide Appeal to EBM, Evidence-Based Medicine, to Expand the Notion of Evidence.

**Nicki:** Your favorite three words.

**Robb:** My favorite three words.

**Nicki:** EBM.

**Robb:** Yes.

**Nicki:** And it ends with BM.

**Robb:** Bowel movement. Well, and the funny thing... There's an interesting battle afoot, so even within the... There's some interesting stuff. Shawn Baker and Zach Bitter on the Human Performance Outliers Podcast, and I'm blanking on the professor's name, but the guy who coined the term evidence-based medicine, they interviewed him, and he's appalled at the way that evidence-based medicine has been applied generally. The claims ranging from the vegans who say that these multivariate analyses are just as good as a randomized control trial, he was like, "That is absolutely ridiculous. You can't make claims like that." But there's plenty of vegan docs, like Joel Kahn and Garth Davis, that make exactly those claims.

**Robb:** But then even more in the, let's say, the evidence-based nutrition crowd, people have gotten into this gig where it's like, "Well, show me the randomized control trial or go fuck yourself." And that's not the intent of evidence-based medicine. As it was originally formulated, it was to provide a framework for making recommendations at a clinical level. And one of the challenges to the way that evidence-based medicine has been rolled out is if somebody says, "I eat rice, and I feel like shit," then it's like, "Well, that's an anecdote," and so it's completely dismissed. But yet a clinical note about a rash that somebody gets from a blood pressure medication is publishable, and it's still an anecdote, but it's a piece of data that we can put into the larger curriculum that we have to be able to further inform things.

**Robb:** So it's a very accessible paper. We'll have links to the show notes. It appeared in the British Medical Journal. But it's kind of cool. The evidence-based scene has gone kind of

crazy on the one hand. Now, the flip side of this is that the kind of woo-woo homeopathic crowd is trying to make their foray into mainstream medicine and get it insurance reimbursed and all that stuff, and I think that that is problematic. But yet again, I would make the case that if we had five American Medical Associations and if one group wants to be vegan and another one wants to solve infectious disease with homeopathic remedies, then that's fucking great. We're going to figure out really fast which one of those things work and which one doesn't. So yeah.

**Nicki:** All righty. Well, let us see.

**Robb:** I'm probably the only person in the world that gives two shits about any of that stuff, but...

**Nicki:** All right. Let's see. We've got our T-shirt review winner this week. This is a little bit of a long one. The handle is I Get Tight. I thought that was kind of a funny handle. Anyway, "Real questions and real answers. Robb Wolf doing what Robb Wolf does. I've been listening to this dude for a decade. Does that date me or them?" All of us.

**Robb:** Both. Yeah.

**Nicki:** "Robb shaped my entire nutritional core, which is the foundation of my entire life now. He's added the great and powerful Nicki Violette to the mix, and they're a great team obviously." Thanks, I Get Tight. "With nutrition information, there's always a boatload of questions, and this is the place to get the real answers to questions we've all had or still have. Every episode is a wealth of no-BS information, which is one of the reasons I've listened to him for so long. It's always a real talk. Keep that ish up, guys, and I'll keep listening. Your intro was stuck in my head all day yesterday in the office. Thanks for all you do, and thanks for providing information that helps my family and I stay fit to live."

**Robb:** Awesome.

**Nicki:** So I figured since he had our intro stuck in his head for an entire day, that he probably needed one of our T-shirts. So I Get Tight, thanks for your review. Send us an email to [hello@robbwolf.com](mailto:hello@robbwolf.com) with your T-shirt size and your mailing address, and we'll send you a Healthy Rebellion Radio T-shirt.

**Robb:** And then throw that Mamba Jamba on the interwebs and tac symbol.

**Nicki:** Yeah.

**Robb:** Sing your praises.

**Nicki:** We'll spread that ish around.

**Robb:** Yep.

**Nicki:** All right. This episode of The Healthy Rebellion Radio is sponsored by Four Sigmatic. They're the makers of mushroom coffee with chaga and lion's mane. Four Sigmatic has got you covered with a variety of go-to beverages to support productivity, focus, and creativity. And they actually have a whole suite of yummy mushroom products, both caffeinated options and caffeine-free options, all of them super easy to use. You just tear and mix with hot water, and actually-

**Robb:** Which is what you have going right now.

**Nicki:** Yeah. Actually, I'm not quite ready to give up my morning coffee entirely, but I love their mush... This is the "Think" with lion's mane. It's their mushroom elixir mix, and it's-

**Robb:** We typically do a run of coffee, and then about mid-morning, we kind of shift over to the Four Sigmatic.

**Nicki:** Yeah. And this... I don't know. This one is smooth. It's relaxing. I just really like the taste. So yeah, it's good stuff.

**Robb:** Smooth and relaxing like me.

**Nicki:** So you guys can check out Four Sigmatic. You're not smooth or relaxing at all.

**Robb:** Yeah.

**Nicki:** Maybe if we go back to the BM from the news topic, that might be smooth and relaxing.

**Robb:** That's about the only place I demonstrate that. Yeah.

**Nicki:** Probably.

**Robb:** Everything else is rather rough-edged.

**Nicki:** All right. Go to [foursigmatic.com/rebel](https://foursigmatic.com/rebel) R-E-B-E-L, and you can use code rebel for 15% off your order. Are we ready for questions?

**Robb:** Lay it on me.

**Nicki:** Okay. We got a question from David on vision problems since going low-carb. David says, "I've been listening to your podcast, and I'm really enjoying it. I went keto low-carb about a year and a half ago. Overall, I feel much better and have lost about 40 pounds. I'm 49 and have needed to wear reading glasses the last few years. But about six months after I switched to a low-carb lifestyle, my distance vision has been blurry as well. It's tolerable, but some days are worse than others. A few months ago, my wife and I went on a cruise, and although I committed myself to behaving, it didn't last long. By the end of the cruise after cheating a little, most days I still ate steak, eggs, and vegetables, I woke up and my vision had improved significantly. Obviously, something in my diet or rather something lacking from my diet is causing this. I don't want to start eating bread

and chocolate desserts again, so I'm hoping you might have an idea of what I may need as a supplement, or even better a food that may be added. Thanks in advance, and thanks for the show."

**Robb:** This is really interesting because usually we see this go the opposite direction, where folks have had varying degrees of vision problems, either short or far. And with lower carb, which usually lowers insulin to some degree, we tend to retain sodium and fluid volume. And the eye, although it's somewhat static, it really does respond to the osmotic pressure in our system. And if we're forcing more stuff into the eye, it changes its shape and will alter the focal point. And again, generally, there's some ophthalmology journal pieces that talk about low-carb diets improving vision. We talked in a previous episode... This is kind of tangential, but when I had my Lasik surgery, I had effectively no scarring from the process. But for David, it looks like somehow... I suspect the thing that's changing is his fluid volume is altering in such a way that it's changing the focal length of his eye, and he's getting some problems specifically at that longer distance.

**Robb:** It's kind of cool, because when I first started reading this, I was like, "Well, it could just be age-related stuff. Things do change a bit." But the fact that he did the cruise experiment, that's interesting. So the two thoughts are possibly titrate carbs up a bit and find a level-

**Nicki:** And it doesn't have to be chocolate desserts and bread.

**Robb:** Not chocolate desserts.

**Nicki:** It can be like tubers and...

**Robb:** It could be tubers.

**Nicki:** ... sweet potatoes and-

**Robb:** And sweet potatoes generally. Again-

**Nicki:** Yep, and berries, fruit.

**Robb:** So you could tinker with that. And also, just really making sure that electrolytes are on point could also address this. That could bump up the fluid volume in a way that better addresses this. But it's really interesting, and this is a great example where, although David ostensibly received some really great benefits from a keto low-carb diet, not everybody responds exactly the same way and gets the same type of benefits. And every once in a while, you get kind of a paradoxical responder, where it goes exactly the opposite. But again, I would, in general, say that if we dug into the literature, looked at that pesky anecdotal reporting, that people generally report better vision over time with low-carb diets than these very high glycemic load diets.

**Nicki:** So it's something that he could play with. Add some more carbs to his diet.

**Robb:** Add some carbs and/or-

**Nicki:** See if that changes. And/or do a separate test with electrolytes.

**Robb:** Yep. Yep. And who knows? Maybe he would need 100 grams of carbs a day to address the vision issue. But with 50 grams plus more attention to electrolytes, specifically sodium, then maybe that works. And David, if you tinker with that, we'd really like to hear back from you because this is one of those things where clearly it's fairly immediate and obvious whether or not this stuff is working, so yeah.

**Nicki:** For sure. All right. Our next question is from Jay. Why alcohol? "Hi, Robb. I'm not sure if you ever get my emails, but again, alcohol is a carcinogen, so it's not really a perfect wine for anyone who is attempting to avoid cancer. Am I a zealot? Nope. Just an observation that so many health experts are meticulous about diet except when alcohol is involved, and the alcohol industry loves it. Have you ever considered why we embrace the substance that does so much harm? I truly would like your insights as I really do like your work. Peace, Jay."

**Robb:** That's a really good question. I guess somewhat peripherally, when you go through an airport, where are the places that are packed to the gills?

**Nicki:** The bars.

**Robb:** Bars and coffee shops. So drugs of whatever form-

**Nicki:** And stimulants.

**Robb:** Uppers, downers, they're super popular. They alter our perceptions in various ways. Alcohol is the so-called social lubricant. It reduces anxiety, at least in the short term with some people. You could make the case that alcohol probably leads to a lot of homicide at family events, but it may, in fact, mitigate even greater homicide at family events. If it were totally outlawed, I know I would have probably murdered a few people at various points without it. But it's a really interesting point, and when you are critical of the research... Like, there's been this thing that, oh, one drink a day is beneficial. Or one or two drinks a day is beneficial. And when you really get in and dig into that literature, it's not really the case. This is where a bunch of those multivariate analysis things, the confounders end up kind of getting in there.

**Robb:** It's not dissimilar to... There was a claim that people who were mildly overweight live longer or are healthier than people who are underweight. But what was lost in that discussion was that a significant number of people who are clinically underweight are sick. It was like cancer patients and people with HIV and stuff like that.

**Nicki:** And they put them all into the study?

**Robb:** And they just lumped them all into the study, and then it was... Stephan Guyenet actually, as far as I know, was the person that kind of cracked the nut on that. And

there's kind of a similar story here in that some of the epidemiology is kind of compelling, and there is... Most cultures drink. Even the cultures that say that they don't drink, the wealthy people behind closed doors do it. And that's just the way it is. There's a remarkable... So with The Healthy Rebellion, one of the big things that people talk about with that is the community that we're able to get there even though it's virtual, although we are encouraging and cultivating different opportunities for people to meet in real life, and we're super excited about that. But there's kind of a reality that each one of these bubbles that you tick, it's like, "Okay, I'm gluten free, and I'm low carb. Oh, and I don't drink."

**Nicki:** And I go to bed at... I eat dinner at 4:00 PM, so I can go to bed by 7:00 PM.

**Robb:** Yeah.

**Nicki:** Like, you start really isolating yourself.

**Robb:** Your social scene starts contracting a lot, and we don't fit that description at all, but...

**Nicki:** What? We have a...

**Robb:** We have a vibrant social life.

**Nicki:** ... thriving social life.

**Robb:** Yeah, totally, which... So what are your thoughts on this.

**Nicki:** It's hard, too, because so many people... It's a step-wise fashion, right? Like, you take the average person who's eating a bunch of processed foods, the standard American diet, drinking... needs eight cups of coffee to wake up in the morning. And the first step is let's get them eating well, and let's give them some options that are better than options when it comes to alcohol, because asking some folks who maybe... Part of it's their work culture might be going out and meeting clients and colleagues after work at the bar.

**Robb:** We had that experience...

**Nicki:** With real estate agents...

**Robb:** ... with real estate agents. Yeah.

**Nicki:** ... when we were running our gym in Chico.

**Robb:** Just a really quick sideline on that. If people don't remember the story from The Paleo Solution, we were earlobe deep in real estate agents. They were wonderful people. If they look better, they tend to sell more houses because attractive people just do better, and you feel better in your own skin and all that stuff. So they were like, "I'm generally

doing better, but I've been having problems because I also tend to seal deals by taking the person out and having a bottle wine and building a relationship with them."

**Nicki:** And that rapport-building.

**Robb:** And the rapport-building.

**Nicki:** And that's not to say that there aren't other things to do, but Jay, I think in a perfect world, people are eating well. They're exercising. They're getting their circadian entrainment in the morning and going to bed early and not drinking. But when we're looking at this as like the gravity of the situation of how unhealthy people are, I think the alcohol is at least providing better than. And she says wine, so I'm assuming she received one of our emails about Dry Farm Wines or something, and so this is what prompted this. But giving people a better-than option while they're working on making these other big changes in their life, I think, is a reasonable thing to do. And some people, it's not for them. They don't drink at all, and that's totally, totally fine. And also people, as they get healthier, they tend to drink much less.

**Robb:** Far less. Yeah.

**Nicki:** So I think it's... At least from our perspective, it's let's get people moving in the right direction. Let's not tell them they have to be sober for the rest of their lives, like entirely no drinks at all, because that's not... It's not a doable thing for a lot of people, and a lot of people get a lot of enjoyment socializing, having a cider, having a glass of wine. So it's an individual choice clearly, and I think the more we can get people just cutting out the garbage and the other crap, over time probably the alcohol consumption will drop to a noticeable degree. I know it has for a lot of our friends. A lot of people in The Healthy Rebellion, they'll have one drink and that's it.

**Robb:** Right.

**Nicki:** So I don't know. Do you have anything else to add to that?

**Robb:** No, no.

**Nicki:** I feel like I'm rambling.

**Robb:** No, no. That was great stuff. And just on our own personal level, we've kind of settled on... We've been on a kind of vodka tonic deal with some diet tonic, and we do one of those about 4:00 if we can fit it in.

**Nicki:** Yeah, and it's like once or twice a week.

**Robb:** Right.

**Nicki:** And if we have people over for dinner. And it's mostly lime juice and the Zevia diet tonic and lime juice and one shot of vodka. It's so weak. We're not the... What's the word

when you say somebody can handle their... not handle their liquor. But what's the term?

**Robb:** I'm blanking right now.

**Nicki:** They're just robust in that form. I don't know. There's a word.

**Robb:** Drunks?

**Nicki:** No. Yeah, well, that. Anyway, long and rambling, but...

**Robb:** Yeah. I think the long and short of it, from my perspective, is that clearly there's a risk/reward story here, but at the same time, even for myself, trying to be approachable and engageable, I guess, if that's a term, a lot of folks... Like, that beginning change, it's like, "Hey, man, let's reduce your refined carbohydrate intake. You want a couple of cocktails? Okay, cool. Let's shift you away from beer and get you doing like a margarita or something."

**Nicki:** A NorCal margarita or a...

**Robb:** And what we found over time is that people get healthier, and then the-

**Nicki:** Then they feel the effects of what they're drinking more.

**Robb:** Yes, yes.

**Nicki:** And then they don't want it as much.

**Robb:** And then they auto-regulate.

**Nicki:** They auto-regulate.

**Robb:** And it's there for you instead of our choice.

**Nicki:** But if you on day one said, "You're not going to do bread. You're going to cut out sugar. You're not going to ever have these yummy muffins that your wife makes all the time again. And you're not having any booze," they'd be like, "GFY. I'm out. I'm going to do Weight Watchers and still have my, you know."

**Robb:** And just continue to fail.

**Nicki:** And keep... Yeah. So I think we've got to look at it from a bigger-picture perspective.

**Robb:** I like it. I like it. Really good question, though. It's a great question.

**Nicki:** Okay. We have a question from Lee on potassium. "Okay, what's the deal with potassium? The recommended dosage is 4,700 milligrams per day. This is kind of hard to

get from diet alone, particularly a ketogenic one. The FDA limits potassium supplements to 100 milligrams per dose, but a serving of a salt substitute containing potassium chloride has 640 milligrams. So piling on the salt substitute with each meal is an easy way to get the recommended dosage. However, there's a warning that exceeding 4,700 milligrams can cause hyperkalemia, too high potassium levels in the blood, which has serious and potentially fatal side effects. I've not been able to find much from the googling about what potassium intake levels actually lead to side effects. One place mentioned greater than 18,000 milligrams. The lack of good guidance seems to be telling. Is it very dependent on overall health, kidney function, weight, or do we just not know? So I guess my other questions are, one, how did a hunter/gatherer get 4,700 milligrams of potassium? And two, how careful do I need to be with my potassium chloride salt substitute? Am I living on the edge with 5,000 milligrams per day?"

**Robb:** So let me maybe... One thing I'm kind of perplexed with here, and again, this is where a call-in show or something like this would be interesting because I would be curious if Lee has actually logged his or her food in something like Cronometer and actually looked at the potassium that you get out of that, because if you're eating meat, seafood, vegetables, nuts... So this is an example of opting for nuts for your fat on a ketogenic diet versus doing refined fat. You get a ton more nutrition. There's vitamins and minerals, and one of the minerals being potassium.

**Robb:** So from our understanding, and this is part of the way that we ended up formulating LMNT, was as a patch to what people were not getting from a well-formulated diet. Hitting that four to five grams of potassium a day is easy if you're doing the whole unprocessed foods and if you're eating anything above 1,200 calories. So yeah, I mean, that's a factor. And what is interesting is everybody jumps up and down about potassium, but the range of danger with potassium is tiny compared to sodium. To overdo sodium is... To induce death with over-consumption... immediate death, like acute death from over-consumption of sodium is pretty damn hard to do. It is remarkably easy to do with potassium, which is part of the reason why it's hard to find a potassium supplement specifically that's more than 99 or 100 milligrams. The salt substitute is a way clearly to bypass that, and they warn people because it can certainly be problematic. I'm not sure what to say much beyond that.

**Nicki:** I guess just, Lee, really look at what you're eating and maybe try logging in Cronometer or in some kind of an app which would track everything and see. You might not need the amount of the salt substitute that it sounds like you're getting.

**Robb:** Right. And we have to remind that when we have adequate sodium, we tend to lose less potassium. And the flip side of that, if we have inadequate sodium, then we tend to excrete potassium, and that ends up being a downward spiral that's very hard to get ahead of. And it's all very... Part of the problem with this whole thing is that one of the main sources of sodium in the modern diet is refined food, and clearly refined foods are problematic, like hyper-palatable, hyper-processed foods, what have you. But that doesn't necessarily mean that sodium itself is the boogie man it's been made out to be. It's kind of a guilt by association.

**Robb:** And when we shift into paleo land and whole, unprocessed foods, this is some of the stuff that Loren Cordain... God bless the guy. He was right about a lot of things, but I think he was absolutely completely wrong on his sodium recommendations, and it's one of the reasons why folks on the classic Cordainian levels of sodium intake had a lot of problems, particularly with exercise tolerance. So yeah.

**Robb:** What's up next here?

**Nicki:** All right, we have a question from Jackie on muscle cramps. She says, "Hi from Iowa. I hope this finds you well. I've been keto for just over three months. I have had the desired results of trimming away about 10 pounds of body fat and the elimination of sugar cravings. I'm curious about what my optimal body weight is and what that looks like, so I'm sticking with it and enjoying the journey. I think I had that moment when I was fat-adapted and I thought to myself, 'I am not craving things.' I've had some carb refuels usually because of social engagements, and they usually leave me craving sugar for the next week. About a week ago, I started to have leg cramps. I'm a 49-year-old female, 5'10", 173 pounds. I do resistive training for 30 minutes three times a week, sets of five reps of push, pull, press, squat, and trap-bar deadlift stuff.

**Nicki:** "One day a week, I do 20 minutes of interval aerobic machine work. I walk each night for 15 minutes after dinner. Sauna one time a week for 15 minutes, which I love. And I also teach five yoga classes a week, which means I prep for the class and certainly move through it, but I don't do the full class. I walk around and queue the sequence and give verbal cues for alignment, et cetera. I live in a small town and bike to work, which is about a six-minute bike ride. On the weekends, I like to go for a long one-hour walk with a friend." Very active.

**Robb:** Yeah. It beats us.

**Nicki:** I know. "At the beginning of the start of my keto journey and after reading about electrolytes, I begin my morning with one or two teaspoons of light salt and lime juice in 10 ounces of water. I also use Himalayan sea salt on everything: salads, I brine meat with it. I also take magnesium supplementation, one at breakfast, the other before bed. I track just protein and get about 110 to 130 grams a day. It's been a game-changer to track something that I'm trying to maximize. Tracking carbs will make a person nuts. I eat a lot of calories. I don't track calories, but I keep up with my 16-year-old son and partner on meals of fatty meats, pork, chicken, or beef. Loads of olive oil, apple cider vinegar, and Himalayan salt on my daily big-ass salads. I meditate daily, and I'm in bed by 9:00 to 9:30 each night. I drink about two cups of coffee in the morning with heavy whipping cream and 60 ounces of water by 1:00 PM, then about 40 ounces in the afternoon and evening, which usually includes two seltzers at night." That's a lot of... 60 ounces. That's a fair...

**Robb:** That's a lot of fluid volume.

**Nicki:** ... a fair amount of fluid volume.

**Robb:** Yeah.

**Nicki:** "I wonder if I'm dehydrated, or do I need to supplement calcium? I've suddenly been getting late-in-the-afternoon cramps, even large muscle groups, and feel super hungry, craving nuts and salty things. My sleep is also off. I have not had lab work recently, but plan to meet with my doctor to ask for a basic panel and return to D3, K2 supplementation, which I usually don't take in the summer. I appreciate your time and suggestions. Any would be greatly appreciated. I love the podcast and the two of you."

**Robb:** Thank you. Well, a couple of things. Even though... What's she doing again?

**Nicki:** She's doing light salts, tracking.

**Robb:** She's doing light salt, which is kind of 50-50.

**Nicki:** And salting her food, but I'm sensing that she's not getting enough sodium at all.

**Robb:** She's not getting enough sodium. Yeah.

**Nicki:** Yeah.

**Robb:** And this gets exacerbated...

**Nicki:** By the amount of water she's taking in.

**Robb:** ... by the total fluid volume, because we've got coffee and water and seltzers. That dilutes your electrolyte pool comparatively. And the kidneys are not terrible at normalizing this, but when we start experiencing cramps, people look to potassium and they look to magnesium, and occasionally those are the things. But generally the problem is sodium. Sodium is the thing that ends up staving off the muscle cramps. So I would just strongly recommend either curtailing a little bit of that water. Like, if you're drinking it because you're thirsty, that's kind of one thing. But if you're drinking it because you have a sense I need to drink a lot of water because that's healthy, I would question that a little bit and maybe try to reduce that by a third to a half and see if that addresses the problem. If you want to continue to drink that water, then I would do something like LMNT or your own home brew of electrolytes and really focus on sodium.

**Nicki:** And track, and track. So just like you enjoy tracking the protein to track something that you're trying to maximize, you can track sodium that way too.

**Robb:** Yeah.

**Nicki:** And make sure... I mean, you can start smaller, but work up to 3,000 milligrams a day and see how you feel. Given how active you are and if it's the summertime, you might even go higher than that.

**Robb:** If she's keto, we know that five grams is kind of like the bare minimum.

**Nicki:** Right, I'm just thinking like ramp up slowly, so she doesn't have the disaster pants effect. Or you're thinking because she's already having cramping, that she's-

**Robb:** Yeah. I suspect she's probably got some, and so... Yeah, yeah. And she's mentioning she has problems sleeping, which is another one of these things.

**Nicki:** Another sodium...

**Robb:** And Chris Masterjohn did a piece, we've talked about it before, where you do an eighth to a quarter teaspoon of sodium, of table salt in a sparing amount of water, literally like a tablespoon of water, just enough to swizzle it down. Raw sodium chloride on mucosal membranes can be not good over the long haul if you do a ton of it. But people have been noticing dramatically improved sleep from that because it suppresses antidiuretic hormone, which also has a suppression on cortisol during the sleep cycle. So low-carb can exacerbate cramping. It can exacerbate sleep problems, particularly if the electrolytes are not properly addressed.

**Nicki:** Okay. Jackie, add some sodium and report back.

**Robb:** Yes. That would be great.

**Nicki:** All right. Our last question this week is from Nate, and it's Autophagy Nerd Out. What a title. I'm not quite sure...

**Robb:** I'm not sure what it means.

**Nicki:** We'll have to read and see what that really means. "Hey, Nicki and Robb, I love the show, and your keto master class was a game-changer for me. I've switched up my morning to involve lots of dark roast coffee, regular and decaf, and sauna per your recommendation. I also do some heavy lifting in a fasted state, which I believe you might not entirely recommend. Can you nerd out a little on what is actually causing autophagy from sauna and dark roast coffee, and can one overdo it on the decaf coffee? Also, does a steam-room effect benefit us the same way a sauna would, i.e., autophagy and other cardiovascular benefits associated with sauna? Or should we stick with the dry heat of the sauna over a steam room? If you need it, I'm 5'10", a muscular 205 pounds, 32-year-old male on keto looking to shed some more weight off of my gut and maintain muscle mass, as well as reap any benefits from sauna and coffee that I can." And now that I've read the question with this, I know that it meant to say Autophagy Nerd Out and not Autophagy Need Out.

**Robb:** That works. Somehow Nate snuck like 15 questions in here. Where do we want to start digging into this?

**Nicki:** Can you ever do it on decaf, and what is causing autophagy in the sauna and the dark roast coffee?

**Robb:** In the coffee, the autophagy is thought to be stimulated by just there is a ton of different chemicals that come along for the ride in both decaf and regular coffee. This is part of the reason why I did the current talk that I have going on this year, which if you sign up for The Healthy Rebellion you get a preview of that because I do all my talks in there first. Otherwise, you have to wait for the Metabolic Health Summit or Paleo FX or one of the other places that I go to. But people have kind of gone crazy on this autophagy topic. And it's what should be a three-hour talk that I deliver in anything from 30 to 60 minutes, depending on the time allotted to me, but it covers a lot of material. But people don't appreciate that cancer has potentially a high autophagy rate. It doesn't mean that it's good. We need a certain amount of mTOR activation to identify cancer cells. You need mTOR Complex 1 active and stimulated in order for the immune cells that typically identify cancer in the early stages.

**Robb:** Then we need mTOR Complex 2 activated to be able to do the resolution process of removing cancer. When we think about cellular senescence, people present that as if it's a binary term, that cells are either senescent or not, and that is absolutely not the case. Cells exist within a spectrum of either completely non-senescent or partially senescent cells. And these partially senescent cells are critical to normal physiological functioning. I cite a couple of papers in this talk where we detail the damage that occurs from basically expunging our systems of these quasi-senescent cells. When animals are subjected to serial overload of fasting, they die from multiple system organ failure from a lack of stem cells because they burn through all their stem cells because these senescent cells that everybody is in a tither to get out of their system, you have to replace those with something.

**Robb:** And there's this concept called the Hayflick limit, which when eukaryotic cells replicate, you get about 50 replications out of them, and each time they divide, you lose a little bit of the telomeres. Fifty replications, most of the telomeres are gone, and then the cells tend to die. This is also part of the reason why a lot of folks motor along pretty well to the late 80s, early 90s, and then they just kind of fall off a cliff because they have effectively run out of stem cells.

**Robb:** So autophagy is good. Cell cycling is good. All of this stuff is good, but folks kind of get lost in the weeds in that if you are just eating something that looks like a species-appropriate diet, if you exercise with some regularity and you get a few of these hormetic stressors, like some heat or cold occasionally, you're doing great. You're doing amazing, and I'm really questioning what is the ultimate benefit of doing... Like, there are some people that run around wearing T-shirts that are Body by Autophagy, and it's kind of like, okay, it's kind of funny, but... There were some wonderful people at the Metabolic Health Summit, but one of the things that I'm noticing is within this kind of keto low-carb scene, there are folks that are impossible to distinguish whether or not they're a raw vegan or keto, in that they look like hell. They're gaunt. They're super skinny. They have either lost or never had significant muscle mass, and these folks are like the diehards on fasting and dialing up autophagy and all that type of stuff.

**Robb:** And I know that that's not exactly what Nate's question was here, but this is kind of a circuitous thing around like it doesn't really matter. We know that coffee stimulates autophagy. That's all well and good. The more important thing that we get from looking

at coffee is there seems to be a dose-response curve with intake correlating to improved longevity in general. There's some limitations. Some people that don't metabolize caffeine probably should go for the decaf versions. But what's fascinating about coffee consumption is at the higher levels of consumption, even though there is still correlation with longer health and lifespan, it's also related to worse diet and lifestyle. So it appears to overwhelm the other negative effects.

**Robb:** And also in the talk that I give, I make a point about sun exposure. And what's fascinating there is that people who... There was a study where they looked at smokers and sun exposure, and the smokers that did not get adequate sun exposure had as great an increased likelihood of... Or no. Flip that around. The smokers who got adequate sun exposure were as protected against illness and disease as people who didn't smoke. So just getting sun on our skin is like a smoking habit or not. So these are the things, the low-hanging fruit that I think folks are missing in this whole story. Again, I do actually... That wasn't exactly the question that he asked, but-

**Nicki:** But I think it helps. So Nate, it sounds like you're eating a whole, unprocessed keto diet for the most part. You're drinking some dark roast coffee. You're doing sauna. You're lifting heavy. Hopefully, you're getting some sun on your body. And I think the TLDR, as they say, would be just keep doing what you're doing.

**Robb:** Just keep doing what you're doing.

**Nicki:** Yeah, you're doing great.

**Robb:** And there was a more specific question in there. Does a steam-room effect benefit the same way that a sauna would? We don't really know. I assume so. Most of the studies that have been done are on these 180 degree...

**Nicki:** In the dry heat.

**Robb:** ... dry heat sauna. It is pretty clear. I had a conversation with Chris Kresser about this, that the infrared exposure is different, the photobiomodulation story, although there is some heat shock protein story with that if the room is sufficiently warm, but there's stuff outside of that that's going on. And with the wet steam room, the interesting thing there is that steam delivers... You can deliver more heat to somebody at a lower ambient temperature. Because of the density of water and its kind of thermal capacities, either hot or cold, it will transfer heat 30 to 50 times better than what the air does. So in my mind, you could probably have a wet sauna that operates at a comparatively lower temperature and get the same type of heat load, but I don't know if that's true. Maybe just your skin experiencing 180 degrees is...

**Nicki:** Is what it needs.

**Robb:** Like, there's a really remarkable response to that. Yeah.

**Nicki:** It seems like there's enough interest with all of this stuff that hopefully some researchers will start doing some studies...

**Robb:** Comparing on that thing. Yeah.

**Nicki:** Comparing, because like you said, they're all done with the dry saunas currently. So hopefully, we'll get some more data.

**Robb:** Yep.

**Nicki:** Okay. Let's see. That is it for this week. Make sure you check out our show sponsor, Four Sigmatic, for all your shroom needs. Go to [foursigmatic.com/rebel](https://foursigmatic.com/rebel) and use code rebel, R-E-B-E-L, for 15% off your order. And please subscribe. Leave us a review on iTunes or wherever you go for your podcast experience and please share this episode.

**Robb:** Folks have been doing it. The show's growing, and we appreciate that. The better reach we can achieve, the closer we are to our goal of liberating 1 million people out of the sick care system.

**Nicki:** That's right.

**Robb:** And we can only do it with you all. So thank you for the support, and we will talk to you soon.

**Nicki:** And we'll see you next week.

**Robb:** Okay. Bye, everybody.