

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 one million people liberate themselves from the sick care system. You're listening to this Healthy Rebellion Radio.

Nicki: 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. 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 plus.

Robb: How's it going, wife?

Nicki: Good morning.

Robb: Good morning.

Nicki: Good morning. Another early one for us.

Robb: I don't even know what to say about that.

Nicki: Just something about waking up.

Robb: Having to do something.

Nicki: Getting straight into recording something that's a little, I don't know. I kind of like my prolonged, at least time to finish one cup of coffee before we do one of these things. But alas, that's not the case today.

Robb: That is not the case today.

Nicki: No, we are right in the middle of scorpion season here.

Robb: We are. We had three of them in our room the other night. One in between the drapes. I had this thought we moved to a different place and I thought that this house was a little tighter than the old house and maybe we keep them out. No.

Nicki: I think they're just, this is just a thing. Everybody we talk to, neighbors, everybody has them. We have a pest lady.

Robb: Both of us stepped on one have not gotten stung yet.

Nicki: Yeah. We came home from jujitsu, took off my shoes, started walking and I felt this thing under my foot. Kind of just lifted my foot immediately and sure enough.

Robb: Sure enough.

Nicki: There was a scorpion under my foot. Thankfully it's tail was fully flattened out while it was walking and it did not sting me. I still screamed.

Robb: Now nobody is going to come visit us, not until the winter.

Nicki: Ah, alas. Let's see. We have an announcement. We have a Basis Health and Performance out of Chico, California, our friends, Sarah Strange, Grayson Strange, Nate Carlascio, they did a mobility reset inside of the Healthy Rebellion earlier this year and they're coming back and leading us through a summer strength program.

Robb: Awesome.

Nicki: Starting on July 13th. Program is free to members of the Healthy Rebellion so if that's something you'd like to participate in, you might consider joining. They're going to focus on the big three power lifting exercises, the squat, deadlift, bench press with the addition of pull ups, they also will have accessory lifts and a really cool thing about their programming is that they do coupled mobility. They will super set a mobility exercise with a strength exercise so it can help get you in a better position, increase the range of movement you have in the position required for.

Robb: And it's super time efficient so that you're not doing your strength training and then you have to tack on the separate mobility work. Yeah, that's pretty slick.

Nicki: It will be a four week program and we are super excited for that.

Robb: Cool. Now when's the drop deadline for people to start?

Nicki: It's on July 13th, and that's a Monday so you'll want to be signed up beforehand.

Robb: July 12th at the latest. Although kicking around to figure out what the lay of the land in the Healthy Rebellion would not be a terrible thing to do. Cool.

Nicki: Let's see. I think that's all I've got. What's your news topic today?

Robb: It's just a general comprehensive review paper on optimal foraging strategy. And I think that this is just such an important, but overlooked topic that relates to the notion that all critters try to get as much calorie, as much nutrition as they can, or one can with as little effort as humanly possible. Why do you have our picture? I don't care if I have light on me one way or another.

Nicki: The way the sun is coming through the window right now, the videos on this are going to look terrible, but oh well.

Robb: I don't care. Just stay the course, wife.

Nicki: I'm staying the course.

Robb: Yeah, so this is some of the stuff that makes me crazy with some of the people in kind of the evidence based nutrition crowd, where they'll claim oh, I'm informed by evolution and whatnot. And then these key facets, these keystone elements of evolutionary biology, as it applies to nutrition, get no fucking airplay at all. Just none. And this is the stuff that really informs. Is the recommendation just eat less and move more? Yes, from a thermodynamic perspective, that makes sense. But from an actual living human perspective, how in God's green earth do we do that in a world of hyper palatable foods and food delivered to your door and all the rest of it? And I don't have perfect solutions to it, but I have way better solutions than most of the knuckleheads that are just eat less, move more, have some discipline. It's not about discipline or any of the rest of that. You need effectively a self defense strategy around modern food to be able to pull this stuff off. It's a, I think very readable, very accessible, but it really unpacks this optimum foraging strategy concept pretty thoroughly.

Nicki: Awesome. Let's see our t-shirt review winner this week goes to Erihn, E-R-I-H-N. Love this podcast. I listen to them while I walk around the neighborhood. This must be during quarantine times. This is going to be the time where people walk around the neighborhood, more so than any other time in history.

Robb: Possibly, possibly, yeah.

Nicki: I love the info and fun banter they provide. The comments from Robb and Nicki usually result in me chuckling out loud. I look forward to listening to them and appreciate the real info they are giving. It's nice, trusting an opinion. Alrighty, Erihn, with an H, thank you for your review. Send us an email to hello@robbwolf.com with your t-shirt size and your mailing address and we will send you a Healthy Rebellion Radio t-shirt.

Robb: Cool.

Nicki: And this episode of the Healthy Rebellion Radio is sponsored by Four Sigmatic, the makers of the incredibly popular mushroom coffee with chaga and lion's mane, a go to morning beverage to support productivity, focus and creativity. Four Sigmatic has several mushroom products and ways to incorporate health boosting mushrooms into your daily routine. They're all yummy. They have coffees, they have matchas, cocoas, mushroom elixir mixes. They even have a chai latte one, which is super yum. They have products with caffeine and without caffeine. We've actually had a lot of conversation inside the Healthy Rebellion community of late, of folks decreasing caffeine and wanting to decrease just coffee intake in general. And a lot of people are trying Four Sigmatic and really liking it.

Robb: I think people are a little strung out around COVID and social unrest and everything else and extra caffeine is not doing them any favors.

Nicki: Not doing people any favors. Yeah. My favorite is I Think, it's the lion's mane elixir mix. It's very tasty. If you're in need of a productivity boost, you want something to help with creativity and focus, or you just think you might need to dial back your caffeine level

during this time, check out Four Sigmatic. Go to foursigmatic.com/rebel and if you use code rebel, you'll get 15% off.

Robb: Sweet.

Nicki: Hubs, you ready for today's questions?

Robb: I'm not, but that's why we're here so we're going to do it.

Nicki: Keto and hemochromatosis is our first question from Dana. Hi Robb and Nicki. I've been a version of keto, low carb, moderate fat and high protein since 2016 after being diagnosed with fibromyalgia, thyroid issues, low T3 and adrenal fatigue due to low pregnenolone alone. I also suffer from celiac disease. I've been able to heal my thyroid and adrenals just by being on the ketogenic diet. I recently got blood work back and my iron saturation is too high. After testing, it was confirmed that I carry the H63D mutation for hemochromatosis. Other than therapeutic phlebotomy, blood donations and watching my vitamin C intake, can you recommend anything that binds to iron to help remove it from the body? I really do not want to reduce my protein intake as my fibromyalgia symptoms are drastically reduced with higher protein intake over high fat intake. Thanks so much for your time. I've been a long time follower since 2009.

Robb: I did drop in a link to irondisorders.org and it's interesting and it's kind of telling, particularly in this period of time where vegan diets were being held up as just as good, way better than meat inclusive diets. And what's fascinating is it is devilishly hard to prevent heme iron absorption. It's relatively easy, there are a lot of plant based iron sourced foods like spinach and different things like that that are held up as really significant amounts of iron. And they may contain a significant amount of iron, but the absorption on the best of days is terrible. And then you add a little bit of coffee, a little bit of chocolate, tea, there was a host of different things that dramatically reduce the absorption of non-heme iron. Heme iron by contrast is really, really easy to absorb. And there's almost nothing you can do that blunts the absorption, which is kind of telling and it's not surprising that vegans, vegetarians, people who were living in super austere, impoverished situations tend to have low iron and the low iron can lead into neurological deficiencies and all kinds of different stuff.

Robb: It's a nontrivial problem, but then we have somebody who lives in the modern world. Hemochromatosis, what the heck do you do with it? You could do a little bit more fish and stuff like that. We're not really recommending chicken as an option because from a sustainability perspective, it sucks compared to any type of ruminants. And so maybe rounding things out with a little fish, shellfish could be helpful there, but interestingly, the one thing that does really affect heme iron absorption is calcium.

Robb: And I didn't have time to dig deep enough on this, but dairy products might contain enough free calcium or even bound calcium that it could affect the heme iron. I'm kind of guessing on that, but a scoop of yogurt with a meal. The one concern there is she mentioned that she has celiac disease and a lot of people with celiac disease end up cross reacting to dairy. You're going to have to feel that out, but maybe some type of a

hard cheese, maybe a Greek yogurt or something like that. And then short of that, if you're doing a meal that has some red meat in it or what have you a very, very small amount of calcium, a 20, 30 milligram calcium supplement and it'll actually be kind of hard to find that, but that could be helpful because that will directly bind to the iron. It doesn't bind to it, but it inhibits the absorption.

Robb: I've historically been kind of cautious about recommending calcium supplements because the literature suggests that people who supplement with calcium have increased rates of cardiac events. There's some back and forth on that, but that some sort of a calcium supplement seems to be like the way or just finding sources of protein that have less iron in them. But that seems to kind of be the way to deal with that.

Nicki: And how frequently, she mentions going and doing blood donations, how frequently would one do that with hemochromatosis?

Robb: It really depends. There's I forget how many different varieties of hemochromatosis, there are a lot of different flavors of it. You can be heterozygous or homozygous. And so that way I suspect she's probably homozygous, means she has two genes for it. And then what is her total protein intake? Is she still menstruating? If she is then that's going and this is a whole interesting thing if she still has a monthly cycle but still needs to do phlebotomy then when she goes through perimenopause and menopause then she may need to really step that up to stay ahead of this.

Nicki: Got you.

Robb: Because you may have a really, really aggressive form of hemochromatosis. And it's maybe worth mentioning, I've been noodling on what talk I want to do next year. And the rough outline is your body or your genes really aren't trying to kill you. And I want to look at the evolutionary advantage of things like hemochromatosis, breast cancer one genes and whatnot, they call it like the breast cancer gene. Well, it doesn't just increase the likelihood of breast cancer under certain circumstances. It also increases the number of children that people have, reduces their susceptibility to a host of illnesses and improves survival overall.

Robb: It's not just, it makes me crazy how a bunch of this stuff gets couched and it's like, oh, it sucks, you have hemochromatosis. Well, that's an adaptation to living in a super shitty diet environment in neolithic times where protein intake was actually remarkably low and people were barely scratching out an existence, eating shitty, like grains and legumes and stuff like that. Basically trying not to be planet of the vegans and hemochromatosis was effectively an adaptation to better deal with environments like that. Hypercholesterolemia from the familial hybrid, there's a bunch of different things. I'm kind of noodling on that, but the long and short of it is that this stuff isn't an accident, it's just our world has changed in ways that this adaptation may not be as beneficial and we need to put some thought into how to deal with it.

Nicki: Okay. Let's move on to our question from Bill on telomeres.

Robb: Holy smokes, we're only two questions in. Man, I need to shut up.

Nicki: Need another sip of coffee? Bill says, "Robb, you are killing me. You alluded to telomere shortening recently within the context of extended fasting while chatting with Paul Saladino. I thought I'd wait to hear you out more on the subject eventually, but nada. However, I've also been unable to find any articles reporting such an important phenomenon. I would be grateful for any elucidation you might provide."

Robb: Yeah. I vaguely remember this because of the current talk that I'm in theory doing this year, but since everything shut down.

Nicki: There are no conferences to speak at.

Robb: There are no conferences to speak at. I think I did it at Metabolic Health Summit.

Nicki: You did.

Robb: And then we recorded it and released it in the Rebellion. Did we release it more broadly?

Nicki: You did it for you did it for the Keto Conference.

Robb: Oh, the Keto Conference and also Akiehl's conference so it's been out there a little bit, but I talk about this a bit in there. And part of the deal is that telomere length isn't this iron clad indicator of aging or not aging. There are correlations there. Once you lose all the sufficient telomere then cells tend to not fare well, but it's not exactly solid. It's not as perfect as the way it's presented. That's a thing. But fasting can improve telomere length under some circumstances and it can worsen it under other circumstances. And that's a bunch of the stuff that I unpack in this longevity, are we trying too hard talk. And that's free as part of the Healthy Rebellion membership. And part of the reason why people don't hear more stuff around this is, other than the podcast, I spend the bulk of my time over in the Healthy Rebellion, because it's not insane people snapping each other's throats. And I actually enjoy my work over there.

Robb: And so if people want to actually track me down on more of this stuff, that's kind of where it is. Impromptu sales pitch for the Healthy Rebellion. But this longevity, are we trying too hard talk, it really unpacks a lot of material, including things like we've based so much of our assumptions around animal models and these animal models maybe flawed from first principle position. Possibly as bad as like food frequency questionnaires with regards to quality. And I unpack a bunch of that stuff as part of that talk. I don't think any other conferences are going to happen this year.

Nicki: Right. If you went to Metabolic Health Summit, you either saw it or you have access to the video there and then Akiehl's talk. I'm blanking on the name of his conference in San Francisco. It was right when all of the COVID lock down and stuff was happening so that one happened virtually and then the ketogenic.

Robb: I did one for Keto Con or ketogenic.com. And then I guess also Keto Con there's a recorded one with that.

Nicki: All right. Our next question is from Twee, Stevia, a steroid? Hello. I am going to keep my question short for efficiency purposes. I recently discovered that many constituents in the stevia plant, including.

Robb: Rubusoside.

Nicki: Rubusoside A, have chemical structures similar to those of steroids. Cortisol for example. I've seen some literature in the past stating that stevia may increase insulin response, but I didn't put much thought into it since most of these studies are poorly designed. I'm not sure the purported insulin response is due.

Robb: Proposed.

Nicki: Proposed, okay typo. The proposed insulin responses due to a rise in blood glucose or some other mechanisms. Stevia is so sweet anyway, that I don't need to use much of it to get the sweetness I desire. I turned to keto lifestyle for about three years now due to borderline pre-diabetes. My blood sugar is not great, but not poor either. I have an A1C of 5.4%, fasting in the eighties, and post-meal low one hundreds. I'm not too worried about my blood sugars, but just for fun and giggles I wonder if the similarities between stevia constituents and steroids will eventually be a concern if I use it moderately every day, like a few drops in my daily matcha latte, sometimes in desserts sparingly? Thanks a bunch. Love the show.

Robb: It's funny, it depends on which frame of reference you come from whether or not the steviacides are problematic. If you go really far down the carnivore pathway, then every plant known is trying to kill you and they have estrogenic properties and all kinds of stuff. And that is true. And I think that licorice root is a fascinating example. It's oftentimes used in trying to help deal with things like quote, adrenal fatigue, HPTA access dysregulation, causes you to retain sodium, but you tend to excrete potassium. If you do too much of that, you can end up with a cardiac arrhythmia and potentially die. There are limits to these things. You don't want to do a ton of them, but I also have this sneaky suspicion that being a robust human being, a little bit of plant material, shouldn't kill you.

Robb: If you are that broken, and some people are and I'm not, not making light of that. But I think it's something that we want to pressure test a little bit and keep a little bit of that stuff in the mix. And to get back to the question, the proposed mechanism of why insulin levels go up is really just related to the sweetness of stevia. Just that the taste of stevia. Stevia is oftentimes marketed as a blood sugar lowering agent, which kind of does, but it does it by elevating insulin and so if you're already having insulin dysregulation issues, that's probably not a win. In the context of being on a ketogenic diet, I don't think it really matters at all in the amounts that most people use. I don't see any potential problem with the estrogenic effects or anything else like that. As with

everything, there's probably some individual considerations there, but just for myself, if I want to do kind of a home brew mocha or something and I throw some.

Nicki: Cocoa powder.

Robb: Cocoa powder and maybe a little whole cream or what have you and mix it up and then I want a little bit of God damn sweet in it, I'm sorry. Doing raw cocoa powder.

Nicki: Little rough.

Robb: Yeah, it's kind of rough. And a couple of stevia packets and it tastes pretty damn good. It has no sugar in it so I don't need to worry about that. And whatever other potential downsides, like the little bit of joy that it gives me, I hope that it's preventing my penis from falling off or whatever else is going to happen. But it's a good question and everybody has different risk tolerances on this stuff, but this is one area where I respect the carnivore kind of perspective on things, but it also, if you introduce and remove things like some fruit or some asparagus or a little bit of stevia or something and you just can't really tell that big of a difference one way or the other and you actually have a little bit more joy and variety with the inclusion of these things, then it seems like a win to include a little bit of that stuff.

Robb: And I respect that a good number of people in the carnivore scene are just kind of experimenting and well, how long can I go pure carnivore? That's all fine. But when it gets couched as every scrap of plant material is poised to kill you, it's really? Are we that fucking fragile that some basil leaf is going to murder me in my sleep? It's it's a little much. Yeah.

Nicki: Alrighty. It's time for the Healthy Rebellion Radio trivia. Today's trivia sponsor is Drink LMNT. Drink LMNT, our electrolyte company will be giving a box of LMNT Recharge electrolytes to three lucky winners selected at random who answer the following question correctly. Now Robb, I don't know if you remember this, but Zoe had a trivia question in her little kid magazine that she reads and she was asking it last week. I'm going to see if you remember, Robb. Where does an amoeba surf?

Robb: Well, Nicki and amoeba will surf on a microwave. I did remember it. There's many other things I don't remember, like tying my shoes and things like that, but I did remember that little piece.

Nicki: All right, folks. Your trivia answer this week is microwave. To play, go to robbwolf.com/trivia and enter your answer. We'll randomly select three people with the correct answer to when a box of LMNT Recharge electrolytes. The cutoff to answer this week's trivia and be eligible to win is Thursday, July 2nd. We're almost in July. At midnight. Winners will be notified via email and we'll announce the winners on Instagram as well. And again, this is open to residents of the US only.

Robb: Awesome.

Nicki: All right. Our fourth question this week, is all processed meat that bad? This is from Jarno. Hi Robb and Nicki, thanks once again, for a great podcast. I am a listener from way back. It bears repeating that you are changing lives for the better. My question is about a topic I hear rarely discussed. That is, how bad processed meat really is and how much of a spectrum is there under the umbrella of processed meat? I would presume that the cheapest ultra processed hot dog sausage and the finest Italian artisan prosciutto might have a bit of a difference between each other.

Nicki: Here in Finland we have, for example, this lineup of products from a major manufacturer, Snellman called All Natural. Yeah, right might say. These products really don't seem to contain any bad additives, et cetera, just meat and spices. How would you consider these products against say fresh meat? Is there something about the actual processing of meat in large scale manufacturing settings that makes them of lesser quality? These are delicious, shelf life is very decent and they make day to day living so much easier. The site is unfortunately only in Finnish. Anyway, I'd love hearing your thoughts on this subject in general, and maybe a comment about those products. Best regards.

Robb: I'm going to be the crazy person here because everybody, man, I'm thinking 50 different things. Whenever the latest vegan propaganda piece comes out and it's decrying the evilness of meat or the health negativity of consuming meat, people will chime in wanting to be helpful and say, "Well, they're not considering grass fed meat." And blah, blah, blah. Here's the deal. Meat in general, is just super fucking nutritious, just really nutritious, really good for us. It's more nutritious and better for us than just about anything else we can eat, even though I was just kind of beating up on the carnivore people. I would make the case that you tolerate plants to the degree you get adequate animal protein and not the inverse of that. And so I think people actually give too much credibility to the shit science that is done around how many servings of bacon increase your colon cancer risk by how much and stuff like that.

Robb: This qualitative piece is actually lending undue credibility there and this is going to freak people out because they want there to be something magical imbued to meat products that are raised in a more ethical regenerative way. And the magic there is the improved ethics and the regenerative capacity of properly raised meat. But on the health side, there's just not that much there. Now, there are some people that point out some things like feeding atrazine laced grains to animals or them eating Roundup imbued grasses, that there can be bioaccumulation of that stuff, I'll acknowledge that that's a potentiality. But when we're talking about essential nutrients, heme iron, Omega-3 fats, B vitamins, there's just not that much of a difference. And then when we circle back around more specifically to the question around process meats, yeah, I guess some super low quality hotdog may not be quite as good as an Italian prosciutto, but what is it that you're looking at that's going to be different?

Robb: And this is where it becomes almost like somebody selling homeopathy or something like that. They're like, "Well, the vibration in the water." And I'm like, well, can you measure that? No, they can't because nothing exists there. It's a fascinating idea, but it actually completely defies anything that we understand about physics. You would literally need to rewrite physics and cosmology for homeopathy to work. And I know I

probably just pissed off the two remaining hippie podcast followers, but there's just nothing there. And similarly, okay, let's look at a hot dog versus some prosciutto and look at the protein, the carbs, the fat, the sodium, the vitamins, the minerals. And there will be some differences there, but are they that big of a difference? And then even these things around nitrates and nitrites, nitrates and nitrites are the things that are in plants that are supposed to be good for us. They're vasodilators, they feed into the whole nitric oxide release system.

Robb: And so ironically, these things appear to be carcinogenic in a cell culture line where you're dumping it on open living cells. It doesn't seem to have the same effect on living animals. And I will refer back to a podcast that Peter Attia did with a world expert on fructose and sugar consumption. He made a very tight case that the consumption of liquid fructose was the driver of colon cancer, not meat, not any of this other stuff. And so that's worth a listen. And it's interesting because most of the vegan folks are huge apologists for sugar and fructose and stuff like that. And they do all their fucking acai juices.

Nicki: Big juices. Yeah, big juicers.

Robb: Good luck with that. I just hope that they're in a different insurance tranche than I am as all the stuff goes along. But even, I guess, trying to put a bow or a wrap up on this thing, when you look at the epidemiological research that's been done around this, it's the food frequency questionnaires. These things are terrible and they get statistically tortured to beat the band. And even then, after the shit information on the front and then the processing of the shit midway be a statistical analysis, then when we land well, what's my change in risk? There's in theory, a background risk of 5% likelihood of developing colon cancer within westernized populations. And then if you ate 100 gram portion, a quarter pound of bacon every day, your whole life, your absolute risk goes from 5% to 6%.

Robb: That gets reported as, and what that means is in theory, if you had a 100 people that didn't eat bacon every day and a 100 people that did eat bacon every day for their whole, life five in the 100 would develop colon cancer versus 6 in a 100 would develop colon cancer. That's the theory based off that. Which I think there's more error than signal there, but that gets reported as a 20% increase in total risk. Man, that's a lot of, I just don't think that there's a whole lot to this. I think that fresher meat is more nutritious. You do actually get some vitamin C out of it. You do get some of these other things like the Omega-3 fats and whatnot, I think are more intact or there's more of them there.

Nicki: To the degree that you can support people that are doing these kind of artisan processes with their meats.

Robb: That's great.

Nicki: And butchering things properly and doing all of that, obviously putting your dollars where your heart lies with regards to how you want the land to be treated and the animals to be treated and all of that makes a lot of sense as well.

Robb: Yeah. I could probably beat that to death more, but I think that that's kind of, I'm just really underwhelmed with the bogeyman health implications of processed meat. And people hate me for it, but they're going to hate me for all number of things as the world goes along. That can just be added to do it.

Nicki: All right. Our last question this week is from Peoter. Does food tolerance depend on your birth place? Hi, Nicki and Robb. I admire your work. No bullshit content for such a long time. My go to source of information on nutrition and general wellbeing. I've got two questions or maybe it's just one, depending on how you look at it. I've been following a paleo low carb lifestyle while starting my CrossFit journey. Effects were amazing, especially after my traditional gym background training for the pump and high carbs as the base of my diet. My wellbeing improved significantly, but as after two years intensity and volume of CrossFit workouts increased, I've felt a lack of fuel for those workouts. I've begun to experiment with the reintroduction of several foods and here's what I've discovered.

Nicki: A, eating a moderate amount of dairy does not harm my guts at all. And B, lowering the amount of HIIT training sessions in my training week also improved my food tolerance. I've started wondering if A, being an Eastern European gives me better tolerance for dairy? Is it possible that food tolerance variation depends on the part of the world where you were born? And B, are too much hard core intensive workouts, can they influence gut issues? Bonus question, potatoes are gray zone of the paleo diet. Why? Are there really that many? Is there really that much of a difference than sweet potatoes? Actually as an Eastern European, I find them much better for my guts than sweet potatoes. Could it also be something resulting from geographical or cultural differences?

Robb: Maybe I'll start tackling this in reverse order. It's always kind of funny to me when somebody from Europe or Ireland in particular, they're like, well, I should be able to eat potatoes because that's a staple of our diet. It's only been there a couple of 100 years. Potatoes are a new world cultivar. It came from Peru. I do think that there are tendencies for geographic adaptation to various foods. Certainly dairying is one of these biggies. There's three or four different locations around the world where people add some really specific adaptations to dealing with dairy specifically the lactose, although there are places that people consume a significant amount of dairy. They don't have the lactase gene enhancement that it stays on through adult life, but they just end up fermenting the dairy and so it's not really an issue.

Robb: Those are our pieces, but it's like celiac disease. There's a higher incidence of one specific variety of celiac disease within various European populations, particularly Scottish and Irish. But within say Native American populations, there is a flavor of celiac disease, but it's caused by different genes. Who knows why they have that? It wasn't an adaptation to that situation of being exposed to gluten containing items. Because again,

this is a super comparatively recent introduction to say a Native American's diet. It was something that just kind of existed as part of their nascent genetic adaptation. And it just happens to manifest in a gluten intolerance or celiac disease type deal.

Robb: There's just a lot of variability in that stuff. The one thing that I would say is most concrete out of any of this that we could put a real pin in is that too much high intensity interval training is horrible for your gut health. One of the first things to go south on us when we train really hard is gut integrity. And this is one of the reasons why as people train harder and harder, their diet actually needs to be better generally because they just don't have any tolerance for these immunogenic foods or their ability to tolerate them tend to go down. It's just one more bit of adaptation resources that they need to stick somewhere. And ideally if they're training that hard, it goes mainly towards their training.

Nicki: Got it. That's a wrap babe.

Robb: Awesome.

Nicki: Thanks y'all for joining us. Remember to check out our show sponsor, Four Sigmatic at foursigmatic.com/rebel and use code rebel for 15% off your order. And I recommend you try the Think with lion's mane. Share this episode. If something in this show piqued your curiosity or helped you, share it with a friend. And lastly, join us at thehealthyrebellion.com. Go to join.thehealthyrebellion.com and if you sign up before July 13th, you can join us in our next strength, Rebel Strong strength program, hosted and led by as the wonderful folks at Basis Health and Performance.

Robb: Awesome. Thanks, wife.

Nicki: Thanks, hubs.

Robb: Okay, see you all soon.

Nicki: All right guys.

Robb: bye.

Nicki: Later.