

**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 a bold aim to help 1 million people liberate themselves from the sick care system. You're listening to this 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 Rob 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:** I think I should have gone pee before starting. We're good. We're good. I'll motor through.

**Nicki:** You think you can make it?

**Robb:** I can make it.

**Nicki:** Maybe it will be an incentive to keep you a little less long winded.

**Robb:** I will be concise today. Yes.

**Nicki:** You've been a little long winded of late.

**Robb:** As Ed McMahon would say, yes, ha-ha-ha.

**Nicki:** Wow. That's a blast from the past.

**Robb:** It is. Yeah.

**Nicki:** Star search, right? Among other-

**Robb:** Tonight Show. Yes, of course. You would know him from Star Search. Not as the sidekick of Johnny Carson.

**Nicki:** You're a little older than I am.

**Robb:** And you'll live longer while I'm dead. So, there you go. You get to win both the coming and going there.

**Nicki:** Uh-huh (affirmative). What have we got? What's new hubs.

**Robb:** We motored through Halloween. Had a good time.

**Nicki:** Yeah, we did. We did. We had a neighbor that had a little gathering and some spooky movies outdoors on the-. We watched Hotel Transylvania. Spooky, but not too spooky because there's nothing like going ...

**Robb:** Terrifying your kids and then they can't sleep on their on.

**Nicki:** Terrifying your children and then they can sleep for a week.

**Robb:** Yeah, that's a good time.

**Nicki:** Yeah, that was fun.

**Robb:** That's about it. That's about it. Two is good.

**Nicki:** Two is good.

**Robb:** Yeah.

**Nicki:** We've got a lot of fun stuff coming up inside the Healthy Rebellion community. We've got some live chats coming up. Those are always a hoot. Those are sort of like free for all open text chats with-

**Robb:** We start off with the theory of having a topic in ... it never stays on the topic, and they are-

**Nicki:** Usually, the topics can kind of ...

**Robb:** Morph.

**Nicki:** Morph.

**Robb:** But I enjoy many elements of the Healthy Rebellion, but the live chats are my favorite feature. They are a ton of fun.

**Nicki:** A lot of fun. We have members that always are like, gosh, I can't believe I had to miss this one for this, that or the other. They're highlight for a lot of folks as well. We've got some of those coming up throughout the rest of this month of November weekly. We've got some of our killer members who are great chefs are going to be doing some holiday, how to recipes. So, one of our members, Jack, is going show us all how to do a beef tenderloin with celeriac, puree and greens. We've got our ... another one chef, Eva. Eva Bee, she's going to do a holiday dessert cook along. So, looking forward to that, and we've got our first virtual holiday party inside the Healthy Rebellion.

**Robb:** And we have no idea how it's going to go. I'm on the side of absolute abject disaster, but we'll see.

**Nicki:** I think it's going to be fun.

**Robb:** It will be fine, but it's going to be a fun disaster, is my prediction.

**Nicki:** Yeah. Well, anyway.

**Robb:** Disasters can be fun too.

**Nicki:** Disasters are memorable.

**Robb:** Yes.

**Nicki:** And fun.

**Robb:** It will be memorable. Put it that way. Yeah.

**Nicki:** Anyway, lots of fun stuff hopping in there, so if you are not yet a member and you want to take part in some of these activities, you can always join us if you go to [join.thehealthyrebellion.com](http://join.thehealthyrebellion.com), and we'll see you in there. What else, Robb?

**Robb:** News topic du jour, pretty cool paper. The title is Obesity and Disease Tied to Dramatic Dietary Changes. This goes back to the discordance or genetic mismatch kind of theory, which honestly underpins the whole reason for being around the paleo diet concept is this notion that we as a species or maybe optimize for a lifeway, different than the one that we're in. It's remarkable to me, the amount of pissing, moaning, biting, scratching, dismissal that occurs with this, even from people in the more established evolutionary biology communities. Yeah, I don't even know where to go with it, but this is a paper that looks at a group of folks, the Turkana from a region in Africa, that's gone through some really remarkable social changes, infrastructure changes. But this is all from the paper.

**Robb:** "The mismatch hypothesis argues that our bodies evolved to digest the foods that our ancestors ate." I would just, as a sideline, it argues a whole lot beyond just the foods that we digest. It encompasses a ton of different things, hygiene hypothesis, photo period. Discordance or mismatch covers a lot of things just besides food, but we have a tendency to look just at food, and the human bodies will struggle and largely fail to metabolize a radically new set of foods, which I would actually argue against that to some degree. We don't know for sure if something that's evolutionarily novel is going to be good, bad or indifferent, but when we see problems, and I would argue that this is part of the reason why the Loren Cordainian flavor of the messaging that came out around the paleo diet was kind of shut down, is it's not inherently explicit that an evolutionarily novel experience or food is going to be deleterious.

**Robb:** But if we see a problem and we've seen a dramatic change from some ancestral norms, then that's kind of a reasonable place to look. But even in this published scientific piece said, then all this stuff is buttoned up, and I am supposed to be going fast because I have to pee. This intuitive idea is hard to test directly, "but the Turkana pastoralist population in remote Kenya present a natural experiment, genetically homogeneous populations whose diet stretch across a lifestyle gradient from relatively "matched to extremely mismatched with their recent evolutionary history." Enter the Turkana subsistence level pastoralist population from a remote desert in Northwest Kenya, in the 1980s, an extreme drought, coupled with the discovery of oil nearby, led to rapid transformation of the region. Large segments of the population abandoned their nomadic lifestyles, some to live in villages, others in cities. Traditional Turkana still rely on livestock, camels, cattle, fat tailed sheep, goats, and donkeys for subsistence."

**Robb:** "While Turkana living in cities have switched to diets that are much higher in carbohydrate and processed foods. This is a trend that is widely observed across the world and a result of increasing globalization, even in remote communities. "We realized that we had the opportunity to study the effect of transitioning away from a traditional lifestyle, relying on almost 80% animal byproducts. This was the traditional Turkana diet, the diet extremely rich in protein and fats with very little to no carbohydrates, to a mostly carbohydrate diet," said Julien Ayroles, an assistant professor of ecology and evolutionary biology," who is the senior researcher on this new paper. "This presented an unprecedented opportunity. Genetically homogenous populations whose diets stretch across a lifestyle gradient from relatively matched to extremely mismatched with their recent evolutionary history."

**Robb:** "But Turkana who had moved to the cities exhibited poor cardio-metabolic health with much higher levels of obesity, diabetes, cardiovascular illness, and high blood pressure, the high metrics ..."

**Nicki:** Health metrics.

**Robb:** "Health metrics also showed that, the longer a Turkana had spent living in the city, the less healthy they tended to be with lifelong city dwellers experiencing the greatest risk of cardiovascular disease." And it goes on from there. Ironically, in the paper, this piece, it is a news piece on a scientific website about a published paper. So, this is back and forth between actual material out of the published paper and also interviewing people. But one of the researchers was quick to say, "Now, don't take that eating a lot of protein and fat is going to be healthy for you and me. We would get sick immediately, which ..."

**Nicki:** Oh my gosh.

**Robb:** I'm going to do a salty talk on this one and kind of unpack this stuff, but it was just ironic where, and granted, maybe within the grand scheme of things within this genetic variation that we see across all of humanity, perhaps that is not appropriate everybody under all circumstances, but it wasn't ironic kind of a side. This is one of these things that yet, again, it just, when we think about the ... it fits your macros crowd and the evidence-based food crowd and all that type of stuff, these are people that ate high-protein, high-fat diets and managed to do it in a way that was consistent with health and wellbeing, and had been a feature of their existence for hundreds, if not thousands of years, which in the grand arc of evolution, is not that long, but these are really interesting case points that you can't do a randomized controlled trial like this.

**Robb:** Similar things have been done, I believe Leslie Aiello, who's a researcher in Australia, maybe getting the name of the researcher wrong, but they took Australian Aborigines that had been raised in the traditional environment, understood forging lifeway, moved to cities, developed different cardiometabolic diseases, but they still had the skillset to be able to go out and live off the land. They then moved them back out into the bush and they lived off the land, and they, within three weeks, had completely reversed their type two diabetes and a host of other problems. This is some of that stuff that when you get the real staunch evidence-based nutrition people that are just kind of pissing down the back of the evolutionary biology concept after or ancestral health or whatever, it really ... and I threw this challenge out previously, and I should probably make this some sort of a formalized challenge.

**Robb:** If evolution via natural selection is the keystone concept within biology, which is medicine is just applied biology effectively, if evolution is important, then we should be able to garner some insights from that and have some predictive value and make some sense of things, and literally every conversation we have should be couched within the evolutionary context. There's very rare circumstances where we would not do that, or these folks don't really believe in evolution, and then they need to have an accounting there, but you can't claim to be a scientist and then dismiss the keystone dogma that underpins a particular ... it would be like being a geologist and saying, well, plate tectonics, those people are kind of lunatics. I think it's just interesting, it's cool paper, and it has these hunter gatherers and pastoralists disappear as they become completely acculturated into kind of modernity, these opportunities will become less and less.

**Robb:** I think it's worthwhile to just give a look at these things and begin our hypothesis generation from this perspective. I've long made the case that again, a spot where the paleo diet concept kind of drove off the path or drove off a cliff or whatever you want to

say, is that it claimed the ability to make all kinds of in point predictions, but really, what it's great at is hypothesis generation. This should be where we begin the question process, and then we start getting in and testing and tinkering and whatnot. I do think that that's another spot where this kind of observational level material can be really valuable, but it also has its limitations, and I think that that is a credible critique of this material.

**Nicki:** Cool. Do you want to go relieve yourself, and I can push pause before we move on?

**Robb:** Nope, I'm good.

**Nicki:** You're good. Okay, here we go folks.

**Robb:** This is going to keep me on point, it's going to keep me focused.

**Nicki:** Here we go. All right. Let's read our t-shirt review winner for this week. It goes to Tiberius Tree Frog, "Real info, no BS. Want a hard dose of reality, along with some solid well-researched health advice? Look no further than the Healthy Rebellion Radio. The questions the two hosts answer always informative and health helpful, with the most recent round of salty conversations, whether they're part of official salty talks or not, are eye opening and galvanizing. Anytime I've drifted away from a healthy lifestyle, listening to a Healthy Rebellion Podcast is guaranteed to push me back on track. Keep it up."

**Robb:** Nice.

**Nicki:** From Ben from Pennsylvania, Tiberius Tree Frog, thank you 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:** Then take a picture of yourself in that and slap it up on that old social media.

**Nicki:** Slap it up.

**Robb:** Yep.

**Nicki:** Yeah, there we go. All right, this episode of the Healthy Rebellion Radio is sponsored by Joovv. Joovv is the leading brand. When it comes to red light therapy devices. Joovv pioneered this technology, and they were the first ones to isolate red and near infrared light and make it accessible and affordable for in-home use, and they've remained the most innovative forward-thinking light therapy brand. Joovv red light therapy devices can help reduce pain and inflammation, improves sleep, help rejuvenate your skin and boost your libido. In addition to eating whole unprocessed foods, getting good sleep, smart strength training and minimizing stress, getting lots of healthy light with red light therapy like Joovv is key to living an optimal life. Joovv just launched their next generation of devices. They've made huge upgrades to what was already the best light therapy system on the market. The new devices are sleeker, up to 25% percent lighter, and they've been intensified their coverage areas, so you can stand as much as three times further away from the device and still get the recommended dosage.

**Nicki:** The new devices also include some really cool new features like recovery plus mode, which utilizes pulsing technology to give yourselves an extra boost to recover from a workout with rejuvenating near infrared light. Now is the perfect time to get your Joovv red light therapy device, and for a limited time, Joovv wants to hook you up with an

exclusive discount for our listeners on your first order. Just go to [joovv.com/robb](http://joovv.com/robb), that's, [joovv.com/robb](http://joovv.com/robb) and apply the code, ROBB, R-O-B-B, to your qualifying order. Exclusions apply, limited time only. Again, that's [joovv.com/rob](http://joovv.com/rob). All right. Hubby, hubs, hubstar.

**Robb:** At the end of that, I want to throw in my righty, tighy lefty loosey in through the bottom, out through the top, limited time offer. Okay. Let's just keep going. Yep. You're looking at me blankly.

**Nicki:** Because you usually say that to the kids, like righty, tighy, lefty, loosey in through the bottom, out through the top, and there's one more. What's the other one? There's like a third ...

**Robb:** Better dead than red.

**Nicki:** No. I don't know. It's not coming to mind right now. Okay, the carnivore diet. We've got a question from Bradley. Question number one, behind door number one, we've got a question from Bradley. I love your podcast. I love the open-minded science-based approach toward diet nutrition. I'm a graduate of Marxisms Primal Health Coaching course, and I am a huge nutrition nerd. I've tried vegetarian, vegan, and finally got amazing results from primal eating. I've always leaned more towards the low carb, mainly animal product end of the spectrum on primal, and I've been listening to carnivore podcasts almost exclusively for the past few months. I do have a comment that maybe you could help me understand. I bought *The Carnivore Code* by Paul Saladino, and I loved the book, and it points on plant self-defense mechanisms, and it makes sense.

**Nicki:** Maybe I missed something, but if we evolved to become more animal-based, wouldn't it also make sense that we've now evolved back to being able to eat some plants? Maybe there hasn't been enough time for that evolution. Isn't being able to drink milk without the gassy effects and evolution too, though? I appreciate any insights.

**Robb:** Yeah, there's a lot. It's a great question. On the surface, seemingly a simple question, but there's actually a lot going on here. When we look at some more recent evolutionary changes, say like lactase persistence, the ability to, and as infants, all humans typically are able to produce the enzyme lactase, which helps us break down the sugar in breast milk and not give us GI problems. For most of humanity, I think like 70%, we lose this as we age. And then for some people, it depends, they may maintain the ability to produce lactase if they continue eating dairy products. Like, there's kind of a demand driven process. Then for other people, if they stop eating lactose at some point, dairy products, then they will lose the ability to produce lactase. There's three main polymorphisms that have different lactase persistency phenomenon within humanity.

**Robb:** I think there's like eight total, but there's three big ones. The lactase persistence in Mongolian populations is different than that found in African populations, which is different than that found in Northern European populations. It's addressing the same problem, but it's tackled in somewhat different ways, the way that this all happens. Then there were some places where people consume significant amounts of dairy, and they still don't maintain the lactase gene as they age, but they process the dairy in such a way like yogurts and hard cheeses and stuff like that, that dramatically reduce the amount of lactose and so it's not really an issue. So, it's lots of different things there. This again is one of the features of the early paleo diet concept that made the case that evolutionarily, we're very, very similar to hunter gatherers.

**Robb:** And there just hasn't been that much time to allow for adaptation to occur. There's truth in mistruth about that. Some adaptation has happened. We've seen things like lactase persistence. We've talked on the show before about things like sickle cell anemia and whatnot. So, there are things that can make penetrants into a population very rapidly, usually something like sickle cell anemia can have super broad penetration into a population if there's a powerful enough signal. That signal usually has to do with people dying as a consequence of not getting this comparative advantage, and so that is a way that this stuff can go through the population. Other changes tend to be slower, which is some of what we've talked about in the early paleo diet stuff. When we look at some Asian populations, there seems to be some morphological changes in the gut that lend themselves more to carbohydrate digestion.

**Robb:** There have and are some changes that occur not long, long ago, pointed out that, whether changes have occurred or not is somewhat immaterial, the real point is, how do people do with this stuff today? There are clearly some people, I'm one of these folks, that don't do that well with carbs. I don't do well that well with greens. Even if I'm eating a little bit of carbs, I tend to do better with fruit than I do starch. Is that because I'm mainly Northern European with a 10% spattering of Native American? Could be. Those are certainly populations that seem more amenable to more of like a fat and protein based diet and whatnot. I don't know if I'm entirely answering this question, but the long and short is that, genetic adaptation can happen rather quickly, but it needs a pretty severe selection process for that to occur.

**Robb:** We definitely see variation within populations as to what they can handle, and that's just all the genetic kind of features, then there's a whole epigenetic story, which is, what's your gut microbiome like? What ...

**Nicki:** how many rounds of antibiotics have you done in your life?

**Robb:** Yeah, how many rounds of antibiotics have you done? Are you ... yeah. That is a non-trivial part of this whole story. I think we've mentioned in the past that there was a study that looked at children with active celiac disease, so they were diagnosed with a biopsy that they had villous atrophy. They gave all these kids a fecal transplant and they let some period of time go by, and then they rechallenged them with a gluten exposure. It was a small study, but seven out of the 10 kids who had villous atrophy pre intervention had none afterwards.

**Robb:** This is a situation where these kids all had the genetic predilection for celiac disease. All of them at one point had celiac disease, and then 70% of them ceased expressing celiac disease when they had a gut microbiome shift, and there are bacteria that have the Prolyl endopeptidases that can break down these really complex, hard to digest gluten proteins, gliadin proteins. This is another layer of this story that had ... I don't even know that you could call that epigenetics, but it's the gut microbiome or the ... our general microbiome can play a really important feature in different disease processes. The HADSA are reported to have, what's this stuff? Not histamine, but the oxalates. People will develop kidney stones as an example, like they eat a bunch of greens and then you drink some dairy and you'll get oxalate crystals, and it can damage your kidneys.

**Robb:** It can create kidney stones. The HADSA appear to have gut microbiomes that digest oxalates, and so they eat a lot of greenery and don't really seem to suffer any of the problems from oxalate toxicity, as an example. Modern Western societies have virtually none of these organisms, and we don't really know how, or if we can even get them back. So, this is where it's a much more complex story than what we initially thought, and it's where the ancestral lifeway, I think is again, an incredible ... it's a beacon, it's a

direction to look, it shines a light on things to look at them in a particular way. But at the end of the day, we have to follow outcome-based protocols. If there is a disease state, then we have to navigate that to an end point that's hopefully better than what it started off with, and that was a really long answer in a podcast that I was hoping to keep pretty short, but there you go.

**Nicki:** Okay. Let's move on to question number two. This comes from James. He's having some issues on a keto diet. Hello, my name is James and I'm 30 year old male, and I live in Charlottesville, Virginia. I decided to meet with a functional medicine doctor or nutritionist about 10 weeks ago. During my initial consultation, I was at 188 pounds with 24% body fat. I also got my blood work done, and that I can send for reference. My goals are mainly focused on developing good nutrition habits, to feel good and maintain a healthy body composition. I've also had consistent gas and bloating issues. For the first two weeks, I followed a paleo diet focused on getting adequate protein from meat sources and sized portion with lunch and dinner. I also followed intermittent fasting, Monday through Friday, eating from noon till eight. For the next six weeks, I practiced intermittent fasting during the week and followed a somewhat ketogenic diet with 136 grams of protein, 26 grams of carbs and 146 grams of fat.

**Nicki:** During this time, I was also taking magnesium supplement and fish oil at night and vitamin D FloraMyces during lunch. I was also practicing CrossFit regularly about five to six times a week. Man, I'm slurring my words. It's my mango chili element ...

**Robb:** Really hitting you.

**Nicki:** It's hitting me. At week six, I did a long workout in the morning in a fasted state, post-workout I felt dizzy and weak, and my legs were just cramping constantly. I was at the point where I felt like I was going to faint. My nutritionist said this was likely an electrolyte imbalance. He recommended an electrolyte supplement pre and post-workout and increasing magnesium on training days. I'm also trying to eat low carb vegetables more to get natural sources of potassium. I did this and I'm still having some issues. This past week, I've had some hot cold sensations in my legs and feet with some hamstring cramping. Yesterday, I was tired of this feeling and I tried to eat some fruit that seemed to resolve my symptoms fairly quickly. I'm thinking about introducing carbs back into my diet. Right now, I'm down about eight pounds, but I just want to feel a little more normal again. That was a mouthful.

**Robb:** It was a mouthful. As time goes on, I become ever less a fan of fasted training, particularly if there's a lot of volume and/or a lot of intensity, or if people are ...

**Nicki:** Which is typical of CrossFit.

**Robb:** Which is typical of CrossFit, and it's kind of one thing if you do it like one day out of the week, but ...

**Nicki:** Five to six times a week of CrossFit is a lot of CrossFit.

**Robb:** Is a shitload. Yeah, it's a shitload of CrossFit. Man, I'm not even sure where to go with this. It's kind of like Groundhog's Day with this stuff to some degree, like eat a little bit food before working out. The electrolyte recommendation I think is spot on, but sodium actually is probably the more important thing out of this than potassium or magnesium. Yes, potassium and magnesium are very, very important, but if you don't have adequate sodium, then adding potassium and magnesium just worsens the situation, which is really counterintuitive for a lot of folks, but that's actually the way the physiology works.



Again you know, it sounds like maybe James dropped carbs in an effort to maybe lean out more.

**Nicki:** Protein also seems low.

**Robb:** Protein seems kind of low for an 180 pound guy. Yeah. I would like to see that like 150 to 170 at a minimum, and then maybe modest carbs, maybe a similar amount of carbs, and then moderate to low fat. Do the keto gains calculator and figure out where your maintenance calories are, and then you can re-proportion this stuff based around that. But if you're doing CrossFit five or six times a week, I don't know that like a bargain basement below 30 grams a day of carbohydrate intake is a smart thing to do. I definitely don't like what I see when people do really hard, consistent, fasted training. Some people seem to thrive on it, but man, I've just seen so many people busted up from this. Again ...

**Nicki:** Especially that low carb.

**Robb:** Yeah, that low carb.

**Nicki:** CrossFit five to six times a week at 25, 26 grams of carbs a day is ...

**Robb:** Yeah. I'm not doing that much training, and I eat more carbs than that. I would increase the protein, I would increase the sodium. I would do some pre-workout food, whether it's fruit or something else. I would tinker with that. I would think about not being so low carb. If you want to lean out, we do need a prot or a caloric deficit, but keto is not the only way to get there. Given the volume of training, you may be keto anyway. That's the kind of funny thing. Some people, with this volume of training, they need to eat a 100, 150 grams of carbs a day, and they're still in and out of ketosis, which is just fine, particularly if we're just wanting like a little neuroprotection and some good appetite control and stuff like that.

**Nicki:** He doesn't say whether he's training in the morning or in the evening. Ah, no [inaudible] a long workout in the morning in a fasted state. I don't know if that's a regular thing or not, but maybe trying to, instead of eating between noon and 8:00 PM, trying to eat breakfast, eat lunch, and make your last meal at like that four o'clock period that you've talked about. Get your calories in earlier in the day could also help.

**Robb:** Certainly I would front-load the calories. Yeah.

**Nicki:** Okay. Our next-

**Robb:** Pass me some of that drink there. I'm getting a dry throat.

**Nicki:** You want some mango chili?

**Robb:** Yeah. Thank you.

**Nicki:** Might give you a little spice. Let's see. We have a question from Kim. She's having a weird reaction to beef and lamb. Hi, Nikki and Robb, your podcast and books are lifesavers. I'm so, so grateful for what you do to educate. I had been vegan vegetarian for years, but after processing the grief from suddenly losing my mom, I found myself completely depleted losing my mind in an extreme physical pain. Through tireless research on my own over the last three years, I have found my way to thriving health by completely changing what I eat. I believe the years as a vegan almost killed me. From

this whole experience, I'm acutely aware of how my body reacts to different foods. I've had to eliminate all estrogenic foods, but now completely enjoy my new diet based on plenty of low carb, green, leafy vegetables, cruciferous vegetables, some types of seeds and nuts, and of course, pasteurized meats and eggs and wild caught fish.

**Nicki:** My question is about a weird reaction I have to beef and lamb. When I eat fish, chicken or pork, I do fine. But when I eat even the highest quality grass fed beef or lamb, I have the same reaction that I do to highly estrogenic foods, which is anxiety and hyper awake. Sleep issues. Is there anything in the amino acid profile of beef and lamb that is substantially different from that of chicken and pork that could be causing this? Is there something I could eat along with beef and lamb to counteract this reaction in my body? Ideally, I would like to be able to eat beef and lamb over pork and chicken, so I need to figure this out. Any thoughts you have would be most gratefully received. Thank you, Kim.

**Robb:** The vegans will talk about this, glycoprotein. It's like in you, 65 or something. I'm blanking on it, but in theory, some people have kind of an aneugenic response to this, and you mainly find it and kind of like red meat. You don't really find it in chicken, fish, pork, but the science on that is really poor. It's just pretty darn poor. There is a scenario where people who get bit by certain ticks, they can develop an intolerance to most animal like animal based proteins. There's some sort of an immunogenic response there. There are situations in which people can become immunogenically highly reactive to just about anything. The thing that I am noodling on here is like some sort of really aggressive digestive support, like betaine hydrochloride, Apple cider vinegar capsules, and then some sort of a really good protease lipase digestive enzyme, something now, food super enzyme, something like that.

**Robb:** I would stack all those together and I would see if that helps kind of mitigate this. I would start with very small amounts of lamb and beef, and then really augmented that digestive side of things, specifically targeting the protein digestion. So, making sure that your stomach is producing sufficient acid, some things like shellfish, like oysters can be great because of zinc. We need zinc to be able to produce stomach acid. So, this is where people can end up depleted. They don't produce enough stomach acid, so they don't really break down these protein rich foods. They don't really absorb the zinc out of these protein rich foods, and it becomes kind of a downward spiral. Maybe some zinc supplementation, but certainly just supplementing the digestive fire so that you have a better chance at breaking these foods down, would be my main thought.

**Robb:** Again, in the literature and just kind of working with people, you can find folks that react to just about anything you can imagine. This isn't surprising. It's not super common, but it's also not surprising. I find that I don't feel all that great after eating pork most of the time now. I'll eat it sometimes, but where I used to, I would do like a rack of pork ribs or something, and I'd just be fine. I've just noticed, I don't feel that great after eating them. Stuff changes over time.

**Nicki:** I wonder if she would have ... if this is like a red meat, like beef and lamb, would that also extend if she were to have like elk or venison?

**Robb:** I don't know. That would be a really good question, diversifying that.

**Nicki:** Kim, I don't know where you live, or if you live near any people that hunt regularly, if you could get access to some wild game and see if that helps.

**Robb:** That's a great suggestion.

**Nicki:** Just to kind of broaden your ... obviously try the things Robb recommended, but if that ... hopefully that works, but if not, maybe you could broaden your sources of protein by having some access to some wild game.

**Robb:** I think that's a great idea. We had somebody posts in the Rebellion the other day, apparently pythons are in massive over population situation in Florida.

**Nicki:** Somebody had a package of Python that they were going to cook.

**Robb:** Python meat. Yeah. It was like, I think that they're like taking over the Everglades. Maybe some Python, it looks like a white meat to me, so who knows? Yeah.

**Nicki:** All right. Well, hopefully, Kim, hopefully some of that helps. Please write back in and let us know how you do. Okay, it's time for the Healthy Rebellion Radio Trivia. Today's trivia sponsor is Drink LMNT, Drink LMNT is giving a box of element recharge electrolytes to three lucky winners selected at random who answer the following question correctly. This is a would you rather question.

**Robb:** You love these.

**Nicki:** Robb, would you rather be covered in honey and rolled in a Texas fire ant mound or eat only gluten for a month?

**Robb:** Who comes up with these questions?

**Nicki:** Well, I'm not telling. It's a secret.

**Robb:** Ah, man, I'll take the fire ant mound because as horrible as that would be, I could deal with that hopefully in some sort of a short timeframe and then be done with it. But a month of me eating gluten, I might die from that, so I'll take the fire ants.

**Nicki:** I suppose after you roll in the ants, you could then do like the standard stop, drop and roll to kill the ants.

**Robb:** Yes, and when I was trying to change the flat tire we had on our truck, I managed to roll in a fire ant mound, and it sucked, but yeah, I'll take that over, like pooping my brains out for a month. Yeah.

**Nicki:** Okay. All right, folks. That's the answer.

**Robb:** Fire ants.

**Nicki:** Fire ants. To play, go to [rebel.com/trivia](http://rebel.com/trivia) and enter your answer, and we'll randomly select three people with the correct answer to win a box of electrolytes from Drink LMNT. The cutoff to answer this week's trivia and be eligible to win is Thursday, November 12th at midnight, and winners will be notified via email, and we'll announce the winners on Instagram as well. This is open to residents of the US. Okay. We're on our fourth question. How are you? How's your bladder?

**Robb:** I'm hanging in there. I'm good. Just quit reminding me about it. Geez.

**Nicki:** We have a question from Marissa. She says, hi, Robb, regarding the blue light glasses, the book Lights Out, noted that all or many, more than just eyes. So, all cells is what

she's referring to. More than just the eyes react to the light. If I'm remembering correctly, what are your thoughts on this?

**Robb:** I remember this, and this is something that I've talked about a lot. It's part of our case for having a completely blacked out room. What the book suggested is that the structures, chromophores in red blood cells actually can absorb blue wavelengths of light that go through the skin, and that this is actually part of circadian entrainment. I got to say, I've looked and looked and looked to try to find things around that, I can't really find much.

**Nicki:** I seem to remember it was something like, and maybe this is from Lights Out. It's been years since I've read it, but even if they shined a light on a little pin light on your arm, but the rest of you was covered or whatnot, your cells still-

**Robb:** That it disrupted sleep. I remember some stuff like that. The book is very well referenced, but I haven't been able to find much stuff around that. It's interesting, so part of the claim that they made is that they made the broad statement that, even people who are blind have normal circadian rhythm. Some do. If people have say like damage to the optic nerve, but the rest of the cells in the eye are generally intact and light can make it in the eye. Then they can have a normal circadian biology, some people though that get damaged to the eye, so they don't have eyes, for example, or something like that. One of the biggest challenges they have is they completely experience a disordered circadian biology. That's not entirely accurate or true, but there is something interesting. I pulled up a paper, Circadian Clocks in Human Red Blood Cells. Most of what we understand to be circadian clocks, they call them clock genes, are related to genetic expression within cells.

**Robb:** What's interesting about red blood cells is, in mammals, they're some of the only cells that don't have nuclei in them. Once they're made, they jettison the nucleus, and birds still contain a nucleus just as an aside. I think reptiles do too, but mammals do not, or at least humans don't. But what's interesting is, is red blood cells do still have mechanisms for regulating circadian biology. They have some peroxidase activity and whatnot that's elevated during light cycles and decreased at other times. There are some other features within red blood cells that governs their circadian biology that are independent of the actual genetic material. Back to this original question, I can't find much support for what the claims were within that book, specifically to the notion that a penlight behind the back of the knee winded up suppressing melatonin production. I just can't find anything on that.

**Robb:** I maybe just need to grab the book itself and see if I could track down, inline, what the citation was, but it felt like this would be something that you could pretty easily dig up. I just can't find anything. I will say that, just from a clinical perspective, when people say like, have a very bright bedroom and they wear a sleep mask, they sleep better, but then when they go full trailer park and they put aluminum foil in the windows and board everything up, they sleep great, like they sleep like a dead person.

**Nicki:** Covering up the little lights on the fire alarm.

**Robb:** Covering up everything, kind of neurotically. Yeah. Totally anecdotal. There's not a randomized controlled trial on it. So, clearly lots of people won't like it, but I'd seen ... we've just seen it so many times, where people will argue and bitch and moan about it, and then they do those extra things, and are like, yeah, I sleep way better. Marissa, sorry, I don't have a great answer to this. Again, I've dug into it trying to find some support for this. I can't really find great support for what that initial claim was. I think

that the standard notion that circadian biology is a really big deal and we want light at the times we want it, and we don't want light at the times that we don't want it all holds true, but I haven't been able to find this notion that say like, red blood cells are able to communicate with the hypothalamus due to the amount of blue light they're absorbing and stuff like that.

**Nicki:** Okay. All right. We're ready for our final question of the day on electrolyte or magnesium sensitivity. This is from Jen. She says, I found that if I have more than one packet of LMNT a day, I get a bit of digestive trouble, probably due to the magnesium. I seem to be fairly sensitive to magnesium in all forms. Any tips? Thanks for all you do, Jen.

**Robb:** It's been interesting. You have some kind of rules of thumb, and I love Greg Everett, he used to be like, who is this thumb guy of which there is a rule?

**Nicki:** It sounds like a Greg comment.

**Robb:** This is very much a Greg comment. As you get a bigger and bigger population of people tinkering with something, in this case like taking LMNT, every once in a while, you just get some really wacky outliers. You have stuff that you're like, give me a break. You're shitting me. Every once in a while we'll get a customer service thing where I'm like, "This person's pulling my leg," and then you talk to him, and you're like, "Huh, this is legit." There's your person who's had a mega outlier. On the magnesium front, magnesium in forms like oxide, magnesium oxide is a laxative. Magnesium citrate technically is a laxative. Then you get some much more absorbable forms like glycinate and taurinate. There's so many different key-lates of magnesium. It certainly could be that, and it very well maybe the things that we've seen help people more dilute.

**Robb:** If you're using like 16 ounces right now, use more like 32 to 34 ounces. Sip on it. Definitely don't chug it. Some people have noticed that they do better on an empty stomach. Some people have noticed that they do better when they've had food, and again, they sip on it and don't chug it. I'm not surprised that we have some outliers out there that some ... and for some people, it's just not going to be a good fit. It'd be really interesting to know what is like the tissue magnesium level of these folks. Are they really good at holding onto magnesium? Is this a sign that their body just doesn't really need it? Do these folks run at chronically low magnesium levels? Do they only look like they're low magnesium levels, but their needs are actually less than the rest of the pie?

**Robb:** This is where you get some of these outliers and the standard rules just don't really apply, and you have to get much more detail to really have any idea about what's going on and to understand enough to be able to make some recommendations. But the main recommendations around this are more dilute, slower consumption, and it may just not be a good fit.

**Nicki:** And she's thinking it's the magnesium, but it could also be the sodium, right?

**Robb:** It could be.

**Nicki:** Like some people have digestive trouble from the sodium.

**Robb:** And that applies the same.

**Nicki:** Again, it ties back to, if you're doing it like too concentrate or are drinking it in a really short timeframe, spreading that out. It could be good.

**Robb:** Yep.

**Nicki:** But you can also just do your own home brew and do sodium and some lemon juice and some stevia, and kind of make your own if you're really not responding well to it.

**Robb:** I guess, if you like the element and you want to keep motoring forward on that and try diluting it, try slowing down the rate at which you're drinking it, if that really doesn't work, then I guess what we would do then in my mind is, I guess kind of like a sodium challenge, like just mix. We have a home brew recipe, and just make it just with say, like sodium and try that, and then do one with just sodium and potassium. Then you go sodium, potassium, magnesium, but have a couple of different magnesium sources like threonate and glycinate. I don't know, track down some other ones that appear to be well absorbed, and maybe you do wind up finding like a home brew option that works well.

**Nicki:** Yep. Okay. We raced through that one. I feel like I-

**Robb:** I had many additional thought, but I got the best out, the 80%. Yeah, I did the 80% there. Yeah.

**Nicki:** Well folks, hopefully, you are adjusting to everyone's favorite daylight savings time this week. I know it's-

**Robb:** I'm still dragging.

**Nicki:** Yeah. We're dragging a little bit, but I hope you all have a fabulous weekend. Please check out our show sponsor, Joovv, for your red light therapy device. You can get an exclusive discount on your first order if you go to [joovv.com/robb](https://joovv.com/robb) and use the code, ROBB, or apply the code, ROBB, to your qualifying order. That's [joovv.com/robb](https://joovv.com/robb).

**Robb:** Awesome. That's a lot of double letters.

**Nicki:** All right, folks ... It is. Oh, double O, double B, dotcom/robb.

**Robb:** It's like The Goose out of Charlotte's Web.

**Nicki:** I've read that book.

**Robb:** With that folks, we'll leave you so I can go pee.

**Nicki:** Yes. Have a great weekend, everyone.

**Robb:** Bye, everybody.

**Nicki:** Bye.