

**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 The 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. 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+. We are back. Welcome to another episode of The Healthy Rebellion Radio.

**Robb:** I quote this a lot, the Airplane! line, "I picked the wrong week to quit sniffing glue." Well, I picked the wrong day to try to get out of an Ezekiel choke too long, so my swallowing is a little sore. It's a little not quite right.

**Nicki:** All right. Well, hopefully that-

**Robb:** It'll learn me-

**Nicki:** ... learns you.

**Robb:** ... to not pressure check-

**Nicki:** Was that with Coach Jon?

**Robb:** ... Professor Boone. Coach Jon Boone, yes.

**Nicki:** Yes. Okay.

**Robb:** He's as deadly as he is handsome. Yes.

**Nicki:** We had a good class today.

**Robb:** We had a very good class today.

**Nicki:** We learned, me for the first time, how to do a triangle from mount. That was pretty cool.

**Robb:** I called it the flying T-bag, and it was much appreciated, I guess. I wasn't thrown out of class immediately, so I guess it went pretty well.

**Nicki:** Yeah. Yeah. We're enjoying our jiu-jitsu a ton. It's a beautiful day here in Kalispell, Montana, despite some internet challenges that we've been experiencing over the past few days.

**Robb:** Holy-

**Nicki:** Do you want to share some of that?

**Robb:** It's really hard to even explain this thing. And I mean, it's the epitome of First World problems, like oh, my internet. But our whole business is online, and so it is actually kind

of important. But we ordered internet before we left Texas, and that was a whole weird deal. We were promised one thing, and then it was-

**Nicki:** Well, basically, we have a company that there's only one company that services the area that we live, and the upload, download speeds are terrible-

**Robb:** Appalling.

**Nicki:** ... compared to what we've had in Reno in Texas. So we thought we ordered, or we ordered 10 megabytes, and then we get here and they tell us... Well, first of all, it was kind of crazy.

**Robb:** It's even-

**Nicki:** They said it was a self install, and they mailed us the modem, and-

**Robb:** And even beyond that, the folks who lived here before also ran a home business, and it was-

**Nicki:** Right. And when we get to learn that we could only get 10, we're like, "Can we just take over what they had?" Because if we did it in advance, there was a way to just transfer it, because we thought maybe they had better speeds. But then they said, "Sorry, they terminated their internet five days before they had asked them to end it," and so they were without. And where we live, you don't even have cell service, so you have to have-

**Robb:** The only way our cell phones work is through the internet.

**Nicki:** ... your WiFi in order to even make a phone call. So they were flummoxed and kind of irritated because the last five days that they were trying to move out of this house, they couldn't get online or use their phones. So long story short, our internet stopped working, and when Robb called on Monday morning-

**Robb:** I get bounced from this person to that person to the next person. They're like, "Well, we kind of have an order, but not really, and-"

**Nicki:** "Your order's on hold. Your account's never been activated." And so we were somehow still using the previous owner's internet even though theirs-

**Robb:** Even though theirs had been canceled.

**Nicki:** ... was terminated five days before they... And so ours was never fully activated even though it was working fine until the morning that it stopped working. And so then we had to have a technician come out and do this thing. And so now instead of 10 megabytes, which we were really only getting eight, now we only have three.

**Robb:** And that's the download, and the upload doesn't even register, so this podcast-

**Nicki:** We hope this podcast actually uploads.

**Robb:** ... we may be mule-ing it to a-

**Nicki:** Coffee shop to-

**Robb:** ... coffee shop to upload.

**Nicki:** ... upload. It's crazy.

**Robb:** Again, very much First World problems. I did order Starlink. I even got as close as... I don't often ping my network of people for favors, but this was one thing where I'm like, somebody better fucking know Elon Musk. And I actually got to his personal assistant, and they were basically like, "Yeah, step in line."

**Nicki:** "Sorry." Yeah. "Sorry, there's a long line."

**Robb:** I was like, come on, man.

**Nicki:** It's been a bit of a, as Robb likes to call it-

**Robb:** So that was interesting.

**Nicki:** ... a goat rodeo.

**Robb:** It was definitely a goat rodeo.

**Nicki:** A goat rodeo. Yeah.

**Robb:** Yeah.

**Nicki:** Gosh, I did also want to mention that I've been thinking I've been seeing a bald eagle. Twice I think I've seen one, and I get out the binoculars, and it's got this white head-

**Robb:** And we're not talking about the bikini line, shaving type of bald eagle?

**Nicki:** No.

**Robb:** Okay. Just clarifying.

**Nicki:** No, the raptor. The actual bird. But the bird that we're seeing has a very white belly. The underbelly part is all white, too.

**Robb:** Even under the wings are white, yeah.

**Nicki:** So I'm trying to find... I've been searching online, and apparently there are some different types of hawks that kind of have white bellies, or what was it? Some kind of a-

**Robb:** Sea eagle or something, yeah.

**Nicki:** Some sort of a sea eagle, so I don't know. Maybe.

**Robb:** But we've seen it swooping down and trying to snatch fish out of the lake-

**Nicki:** Out of the lake.

**Robb:** ... which is kind of cool.

**Nicki:** Yeah, so it's been really, really cool to watch. I'm going to figure out what that bird is, but it's been pretty spectacular. Let's see, what else? Our seven-day carb test is underway in The Healthy Rebellion, and this is the first week, the week before the 30-day Rebel Reset, so we have a lot of people doing the seven-day carb test, and that's

going well. Just wanted to share a little exchange from inside The Healthy Rebellion community.

**Nicki:** Theresa had shared, "Okay, a little negative self-talk after my brown rice reading of 147 this morning. Shake it off. All info is good info. No rice for me. Anyone else had their first negative thought showdown?" And then Jennifer commented, "I tried on some jeans for the right pants test, and they were snug, actually so tight that I wouldn't be able to sit down comfortably in them. Last summer, I wore those with a crop top, but like you said, it's all information. What I decide to do with it as far as my thinking is up to me." So I'm sharing this because we've got just some amazing people with great outlooks, and it kind of bolsters everybody else, and it's just pretty cool.

**Robb:** Well, and I will do a little patting on our own backs that there's a pretty good system to this process that allows people some self-discovery, and also sometimes, some of these gut check type moments where it's like, I would have preferred that not go that way, but then they feel safe enough to share, and people are there to support them, so it's pretty cool, yeah.

**Nicki:** And then Antti had the comment on-

**Robb:** To that point.

**Nicki:** ... Theresa's post as well and say, "I see that as a positive thing. Now you know that currently, brown rice is not your friend. You guys might be able to mend your relationship later on." To which Theresa replied, "We are totally on the outs, man." It's a pretty fun little exchange. People are testing their carbs, seeing how they respond when they wake up. Some folks are testing also at the one hour post-consumption of the carb, and then definitely at the two hour mark, and just seeing if the particular carbs that they're testing are friend or foe.

**Nicki:** If any of you all who are not yet members of The Healthy Rebellion want to get in on this 30-day Rebel Reset, it starts on Monday. That's April 26th. So if you're interested in joining, you just need to join by midnight on the 26th, and you can do that by going to [Join.TheHealthyRebellion.com](http://Join.TheHealthyRebellion.com). And we hope to see you in there. Okay, hubs, news topic today. What do you have for us?

**Robb:** Really cool new paper that Tommy Woods was one of the co-authors on. The title is Reframing Nutritional Microbiota Studies to Reflect An Inherent Metabolic Flexibility of the Human Gut: A Narrative Review Focusing on High Fat Diets. And it covers a lot of ground, and this thing is not definitive in any way, shape, or form. This is where folks who are fans of low carb diets could get this wrong. The detractors of low carb diets, the Aragons and the Layne Nortons and stuff like that, if this is not well handled, then they will rightfully cry foul on it.

**Robb:** But what this is, is kind of the first review paper establishing the notion that high fat diets may in fact be beneficial, can be beneficial for human gut health. We've just had this narrative going back even in paleo land, like Paul Jaminet, all props to him. He's a very, very smart guy, but suggesting that you will absolutely destroy your intestinal mucosal lining if carbohydrate intake is too low, and so folks were super geeked out on fermentable fibers and safe starches and stuff like that.

**Robb:** Worked for some people, and it was disastrous for other people, and I am one of the people for whom it was a disaster. And the best thing that we've had most of this journey is just this observation that clinically, some people get really much healthier on

low carb or even carnivore type diets. And we've had people get pre and post gut screening of various types, some microbiota sampling, which I think is very difficult to pin down because it's so labile and movable and everything.

**Robb:** But just, again, clinically, it's been this thing where people, most of the dominant paradigm is of the opinion that if you don't have a bunch of fiber and a bunch of fermentable fiber, then you're going to ruin your gut health. And I think for some people, they probably do better at higher fiber intakes, but not everybody, and not under all circumstances. Just going to pull one piece out of this. While human metabolism can adapt to diets higher in either fats or carbohydrates, the natural diet of a mouse is low in fat and high in carbohydrates.

**Robb:** It is therefore unsurprising that mice develop issues when eating a species-inappropriate diet. The strain of mice commonly used in such studies, the C57BL/6, has also been genetically selected for its ability to gain weight in response to a high fat diet. While humans are capable of weight loss or gain on a variety of dietary patterns, these mice have greater weight gain and metabolic disruptions on low carbohydrate diets.

**Robb:** Consequently, rodent models of obesity may be most valuable in understanding how metabolic mechanisms can work in ways different than from the effect in humans. Broadly translating findings from inbred mice fed a highly refined high fat diet to humans is therefore fraught with potential for misunderstanding. So again, this is a beginning point. There's nothing final. There's nothing definitive. This is kind of the first paper published in 1958 or whatever about the Mediterranean diet.

**Robb:** That was a review paper, and then it kind of grew from there. There was a day when there was not something in the medical literature called A Mediterranean Diet, and now it's something that's ubiquitous and well-studied, although taken largely out of context and somehow always ends up being this vegan diet in some ridiculous way. But this is a beginning point, and it creates some framework, and I think that just having the discussion around, what is a species-appropriate diet, both for humans and for research animals?

**Robb:** I have to go back and give a hat tip to Stefan Lindberg, who, when he did his paleolithic diet research, he started off by looking at the Kitavans and comparing them to Westernized populations. And he had an idea that there was some leptin resistance as a consequence of modern Western diseases. And then he went to an animal model, and the animal model that he used was porcine. It was a pig. And pigs are opportunistic omnivores. They have pancrei that are much more similar to ours.

**Robb:** And so this is a much smarter animal model if you're going to model human physiology. It's actually, pigs also can eat high fat diets or low fat diets. And I'm sure that there's variations even within that story, but it's a much closer fit than feeding mice. Then when you overlay all this stuff with what Bret Weinstein has been talking about with regards to the extended telomere lengths of mice in these research settings and what that could mean.

**Robb:** We have some questions around cancer and IGF-1, and all the shit is always looked at in animal models, mainly mice. It's just a disaster. When you really, truly get in and look at this stuff, on the one hand, you have food frequency questionnaires, which are just garbage. It's kind of, quote, the best that we can do, but it's garbage. It's so easily manipulated, and we're going to end up digging into a few later.

**Robb:** You've got that on the one hand, and then you've just got the completely different genetic profile, down to the telomere elongation of these animals. So what may not look toxic from a drug testing profile in mice, these particular type of mice, may be horrifically toxic in humans. And Bret has received from the academic community nothing but crickets around this whole topic, because the whole fucking operation is in question now, I mean, every biotech company, every bit of academic-backed research.

**Robb:** But if that is the case, and I would not be surprised if his proposition is true, all of that's going to have to get up-ended and reevaluated. And in this case, again, this is a beginning point to start framing questions around, what actually constitutes human healthy gut activity? And it's probably going to be a wide variety of things.

**Nicki:** Okay.

**Robb:** That's the whole podcast. We're done, folks. See you later.

**Nicki:** That's it. Well, it's not quite there. We haven't even cracked the surface on this one.

**Robb:** This one is going to be a long one, yeah.

**Nicki:** Yes, because we're now getting into where we would normally do our iTunes T-shirt review winner, but when I was preparing this episode this morning, I went to our show on my browser, like I normally do to look and choose a review, and it wouldn't load. And so I chatted in Slack with our team and asked if anybody else could open the link. Nobody could open the link. It said it was connecting. It wouldn't connect.

**Nicki:** From my phone, I can pull up our show because I'm subscribed to it in the podcast app, but I can't see any reviews. When I pull up DarkHorse, for example, when you scroll down past all the episodes, it says, "More episodes," and then there's actually the reviews, and you can click on them. That part is missing from our show. So that was sort of strange. Elizabeth on our team then decided to try to delete the show and reinstall it.

**Robb:** Her app.

**Nicki:** Her app. Well, yeah, she unsubscribed from The Healthy Rebellion Radio, and then went to search for it again, and it doesn't come up in search. And then we got some messages from people on Instagram saying that they couldn't find our show in search, that they had listened to episodes yesterday, but now it's not showing up. So we're not quite sure what is going on.

**Nicki:** We posted this in The Healthy Rebellion, and lots of people, if it's a device that they've never downloaded the show before, they can't find the show in search. Episodes will pop up, but not the actual show, the iTunes card where you can click on it and see the information about the show. That does not show up.

**Robb:** Like the ability to subscribe.

**Nicki:** Right. And this appears to only be an iTunes Apple thing. It's still on Stitcher. It's still on Spotify and wherever else we have it getting disseminated to. But I tried to also log into my Apple Connect, which is where a creator or a podcast host logs in.

**Nicki:** That's where you could update your iTunes graphic, the image that shows when we post an episode and all that stuff. And when I log in, it's as if I don't have a show. It's asking me to create a new show. And in all honesty, I haven't logged in here in a couple of

years, since, well, this show's only, gosh, not quite two years old yet, so it was right after we launched it, and then we-

**Robb:** But it's not something you do daily.

**Nicki:** It's not something I do daily, but it's with my Apple ID, so there's no other way for me to... And I tried logging in under Robb and his Apple ID, and there's nothing. It's the same situation. So I don't even have a way to access it from that to even send a support ticket.

**Nicki:** People are saying that Apple is doing some sort of podcast update, which it sounds like they're allowing creators to monetize episodes and stuff if they want, so I know there's some development stuff happening, so it will be interesting to see if this is just some programming glitch, that's what we're hoping it is, or if it's something else. It's just strange that... And our friend Kirk also tried to search for us, and it said, "This show is not available in the US store." So people are getting lots of different messaging around this.

**Robb:** And hopefully it's nothing. Hopefully this is not the beginning of... We haven't seen, and I'm sure there are plenty of people out there that think that we're assholes and everything that we do is wrong, and it should be suppressed and repressed and everything else, but I would argue that there are people much more fringe-y whichever direction you think that we are fringe that have historically not been de-platformed, outright shadow banned off of podcast platforms, so I'm really-

**Nicki:** I haven't heard of anybody being shadow banned on a podcast platform.

**Robb:** Correct. Correct. That's-

**Nicki:** To me, I mean, when it comes to big tech, it's Facebook, YouTube, Instagram. There's serious censoring happening on those platforms, but we haven't-

**Robb:** That said, if we've seen one consistency in this, it's that the de-platforming, censorship, et cetera, continues to expand. So we're hoping that this is not the case. We will find out to some degree when we go to upload this show and whether or not it actually finds its way onto iTunes or not. So we will see how that rolls out.

**Nicki:** Yeah. At a minimum, there should be no issues with it going to Spotify and all of the other Stitcher places.

**Robb:** But also, if we've seen one tendency within-

**Nicki:** I know. I know, but-

**Robb:** ... the tech scene is that they all ban together. So if we are banned or shit canned in some way on iTunes... We'll just see. We'll just see.

**Nicki:** Well, and this was the thing, too. I was like, there are lots of other shows that kind of push the envelope far more than we do, but Robb's point was... You know.

**Robb:** The DarkHorse podcast has made the point is that small to medium sized operators are frequently-

**Nicki:** Disproportionately.

**Robb:** ... gone after because they don't have a big enough platform to be able to really rally the troops around them. And even though technically we kind of still fit within one of the top 10 or top 1% of all podcasts downloaded, all that that is reflective of is that there are a few enormous-

**Nicki:** Most podcasts get, yeah.

**Robb:** ... podcasts, and the vast majority of podcasts are absolute dog shit and don't get-

**Nicki:** Not that they're dog shit, but the vast majority of-

**Robb:** They're dog shit on how many things get downloaded.

**Nicki:** ... podcasts get very few downloads.

**Robb:** The average podcast across the board receives 150 downloads per month. So yeah, anyway, so not to belabor that.

**Nicki:** Anyway, so this is interesting. So there's no T-shirt winner this week because-

**Robb:** We can't read a review.

**Nicki:** ... to my ability, there's no way for me to find any reviews or even leave a review. So yeah, we'll hopefully-

**Robb:** We will update, and hopefully this is nothing.

**Nicki:** Yeah, hopefully this is just a minor little programming glitch, and all will be normal going forward.

**Robb:** New normal.

**Nicki:** Yes. Our favorite new slogan. All righty. The Healthy Rebellion Radio is sponsored by our salty AF electrolyte company, LMNT. And Robb, we're heading into spring, warmer weather. Hydration is key, especially folks in active careers, construction, outdoor, highly active with your sports and extracurricular activities, all that good stuff. So make sure you stay hydrated with electrolytes.

**Nicki:** And I also wanted to share, Allison, one of our moderators in The Healthy Rebellion shared a fun tip. There's a lot of creative ways that people are using LMNT, different than just chugging it and drinking it. And she had a fun one. She said, "Fun tip of the day: make ice cubes with your leftover coffee," and she did these with this super cute little silicone heart mold, "and then add them to your hot chocolate salt LMNT to cool it down a little." She said, "I'm also going to add these coffee cubes to cold chocolate salt LMNT as soon as it warms up." Someone did respond and ask, "What's leftover coffee?"

**Robb:** I was wondering about that, too. That never happens in ours.

**Nicki:** Yeah. Robb, do you have a favorite way of using LMNT that's nontraditional?

**Robb:** Basically trying to stave off people choking me to death at jiu-jitsu, so I don't know that I have anything. I do have a mild bit of anxiety around getting properly set up for jiu-jitsu, and usually I drink about half of one on the way to jiu-jitsu, and then I sip on the next

half the first hour where we're doing drilling, and then I really hit a pretty good dose of a second bottle as open mat opens up-

**Nicki:** During open mat.

**Robb:** ... and then will kind of finish off on that. And I left one of my cups in the car, and so I was about half down, and I had a couple of toe and calf cramps.

**Nicki:** All righty. So you can grab your chocolate salt or our newest flavor, watermelon salt, or any of our other flavors at [DrinkLMNT.com/Robb](http://DrinkLMNT.com/Robb). That's Drink L-M-N-T dot com slash R-O-B-B. Okay, we are ready for today's questions. Our first one comes from Jack on FODMAPs. He says, "Hi Robb, I've been experiencing IBS over the past few years, awful cramping and diarrhea. Finally decided to have a food sensitivity test done, and have a fructan and fructose malabsorption."

**Nicki:** "I have fructan and fructose malabsorption. The GI specialist didn't really give me any direction or recommendations, only a diagnosis. I would like to try to do a paleo primal diet, but low in fructose fructans. This leaves me with a pretty limited choice on fruits and veggies that sit well with me. I love the way veggies taste and the way they make me feel. Do you have any suggestions for me? I found a supplement called Fructaid, which is a glucose isomerase enzyme, that helps."

**Nicki:** "Do you recommend I just take that with every meal that's high in fructose or fructans? Should I be taking a greens powder and a multivitamin to make sure I get all the good stuff, and just eat what I can and skip the Fructaid? I'm worried that I will get palate fatigue and become deficient in some nutrients by eating this way. I could be overthinking this, but it's all pretty new to me. Thanks, Jack."

**Robb:** Man, it's funny. It's kind of a simple question, but my head started spinning out on this. But if you're getting some benefit from the Fructaid, I see no problem running with that. If my little bit of dabbling with carnivore-ish has taught me anything, I think that the specter of nutrient deficiencies when folks are eating a broad animal-centric diet is pretty low in likelihood. I don't know, maybe my penis is going to fall off at some point or something like that, but I mean-

**Nicki:** No.

**Robb:** Thank you for the vote of confidence there. Best part of my day already. I'm just underwhelmed by, oh, you did this overt nutrient deficiencies. And again, you get some different types of meat and some seafood, some dairy if you tolerate it, and all that stuff, I think that that's fine. And as broad a dietary intake as you can makes a lot of sense. I would ask... Here's the paleo guy saying, why do you need to do paleo? A little bit of white rice, some potatoes, some of these low fructose, fructan items might be great even if it's kind of modest amounts of them.

**Robb:** So I don't know that I would just jettison those. This might be a case for doing a little bit of a seven-day carb test to just get a sense of what both your GI response is to these more amylose-based, amylopectin-based starches, but then what's your glycemic response to it? Hopefully a happy gut and also a favorable glycemic response. If you want to do a green multi, go for it. I think that they're kind of a nice icing on the sundae kind of deal.

**Robb:** Most multivitamins are way overpowered. If you use one, I would find one like New Chapter, where they try to match about the amount that we get from food, and they

recommend taking six of them a day, and I would do one or two a day, and maybe do it alternating days. It literally should just be supplementing what we're otherwise doing. Hopefully that's helpful, but I mean, I don't know that the... It's not overthinking it. This stuff can get kind of complex, but I would just play to clinical outcomes. What do you consume that makes your gut feel the best and you feel the best overall?

**Nicki:** Sounds good. Our next question comes from Eric, and he's wondering about high IGF-1 and prostate cancer. He says, "Hi all. In the fall of 2020, I went through an early stage prostate cancer treatment that included radiation, breakthrough therapy, and androgen deprivation. Fun stuff. I'm getting my androgens back slowly but surely, making morning wood a thing again. Hurray for me. I'm taking my chances with a high protein, low glycemic approach to eating to help prevent the cancer from coming back."

**Nicki:** "I'm likely in and out of ketosis on a daily basis depending on when I ate my last meal. I keep to under 25 grams of carbs and eat 205 grams of protein a day. I'm five foot 10, 232 pounds, and right around 22% body fat. I'm also 40 years old. I weight train four to five times per week and roll jiu-jitsu three times per week. Since I've heard of the relationship between IGF-1 and prostate cancer, my question pertains to it."

**Nicki:** "At 40, my IGF-1 levels are around 337 nanograms per deciliter. That's about 100 nanograms per deciliter over what my high point should be at this age. Great for a teenager, but without that level of morning wood. This stays true regardless of whether I'm insulin sensitive or not. I tested before my androgen deprivation therapy, and my fasting insulin was five-"

**Robb:** You can just say five units.

**Nicki:** Just five units?

**Robb:** Yeah.

**Nicki:** "At the height of the deprivation, my fasting insulin was 15, and the IGF-1 was 357. Now my fasting insulin has begun to drop back to within the eight to 10 range, going down, and the IGF-1 levels remain about the same. We don't think I have a benign pituitary tumor, which would be nice to not have brain surgery, but we are testing for that despite my MRI coming back negative. My question then is twofold. Is this something to worry about, or would you take these levels to be, quote, normal, given my athletic endeavors, pretty large frame, and protein intake? If you think it's something to worry about, do you have any strategies I might suggest to my doctor for eking out some answers?"

**Robb:** Man, I have a ton of links here, and this one was far enough to the fringe that I debated even tackling this one. It gets out there a bit. But everything that I can dig up around this, that is a very robust IGF-1 level for somebody at this age. It's remarkably high. There is a correlation between IGF-1 levels and various types of cancer. The interesting thing about that, though, is that also, people, as they age, tend to lose growth hormone in IGF-1 signaling.

**Robb:** And so you're kind of in this pincher type deal, where if you really want to stomp on the likelihood of developing cancer, and this is why people go super low protein and low calorie and all this type of stuff, then you suppress these kind of growth axes type things, but then you will wither away and die from sarcopenia. So it's kind of like you have to pick your poison to some degree.

**Robb:** I have several papers here, and two papers and then one just kind of newsy article from a supplement website. The first one, carbohydrate restriction, prostate cancer growth, and insulin-like growth factor axis that really breaks this down, and it makes the case that over-caloric situations... Yes, high protein does drive insulin-like growth factor, but it is profoundly doubled down upon in a hypercaloric environment.

**Robb:** So this is again when these things that are really important, and this is from a God damn mouse study again. So it's the extrapolation to human to mouse and whatnot, but it's another one of these scenarios, similar to mTOR, where we know protein activates this axis. We know that insulin/carbohydrates activate this axis. We also know that we need some pulsatile activity on these axes, or you fucking die or you wither away and your life is not worth living.

**Robb:** Now, I know that we're the dueling banjos of sarcopenia on the one hand, possibly cancer on the other, he's already had cancer exposure, so I mean, I'm going to end up doing a lot of talking and not providing a lot of answers. I would probably hopefully ask some good questions. But the next paper is nutritional predictors of insulin-like growth factor 1 and the relationships to cancer in men. From the paper, "Men with relatively high intake of total protein, top quintile, and minerals, top quintile of the five minerals combined, had a 25% higher mean plasma level of IGF-1 compared to those in the low quintiles. The major sources..."

**Robb:** Now, this is an interesting thing, although this is a food frequency questionnaire, so again, it's kind of like, what the fuck can we pull from this? I'm not totally sure. But, "The major sources of animal protein, including milk, fish, and poultry, but not red meat, as well as total vegetable protein were associated with an increase in IGF-1 levels." So according to this paper, all protein sources except red meat ended up enhancing IGF-1 levels, which this is again where I don't even know if there's signal here, or is it all noise? I really am not sure.

**Robb:** "Energy intake was possibly related to plasma IGF-1 levels, but only in men with a body mass index below 25 kilograms per square meter. The age related decline in plasma IGF-1 may be exacerbated by low intakes of protein and minerals." And they go on to say that we need to explore the interplay of these two things. Final piece is ketogenic diets inhibit mTOR, insulin, IGF-1, and muscle growth. And this is kind of a gloom and doom piece written at kind of a body building-centric, kind of supplement-oriented site.

**Robb:** We've got the links to it. It's well done. I mean, I don't think it fully portrays low carb diets that are adequate protein. It's really focusing on the three to one, four to one, epileptic, ketogenic diet. I think that we are sophisticated enough to understand that Ketogains approaches, Bernstein's Diabetes Solution type stuff where we're eating adequate protein that it's not a thing, but the point here is that this paper or this article just paints ketogenic diets in the most muscle-stripping, un-anabolic thing you could possibly imagine.

**Robb:** The guy has a PhD, and it's actually pretty well done. I just think that if you sat down and were like, "Hey, if we just doubled the protein, do you think this is still the same story," it would be interesting to get what his thoughts are on that. But I think that there's just this interplay, though, between the cancer potential around things like mTOR and IGF-1 and what we know around effective aging, and folks that have more robust IGF-1 in growth hormone signaling, they just kind of fucking age better.

**Robb:** Most things go well. I do like this idea of exploring, why is the IGF-1 so high? It is. And I don't think that this is a situation... I did some poking around, but it's really hard to find

IGF-1 levels in pre-Westernized societies. There's a little bit, and they're not shockingly high once you pass pubescence and you start entering the 20s. Kirk Parsley has quoted that, "Testosterone levels within men are one-third what they were my grandfather's generation, or maybe even one more generation back." At every age point, from 13-year-olds to 70-year-olds, they're fully one-third what they used to be in general.

**Robb:** Is this just kind of reflective that these declining IGF-1 levels are reflective of just looking at a Western population, and maybe it's not that scary if we're in the context of not over-eating food in general, refined carbohydrates in particular, and we have a pulsatile eating process? I don't know. I don't know. It's interesting, though. There's definitely something different going on here, and it's certainly worth investigating. What was his name again?

**Nicki:** Eric.

**Robb:** Eric. Eric, I wish I had more for you. This is a really interesting, complex topic, and somebody else smarter than me or dumber than me may be completely cocksure about what the wrap it up, put a bow on it, take it home, what the answer is with regards to the trade offs. But it just seems like one of these interesting, complex system scenarios where it's not entirely obvious what the play is here.

**Robb:** If he's already been eating kind of a low carb diet, in theory that should have been mitigating his IGF-1 levels anyway. And maybe it is. Maybe the IGF-1 would be significantly higher if he was eating more carbohydrates or something. But there's definitely something interesting going on here, it's above my pay grade. Beyond that, I just-

**Nicki:** I wonder if his dietary approach that he's on right now is new. "I'm taking my chances with a high protein, low glycemic approach to eating."

**Robb:** Could be.

**Nicki:** So maybe previously, he was on more of a standard approach to eating.

**Robb:** That's a good point. Yeah. Yeah.

**Nicki:** Okay.

**Robb:** And I told you, today's a long, [old man voice] long episode there mimsters.

**Nicki:** All right, let's move on to a question about air purifiers from Nick. He wants to know, Robb, what your take is on air purifiers, "Specifically those that are said to be higher quality, like Blueair and claim not to produce ozone. I live in an older home in an urban area, and since that is not changing any time soon, I would like to do the best I can to deal with air quality. I have noticed more sinus pressure and light headaches lately, especially upon waking, and thought maybe something like this would help."

**Robb:** I've never really tinkered with air purifiers. There is easy to find research demonstrating that they will... It's kind of cool, and we just did the thing with Clementina talking about COVID and high air volume turnover. And this is shit that is comparatively easy to research.

**Robb:** You release some amount of aerosolized particles, and then you turn on an air purifier, and then you let it run for some period of time, and you quantify how much is in the

purifier that's been retained, and how much you can still find in the atmosphere. And these higher end things seem to work, and they seem to work particularly well at a room level, so maybe where you're sleeping might be a good play for that.

**Nicki:** Bedroom.

**Robb:** And if he's working from home, maybe bedroom and office, maybe get two of them. There are some retrofit things that can be done at the whole house level, but they're remarkably expensive. There are some kind of environmental pollutant remediation outfits that will come out and do some testing to see if you have mold or maybe some sort of outgassing of volatile organic compounds and stuff like that.

**Nicki:** That was the thing that popped into my head when I saw the headaches and whatnot, is you could have some sort of mold in the attic or somewhere, and so digging into that would be important.

**Robb:** I think it'd be worthwhile, yeah, yeah, even prior to buying some sort of air filtration system, because maybe you have a really significant problem and you need to double down on doing something more significant. Yeah.

**Nicki:** Okay. It's time for The Healthy Rebellion Radio trivia. Our Healthy Rebellion Radio sponsor-

**Robb:** You actually did this one this week.

**Nicki:** ... drink, LMNT. I know, I'm going to see if you can get the answer. Is giving a box of LMNT Recharged to three lucky winners selected at random who answer the following question correctly. Robb, so you were unable to participate in our live chat-

**Robb:** And apparently, it was the best chat that we've ever had-

**Nicki:** ... on Tuesday. It was.

**Robb:** ... including talking about rape-y ducks and all kinds of stuff.

**Nicki:** We talked a lot about different birds, and you were waiting for the internet technician, and I ran to a coffee shop to join in on this, and lots of bird conversation. We talked about goals, crows. Jack Ruston shared that apparently, if you try to free a gull from a net, it will go for your eyes.

**Robb:** A seagull.

**Nicki:** Yeah. And people have been blinded. They have this really rapid and fast ability to-

**Robb:** A lot of birds will do that.

**Nicki:** ... just go straight for your eyeballs.

**Robb:** Not storks, but these herons that go after fish, our eyes reflect light similar to a fish, and so they just dart and-

**Nicki:** So if you ever find a bird in a net, maybe put a towel over its head while you're trying to free it or something. I don't know.

**Robb:** Or some safety goggles on, one or the other, yeah.

**Nicki:** Goggles, yes. Yeah, something like that. But anyway, I want to test your bird knowledge today. What do you call a group of crows, specifically a group of more than three crows?

**Robb:** You know what's funny about this? I think I actually know this, and I have no idea how I know this, but I believe that this is called a murder of crows.

**Nicki:** You are right. I did not know that, but it was all fleshed out in the live chat.

**Robb:** No idea how I know this. This is similar to having 1980s cereal-

**Nicki:** Jingle tunes in your head.

**Robb:** ... jingles in my head, yeah. Yeah.

**Nicki:** Well, you win.

**Robb:** Murder of crows.

**Nicki:** Murder of crows. That is the answer.

**Robb:** Sounds like a Game of Thrones title.

**Nicki:** Totally. To play, go to [RobbWolf.com/trivia](http://RobbWolf.com/trivia) and enter your answer, and we'll randomly select three people with the correct answer to win a box of electrolytes from LMNT. And the cutoff to answer this week's trivia and be eligible to win is Thursday, April 29th at midnight.

**Robb:** Love how you're doing that on the fly. You almost did all this.

**Nicki:** Winners will be notified via email, and we'll announce the winners on Instagram as well. This is open to residents of the US only. I forgot to fill in the date, so I had to look at my calendar quickly to figure out what next Thursday's date was.

**Robb:** You're better with the on the fly stuff with things like that. I would just be lost.

**Nicki:** Yeah. See? If you hadn't said anything, the listeners would have had no idea that I was, you know.

**Robb:** The people watching, though, within The Healthy Rebellion are watching us fiddle around in our gear.

**Nicki:** No. No. These episodes, we don't ever post the full video, just clips.

**Robb:** In The Healthy Rebellion, doesn't this full thing go up?

**Nicki:** Mm-mm (negative). Just Salty Talks.

**Robb:** Really?

**Nicki:** Yeah.

**Robb:** Huh. Well, shows you what I know.

**Nicki:** Shows you what you know.

**Robb:** I knew a God damn murder of crows, though.

**Nicki:** You did. Okay, let's see. Our fourth question this week is from Kristin, and it's about lymphocytic colitis and heart palpitations, extreme anxiety, and brain fog. "Hi Robb and Nicki. After eight-ish years of being on and off vegetarian and two and a half years of being vegan, I was diagnosed with lymphocytic colitis. I'm not sure if the vegetarian, vegan ways of eating caused my condition, since I was also working an extremely stressful job for the eight years leading up to my symptoms, and my marriage was ending around the time that I got the colonoscopy that revealed my diagnosis."

**Nicki:** "Either way, I have since incorporated an animal-based way of eating, and I'm thankfully able to manage my symptoms with diet alone. Gluten, dairy, most nuts, almonds seem to be okay. Alcohol and soy seem to be my biggest offenders, although I've also noted that I get bloated and gassy with seed oils. Anyway, on my path to figuring out what I could and couldn't eat, I tried the ketogenic diet. I found that the lower carb I went, the more I had some scary symptoms. I experience heart palpitations, extreme anxiety, and brain fog to the point where I don't feel safe being alone because I feel like I could die at any moment."

**Nicki:** "It's not comfortable and has affected my ability to drive when it happens. I found that by keeping my carbs over 50 grams a day, I can generally avoid these symptoms. I'm a 35-year..." Excuse me." I'm a 34-year-old female who is admittedly not very active. I'm overweight, about 135 pounds, and five foot one. I don't need to be keto, but I'm just curious why I'm experiencing these symptoms. I was upping my salt and making an effort to get at least 2,600 milligrams of potassium. Do you know what could be causing them? Any feedback would be great."

**Robb:** Yeah, so just backing up on the colitis, really being careful with gluten exposure, when you poke around in the literature on it, that was I think kind of my precipitating thing. And similarly was eating a vegan diet, was in graduate programs, living in Seattle. My vitamin D was like 12 or something, the multifactorial thing. Definitely gluten was a big precipitator for me.

**Robb:** We are huge fans of low carb and ketogenic diets. We also fully recognize and educate that they're not the right fit for everybody. Some people do wonderfully at 50 to 75 grams of carbs per day. She is mentioning that she had upped her sodium, but was mainly mentioning how much potassium she gets. And the sodium really is the biggie in the heart palpitation part of this. Potassium is definitely important also, but we just notice that that anxiety, strung out kind of feel is more of a sodium-driven process for most situations.

**Robb:** Five grams per day is a bare minimum. Some people need significantly more than that. So if you tinker, if you find some other benefits with a ketogenic diet, then I would make sure to get at least five grams of sodium a day, and then make sure that you're rounding out the potassium, magnesium, and all the rest. But there is absolutely no specific need to be ketogenic if you're not finding some other benefit.

**Robb:** For me, I just find mainly that being right around that ketogenic spot is pretty good. Now that we've been getting back into jiu-jitsu and getting our feet back under us, I'm finding that I'm currently putting at least one, sometimes two pieces of citrus fruit down the pie hole each day. I feel pretty good with that. I do pretty well. On a very sedentary day, I

don't do that because I noticed that my glycemic control seems to get a little bit away from me. But on more active days, I'm doing a little bit more.

**Nicki:** Okay. Long story short, if you don't need to be keto, you can eat low carb and not necessarily be in that keto realm.

**Robb:** Yeah, there's this whole other spectrum of low carb, yeah.

**Nicki:** And then if you do decide to tinker, even if you're just low carb and you're not specifically keto, if you have any of these types of symptoms, paying attention to your sodium.

**Robb:** Yeah. Yeah. And you don't have to get LMNT. If you just want to download our free make it at home guide, if you just want to drink some pickle juice, chicken bouillon, there's a lot of different ways to do this. Yep.

**Nicki:** Yep. Okay. The last question today is from Valerie on heavy lifting and joints. "Hi Robb and Nicki. A friend of mine told me he used to lift heavy and found it was really hard on his joints. I was under the impression that heavy lifting, done well, was not bad on the joints and that in fact it had a protective mechanism on them. What are your thoughts on this?"

**Robb:** So I totally agree that the heavy lifting, and particularly some kind of mild plyometrics stuff... Pavel has talked about kettle bells being kind of favorable in this regard. The ballistic loading can be kind of therapeutic for the cartilage and actually stimulates the chondroblasts to lay down more material and whatnot. Getting our eyes opened within this FRC, Kinstretch world, though, I remember I hit a curb once in my old, old, Subaru, and it took me a couple of days to be able to get it to an automobile place to look at it. And the wheel that was out of alignment was massively degraded relative to, or the tire was massively degraded compared to everything else because it was-

**Nicki:** Because you drove on it for two days without it being aligned.

**Robb:** I had to, yeah. It was because it wasn't aligned. And it fucked it up, and in two days. All the other tires were fine, and then that one was ruined. So if you're not tracking properly, all of our joints have very specific axes of movement, flexion and rotation and whatnot. And what's cool, Sarah and Grayson with Basis and many other folks in this FRC, Kinstretch world, they do something crazy.

**Robb:** Before you really load a joint, they assess it to figure out, pressing overhead, this seems very reasonable, but Andreo Spina just has such a... The founder of FRC and Kinstretch and developer of this whole methodology, he has a great way of coaching this, that you may not have a shoulder.

**Nicki:** Or a hip.

**Robb:** Or a hip, and you need to do things with an eye towards that.

**Nicki:** You need to get a hip or try to regain your hip before you squat heavy on the hip.

**Robb:** Yeah. And so I think that that's a thing, too. It's not an either or thing. I think that heavy lifting can be fine for people. It can be very safe, but you need the proper tracking, you need the proper alignment. And if you have improper alignment and you're just kind of gutting it out... And this is one of the interesting things around power lifting and

whatnot. To some degree, those folks kind of like a certain amount of damage and scar tissue and impingement, because it's almost like wearing a bench shirt or something. You're getting some elastic rebound off of super fucked up joints and stuff.

**Nicki:** That sucks. Sounds painful.

**Robb:** It does, and I think that-

**Nicki:** And the older you get, the creakier and stiffer and sorer, and-

**Robb:** Yeah, and the worse all that stuff gets.

**Nicki:** ... yeah, the worse it all is.

**Robb:** And I will mention that people in jiu-jitsu, too, they're like, "Oh, it's hard on the joints." And not necessarily. Tap early, like I should have tapped early today on my Ezekiel joke, and suffer the consequences for really trying to weasel that one. I'm pretty good at weaseling out of stuff, and I wasn't good enough on this, and I should have seen the writing on the wall.

**Robb:** Some things like arm bars and stuff like that, I don't really weasel, because there's a collar choke, particularly with somebody I really trust, I'll do some weaseling because I start seeing the room dim, and then I tap, and I'm good. Somebody I don't trust, I'll tap super, super early. So I'm kind of deviating off of this thing, but-

**Nicki:** But an arm bar.

**Robb:** An arm bar, foot locks, oh, dude, I tap quite early on that. I'll do some defense on it, and if I feel like I'm not really on top of that, I'm good. They got me. Reset, and then I'm going to fucking get side control on you and make you poop your pants. But-

**Nicki:** The beauty of FRC and Kinstretch is the ability to gain strength in end ranges, which is where you get put when you're doing athletics. And so I think a lot of people who have been lifting for a long time without addressing the joint mobility piece, which is very different than just passive stretching, you can be super tight in the joints and not have the range of motion that you need to properly continue to do that lift.

**Robb:** And I'll throw a hat tip out there again to Dr. Spina and FRC, Kinstretch writ large. They appear to have a really tight relationship with Westside Barbell, arguably some of the best power lifters in the world. And Westside was very early in adopting things like ART, active release technique, which it has notes of FRC in it to me, in that very different in approaches and whatnot, but if you had this impingement, we were assessing the joint, and then we were trying to break up the scar tissue and get the neurological functioning in, as well as addressing the structural problems. And it's not surprising to me that the Westside guys saw the value of FRC and Kinstretch pretty early relative to a lot of other folks.

**Nicki:** Valerie, share that with your friend.

**Robb:** Yeah, I know that's a long-winded answer, yeah.

**Nicki:** If he still wants to lift heavy, if he liked it, if the reason why he stopped is because of that, I think there's a lot of recovery that can happen doing some smart mobility joint work a la FRC and Kinstretch.

**Robb:** Track down Sarah and Grayson with Basis. They do remote stuff, and they're phenomenal.

**Nicki:** They do remote coaching, yeah.

**Robb:** We do a bunch of that in The Rebellion.

**Nicki:** If you're a member of The Healthy Rebellion, they've done a couple programs for us in there that tackle all of this in a really smart way, so those are a couple of options.

**Robb:** Yep.

**Nicki:** We made it through.

**Robb:** Cool.

**Nicki:** Now it's only a matter of seeing-

**Robb:** Will we be able to upload this?

**Nicki:** ... can we upload this with our shitty internet-

**Robb:** And will it go out to the world?

**Nicki:** ... and will it go out to the world? Will Apple push it out? Everyone, thanks for joining us. Please check out our show sponsor, LMNT. You can grab your favorite flavor or a sample pack or the brand new flavor, watermelon, at [DrinkLMNT.com/Robb](https://DrinkLMNT.com/Robb). That's Drink L-M-N-T dot com slash R-O-B-B. And yeah, if you can't find us on iTunes, then apparently we are still on Spotify and Stitcher and iHeartRadio or something.

**Robb:** For now, at least.

**Nicki:** For now. All right, guys. We'll see you next time.

**Robb:** Bye, everybody.

**Nicki:** Take care.