

- Nicki:** It's time to make your health an act of rebellion. We're tackling personalized nutrition, metabolic flexibility, resilient aging, and answering your diet and lifestyle questions. This is the only show with the bold aim to help 1 million people liberate themselves from the sick care system. You're listening to the Healthy Rebellion Radio. The contents of this show are for entertainment and educational purposes only. Nothing in this podcast should be considered medical advice. Please consult your licensed and credentialed functional medicine practitioner before embarking on any health dietary or fitness change. Warning: When 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:** Welcome back everybody.
- Nicki:** Good morning. Welcome to Episode 92 of the Healthy Rebellion Radio.
- Robb:** Happy birthday, wife.
- Nicki:** Thanks, hubs.
- Robb:** You're welcome.
- Nicki:** Another trip around the sun.
- Robb:** Another trip around the sun.
- Nicki:** Yeah. Another trip around the sun.
- Robb:** The sun has gone around the Earth one more time. Because that's the way that I see the world, so everybody's a prick unless they agree with that even though I don't need to support that with any evidence.
- Nicki:** We are coming out hot.
- Robb:** Yeah, that's Andy's podcast, but none of those, yep.
- Nicki:** None of those matters, so we'll stick to our...
- Robb:** We're not clear hot.
- Nicki:** We're not cleared hot.
- Robb:** We're cleared lukewarm at best.
- Nicki:** Yes.
- Robb:** That would actually be kind of fun.
- Nicki:** Lukewarm.
- Robb:** Well, no, let's do like a parody. T-shirt or something like that, cleared lukewarm. Cleared warm. I kind of like this.
- Nicki:** It just to me makes me think of just going into a mountain side. If you're not cleared hot. It's not going in a good spot. Going into the same direction.

- Robb:** This thing is actually ain't in a good spot either, so it could be perfect.
- Nicki:** No, I know. All right. Well, let's kick off with our updates and whatnot. Let's see we just wrapped up the final week of the 30-day rebel reset. Our next one begins in January. So, we will keep you updated on dates as that gets closer. And I have some success stories to share, which we'll share in next week's episode. Those are coming in now. We also just started our Rebel Book Club. We're reading the A Hunter Gatherers' Guide to the 21st Century with by authors Doctors Heather Heying and Bret Weinstein. So that just kicked off Monday, this past Monday.
- Robb:** Quite a lot of activity on that one too. Our book clubs are usually pretty, pretty hopping, but this one is, quite hopping.
- Nicki:** I think everybody, lots of people have purchased that book anyway to read and then, Rachel, our book club leader this go around, decided to make that the book, and so a lot of people were pleasantly surprised that it was a book that they were already in possession of and already had begun to read. So, it's good timing with that one. Let's see here. What else? I don't think there's any other...
- Robb:** We wrapped up the reset.
- Nicki:** I don't think if there's any other...
- Robb:** But we definitely had some shameless plug because we would like all of you to be members of the healthy rebellion, but really some phenomenal transformations in people and not just what I'm seeing more and more as people like, "Yeah, I lost some weight. Yeah, I tightened this stuff up." But it is really mindset stuff changing dramatically. And a lot of people like we have these just for today's which Jess has become like this Jedi Master putting these together and they're basically these affirmations. And initially I was kind of like, "I don't know. This just seems kind of goofy, but they are super legit and people are already like, "Dude, I'm going to miss this. I'm going to just go back through and keep recycling these just for today." So, it's pretty cool.
- Nicki:** Yep. All right. Are we at that point where we talk about news topics?
- Robb:** We can do that. There's a paper out entitled "Durability of Immune Response to the BNT162b2 mRNA vaccine basically the Pfizer BioNTech and this paper is in pre-publication. It has not been peer reviewed. So just want to throw that out there. So, of course that means that it has no efficacy to it, no truth to it, or at least shouldn't be given.
- Nicki:** Nobody should look at it yet.
- Robb:** Nobody should fucking look at it for sure because the collective us wouldn't be capable of some degree of peer review because that never happens that people with just a good stat background or a quant or whatever. Don't look at papers and say, "Oh, this looks, it's surface level pretty good. Already, I see these glaring holes in it." But it's been getting some good response and I'll read from the paper itself.
- Robb:** Reports of waning vaccine efficacy coupled with the emergence of variants of concern that are resistant to antibody neutralization have raised concerns about the potential lack of durability of immunity to vaccination. We recently reported findings from a comprehensive analysis of innate and adaptive immune response in 56 healthy

volunteers who received two doses of the Pfizer vaccination. Here we analyzed antibody responses to the homologues, Wu-strain as well as several variants of concern, including the emerging Mu. And there's just all these acronyms and stuff. I'm going to skip through it. And T role, it's T cell response. So, just as an aside, this isn't just looking at antibody response. It's also cataloging and quantifying T cell response, which is the longer, in theory more durable response to a subset of these volunteers.

Robb: At six months after the second dose, our data demonstrate a substantial waning of antibody response and T cell immunity to SARS-CoV-2 and its variants at six months following the second immunization. Notably, a significant proportion of vaccines have neutralizing titers below the detection limit and suggest a third booster immunization might be warranted to enhance antibody titers and cell response.

Robb: So, I'm fortunate enough to be part of a couple of different research email groups and pretty sharp person in there just made the point that there's lots of cool, interesting, laudable things around these mRNA vaccines. They may end up being really beneficial for a host of different applications. But as far as being a durable, long lasting vaccine option, they're probably not. And the reason why is that a virus is not just a singular protein. It is a complex assortment of proteins, RNA potentially, DNA, potentially. And in evolutionary terms typically we mount a response to the whole virus. And this tends to be much longer lasting, provides more durable immunity. And so, people have been talking about the potential limitations of this approach for a very long time.

Robb: And it's interesting that the default here is suggesting that a booster of the same is going to be our way out. And we are still potentially dealing with some of these problems of original antigenic sin, in which the immune response kind of gets hardwired for a specific track. And so, these little niggling variants are reasonably hard potentially for the immune system to ramp up for because again, this is a fairly evolutionarily novel situation, that usually a disease will rip through a population and then it's done for good or ill or whatever. And it's not just kind of ping pong going around, spinning off variants in the way that we have in the modern world.

Robb: So, we have the original antigenic sin. We have the potentials around the antibody dependent enhancement. And so, one, the narrow focus of these vaccines is proving problematic and you really have to have your head where, wife where do their heads need to be to ignore this fact. And then the only solution really being put generally on the table is let's just do more of the same. And it's, well, I was going to say it's ridiculous.

Nicki: And add all the policy that is being made around. It's one thing if they were sterilizing, right? If the vaccine provided sterile, if they were sterilizing and you could not contract the disease, you could not spread it, then you can see some of the policies that maybe are being made even though the survival rate is like, off the charts and whatnot, you could kind of understand. But the fact that they're not sterilizing, and then you have these mandates and you have people who are effectively, because often because they physically cannot get the vaccine because they have some prior condition, auto immunity or some genetic blood disorders or whatever.

Nicki: There's no gray area for them. If they're living in a country that has a Vax pass or green pass or whatever they're called, they don't get to go to the grocery store or to the movie theater because they have a pre-existing condition that makes it such that they are contraindicated to get one of these vaccines. And so, you're marginalizing so many people, so many families, so many children. I mean, what's going on in Lithuania, Australia, Canada. In Canada, you can't, kids over 12 cannot play hockey. They can't play hockey unless they get the vaccine. And these are children. This is the national sport.

Unvaccinated national hockey players can play in an arena and vaccinated people can go watch them, but not all the players have chosen to get the vaccine and they can play their sport professionally, but 12-year-old children cannot. And I don't know I'm getting riled up here but it's a big, big thing. And I don't know where I'm going with this. It's just...

Robb: I don't know. It's so, I think everybody's kind of over it. But we're not over it yet.

Nicki: And when we're not going to be over it until this has to change right? Or we're turning, we're becoming a society where there's greater disparity. This whole last year was supposed to be how can we be more equal and inclusive and all of this stuff and instead we're creating a world where there's two distinct classes.

Robb: Well, Nicky, if the people who aren't complying would just comply, then there won't be two distinct classes. You just need to do what everybody else is telling you to do. Now, fuck it. We might as well head down this. What are some of the vaccine hesitant groups? One group of them happens to be African Americans as a standalone because the Tuskegee experiments in which African American men who were known thereto be infected with syphilis were not provided appropriate medical care, so that the doctors could see the full course of what syphilis did in grown adult men. And there is still believe it or not, in this happen in the 1970s, there is still some cultural baggage around that.

Nicki: That's what it should be.

Robb: So, when people as well their fucking should be and I remember Peter Attia had a guy on his podcast early, early on this top, top, top of the food chain virologist, who, vaccines are good, this and that. And the other and it was a really comprehensive piece. This was back when Peter's hair was on fire about COVID such that it is and then he asked the guy and I can't for the life of me remember the guy's name. But Peter said, "So are you going to get the vaccine?" And the guy said, "Absolutely not. I'm 65, I'm in pretty good health." And this was early in the pandemic. He said, "I'm kind of on the border of the risk profile with regards to age when I'm in good health. I want at least three to four years of data before I take this vaccine." That information just disappeared from the world.

Nicki: Well, it's not okay to have that opinion.

Robb: Yeah. And so, there are people who are reasonable. In general, the folks with higher education tend to be the more vaccine hesitant now. Surely there are the toothless inbred rednecks who generally get characterized as being vaccine hesitant. But you know what? There was a whole cross section that represents the world of people who are vaccine-hesitant and to say nothing. So, this paper, more specifically, is talking about the waning efficacy of these vaccines.

Robb: As it stands right now, it looks like people with natural immunity have really long lasting remarkably durable immunity. And so why are we not leaning into that? Why are we not being inclusive with that? It's fucking ridiculous. But that's probably as far down that road as we go. But again, it's a good paper. I think it's the part of the story that we just need to be kicking around and talking about and most people who have arrived at listening to our stuff and maybe reading the books and following anything that we do.

Robb: We were told high carb, low fat, and that works for some people. It doesn't work for everybody. And this is the governmental position, the position of the media and

mainstream medicine. And there's been a 40-year long fight around this and we know that low carb diets have remarkable efficacy in a lot of different situations. It is not the cure all for all things but it is a viable fucking tool. And most people understand that. Why people are so hesitant to extend what we understand around nutritional policy and regulatory capture and apply it to this? I'm not sure. But moving on.

Nicki: Moving on. Alright our T-shirt winner this week goes to Annie from Michigan. She says, "I listened to a number of podcasts and I love the Healthy Rebellion Radio the most. I have followed Robb since the beginning of time, so I have a huge amount of respect for him and his wife into the mix and she balances them out and makes you laugh. I've heard so much from this podcast and it's practical information that you can utilize in real life. Keep up the great work."

Robb: That's very nice.

Nicki: Annie from Michigan. Thank you for your review. Please send us an email to helloatrebels.com with your T-shirt size and your mailing address and we'll send you a Healthy Rebellion Radio T-shirt. And the Healthy Rebellion Radio is sponsored by our Salty AF Electrolyte Company Element. We're heading into the holiday season, which means that for some folks, many folks there might be some vibes.

Robb: Stealing nuts.

Nicki: Which is of reference the Wing Feather Saga that we mentioned last week in the trivia book series.

Robb: Their adult beverages are called by well, yes, all the beverages are called "bibes". Well I guess all the beverages are called bibes.

Nicki: Yeah, in this one, location in book three. But anyway, in this episode's ad, I wanted to tell you how to make some rip-roaring element Margaritas. This past weekend we went to an intimate gathering with one of the black belts at the gym here and he did a seminar to start and then it was steaks and we also did some Element Margarita. So, we decided on two flavors. So, we did Mango Chili and Citrus as the two base options and the ratio that we made.

Robb: Two stick packs per 32 ounces approximately, mixed up some big dispensers of that.

Nicki: Yes, and so then we mixed that up and mixed into a big glass kind of water dispenser. Those pretty things that you have at parties. And so, the drink goes like this, cup plus ice, plus shot of tequila, plus your base of choice, so either the mango chili and citrus and we just mixed it with regular water and then topped with a squeeze of lime and a carbonation float which was kind of nice. So, like a Lacroix or other soda club, soda bubbly water type for the last sort of to an inch.

Robb: Schniggle.

Nicki: The last schniggle. And you can also enjoy it without tequila, a mocktail if you prefer it that way instead. But as the holiday season comes in, those are some good options for holiday beverages.

Robb: And it was pretty popular among about 30 people. Nearly 4 liters of tequila were consumed alone. That was pretty popular.

Nicki: So, you can grab your citrus salt, mango chili, or any of the other flavors that you like to enjoy at drinkelement.com/robb.

Robb: Cool. Let's get after this.

Nicki: Okay. Question number one, from John this week is about low body temperature. He says, "I'm trying to figure out if a declining body temp is something I should be focused on. I'm 42 now and a couple of years ago I started noticing my daytime temperature was not a consistent 98.6. No big deal, I thought. Until more recently, I started having a hell of a time waking up in the morning. After doing some reading on thyroid related issues which run in my family, I started recording my daily temp. Most days my waking temp is 96.9 to 97.1. During the day, it hovers around 97.6. I've done a full suite of thyroid tests multiple times and my free T3, T4, TSH, reverse T4 and thyroid antibodies are right where they should be so no obvious issues there. I generally follow a Paleo diet but switched to strict keto for a few months this spring and now follow a low carb diet with no gluten.

Nicki: For activity, I do have a 40-hour work week at a computer but my spare time involves part-time farm work and two times a week Capoeira classes. When I'm not at the work desk, I'm fairly mobile. Male, 5'5", fluctuate between 135 and 140 pounds. Daily caloric intake is usually around 1500 calories unless I'm burning hard with activity on a given day. Is this just par for the course as we age for some folks or is my metabolism slowing down? My energy and muscle mass is still excellent but I'm fascinated with this and wondering if it's anything I should keep paying attention to.

Robb: Man, it's interesting because if we look at some of the longevity research is interesting in that folks with some mild hypothyroidism tend to live longer and we are not entirely sure why. It could be that lower metabolic rate equals lower oxidative damage over time. And so, we're just kind of accruing a little bit less total damage. That's not the total picture of aging, but it's certainly a facet of aging. But then the flip side of that is that infections, including gut issues, yeast infections, bacterial infections, all can be a lot more frisky because it's still a warm petri dish to grow things but not as warm as one might like to kind of mitigate their growth. And that's part of the reason why we get fevers upon infection and whatnot. So, I would, he mentioned who what's his name, again?

Nicki: John.

Robb: John mentioned doing some pretty comprehensive thyroid dives. I would be curious if somebody more in the functional medicine space who is like a thyroid expert has looked at this stuff. So, I would be really curious about a second set of eyes on this. And it's still one of these things where things can fall within kind of normal bounds, but something may be suboptimal for a given individual. And so, this might be worth throwing in something like Nature-Throid or something like that, just to see if that morning lethargy improves, if the baseline temperature improves, and also the 1500 calories a day, maybe just kind of eating on the skinny side. There's an interesting back and forth on this whole story.

Robb: I think like Mark Sisson asked, try to figure out the least amount of calories you can get by on and I think that there's some interesting kind of laudable characteristics that but Ryan Baxter and some other people in the rebellion, Art De Vany was kind of this opinion. Try to be as active as you can, but then also figure out what's the, our heater is being remarkably loud. I'll flip it off here one second.

Robb: What's the most amount of food that you can eat that one can eat and still maintain good body composition and all that that type of stuff in? It's interesting perspectives on both sides of that story. I think it is something that I would take a little bit seriously. But also, I guess it kind of depends if you live in Texas or Florida, maybe it's not the end of the world. Now that we live in Montana, I've been eating few more carbs just to try to tick that that box and I don't I never really noticed feeling cold. But I definitely noticed being warmer despite the fact that our environment is colder, and we're not even in the thick of summer or winter yet.

Nicki: No snow yet.

Robb: Yeah, no snow yet, but we've had some chilly days and whatnot. So, I would take it seriously. And I guess the things that I would consider, I would try to find somebody who is a real legit expert on thyroid. Guillermo might be a good call so I can put a link to his website in here. And then, I would consider just tinkering consistently with consuming maybe 1,800 to 2,000 calories a day, day in day out, just kind of see how you do with that.

Nicki: All right, our next question is from Sherry on long term blood donation. She says I am a 61-year-old female and a longtime listener. I've been donating blood every couple of months for several years. My mother had hemochromatosis. I was checked, but fortunately do not have it. I know that blood donation keeps iron levels in check. And I like that my body refreshes itself by making new blood. I'm wondering though, if there's a downside to long term ongoing blood donation. I don't want to deplete some limited resource in my bone marrow or something else like that.

Robb: You know, I like where Sherry's headspace is with this because when we donate blood or lose blood, we do lose stem cells or even the cells that are lost, then we have to dig into our stem cell pool to be able to replace them and I was kind of thinking there's going to be some sort of hidden cost here. But every couple of years, I'll just kind of spin this one up and do some poking around like blood donation lifespan, blood donation all causes mortality doesn't seem to be any downsides that I can find. So, I don't know that this is really an issue, possibly because it is baked in the cake and in assumption that we have some amount of blood loss. Clearly females with menstrual cycle and whatnot. And then males historically, just getting hurt and things.

Nicki: Gorged by a woolly mammoth?

Robb: Yep. Although I guess we are in a world where everybody can have menstrual cycles now.

Nicki: Although you probably would have died. It's true.

Robb: But the whole other cuttlefish.

Nicki: Cycling people.

Robb: Yes. Menstrual cycling folk.

Nicki: Folk.

Robb: Yes. So, Sherry, I again, I'd like where your headspace is with this, and I had kind of assumed that there might be a long-term problem to this. My dad did apheresis for years where you're donating platelets. And so, I've even gone into the more specific. If

somebody is doing something like platelet donation only and there doesn't seem to be any significant downsides to this stuff. And there's millions of people and decades of research on this stuff. And it's all correlative and retrospective and everything. But if there was a signal there, I think it would be something that would pop up and we would notice it. Whereas the flip side of this, like iron overload, pretty significant signal. It's pretty clear that that's a problem for insulin resistance and overall oxidative stress and things like that. So, I don't think there's anything to be worried with this.

Nicki: And I did just see in the, you brought home one of the local papers, The Daily Interlake, and there was a brief article about how there's a shortage for blood. They're needing people to donate blood.

Robb: Maybe I need to go donate then.

Nicki: Yeah, yeah. Okay, our next question this week is from Paul, wading through scientific studies. "Hi to you both. Question for Robb. My question is about the way scientific papers are written in the most effective method you have of screening out junk. I'm not a medical professional or a scientist. I work in IT and management during which I have developed a skill set around identifying bullshit. Whilst looking through papers in PubMed, I find the summaries and abstracts often very unhelpful or misleading then the main body of the paper is often rambling. And I frequently find myself skimming details in an attempt to find basic facts about the study, which I feel should have been stated clearly at the beginning. Information such as the purpose of the study, the conclusions, if any, the scientific soundness of those conclusions. Example what kind of test with how many participants, the test cell characteristics and the control cell."

Nicki: Some papers are much better than others. But coming from a business background, I'm used to information following the following format, title, one pager, recommendations, appendix, method, results, data and caveats. In my experience in business, overly obtuse prose, often points to deliberate deception or sloppiness. What is your view on this? How do you best navigate scientific papers in your research?

Nicki: Are there any recommendations you have for me so I can be more effective at working through these papers? Or are there services that grade papers with metrics? For example, a simple way of filtering those studies without sizable test cells and control groups? Or do you have any sources you consider to be consistently bad examples, specific universities or businesses that you would avoid? Final question on this topic is, in your view, what percentage of scientific studies are actually junk?

Robb: Oh, man. So, for some resources really quickly, just to throw that out there, there are Cochrane reviews, which are these large meta analyses. And they tend to be pretty good and they tend to grade and weight the different inputs. So, randomized control trials tend to get, put ahead of retrospective studies, ahead of case notes. But all of that stuff is potentially valuable. And one of the things that makes me crazy about kind of the evidence-based medicine, evidence based nutrition scene, is they will dismiss anecdote out of hand, but oftentimes, anecdote is where things started. And when you start getting a couple of million anecdotes, then maybe it's worthwhile to become more rigorous. You don't hang your hat on that. But gee whiz, could we maybe now take a more rigorous look at this? There might be some signal here.

Robb: So, Cochrane reviews are really good. In general, meta analyses are pretty good to look at because it depends on the bias of the authors and whatnot. But usually we can find a little bit more signal versus noise. Examine.com is a pretty good resource. They do a solid job of looking mainly at kind of nutrition research, but couching it in terms of the

quality of the data and all that type of stuff. What were some of the other questions? Are there places that are consistently bad? It sounds like a perk thing to say but anything that comes out of this like Physicians Committee for Responsible Medicine, PCRM or whatever. It's this vegan backed organization. So, whenever you see this plant-based deal and vegan backed, it's just garbage. By accident, they may get some credible information out there, but they're just so biased on this stuff that it's kind of garbage.

Robb: So much of the climate change research is so remarkably different than what gets reported in the media. So that's a big problem in this whole story. There's a great book *Unsettled* by Koonin, who was the kind of one of the main people in the Obama administration. He was the Secretary of Energy, I believe, and he was tasked with really digging into the climate change topic. And when he started really reading the research versus what's reported in the media, he's like, "There are two different worlds going on here." So, the climate change stuff is a particularly challenging place to dig in because any pushback against this absolute complete Doomsday narrative, you're racist, you hate people, you want everybody to die.

Nicki: You're a Holocaust affair.

Robb: It just goes on and on and on. So those things become really difficult to uncouple. I kind of like hypotheses, papers, and that's a different take on this. I like this kind of review papers and whatnot that are throwing out big picture ideas and that's where I spend a lot of my time kind of tinkering and fiddling. This is maybe an arrogant thing to say, but it's been a long time since I read a randomized controlled trial paper that really changed my mind on something.

Robb: Some of the stuff that Bill Cromwell has thrown our way via the precision health reports. And in talking about lipoproteins, and he makes, there is a subsection of the low carb scene that that is emphatic that so long as insulin levels are low and inflammation is low, then you're good to go with regards to cardiovascular disease potential. And he's like, "No, that's not the case." And he makes the point that there's a bifurcation where, yes, insulin resistance can and does feed into cardiovascular disease, but he also cites these cases where the folks were ostensibly quite insulin sensitive, but still managed to develop cardiovascular disease.

Robb: It's still for me is this kind of oblique, it's a deep topic. The more I get into it, the more confused I seem to feel by it. But it's been a long time since I had something that just blew my socks off. It's like, "Man, I'm really going to do things in a different way." Versus improve sleep, find a glycemic load that works for you, eat adequate protein, do some basic lipid ology. And if your lipoproteins are sky high, then maybe we do some saturated fat swapped out for mono and saturated fat, and maybe we add some carbs in there. But it's pretty simple stuff. There's just not a ton of things that, I guess this COVID topic when we've been trying to make sense of how bad is the virus itself? What is the case fatality rate? And it's really hard to figure that out. And what was the PCR cycle threshold set to and now what is the efficacy of these vaccines?

Nicki: Or even some of these, like the paper on arginine that came out. There's stuff that's coming out about potential effective therapeutics.

Robb: Right. Right. Yeah, so I guess those are and I guess, that's getting kind of far afield. So, I don't know if I have a perfect rubric on this stuff. I mean, I'm not a statistician. I can hang with understanding when they're calculating their P values and all that type of stuff and recognize that sometimes you may have a small sample size, but if the effect is very, very powerful, you don't necessarily need a massive sample size, which is one of

these ridiculous things that people just dismiss it out of hand. They're like, "I would only add 50 people in it." Like the piece that I read from earlier. Well, if there was a really significant signal there, then you don't need, the reason why you need massive numbers of people for things like stats is because it's hard as fuck to figure out whether or not it's actually doing anything, like the effect is really subtle, which could be kind of telling in and of itself.

Robb: And we start getting into discussions of like, how many people do you need to treat? We need to treat 500 or 5,000 people to be able to save one life ostensibly. So, those are important things to understand and they oftentimes get good. Those are things that should be part of usually somebody else doing some analysis later. That should be part of the paper.

Nicki: Right. And are the conflict of interests, I know authors need to declare those that's never in the abstract, right? That's always at the end.

Robb: It's usually at the end. Yeah, yeah.

Nicki: I feel like looking at that first and foremost too would be kind of a smart thing just to try to understand where the others might be coming from.

Robb: And more globally, like John Ioannidis. He wrote a paper. Funny enough, it's another paper, but he made the case that upwards of 80 to 85% of biomedical research is unreplicable and Bret and Heather have talked about this, that we have this replication crisis in science where folks will report one set of findings and then some folks will go to try to replicate that which is what good science should be done. We should do that at least a couple of times. You can't replicate what people have been doing. So, did they do something squirrely? Is there nefarious stuff? But interestingly, it seems the vast majority of what is being published is kind of garbage which then raises a whole other interesting question. I don't know if I'm just rambling here at this point.

Nicki: I'm just looking through my podcast. I'm trying to, I can't remember the name of this woman and I will find it and put it in the show notes. She was the editor for one of these big review papers and it was talking about just how if the paper didn't do what the people paying for the paper... So many papers don't get published if they don't fit a certain narrative. And so, that's also something to consider too. And there was a podcast I listened to on that and I will find the name of that woman because I know she's been on several, and I think she may even have a book about that and she was the primary editor of one of the big journals.

Robb: And just as an aside, pharmaceutical companies are not obligated to publish negative findings which is ironic given that a lot of the research that is done is in public private collaboration. So, there's some public funds that are going into driving these things and there should be full transparency on that and there's not. And again, what's the crazy ask here? Publish all the shit that you guys do. Particularly if there's any public moneys attached to this anywhere or to some of it's being done at a public institution.

Nicki: I'll take it another level. If there's public moneys involved in creating something, then the public should have a return on that investment.

Robb: And there was, we talked about this just offline but there's a great freakonomics piece and I'll try to remember to put this in the show notes too. This thing is kind of gone to a place that I didn't think it was going to go. But this PhD in economics, I am completely forgetting her name, but she made the case. It was kind of interesting because some of

the refrain from kind of the more libertarian circles, they'll point out things like Solyndra and different boondoggles that the government has invested in and they're like, "You're trying to pick winners and losers." And I think there's some truth to that but she made a really strong case. She's like, "The private sector is no better at picking winners like most businesses fail." So, she made a pretty strong case that she's like, it's kind of bullshit to browbeat the government or private sector for investing if people want to invest. But the main case that she made is that when the government invests in different technologies, so like these vaccines, these things were funded largely by public money.

Nicki: As was Merck's new drug.

Robb: As was Merck's new drug. The government and the public should get a VC level stake in that position. So, when you go to venture capital to fund a business, you're trying to scale it and start it up and everything. VC will take a giant slice of that and they're kind of pricks and it's kind of onerous unless you're kind of either a dummy or desperate or whatever. You try to make going to get VC kind of the option of last resort because they take an onerous slice of this. Her main case was that we should have a whole virtuous cycle of the public making money off these investments that then further perpetuate this, then it's not tax money. It's actually winnings off of these investments and there are billions of dollars being made off of these vaccines, and none of it's going back into the general economy.

Nicki: It's not even a loan. They're not even repaying the original investment amount.

Robb: Right.

Nicki: So anyway, we're getting very tangential on this.

Robb: It is super tangential on this, but lots and lots of problems on this poll. And, again, I think we mentioned some of the resources that I think are solid to go to. I like review papers and kind of theoretical papers. Certainly, when we're trying to figure out what do we do X versus Y versus Z. Some of these more rigorous studies are valuable, but it just, I think, for so many things, and actually, this is a point that is coming up again, and again in Bret and Heather's book, if we apply this kind of evolutionary template to most things that we do, there's a ton of stuff that just don't bother doing the pharmaceutical.

Robb: They're talking about like vitamin D and they're their main point is, we know getting out in the sun is good. We know eating vitamin D rich foods are good. So mainly focus on that. And if you have to, then use some vitamin D supplements, but they use this precautionary principle with this. And whether you're talking about, it's psychotropic drugs, things for anxiety and depression. And we know for a fact that moderate exercise is an absolutely amazing intervention for a host of different anxiety and depression scenarios and the risk is virtually nothing. And there are clearly situations in which some sort of pharmacological intervention is probably appropriate.

Robb: And more than likely, the vast majority of what's being prescribed is more dangerous, more injurious than it's actually helping. And exercise as first intervention, better nutrition as a first intervention is nowhere to be found. And I think, so when I back up, and I started applying this kind of cautionary principle in this evolutionary biology template, so much of the research, I'm like, this doesn't even apply if we just get people doing different stuff. And people will say, well, they're not going to do it and it's like, well, maybe we need to figure out a way of lining the incentives such that they do it or at least they're encouraged more to do this stuff. And maybe not in a way that people lose their jobs for not complying with my dictatorial mandates, but there are ways to

encourage better behavior and whatnot and suffer fewer downsides. And that wasn't any of the shit that Paul originally asked about, but that's what he got.

Nicki: Okay. It's time for the Healthy Rebellion Radio trivia. Our sponsor Element is giving a box of Element electrolytes to three lucky winners selected at random who answer the following question correctly. Robb, one of the most amazing things about fall in here in the Flathead Valley, which I think is unique. I didn't remember it at all from being near the mountains in Northern California or even in Reno is a particular type of tree that changes, its deciduous, it loses its leaves in the winter, and they change color.

Robb: But it's also a conifer.

Nicki: Yeah. And they change colors and right now, they are just spectacularly golden yellow.

Robb: We've used this once already.

Nicki: NickiNo, we haven't.

Robb: I am pretty sure we did. Because I said what is the tree which is both a conifer and deciduous and it loses its needles. It's okay.

Nicki: Well, you can use the different name for it, because it has two names.

Robb: It has two names. I don't remember which one? I think I mentioned both of them before. It's either the Tamarack or the larch. It's the same tree.

Nicki: The western larch.

Robb: The western larch.

Nicki: Anyway, I really don't think we've used this one before.

Robb: I'm almost certain we did. What do you want to bet?

Nicki: I don't like entering into bets with you.

Robb: Because I always win. And the things I asked for are pretty over the top. It's up to you. Okay. So, the answer is western larch or Tamarack.

Nicki: Yes.

Robb: And are you going to take this bet?

Nicki: I think I am. Because if we did it, it was like, six months ago.

Robb: I'm not putting a timeframe when I've said that we've done it previously. We've only been here for about eight months, so it couldn't have been...

Nicki: Okay, I'll take the bet. I'll take the bet.

Robb: And I get to pick whatever I want.

Nicki: Well, we'll talk about that later. To play go to 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 Element. The cut off to answer this week's trivia and be eligible to win is Thursday, October 28th at midnight. Winners will be notified via email and we'll announce on Instagram as well. This is open to residents of the US only.

Robb: And next week, folks, Nicki is going to be broadcasting wearing a naughty maid outfit because that's what she's going to have to wear when she's wrong, at least while I'm around.

Nicki: Not going to happen. Okay, fourth question this week is from Matt. Sea salt versus electrolytes. "Hey, Robb and Nicki, I've been listening to your podcast for a few years now and I've definitely enjoyed the new format. Recently, I read Sacred Cow and it was by far my favorite book of 2020. The Paleo Solution Wired to Eat on my list of books to read at some point as well. To my question, for about a year now in the mornings, my wife and I will each put a slice of lemon and three big pinches of Celtic sea salt into a big glass of water. Where we really noticed a difference was in the summer heat when we would sweat. My question is how is this different than consuming electrolytes? Are there any differences that we would notice by taking electrolytes instead of just a good sea salt? I would love to try Element one day. But being from Canada doesn't make it as simple. Thanks so much, Matt.

Robb: So, Matt, you can get element from Amazon Canada, so that's a pretty easy process. But really, there's not any difference and it sounds kind of crazy. But when you look at the needs that folks typically have, addressing sodium is the thing that really addresses most issues. So, if you like doing the pinch of sea salt, that's great. What I find in general, though, is that people are not getting enough still. This was my story for sure. And so instead of doing a pinch, I would actually weigh it in and have a sense of like, okay, I'm doing a quarter teaspoon or a half a teaspoon...

Nicki: And then figure out how much sodium that actually is.

Robb: A gram of sodium, and then, that way in the background, you have some sense of how much you're really taking in, but there's no need to do something like Element or something else. We still have our Homebrew guide. I forget what the URL is for it, but if you poke around on...

Nicki: We can put it in the show notes.

Robb: Yeah, if you Google or search element and dot, dot, go wait and Element and Homebrew, then you'll get the PDF for it. And it tells you how to homebrew your own stuff. Potassium is important. Magnesium is important. We add a little bit of that in element. But ideally, we hope that folks are getting the bulk of those nutrients from their food. And then the sodium is really the thing interestingly that if you're okay on sodium intake, then the body, the kidneys in particular, do a great job of sorting and retaining the other electrolytes. If you're deficient in sodium, it gets hard to stay on top of all that stuff. So yeah.

Nicki: Okay, last question this week is from Derek. "What's the deal with EMF filters and earthing? Hey guys, love the show. Now straight to my questions. I don't think you've covered this yet. At least not in great detail. Number one, what are your thoughts on earthing? Is this legit? It seems kind of ridiculous and treehuggerish, but at the same time, it has a ring of legitimacy. I've seen different methods recommended from using grounding mats that you sleep or sit on to just walking around outside barefoot or sleeping on the ground. Question two, what about EMF filters? Again, they have some ring of legitimacy, but at the same time seem kooky. Obviously, there are waves galore

traveling through the air, but is blocking out these waves, if the filters even work, really going to make that much difference.

Nicki: What about just removing electronics from the room? Does that really make that much of a difference? I plan on trying out some of these methods from the standard remove all electronics from the room to actually shutting off the breaker for our bedroom. But given that there are so many other factors that could affect how I perceive my sleep quality, I thought I would see what you guys think without solid research or at a minimum convincing anecdote, I'm definitely not going to be dropping a few \$100 on something like this, but I would really like to know if it actually works. Thanks for the awesomeness. Keep it up.

Robb: So, on the earthing I had dismissed this stuff for a long time and it still is perplexing to me that like plugging a mat This is one of the funny things. So on the earthing mat, you plug these things into the wall and then they're supposed to provide that negative ion balance but then we're into EMF land because it's plugged into the wall so that has been kind of perplexing to me but there does seem to legitimately be this health benefit to walking on the grass, getting ankle deep in ocean water and natural bodies of water in general.

Nicki: Dirt and soil.

Robb: Dirt and soil.

Nicki: The Japanese have done forest bathing for years and years, so there's definitely...

Robb: There seems to be something to it. There's some interesting research out there. Now the EMF stuff, would one want to put a bed or have a picnic upon a neighborhood power distribution center? No. Like literally sitting on this stuff. But the interesting thing about EMF, there's a bunch of different layers to it. But there's this thing called the inverse square law where if you are twice as far away from something as you were previously, there's four times less energy density. So that's a piece to this.

Robb: The other piece I covered a bunch of this in one of my early salty talks. It was number four. It was right at the beginning of the Coronavirus. It's titled 5G and Coronavirus. I've got a link to that in the show notes. Initially, there were some folks and it was super frustrating because it was physicians that were saying this. They were in the camp that 5G towers were actually transmitting the corona virus, viral particle via EMF, which it was just absolutely batshit crazy to me. And so, I kind of went through and did some basic physics on that.

Robb: But then I also looked at what is the amount of energy that's coming off of things like our cell phone or outlet and how much is that relative to what we get from sunlight because the electromagnetic spectrum is everything from gamma rays on the one side to the very long radio waves on the other. And so, when people just say, EMF, it's the light that you see. It is heat. It is infrared radiation. And when we look at most of the wavelengths that we're dealing with, with regards to like, cell phones, and a bunch of this, in particular, I was talking about 5G here.

Robb: The wavelength is such that the outer layer of your skin absorbs virtually all of it. It doesn't go through your body. It is remarkably low energy density. And every year, every day, these devices we use get more and more efficient at getting more out of less energy. So, it's not penetrating your body, it is not heating your body to any significant

degree like you would literally need to put yourself in a human size microwave and turn it on to get a really catastrophic effect off this stuff.

Robb: So, I'm really unmoved by in general, by the danger here. Might there be some people who are more sensitive to this, there certainly could be. There are folks that live under some high-density power lines and stuff like that. Maybe there could be some problems there. The shielding is really complex and you have to do it exactly right or it doesn't really do anything. God bless Ben Greenfield, but he was talking about wearing this silver lined underwear while flying to save his balls from EMF. Yeah, it was a goodie. And it was just like, oh my god. So, I'm not super freaked out by this.

Robb: You've had more concerns around this stuff in the past. I don't know if I've really influenced you or changed your mind on any of this stuff. But I'm really underwhelmed by the risk profile here relative to our folks getting out in the sun. Are they moving? Are they eating a species appropriate diet? Do we have adequate community? Tick all of those boxes?

Nicki: All those things come first. Yeah/

Robb: Yeah, yeah. And if you have an alarm clock right next to your head where you're sleeping, maybe you move it away a little bit.

Nicki: And when you sleep with your phone right next to your bed, keep your phone in another room.

Robb: When you sleep with your phone right next to your bed, again precautionary principle. I think that those are all reasonable. But I'm really underwhelmed by this stuff and it always is perplexing to me when I see folks who are clearly pretty unhealthy on a global level. Their food sucks, they don't get outside, they don't move adequately. And the first whistle stop that they make in health is trying to go super deep on this EMF topic. I think that that is misplaced. I'll reserve the right to amend my position later, but yeah, just not super compelling.

Nicki: Okay, that is a wrap for this week. Remember, you can submit questions for the podcast by going to robbwolf.com and clicking on the Contact Us page and there'll be a drop down for you to choose podcast question. Be sure to check out our show sponsor Element. You can do the value bundle, buy three boxes and get the fourth box free. You can go to drinkmnt.com/robb for that. And I think that's a wrap.

Robb: Cool.

Nicki: All right everybody. We hope you have a fabulous weekend and upcoming week and we will see you next time.

Robb: Bye, everybody.