

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+.

Robb: Howdy folks.

Nicki: Hello. Hello. This is episode 161 of The Healthy Rebellion Radio. We're back, and where were we, Hubs, where did we go?

Robb: Went to a better place, a much better place.

Nicki: We were in... We spent, gosh, five days almost, in Big Sky.

Robb: Five days, four nights.

Nicki: In Big Sky, Montana, with the LMNT team. We do an annual team retreat there in Big Sky, and LMNT sponsors, this is the second year in a row where we've sponsored the PBR there, and last year we, as a team, or the company, purchased a little bull.

Robb: He's not so little anymore.

Nicki: He's not so little. Well, he's still young.

Robb: Although he is still growing.

Nicki: He's still young and growing. His name is Ridin' Salty, and this was the first year that we got to see him actually come out of the bucking chute, and it was really fun. We had a really great time. The first night... It's Thursday, Friday, Saturday, and we attended Friday and Saturday, and Friday night, he was the highest scoring bull of the night, so we won a little award there, which was really fun for the team. Gosh, we've got just over 30 people now on the LMNT team. Anyway.

Robb: It was just super cool.

Nicki: Super fun, super fun all the way around. Good times. And now we're back.

Robb: I had a little bit of post-event let down depression, not unlike having a house full of family, and friends at the holidays, and then everybody piles out at

the end of it, and you're kind of like, "Damn, it's a big empty house."

Nicki: Other news, Griz is totally fine. He has recovered from his Pike diarrhea experience. So...

Robb: Pikarrhea?

Nicki: Pikarrhea. We're back to normal on that front also, so life is good.

Robb: Indeed.

Nicki: Let's see. You have...

Robb: Hey, you took my news topic stuff.

Nicki: No, you didn't put them in the right section. You put them at the top of the document.

Robb: Oh, I did.

Nicki: Scroll up, scroll down. There you go.

Robb: Oh.

Nicki: That's your fault, not mine.

Robb: Oh, okay.

Nicki: You must own your mistakes.

Robb: I'll own something.

Nicki: All right. What do you have for news topics?

Robb: The first one is a piece from the Bad Gato, Boriquagato, and it's titled Why Progress is Environmentalism. I'm always casting around for what I can do that actually helps, and moves the needle in the world, just helps make things better. And I know historically, my purview, I guess, has been kind of health and fitness, and it's over time, grown into including some, I guess still health related things like talking about grass fed meat and all that is health related, but there's really significant environmental, kind of ethical considerations that underpin all that type of stuff. I wouldn't consider myself an expert, but I definitely consider myself an educated lay person on the energy environmental topic. I mean, I wrote a book that has done reasonably well that covers it.

And when you look around for critical reviews of Sacred Cow, what's interesting is you don't find much in the critique area. And I don't think that that's because it did so poorly that nobody even... It just didn't hit any radars. I think it's because we were so on the mark and we did such a good job of making

our case that it's very, very difficult to get in and critique the thing. Anyway, that's all my justifications for this stuff.

But the Bad Gato basically makes the case that with progress, the environment tends to get cleaner. And this is something that folks really push back against, and it feels intuitively not true. But if you really dig into things like general water quality, and stuff like that, energy rich nations, energy rich areas tend to be much cleaner, much healthier, much more sanitary than places that are low energy.

He makes the case that there are no low energy wealthy countries, period. Full stop. And it just tracks beautifully with the access to total energy per capita, relative cost of energy per capita, will give you a pretty good sense of how wealthy a nation is, and how clean it's. Like there are places in, particularly Scandinavia, that one can fish in the downtown areas of their capitals, and still eat the fish, because the areas are so clean, and they still have industry in these places. Oftentimes they still have manufacturing and whatnot.

But we were listening to an episode of the Dark Horse podcast this last weekend, and Brett made the case that pollution is an indicator of inefficiency. Like if one is dumping something into the environment, usually that something still actually has some sort of value in some way. It's just figuring out how to extract that value, versus poisoning the waterways and stuff like that. But anyway, the Gato makes a beautiful case around all that.

And then I have another article on plasma arc recycling. And the plasma arc recycling is this interesting technology that... It's a way of effectively incinerating garbage, but before the garbage makes it into this thing. It would be well sorted, and things that could be composted, would be composted. Recycling is a whole interesting deal. We talked about this a little bit from the Decouple podcast. What was the title of that? Mining Our Way to Prosperity, I think was-

Nicki: Something like that. Yeah.

Robb: The rough title. And it was an eye opener.

Nicki: I'll put a link to that also in the show notes for folks.

Robb: Yeah, yeah. It was an eye opener, in that a lot of things are difficult to recycle because of the increased entropy of the material. Well, the plasma arc recycling is interesting, in that it operates at such a high temperature, it doesn't just burn things. It reduces them to largely their constituent atoms. Like a plastic is made up of carbon, and usually some chloride like polyvinyl chloride, and not much else, but it's just those things stitched together. And if you just burn it, you get kind of this gnarly mix of hydrocarbons. You get some carbon monoxide, you get carbon dioxide.

In the plasma arc recycling, the flame, "flame," it's not really a flame, but the ignition medium is so hot that you can reduce things to their constituent elements, for the most part. There is still some... Salud.

Nicki: Excuse me.

Robb: There is still some pollution left over with that. This isn't an entirely perfect process, but it's remarkably good. And what's interesting about it too, it still requires a net energy input to do it, but you do get some energy back out of it, because in the process of rendering it down to its constituent elements, you do release a lot of energy, and you can hook that up to a boiler, and run an electrical generator, and generate some of the electricity for the plasma arc thing itself.

Nicki: Is this a new technique, this type of recycling?

Robb: I wouldn't say it's new, but it's up and coming.

Nicki: Sorry.

Robb: Real quick. I wouldn't even say that this thing is the panacea. It still is in process. What's interesting about this technology is it works best when you've got a lot of extra energy.

Nicki: Gotcha.

Robb: And it's a really elegant way of dealing with all the shit that we've got, instead of landfilling it, instead of dumping it in the ocean. Most of the places... I think people might be aware, the bulk of the plastic that ends up in the ocean comes from two nations out of Asia. It's like 85 or 90% come out of that. And it's largely because the folks in those areas, they're poor enough that there is not any type of landfill, or garbage collection, or anything like that, and they still have dodgy access to potable water, and so they do lots of bottled water.

Nicki: I just remember in that decoupled podcast, and I think even when we talked about it, you described... You used the analogy of a cup of coffee, and you have the coffee, and you have some cream in there, and some sugar, and the problem with recycling some of these things like solar panels, and these other kind of green technologies is that once it's all in there, it's really hard to get those individual constituents back out. But it sounds like with this plasma arc recycling, maybe that cup of coffee analogy, you would be able to extract out... Or it would heat it such that at the end you've got your pile of ground coffee, and your pile of dairy proteins?

Robb: Well, the analogy is difficult there, because of the temperatures. So, if we had a solar panel that was up for recycling, the silica would be the silica, the silver would be the silver, for the most part. It's not 100%, but it is an energy

intensive process. But you do get some stuff out the back end. At a minimum, you are in a situation, say if you had heavy metals or something like that. At a minimum, we are in a situation where you could do something like what they've done with spent nuclear fuel, which should actually be used in next gen reactors, but that's a different topic.

But what they've done in the past is take this stuff and mix it with molten glass, and then turn it into these glass nuggets, effectively, because they're so hardy and difficult to degrade and break down. So, toxic heavy metals like lead, and arsenic, and stuff like that, you could conceivably, with enough energy, and with the temperature inputs, get them amalgamated with this, the glass beads or glass nuggets, and then this stuff doesn't poison water, it doesn't destroy groundwater.

Nicki: It sort of seals it off into a little...

Robb: A glass teardrop effectively, or like a glass hockey puck.

Nicki: Interesting.

Robb: The stuff is energy intensive. If we want a cleaner, better planet, we need more energy. And I was thinking about then plugging in a link to one of the many, many green energy pieces. I'm like, "Well, why fucking bother?" I think at least with our listenership, people are pretty savvy that this is what's going on. And again, similar to that Decouple podcast, I'm not saying that wind turbines don't have their place. I'm not saying that solar doesn't have its place, but it is not... I will absolutely, emphatically say, as an educated layman, I would not call myself an expert in this. But, it's also one of these things that if you've got enough thermodynamics under your belt, and I've got a fair amount of that, you end up auguring into the right answer.

Like Diana and I, there were no studies emphatically saying that lab grown meat was going to be significantly more energy intensive than conventional meat. They didn't exist at the writing of the book, so it was somewhat speculative, and we were absolutely spot on. That Sacred Cow book has stood the test of time like nothing else that I've written, because we are really careful, and we had evolution, economics and thermodynamics as the underpinning exclusively. We weren't trying to sell anybody on a particular type of diet, other than a nutrivore approach, which is, let's just look at the most nutrient dense stuff, and build our diets around that.

So, I wouldn't call myself an expert in the energy field, but I've been pretty bang on with a lot of this, and the little bit that I've had wrong, which usually, a nuance, not like the grand brush strokes. So, I feel like if I've got anything to offer as we go forward in trying to make our world better. It's stuff like this. There is so much fear porn, and drama, and just try... Attempts to terrify people into this notion that our world is all but lost, where we're going to heat up, as per Venus, and have an inhospitable planet, and I don't think any of that is

remotely accurate. Even when you dig into the most extreme of the climate modeling scenarios out there, it's not that bad.

Nicki: But all the graphics I'm seeing, they're all red.

Robb: I know.

Nicki: Like really red, like we're getting hot.

Robb: I've posted a few little things here and there on my Instagram timeline, and generally well received, generally, I think that my attempt at being thoughtful with it is well received. And I guess I need to be glad for the pushback that's there, because these are the folks that if I am correct, we need to have a discussion, and move the conversation forward.

But there have been some folks that are very concerned. "Oh, we've got these record high temperatures and these different..." Okay, yeah, every single year for all of our recorded history, and as long as we've been keeping track of this stuff, there are record high temperatures every single year. There are record low temperatures every single year. It doesn't, in total, mean much of anything beyond that you do have outlier weather at the edges. And I'm not going to dig too much further into that, because I think it's good to have some more meaty, substantive support for those things. But anyway, check those things out. And once again, I'm not suggesting that the plasma arc recycling is the answer, but it's a really interesting solution. And again-

Nicki: Well, as we know with most things, there's not a single answer to all problems It's usually a multi-

Robb: Multifactorial, yeah, yeah.

Nicki: Yeah. Many approaches that can solve a given situation.

Robb: Right, right. But it is interesting, and it is predicated on adequate energy. And overall, when you look at the health of a country, a society, it directly relates to the energy it has access to.

Nicki: Cool.

Robb: And they're trying to make our access to energy less, not more.

Nicki: All righty. Healthy Rebellion Radio is sponsored by our salty AF electrolyte company LMNT. If you follow a low-carb or ketogenic diet, electrolytes matter. If you're active and have a physical job, electrolytes matter. If you live in a hot or humid environment, electrolytes matter. If you find yourself getting muscle cramps, or feeling fatigued throughout the day, you guessed it. It might just be that you need more electrolytes, particularly sodium. LMNT makes the tastiest no sugar electrolytes on the market, with all the electrolytes, and none of the

crap that you don't need. You can grab yours today at [drinkLMNT.com/robb](http://drinkLMNT.com/robb). That's drink [LMNT.com/robb](http://LMNT.com/robb).

Robb: Wonderful.

Nicki: We've got three questions today, Hubs. The first one is from Steven on elevated prolactin. Steven says, "I'll start off by saying I love the podcast. I've been a listener since day one. The Paleo Solution was a real eye-opener in regard to noticeably feeling different after eating clean. I'm turning 40 next year, and I thought it would be a good idea to get a snapshot of where my hormone levels are. I like to think I do a good job of being cognizant of eating well, sleeping, and training.

So my recent hormone blood work looks like this. Luteinizing hormone 4.2, follicle stimulating hormone 2.9, testosterone 724, prolactin 24.5. Need I be alarmed about my prolactin? From what I understand, it can indicate a serious problem, or just be due to endurance training. Over the past two years, I've been running a lot. I trained for, and completed a 50-mile ultra marathon and marathon. As of late, I'm lifting, squats two times a week, deads one time a week. My running mileage is low, comparatively to a few months ago. Some pull-ups and pushups every day.

Besides just being fatigued from training, at times I feel, and think I perform... Oh, sorry, I kind of read that with the wrong cadence. Besides just being fatigued from training at times, I feel, and think I perform pretty well. Although I don't notice it, work is a stressor, and I'm certain that the shift work I do isn't helpful. I plan to follow up about my blood work, but should I be asking for thyroid blood work? Is it dumb to just attribute the high prolactin to endurance training, and low-carb eating?

Robb: So the low-carb eating long as calories are adequate shouldn't really be a factor in this. And it's interesting. People will shit talk low-carb diets for a variety of reasons, but the literature is pretty clear that if we're just talking over training syndrome, and what's interesting is the papers on this are, again, pretty clear, independent of macronutrient ratio, calories are where over training syndrome starts happening. And I've kind of seen that personally, with my own blood work, or not blood work, but my HRV that I-

Nicki: Your recovery scores, yeah.

Robb: Track all the time. So, that's a piece of it. I do think that elevated prolactin goes kind of in lockstep with over training, but it can be an indicator of cancer, it can be an indicator of some other stuff. So, I would get in and do a little bit more diligence on it, just to make sure that you don't have something else occurring there.

Nicki: So, he doesn't talk really about his food other than he eats paleo and clean. But if he is training a lot, and if he's not eating enough, it could be-

Robb: It could exacerbate it. But there is a reality that at a sufficient volume, and intensity, you're going to end up with over-training syndrome almost regardless of how much he eats.

Nicki: And you'd think that if somebody had over-training syndrome, he would feel pretty shitty. I mean, he's saying he feels fatigued from training at times, but otherwise feels like he performs pretty well. So he is 39, he's about to be 40.

Robb: It's tough. I see folks... I mean, we've motored along for ages, just... You still have that little... Just a whiff of youth.

Nicki: You push yourself hard because you always could, and you feel like you still can. And...

Robb: Yeah, you can keep running and gunning. And also, I think over training long term is interesting in that it's a little bit like sleep deprivation, and that's an interesting thing, because he mentions just peripherally that he's got some shift work there. Doc Parsley has talked about how with a couple of days, a couple of weeks, you habituate to the miasma that is shift work, and you're just kind of like, "This is my new norm."

And especially if you're kind of a mentally tough go-getter type of person, unlike myself, who doesn't whine, and bitch, and complain, and micro scrutinize every bowel movement and everything, but if you're just kind of a tough go-getter, you don't even notice that there are cracks in the foundation. Like, "Oh, this isn't a big deal." And you just keep kind of charging along, charging along, until things break in a pretty epic fashion. So, there's different pieces to it. He may still feel pretty good, because the wheels haven't fully fallen off.

Nicki: But his pretty good may not be...

Robb: May not be as good as... Yeah.

Nicki: What he would be if he had a reduced training volume, and was sleeping better, and all that.

Robb: He was using something like Morpheus, and tracking his HRV, and his recovery, and kind of modifying volume and intensity appropriate to that. It is worth mentioning that anything that takes you above anaerobic threshold dramatically alters the neuroendocrine response, with regards to heading you towards over-training. And it doesn't mean you shouldn't do things that take you above anaerobic threshold, but you really should recognize that the dose response curve is potent, and if you want to over-train, that is a remarkably good way to get yourself there.

It makes me shudder a little bit about our CrossFit years, both doing it, and the training of people. And we long, and early, had a sense that we needed



to keep people more in the aerobic zone, and largely got kicked out of the organization for the heretical suggestion of that, and time and science has only supported our position on that.

Nicki: His final question, should he be asking for thyroid blood work, or just revisit with the doc, and-

Robb: Never a bad one to look at, just if for no other reason, simply to have a baseline on that.

Nicki: Okay. All righty. Question two is from Amy on omega-3s. She says, "To omega or not to omega? That is the question. Kresser is going to try and sell me some tomorrow. Barry Sears says they're the answer to whatever ails you, but Master John says they're basically poison, and we need more arachidonic acid, in fact. In the last podcast of yours, I heard you mention them briefly. What are you doing about them lately?"

Robb: This is our good friend Amy from the...

Nicki: Oh, this is a Amy we know?

Robb: Yeah.

Nicki: Okay.

Robb: Yeah, from the Healthy Rebellion, and other places. It's a really good question. This is another one of these things where I have been, I feel like, around, and around, and around on this topic, and I would throw out there that I think that this is a little bit of a situational story. I think as somebody has eaten a pretty pro-inflammatory standard American diet, there might be some non-trivial benefit to the inclusion of some additional omega-3s in the diet, or as a supplementation.

They are really prone to oxidation, and this is one of the interesting kind of side observations about the Inuit. They eat this very... Historically, they ate this very low-carb diet, although they weren't necessarily specifically in ketosis and whatnot, but because of the marine animals they consumed, both mammalian and otherwise, they consume a really high proportion of omega-3 fats. And although they do pretty well on the aging side of things, it's not spectacular. There's some historical examples of them not doing spectacularly well long term, and there's some thought about just the oxidative stress that they're under from this high omega-3 intake scenario.

I think it's worthwhile to get a red blood cell omega-3, omega-6 test, and kind of see where one is in that story. I do think that there is a reasonably compelling case out of the Loren Cordain paleo type model of approximately an equal omega-3 to omega-6 intake from the diet. I think that there's some reasonable support for that. But it is worth mentioning that amidst all of the

Barry Sears excitement around omega-3s, and the funny thing is Rhonda Patrick just had a guy on her show that was extolling the virtues of omega-3s, and the anabolic effect of omega threes and whatnot, particularly as we age, but there is kind of a reality, the arachidonic acid, which actually comes out of the omega-6 pathway, is completely non-negotiable in building muscle, in perpetuating that some element of the pro-inflammatory process that would be necessary in both wound healing, and muscle mass accretion.

So, you really do need a balance. I do think that a good place to start in this story is some basic blood work that looks at your red blood cell ratio of omega-3 to omega-6. If you do supplement, I would probably caution against, even though we've recommended high doses in the past, and I think that there are punctuated situations where that makes sense, I think it probably makes sense to do a lower dose of omega-3s, and just kind of stretch it out over the longer haul, because there is actually a rate limiting step of the inclusion of omega-3s into various cell membranes and whatnot.

So Amy, I don't know if I perfectly answered that, but I think it's going to depend a little bit on the individual. I would say that if you are generally eating mainly pastured meat, and I am not actually as remotely as much in the camp of the seed oils being the root of all evil, and I've got a lot of good friends in this scene like Brian Curley, he is the seed oil disrespector on Twitter, and they have some really compelling stuff.

But there's something about this that just doesn't add up to me, and I'm just not entirely sure. Again, I do think that a roughly balanced omega-3 to omega-6 intake, being mindful of the oxidative stress that these polyunsaturated fats can bring to the body. I think all of that's legit. But then I think some of it gets a little bit weird. I think that freaking out that your steak might've been cooked on a griddle that they put some canola oil on is ridiculous, if I'm being honest. I guess if you want to ask about that stuff, that's fine, or you want to ask them to use butter, or something. But, I'm just kind of wandering now, but I'll talk more about the fats later. But Amy, apologies if I didn't cover it. Hopefully I did. I do think get some blood work.

Nicki: Getting the testing done.

Robb: Figure out where you are, and then we can ease into what direction you want to go from there.

Nicki: Cool. Okay, final question from Matt. He wants to know if there are alternatives to Phenibut for mood and wellbeing. He says, "I currently average one gram of Phenibut a day to lift my mood and prevent anxiety, and have played with periods of abstaining for one month or so. I find only a little withdrawal symptoms, so it's not untenable. However, my baseline mood is not nearly as social and happy as I am with the small to moderate Phenibut usage. My question to you both is do you see a problem with it? As most of the research out there is n equals one examples of people abusing, and they experience

rebound anxiety. Are there anxiolytics like ashwagandha, or others that I should try? And what are good sources, as I'm reluctant to grab off a random Amazon wholesaler? For context, my sleep is dialed in at seven to eight hours per night. I do a daily 10-minute meditation, yoga and fitness, and I eat a Paleo plus rice diet.

Robb: It's a good question and just maybe for a little bit of background, Phenibut is a blood brain barrier permeable form of GABA. It's interesting stuff. I use it to help manage my essential tremor, and it's really effective. It helps the symptoms pretty significantly. But because it acts on the GABA receptors, this is also where alcohol primarily interfaces, to some degree. Things like Valium have some GABAnergic activity, and Phenibut can make you feel kind of high, because it is an anxiolytic. Really high doses of it, multiple gram doses at a time can make you feel pretty good. And then there's... Can be a really gnarly downside to it.

And I am similar to Matt, in that I've used the Phenibut for a couple of years now, at varying dosages, and I'll go with it, I'll go without it, and it's not that profound of a difference as far as anxiety, or depression, or something like that, but there are horror stories of people coming off of it, and it's as bad as getting off of benzodiazepines, which there's a...

Nicki: Like Jordan Peterson's experience.

Robb: Like Jordan Peterson's story, which is just horrific. Yeah. So it's a non-trivial thing. People rightfully have some concerns around it. Oftentimes people who have had substance abuse issues in other arenas can inadvertently end up abusing Phenibut, and some people who have had substance abuse issues in other arenas get rid... When they find out what Phenibut is, and what it can do, they're really, really concerned about it. So, I mean, there's a lot of moving parts around the substance.

Nicki: Right.

Robb: Matt, my sense is that because you've kind of snuck up on this, and you've been careful, and observant, I think you're probably okay, and it sounds very similar to my own situation. Doesn't mean I guess it couldn't change, but for me personally, the improvement that I get in my essential tremor symptoms is valuable enough that personally, the juice is worth the squeeze on this.

Nicki: And you mainly take it before you're going to be in a speaking situation, or-

Robb: I use it before I go to Jujitsu, because for good or ill, I'm often the guy that they pick to demo on. And while I'm sitting there, and they're describing what's going on, my head will shake, and my hands will shake if I haven't used this. And even with the Phenibut, sometimes I'll get a little bit of that, but it's dramatically improved for the most part. And then yes, when we were at the LMNT retreat, I tried introing one of our speakers, and I had to sit down, because I hadn't taken it that day, and I just fucking melted down.

And so, anyway, that's a side thing, and we can do a show talking more about that. But Matt, I think that that's all legit. I think you've snuck up on this. I'm seen some benefit with ashwagandha. You're really talking about a very different dose response thing here. And this next part, I'm going to deeply regret suggesting it because it means that I'm going to have to step my own game up on this, but cold water immersion is shockingly effective as an anxiolytic. Maybe not so much because you're fucking anxious about getting into the water, but beyond that-

Nicki: But when you survive it-

Robb: When you survive it.

Nicki: You feel this sense of calm, like...

Robb: And the research on it is really good, and it seems to have no downsides. And here's the thing, it doesn't have to be an ice bath. You don't have to go do this whole song and dance of dumping bags of ice into your bathtub, and doing all that. About 70 degrees is cold enough. And part of this is you may just need to be in there a little bit longer. The colder it is, the bigger the delta between your temperature, and the water temperature, the less time you need in it. But it's also that much more not fun.

Some people do really well with this. I used to do well with this, and this is probably an indicator of the reason why I should be doing this, is that I am so cold water adverse at this point, that it's kind of ridiculous. But, multiple different angles have suggested that I need to be doing more of this, so by hook or by crook, I'm going to figure out how to make this happen and I would highly recommend it.

Nicki: Who were we talking to recently that shared this idea? And I was like, "That is brilliant." Because you think about cold water baths and you're like, "Okay, I'm just going to go through so much ice, I'm just going to be buying bags of ice." And they were saying that if you get gallon milk jugs, and fill them with water and freeze them, and then you can just float those in the tub, so it's basically like an ice block, and then you can just take it out, and put it back in the freezer so you can reuse it over and over again. And I just thought it was such a...

Robb: It's a good idea. It's not going to work remotely as quickly or as well as just putting ice in the water, but it's a good idea, for sure. Yeah.

Nicki: Just seems kind of easier, and you're not constantly... You don't need a separate freezer in your garage that just contains ice.

Robb: Right. Well, if you live where we live, even in the summer, the water comes out of the ground at 47 degrees.

Nicki: This is true. This is true. Yeah.

Robb: Yeah.

Nicki: Yeah. Okay. All right. That was our third question for this week. Any closing thoughts, Hubs?

Robb: I don't think so. I mean, just circling back around to that energy topic, and all that, I just really encourage people to be savvy consumers of information around the energy thing. And by all means, get a variety of perspectives on there. But the doom porn around... Well, even me saying that, see? I'm setting it up for failure. I'm really trying not to do that. And that shit-

Nicki: Doom porn?

Robb: Calling it doom porn.

Nicki: Right.

Robb: That's a value judgment on it, I'm really trying to be better about that, but clearly I'm exposing my bias on that, and I will endeavor to be better. But don't believe all the negatives. When we really look at the past 100 years, yeah, we had a period of time when industrialization poisoned waterways, and made them undrinkable, and catch on fire. And then people were like, "Hey, that's not cool." And we enacted activity to change, and modify that stuff. And I really like to point out the West, particularly the United States, went through a period of leaded gasoline, which was horrible, and it was super fucked up, because we had an alternative to it, and it's a interesting story, why the leaded gasoline won out.

But China, and India, and a bunch of the rest of the world, because they industrialized so much later, they never went through a leaded gasoline phase. And it's a little bit like even... The United States still has millions of miles of copper wire hung to carry phone signals over. And there's maybe good or bad features to having a solid landline thing with that. But in a bunch of the developing world, they just never even went down that road. They just went directly to cellular towers and whatnot.

So, this whole chunk of infrastructure never happened, because the technology developed in such a way that you would never think about mining copper to spin it into a long strand, and run it all over the country to carry phone messages, when you can carry phone messages so much more effectively via cell tower. And again, there's pluses and minuses to all this stuff, but progress... The Gato's piece, Progress is Environmentalism, it sounds crazy, and you sound like a crazy person suggesting it, but god damn it, if you get in and really research it, I think that you find that thesis borne out.

And I just want to throw that out there to folks, that this energy topic is

going to be arguably more important than battling for our food, and all the rest of that, because similar to some of the de-banking that just happened recently, they control your money access, they control your energy access, they control every single thing about your life. And this is kind of the direction that this stuff is going. And if we're going to push back, you got to understand the way this stuff works so that either we individually can push back, or we can lean on our representatives in government to do a better job of stewarding this in a way that makes sense.

Nicki: All righty.

Robb: Don't you regret asking me if I had more?

Nicki: I will put, again, those links to that Bad Gato piece, and that plasma arc recycling in the show notes. If you want to check that out, you can find that at [robbwolf.com](http://robbwolf.com) on this podcast episode, which is 161. Thank you all for joining us. We'll be back next week. Remember to check out our show sponsor, LMNT, for all your electrolyte needs. You can grab those at [drinklmnt.com/robb](http://drinklmnt.com/robb). That's [drinklmnt.com/robb](http://drinklmnt.com/robb), and we'll see you next week.

Robb: Bye everybody.