

Nicki: Welcome to the Healthy Rebellion Radio. This is an episode of Salted Talk, a deep dive into popular and relevant health and performance news pieces mixed with the occasional salty conversation with movers and shakers in the world of research, performance, health and longevity. Healthy Rebellion Radio's Salty talk episodes are brought to you by Drink Element, the only electrolyte drink mix that's salty enough to make a difference in how you look, feel and perform.

Nicki: We co-founded this company to fill a void in the hydration space. We needed an electrolyte drink that actually met the sodium needs of active people, low carb, keto and carnivores adherence without any of the sugar, color and fillers found in popular commercial products. Health rebels, this is Salty Talk.

Nicki: Now the thing our attorney advises. The contents of this show are for entertainment 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. Given that this is salty talk, we should expect the occasional expletive.

Nicki: Welcome back to the Healthy Rebellion Radio.

Robb: You do that well.

Nicki: This is Salty Talk.

Robb: It is.

Nicki: Quite a salty talk today, but first let's-

Robb: Holy smokes. That's why I'm not saying much now. I recorded the main body this morning early. Do I go into that right now really quick?

Nicki: Not yet. Let's do a couple of-

Robb: House keeping?

Nicki: Housekeeping items first and then we'll go into that. Let's see, we are just wrapping up our mobility reset and that is going wonderfully. Our next 30 day reset in the Healthy Rebellion is starting on April 20th. We have a kickoff call on Friday, April 17th, so if y'all want in on that, be sure to join beforehand. It's joined@thehealthyrebellion.com. Again, that's four weeks of food, sleep, community, movement tackling all of those pillars.

Robb: The transformations we had last go round were nothing short of amazing, and you get access to all the stewardship and coaching as part of your Healthier Rebellion membership. Plus you get access to the vault. You get a first look at all the talks that I do, plus just a really kick ass community filled with people way smarter than me that really shoulder read a big chunk of the load in answering questions and providing support. Awesome people.

Nicki: Yeah, it's been a really great place to spend time amidst all of the chaos of the world these days. So yeah. Let's see. So as we said, I think that's all of our housekeeping topics. Anything else?

Robb: My voice is trash.

Nicki: This episode is long. I could hear Robb recording this while he was in the office. I could hear his booming voice. There are a fair number of expletives in this episode.

Robb: I actually really, really reigned it in considering how impassioned I was because it's a little bit like when Christiana Warner did the whole paleo fantasy thing and then I did a debunking of her Ted talk. I really, through 98% of it I maintained great professionalism and it was only the last 2% that I kind of lost my mind and went a little crazy. I could have gone bananas on this because the insanity ensued from people who are insisting that 5G cellular technology is the cause of COVID.

Robb: I didn't really realize how crazy people are in this space. Now when I see that as being somewhat disparaging right out of the get go, assuming these people are wrong and I'm right, I spent probably close to two hours laying out a case for where I think these folks are misguided and lacking in information, lacking in fundamental scientific background. I wrapped up that thing by making the following point, which was if you were to have a discussion about 18th century Russian literature in Russian, you have to do what?

Nicki: You have to be able to speak Russian, read Russian.

Robb: Understand the cultural nuances.

Nicki: Right.

Robb: There's a lot that goes into that. So reading an English translation might give you a little insight, but if we're going to talk about 18th century Russian literature in Russian, there's a bunch of work, a bunch of contexts, a bunch of just basic foundation-

Nicki: Several years of study.

Robb: At least, at least.

Nicki: Hundreds of books to be read.

Robb: Yeah. Folks are emphatic that they have the full grasp of this wireless causes disease thing and they've never had a physics class. Now physics class isn't an automatic pass to deep spiritual insight into the world. But I tell you what, it is the minimum height requirement to get on the fucking ride called understanding the way the world works. These people are not at the height limit.

Nicki: I like that quote, babe. A physics class is the a minimum height to get on the ride.

Robb: To get on the ride of life.

Nicki: All right, well let's ... This is a longer episode. It's definitely a salty one. So let's just get into it.

Robb: Cool.

Nicki: For those of you in the Healthy Rebellion, all the slides, this is a talk that Robb, he put together, he spent several hours putting together slides to accompany this. So if you want to check those out, those are in the Health Rebellion.

Robb: That will go up in the Healthy Rebellion first.

Nicki: Yep. Yep. All right. Enjoy.

Robb: Hey folks, welcome back. I started the Healthy Rebellion with the seemingly lofty goal of liberating a million people from the sick care system. I've kind of detailed what all I feel goes into that. A million people is a nontrivial sum. Although if you look around social media, you can garner a million person following if you've got the right mix of stuff going on. But what about getting a million people out of the current sick care system model? That might be a big challenge, but it's something that I think is doable, but something that happened recently shakes my faith in that somewhat.

Robb: I was spending some time on social media, which I have spent less and less and less, but I still need to spend some time on there, kind of spinning the wheels, engaging with folks and also just kind of seeing what is going on. What I encountered was super concerning and concerning enough that I had to kind of do a full stop and shift gears to address this. It relates to the concept of 5G of wireless technology, in theory being the cause of the Coronavirus situation. I have a tagline on this Corona crazy 5G and the Coronavirus, or never let reality get in the way of a good conspiracy theory.

Robb: I was on Instagram, working my way along, and in Kelly Brogan's feed, she had a piece that is a couple of links to a doctor that's talking about some challenges that he has faced as a front line physician in this COVID epidemic. Just as an aside, I'm a fan of Kelly Brogan's. I really enjoyed her interview with Joe Rogan. I really appreciate her perspective on the nutritional interface with psychiatry. I think that she's done some amazing stuff with that, and I do not remotely agree with what she's putting forward with regards to this 5G story. I know that this is a super hot button topic and people just kind of freak out and they make huge kind of leaps of decision. I would argue with very, very little information.

Robb: I'll share with you in a minute some of responses that I had. I posted a response to this, which was kind of spicy. So maybe I was asking for getting what I got, but a number of people replied basically saying that they've lost all faith in me and man, I've been duped, and where once I was a critical thinker, now I'm just a goof ball. That's all well and good, I guess. Maybe that's all true, or maybe it's a situation in which I've drawn a different conclusion than these folks have. But I again, we'll kind of dig into this and unpack this. But I just wanted to make the point that I completely disagree with Dr. Brogan's position that she seems to be putting forward on this 5G topic. I'd be more than happy to have her on the podcast. I'm going to invite some other people that commented in this thread onto the podcast so that I can get their specific perspective on this. Maybe they can do what I am doing here, which is break down the anatomy, physiology, physics around some of the claims that are put forward here.

Robb: Anyway, I know I'm kind of meandering, but I just want to make the point that it's possible for me to both disagree with Dr. Brogan on this topic or a host of other topics and still appreciate her insight on other topics, which is in pretty stark contrast to the infantile behavior that so many people displayed due to my commentary where it's this all or nothing thing. People commented, "I've followed you for years and now I just, whoa is me, I can't believe." That's just ridiculous. That is such simpleton methodology for running one's life. I don't even know how people ... They don't need to remember how to breathe. That happens automatically. So I guess they're lucky in that regard.

Robb: Anyway, here's what Kelly posted. She had a link to a YouTube talk from a doctor. His last name is hyphenated Kyle-Ciderman and I am blanking on his first name. I will see it here on the screen in a minute. But she pulled a link to his talk that he gave, talking about some challenges around ventilator damage that may be occurring in folks lungs,

and he makes it an interesting case around that. But she and other people suggest that he is making a case that it's actually 5G that is causing this damage, wireless energy is causing this damage.

Robb: So she also links to a website RFG global net and there's an article there. Reading a little bit from that article. "However, for short haul last-mile segments, the expanded RF data bandwidth available in the millimeter wave region makes it ideal for interference free fiber speed connectivity. At the millimeter wave frequency of 60 gigahertz, the absorption is very high with 98% of transmitted energy being absorbed by." And Dr. Brogan does dot, dot, dot oxygen. So clearly there are oxygenation issues around the end stage of this COVID 19 disease process. People are dying due to problems with oxygen delivery. It's generally been looked at as a pneumonia type disease, which I think may be accurate in part, but there may also be a deeper level to it.

Robb: But what's basically being insinuated here is that 5G is somehow influencing oxygen in a way that it is worsening the disease process. These folks, Kelly Brogan and other people, have basically co-opted this chunk of video that is talking about ventilator related issues and suggesting that it is 5G influencing oxygen. So we're going to unpack some of that stuff. So the name of the doctor is Cameron Kyle-Sidell, New York City doctor. The posted link from Kelly Brogan is to a woman named Dana Ashlie. She has a quarter million YouTube subscribers and it all appears to be, from my perspective, conspiracy theory stuff. The place that this thing is housed is this website brighten.com. I have links to all this stuff in the show notes, and it seems to be a repository for, again my opinion, some pretty over the top conspiracy theory stuff.

Robb: So when people get their wings trimmed on YouTube and other places, which I have concerns about that. This is a tough topic. Part of the reason why we founded the Healthy Rebellion is because last year Google basically made my website and several other people's websites effectively disappear from the internet. So I am sympathetic on the one hand to the plight of people having their shit taken down when they're trying to convey their perspective. But at the same time, there's some concerning features to all this.

Robb: So what the video is, is this doctor describing a situation in which physicians are entering into this COVID 19 treatment process with an idea around how to deal with pneumonia based lung issues. There are certain protocols attached to that and ways of using ventilators to deal with the most severe cases. What he's saying is that the ventilators are not helping in the way that one would normally expect in a purely pneumonia based disease process. He's crystal clear on that. It's a problem of the mechanical ventilation potentially causing significant harm to patients, and this has been picked up by news outlets. It's been vetted. It's actually something that's being investigated. So there is a truthful kernel to this that the current methodology, the algorithm has been developed to deal with different pneumonia based diseases as applied to this COVID 19 process, may be problematic. It may need to be modified, but it in no way whatsoever suggests that 5G is the cause here.

Robb: People are basically lacquering that over the top of this otherwise credible case note that is being made by this doctor and that's bullshit stuff, but again, we'll impact this. I'm really trying not to totally lose my mind on this thing and go crazy, which is itself kind of a challenging proposition because, when people go crazy, when they get super impassioned, when they start cursing and yelling and flailing hands, it oftentimes alienates one cross section of people. I get that. It can and oftentimes is off putting, but holy smokes, it is honey for bears for other people because you are operating then with

this certitude that seemingly all of the world or far too much of the world is really looking for.

Robb: Although I have a powerful desire to just absolutely freak out and do expletives left right and center on this thing, I'm really trying not to because I actually want this thing to be critically assessed, is what I'm putting forward accurate, and if so, then let's dig into that. And if not, then let's dissect this thing minute by minute, word by word, and figure out where I fucked this thing up so that I can fix my stupidity and not just live perpetually with it. Because I'll tell you, if I'm right about what I'm putting forward here, there are millions of people running around with the most ridiculous thoughts related to health and disease and the dangers of wireless communications and whatnot.

Robb: It can be incredibly damaging to our society at large. So I'm trying to make a case from kind of a clinical perspective of this being kind of accurate, but it's ... Again, if you don't like what I'm saying, get in and do a better job of explaining the physics and the biochemistry and the anatomy physiology. So again, to kind of recap, and I know those things kind of wandering a little bit. This Dr. Cameron Kyle-Sidell makes a YouTube video that's had some pretty good reach that suggests that the ventilation procedure being used to treat COVID 19 may be problematic. From what I can tell, that seems to be valid.

Robb: What is invalid, what is ridiculous, is that conspiracy folks are suggesting that this is caused by 5G, and they're making it look as if this is what this doctor is saying, and it is absolutely not the case at all. Again, I have links to all this stuff in the show notes so that you can look at the primary material and make your own decisions around this. So from this gal Dana Ashlie's subscription over at this Brighteon.com Location, I'm going to read you some of the comments that popped up from this.

Robb: The first one is from Jason Small quote, "Viruses are not external. The genetic code for all viruses are already in our DNA. The quote virus code is released when DNA or RNA is degraded. Guess what degrades cells in DNA? Radio frequencies in all caps." Then Darryl Potter lends his support to Jason Small. "So true. The methodology is called transcription, the rewriting of DNA to RNA. A virus is only an expression of toxicity from a cell." This seemed to be ... I was largely unaware of this, but there's this whole subculture of people that don't believe viruses really exist. They're not external entities, and that they purely are a manifestation of a detox process occurring in our bodies, and this detox is mainly caused now from radio frequency overexposure. This is the narrative that these these folks have and it kind of goes on.

Robb: Again, if you sign up for the Healthy Rebellion, you can see the video feature of this or the video piece of this where I have the screenshots. If you're just listening on the podcast, I'll do my best to describe it to you. But again, these are commentary that accompanies this thing, which is completely mischaracterize this doctor's position. So I jumped in and I said, "With respect, but this has absolutely nothing to do with wireless signals. This is so poorly informed. It honestly makes me root for the virus." I got a lot of likes on that, which I guess is kind of gratifying, but it also pissed a bunch of people off, and maybe that was overly aggressive on my part, but ... Well, I'll read you some of the responses.

Robb: Deidre_NYC_ "RobbWolf, why would you rather root for the virus out of spite is extremely elementary. Shakes my head." Wildflower_PNW, "Very poor response. Why anyone root for a virus like this is beyond me." Auntie_Kim15_, "I've been following your work in view for years, but lately it's obvious that you have started drinking the Koolaid. You've totally bought into the propaganda. Very sad to see the devolution of a once critical thinker."

- Robb:** So one, clearly people have no irony gene or sense of sarcasm. I'm not voting for the fucking Coronavirus, but when I see stupidity like this, it can give you pause for a moment and think, man, if this could be selectively applied, it might solve a lot of problems, which I think Joseph Stalin and a good number of people thought similar thoughts. So that's always the danger of thinking that you singularly have the solution to all the world's ills and are smarter than everybody else. But the folks that replied to this, just aside from not getting the kind of sarcastic irony, which I find surprising ... and I will go out on a limb and say that scientific illiteracy and a complete lack of irony based sarcasm, appreciation of humor, seemed ... Those two Venn diagrams have massive overlap.
- Robb:** One last one, the gal Smadjazooba(?), "I'd love to see the studies you've read that make you so certain that wireless signals are not capable of causing harm to cellular tissue." One, that's not the thing that I put forward by. That's a different story and I will actually dig into that. "I have admired your work and attention and the scientific method for years and find it disappointing that you now dismiss so condescendingly something that many more educated scientists have been saying for months without any evidence of your own to substantiate your dismissal."
- Robb:** One, trying to substantiate evidence on Instagram is a fucking goat rodeo. How do you even do that? You can't post a link. It's just ridiculous. So when people have calls for this, it's dumb. I don't know how to parse that any better. But to her question, I have researched this topic before. I got in and researched researched it more for this one. So this is going to be my unpacking of this whole story. So again, working back to to this Dr. Cameron, Kyle-Sidell, there's a news piece. New York city doctor says. 'High ventilator settings damaged Coronavirus patient's lungs.' So this appears to be a thing and it is getting some traction, and people are discussing this, and folks are trying to figure out if we need to look at this Coronavirus situation in a different way than what has historically been treated in these pneumonia based situations.
- Robb:** So there there's a legit piece to this, there's some concern and there appears to be some problem. When we dig into the pathophysiology of the SARS COVID two virus and what it does, it makes a lot of sense why the standard ventilation protocols may not be working, and I'll get to that in just a little bit. But there's basically three broad claims, I guess, from the people that I think are incredibly misguided here that I'm going to try to unpack in this piece. The first one is that viruses are not real and they only exist in our DNA, and this is all a detox process, which I can't even believe that I need to go through that. I will have some commentary around that topic at the very end of this.
- Robb:** But the second piece is that 5G is somehow interfering with oxygen in some way. So we're going to look at that claim. Then EMR, electromagnetic radiation slash EMF are broadly damaging and the science is settled. So this is what folks are putting forward. The science is settled. Man, where have we heard that before? All manner of stuff. The science is rarely settled on much of anything. We get in roads in different areas and we have greater and greater confidences in different topics. But when you say the scientist settled, that means that ... and this is an ironic thing, is so many of the people that replied to me on Dr. Brogan's posts, in my very snarky commentary there, said that I wasn't open-minded. This has fuck all to do with being open minded.
- Robb:** If your mind is so open that your brain falls out and splatters in the street, that's not really doing you any benefit. Open-minded just means that you can look at something and perhaps have a fresh set of eyes. I've been as open as anybody else to the potential that electromagnetic radiation could be problematic. The thing is that I've really gotten in and researched it and I just find it incredibly un-compelling that it's dangerous, at

least at the levels that we are generally exposed to. It doesn't mean that I would want to take a cell phone tower and stick it in my underwear and run around with it that way. But it also ... I think that there are bigger things to be concerned about in our day to day lives. But these are the three things that I'm going to try to unpack in this piece.

Robb: Here at the outset, what's crystal clear is that there needs to be some basic explanation to people about just this process at large. So we have to discuss just viruses and DNA replication and cellular replication at a very superficial level because, if you don't understand that, which I'm going to go out on a limb and suggest that the folks who are emphatic about 5G in radio-frequency causing damage and that viruses are only found in our DNA and are shed only as a consequence of toxicity, cannot describe anything that I'm going to describe next, which is a grade school level biology look at DNA, RNA, viral replication, and cellular replication.

Robb: So the central dogma of molecular biology is that DNA can be transcribed into RNA, and that RNA then can be translated into proteins. This is life. This is how life functions. This is also where viruses are kind of in that quasi alive state. People will piss and moan about, Oh, it's alive. It's not alive. I don't really give two shits whether it is or is not. Arguably, it's right at that boundary between the inanimate in the-

PART 1 OF 4 ENDS [00:29:04]

Robb: Arguably, it's right at that boundary between the inanimate and the animate, but what happens with viruses is that they make their way into cells and then they can dock to our DNA and our protein production pathways or mechanisms and then use these to basically hijack our internal machinery, like ribosomes and golgi apparatus, to replicate themselves. They can't do this on their own unlike bacteria, for example. Bacteria has all the stuff it needs, other than raw material and energy, to be able to replicate.

Robb: A virus doesn't. A virus needs another cell to be able to do this, but this is a well-established process. Again, understanding DNA to RNA to protein, understanding a virus makes its way into a cell usually via some sort of a docking location, a particular protein, like people have probably heard about ACE inhibitors and angiotensin-converting enzyme receptors being a point of entry for this SARS-CoV-2 virus. This is how this stuff happens, at least in this case. Just at a macro level, this is pretty descriptive of what happens with viral replication.

Robb: This is in contrast to the replication that occurs with bacteria. Again, where a bacteria is a cell unto its itself, it doesn't really have a nucleus the way that eukaryotic cells do. It tends to have these things called plasmids, which is where it stores its DNA, but the plasmid breaks into single strand DNA that replicates. Once there are two sets of plasmids, then the cell can divide, and that's how bacteria can divide. Different than viral replication, but it's important to understand all of that.

Robb: Again, me being a dick, but I will go out on limb and say that all these people that were giving me a ration of shit about me being closed minded can't describe any of this stuff at all at any degree of complexity, but I digress.

Robb: Okay. What we need to understand, again, we're kind of laying some basic groundwork here in addition to the basic mechanisms of how viruses can replicate, and bacteria by extension, just so we understand all that stuff, is this thing called Koch's postulate. Koch's postulate is this very elegant four-step way of looking at identifying the causative agent in infectious disease. Koch's postulate really just changed our world in a

fundamental way. It kind of validated the germ theory of disease, or at least infectious disease.

Robb: Again, this is where science illiteracy is so fucking dangerous because there was a time when people believed in spontaneous generation, that shit would just kind of go from inanimate object to animate object. I mean not just in what actually happens in life were like minerals get mined out of the soil and become part of bacteria and fungi and then those things get consumed and upcycled into different nutrients, but people thought, there were papers and books written, that if you put old soiled linens in a drawer that it would spontaneously produce mice. People believe shit like this.

Robb: It was only with the development of things like Koch's postulate that this led then to observations by Louis Pasteur and pasteurization and things that just absolutely transformed our world generally for the better. Is pasteurization a 100% win for the world? No, but it's a 99.999999% when you consider how much food would otherwise be wasted and how many people would otherwise starve if we couldn't make food a longer shelf life. Yes, there are downsides to it, I get it, but it's a net win. Trust me.

Robb: But anyway, this Koch's postulate, four criteria that were established by Robert Koch to identify the causative agent of a particular disease. These include the microorganism or other pathogen must be present in all cases of the disease. If we characterize something like smallpox or bubonic plague, every single kind of what we would characterize from a symptom identification process, say like leprosy, like your limbs start rotting off, or in the case of smallpox, you have characteristic damage to the skin and high temperature, etc., etc., every single case that you see of that, you must be able to identify this microorganism.

Robb: Now, this is an interesting point, and it is a deviation from things like trying to characterize cardiovascular disease. People will say that LDL cholesterol is the causative agent to cardiovascular disease, but ironically, some people with very high cholesterol have no cardiovascular disease. Other people with low cholesterol do develop cardiovascular disease. It's an incomplete model and it is different than Koch's postulate.

Robb: But anyway, second part to Koch's postulate, the pathogen can be isolated from the disease host and grown in a pure culture. We could take a bacteria. We could isolate it from somebody like a sputum swab. We could stick this on a growth medium plate and identify it there, and it's going to be the same organism that we pull off of a living host and in this now plated culture.

Robb: Number three, the pathogen from the pure culture can cause the disease when inoculated into a healthy, susceptible laboratory animal, or human for that matter. Then the fourth part is that the pathogen must be re-isolated from the new host and shown to be the same as originally inoculated pathogen. Now, this works really, really well with bacteria. With viruses, it's a little bit different, and there's a paper that I have linked here in the show notes talking about ... It's from antiviral research amending Koch's postulate for viral disease when growth in pure culture leads to a loss of virulence.

Robb: Basically, what this is, not all viruses, because they require a cellular matrix as part of their propagation process, you can't just stick them in growth medium and have them grow. They don't have all the cellular machinery to do that unlike bacteria or even just like different cell cultures, like skin cells that are put into cell culture and can grow and replicate and can be used in skin graphs, for example. But you can basically tick all the boxes of Koch's postulate with viruses. It's just a little more challenging. There is a

tendency, interestingly, that when you pass viruses through cell culture, they tend to lose virulence relative to what they were initially. Just kind of an interesting feature, but the genetic reshuffling that occurs in viruses tends to generally happen at a much higher rate than what occurs in bacteria, and certainly much, much faster than what occurs in larger, more complex organisms.

Robb: Basically, we should now understand, and everybody should understand the shit, nobody should have voting rights without understanding some of this stuff. Again, I'm going to piss a bunch of people off, but if the world is so oblique to you from a scientific perspective that you don't, at least at a passing level, understand what I've just described, then the world is effectively magic. By magic, I don't mean that it's a whimsical, cool place to be. I mean it is a dark, unknowable existence that you only get to then operate with superstition. That should be understood to be dangerous. Superstition doesn't get us anywhere if you haven't noticed, but again, we're unpacking this stuff.

Robb: Again, what I'm trying to unpack in this first go around is this notion that is just ubiquitous in this 5G scene is that viruses aren't real, their expression is only a consequence of the toxicity that is induced from radio-frequency exposure. We actually ... Again, what I'm trying to accomplish here is to demonstrate that no, we know what viruses are. They exist out in nature. They do also exist in us. There are some interesting features to that and we can identify them.

Robb: I have a list of different ways that viruses can be identified, plaque assays, immunofluorescence, foci assays, ELISA, hemagglutinin, RT-PCR, reverse transcriptase polymerase chain reaction. I'm sure that all the people that are convinced that viruses aren't real or that 5G causes all this stuff, I'm sure that they know what polymerase chain reaction is. I'm sure that they know that Kary Mullis was a brilliant biochemist who was tripping on LSD while surfing and came up with the idea for PCR, which absolutely has changed our world. I'm sure that all of these folks are intimately familiar with that, which is why they're super comfortable in making their incredibly well-informed decision.

Robb: But anyway, so we have a host of different methodologies for identifying viruses, both DNA viruses and RNA viruses. There's different pluses and minuses to each one of these different methodologies. Some are fast. Some are slow. Some are highly specific and accurate. Others are more open-ended and loosey goosey. There's a cost-benefit discussion to be had on all these identification methods.

Robb: These identification methods are all being employed to varying degrees currently to look at this SARS-CoV-2 virus. The reverse transcriptase PCR is looking for the virus itself. This is typically in use earlier in the disease process. Other ways of looking at this include looking at antibodies, so antibody assays. Maybe the person had the condition a month ago and they've completely cleared it. How do we know? We can find antibodies to it.

Robb: Again, these are ... And I will talk about this again at the very end of this piece, but there are some knowns to our world. I hate throwing out this is the fact and this is truth because people love rallying around that, and maybe I should just do it, but it makes me nervous doing it because it seems to paint the world in this just static way, which isn't true. We're ever-learning, ever-growing, but there are some knowns. We can identify viruses. We can infect things with viruses. We can extract them from the infected agent. It follows Koch's postulate. It follows these basic laws of nature and science.

- Robb:** A little truth in all this goes a long way towards crazy. My point to that is that some of the folks in this 5G scene mention the accurate piece, which is that pieces of non-human DNA have been found in the human genome. It begs the question, is it really non-human if it's found in there? But it appears to be viral fragments. Viruses can sometimes become part of the germline cells and get passed on generation to generation.
- Robb:** In certain instances, this appears to be a benefit. There is one instance of viral DNA actually helping and benefiting us from fighting other viruses. This is one of these things like I am a big fan of evolution and natural selection and all that stuff, but I've long suspected that there might be some sort of pseudo-Lamarckian mechanism. It just doesn't make sense to me that there's so much signal transmission within ourselves that there isn't a way of the external environment directly influencing the genes in a way that might induce change. Although epigenetic changes are very, very powerful and can be heritable, so maybe that's some of that pseudo-Lamarckian stuff.
- Robb:** I'm sure, again, that the people who are shouting from the rooftops that 5G is causing all these problems, I'm sure they know the difference between Darwinian evolution and the recommendation of Lamarckian evolution. Lamarck suggested, as an example, that the reason why giraffes got long necks is that they began stretching their necks towards high branches, and over the course of time, generation to generation, their necks just got longer and longer.
- Robb:** That has been disproven. Although my nutty hypothesis is that I wouldn't, not so much hypothesis, but I wouldn't be surprised if there was some sort of mechanism that lends itself to kind of a pseudo-Lamarckian process, that there is more signal transduction going on there. In that mix is the reality that viruses can provide input to our germline cells, can be heritable and can change our genetics in pretty profound ways.
- Robb:** That is true, but that is not the totality of this story. What people in this scene are suggesting is that viruses only exist in our DNA and only come out and manifest as disease when we are exposed to radio-frequency signals that cause toxicity causing them to basically boil out of the cells. This is what people are suggesting, and it's just not the case.
- Robb:** This isn't the first viral denialism rodeo. I remember back in the mid-nineties there was this a website, virusmyth.com, and it was basically this website that was questioning whether or not HIV actually caused the disease manifestation that we characterize as AIDS. I have a link to that. It's just interesting. There was a good number of people. It's always worthwhile to have questions and ask about inconsistencies and whatnot, but there was a cottage industry of people that were convinced that HIV was not causing the causative factor in AIDS and things ... Actually, now that I think about it, I think some people were saying that a radio frequency was causing this, but there was a whole host of things that were supposed to be the cause of AIDS and not the human immunodeficiency virus.
- Robb:** Interestingly, when I was poking around trying to look at some of this early viral denialism goat rodeo, there was a paper that was actually published in *Frontiers in Public Health* questioning the HIV AIDS hypothesis' 30 years of descent. This paper basically details everybody that has raised questions around this topic, but doesn't actually get into any of the mechanisms.
- Robb:** It's another one of these things where it's effectively a news piece that raises, that elevates the people questioning the dominant paradigm, but it doesn't actually unpack any of these proposed mechanisms. It was published and now you can ... And I

appreciate this. It was retracted, but instead of removing this thing, it is stamped in big red letters retracted, so you can still read the whole thing. There wasn't censorship that occurred here. This is something that I appreciate, like when you ... Trying to suppress information doesn't work. Even places like Soviet era Russia and China, like they're doing heroic efforts trying to suppress information, but there's kind of an understanding that if you lean on something hard enough, it actually entrenches and grows and gets worse.

- Robb:** I kind of applaud these people, both curse and applaud them. I don't know how this thing made it through peer review the first go around, but then the fact that it did and then was subsequently retracted, I applaud them. It didn't have to be removed from the interwebs or from access. If people want to read about this, by all means, they should be allowed to do that, but it should also be acknowledged that the peer review process looked at this and found it to be lacking sufficient credibility to stand as a published piece.
- Robb:** My kind of position on all this, on this first chunk, is if you can't describe the central dogma of molecular biology, do you remember that, DNA to RNA to protein, if you are not familiar with Koch's postulate and can't rattle it off with your eyes closed while juggling, and if you don't understand how viruses replicate or cannot describe how viruses are identified, maybe you shouldn't form an ironclad opinion on any of this stuff because you don't really understand enough of it to have an opinion. You have a fantasy.
- Robb:** I'm sorry again. This is kind of being a dick. I've always enjoyed my role of trying to be, I guess, a "science educator", and some people will appreciate it. Some people think I'm a pseudo-scientific quack. That's fine. Fucking whatever. But it is maddening to me that people can form these just ironclad positions when they literally have no background in the topic.
- Robb:** I know virtually nothing about computers and computer programming and things like that. At an 80,000 foot level, I kind of sort of understand this notion of information theory and data packets and how this stuff gets shipped and received and like encryption and how you find signal from noise. In a super broad brush stroke sense, I kind of get the gist of it, but if somebody were to make an emphatic statement about like, "Oh, you need this ratio of signal versus noise. Otherwise, you will effectively lose the signal", and this relates to like data encryption and stuff like that, I would have absolutely no fucking opinion on that at all because I am too ignorant to form an opinion on that.
- Robb:** I have kind of a big picture broad thing, and if I had some questions around that, I would get in and research it and bring myself up to speed on the basics first. Then maybe after some weeks and possibly months or even years of researching, I might be able to say, "Oh, okay. Yeah. I get what that person is saying on data transmission and I agree", or, "I don't know. There's some people that are suggesting that you could have massive amounts of noise but yet still able to maintain a signal if you have the right transcriptional algorithm that's dealing with all that."
- Robb:** Even that might, for the uninitiated, make it sound like I know something about this shit. I know a sliver, and I act according to that. If your knowledge is a sliver, if you can't do what I just detailed here, describing the central dogma of molecular biology, explain Koch's postulate, understand the way that viruses are identified ... And we haven't even gotten to the physics of radio frequency emissions." Let's add that in. Have you had a physics class and can do the calculus or even just understand it at a conceptual level? If

you don't, then maybe it's a bad idea that you form or others form this really ironclad opinion.

Robb: A remarkable number of people putting forward this 5G information appear to not believe viruses exist. It's completely at odds with biology. They clearly also don't understand the physics of radio frequency transmission at all, which is kind of what we're getting into next.

Robb: Okay. Let's pause real quick from the COVID craziness and catch a word from our sponsor.

Nicki: This Healthy Rebellion Radio Salty Talk episode is sponsored by Perfect Keto. Snacking on keto has never been easier or cleaner than with Perfect Keto bars, nut butters, trail mix, and chocolate covered nuts, their new keto cookies and MCT oil powders, etc.

Nicki: Rob, we've talked previously a bunch about your love of the salted caramel MCT oil powder. You love-

Robb: I cover myself in it.

Nicki: You love it in your coffee, but given the release of these new keto cookies, which are quite good, I'm curious. If you could only order one Perfect Keto product for the rest of your life, this is sort of like our trivia that we do in the other ones, but I'm tying it in here, if you could only order one Perfect Keto product for the rest of your life, would it be the keto cookies or would it be the salted caramel MCT oil powder?

Robb: That's a complex question because if I get the salted caramel, I will get all of that because nobody else in the house cares for it. If I ordered the cookies, then I have to hide them a variety of places. I'm battling both you and the girls trying to eat it, so I have to decide how much like counter-espionage I want to put into the process of protecting my loot.

Nicki: Fair answer, fair answer. I get it. All right, rebels. Right now with code salty 40, you can go to perfectketo.com/salty40 and get a buy one get one deal. By any one of Perfect Keto's products and get one for 40% off. Again, that is perfectketo.com/salty40 and use the code salty 40. Now, back to the COVID craziness.

Robb: Again, with this original Kelly Brogan post, she had two links, one to a YouTube piece and the other to this radiofrequencyglobal.net. She's trying to suggest that because the millimeter wave frequency at the 60 gigahertz absorption is absorbed quite efficiently by oxygen, that this is the cause of the oxygen problems being seen in COVID patients. This article again from RF GlobalNet, and I have the links to the show notes, but takes wireless communications at 60 gigahertz unique oxygen absorption properties. Yes, this is actually a feature, not a bug.

Robb: From this piece, figure one illustrates the atmosphere absorption for millimeter wave frequencies. At the millimeter wave frequency of 60 gigahertz, the absorption is very high with 98% of the transmitted energy absorbed by atmospheric oxygen. While oxygen absorption at 60 gigahertz severely limits range, it also eliminates interference between same frequency terminals.

Robb: What this is, like I said, this is a feature, not a bug, because the energy emitted in this 60 gigahertz range, which is very common within this 4G/5G space, because it is absorbed by oxygen, it can be very effective over short distances, but my house doesn't

necessarily need to have different frequency settings than the houses around me because the bubbles don't overlap well.

Robb: The benefit of oxygen absorption relative to frequency reuse is detailed in figure two. Figure two illustrates the distance relationship between the 60 gigahertz frequency reuse range, the green region, and the traditional range, the blue region. Oxygen absorption makes possible the same frequency reuse within a very localized region of airspace. Operation within 60 gigahertz millimeter wave spectrum enables very dense interference-free deployment of same frequency radio terminals.

Robb: There's a limited number of frequencies that these cell phones and our home networks can operate on. Because oxygen absorbs this particular bandwidth, it's almost as if you put a bubble around our house or around our cell phone, like it has a limited distance that it can operate. That allows multiple local hubs that could have effectively the same frequency. If you imagine that there was like a catalog of frequencies that can be allocated, there aren't that many. There is a limited number, more or less. This bubbling effect allows us to actually take advantage of the fact that oxygen absorbs this particular spectrum.

Robb: Now, some folks, again, if you don't have a physics background, it could be like, "Oh shit. Oxygen absorbs radio frequencies?" Yes, most gases absorb some frequency of electromagnetic radiation. I'm going to talk about electromagnetic radiation broadly in a moment, but water vapor can absorb infrared frequencies and also some ultraviolet frequencies, and oxygen can absorb some other stuff.

Robb: Yeah, this is a common feature. The main thing that it does is heat these molecules. People are going to freak out about that. "Oh shit. They're heating up the oxygen." At the energies being produced at the levels that come out of like the router that most of us use, it's not barbecuing you. It is not barbecuing the local environment. There have been weapons developed that-

PART 2 OF 4 ENDS [00:58:04]

Robb: There have been weapons developed that cause a focused beam of energy that can heat something up pretty good. But they're super expensive, really costly. The person needs to stand still for a long time to be able to barbecue them. They don't quite work the way that a Star Wars laser does. And so these things aren't really broadly used. But yes, in fact the main feature, or main challenge, of using radio frequency is that it can heat some things up, so you want to be mindful of that. And again, I'm going to do my best to unpack this. This stuff I'm probably going to have to do multiple episodes on, or maybe some side pieces on, to really dig into the physics of this stuff because it gets really complex and people are super freaked out about it.

Robb: So let's see here. The claim 5G does something to oxygen. So I'll try to back into this in a little bit less circuitous of a way. But people are absolutely dying from oxygen problems, but it has nothing to do with 5G. And here is the deal, if oxygen in the lungs could be affected by 5G, which it can't because 98% of the energy that we are exposed to from 5G is actually dealt with by the dermis and epidermis of our skin and that ends up not mattering at all. But the oxyhemoglobin dissociation curve, the curve that describes the way that our blood picks up and delivers oxygen to, picks up at the lungs and delivers oxygen at our cells, at increasing temperatures, the oxygen is delivered better. So if it were possible for 5G to heat the oxygen in our bodies, which is the only thing that it can do, even though it can't because this energy doesn't go through our bodies in that way, but if it could and it heated the oxygen, it would improve its deliverability, not limit it.

And this is again, like first year medical textbook physiology looking at carboxy hemoglobin dissociation curves.

Robb: So again, if this stuff is real complex and you're kind of like, "fuck, I don't know left from right on this," that's okay, that's fine. I'm here to help you. Other people can be here to help you, look at other resources. But again, if you're not familiar with the carboxy hemoglobin dissociation curve and what it means with regards to temperature and pressure and acidity and how that that curve can be modified, maybe you should do that because this is the fundamental piece of what's being put here, that 5G is causing problems with the oxygen deliverability.

Robb: So as I said, increasing oxygen temperature is a non-issue. The energies used are too low to affect biological systems. I'm going to show that here in just a little bit and this is, again, the sole concern of radio frequency emissions, is heating biological tissues. So what are people having problems with? There's two pieces, and we've been aware of one piece of this story for most of this COVID-19 experience. There's an understanding that something happens to the lungs, and again it's helpful if you understand some basic lung anatomy and physiology. The lung is like a big sponge and if you think about a sponge, it's kind of solid on the one hand but yet porous on the other. There's lots of tiny holes in it. This is very similar to the alveoli, the tiny little air bubbles, or not air bubbles, but the tiny little structures that increase surface area within the lungs that allow us to transport gases across the lung interface.

Robb: The surface area of our lungs is about half the size of a tennis court. It's like 50 to 75 meters, 540 to 810 square feet depending on the size of the person. And again, not trying to be a dick, but if you haven't studied some things like physics and surface tension, it's difficult to appreciate what the structure of the alveoli, how amazing they are, when we consider that these tiny structures, they end up having water on them, basically water liquid. This liquid creates surface tension. If you've ever seen a water skipper run across a pond, it doesn't just fall in because the surface tension, the hydrogen bonds that occur between the water molecules, this weak interaction, although weak, it's actually remarkably strong and it creates this surface tension. And in our lungs, absent a substance called surfactant, this surface tension, because there is so much surface area in the lungs, it becomes so strong that it's virtually impossible to inflate and deflate the lungs.

Robb: But with the introduction of this substance surfactant, which works effectively like soap. Soap breaks the surface tension of water and surfactant dramatically reduces the mechanical energy necessary to inspire and to inflate and deflate the lungs. Okay. It's a miraculous thing. It's really slick. It's really cool. But what happens with the SARS-CoV-2 virus is that it primarily replicates or primarily enters the human type two pneumocytes, which is where surfactant is produced. And without surfactant, the lungs become like a stiff sponge. And if you imagine a stiff sponge that is kind of like a balloon and you're trying to inflate it, it's going to be incredibly hard to do so. And if you think about it being kind of stiff and almost kind of crumbly and you had a ventilator that was ramming air into this substance, it would damage it. And it does.

Robb: But that's one layer of this problem. Is it the lung layer? The lungs are difficult to inflate and deflate due to a lack of surfactant. The other problem that's going on, and normally the pneumonia piece and the damage to the lungs is bad enough. And this is where protocols and algorithms have been developed. And this is what this doctor was talking about. We have these guidelines for how to implement ventilators in these kind of pneumonia based circumstances. And it doesn't appear to be working the way that we expect. And the reason why, I believe, it's because the paper that I'm referencing here,

COVID-19 attacks the one beta chain of hemoglobin and captures the porphyrin to inhibit human heme metabolism.

- Robb:** The SARS-CoV-2 virus also damages our red blood cells and if the red blood cells are damaged, the lungs don't matter if the blood can't carry oxygen. I'll pull some from the paper, the results showed that ORF8 and surface glycoprotein could bind to the porphyrin respectively. The same time the proteins could coordinate attack on the heme and the beta one chain of hemoglobin to dissociate the iron from the porphyrin. Iron is part of what carries oxygen within our hemoglobin and also our myoglobin. The attacks will cause less and less hemoglobin that can carry oxygen and carbon dioxide. The lung cells have extremely intense poisoning and inflammatory response due to the inability to exchange carbon dioxide and oxygen frequently, which eventually results in ground glass like Lummett images. The mechanism also interfered with the normal heme anabolic pathway, so you can't even produce this stuff.
- Robb:** If we lose the ability to transport oxygen at the blood level, it doesn't really matter what we do to the lungs. It doesn't matter if we inflate them and deflate them, because we can't carry oxygen at the blood level. There's nothing there to do it. Oxygen has to associate with the hemoglobin in our blood. If it can't associate with the hemoglobin in our blood, it can't go anywhere. It's done. And so then if say respiratory technicians ratchet up the ventilator settings trying to force more oxygen in there, it will damage the lungs and it will do fuck all as far as moving oxygen around because this situation in my mind is very similar to carbon monoxide poisoning. Carbon monoxide binds so tightly to hemoglobin that it stays there until the hemoglobin till that red blood cell effectively dies. There are ways that you can push it off there, but it's very difficult.
- Robb:** But carbon monoxide poisoning causes all of the similar symptoms to this kind of end stage of COVID; nausea, breathlessness, collapse, dizziness, loss of consciousness, headaches. So what this doctor was mentioning about the ventilator problems is likely very legit. It really needs to be looked into and it really has absolutely nothing to do with 5G. It has to do with the two pronged approach that this virus takes damaging both the lungs and the blood. And check this out, the thing that is being used or has been used to treat very severe carbon monoxide poisoning is a blood transfusion. You have to get the damaged red blood cells out and introduce new red blood cells. And interestingly one of the folks in The Healthy Rebellion posted a piece in, there isn't a scientific paper on this, but I'm reading from the piece, it was posted, I shared this info on Twitter with my friend's sister who was a doctor and this was her response.
- Robb:** "Yes, this is absolutely correct. There is also a computer based model developed by the Chinese to support this." This is in reference to the damage to the hemoglobin and the oxygen carrying capacity of the lungs. "We got this info a week ago and we are trying to make changes to our COVID protocol to include a provision for exchange transfusions to help improve the oxygen carrying capacity of blood, along with giving statins and anticoagulants to decrease the risk of endothelial injury and microthrombi." So just barely, folks are beginning to use blood transfusions, not the convalescent serum, which is the antibody to deal with the SARS-CoV-2 virus, but red blood cells to offset the damage that's occurred to the hemoglobin that makes it impossible to move oxygen and carbon oxide around the body. So again, in my mind, imagine an individual that has pneumonia and they're struggling, and then you expose them to carbon monoxide and basically damage their red blood cells in a way that makes it impossible to deliver oxygen to the rest of the body, and carbon dioxide builds up in such a way that it further damages the lungs due to the highly acidic environment that the carbon dioxide creates. That's going to be a fucking disaster and that is the problem that we see when people get both spikes of this occurring, then the results are catastrophic.

Robb: So my slide I have cutting the bullshit with Occam's razor. Some of the people have suggested that all viral pandemics have been caused by EMF, and you only have to look at... Like people really say this. They're saying this, they're believing it. They're cranky with me that I'm trying to dismiss this stuff. There was a well-documented flu pandemic in 1889, 1890, there are people saying that the 1918 flu pandemic was caused by a radio frequency transmission, and there is this interesting correlation between electricity infrastructure and the spread of the virus, but lo and behold, we know that viral spread occurs more in urbanized areas. That's fucking obvious. We get that.

Robb: So this is another one of these correlation probably doesn't mean causation stories. And for the people who are insistent, there are people who insist that viral pandemics are solely an outgrowth of electromagnetic radiation. I have a paper that appeared in the American Journal of Medical Science called Smallpox and the Native American, and it is a historical treatment of what occurred when the Native American populous, post-Colombian contact, experienced with regards to smallpox. So you assholes who insist that, sorry, just want to lose my shit here, but you people who insist that electromagnetic radiation is the cause of viral pandemics, can you please go find your closest Native American tribe and explain to them that the experience that their forebearers had with smallpox was caused by electromagnetic radiation? Which by the way, at that time, didn't exist in the ways that you folks are claiming are causing problems.

Robb: And you know, here's the deal with some of these hypotheses. A hypothesis can be amended if we find problems with it, we can adjust it and amend it, but people are saying that viral pandemics are caused by 5G or by electromagnetic radiation, human developed electromagnetic radiation. If that's the case, then we can have no instances to the contrary of that. Only one instance to the contrary means that hypothesis is wrong. Now again, giving you folks that are beating this drum more credit than you deserve, you might be able to get in and adjust that hypothesis in some way because you have additional data now, which is that viral pandemics have occurred before humans developed a significant infrastructure related around electromagnetic radiation. So you can maybe adjust that, but you better fucking do a good job on it because it is ridiculous.

Robb: So is the Coronavirus a particularly nasty bug or viral pathogen, that damages both the blood and the lungs and the ability to carry oxygen? Going back to the original video in the ventilator induced damage, like I said, if the protocols that are established with only lung issues in mind, then of course it would make sense that trying to compensate for a lack of oxygen carrying capacity and lungs, could lead to an overly aggressive ventilation event within the lungs and damage. If the hemoglobin carrying capacity is impacted, it doesn't matter what state the lungs are really in, and if the lungs are already damaged and becoming worse damage due to the carbon dioxide build up, creating an acidic environment in the lungs, then this is going to be a horrible downward spiral.

Robb: And like we said, we've got this dual prong thing of both the surfactant production being impacted and also the hemoglobin being damaged. And the combination here describes what we're seeing and it also makes sense that standard ventilation protocols may be problematic, maybe need to be rejiggered, and maybe this whole thing, also, we need to be looking at this as being addressed more at the blood side than at the lung side. What if really aggressive blood transfusions could prevent people getting into this hypoxic, acidic state and further damaging the lungs? How much of the lung damage is being caused by the hemoglobin deficiency? We don't know. I don't know. But this describes the mechanism here far better than some sort of radiation doing god knows what to our

tissues, which I think that's kind of my next section here. And I know this thing's long, but I guess it just kind of needs to be what it needs to be.

Robb: But if you aren't familiar with the electromagnetic spectrum, it includes everything from visible light to infrared, ultraviolet, microwaves, radio waves, x-rays, gamma rays. The visible spectrum is a tiny little sliver of the total electromagnetic radiation spectrum, and in general, as frequency decreases and the wavelength tends to increase and the energy tends to be lower and that's where the radio waves exist. And then at the other end of the spectrum, you have gamma rays, which are short wavelength, high-frequency and everything from ultraviolet radiation higher can cause ionizing damage. Everything below that, the main effect is heating on most situations. But again, this is something that if you don't have at least a passing understanding of the electromagnetic spectrum, what wavelength is, what frequency is, how frequency and wavelength interact to determine the energetic properties of a photon, which is what all of this electromagnetic radiation is, whether visible light or radio waves. It's all basically photonic transmission. If you don't have a passing understanding of that, again, this stuff is magic and not good magic. Magic as in you have no ability to assess anything that is put in front of you in a critical fashion.

Robb: So there's a paper, and this is an industry release paper. I've done a ton of research on this, and again, I'm going to do a lot more on this. And what I'm going to encourage people to do is if you don't buy what I'm putting forward, you think it's bullshit, what I'm going to ask people for, provide me your resources that you think shine a light contrary to what I'm putting forward. The scientific papers, the anecdotal reports, whatever you can find, put that in front of me, and then I can address those piece by piece and I can do it in a more in depth fashion. This piece of the physics and electromagnetic radiation needs a several hour treatment unto itself, and so I will do that in the future. And particularly for you folks that either are denialists or you don't really understand this stuff super well, ping me your questions, but in particular, ping me the references. Ping me the source material that you are using to make your informed decision and then we can dig into that and look at it.

Robb: So this paper is, again, a radio frequency industry journal, so that part understood, it's called Safe for Generations to Come. So for the people who decry the stuff and say that this is all biased and clearly set up by, supported not only by big sweet potato, but now big radio-frequency, clearly. But this a really great review paper and it has more calculus and physics in it than, maybe not a textbook, but it's got a shitload of it. And it covers a lot of different things. Like what is the amount of energy that say different tissues absorb when exposed to different radio frequencies. And it also gets into what is the depth of transmission. And what's interesting on this is the shorter wavelengths tend to be absorbed higher, or more superficially, in the skin. And so the very frequencies that people are saying are problematic are the frequencies which don't go particularly deep into the body. And when these radio waves are absorbed by the dermis and epidermis, it produces a tiny bit of heat.

Robb: But this is the difference here. The energy density, the watts per cubic meter that we are exposed to in the general coming and going of being around wireless hubs is massive orders of magnitude different than what you would experience sticking a chicken leg inside of a microwave to heat it up. So, and again, this is the primary thing that radio waves do and radio waves can heat things up. But if you take a bottle of water and it's sealed and you begin shaking it, you can heat the water by shaking it because heat is basically kinetic energy. It's movement and by shaking water in a jar, I can heat it, but it's going to be an incredibly slow process and pretty quickly, whatever additional

heat that I put into the water by shaking it is going to be lost faster than what I can produce it.

Robb: This is very similar to this story of radio frequency EMF's being problematic. At ionizing radiation levels, which is ultraviolet and beyond, you can cause DNA damage. Some of these things like x-rays clearly can pass through the body and it can be problematic. That is well documented. You don't necessarily, again, want like a X Ray machine as your underwear drawer or something like that. But these other frequencies, the frequencies from the visible spectrum onward, the main effect that it has on biological tissues is heating. And again, the amount of heat. I say that and then people freak out. They're like, "There! There! See! It's causing problems." If you stick your head in a microwave oven and somehow figure out how to disable the safety switch that necessitates it being closed, yeah, you're going to have a bad day with that. But again, the energy density is just orders of magnitude different. It's like a stick of dynamite versus a nuclear bomb. Like it's just a massive difference.

Robb: I have a ton of material on this. How much of this shit do I want to read? One point that I'm making here is that the 90% of the transmitted electromagnetic power is absorbed within the epidermis and dermis layers and little power penetrates deeper into the tissue. Although as shown in the next heating of human tissue may extend deeper than the epidermis and dermis layers. The reported bio effects of millimeter wave radiation have included effects on cell growth and proliferation rates, activity of enzymes, state of the cell, genetic apparatus, rates of stress reactions. While many times these effects appear to be, have no clear association with temperature increases. In other cases, the association or lack thereof, it's not clear. So the point here is there has been a massive amount of research on this stuff. And to the degree that there is an issue, it relates to heating of tissues, which to heat biological tissues, to heat our body, you need massive amounts of radiation, amounts that are so much larger than what we get from standard exposure.

Robb: This is from a piece that appeared in Wired, "Calling it 5G and changing the frequency does not change the relevant biological health factor, which is energy," says Robert Demont, a toxicologist specializing in risk assessment at the consulting firm Ramble. "Visible light is a common source of a higher frequency, higher energy, electromagnetic energy, than millimeter waves or other mobile phone frequencies," says Eric Swanson, Professor of Nuclear Physics at University of Pittsburgh. So I want to put this in perspective here. People are freaking out about the supposed problems of radio frequency exposure from 5G and similar technologies. They're worry that somehow it's doing some sort of damage to tissues or it's causing a toxic defying effect that causes release of viruses from our DNA. Sunlight is both far stronger than the energy that we are exposed to from radio frequency waves. It is orders of magnitude stronger as just the total amount of energy impacting us, and it's of a shorter wavelength, which arguably makes it a higher energetic molecule.

Robb: And again, this is one of these things where I kind of want to be like, "Tada!" Like, "End of discussion." If everybody had some physics background, we would just move on from here. Cause we're like, "Oh, if the theory that 5G is a problem because of energy, radio frequency, electromagnetic radiation being a problem is true, then going out in the sun would fucking kill us instantly." And it doesn't, clearly. Too much UV radiation, yeah, that can be a problem. Don't get a sunburn, get a mild tan. Don't turn yourself into leather handbag. But again, this is one of these really dangerous features where-

- Robb:** Again, this is one of these really dangerous features where if folks are so scientifically illiterate, that the unpacking the fact that sunlight is both a higher energetic particle photon and much higher intensity than radio frequency waves, how the fuck did we unpack that? It's tough and this is part of the reason why people are able to propagate the bullshit that they've been propagating. So from that article, again, it's not say that overexposure to non-ionizing radiation can't have negative side effects. Electromagnetic energy produces heat, which is the one and only health concern post by radio waves says DeMott. That position is backed by decades of research on the biological effects of non-ionizing radiation including millimeter waves.
- Robb:** A paper published in 2005 by the engineering professional organization, IEEE's International Committee on Electromagnetic Safety reviewing more than 1300 peer reviewed studies on the biological effects of radio frequencies found "no adverse health effects that were not thermally related". So again, if you expose an organism to enough energy that you can heat its tissues to a significant degree, you're going to have some problems. That's a microwave oven. If you sit out in the sun until you suffer heat exhaustion, that's a problem. You're more likely to suffer heat exhaustion from sun exposure than you are from sitting next to a wireless router because there's greater energy density from the sun than there is from your wireless router.
- Robb:** So one thing, people have jumped all over. There is one paper that claims... The name of the paper titled paper high exposure to regular frequency radiation linked to tumor activity in male rats. So what's interesting about this paper, it's one of a kind. It has never been replicated, nobody's been able to replicate this. It in theory correlated with increased rates of various types of cancer in male but not female rats. It had no effect on mice. Again, this has had no replication. People have tried to replicate it and it's never occurred. From the paper high exposure to radio frequency radiation in rodents resulted in tumors in tissues surrounding nerves in the hearts of male rats, but not female rats or any mice.
- Robb:** So this is the one paper that has suggested that there's some sort of a cancer link in this story, and again, it doesn't apply to all organisms. It doesn't even apply to female rats. It only appeared to apply to male rats and we've never been able to replicate the thing and people are hanging their fucking hats on this. This is all they need, one paper that's never been able to be replicated and has completely ambiguous findings at best. That's what you're hanging your hat on. I just want to show as a compare and contrast a paper looking at aflatoxin exposure. Aflatoxin is a incredibly toxic substance produced by different types of mold and fungus.
- Robb:** Title, single dose response, effective aflatoxin B1 on rapid liver cancer induction in two strains of rats. The survival rates were 40% with low and medium doses of aflatoxin B3 to Buffalo and Wistar rats and 0% in the high dose Buffalo rats. So exposure to aflatoxin, which is pretty easy to do, you can get it from grains, you can get it from nuts, you can get it from dairy and meat that have been fed grains that are aflatoxin contaminated, it will give you cancer. In these these animal models, it was a 100% fatality rate within the animals given the higher dose. It is doable to get a aflatoxin exposure from different types of food that are consistent with the levels that they were using here. But people were worried about radio frequency exposure while they're still eating shit that could and will give them cancer.
- Robb:** I don't know if you guys know a guy, Dan Carlin and I am close to being done here. I know this thing super long. Hopefully it's worth your time. If not, sorry. The reason why conspiracy theories are dangerous, kind of pulling from Dan Carlin, brilliant guy. He has hardcore history. He also has a kind of politic, current events, calling it political is not

accurate. It's current events. Dan is just a brilliant guy and he's one of these people that he understands his shit, he knows his stuff, he knows his source material, and he has caused me to really rethink a number of things. I tend to be kind of a market centric kind of libertarian leaning person and Dan hasn't caused that to flee my person, but it's caused me to have a much more nuanced perspective on what that worldview should look like if we're to be effective and it's provided some nuance and some buffering around it and I really respect that.

Robb: The reason why he's been able to do that again is because, well, either I'm an idiot and he's an idiot or he really understands the source material and he's been able to paint a picture that is both comprehensive, and to my understanding the worldview accurate, like it comports with what I see reality being. But Dan mentioned that he hates talking down to people and this is part of the reason why... If you followed Dan, he took a hiatus on his Common Sense program because with the current political climate, people are just at each other's throats, nobody can communicate and he was like, "There's no point in talking about any of this stuff until there's something new to update." It took two years for him to release a next show. He said that he recorded nearly 30 shows and just ditched them all and finally released this one kind of in just had to do something.

Robb: But part of what's frustrating Dan, and he recognize it, he hates talking down to people as to why I love sharing things. Again, some of what I've said will make me come off as a prick or like an arrogant, well, if you don't understand physics or whatever, that's never been my intention. Never, ever, ever. If you don't arrive here with a background in this stuff, it is my greatest joy in life to help you to the best of my ability understand this material. But it chaps my ass to no fucking end if you have no background in this topic and run me down as being a close-minded, propaganda infused simpleton because I know the fucking science and you don't. Fuck you. Just makes me nuts with that.

Robb: Again, I'm kind of trying to not spin out, but this stuff just makes me so angry. But Dan made this point. He hates talking down to people. But today, no one, "no one", too few people read the same source material. Dan mentioned in previous shows that in the past, whether you were on the... Whichever side of the political divide you were on, people still generally read the same books. They read the same source material. They read Karl Marx and Jung and Freud and although they may be had different interpretations, they at least had a common worldview from the source material. But nobody does that today. Nobody spends time understanding basic source materials. So Dan is faced with spending a massive amount of time just laying basic foundations, which is what this episode effectively is.

Robb: This is a super short course in the electromagnetic properties of physics, a little bit of anatomy, physiology, and a whole lot of me cursing and flailing around inanely. None of it would be necessary. None of this would be necessary if our populace at large had a much better scientific background, but they don't, and I guess that's part of my opportunity here so here we go. But I've had really similar misgivings. I love helping people interpret and understand science and health. But how do I talk to someone with absolutely no science background? Like they've never had a physics class, even just a concept based physics class. The mathematics, if you understand the math really helps cement this shit, but you can get a really good appreciation for thermodynamics, mechanics and electromagnetism, although I'll say that the electromagnetism starts getting much more difficult to pin down on an instinctual gut level.

Robb: But you can understand some stuff at a pretty good level even if you do a concept based physics class. I don't know. Did I do an appeal to authority in this thing? I don't think I did. I don't think I did. I hate appeals to authority. They just piss me off. What I did say,

like I didn't say I'm a biochemist. The people that are shit talking me or giving me problems are not, so fuck them, I'm right, they're wrong. I did say that I've done the work and I understand the source material and I've been able to present it in a way that I'll argue that none of the people that are on Kelly Brogan's common thread on that Instagram piece can do. Not to beat up on Kelly or some of the other doctors that were in that thread, but I don't think they would be able to unpack this shit the way that I did either.

Robb: What I find frequently is physicians get through their basic science, the basic science was the reason for me. I loved physics and calculus and organic chemistry. That's why it pretty much imprinted in my DNA and even though I don't have a doctorate in any of that shit, I'm pretty good at it. I don't know how someone can admonish me for not being open-minded when they just lack the fundamental world view. They don't have the... This is like, here it is, here's a great... I've used this analogy in the past but my wife speaks Italian, she speaks Spanish, she speaks a little bit of Russian. If you don't speak Russian, you don't get to have an opinion about the original work of say like Dostoyevsky or or someone like that. You have no ability to have an opinion.

Robb: You can read the English translation, but if there is a discussion around the implications of the way that that was written in Russian and what the nuance and subtleties were being conveyed there, if you don't speak Russian and if you don't speak Russian at a highly refined level, you don't get an opinion. If you are not scientifically literate, you don't get an opinion or I guess you do get an opinion, but it is an incredibly ill-informed opinion. Again, I know I'm just kind of going in circles at this point. I'm probably being a huge dick, but this is something that the conspiracy theories like this really are dangerous and here's why. Because we do actually face existential threats. An existential threat is something that could wipe the species off the planet, make us go extinct.

Robb: Nuclear war, artificial intelligence, EMP pulses. I've been terrified of an EMP pulse for like 15 years. Most people probably haven't heard of what an EMP pulse is. We could have a solar flare that could cause an EMP pulse that would... What it is, it's an electromagnetic pulse. Oh shit, EMFs again. But in this case, what that electromagnetic pulse does is it cooks circuit boards. Anything with a circuit that's not hardened against an EMP pulse gets cooked. If you detonated a nuclear bomb high over the United States' low earth orbit or North America, it would cook virtually all of our technological infrastructure. We would have no... The power grid would fail and it would take months or years to establish it, re-establish it.

Robb: The conservative estimates for the United States is if an EMP pulse, either natural or manmade, were to happen in the totality of the United States, North America, a one-year, 90% fatality would occur in the United States. This is something that we've known about for ages and have done absolutely nothing to harden the infrastructure around our electronic, our energy transmission. All of that is open for damage from an EMP pulse, again, either natural or manmade. One rogue state gets one nuclear device and figures out a rocket that can get it high enough in the atmosphere over the US to detonate it, it's not going to blow the cities up. It will turn the power off. Then within a year, conservative estimates are 90% of the population are gone due to the lack of infrastructure and medications and food and all the rest of it. That's a real fucking thing to be worried about.

Robb: But instead of being worried about that, people are worried about 5G. So this is one of the reasons why conspiracy theories are so dangerous. In this situation, this pandemic was a dress rehearsal if we're lucky. It hopefully orient us in more effective ways to deal

with things. I know that there's been a ton screwed up on this. Testing in the United States was screwed up. This whole thing's being politically taken advantage of. There are some really concerning features around personal liberty. I get all that stuff. But there are viruses that we are well acquainted with that have 30% mortality rates. A 30% mortality rate coupled with the transmission ability of COVID, that is a civilization ender. It's not a species ender most likely, but our civilization as we understand it would cease to exist. We would be starting over pretty much at the Stone Age.

Robb: A 60% mortality rate is a species ender, we're done. *Homo sapiens* is done and these are out there. There are known viruses that have these degrees of lethality and we're worrying about something that has less energy density impact on us than sunlight. So yeah, again, and I almost forgot, I... People are real certain about this stuff. People were super certain about the 5G. Man, they just can't be told anything different. One interesting effect of this COVID process is that the transportation sector has been gutted. It is absolutely been crushed and so driving and planes, trains, automobiles, all that stuff, it's plummeted and you know what has happened. Carbon dioxide levels are falling rapidly.

Robb: Now just a couple of months ago, what was the end of the world going to be caused by? Cow farts. So I am curious how many of the people that insist that 5G is the cause of this COVID problem and it has all kinds of deleterious effects on health. How many of you, those people are the same people that two months ago were insisting the animal husbandry was going to be the undoing, the end of civilization due to climate change? When we have a natural experiment now, and people like me, like Diana Rogers, we've been beating this drum saying, "No, this isn't coming from natural sources." The greenhouse gases that come about from normal methanogenic processes from termites and shellfish and undulates and herbivores, that is a non-issue in the global climate story.

Robb: Transportation sector is a real issue, if you're legitimately concerned about carbon dioxide and greenhouse gas emission levels, and now we have a natural experiment that proves that. Carbon dioxide levels are going down. The only thing that's changed, it wasn't that cows were taken offline. It's that transportation was taken offline. So how many of the people that were certain that greenhouse gas emissions from animals were the problem? But now it doesn't look like that's the case. It was actually that transportation sector, and again, this is a super complex topic to unpack. It requires chemistry and physics and history and all things that people are by and large unwilling to invest the effort to understand the basics. But they are more than willing to develop ironclad opinions about where they stand.

Robb: So if you are still certain that 5G is the cause of COVID or whatever other things, here's what I ask of you. I want you to do something like this and I want you to explain the physics of how EMFs affect both the body and the viral presentation. He was calculus and accepted physics, not astrology and tarot cards. If you insist that this is a problem, then you show me this using the fundamental tools of science, math and physics. Additionally, explain to me how the combination of lung damage and loss of oxygen carrying capacity is not a better explanation for what we're seeing. You folks are saying that 5G radiation exposure is the explanatory feature for this COVID-19 disease process. I'm saying that lack of oxygen carrying capacity in the blood, coupled with the loss of surfactant in the lungs is the reason for this rapid downward spiral.

Robb: So you explain in detail why that pathophysiological perspective is false and then provide what the underpinning mechanisms are that actually explain it in a better way. Explain the paucity of research supporting the dangers of EMF. There is one rat study

that showed an association with male rats, not female rats, not mice, and that is conclusive. It's never been replicated. So explain that to me, and in detail and again, use physics, use chemistry, use genetics. Explain to me why it's more important to worry about 5G versus legit existential threats. We will face other existential threats in the future and depending on how we respond to that or our response to those existential threats will largely be reflective of our worldview, and if our worldview is one informed by mysticism and bullshit, then we're not going to navigate that existential threat very effectively.

Nicki: That was a good...

Robb: I need a hug and a smoke and lot.

Nicki: As I said earlier, you were... I heard you recording this through the office and I would come over and put my ear to the door and listen and then walk away and sip my coffee and it's spicy one.

Robb: So is it the crazy guy calling everybody else crazy? Is that basically what this boiled down to? The crazy old man in the office saying that everybody else is crazy.

Nicki: Well, we'll see.

Robb: Again, this is... I want to reemphasize that if people have questions around this, this is totally great. You should have questions. I don't want my positioning to come across as elitist or I'm talking down to people. When I look back at my career, most of what I've done has been kind of science education, science translation, clearly mainly in the areas of nutrition and biochemistry and health and whatnot. But it's okay to not have a profound background in this stuff. It is not okay to form an ironclad opinion if you can't read the primary literature, if you don't understand a differential equation and how it relates to the energy density of photons, be that from the sun or from a radio frequency emitting device, which the sun is also a radio frequency admitting device.

Robb: So if you have concerns and I want to reiterate this, send them to me or put together something like what I did here and then tag me on it and then I've got something that I can look at and say, "Oh, okay, that's a great point there. Oh, you got me there." Deconstruct what I put together here and go minute by minute like what I did with the, the what the hell film. It's a lot of work, but if you give two shits about this then it could be pretty valuable and this is a really important topic. This basic science literacy is one of the things that's going to make or break our civilization going forward.

Robb: You may think that that's a bit of an overstatement, but I make a pretty compelling case for that in the main body of this talk. So again, reach out to me. If you have questions, ping me. If you have your own take on this, by all means do it. But use some physics, use some chemistry, use some math and make a compelling case around this, not I read something somewhere and this person said something. That doesn't cut it. You don't get to have an ironclad I know better than you position off of that level of understanding.

Nicki: All right, that's a wrap on this one.

Robb: Just be glad Nicki and my daughters are the only people who have to live with me.

Nicki: Thanks for joining us folks. Remember to check out our show sponsor Perfect Keto. Go to perfectketo.com/salty40. Use code salty40 to get buy one and get one 40% off for all Perfect Keto products.

Robb: See you all soon.

Nicki: Later. As always, Salty Talk episodes are brought to you by Drink LMNT, the only electrolyte drink mix that's salty enough to make a difference in how you look, feel, and perform. Get salty at drinkLMNT.com, that's drink-L-M-N-T.com

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