

Nicki: Welcome to The Healthy Rebellion Radio. This is an episode of Salty 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 LMNT, the only electrolyte drink mix that's salty enough to make a difference in how you look, feel and perform. 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 carnivore adherence without any of the sugar, colors and fillers found in popular commercial products. Health rebels, this is Salty Talk.

Nicki: And now the thing our attorney advises. 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. And given that this is Salty Talk, you should expect the occasional expletive.

Robb: Welcome back, folks. Welcome back, wife.

Nicki: Welcome to another episode of Salty Talk. It's early.

Robb: It is early. It's very early.

Nicki: We're doing this early, so...

Robb: Well and we were besieged by raccoons in the night. Yeah.

Nicki: We were besieged by raccoons in the night. The dog hears them, and then he starts whining because he wants to go out, but I don't want to let him out because I don't want to deal with any kind of raccoonocides in the night.

Robb: Yeah.

Nicki: So yeah.

Robb: Dutch has already dispatched a few critters that he's caught, so yeah.

Nicki: He's gotten a little fox and what else? He did get a raccoon.

Robb: A raccoon previously, yeah.

Nicki: Yeah, so...

Robb: So we're trying to not facilitate that, but we need to figure out a...

Nicki: Yeah, and we saw a possum the other night and we want to keep our possum population because they eat a lot of ticks, and so I'm just like, I don't want anybody hurting our possums.

Robb: Even the dog.

Nicki: Even the dog. So anyway, here we are early in the morning recording this.

Robb: You look amazing though. You look gorgeous as ever.

Nicki: I'm sure I do. No shower, nothing.

Robb: Yeah.

Nicki: Well today's topic, hubs, I guess it's not all that sexy, it's about taking care of yourself, becoming metabolically healthy, resilient.

Robb: Yeah. I tried to do a little bit of a departure from my 5G freakout where I kind of lost my mind. I will be revisiting that. There have been both good questions and also some idiocy that has emerged from that that needs addressing, but clearly there's a lot of COVID stuff going on and we're going to start peppering in some other things because I don't feel like it needs to be all COVID all the time. We need to start thinking about what living life is about.

Robb: But I'm continually perplexed by how little leadership we get on this topic of better eating, particularly in this scenario. Now there's some snake oil going on, like people are saying, "If you eat this way then it's guaranteed you will not catch COVID." And that's absolutely ridiculous clearly, but it still is perplexing to me.

Nicki: Well if nobody ate meat then the coronavirus wouldn't even be around because it's....

Robb: Clearly, yeah. It wouldn't even be around, which...

Nicki: Yeah, if you've seen that one floating around it's...

Robb: That's going to be a good one, but it still... We are pretty certain that people can start getting more metabolically healthy in possibly days, maybe weeks. I don't know about y'all but we've been shut in for weeks, so everybody kind of has this opportunity to do something different, and granted it can be a stressful time, there's a lot going on, maybe this isn't the right time, the right place for everybody to consider doing this, but in the talk I break down some of the case mortality like diabetes versus blood pressure and stuff like that, and it really dramatically increases the risk associated with mortality on this story, and it's interesting you bringing up the vegans.

Robb: These folks, they will do this association with eating bacon every day your whole life, and in theory... and all the information is coming from a food frequency questionnaire, and in theory it takes the background risk of colon cancer which is 5%, and you can eat bacon every day. You eat it your whole life, and then in theory your colon cancer risk is 6%, which they report that is an 18% increase because of the delta between six and five when in fact the absolute risk is only 1%. The risk increases that occur due to diabetes and hypertension are like six and 700 times greater than not having it. It's enormous, so yeah. So it should be a compelling thing for people to get in and at least kick the tires on some better diet and lifestyle.

Robb: And again, at this point I would be dietarily agnostic. Like when we look at the way that people generally eat almost anything is going to be an improvement. Clearly I've got my bias towards kind of low-carb, paleo, keto, all that type of stuff, but there's kind of a lack of leadership and there's two things. There's a lot of P. T. Barnum...

Nicki: What are you searching for?

Robb: Bulletproof coffee bullshit stuff going on. Absolutely ridiculous shit like that, and then there's nothing. So the interesting thing is the lack of leadership on this topic creates a vacuum which then is filled in theory by people like myself that I hope are credible and

at least modestly on point with the information, and then people that are neither credible nor ethical, and that's kind of the result that we have due to this lack of leadership and people like the CDC and the FDA taking a more direct leadership role, and also making it informed with reality. But anyway, other thing. We're still in the intro.

Nicki: We are.

Robb: Clearly we get pretty chatty in the morning, so where else do we need to go here?

Nicki: I'll just add since this is coming out in advance of our next 30 Day Rebel Reset inside the Healthy Rebellion community. That kicks off this coming Friday. We have a kickoff call Friday the 17th of April, and then it officially starts on Monday the 20th, so if...

Nicki: And the way that we do that, we tackle each of the four pillars of health that Robb lays out in *Wired to Eat* one week at a time. So the first week is food, then we do move into sleep, community and movement, and then the seven day carb test is optional at the end, but the food part I know that we've had a lot of people say, "Well I'm already carnivore, I'm dialed in here." And the food part is sort of choose your own adventure. Like if you're brand new to this way of eating, if you've been eating a highly processed standard American diet then we'll encourage you to start with a low-carb paleo diet and just cut out the crap and eat real foods, but if you've found that keto works for you and you've got dialed in macros or you have been carnivore for a while and that's really working for you then you stick with that for your food.

Nicki: We have people choose a primary focus, and so maybe your primary focus is sleep because you're only getting five hours a night because you're stressed, and so we can work on some stress medication strategies and work on increasing the time that you're sleeping or maybe you haven't been exercising as often as you'd like or you have a different focus. So anyway, just wanted to throw that out there. Last day to sign up and join is April 20th so you can go to join.thehealthyrebellion.com and jump in on that.

Robb: And again you get this fully stewarded transformation process where we help you with every element of this thing.

Nicki: We do live calls and live chats, and we've just got a great group of people over there so it's a lot of fun.

Robb: It's a good time. Yeah.

Nicki: Yeah.

Robb: And I would say last go around maybe 40% of people didn't pick food as their primary focus.

Nicki: Right.

Robb: Clearly food's always going to be a hot topic, but it was interesting. A lot of people picked it for an element of movement or the sleep, and last time I picked community which I don't know that I'm going to pick it this time because I can't really commune all that much, but...

Nicki: Well we'll be talking about a lot of alternative ways to foster community during this time, because-

Robb: Yeah, yeah, true. That's true. It's still a thing.

Nicki: ... it's still important even though we're all under the corona umbrella.

Robb: 'Vid. Yeah.

Nicki: All right. Let's jump into this Salty Talk.

Robb: Cool.

Robb: Hey, rebels. Welcome back. Stoked to have you here. Hey, had really good feedback from the 5G piece that I did generally. Folks appreciated it. Well the spectrum was some people really appreciated it, some people are still really cranky with me, although the folks that are cranky with me don't seem to be able to unpack the science to the particularly high level and have kind of defaulted to, "Hey, this consensus paper says this or that." And so I'm going to get back in and tackle some of that. Some folks had some really good questions around some voltage-gated ion channels that can be affected by electromagnetic fields. It's a valid concern, but I think the context is going to kind of surprise people on that, so I'm going to shift gears a little bit and talk about some other stuff.

Robb: Still talking about some COVID related material. We're going to start peppering in some other things. Clearly this is still a super important topic. It's a life altering topic, but at the same time we have other things that are going on, and this is somewhat maybe analogous to the situation within healthcare that we're facing. We're focusing 100% of resources, or maybe not 100%, but seemingly 100% of resources into dealing with the COVID, SARS-CoV-2 scenario, and nothing else is really happening, and we're starting to see some of the knock-on consequences of that, and so I had initially thought about doing a little bit of a social fabric piece, talking a bit about my perspective on how all this is affecting the social fabric. I don't know that I'm really going to jump into that because it starts getting pretty sociopolitical and that's not honestly my wheelhouse, even though I like commenting on that stuff.

Robb: But what I want to talk about today is some I think pretty reasonable approaches to reducing the impact of the COVID-19 disease process on our lives, and I've seen a lot of ridiculous claims out on the interwebs. People making some claims about just emphatically about this dietary approach or that dietary approach just being guaranteed to do XYZ, and I don't want to do that. I think that just even having a little bit of, man, some just better thought around the potentialities that we're talking about that diet and lifestyle can positively or negatively benefit us, and I think there are some call opportunities there but I think also people have been kind of exploiting that stuff.

Robb: So anyway we're going to jump in and look at some of this, and first I want to consider our best understanding to date of the case fatality rate both as it regards to or as it relates to age and also preexisting conditions, and when we consider age alone, and it's also really interesting to see these overlaps, like the preexisting conditions overlaid into the different age brackets, but as age alone, 80 and above has a case fatality rate of about nearly 15%. 70 to 80 is about 8%. 60 to 70 is three, almost four. 50 to 60 is 1.3, and then it really drops down from there for .4, .2, .2, and then in theory it's at or near zero case fatality rate for kids zero to 10 approximately, and then you get an average case fatality rate all lumped together if folks have no preexisting conditions of about .9, so that's the average.

Robb: And this stuff changes all the time at least minorly as new information comes in, but folks with preexisting conditions, and again this is the way that the data I'm going from, it's separate from age specifically, and again it would be really helpful to both know an individual's age and if one has a preexisting condition, but cardiovascular disease which can be a lot of different things, but atherosclerotic plaquing, and that tends to be one of the primary features, although again there's a lot that can nest under that, but that's about 10% case fatality rate. Diabetes has a seven. Chronic respiratory disease six. Hypertension six. Cancer is nearly six, but I think that there's been some discussion around that because this can really scare some folks who are like, "Well if I had cancer is this the same as currently undergoing treatment?" And my understanding of that is that those are not the same.

Robb: Folks can severely immunocompromised when they're in the process of undergoing chemo and radiation so I think that that's a very contextually driven story, but when we consider the bulk of the preexisting conditions, the thing that causes most of these issues of diabetes, cardiovascular disease, chronic respiratory disease, hypertension, and we could make the case that cancer is definitely a largely diet or metabolically lifestyle-driven disease. Lots and lots of linkage with hyperinsulinemia, and just it goes in lockstep with the diseases of modernity, but we can make a pretty credible case that the modern western lifestyle is the causative factor in large part to these conditions. Cardiovascular disease, diabetes, respiratory ailments, hypertension, different types of cancer, and we should have some pretty good strategies for dealing with that. It's damnably hard to get people to do new stuff, but it is doable and we can affect some pretty significant change.

Robb: And so when we look over at what the CDC, FDA response is to this COVID situation, and I have links to all this stuff in the show notes, like the last slide that I've been pulling from is from Worldometer, and then I'm also pulling from some CDC resources. Again, in the show notes you have links to all of this stuff so you can go to the podcast homepage and track all that stuff down.

Robb: But when I was poking around for what the CDC FDA's position is on this topic with regards to diet and lifestyle I didn't really find much. What I found was actually a really nice preparation guide that they put up pretty early on, and I assume somebody had thought through or maybe this stuff exists within the just general pandemic preparedness framework, but it's a great guide for organizing yourself, organizing your family, some common sense but often times overlooked things ranging from finances, to food, to trying to anticipate childcare and all that type of stuff. It's really good. It's really valuable stuff that people need to take a look at, but it's also... I've seen nothing from the CDC, the US Department of Agriculture, the Food and Drug Administration talking about the potential that people have here for affecting some diet and lifestyle change that one would benefit their life at large, and then two I think really poses the possibility that it could mitigate or reduce the severity of the COVID-19 disease process.

Robb: Do we have a randomized control trial on that stuff? No, we don't. It's unlikely that we will get one, but when we again look at the case fatality rates on this stuff as it relates to these metabolically-driven diseases, it's crystal clear that although age is an independent risk factor it's not a death sentence.

Robb: There was an example of a 102, 103 year old woman in Wuhan, China that recovered. There are lots and lots of folks in Italy over the age of 80 that are succumbing to the COVID-19 disease process, but there are examples of folks that are making it through, and again we don't know for sure exactly what their metabolic state is, but when we

extrapolate to folks that are clearly more metabolically healthy as evidenced by the paucity of the disease process in these folks, then it, god, it just stands to reason.

Robb: But again, I don't want this to be like the over-the-top greasy used car salesman pitchy type deal here. We don't have randomized control trials, this stuff is kind of speculative, but the speculation that we have going on here is in my opinion the following. Would improvements in diet and lifestyle change the potential disease course with this COVID-19 situation? And I think in general we could make the case that it probably would improve things, but again in all fairness to the evidence-based crowd we don't have absolute proof of that, but it seems like an interesting opportunity to...

Robb: Folks are pretty concerned about this, right? Where the specter of dying or being very sick from cardiovascular disease or diabetes or something, that's like a years or decades down the road deal, whereas this thing is clearly front and center on folks' minds, and so it just seems like an interesting opportunity that's being missed to light a fire under folks.

Robb: And fuck, man. I'm okay with diet agnosticism on this. It doesn't have to be paleo, it doesn't have to be keto, although those things work pretty well, but I just could see an opportunity on the part of the FDA CDC to say, "Hey, we don't know the science for sure, but we do know that people that have preexisting health conditions are not faring as well, so this is a great opportunity for you and your family to start practicing better dietary practices."

Robb: But you know, as I'm saying it I kind of know in the back of my head that the position of many of these entities, although they will give some airplay to the notion that folks can change these disease processes, it's also a very kind of fatalistic thing of, "Oh well, people can't change. People won't change their diets. It's too hard." But yeah, dying on a ventilator from completely metabolic acidosis and your lungs not working properly, that apparently is easy and some dietary change is hard, although I will talk about the fact that dietary change is challenging, but I guess it's all kind of relative.

Robb: But I want to mention this piece that it appeared in the Journal of Nutrition and Metabolism, A low-carbohydrate, ketogenic diet to treat type 2 diabetes, and it looks at 28 overweight participants. This was a single arm pilot diet intervention. Folks were counseled on their food. It was not metabolic ward setting so we don't know exactly what they ate, we don't know exact compliance, I don't even think that these folks actually tracked ketone levels. This was published back in 2005. So there's a lot that's not known or understood here, but what is pretty clear is that these folks had really nice reduction in hemoglobin A1c. A 16% reduction dropped on average from 7.5 down to 6.3, which is pretty darn good. We would anticipate even better results going forward. This was conducted over a 16 week period. Some modest decreases in blood pressure.

Robb: And again, when we look at these interventions like this where folks are counseled how to eat, shooting for keto usually ends up in getting Zone ratios. We have to really, really generally work pretty hard to get people into those below 20 grams of carbs a day, 30 grams of carbs a day, but these results are impressive and they're fairly rapid, and again I would make the case that if folks really aggressively get in and change things, like we've seen enough case reports of people dropping blood pressure, needing the dramatic alterations in their blood pressure meds and diabetes medications and whatnot in very short order.

Robb: So again I think that this is, if people have these preexisting conditions I think that they're faced with a choice of, "Do I just keep my fingers crossed and hands washed and

hope for the best, or do I get in and do something like a low-carb ketogenic intervention in the hopes that my health will be dramatically improved and might fare better under this process?" And I think that that's a reasonable assumption. Maybe not. Maybe it makes it worse. I don't see how, but again giving a hat tip to the super cranky evidence-based people and trying not to sell this in too greasy of a way, but there's definitely some things to be considered around low-carb interventions.

Robb: Blood sugars can decrease rapidly. It would some like that would be a good thing in this context because one of the really dangerous features of the cytokine storm is dramatically elevated blood glucose levels, and this was something that really had the type 1 diabetes community pretty concerned because even within the type 1 gritters, these folks that are doing a great job of managing blood glucose levels with a Bernstein approach, a low-carb high-protein not necessarily super high-fat approach, which works fantastically for type 1 diabetes.

Robb: There was some real concern around the if someone got sick and they're a type 1 diabetic, how much buffer is that going to give them against the potential blood sugar elevations? Nobody knows what the buffer is there, but I think that again that it's safe that well controlled blood glucose levels are going to fare far better than poorly controlled blood glucose levels, which is honestly kind of the standard of care. Eat more or less what you want and cover it with insulin, and that doesn't work on the best of days. It's a kick the can strategy that is based around a valid but also somewhat misplaced fear of hypoglycemic events. A hypoglycemic event in a low-carb individual is a very different story than someone that is primarily carbohydrate fueled and just covering their carbs in theory with insulin bolus.

Robb: So the blood sugar thing, it's significant enough that people will raise concerns around the rapid blood sugar decrease, like medications need to be modified almost on a daily basis for some people. That strikes me as potentially a good thing again in this scenario. Would it need management? Could that be challenging, particularly in these situations in which doctors and healthcare providers are stretched thin? Yeah, absolutely, but it again makes a lot of sense.

Robb: Blood pressure tends to decrease but generally takes a little bit more time, although again not always. It really depends on the individual. It depends on how aggressively folks are actually getting in and doing this stuff, and some of the Virta data, again more kind of on the case report level, but people have seen just shocking, really impressive blood pressure decreases within days heading into weeks, and again the hypertensive piece of this story from the comorbidity factor is really kind of impressive in a way. Like you would think that pulmonary issues, lung issues would be more of a concern, but it correlates more with blood pressure problems.

Robb: And there's some back and forth on whether or not the very disease process of hypertension is up regulating the angiotensin, converting enzyme receptor sites, the ACE receptor sites that is kind of the point of entry for the SARS-CoV-2 virus to get into the type 2 pneumocytes in particular, and it's also possible that the ACE inhibitors that folks are ubiquitously prescribed might be worsening that potentiality because of again increasing the number of receptor sites where virus can actually make their way into cells, but okay, let's even say that it takes a period of time, let's say a couple of weeks for a low-carb diet or any type of dietary intervention to really start moving the blood pressure in a more favorable direction. I think it can happen sooner than that, but let's just for the sake of argument say that it takes a couple of weeks at a minimum. Why not start now?

Robb: We know that this is a major complicator going forward, even if we were able to wave a magic wand and make the COVID disease process disappear, make the virus disappear, we still know that this is kind of goosestepping us to the abyss just based around the tsunami of metabolically-driven disease. We know that. We've been looking at several years leaning towards decades before we have to pay the piper on that, but this SARS-CoV-2 virus has accelerated that timeline and took it from years or decades down to days and weeks, but within those days and weeks we could affect some pretty goddamn good change in our diet and lifestyle and our health, so again I'm just perplexed that there isn't more top-down discussion about the potentiality here.

Robb: And again, it's so weird that we're in this scenario where we on the one hand demand absolutely ironclad facts, which is almost impossible to have. So on the one hand we kind of demand that and the way that the media spins this stuff up, like if data is updated then that's held up as being somehow a weakness when it's actually part of the process of model development and whatnot, so on the one hand we have this kind of standard that we must know the truth now, and it's often times unknowable.

Robb: Okay, that's fine, but we've created a scenario and I don't know if this is by intention or just the way that things have progressed, but now you have governmental entities that instead of providing a message that has some unknown to it, we don't know for sure that modifying diet, exercise, lifestyle will benefit you in fighting the COVID-2 disease process, we don't know that for sure, but it makes a lot of sense for you and your family to eat better and to practice the good hygiene and all that sort of stuff, but it seems there's just no stomach for putting that out, and so then what happens is it falls to pseudoscientific peddlers like myself to say this, and so then we have a massive dichotomy that occurs between what the government and the kind of... I was going to say accepted organizations or institutions that promulgate this information, but this is part of the problem.

Robb: These folks are not as well respected or accepted as what they were two decades ago, and I think it's because of this insistence of avoiding what we do and don't know, and while reminding people about good hygiene and all that stuff is absolutely critical there's again a missed opportunity around this kind of diet and lifestyle piece.

Robb: I will say in fairness dietary change can be a stress. I fully get that, and one could maybe make the argument that in this kind of crazy time people are stuck at home, they're quarantined, and man, some of the stuff that's going on around that, people snitching on their neighbors about not being what they think to be in compliance, or the mayor of Los Angeles suggesting that people rat folks out because they think that they're not complying enough. God, that stuff is going to destroy the social contract, the social fabric. And again I didn't want to do a whole show on that because I don't really think it's specifically my wheelhouse, but with all this stuff going on I acknowledge that some significant diet and lifestyle change could be itself a stressor at this time.

Robb: So of course this is something that you have to look at yourself or if we're thinking about leaning on friends or family members that even with our best intentions we want to see them do something better that's great, but I think it is worth acknowledging that it's not always an easy thing to jump in and do this stuff.

Robb: Okay, let's take a quick break to hear from our episode sponsor.

Nicki: This Healthy Rebellion Radio Salty Talk episode is sponsored by Perfect Keto. Perfect Keto makes it easy to dial in your low-carb lifestyle with the whole suite of keto bars, cookies, nut butters, trail mix and MCT oil powders, and the best part is that Perfect

Keto products are super clean. No soy, dairy, gluten, artificial sweeteners or binding agents, and they are super convenient in a pinch.

Robb: Indeed they are.

Nicki: We've taken to taking the girls to... We still have some open space in our neighborhood where we can go down by the pond and have a little picnic and get outside and-

Robb: Heretic.

Nicki: Heretic. I guess some people-

Robb: Good thing we're not in Los Angeles. We'd be reported, yeah.

Nicki: Yeah, there would be helicopters circling overhead, but yeah. But yeah, those Perfect Keto cookies and bars are easy grab and go options to throw in a bag with some water bottles and get outside, and it's been some of our little reprieves in the middle of all of this stuff.

Robb: It's been a sanity keto for sure. Yeah.

Nicki: But right now with code SALTY40 you can go to perfectketo.com/salty40 and that's four zero and get a buy one get one deal. Buy any one of Perfect Keto's products get one for 40% off. Again, that's perfectketo.com/salty40. And now back to this episode of Salty Talk.

Robb: Now I do want to mention another feature of a low-carb diet that could potentially be beneficial in this whole story, and this is from Intensive Care Medicine published actually back in 1989 crazy enough, but it's a high-fat low-carbohydrate enteral feeding lowers PaCO₂, that's the partial pressure in the arteries of carbon dioxide and reduces the period of ventilation in artificially ventilated patients.

Robb: So enteral feeding is when folks are put on effectively a feeding tube, and they compared standard kind of junk feeding, which is basically sugar and vegetable oils versus probably not compositionally all that much better of a feed but one that was low-carbohydrate, but from the abstract the objective of this study was to compare the effect of a high-fat low-carbohydrate enteral feed with a standard isocaloric isonitrogenous enteral feed on PaCO₂, and again this is the partial pressure of carbon dioxide in the arterial blood under ventilation circumstances and under this metabolic acidosis circumstance that seems to be a feature of people really deteriorating. In the COVID-19 disease process we lose the ability to blow off carbon dioxide and also to some degree it appears that oxygen delivery may be somewhat impaired, although that theory around damage to the hemoglobin may not be as on point as what we thought so I have to amend my thinking on that.

Robb: But anyway, 20 clinically stable patients requiring enteral feeding were randomized into either feed in a double blind fashion. Initial ventilator and standard settings were adjusted to the clinical state. Measurements including minute volume and arterial blood gasses were made twice daily. Weaning was carried out according to set criteria. During the feeding period PaCO₂ just prior to the weaning fell by 16% in the high-fat group but increased by 4% in the standard feed group, so actually a 20% change in the partial pressure of CO₂, and it was lower in the low-carbohydrate people, so they were blowing off more of the carbon dioxide which would lead to a mitigation in the metabolic acidosis caused by maintaining the carbon dioxide. The high-fat group spent a mean of

62 hours less time on the ventilator. High-fat low-carbohydrate enteral feed appears to be beneficial in patients undergoing artificial ventilation.

Robb: This is really powerful and it hasn't been adopted broadly at all, and I haven't heard any discussion about a low-carbohydrate enteral feed being used in this COVID-19 story. Maybe it is, maybe some people are using it, but this is a little bit like the post-concussion syndrome or post-traumatic brain injury. Somebody comes in with a traumatic brain injury I'm still perplexed that a ketone ringer solution is not used in these scenarios when we think about the benefits of ketones, even exogenous ketones under these circumstances.

Robb: And again this is where things are kind of speculative, if you are ketotic or just generally low-carb, would that improve the disease process if you were to develop the SARS-CoV-2 virus? We don't know for sure. Again we don't have the randomized control trials, but mechanistically it makes sense that it would be beneficial in a lot of different directions. It's almost certainly going to improve hypertensive states. It's going to improve hyperglycemic states, so addressing that high blood sugar high blood pressure problem straight out of the gate, and then there's also very credible stuff.

Robb: One of the areas of research that ketogenic diets and/or exogenous ketones really shine is in this hypoxic gas exchange environment. It's been really extensively studied via a DARPA funded research for navy divers, for SEALs, and it really shines well both as a neuroprotective kind of agent, but also in more favorably altering the blood gas story, carbon dioxide and oxygen specifically. So there's really credible reasons to think that this would be beneficial. And again we don't know for sure, there's not a randomized control trial, but in the grand scheme of things I think that it's reasonable to again at least consider these as intervention options and things that we can do personally to help improve our situation.

Robb: Going more broadly, Satchin Panda who's a famous circadian biology researcher did a really great piece for the website Conversation, and the title of his piece, Beyond sanitizing and social distancing – a healthy circadian rhythm may keep you sane and increase resilience to fight COVID-19. So Satchin Panda is a very well respected researcher, and he's going out on a limb suggesting that improving circadian biology, which by extension he's also covering a number of diet and related lifestyle features would at a minimum make you not as depressed and kind of squirrely, but at a maximum might improve your ability to fight the COVID-19 virus.

Robb: So this guy's pretty legit, and so I think that it's reasonable to consider this stuff. He mentioned sleep, and probably nothing new to you folks, but he makes the case for at least eight hours a night in bed and parses this out for teenagers and children should be shooting for more like 12 hours a night. Diet, try to eat within a time-restricted feeding window, eight to 10 hours. Try to avoid eating right before bed. We know that this early time-restricted feeding disproportionately benefits metabolic health even if the composition of the diet is not particularly well improved. Eating early both in the total magnitude, trying to front-load calories and then ceasing to eat comparatively early, we're pretty certain that this is highly beneficial, so why not do it? And then if you could modify the composition all the better.

Robb: On the light side try to get outside as much as possible, and this is again where some of the over-the-top governmental recommendations coupled with busybody overactivity, it seems completely reasonable for people to get outside and go on a walk. If it's a super densely populated urban area, okay, I kind of get it. There might need to be some modifications there. Maybe folks on Monday, Wednesday and Friday, folks who have an

odd numbered address they get to go out on a walk and Tuesday, Thursday, Saturday the people with the even numbered addresses go out on a walk or something. I don't know. There's got to be some way to have a reasonable re-engagement with nature, but again some of the folks in this story have kind of lost their minds.

Robb: Stress management. We talked about this as I'm going to allude here in a minute with the Kevin Gilmartin piece. This is the time to adopt your Ziva meditation practice. Get Emily Fletcher's Stress Less, Accomplish More. This is the time to really invest in yourself with this. If you've never adopted a meditation practice or kind of a mindfulness practice this is a really awesome time to do it. It will pay enormous dividends. And then finally exercise, and again this is... Some of the over-the-top in my opinion reactivity around this stuff is particularly challenging because, well, I guess I've already alluded to that stuff. It's having some sunlight. Getting a little bit of social connectivity, like waving to your neighbors as you go on a walk with at least your six foot bubble of protection around you.

Robb: It goes a long way towards staving off losing your marbles, and although I think that it was reasonable for us to jump in and really pump the brakes on our normal day to day life so that we didn't overwhelm the medical system so that we flatten the curve and all that type of stuff, it has to be acknowledged that if we go nuts on this and our suicide rates explode, if child abuse just, it just explodes, all of that needs to be counted into the SARS experience, but it needs to be weighed almost counter to the life or the cost associated with just specifically the disease process.

Robb: We have the disease process itself as one factor to consider, and then we have all the unintended consequences that need to be considered as well, and I think we've done a generally pretty good job of the social distancing and cooling our jets, and now people need to not lose their minds over someone that really, really needs to get out and take a walk and get some sun on their skin.

Robb: Just reminding folks if you haven't watched the or listened to the episode that we did with Dr. Kevin Gilmartin, Coping with COVID-19, Dr. Gilmartin is a resiliency expert. He's written several books within the law enforcement scene, Emotional Survival for Law Enforcement I believe being one of his most famous pieces. Check that one out. That is episode three of Salty Talk, I believe just came out a couple of weeks ago.

Robb: When we look at what Dr. Gilmartin was recommending it's actually very similar to what Satchin Panda recommended in his conversation piece, and when we take all that and then overlay the news piece written by Mike Levine, calls to US helpline jump almost 900% as the White House is warned of a mental health crisis. We individually need to do the best job we can to take care of ourselves. We need to do the best job we can to take care of those around us. When and where the social distancing stuff starts getting relaxed we need to not freak out about it. Like we need to not be idiots, but there are some people that have kind of become pocket tyrants in this time, and continuing to sow the seeds of fear and hysteria, it's a really powerful tool for manipulating people and I get why politicians and the media and even some individuals like to use that tactic, but we need to really be wary of that and divvy it out on a very as-needed basis, which I don't think the need is going to be particularly high.

Robb: The Digestive Health Institute actually had some pretty interesting stuff talking about some of the things on the horizon within the COVID-19 epidemic, pandemic. The FDA has apparently approved the drug ivermectin, which is, god, don't go out and do this but it's the anti-parasitic that is found in HEARTGARD and some of these pet products. Do not take the fucking pet grade stuff. Don't do it. Don't self-medicate. This stuff is being

researched and integrated into the treatment process, but it's interesting. It seems to have some pretty significant potential within this treatment story.

Robb: Convalescent serum based therapies where folks who recover from the COVID-19 disease process can provide antibodies that can protect frontline workers or even help people that are very, very sick. Kind of bring them back from the brink. I'm going to talk about kind of an extension of that here in just a minute.

Robb: Vaccine development. I'm going to take a quick pause here to swig some coffee. Vaccine development is being spun around and people are... The more informed people are saying it's at least 12 to 18 months away. Is that right to say? The better informed people. The more reasonable people that are maybe not super well informed are saying that. The really, really well informed and reasonable people are saying that it's like three or four years if it happens at all.

Robb: These SARS type viruses have not lent themselves well to vaccine development in the past, and so it's entirely unclear if it can be done at all. If it can be done what's the cost-benefit there? And I'm not an anti-vax person, I am a be informed about the relative risks person, and no medical procedure, no decision in life is absent some kind of outcome or risk analysis, and I think that that's completely reasonable to understand. So vaccine development is possible but I wouldn't completely hang your hat on it.

Robb: There are some really interesting things like ACE2 soluble receptor therapeutic preservative. It may modify the way that the spike proteins can interface with the ACE2 receptor. There's a whole host of preexisting drugs that may show some benefits, and these guys actually mentioned some use of say like different nutraceuticals that can be efficacious at this time including just basic nutrition that provides selenium, zinc, iron, et cetera, but there is some indication of vitamin C, IV vitamin C usage might be of benefit in this scenario.

Robb: A guy reached out to me, his name's Jim Olsen. He's a engineer within the medical device industry, implantable medical device, interesting. He wrote a Medium piece, SARS-Cov-2 Inoculation Could Reduce Mortality and Save the Economy, and it's interesting really days into this, like early, early March, maybe around March 8th, March 9th when I shifted from the perspective that this was just basically like the flu or maybe not even as bad as the flu or maybe just a little bit worse than flu, and then realized that there was some potential here for this thing to be much, much worse than the standard flu, and when the topic of convalescent serum got on my radar, and even this early in the story we had a real sense that younger people fared better, metabolically healthy people fared better. Why not expose in one way or another young healthy people to the virus to develop the herd immunity and also to be resources for the convalescent serum?

Robb: And inoculation is an interesting process that's been used since the 1700s. It was originally developed around smallpox I believe and was, man, I'm searching for the proper word. The process... Austere, isn't it? But rudimentary. Like it was basically trying to take material or body fluids or what have you that was known to have say like the smallpox pathogen, although this was pre Koch's postulate, pre germ theory of disease, which apparently some prominent people don't really believe in the germ theory of disease anymore, but this was used in revolutionary war time which I'm going to talk about in a minute.

Robb: But this is a way of developing broad or large numbers of folks with immunity. Now as I was noodling on this I ended up kind of keeping my mouth shut because all kinds of

knock-on consequences to this started occurring to me. One of the big challenges, I do think that this inoculation method, like there's a bunch of old technology that could be employed, like the convalescent serum itself is an old methodology that has fallen out of favor with the advent of say antivirals and protease inhibitors and different things like that, but some of these older methods can really work well and are low technology and could be really valuable.

Robb: But the big challenge that I think that we particularly in the United States face with the potential of the inoculation route is that even if we screened people thoroughly. Okay, you're young. Check. Should be good. We can do some sort of a metabolic health screen. Check. But then people would volunteer let's say to do this inoculation with two basic goals. One is increasing the potential for herd immunity, and then two being resources for convalescent serum. Without a doubt some people are going to get significantly sick even though the numbers may be low, the rate of that may be quite low, and some people are almost certainly going to die, and so because of our culture that is fixated on zero risk these things are unlikely to be used, even though in total we would have likely saved far more lives both from the direct consequence of the COVID-19 disease process, and also these knock-on unintended consequences like suicide, like mental health, like child abuse, like businesses that are destroyed.

Robb: I guess what I'm throwing out there, I'm wanting to put this inoculation topic on folks' radars so that you can read about it and kind of check it out because we will have another pandemic, and we got lucky with this one. By all accounts the SARS-CoV-2 virus is worse than the general flu from a case fatality rate, but there are things out there that are well understood to have fatality rates of 30 to 60%, and those things are civilization enders as I talked about in the last podcast, so this thing's kind of a dress rehearsal.

Robb: We have a real opportunity here to figure out what we didn't do right and learn from the past and also develop new technologies, but this inoculation story again is something that I think could be really valuable and it's been used with some incredibly nasty diseases like smallpox, and there's a piece from the Science Reference Service at the Library of Congress, George Washington and the First Mass Military Inoculation. On the 6th of January 1777 George Washington wrote to Dr. William Shippen Jr. ordering him to inoculate all of the forces that came through Philadelphia. He explained that, quote, "Necessity not only authorizes but seems to require the measure, for should the disorder infect the army," he's talking about smallpox, "we should have more to dread from it than the sword of the enemy."

Robb: The urgency was real, troops were scarce and encampments had turned into nomadic hospitals of festering disease. In the Revolutionary War, 90% of the people that died it was from infection of various types, not bullets and bayonets, and up until pretty recent times this was more the norm than not. Disease, infectious disease was kind of the main thing that took people out. We had a bit of a respite from that with regards to antibiotics and also vaccinations changed that for 50 years, let's say 100 years, but we're circling around to a spot where our antibiotics maybe are not working so well and we're not really doing the things that would sure that problem up.

Robb: We keep looking and looking and looking for new antibiotics and really have had terrible results in that regard, and then this vaccine story is again something that's really interesting. The anti-vaccination scene I think has some valid concerns here and there. We can't talk. Again we're in a situation where we're just not allowed to talk about relative risks and that there are pluses and minuses to any given activity, any given process, particularly where medical interventions are concerned. But I wanted to put these inoculation topics on y'all's radars. I have links to all this stuff in the show notes.

We need to get through this, clearly, and do it the best way we can, but I also feel strongly that we need to be developing our game plan for the next go around now.

Robb: There was a great podcast with Peter Attia where he was talking to one of the docs that is really high up the food chain in war-gaming these pandemic scenarios, and they made the point again that we will have another pandemic. We've had others, they just haven't been as severe, and like the SARS-1 is much more deadly but it's much less infectious, and that combination interestingly makes it easier to shut down, makes it easier to contain. But if we have a scenario where we have like an avian flu that has a 30% fatality rate and the infectiousness of SARS-CoV-2 we're going to be in a pickle, and we need a real game plan, and people need...

Robb: Again this is maybe an extension of kind of the basic science literacy craziness that I was talking about last time. This is something that everybody needs just a varnishing of competence and understanding, and is some of the options that we have in dealing with viral pandemics in particular we need to rely heavily on our local public health entities to really fight these diseases at the local level. That is ultimately where it happens. We need way better coordination at the federal and state level. There's just been almost no leadership, no guidance in this thing and I don't want to make it political one way or the other, but it's kind of appallingly terrible, the integration between the federal level and the more local level.

Robb: We need to get all the dents and wrinkles and creases out of that and make that a smooth seamless process, and we as citizens, global citizens, local citizens, whatever citizens you want to be, we need to be informed enough to be able to understand some things like the benefits potentially of inoculation and basic metabolic health in the context of these pandemic scenarios, and also just in basic health and longevity, and part of the reason why say like the New York hospital system was so negatively impacted is because it runs at the margin all the time. It's already pretty much maxed out, and this is somewhat the story with some of the hospitals in Italy. These are systems that are kind of teetering on the edge on the best of days, and then it doesn't take a whole lot to push these things over the top.

Robb: So anyway, check out the show notes, keep sending in the questions. I will do a revisiting of the 5G topic and I'm going to dig more into it on kind of what are the proposed mechanisms of where this thing is supposed to be damaging and let's really assess that for truth and we'll go from there. Hope y'all are well. Take care.

Nicki: Well that wasn't as salty as the-

Robb: I was-

Nicki: ... 5G episode, which was probably good...

Robb: You were admonishing me the other day to be more Mike Rowe-esque, and-

Nicki: Yeah. It's sort of a code word around here, Mike Rowe.

Robb: Yeah, yeah. And that's not small. It's like the dude Michael Rowe from Dirty Jobs, and he just has an amazing ability. People will sling slings and arrows at the guy-

Nicki: He just has a really-

Robb: ... and he deflects them-

Nicki: ... tempered way of-

Robb: ... and makes the person look like an idiot-

Nicki: Yes. Yeah, so-

Robb: ... in the process of it, and it's very good verbal jiu-jitsu that he does, and I don't know that I had particularly good verbal jiu-jitsu in this one, but trying not to totally lose my mind each and every time. But that 5G one, man I...

Nicki: That was a spicy one.

Robb: That was a spicy one, yeah.

Nicki: Well thanks again everyone for listening to this episode of Salty Talk. Remember to check out our show's sponsor Perfect Keto and go to perfectketo.com/salty40 and use code SALTY40, that's SALTY four zero for buy one get one 40% off on all Perfect Keto products. And finally please join us over at the Healthy Rebellion community and go to join.thehealthyrebellion.com, and remember if you sign up before April 20th you can jump into our next 30 Day Rebel Reset and optional seven day carb test.

Robb: We'd love to have you there. Take care, folks.

Nicki: Thanks, everyone.

Robb: Bye.

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