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Robb: Well, howdy, wife. How are you?

Nicki: I'm great, how are you? Can you please... you're driving the mouse today and it's-

Robb: Driving you crazy?

Nicki: Click over there, yes. We need to see our-

Robb: Driving you Miss Daisy?

Nicki: I know, it's you.

Robb: Driving you Miss Crazy?

Nicki: Something like that.

Robb: Ta-tiinnggg.

Nicki: Something like that. I'm actually... So our heater is not quite working properly. So I'm actually cold in Texas for one of the first times.

Robb: First. Didn't know it was possible.

Nicki: Yep, yep. So I got my UGG boots on and long sleeves with a extra sweatshirt on top.

Robb: We have what appears to be a nice house but the heating and air conditioning guy was like, "I don't know how they put this thing together. This output thing is so long and it creates this backflow and blah." I didn't really understand it all, but I looked at him, I'm like, "Well, it's Texas. People probably use this thing three times a year." He's like, "That's a good point."

Nicki: Yep, so we're waiting on-

Robb: So it is a wee-bit chilly in here.

Nicki: ... on parts, but I've got my warm hot water with LMNT's Lemon Habanero in, which I-

Robb: Is pretty darn good.

Nicki: It really reminds me of this place we used to go in Reno that would make this lemon... it was hot water with lemon juice, cayenne pepper, honey and grated ginger. It was so good, it was this breakfast place that I think is out of business now but that drink was amazing. This reminds me of that, minus the ginger. So it's-

Robb: It ain't bad, it ain't bad.

Nicki: It's some good stuff.

Robb: Once you've hit your coffee allotment if you have such boundaries in your life, then it's a nice alternative.

Nicki: Yeah, let's see, we had our Healthy Rebellion holiday party last night.

Robb: It was pretty darn fun.

Nicki: It was super fun, yeah. We had it scheduled for an hour and I think we all, we stayed on for-

Robb: Another hour, just John.

Nicki: ... another hour after that just chatting and it was a lot of fun.

Robb: Really cool to do that and pretty clear that all of us are hungry for some type of human contact and interaction and ability to vent and all of the above, so that was cool.

Nicki: Right, all right. I guess we should dig into the meat and potatoes of this episode. What did you do in this one here?

Robb: So there was a paper that came up recently looking at the Turkana people and the Turkana are a pastoralist group that is in transition from traditional life way to more westernized living. So it's one of these really interesting and final remaining natural experiments where you can look at a group of people that are largely genetically similar. I mean, it's all the same family units and whatnot. Some of them have, within one generation, left the traditional life way and started living in cities and eating modern, more processed foods and exercising less, air pollution, all this type of stuff.

Nicki: Less circadian entrainment 'cause they're indoors more-

Robb: Less circadian entrainment, yeah. Juxtaposed with a group that is still living the traditional life way, which the Turkana are interesting in that their traditional life way was about 80% of the calories came from animal products, protein and fat from a variety of herded, managed animals. Not surprisingly, the traditional folks are shockingly, stunningly healthier than the more city-dwelling people who are eating a higher carbohydrate. And people will say, well it's refined carbs but it's just so interesting that if the vegan narrative is accurate, that protein and fat of animal origin is this death sentence, that it is the causal feature of obesity, type two diabetes, what have you, that is the main hypothesis and you really only need one exception from that rule to shoot that thing down.

Robb: I remember in some of the films like Game Changers and What The Hell, from What Not, a number of the vegan docs really went out of their way to exonerate sugar as a

problematic feature. They were like, "Well sure, you shouldn't eat so much sugar but compared to saturated fat or animal products, it's really not that big of a deal." Still in the inter webs, there's epic pissing matches that go back and forth over that. This thing is observational, it's retrospective, but when we are never going to be able to do population wide studies where we force one group of people to eat X, and then another group of people to eat Y. Let them live their whole lives and then extrapolate something from that. These natural experiments are really powerful and it doesn't answer all of the questions around nutrition, nutritional science, and what's the best way to eat, but it certainly raises some interesting questions.

Nicki: All right, let's jump in. Then for members of the Healthy Rebellion, this is up as a video so you can watch the video of this.

Robb: Cool.

Robb: Hey, Rebels, hope you all are doing well. Something a little different than we've been doing for the past bit here. Almost hearkening back to the early days of the paleo scene. I think a good number of you folks, I'm getting the sense, the folks that are still listening to this podcast, still part of the Healthy Rebellion and whatnot, you've probably been on this ride for quite some time. So you might remember early in this scene, we talked a lot about the discordance theory of disease, basically this notion that for any given organism, there's kind of a adaptation, optimization that occurs for the organism with the environment and this is an ever moving target. When you adapt to one thing it favorably than it may set you up for unfavorable adaptations elsewhere. Just thinking about the difference between a fast twitch versus slow twitch individual, is a pretty good illustration of that. That's maybe why most people have a mix of fast and slow twitch fibers and we actually see only a fairly small number of people out at the bell curve extremes that are very, very fast twitch or slow twitch dominant.

Robb: We're not really talking about exercise today, we're talking more about food, and the discordance that may occur not just with food but also our other lifestyle features. Clearly exercise plays into that but the title of this is Discordance Theory, if it's all bunk, why are we so sick today?

Robb: A frustrating thing for me is that this paleo diet concept, there was a time when I really thought that at least the evolutionary medicine part of this would just take over. That it would supplant the dominant paradigm in a way that offered to geology what plate tectonics brought to the table. A really comprehensive explanation about how continents move and how formations like subduction zones and mountains occurred and whatnot. These really just keystone underpinning theories that without them, a complex system just doesn't make a whole lot of sense. In biology, this notion of evolution via natural selection is just central to that whole story. Again, I really felt like it was so powerful, it was so insightful, that it would finally take its rightful place within medicine and biology, and then it just fizzled out.

Robb: Some of that may be because the whole caveman concept was off putting to people. There were certainly some elements of this story that were either inaccurate or not sophisticated enough to carry the full story, like this idea that our genetics are exactly the same as what our hunter gatherer ancestors were, say 100,000 years ago. It's not true, there have been adaptations, things like the lactase persistence gene, modifications for dealing with malaria, sickle cell anemia in that case, but there's still this general idea that although some adaptations have occurred, although we're at a brass tax level not exactly identical to our hunter gatherer fore bearers. We may be a lot more close to that than we are ready for the modern world.

Robb: I think that that's more the point here, but the amount of pushback and I think some people, it might be worth linking to this somewhere down the road, but there was a piece from a researcher in the anthropology scene who it was debunking the paleo diet, Christiana Northrup, I want to say is her name. Could be wrong on the last name but I did a breakdown on that. That was an interesting piece where she went through and initially made this case that humans did not actually hunt and eat as much meat as what the paleo diet claims. She went through some pretty dubious stuff, honestly, within the anthropology circles. She didn't talk about staple isotopic findings, it was a very circuitous, interestingly a soft science approach to this.

Robb: Then she shifted to this idea that was making fun of the modern paleo diet concept because hey, look at all these fruits and vegetables that are being recommended that folks eat, they didn't even exist then. You look at what a banana was before it was modified via selective breeding. It was just nothing like what the modern fruits and vegetables are today.

Robb: I did a piece unpacking this whole thing and what was fascinating to me is that she went through and made this case around, we didn't eat that much meat. Then oh, by the way, the fruits and vegetables that were available are nothing like what they are today. So I was like, okay, what the hell are you left with to eat? That was the point that I made because when you dig into the anthropological research and you look at say, how large people were. They tended to be pretty tall, pretty robustly built, and then you can do some estimations of what their physical activity looked like, extrapolated from that. When you put all that together, an average male was burning somewhere around 3,500 to 4,500 calories a day to support their physical activity and just muscle status and all that type of stuff.

Robb: So if you aren't eating a ton of plant material because it wasn't genetically modified yet, then you're not getting calories from that, but then also if we weren't actually that effective at hunting, and then we aren't getting calories from that, then what the hell are you getting calories from? It was just so interesting and really, the long and short of it is that we probably got significantly more calories from animal products than what people are comfortable with talking about. There's all this weird critical theory stuff around man the hunter. Recently just had a really fascinating contribution to this whole story where it looks like at least in Mesoamerica that women played a much larger role in the hunting side of the story than what we original appreciated. I don't know if that reality will end up modifying this antipathy or antagonism towards a higher animal inclusive diet, but the long and short for my point is that I see this remarkable hand wringing within mainstream medicine and anthropology and they just want to dismiss this stuff. They don't seem to offer a damn thing of substance in its place. It literally again is almost like this critical theory stuff has come in and set up shop where we're talking about all these social features, which all actually end up nesting under optimum foraging strategy and game theory and stuff that's been well accounted for, but that these folks use to discount this whole story.

Robb: I'm getting off on the weeds here, I want to stay on track with this thing, but one of the challenges of this discordance theory story is, how do you test it? Really, how do you test it? So much of the criticism is like, show me your randomized control trial or go pound sand. Clearly, it's difficult to do that, although we have had a good number of randomized control trials with "paleo diet interventions," which I'll be the first to admit, that's a very slippery thing to pin down. What is that? What's the protein? What's the carbs? What's the fat? Okay, it excludes grains, legumes and dairy but what else does it include? So it's a very imprecise thing to look at and that's probably why the ketogenic diet has just exploded for a variety of reasons. One, it appears to be a really legitimately

efficacious metabolic state, but it's also very, very easy to determine, are you in ketosis or not? So long as we all agree that say, point 0.5 millimolar level is the minimum buy-in for ketosis, but we do have examples.

Robb: Natural experiments where people have transitioned from traditional life ways into more urbanized living, and we can see the delta, see the difference between these people. In some instances there were some, I guess, experiments, some studies done where folks in Australia who had been raised as Aboriginal folks living in the bush. They developed the skillset to live there, and then subsequently ended up moving into urban areas and developed significant metabolic problems, standard diseases of western civilization. Then these folks were asked as a part of a study, to go back and live in these more traditional ways because they still had those skillsets and they knew how to do that. Not surprisingly, their health improved dramatically. I'm perplexed by how this stuff gets dismissed so out of hand and isn't a bit more respected, baked in the cake, but again, there's some really interesting things.

Robb: Not the least of which is, when you read some of the rebuttals around pieces like what I'm going to share with you today around the discordance theory writ large. One of the key things it has brought up is issues of sustainability and climate change. Now, that may in fact be a feature that we need to consider in implementation but that should in no way be a feature of discussion whether or not this is an optimum human diet. Where you're moving in that direction then is being afraid of asking questions because of the implications of what the answer is. I've had people say this, "What if people in developing countries learn that meat is good for them? What will happen to the world?" I don't entirely know what will happen to the world. Maybe we will figure out ways that we actually lift people up out of poverty, can feed them in a way that is better for both them and their children, and we can do it in a way that doesn't destroy the environment and the planet. I think that we should be very self interested in that because this is the only place that we have to live. Maybe Elon Musk will make it to Mars but I doubt if the rest of us will, and that's going to be a very rough place to live no matter what resources are dumped into that.

Robb: So I'm really, again, on just so many levels, perplexed by so much of this stuff but we do have a cool example of this discordance process that has been studied more recently. So this is from a science news outlet and the title is, Obesity and Disease Tied to a Dramatic Dietary Change. I will provide the original research that this is based on, but the summary from this news piece, the mismatch hypothesis also goes by the discordance hypothesis, argues that our bodies evolve to digest the foods that our ancestors ate, and that human bodies will struggle and largely fail to metabolize a radically new set of foods.

Robb: I would push back against that, a more nuanced piece, this is my thoughts on this, and then I'll let you know when I'm back in the intro on this. Evolutionarily novel foods are not inherently going to be problematic. They may be beneficial, they may be harmful, or they may be neutral. Again, this is one of these pieces of nuance that needs to be carried forward, just because something is evolutionarily novel doesn't mean that it's going to be problematic but I would make the case that if we see problems, particularly health related problems, and we can track that with significant diet and lifestyle changes, then maybe that's a good place to look for problems.

Robb: Okay, so back to the piece, this intuitive idea's hard to test directly but the Turkana, a pastoralist population in remote Kenya presents a natural experiment. Genetically homogenous populations whose diets stretch across a lifestyle gradient from relatively matched to extremely mismatched with their recent evolutionary history. What they're

talking about here is that within the Turkana, you have groups of folks that are essentially genetically homogenous relative to any given population that you'd like to use as a comparison. Some of those folks still live very much the traditional pastoralist life way and some of those folks have entered into a more urbanized setting, and there are dramatic differences in their health.

Robb: The Turkana, a subsistence level pastoralist population from a remote desert in northwest Kenya, in the 1980s an extreme drought coupled with the discovery of oil nearby, lead to rapid transformation of the region. Large segments of the population abandoned their nomadic lifestyle, some to live in villages, others in cities. Traditional Turkana still rely on livestock, dromedary camels, zebu cattle, fat-tailed sheep, goats and donkeys, for subsistence. While Turkana living in cities have switched to diets that are much higher in carbohydrates and processed foods. This is a trend that is widely observed across the world, a result of increasing globalization, even in remote communities.

Robb: Now this is a spot where say the plant-based people or the folks that decry higher protein, higher fat diets will say that we have examples of healthy, long lived individual or groups that have higher carbohydrate diets. We do, the Kitavans are a great example of this. There is some suggestion that there may be some local adaptation to these more starch based diets, that's possible. It's also possible that just not really ever entering into a highly processed diet arena may work well for people in general. There is the consideration that folks with multiple amylase gene alleles can process carbohydrate more effectively, and that seems to be a very credible thing, so that again is one of these important possibly more localized adaptations to a more starch based diet, but anyway. We do have example of folks succeeding on both higher carb and lower carb diets but when we get into that scenario of a highly processed food diet, things tend to get bad.

Robb: Now a quick word from today's sponsor.

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Nicki: Now, back to today's episode.

Robb: So more from the paper from the researchers, we realize that we had an opportunity to study the effect of transitioning away from a traditional life way, relying on almost an 80% animal product diet. A diet extremely rich in protein and fat with very little to no carbohydrate, which as an aside is interesting, to a mostly carbohydrate diet, said Julien Ayroles, an Assistant Professor of Ecology and Evolutionary Biology. This presented an

unprecedented opportunity. Genetically homogenous populations whose diets stretch across a lifestyle gradient from relatively matched to extremely mismatched with their evolutionary history.

Robb: The project grew from there, taking shape as a study of health profiles across 10 biomarkers of Turkana living in cities, villages, and rural areas. The researchers found that all 10 were excellent among the Turkana still living in their traditional pastoralist lifestyle, and among the Turkana who were living in rural villages, making and selling charcoal or woven baskets or raising livestock for trade. The Turkana who had moved to cities exhibited poor cardio metabolic health, with much higher levels of obesity, diabetes, cardiovascular illness, and high blood pressure. The health metrics also showed that the longer Turkana had spent living in the city, the less healthy they tended to be, with lifelong city dwellers experiencing the greatest risk of cardiovascular disease.

Robb: So this is another one of these things, just as an aside, that within all the blue zone clap trap and vegan mythical stories, it's not to say that a vegan diet can't be helpful for some people, although I think if you just included shellfish or something, you would plug most of the dietary gaps that you see there, but the claim as always is that we see some sort of a linear correlation between cardiovascular disease, cancer, diabetes, in animal product consumption. You only need one, if that is the hypothesis, which is largely what the vegans claim, you only need one example deviating from that hypothesis to disprove it. This is it, there are multiple other examples of this. The Inuits being... go to additional example, but yeah. Let's motor forward here.

Robb: Turkana who had moved to cities exhibited poor metabolic health, much higher levels of obesity, diabetes, cardiovascularness and high blood pressure. The health metrics also showed that the long the Turkana had spent living in the city, the less healthy they tended to be. Oh, I already said that, sorry, sorry, doubled up on that.

Robb: From the researchers, we are finding more or less what we expected, transitioning to this carbohydrate based diet makes people sick. Now, it didn't mention specifically what types of carbohydrates people are eating but it did mention that you see much greater prevalence of just processed food. Processed foods usually means sugar and carbohydrates and oils. For the love of god, don't lose your mind over the poly and saturated fats. I know Dr. Saladino is really championing that, but I will get to that stuff eventually, I think so long as we're not in an overfed state and we're not eating tons of other refined foods. If you're eating some nuts or you have some olive oil or god forbid something like some... I think some like high oleic safflower oil or something, I don't think it's going to kill you but anyway, back to the paper.

Robb: There's a cumulative effect, the more you experience the urban environment, the evolutionary mismatched environment, the worse it's going to be for your health. Shouldn't really be that surprising because you get less sunlight, even from the hygiene hypothesis, we have less microbiome exposure. Then clearly, we have a pretty remarkable departure, I guess, from the traditional dietary practice.

Robb: Now this is an ironic piece, this is from this news piece too, but here's a bit of interesting irony and also a really emphatic statement made without an ounce of data to support it. So here it goes. Ayroles cautions that the research should not be interpreted as favoring a protein-based diet. "One of the most remarkable things about the Turkana is that if you and I went on the Turkana Diet, we would get sick really quickly," he said. There's actually an exclamation point in that. So I guess he was very excited about it, emphasizing that point. The key to metabolic health may be to align or diet and activity

levels with that of our ancestors, but we still need to determine which components matter most.

Robb: This is so incredibly odd to me and it's yet again one of these things that I've seen pop up out of the anthropology community, where they're literally sitting on a pot of gold and then they seem to dump the pot of gold out and use it for a chamber pot. I'm not even sure what more to say about that. Clearly Ayroles, I'm mispronouncing this person's name terribly, I'm very sorry, but clearly this individual has not looked at all at low carb diet interventions, ketogenic diet interventions. Again, it's not to say that those are appropriate for every person under every circumstance, but how can you just emphatically say that adopting the Turkana based diet of 80% of the calories coming from protein and fat from animal sources with little to no carbohydrate, which is what the original research indicates to start off with.

Robb: How can you just emphatically say that that's a bad thing for everybody everywhere? Again, you can't also emphatically say that it's the best thing for everybody everywhere but it's just ironic that you had this example of clearly superior metabolic health and you could perhaps put in a bit of caution. We don't know for sure how any given individual will respond to this. I think that that's reasonable in what we would do with any type of the dietary intervention. But to absolutely dismiss this out of hand is ironic.

Robb: Again, one of the just major missed opportunities that anthropology had in this greater health story. Anthropologists really should've owned dietetics and nutrition because they had this deep insight potentially that could inform things, at least at an epistemological level. We still need randomized control trials, we still need to do the research that we're doing. A lot of the recollection based studies we probably don't need to do at this point and probably shouldn't fund a single additional one of those but there's just this amazingly deep pool of information we could be drawing from and these folks don't really seem to understand how powerful that tool is. Again, they seem to wantonly just bypass it and ignore it.

Robb: Where this paper comes from, the main title, and I will have all this stuff in the show notes. Urbanization and Market Integration have Strong Non-linear effects on Cardio Metabolic Health in the Turkana. It's a good thing I helped explain what this paper is actually about because that headline wouldn't tell you a damn thing about what it is, but I think that this stuff again is really important. It is particularly important because the world is changing. These few remaining non-westernized populations for good or ill, are disappearing. They are being displaced in some situation, like they mention some of the oil fields near the Turkana. That can forcibly remove these people from their traditional life ways and that sucks. It's a not good thing and it's a potentially not good thing. I am in fact not at Turkana, and I don't know whether or not that is a... these folks should probably be given opportunities to continue or not, their traditional life ways. That is perhaps a less ego, ethnocentric way to look at this stuff.

Robb: A lot of these folks live in what most people would consider to be pretty rough conditions. Not infrequently, these folks in different developing regions are excited about things like hot and cold running water and air conditioning and advanced medical interventions and whatnot. I don't think that they oftentimes realize how much they're giving up by abandoning their traditional life way. I think in other podcasts, I've mentioned that we have a tendency to dismiss the process that when people transition from either poverty or these traditional life ways in developing countries, that there's oftentimes enormous status attached with the ability to consume processed food. That is a sign of affluence, the ability for someone to feed their family largely processed foods is a status symbol in some regards. It's an unfortunate status symbol when you start

looking at the cardio metabolic health consequences, but it's another one of these really complex elements of unpacking all this stuff.

Robb: So again, I don't want to drive this thing too far out in the weeds on all that. It's complex stuff but I think it's also really important and I hope that more attention is brought to these topics and it's given more air play because once these folks transition, I guess to the degree that we document these processes, we will have that information. We will have these stories, but unless the world absolutely collapses and the population plummets, and we literally start over from a global population of one million people and we're hunter gatherers and we rebuild everything on a completely separate way, we will never see this process occur again.

Robb: So many of the problems that we face today with regards to health, they are an evolutionary mismatch story. What I see happening as far as discussion and implementation in particular, is an absolute joke. There is nothing to it and again, I know I'm probably making people annoyed and I just need to be quiet, but it just feels like this critical theories infiltration into this stuff, where you make it super soft science, very unquantifiable. We have these things like game theory and optimal foraging strategy and different things that can be pretty robustly tested and studied and analyzed. These things do have some pretty deep insight into what we could or should be doing to help modify our diet and lifestyle in ways that are more favorable.

Robb: So anyway, hope you all enjoyed that. Hope to see you in the rebellion, take care.

Robb: So that's what we had. That's the way it is, or whatever Walter Cronkite said. This is the way.

Nicki: This is the way, or we can say this is the way-

Robb: This is the way.

Nicki: ... like in the Mandalorian.

Robb: Yeah, yeah. It's interesting, this goes back to early, early paleo solution time, more ancestral oriented roots. We talked about a lot of this type of stuff early in this whole process. It's interesting that these again, within say the evidence based nutrition crowd, even within a lot of the anthropology circles, they're remarkably prickly about looking at any of this stuff because not surprisingly, it goes against the current narratives. It raises some questions that I think are uncomfortable.

Robb: I've seen a good number of people make a statement to the following. Well, that's all well and good that meat may be good for people but what if the developing world discovers that this is important? How are we going to feed all these people and whatnot? I don't know the exact answer to that, but this is one of the points of science is that we shouldn't social engineer the scientific outcome to fit some preconceived notion of what is right or wrong. If we end up in a situation in which we really understand that feeding our children, feeding ourselves really does hinge on some degree of animal product input, then we need to figure out how we approach that and how we make policy and resource allocation, but if we just lie and we suppress information like this, then we will ultimately end up in much worse situation than what we're facing right now.

Robb: We're in the process of reading this document from the Congressional Budget Office that is either hair raising or hair falling out, depending on what, the degree of stress it raises,

but it paints this picture of... and this is really specific to the United States, but things like Medicare are on course to completely bankrupt the United States and even hyper inflationary processes appear to be incapable of undoing this, which I know this gets out into some geeky economic stuff, but the majority of that process. People talk about, oh, we need to socialize medicine or we need to do this, we need to do that. It's a reality that if people are really sick then their costs grow exponentially. We've seen aging populations like in Japan and other areas that are developed but before the pulse of western processed foods really made it to them. An aged population need not be an exponentially-

Nicki: Costly.

Robb: ... costly population. It doesn't have to be that. Yes, there are increasing costs but it's a linear function if people are not super, super sick, it is an exponential function or something similar that when people are quite sick. In this COVID, who know when all this stuff is going to wrap up. We have stuff that's suggesting that it's never going to really wrap up, that things were always going to differ.

Robb: Possibly, one of the only commonalities that we've had out of any of this good metabolic health is a huge hedge against the truly negative outcomes of severe illness or potentially even death. That's from an infectious disease process. We have this chronic disease process which we all face to some degree because we live in this modern environment. These natural experiments like we see with the Turkana are potentially really valuable for helping to orient what we need to do or what we should do to better live and to mitigate the cost and to improve the quality of life for everybody.

Nicki: Awesome, thanks everyone for joining us. Remember to check out our show's sponsor, Ned, and give their full spectrum hemp oil or their new sleep blend a try. Go to helloned.com/salty15, or enter code salty 15 at checkout for 15% off your first one time order, or 20% off your first subscription order, plus free shipping. That's H-E-L-L-O-N-E-D.com/salty15.

Nicki: Thanks everyone, we'll see you next time.

Robb: Bye, everybody.

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