Robb: Folks, welcome back to another edition of The Healthy Rebellion Radio. Wife, how are you doing?

Nicki: I'm doing just fine. Thanks for asking.

Robb: That's kind of evasive.

Nicki: Not meaning to be evasive. Just answering the question.

Robb: Very evasively.

Nicki: No, I'm good. My lower back is a little stiff if I'm being entirely honest. I think a little too much seating, but planning on doing some mobility work here after we record this.

Robb: Cool.

Nicki: And taking the dog on a nice long walk. I guess it's raining. I was going to say it's misty here. Again, we're learning the weather of Central Texas because it's very different than anywhere else we've lived. Sometimes it just mists, it's just moist, like moist misting-

Robb: Mischief?

Nicki: ... but right now it looks like it's actually sprinkling. We'll just have a nice little wet walk with the hound and come back and smell like wet dog.

Robb: Because Dutch loves being out in the rain.

Nicki: Walking in the rain. He will not go out and relieve himself if it's raining unless I walk him out on a leash.

Robb: So you drag the dog into the rain is what you're saying?

Nicki: Yeah. I'm sure a lot of other dog owners can relate. I think some dogs are like that.

Robb: But people didn't come here to listen to us talk about dogs.

Nicki: No, they didn't.

Robb: I don't know that they came here to listen to us talk about anything.

Nicki: Yeah. Let's see. Quick reminder, as we mentioned in the last episode, we are starting our CARs; reset our four weeks of controlled articular rotations and some focused hip capsule and shoulder capsule work on a functional range conditioning and kinstretch, led by our friend Sarah Strange. That's going to begin inside The Healthy Rebellion community on March 16th. If that sounds like something you'd like to participate in, this and other upcoming resets, just join us in The Healthy Rebellion community, and you can do that at join.thehealthyrebellion.com

Robb: Nicki, it's not going crazy saying that FRC, kinstretch, CARs, all that stuff was maybe on par with Ziva meditation as far as a legit-

Nicki: It's really amazing stuff.

Robb: ... life improve-

Nicki: It's really amazing stuff.

Robb: I wanted to say game changer but that term is-

Nicki: No, you cannot use that, scarred.

Robb: ... befouled.

Nicki: Yeah.

Robb: Yeah. I mean, it's forced, yeah.

Nicki: No, it's incredibly effective especially if you're doing it with someone who has gone through the training such as Sarah has. It's really good stuff. I can't recommend it enough. We actually had somebody who was inside the Rebellion who was suffering from some shoulder issues. She went to somebody who said that she would need surgery because she had impingement. She began doing some remote work with Sarah and after just a few weeks, she doesn't need surgery. She has full range of movement again in her shoulder. That's not the case for every situation, obviously, sometimes surgery is necessary, but for a lot of them, it's just not really understanding how all of that stuff works and needs to work.

Robb: Cool.

Nicki: Yep. Let's see, Babe. Babe. What do you got for us for our news topic today?

Robb: Oh, today, "Obesity: more than an inflammatory, an infectious disease." We have links to this in the show notes, but really interesting. Again, this is one of those things where I remember because I've been doing this for 20 years. There was a time when you suggested things like the gut might be important for health, intestinal permeability maybe a factor in a host of diseases.

Nicki: There might be something called leaky gut, which people don't think existed.

Robb: There might be this thing called leaky gut. Well, it was, "It doesn't exist. This is quackery," and it was fully the same folks that are in this evidence-based medicine scene. We pissed down that back in the while.

Nicki: You can't say those three words without me laughing at this point.

Robb: There's actually a paper, maybe I'll cover it next time, that is taking the evidence-based folks to task. It's emerging from people in the evidence-based scene. It's basically become almost a religious technique to deflect anything that people just don't want to consider like, "Whatever." Well, I will cover it in the next show. But this piece is pretty cool, it really makes the case. We know that the gut microbiota is incredibly important for a host of health and illness considerations. It is intriguing to me that it paints the picture that increasing protein is... Basically, they're implicating animal products as being the problematic feature here. Maybe it's my bias showing through, but I'm just having problems with that. When Westernized diets don't include more animal products, it includes more refined carbohydrate plus seed oils and all the rest of that, but it does, at a minimum, make the case that there is an incredibly complex interface between our gut microbiota and our overall health. Really, the case that it's making is that we should be looking at the gut problems as an infectious type disease, and clearly with knock-on consequences that deal with inflammation.

Robb: They talk about an obesogenic gut profile and how that typifies the Western gut and whatnot. But then it also makes the point that so many of the interventions that have been tried, specifically with tinkering with either probiotics, prebiotics, specific ratios of these things or formulations haven't really done that much with regards to resolving the obesity problem. I think that this becomes this chicken and egg deal where the gut microbiota changes for a wide variety of reasons, not the least of which is our dietary inputs, and if we're still eating shitty food, it doesn't really matter what bacteria-

Nicki: It's a component, but if you're still eating, like you're saying, all the same processed crap, just taking probiotics isn't going to spontaneously create some weight loss.

Robb: Yeah. Right. Again, it's interesting because keto, and paleo, and carnivore; we see a lot of folks improve gut health significantly, at least on a symptomatic level, and we're slowly getting some information that these higher protein intake diets actually are not shifting things in a negative direction the way that it's oftentimes portrayed here. So, a lot to unpack in this. Great paper. We will have that for you in the show notes.

Nicki: Okay. Let's see. Our iTunes T-shirt review winner goes to Andrew Campbell, "Awesome podcast. This podcast is so legit. Robb and Nicki's banter is awesome. I follow a keto lifestyle and I've learned so much from your books and podcast. Keep dropping the knowledge bombs."

Robb: He does call you Vicky.

Nicki: He does. Which reminds me of, I was going to gloss over it, but now that you've-

Robb: So I Married an Axe Murderer.

Nicki: So I Married an Axe Murderer. The guard for Alcatraz is talking about a prisoner, right?

Robb: Yes.

Nicki: It's like, "I'm Vicky." No, no, the guard, "You can call me Vicky."

Robb: "You can call me Vicky."

Nicki: "You can call me Vicky."

Robb: Yes.

Nicki: Yeah, and then he pissed-

Robb: Into the bitch's ocular cavities.

Nicki: ... into the bitch's ocular cavities.

Robb: Yes.

Nicki: "This way to the cafeteria." Okay. If you haven't watched that movie, it's really, really great. Mike Myers. Who is the guy? He died.

Robb: Mike Myers and then, not John Goodman, no.

Nicki: No.

Robb: From Saturday Night Live. I can't believe I'm blanking on his name.

Nicki: He passed away, right?

Robb: Yes.

Nicki: Okay, we'll find his name and post it.

Robb: Now that you've made this depressing.

Nicki: Yeah.

Robb: Yeah.

Nicki: Okay. We'll find his name and we will put that in the show notes with a link to the movie in case anybody wants to watch that.

Robb: We will try to find that clip.

Nicki: Oh, yeah, that would be a good idea. Okay. Really funny. All right, Andrew Campbell, thank you for your review. Send us an email to hello@rebels.com with your T-shirt size and your mailing address and we will send you a Healthy Rebellion Radio T-shirt. This episode of The Healthy Rebellion Radio is sponsored by Joovv. Joovv is the leading manufacturer of personal in-home red light therapy devices that help reduce pain, fight

inflammation so you can live a happier, healthier life. Aside from pain reduction and inflammation reduction, other benefits of Red light therapy include, skin rejuvenation, better sleep, increased libido, cellular energy. Gosh, Robb, you just wrote a blog post on red light therapy and kind of ideal timing when it comes to-

Robb: Yeah. There's different levers that we can pull with regards to food intake; we can modify the type of food we eat, the amount of food we eat, and then the timing, like intermittent fasting and whatnot. It got me thinking about photo period, and clearly we understand some things. Like it's pretty well understood that if you get a given UV exposure early in the day, it tends to have fewer deleterious effects than if you get it later in the day. It got me digging a little bit about when might be an optimal time for this red light therapy and make the case that perhaps in the evening. We haven't had a ton of feedback on this yet, because I just threw it out there recently. For people that train in the evening, Jujitsu, CrossFit, that type of stuff, oftentimes it's difficult to go to sleep and there's some mitigating strategies that you can do around that. It's an interesting potentiality that you could use something like red light therapy to help put you in that more normalized sleep process.

Nicki: Awesome. We'll put a link to that blog post in the show notes as well. You can go to joovv.com/robb, that's J-O-O-V-V .com/ R-O-B-B, and get clinical-grade power to help reduce pain, fight inflammation, boost your libido so that you can live your best life. You'll get a free gift with your purchase when you use code Robb, R-O-B-B. All righty, I think we are ready for our questions for today.

Robb: Cool. I picked short questions that may end up-

Nicki: Short and snappy?

Robb: -necessitating long answers.

Nicki: Oh, okay.

Robb: Yeah. We'll see how it goes.

Nicki: Here we go. Okay, this first one is from Christopher on longevity, "Do you think that as we deepen our understanding of the biochemistry of nutrition that we will reach a point where we can indefinitely prolong life?"

Robb: That's a great question. Lots of people talk about this; Ray Kurzweil, all kinds of folks speculate on this, that we will be able to ultimately upload our consciousness into computers, which I don't think is possible. You might upload a analog copy of what your consciousness is, but the firings and wirings of your neurons are yours, and I think that that's going to be hard to replicate. I think that there's some pretty good potential that within 50 to 100 years that different gene therapies, stem cell therapies; like if we harvest stem cells when we're young and keep those banked and we can help those to replicate and then reintroduce them into our systems as we age. I think that there's a

ton of potential around that with significantly increasing both the health span and the lifespan.

Robb: That raises all kinds of interesting social questions, and a lot of people get cranky about like, "Well, if everybody lives a long time then the planet is going to get overpopulated." That's linear growth, people living longer really isn't the problem. As most places get wealthier, and women get educated and have a social support, then they tend to have fewer kids. So that kind of takes care of itself as things go along. There's some big problems around if you are a pensioned individual. You worked for 20 years for your pension, but now you're going to live 400 years. Do you need to work 200 years before you get a pension? Those are the things that I think are actually going to be really fascinating to unpack.

Robb: The notion of indefinitely prolonging life, I think it's dodgy because no matter what you do, you're probably going to make a mistake at some point. Like your auto-driving car is going to have a glitch or something like that's going to happen. Then at the very, very long timescales, the sun's going to run out of hydrogen at some point and begin fusing helium and then it will expand to the orbit of the Earth. Hopefully, we've figured out someplace else to go by that point. Indefinite is a difficult thing to really wrap your mind around, but I think that 200, 300, 400-year lifespans could be the norm with our kids, and it's going to raise all kinds of interesting challenges and opportunities. You have any strong feelings on that one?

Nicki: I don't. I mean, as long as you feel good, your body is not breaking down-

Robb: Well, that's kind of the theory, that you're not.

Nicki: Yeah.

Robb: Sean Connery was in this Sci-Fi movie. Man, we are forgetting everything right now. We're sleep deprived or something. It was basically this deal; it was a future society. People live in this scenario in which they don't really age unless they get in trouble, and then the thing allows them to age some amount, but it doesn't really allow them to die. That doesn't really sound like a ton of fun. Yeah, I think that all of this stuff would be with the expectation or the assumption that you're not spending the bulk of your 400 years in a wheelchair or something like that.

Nicki: It was Phil Hartman.

Robb: It was Phil Hartman.

Nicki: Phil Hartman-

Robb: That's what it was, yeah.

Nicki: ... in So I Married an Axe Murderer.

Robb: Phil Hartman in So I Married an Axe Murderer.

Nicki: Okay.

Robb: Thank you. That was very germane to me talking about-

Nicki: I know. I had to.

Robb: ... the Sci-Fi from Sean Connery.

Nicki: Okay. All right. Our next question is from Jason, "How salty are you? Robb, I was wondering what your sodium numbers are, daily. Does it change when you train? Now, imagine being 230 pounds. What should my sodium numbers be on BJJ days and non-workout days?

Robb: Jason didn't mention how he's eating, but I'm going to assume that he's doing some sort of low carb keto. If he's not doing low carb keto, then the numbers probably change and could make the case. If you're eating standard American diet and or some sort of a higher carb paleo, then I would make the case that you would probably benefit mainly from doing something like LMNT, like about a gram of sodium in that peri-workout period. Stan Efferding talks about this a ton in his work. If we're on the lower carb side of things, at a minimum, we'd like to see folks get that five grams per day. That just seems to be the minimum buy in to make things work well.

Robb: I was motoring along yesterday and it was a super busy day. I got home from doing some shopping and I was like, "God, I feel like crap," and Nikki said, "Did you have any electrolytes?" I'm like, "No, I didn't." I drank some and I felt better immediately. My intake definitely varies from day to day if I'm pretty sedentary. Honestly, I probably end up screwing up in a more along three to four grams per day. I'm probably on the skinnier side. If I'm doing a lot of Jujitsu, if it's hot, if I'm working in the backyard and it's the Texas summer heat and humidity, I think I probably get close to 8 to 10 grams a day.

Robb: I don't want to say this. There is a need for more electrolyte stuff, more solvent and solutes when you have a bigger person, but it's kind of a non-linear scale there. Jason isn't going to... because he's effectively twice my size, it's not necessarily going to mean that he needs to be twice as much on the sodium intake. I would guesstimate that it's probably a quarter more than what I would need, but again, this is going to depend a lot on how hot is it. Okay, he's doing Brazilian Jujitsu, is he doing Gi or No-Gi? The Gi tends to be hotter and causes more sweating. Do you have air conditioning in the environment?

Nicki: Is it mostly like positional drilling or are you sparring?

Robb: Yeah, so a lot of variables there. I wish that there was a better way to dial this stuff in. The best that I could do is, and this is pretty darn anecdotal, but I'll throw it out there. People have mentioned, like we have a good friend, Fabrice, who does a fair amount of fasting and he mentioned that he will sip a little bit of LMNT before going into a sauna.

He does fasting and sauna. Before he goes into the sauna, he'll have some LMNT and he's like, "Man, that tastes really salty," then he'll be in the sauna, comes out, drink some more, and it doesn't taste salty at all, he only tastes the sweet. So I suspect that if you are diluting the LMNT or something like that to the recommended levels, which are between 16 and 24 ounces, probably closer to the 24 ounces for most people. I think if you're at the proper dilution and it's not hyper concentrated, then your taste of salt may be a good indicator of how much you need.

Robb: So if you have this stuff in a properly dilute form and you're sipping on it and it mainly tastes sweet, you're probably good to go with consuming more and probably will benefit from consuming more. Once you start tasting salt, then you're probably good for a while and you might just do small sips every once in a while to kind of check where you are. If you start noticing that it's tasting sweeter again, then you could continue until it starts tasting salty. That's probably about as good a method as we have right now for dialing that in. Thoughts?

Nicki: My only thought is that if you're making a homebrew, a lot of times it tastes salty no matter what. I mean, that might be an interesting thing for people to play around with if they're using LMNT specifically, but a lot of times people are home brewing or adding sodium to bone broth and whatnot. So depending on how you're doing it, it's going to taste... I don't know.

Robb: Folks have asked, "Can I do blood work?" Not really. Your sodium levels normalize within a couple hours, so you could get a big sodium bolus, sodium content is going to go up, fluid volume is going to go up for a little bit, blood pressure can go up transiently depending on how concentrated it is, but then it's going to normalize pretty quickly. So a blood test isn't really going to tell you much on that like the electrolyte stuff is. You need to establish a baseline like, "What activity level can I get away with without cramping, with no electrolyte supplementation?" Then if it gets hot and it gets humid and then it starts going from there-

Nicki: You start feeling super sluggish.

Robb: ... you feel sluggish, cognitively lethargic.

Nicki: I know. We just need to make some sort of body scanner thing like, "Beep, beep, beep, you need electrolytes." We just need to like-

Robb: Well, I could just rig something together that beeps and says you need electrolytes and it would be as credible as-

Nicki: I mean, there's products like this type of bullshit contraption on the market for other things, so there's no reason why there shouldn't be one.

Robb: That would be just as helpful as selling mycotoxin-free coffee to people.

Nicki: There you go.

Robb: Yeah. That's a great idea. Okay, folks, we are closing down the podcast. We're focusing mainly on our sodium scanner.

Nicki: Our beeper scanner.

Robb: Why don't we just call it the sodium scammer just right out of

Nicki: There we go.

Robb: ... the gate, because it's a fucking scam. But that's okay, people want to buy it, hook, line, and sinker.

Nicki: We can do something like cool graphics with the N for scanner to make it look like an M, but it's really the N. So you got to read between the lines to see if it's scanner or scammer.

Robb: You just stay in your lane and I will stay in the biochemistry lane.

Nicki: Okay. All right, let's move on. We have a question from Tom on cholesterol and statins, "Hi, Robb and Nicki, thanks to your work along with Kresser and Sisson, I've lost about 50 pounds since discovering paleo keto in 2013. Before that, I was on Lipitor, but after getting down to about 200 pounds and all but completely solving my IBS, I decided on my own to go off of it and visit a functional doctor/nutritionist. My numbers looked worse initially; total cholesterol from 204 to 290, triglycerides went from 138 to 285, and HDL 40 to 34, but she put me on a variety of temporary supplements and therapies such as saunas and detox foot baths, and also recommended I replaced cow dairy with goat dairy. I was encouraged six months later when my total cholesterol looked similar, but my triglycerides went from 285 all the way down to 131, and my HDL ticked up to a 38. But then, I became discouraged again when she had my LDL particle number tested and it was off the charts at over 2500.

Nicki: So my question is, while I know you can't dispense medical advice on a podcast, should I at least consider going back onto a statin? I'm 38 years old and 5'7", so I could certainly try to lose another 30 pounds or so and have my blood tested again. But I feel really good in every other way; my sleep is good, and I don't feel stressed, although I could stand to exercise more. I'm willing to put in the work of losing more weight if it means better health, and perhaps it will anyway, but after losing so much already, I feel like I'm in a really good place in my life where I can maintain the weight I'm at and still feel like I'm living my life. I've come this far largely thanks to you, so any advice you can give me would be greatly appreciated."

Robb: Man. There's a ton to unpack on this. This is the tough thing. What's his name again?

Nicki: Tom.

Robb: Tom. Tom has made huge progress. He's lost 50 pounds already, that's huge. Was it the last show that I mentioned the Atorvastatin?

Nicki: Mm-hmm (affirmative). Yeah.

Robb: It worsens glycemia, and there's some other side effects with statins. It's interesting when you dig into the number needed to treat in that story, basically, how many people would need to be on a statin for one cardiovascular event to be avoided. The numbers are remarkably large versus when we look at things like antibiotics. If you have strep throat and you go on some sort of an antibiotic, it's just about a 100% success rate. We have some non trivial risks associated with some of these drugs. Nicki and I were talking around the breakfast table the other day. This stuff is so perplexing to me because there's some other drugs like PCSK9 inhibitors, where they enhance the liver's ability to clear LDL cholesterol; specifically really goes after LP little A, which is thought to be one of the more atherogenic particles, although it also happens to be one of the particles that is more important in clearing pathogenic bacteria and stuff like that.

Robb: There's a trade off with all this stuff. We were talking about this and what's fascinating to me is with the PCSK9 inhibitors, let's say the person started off with a very high cholesterol level of 300 and it dropped down to 100. If there's a dose response curve here that looks like anything that we would expect like aspirin or anything, then you would expect basically a three fold reduction in cardiovascular events, and you don't see that at all. Even to the degree that these things work, it seems like the numbers have to be really tortured and fiddled. There are folks in this paleo, carnivore, keto ancestral health scene that feel really good, but they're these lean mass hyper-responders which have super high cholesterol levels and whatnot, but these people are pretty lean. That's a situation where it's like, "Shit. I don't entirely know what you should do." Maybe validating with a coronary calcium scan, possibly a CIMT, although I think the coronary calcium is more valuable. But even knowing your coronary calcium, ideally, it's a zero, but even if it is, that's not 100% guarantee that you will not have a cardiovascular event.

Robb: If you're young and have a zero, that is way less meaningful than if you're 80 and have a coronary calcium of zero. There's just a lot of fucking variables on it. with Tom though, he said he's got 30 pounds to lose more, I would really aggressively go after that because we have absolutely seen that when people lose weight, they tend to see a normalization in their lipids. Sometimes it could get worse during the weight loss period. We've certainly seen that in the clinic and this is actually why we shifted follow ups from three months to six months, because oftentimes people looked worse in that mid flight deal where they're losing a lot of fat. Just offloading that fat appeared to be at least somewhat inflammatory or the numbers that we were pumping them up about like LDL particle number didn't look better, so we kicked the can to six months and typically that has worked better.

Nicki: Tom, you said you could stand to exercise more, maybe focus in there and just getting into a solid strength routine. Because as you've probably heard, Robb's talk this year is all on longevity and maintaining muscle mass. Increasing lean muscle is super key during aging, so maybe if you frame it that way, then you could get excited about lifting some weights and that can help with that.

Robb: I would encourage a little bit of low level, like that Maffetone paced cardio because it improves everything that we want to see beneficially enhanced on the cardiovascular front; the heart function is better, the pulmonary function is better, vascular responses are better. High intensity interval training can be very valuable, but it also can create non laminar flow in the arterials and that is thought to... To the degree, there are these different camps. Some camps just say that atherosclerosis and cardiovascular disease is 100% driven by lipoproteins alpha omega, done. Now, they ignore a bunch of things that are contrary to that kind of worldview. If you talk to some people like Malcolm Kendrick, and I think even folks like Peter Attia are in this vascular endothelial damage camp, where he would make the case that LDL particles are necessary but not sufficient for the atherogenic process, and so some sort of damage to the vascular endothelium is what is necessary to start precipitating this process.

Robb: This is also one of those things that's really interesting. We tend to only see atherosclerotic lesions and plaquing on the arterial side, which is higher pressure than on the venous side. You just really don't see much atherosclerotic plaquing on the venous side. Non laminar flow, turbulent flow, is one of these things that increases the potential of damaging the vascular bed. So, lifting some weights, doing some low intensity cardio, losing some weight, and then figuring out. Do things improve by, let's say, losing that last 30 pounds? If they don't, then I think, at a minimum, you can start entertaining some thoughts around like in our clinic, where a normal dose of statin that the doctors prescribe normally is around 20 to 30 milligrams of say... oh, gosh, I'm blanking on the name of the specific one that they tended to use, but in the clinic, they will use five milligrams three times a week.

Robb: They piggybacked onto an already anti-inflammatory diet and good lifestyle interventions. What we've found is that a pretty paltry amount, in theory, a statin dose that should be non-efficacious, ends up dragging the numbers down pretty well. It doesn't do that for everybody. We just talked to a friend of ours that we've met and he went through this whole song and dance, and he was doing the five milligrams every other day and it didn't really move his numbers that much. He has continued to have increases in his coronary calcification. So there's some discussion around maybe stepping up his intervention and doing more stuff. It is still really perplexing to me. It is damnably perplexing.

Robb: For my own scenario, it's tough because this way of eating is the way that I absolutely feel the best. I have generally shied away from doing a ton of dairy fat. I do a little bit of full fat yogurt here and there. I don't use a lot of butter. We've been hitting up Costco again now that we've got our feet under us here in New Braunfels and going and getting big bags of macadamia nuts, so I've been getting a lot of my fat from there. Typically, shifting in those directions brings my lipid proteins down. But I don't know, it's tough. The best advice I would have in this story is endeavor to improve the diet and lifestyle so that you lose that extra weight. Reevaluate where you are, and then even if you're considering statins, you might try the low dose side of things and see how that works. I would certainly get a coronary calcium scan done just even as a baseline. What is he? 37 years old?

Nicki: I think so.

Robb: You want to know what your 38-year old coronary calcium scan is when you're 48, and 58, and 68, and beyond. That would be a really valuable thing to have, and if you're working with a doc that is knowledgeable on this stuff. If things aren't looking good on that coronary calcium scan, then it least provides a backdrop for making better informed decisions about what you're up to.

Nicki: All righty, we now have a question from Sarah on blood flow restriction training, "Robb, how do you feel about blood flow restriction training to help with muscle gain?"

Robb: Muscle gain doesn't really benefit specifically from the blood flow restriction training unless we're dealing with a very new trainee. What is interesting with blood flow restriction training, it can improve mitochondrial density, which I guess in some ways can can benefit that process. Where it's really valuable is the folks who are injured or folks that are looking to minimize joint loading. They can do things like you do the restriction in the arm and you can do curls with I think it's like 25% of what you would normally work with and you can get a really good pump. You are getting an adaptive process, it's not the first whistle stop that you want to go on for muscle mass. If hypertrophy is your main jam, get strong. If you don't have a pull up, and then you get 10 pull ups, your back, and arms, and traps are going to be remarkably different than what they were before. Get 10 pull ups With a 40 pound vest on, and it further is going to be a different deal.

Robb: I don't look that big, but I can't wear regular gis, I have to get these extra wide gis because if I carry any muscle on my body, it's mainly my back because I do a lot of pulling and the Jujitsu and all that, and it's pretty darn muscular. I've gotten really strong in that movement. The main thing to focus on for folks is get strong; squat, deadlift, press, lunge, hinge, squat, all that type of stuff, linear progression until linear progression fails, and then go from there. That's where you get 95% of the gains that you're going to get. Blood flow restriction is kind of a cool thing that you could use as a quick workout. If you are on the run and you just want to get something that's going to make you feel better, it's going to get you a pump. You're not going to go backwards with it, but it's not the thing that is going to... Did you see the picture of Sybil in the Rebellion where she was flexing?

Nicki: Oh, yeah.

Robb: It was like she moved to the big house on jack street.

Nicki: She looked awesome.

Robb: Yeah.

Nicki: Yeah.

Robb: It will not move you to the big house on jack Street, but it's a great tool and people use it for prehab and rehab and for quick filler workouts. Both Dr. Ken Ford of the IHMC of whom I'm working with on a sarcopenia related book, and also Luis Villasenor of keto

gains fame, they're big fans of blood flow restriction training, but using it in a smart fashion. For Ken, he's older than I am, but he presses pulls, hinges, squats and that's his main thing. He uses the blood flow restriction training as like the icing on the Sundae but not the main thing.

Nicki: Got you. All right. Our last question for this episode is from Suzie on what affects heart rate variability. "Dear Robb, I'm trying to find anything you've done on CrossFit/keto/women/PMS/HRV, managing all of these things. I feel like I'm constantly googling to sense-check things like does heart rate variability drop when we PMS? Does keto have an impact on HRV? Perhaps you've done a podcast and I haven't found it yet. Best wishes. What you do is brilliant."

Robb: Thank you. What's your sense out of this question? What is Suzie digging at here? She's wanting to know how HRV is affected by different things?

Nicki: So maybe if she's over-training or if she's feeling a little rundown?

Robb: Right. The thing is, HRV is a little bit like the gut microbiome; everything influences it. Sometimes it appears to influence it well, by increasing the HRV number, and sometimes it decreases. There's a lot of art to interpreting the HRV devices. The coaches that use it a lot get good at reading between the lines and sussing out really what matters versus what doesn't. One of the reasons why I ceased wearing HRV related devices was it didn't matter what I did, I was always coming up not that well rested. In theory, my HRV was still not in all that great of a ready state and I'm just like, "I don't know what else I would do," there's literally nothing else I could do to improve this stuff.

Robb: So for some people, keto will improve HRV, it improves recovery. I think for some people it does not and I always wonder with those folks; are they on point with electrolytes? Are they on point with adequate protein? Are we in a scenario in which the individual is weight cutting, because weight cutting is a stress? HRV is kind of a sampling of your total allostatic load, like the total stress load. Weight gain or weight loss is a stress and that will negatively affect your HRV. Certainly, hormonal fluctuations, I would be shocked if women didn't see some changes. You have some significant energy dips at various points in your cycle.

Nicki: I fortunately don't have the more obvious PMS symptoms, but I definitely will feel more tired.

Robb: You just hit one to two days where you're like, "Man, I'm tired."

Nicki: Yeah, and I'll be a little bit slightly more emotional. I tend to be pretty even keel, but I'll definitely notice that that-

Robb: The Hallmark-

Nicki: ... hits me.

Robb: ... commercials burst you up a little bit, cripple you.

Nicki: Yeah.

Robb: So Suzie, everything can impact HRV. The thing about this is that we use this as a tool to guide what we're up to. These one off things, I don't know how valuable is looking at it. To me, the value here is let's say you're peaking for a competition and we're trying to load the individual properly. If we end up with three or four orange days in a row where HRV has fallen and we're getting into the red line deal, then this is the thing we're like, "Okay, the fifth day we dial things back and we do an active recovery day." Similarly, if we have a competition and it's all been green, green, green and we really haven't been stressing ourselves enough to get the proper adaptation, then it's time to step that stuff up.

Nicki: If you're eating super low carb, it's the time of the month for your cycle, and you're training really hard, and maybe you're under slept, that's where we can... Usually around my monthly cycle, I will just naturally back off whatever I'm doing training-wise. I mean, if I'm doing Jujitsu, it'll be just positional rolling or I won't do as much sparring. We've been out of the gym for a while, Michael's gym is getting up and running, but I would just back off a little bit if I'm feeling like I'm dragging a little bit, there's no reason to go and push it there. The same thing if you're training CrossFit, maybe you just lift, maybe you do some recovery work and you drag a sled, or you do some farmer walks, or you go into the sauna. There's other things you can do that's going to be beneficial health-wise that are not going to keep digging into the hole.

Robb: Yeah. So this is a great question, but this is one of the things that the calling show would be handy because it's like, "What do you want to get out of the HRV information? How are you using it? How is that informing what you're up to?" I could be wrong, but this is, again, the value of being able to ask some follow on questions. I have a sense that Suzie is maybe trying to monitor this too closely; day to day versus seeing more broad trends. My take on HRV and the way that I've used it and the way that my sense of people like Joel Jamieson use it, it's more of a trend finder than it is like, "This is a pinpoint accurate reading today." It's more if we see a really huge Delta from one day to another, then it may be like, "Okay, well that might be an aberration in the machinery, or it might be that I'm on the verge of catching a cold or something," so you can pay attention to it, but it's a little bit of reading the chicken entrails like there's some interpretation that's necessary.

Nicki: Okay. That is a wrap for this week. Thank you all for joining us. Remember to check out our episode sponsor Joovv. You can go to joovv.com/robb, that's J-O-O-V-V / R-O-B-B, and you'll get a free gift with your purchase when you use code Robb, R-O-B-B. Please, share this episode. If something in the show helped you, share with your friends. Make sure you subscribe. Leave us a review. We might read your review.

Robb: You might win some cool stuff.

Nicki: You might win a T-shirt. What else, babe? I think-

Robb: I think that's it.

Nicki: ... that's it. Yeah. We'll see you next week.

Robb: Take care.

Nicki: All right.

Robb: Bye-bye.

Nicki: Bye.