

Robb: Well, howdy, wife, how are you?

Nicki: I'm great. How are you?

Robb: Good. It's a quiet house.

Nicki: It is. The kids are swimming.

Robb: The dog is-

Nicki: The dog-

Robb: At grandpa's house.

Nicki: At grandpa's.

Robb: Nice.

Nicki: We're alone.

Robb: Man, we're home alone, and we're podcasting instead of doing naughty things. Geez. What's up with us? Anything new or ... This may be the last podcast we do from Reno?

Nicki: I think we're going to try to get another-

Robb: Might sneak in one more?

Nicki: One or two, yeah.

Robb: Okay, oh yeah. Okay.

Nicki: Yes.

Robb: Okay.

Nicki: Okay.

Robb: All righty. So, anything else you want to update people on, or we just jump right in to ...

Nicki: I think we're jumping in.

Robb: The good stuff, okay.

Nicki: Yeah, yeah. Let's see. We have a question on Fitbit sleep tracking from Jay. He says, "G'day, Rob. G'day, G'day, Rob, love your work. I took a break from your podcast to learn computer programming and am now back because I'm stressed and my desk bound body is broken. Glad to be back and see you figured out your Keto problems when bonking during class. I've signed up to your Keto master class, so fingers crossed."

Nicki: That sentence didn't really quite make sense to me.

Robb: He's Australian, I mean English is a second language so yeah.

Nicki: "I have a somewhat basic question about sleep. My Fitbit says I slept seven hours with one hour awake. I don't remember waking and there are up 30 a night of these tiny awake periods. I do sometimes toss and turn to get into comfortable positions. My partner says I'm asleep within minutes of hitting the pillow, so I think I'm sleeping okay. Should I think about this as eight hours of sleep or seven? I tend to wake up energized when my Fitbit says six hours and thirty minutes plus one hour awake. So, thinking this is equivalent to a standard seven to eight hours per night.

Nicki: When I push for Fitbit to say eight hours then I'm very lethargic when I wake but it's probably then like nine hours, which could be oversleeping for me. Anyway, love the work you two are doing and miss the Q&A's with Greg." I miss Greg too.

Robb: We need to spend more time with Greg.

Nicki: We do.

Robb: We should just have a Greg guest retrospective-

Nicki: We should.

Robb: Just get him on the show, Q&A fired at Greg and just shoot the breeze.

Nicki: We should.

Robb: Yeah.

Nicki: Let's definitely do that.

Robb: Yeah.

Nicki: Okay, "But love the new format. Anyway, fangirling from Australia. My question can probably be answered by Google, but I'm sure you'll be able to cut through the inter-junks. All the best, Jay."

Robb: Well, Google might have banned the information at this point. You never really know, but you know, this is interesting stuff, and I've used a number of wearables like Oura Ring, Fitbit. I dig all of them. All of them are really cool and at the end of the day, all of them made me a little bit crazy and I ended up discontinuing using them.

Robb: And, one of the things that made me the craziest was the sleep piece because it just didn't really matter what else in the rest of my life that I did, it always said that my sleep was kind of marginal, my HRV was kind of like, "Ah, you're kind of ready but not really ready." I had a real problem with sleep latency because I'll get in bed and read and it would-

Nicki: Yeah, it was like it was tracking, it was saying that you had a ...

Robb: Yeah, difficulty falling asleep and so I would take-

Nicki: But you were awake reading.

Robb: Right. Right, so I've just found some challenges with this stuff and I think this is where ... And, Jay lays it out pretty well. If you're feeling good, you know, I think that these wearables are really beneficial for establishing a baseline, and then if something changes, good or bad, then we can kind of look at that as a little bit of a compass guidepost, but at some point it's almost like you're drowning in information and I don't know that it's doing you more good, because it just kind of is what it is.

Nicki: And, Tyler Cartwright shared an article with us about some sort of study that was done where people who are tracking sleep, I don't remember if it mentioned the specific device, but there's like a placebo effect. So, if you wake and your thing says that you've slept like crap then people tended to feel ...

Robb: Worse.

Nicki: Worse.

Robb: Yeah.

Nicki: Even if-

Robb: I remember that.

Nicki: And, so it was basically saying because some of this technology is not as refined or as ... If it's not actually reporting accurately, it could be causing you to feel worse even though maybe you slept fine.

Robb: Just fine, yeah. That's what the researchers did is they were doing an actual sleep study, which is much more involved. And so, they would actually send them sometimes false information on the day when they ... And then, conversely, on days when they actually kind of slept like shit, they would say, "You're ready to go, Tiger." And the person was like, "Okay, I'm ready to go." You know?

Robb: And, so, this is where some of this stuff, it's just ... We're kind of drowning in information, and I think to some degree just waking up and looking around and like, "Ah, how do I feel today?" And you go poo and it's like, "Oh, that was formed and I didn't need like an armload of toilet paper."

Robb: Like, these kind of pretty objective metrics of just feeling are rather powerful. It's reminiscent, it's an old book at this point, but Blink by Malcolm Gladwell. He went into great detail talking about how though even though we've increased the information we have, like looking at MRIs and stuff like that, we have all this additional information. And we were just talking to our friend, Dr. Jim Greenwald, the other day who's a retired orthopedic surgeon. He feels like MRIs have pushed orthopedic surgery backwards and there's a whole host of reasons why, but the information that one obtains from a really thorough physical, according to Dr. Greenwald, and just listening to the patient, tells you so much about what's going on and like, is surgery really an option, let's do all this physical therapy and stretching and stuff like that.

Robb: But it's virtually everything on an MRI that's like, "Yep, you've got some sort of pathology." You know? Because we just get down so granular, but it's not actually better informing what we're doing, and I think that there's a certain element of this with the wearables scene, which ... Well, probably somebody will want to hang me out to dry because these wearable companies make a ton of money and I do think that they have

great application. I think that more, if you're really burning the candle at both ends, like if I had something like this in my 20's, it would've probably been good, because I was trying to murder myself with exercise and short sleep and everything.

Robb: That would have been a really beneficial thing for me, I think, getting that objective feedback of, "Okay, you've got three reds in a row, you've got to slow down." But I know that was probably like the longest answer to something that could have been rather concise. Getting back to this, but I think, Jay, I wouldn't worry what the hours are. I would just, if you enjoy wearing it, use it as a baseline, then that way if anything changes, then you can always refer back to the baseline but then beyond that, how do you look, how do you feel, how do you perform? I think those are really powerful metrics.

Nicki: All right. Our next question is from Maria on pallet fatigue. "Hi Robb and Nicki, I was wondering if you can address pallet fatigue? For some reason I tend to be the kind of person that needs to have a lot of something and then I don't want it anymore and have to switch. Before, I was in to avocados and sardines all the time and now it is eggs and bacon. It's almost as if my body is asking for these foods at certain times. Thank you."

Robb: So, good question. Pallet fatigue is different. This is almost like, it sounds like burning out.

Nicki: Burning out, yeah.

Robb: Out, on stuff, you know.

Nicki: Eating it too much.

Robb: Man I-

Nicki: You did it with sardines.

Robb: I did it with sardines. Man, I used to love sardines and then there was just one day ... I think...

Nicki: You were eating them for breakfast, you would have them in your backpack, you'd take them in your office.

Robb: I had sardines. Breakfast and lunch and traveling and everything. I think I got a can that was off one time, and I was kind of sick from it, or my body finally ... I need to be hungry to eat sardines at this point, or I need to do magic in dressing them up.

Robb: But pallet fatigue really has to do with the ... A meal kind of experience. So, if you're eating a lot of something, then eventually, even it's a very good something, you will get bored of it, and this is the sensory specific pallet fatigue.

Nicki: At the one sitting.

Robb: At that one sitting. And this is where if we have food that is wide in variety of textures and flavors and scents and whatnot, then we can override that pallet fatigue signal. Interestingly, we just had a person reach out to me, have not been able to talk to her

yet, but she used to work for the biggest food manufacturers around developing seasoning strategies and pallet fatigue bypassing algorithms.

Robb: So, there's actual computer algorithms for figuring out how to make food more addictive. And this is, not to drag this out into the weeds, but this is some of the stuff that makes me a little crazy with the Layne Norton's, the Alan Aragon folks. They do some good work, but they will get into a pissing match about this study says that fructose is not a problem.

Robb: It's like, okay. We have some people out there that are misrepresenting the metabolic consequences of fructose. Check. Great. You guys have set us straight on that. Now, what does this mean and what is the relevance there when we're talking about people eating processed food? People don't sit and eat plain fructose. They eat these highly complex, super engineered flavor combinations that no joke ... It was fascinating. This email is fascinating. We're going to have, even though I'm not really doing much in the way of interviews anymore, I'm going to do some interviews in the future, and this gal is going to be one of them, where she's like, "You were bang on with Wired to Eat. Like, there is a really highly refined understanding, like the Doritos roulette example that I've talked about. There's a super high, refined understanding about how to engineer foods to be hyper-palatable and effectively addictive. And having pissing matches about that. Like, fructose versus this versus that, and ignoring this topic of palate fatigue and how you can bypass that is really missing the boat for people. And man, I don't know if my salty palmer is kicking in or what.

Robb: That was about as far a field from what Maria had asked. But Maria, again, palate fatigue ... This sounds like she's just experienced some burnout.

Nicki: So, she's just wondering if she's just burning out. She's eating the same thing for too much and ...

Robb: Yeah, yeah.

Nicki: And is her body asking for these foods or she's just ...

Robb: I don't know, man.

Nicki: Reaching a-

Robb: My body would tell me to ask for cookie dough ice cream all the time. So, I don't know. I don't know. Maybe. Some of that stuff, it ... People are like, "The innate wisdom of the body." And you know, sometimes it's like, oh, I just want a piece of fruit. And so, I don't know. Maybe that's the innate wisdom of body. But more often than not, it's kind of like, man that Twix. Or, you know, [inaudible 00:11:22] be pretty amazing. So, I don't know. I don't know.

Nicki: Okay.

Robb: But you can absolutely burn yourself out on something.

Nicki: On ...

Robb: Yeah, yeah.

Nicki: Too much. All right. Our next question is from Jessie on protein toxicity and the carnivore diet. "Robb, in *Wired to Eat*, you briefly mention on page 27 that humans can not consume more than 35% of their calories from protein before suffering from protein toxicity. The carnivore diet has recently gotten some publicity, and seems to have some anecdotal success for folks with stubborn autoimmunity issues. Do you think following a carnivorous diet carries a high risk of suffering from protein toxicity, and would we be able to look for evidence of protein toxicity in kidney function testing?"

Robb: So, I'll answer the last one first. The protein toxicity is not a kidney issue. It's a liver issue. It's you need substrates other than protein to deal with the ammonia and nitrogen-based bi-products of protein metabolism. And in general, humans seem to hit about 35, maybe some populations as high as 40% of their total calories can come from protein, and then beyond that, we have rabbit starvation. You were reading a book that was talking about [crosstalk 00:12:40].

Nicki: We called it trout starvation.

Robb: Trout starvation, which I had never heard of.

Nicki: I'm blanking on the book, but yeah.

Robb: Similar deal where people were eating exceptionally lean proteins and ultimately ending up with problems, because they had no other substrates in their ... It would be hard as hell to do this, because the experience of protein toxicity is very uncomfortable, and the main desire that you have is to eat something other than protein. The only reason why people get into these scenarios is that they literally have no other options or-

Nicki: In the wilderness.

Robb: Yeah, yeah. And-

Nicki: And isn't it because those types of things like rabbits and trout are very-

Robb: Very lean.

Nicki: Lean proteins.

Robb: Yeah, yeah. And so, even if you were to eat something like rabbit or trout, that's why you eat the brains and the innards, and you know, you're trying to just get every little bit of fat out of them, and what not. And so, I'm a fan of the carnivore diet. I don't think it's the first place for everybody to start, but man. The results that people are getting in this kind of autoimmune scene are really impressive. And so, I'm optimistic about where this will go. I would actually not be surprised at all if some iteration of a carnivore intervention ends up proving to be more efficacious than autoimmune paleo, and I'm the person who came up with the term autoimmune paleo. I'm the first person to write about it, publish it in a book, and really coin the term.

Robb: So, you know, as much as AIP has helped people, I would not be surprised if carnivore ends up befitting more people when it's all said and done, for a whole host of reasons. But someone would just need to be in very difficult situation to induce a state of protein toxicity.

Nicki: Well, because people on the carnivore diet are eating rib eyes, and they have lots of fat, and-

Robb: That-

Nicki: Other cuts of meat that there's a significant amount of fat in there.

Robb: Yeah, yeah. Or ... And or they're adding some additional fat to it, and stuff like that, so yeah.

Nicki: Okay.

Robb: Yeah, yeah.

Nicki: So, because of that, they're not hitting this-

Robb: They're ... When you do kind of a breakdown, usually people are right at 30 to 35% of calories from protein, yeah. And this is one of the interesting things, like the Inuit, some of their gene alterations. Like, they don't really generally enter ketosis. They seem to more directly mobilize fatty acids. But it's an interesting adaptation, even though the Inuit are held up as an example of ketogenic culture. Biology decided that it was more efficacious, more survival advantage to create these gene alterations that there's actually a very high infant mortality rate from low blood sugar. You know, in that very early period right after birth, which most babies are in ketosis, but different arctic-based populations may not even be able to enter that. But the two adaptations that they seem to be better at, their protein threshold may be as high as like 40 to 45%. So, there may be a couple of percentage points higher on the ability to handle protein.

Robb: And then also, in lieu of producing ketone bodies, they're better at direct mobilization of fatty acids for energy. So, it's an interesting adaptation. Even Loren Cordain's early work kind of suggested that human ... Maybe the default mode for humans is kind of bumping up against that protein threshold consistently. And it's just because there's all kinds of, you know, mythology around this stuff. And yes, humans ancestrally were big game hunters and bigger game was fatter, but there's kind of a reality that ... I've actually lived as a hunter gatherer for a period of time, you know? And it's like ...

Nicki: Eight days. Start. 10 days.

Robb: Fucking calories are hard to come by, you know? And you eat kind of whatever you can get your hands on, and yeah. I don't want to belabor that too much.

Nicki: I just remember picking you up from the airport and you did not look like my husband. You were so skinny.

Robb: Dude, I was skinny. Yeah.

Nicki: It was only like 10 days since I dropped you off, and you were emaciated.

Robb: 20 pounds lighter. Yeah, yeah.

Nicki: All righty. Our next question is from Justin. "Waking up from hunger while in ketosis. Dear Rob, I'm a huge fan of the pod and your work. For the past few months, I've been

following a keto eating plan. I weigh all food and track macros, and I'm usually hitting 40 grams of net carbs, 90 to 100 grams of protein, and somewhere between 235 to 270 grams of fat for a total of roughly 3000 to 3500 calories per day. I'm a 30 year old male, 5 foot nine. I usually eat three to four meals per day with no snacks. I currently weigh 156, and I'm about 16% body fat. I did a bod pod when I was a few pounds later and was at 14.5%. In terms of exercise, I usually go to the gym three times a week and do some combination of squats, deadlift press, and bench press. As an example of where I am currently at with strength, I do four sets of five reps, two minute rest periods, with 205 pounds on squats.

Nicki: So, my question is this. When I try to cut calories down by about three to 500 calories, because I'd like to get to 12% body fat, I wake up in the middle of the night hungry. I feel like I keep hearing on various podcasts and books that I read that in a state of keto, hunger should be significantly blunted, and this shouldn't really be an issue. But I feel like if I don't go to sleep pretty full, I wake up in the middle of the night. I know sleep is critically important, so this seems like a problem.

Nicki: If I eat enough to sleep through the night, I can maintain the same weight but really struggle to lose weight. I've done self experiments to make sure I'm not waking up due to stress, noise, et cetera, and have isolated that my sleep is almost completely correlated with my hunger levels. I wanted to ask for your guidance, because I imagine other people might struggle with a similar issue. I know many people who do well with hunger during the day, but not so well at night. Some things I've wondered about is if I'm over-training, or if there's some sort of other physiological issue I need to attend to. Maybe I'm not understanding keto properly, but I feel like with my macro breakdown, I should be able to comfortably go 12 to 16 hours without eating. Or is the ability to go prolonged periods without food less about eating and more about individual differences? Thank you for all the amazing work that you do. Justin."

Robb: Man. Lot of good stuff in there. One thing that leaps out to me is the 90 to 100 grams of protein I think is way to low.

Nicki: Yeah.

Robb: For 100-

Nicki: I mean, I am more like 120 grams of protein, and-

Robb: Yeah.

Nicki: I'm smaller.

Robb: Yes. Yeah, yeah, yeah. So, that definitely leaps out at me, and some very smart people, far smarter than myself, ranging from Paul Jaminet to Chris Masterjohn, have noted, and they really get in the biochemistry at a pretty high level, so you could do some following up on this, but they make the case that if you're reasonably active and keto, and they'll make the case that you shouldn't be keto if you're reasonably active. So, that's a whole other aside. But they make the case that if you're going to be active and you're going to be keto, you need more protein. And that's just alpha omega, done.

Robb: We've seen with keto gains, we've seen with the carnivore diet, which we were just kind of talking about in the previous question a little bit, when people eat at higher protein levels, they do then tend to get better satiety, and there also tends to be more of a

ability to recover from training and stuff like that. Part of what's going on, and one of the benefits that's interesting, is glycogen can be restored, liver in and muscle glycogen can and will be restored from protein breakdowns in many corners of the keto-sphere, people are terrified by that. And if you have epilepsy, if you're using keto as a cancer adjuvant or something like that, then there's reason for it.

Robb: For body composition and weight loss, it's a disastrous deal to drop protein, because people end up hungry, and then they need to eat a lot of either fat or carbs. And it's very easy to overeat.

Nicki: Because I feel like 3000 to 3500 calories is also high for-

Robb: Correct.

Nicki: A five foot nine-

Robb: Yeah.

Nicki: 156 pound guy. So, if he upped his protein significantly, his fat would probably come down a little bit.

Robb: Yeah, I would get the protein up to at least 150 grams per day, and ...

Nicki: Maybe plug your numbers into the keto gains macro nutrient calculator-

Robb: Yeah. And select...

Nicki: And see what that spits out.

Robb: For the recommended level, and maybe ... So, if you use the keto gains macro nutrient calculator, it will default to .8 grams of protein per pound of lean body mass, or you can toggle use keto gains recommended, which is 1.0 grams per pound of lean body mass, and/or you could adjust it for 1.2 grams of protein per pound of lean body mass. I would tweak it to the 1.2 grams. So, I would up your protein, and adjust all the other macros appropriately based off the ... What that spits out. I would also make really certain that you're getting adequate electrolytes. Shameless plug for Element, but this is another one of those things that if the electrolyte balance is off and sodium is too low-

Nicki: You can be hungry.

Robb: You can be hungry, you can get an adrenocortical response. So, those are the two big things that I would really look at is upping protein and really weighing and measuring your electrolytes. Tracking it in MyFitnessPal or something like that to make certain that you're at least getting five grams of sodium per day. And then if you're eating largely whole, unprocessed foods, the magnesium and potassium should take care of itself. But I'll be kind of shocked if you don't see improvements off that.

Robb: But if you don't, it could also be a case where keto is just not a good fit. Maybe a little bit of carbs in the mix would be a better option.

Nicki: Okay. So, Justin, please let us know.

Robb: Yeah, let us know. Follow up on that.

Nicki: Try that, up the protein, and then let us know how you do. Okay, our final question for this week is from Brett, and his question is on fasting for skinny dudes. "Hi Robb and Nicki. Fasting for overweight or normal people has been well covered. Is there any benefit to underweight guys fasting in an effort to add mass? I am six foot three, 165 pounds, 37 years old. I can eat whatever I want in whatever quantities I want, and my weight never changes. I would like to be heavier. I've tried weight programs and I tone up okay, but it's rare to add more than five pounds. The minute I stop the program, I'm instantly back to 165. Everything else you always talk about like diet, sleep, and stress is already dialed in."

Robb: Man. There are some folks that advocate fasting as kind of a means to lean body mass gain. The literature on it doesn't really paint it in a super favorable light. I ... This was kind of my problem. I enjoyed power lifting, but my body just desperately likes being about 165 to 170 pounds. Even getting up to about 175, which if I get up to 175 from lifting and not just being fat, then I look pretty good. And if I start getting 180, 185, I look big, you know? I have kind of small bone structure, I guess-

Nicki: It's like the big arms when you walked to the coffee shop when I first met you.

Robb: It's like the big arms when I swept you off your feet on our first meeting. Exactly. Shout out to Carla Mack around that. But the bastard of this thing is I would eat and eat. I mean, like six meals a day. Big meals. Felt disgusting. You know? And I would get busy, go on a trip, whatever it was, and I would lose 10 pounds just almost instantly. And so, it's ... I think there is some degree of a set point for people, and there's just kind of a reality that you know, for some people, muscle mass gain is easier. Again, this is one of these things, Brett doesn't ... Does he mention? 37 years old?

Robb: I would get androgen levels checked and make sure that testosterone, estrogen, sex hormone binding, globulin. We've covered this in a previous podcast. And this is something that we're going to dig into later in some more depth, like really understanding what your hormonal profile means and what to do about it if it's not kind of at an optimized level.

Robb: If that's not optimized, then the anabolic stimulus from the food and the training is going to be poultry. So, you're just kind of peeing in the wind with that. So, that would be the couple of things that I would think about. I would look at androgens and see what testosterone and that whole gamete of things looks like. I would ... And then if that looks pretty good or depending on what you want to do, even then though, there's just ... Gaining muscular weight is tough for a lot of people.

Nicki: Right. So, it seems like fasting is not a good option for adding mass and like fasting...

Robb: Fasting is definitely not a good option. Yeah. I mean, at least just do three meals a day. If you want to do a little time restricted feeding, that's great. There does seem to be some literature that suggests eating more calories earlier in the day. Bill Lagakos has talked about this at nauseum. That seems good, and it seems like kind of a no downside deal, because you could just eat huge breakfast, big lunch, small dinner. Try to stick them a little tighter together, and there seems to be some legit body composition improvements, metabolic improvements, and it should kind of stack the deck favorably for muscle mass gain, and you're getting a little bit of that sirtuin type signaling that's associating with fasting, ketosis, and all that stuff.

Robb: But yeah. As a baseline, getting back to the actual question asked, fasting is probably not a great idea in this case. I know there's examples of people who do it, but it just sounds like Brett has a tough time gaining muscle mass, and so, I think depriving his body of anabolic signal from protein for extended periods is probably not a great idea for improving muscle mass and body composition.

Nicki: Okay. That's our last question for this week.

Robb: Sweet. Okay.

Nicki: Let's see. If you ... Or as always, submit questions at robbwolf.com on the contact page, and let's see, we drip these questions out each week on Instagram, so make you're following at [dasrobbwolf](https://www.instagram.com/dasrobbwolf). What else?

Robb: We still have some stuff over at YouTube. They haven't taken that down yet either. So, yeah. Yeah.

Nicki: I think that's it.

Robb: Okay.

Nicki: We'll catch you guys next week.

Robb: Take care everybody.

Nicki: Bye.