Marty Kendall
Nutrient Optimiser, High-Satiety
Diets & Carb/Fat Combinations

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Danny Lennon: Marty welcome back to the podcast. Thank you for joining me this time in-person.

Marty Kendall: Welcome to Brisbane. Great to join you and great to hang out with you.

Danny Lennon: Yeah. It's been good. So, certainly getting used to the sun has been a big one for me. I know you're probably well used to at this stage. It's been pretty hot this past couple of weeks. I'm looking forward to good conversation. We obviously talked the other day and that could have probably gone on further a few hours if we hadn't been constrained by time. So, maybe just to start for maybe people who didn't hear you on our previous episode, let people know about Optimizing Nutrition. Maybe how the blog came about and how it's evolved into what it actually is now?

Marty Kendall: Yeah. I've got to hang out with you a year ago and it's really great to be back and chatting again. My story is civil engineer but my wife is a type-1 diabetic I suppose managing diet, insulin, nutrition is a day-to-day reality to try and help her manage her blood sugars with my wife and going through pregnancy try to manage that. So, that was the initial impetus to try and work out how to optimize that and taking my civil engineering systems mindset to try and refine that was the initial impetus, and it's just developed from there and started blogging and sharing out, advising nutrition about 3 years ago and just through ongoing interaction, refining that into early systematized numerical approach to nutrition that doesn't just manage diabetes but also weight loss,

and muscle gain, lean bulking, just optimizing micronutrient density I suppose is what's really amazing to see lately just what happens when we maximize micronutrient density and a lot of other things just work themselves out. So, yeah that's where it all came from and yeah it's been really a fun journey.

Danny Lennon: Yeah. That's probably one of the unique things about the approach that you've taken, and certainly with the – that we'll talk about soon, but as you mentioned some of those essentially goals people may have with the nutrition whether that's weight loss, muscle gain, performance these are all things that you pretty much hear across the board. However, what I think is distinct with your approach is that we're going to try and achieve those things by first focusing on what you include via micronutrients in your diet, and that everything else fall into place as opposed to here are banned foods you cannot have. Is that intentionally the fundamental component behind what's driving lot of these recommendations?

Marty Kendall: Yeah. It's first so much of a nutrition guidance is what not to eat all these bad foods, like you say, and if you crowd out all the bad foods with good foods you don't have those cravings for the bad foods anymore if you're so full from nutrient dense whole foods that are actually engineered to be satiating you've got no time, no cravings for those other foods that just won't fit in anymore. Yeah, we're playing with a competition at the moment actually rolling it out with 400 people who have joined in, and they just eat just 1,000 calories they can't fit anymore in and I used to have to eat 2,000 or 3,000 calories a day and I was still hungry. It's amazing to see it in reality when people optimize to get the nutrients that they need, and then optimize for satiety which we can quantify. Really good things happen in nutrition and most other things work themselves out. But then we can fine tune it to manage your blood sugars, to manage how you want to build muscle, how you want to lose body fat. We can tailor it a little bit more quantitatively to say these are the optimized foods for you at this point in time to seek your goals.

Danny Lennon: Sure. So, maybe you can give some examples of how that might work to kind of layout for people okay we have these different goals, and therefore we may tailor food choices. What would be a few examples of that?

Marty Kendall:	Yeah. The first thing is just that nutrient density, so we quantify to say hey these are the five or ten nutrients that you're not getting enough of from your current diet. Maybe you call in magnesium, potassium those sorts of things. We can look at your current diet, and then prioritize foods that fill those gaps. And a lot of good things happen then but then you might have someone who wants to gain muscle, but lose fat so they want to up their protein and we can track their biometrics and their body fat, their weight, their muscle and actually wind that up using what we call smart macros to gear their – you know you need enough protein but not too much calories to tailor that. Now, we can say these are your macronutrients but also these are the foods that will help you hit those macronutrients. For someone who is diabetic can try dial in their blood sugar we can say okay your blood sugar is still high, last week in cronometer we'd link with an IPI to say maybe you had 120 grams of carbs. This week you need to drop that down to 110, see how that goes and we keep on dialing that down until the blood sugar is stabilized. And a lot of good things happen when blood sugar is stabilized, and then once they do stabilize then hey let's focus on nutrient density rather than just low carb which is often very high fat, which leads to a lower nutrient density. So, once they do stabilize their blood sugars we then pivot again and start to refocus on nutrient density building health, building muscle, building overall vitality from there. So, there are different goals and different ways to achieve each of those goals with nutrition, and numerically optimizing for those different situations.
Danny Lennon:	Yeah. So, probably just to clarify for people listening if you haven't heard of cronometer it's an app where you can essentially log-in foods, and also will track your micronutrient intakes of those foods over the day, and you will be able to sync that in with your app and to able to highlight to people here are typically the nutrients you're pretty low on. The best thing about that is it goes a step further instead of talking to people in milligrams it say hey here is typical foods that have decent quantities of these. Just try and include more of them of in.
Marty Kendall:	Yeah. So, it looks at your last week of data and says look you've eaten heaps of protein, heaps of vitamin K because you had some spinach or whatever but these are the nutrients you didn't get enough of and here are the foods that will fill that, here are the meals that will then fill that. Again, it's an emphasis on what we do include that'll help your reach your goals, and then all those

other things most of the time you just don't have room or your lose interest for it.

Danny Lennon: Yeah. Beyond just being the inclusion versus exclusion thing when you focus on micronutrients. The other thing it does pretty well is that it's essentially nutritionally agnostic, if you can call that right, there is no requirement to be a specific type of diet to focus on micronutrients. So, whatever your overall framework is you can still come in here and say based on my food choices I'm going to try and optimize my micronutrient density?

Marty Kendall: Yeah. Definitely there is so much nutritionists around like nearly religious zealot belief you might be carnivore or vegan or a pegan or pescatarian or whatever you want to call it, but we can take each one of those dietary regimes you maybe following that for religious or ethical or that's your personal preference you can then say let's optimize within that sphere and let's find the nutrients. If you're carnivore because you've got poor gut health and you're trying to rehab that then let's have more – it might be more seafood, it might be more awful, it might be different things that will help you balance that out to get what you need within that regime. If you're vegan for ethical reasons then you can still within that try to maximize your micronutrients to build that health, and we very easily default the easiest thing, and the simplest thing, and the most hyperpalatable thing and I suppose that's what this helps you do is to optimize the foods that will help build health, and vitality, and satiation is probably the bottom line.

Danny Lennon: Right. I think we talked about this the other day, for any of those diet labels there is no one type of diet, right? There's often a good way or a bad way or at least a suboptimal way and a better way to eat within each of those. And so, this is saying not that a vegan diet is better than a Mediterranean or carnivore, paleo whatever it's like for each of those there is a spectrum within them of the choices you make. You can still make poor choices no matter what dietary program you pick. So, for the recent challenge you had going for your group it's been a weight loss orientated challenge, and so let's talk about some of the framework that you've put in place around some of the food choices you've recommended. A lot of your work has focused on well how do we give a diet that is high in satiety that's going to mean people aren't hungry, and is therefore going to take care of calories themselves. So, how have

you gone about driving more satiety through the recommendations you've been giving people?

Marty Kendall: Yeah. We did some interesting work about 6 months ago where we found a database of half a million days of MyFitnessPal food logging and we crunched the number from that just to sort of refine some previous work that has been done at University of Sydney in 1995, Susanna Holt and colleagues. Just found particular relationships between different types of food, different measures of food that we can quantify what they'd found and we replicated and refined, and enabled us to quantify more accurately is that more protein, more fiber leads to satiety and the combination of fat and carbs together all the – particularly the combination of starch and fat together is quite hyperpalatable. If you go very high carb with very low fat it's very hard to eat. If you go the opposite and to a lower carb end of the spectrum it's also hard to eat but it's that middle zone that's really hyperpalatable. So, we were able to with all that data quantify and make a tidy score that we can then rank foods and meals based on that. So, with the challenge I basically said well is from a 1,000 meals I've run through cronometer, here are the top meals and put together a meal plan for a couple of weeks and said here is what you start with, here is a longer list of meals you can jump into. Once you get bored of that you can mix and match your own, but start with that. People just went well I can't eat anymore, I can't eat all that food, I'm so full, I can't eat dinner, and I've never had this before. So, it was really exciting to take it from theory to actually working on it in practice and seeing it work in the real world on these 400 people. It's so exciting to see the potential of this quantifying and optimizing food. Then the second step is people have got really psyched about optimizing for micronutrient density and just continually chasing the micronutrients they need more of, and again that just leads to more satiety. So, yeah it is about calories but if you focus on satiety and micronutrient density then you don't need to consciously restrict calories. I think what we often find is if you eat the same junk, the same hyperpalatable food but use this massive herculean effort to try and eat less of that same food you eventually find your body says I need that same food, give me more, I'm used to getting that hyperpalatable food and you can't restrain yourself. But if you go the other way and optimize for satiety and nutrient density then all those other things work themselves out. It's not so much effort to restrain your intake anymore.

Danny Lennon:	Yeah. It's one of the things I talk a lot about in seminars to people as to just why do we recommend more of your diet be based on minimally processed foods because someone could clearly make the case that if you eat an appropriate amount of calories and macronutrients someone can lose body fat on whatever junk they want. Right. So, then it becomes a practical consideration, and so one of the ways I've done that is to visualize – I may have mentioned this to you the other day, of two diets one like slight just chart full of all these different types of foods from oatmeal, berries, lean meats, salmon all the way down that gave you like 2,000 calorie a day and you compare it to well you could have one kind of Coke, a Ben and Jerry's, and six scoops of whey protein and you have the same calories of macros. So, the net result maybe, at least in a acute sense, could be similar but pragmatically there's a huge difference there. And so, you've touched on protein obviously huge for satiety, fiber content the same, and then also the interesting area of the combination of high fat and high carbohydrate in particular meal combinations. And as we talked about previously there's obviously a lot of work within hyperpalatability work showing that these in fact do tend to be more like overeat on. It's pretty simple when we think of the main processed foods or junk foods that people typically overeat on. It's got that combination in conjunction with also being low in fiber and low in protein from most of those junk foods, right?
Marty Kendall:	Yeah, anything. I did a bit of analysis and looked at anything with less than 20% protein with greater than 30% carbs, and greater than 30% fat is pretty much a hyperpalatable manufactured junk food other than breast milk which helps babies grow, and acorns which squirrels get fat on leading up to winter, so they can survive winter. And there is nothing else out there that fits that formula. So, if you ever fall into that formula which is most of the processed food environment out there you just have very little chance to actually sticking to a calorie deficit over the long-term. But if you can manipulate your food we can either quantitatively to optimize for maximum satiety you know overeating is not a problem most of the time.
Danny Lennon:	Right. Beyond that it gets even into when we look at high fat diets and obviously I think now it's generally well accepted even within conventional nutrition research that a high fat diet is not necessarily problematic. It's certainly not a reason that you're going to get fat because you eat fat, and that's I think at least for most sensible people fairly well understood. The issue becomes is

if you do eat in a caloric excess high fat diets are very easily stored as fat, that fat content, and so it again looks at this combination of well how do we make sure that we're avoiding caloric excess when we're within this high fat framework. And on the flip side it reminds me of a lot of people within the physique world will often do things like high carbohydrate re-feeds, and high calorie re-feeds as they're dieting where they could overeat for a couple of days maybe like 600 grams of carbohydrate, but they have to keep fat intake super low as part of this protocol. But people find that really difficult to do, right? You think it's going to be great. People say oh I'm going to get a re-feed, yeah 600 grams. But you suddenly say yeah you have to keep fat intake to 50 grams. Now, it becomes really difficult to do, right? You can't have the pizzas, and the ice creams and so on and so it becomes more of a chore than anything.

Marty Kendall: Yeah. The most satiating food in the University of Sydney in 1995, Satiety Index Study was plain white potato. They just could overeat the plain white potato that had plenty of fiber, very low energy density, very high carb. If you look at plain rice, so broccoli, or tomatoes, or any of those really high carb foods they're such a low energy density and if you are not feeding both your fat stores, and your carb stores at the same time your carb stores get full you've only got 2,000 calories worth of storage of glycogen in your muscle and liver, and they get full and your body says no I can't have anymore if you're eating high protein. Similarly you get to the point where you've only got about 500 calories of protein storage circulating in your blood and your body says no I can't take any more of that into my system. I have to convert that to ATP and that's really hard work because there's a 25% loss there as I try and convert it. So, can you just move back on the protein, but if you fill both the carb, and fat, and protein and maybe you could do alcohol at the same time, and now you can do exogenous ketones and load them all at the same time you can fill all the fuel tanks at the same time. And you've got no chance of ever needing to use your own body fat because you're just jamming all fuel tanks all concurrently all at the same time. So, that's the perfect way to bulk up and put on a hoard of fat basically, and the way to reverse that is just to really fill one fuel tank at a time because that really gets full and your body says no I'm good, I'm done, I'm satiated, no more thank you.

Danny Lennon: Have you found anecdotally – people have started some of these challenges that there is an early adaption period for them that

they find the early part more difficult or do you find that that is mitigated by the fact that you frame it as a challenge, and here are some things to do and you're adding these things in. What have people been reporting?

Marty Kendall: Well, we did a survey of whether people have found it a challenge. I think some people find it adapting to more protein, if they're not used to eating lot of protein and they're older and their digestion is not so good or more fiber from spinach and green bulky veggies. But not many I think 50% said yeah not a problem, few had initial digestive challenges because they weren't used to eating that way and coming from a keto low carb approach it's a bit of a switch. I suppose the adaption to go once you've got it in your head and I've been through this process of once you're given free rein to unlimited fat, and bulletproof coffee, and cheese and it's really nice. Once you have told yourself that you can eat fat to satiety that's a really seductive sort of thing to get rid of out of your head. So, it takes a little while to break that habit, but tracking for a little while and being quantitative about it and saying okay you had 90 grams of fat yesterday let's dial it back to 80 grams this week, and just continually moving people towards optimal and building your habits is the really exciting thing. It takes time and we can use your biometrics to keep moving you in the right direction.

Danny Lennon: Right. So, with the fat loss challenge that's being going on what are some of the other ones that you've got in the pipeline and being planning out?

Marty Kendall: Yeah, a bit masochistic. We started this to try and get a launch and give people a go at it, and it's been a massive success and had 400 people in the Facebook group and down, so that ends 10th of February, and then looking at having another one in March where we're just focused on nutrient density. So, it's like well hey if you think you've got the best diet, the most nutrient dense diet let's prove it. We'll give you an opportunity to log your diet for a week and that will help you learn how to use nutrient density, and then the second week will be let's quantify the nutrient density of your diet. And for this one we've done a little prize pool and we found people are much more motivated. They've lost like 2.5% of their bodyweight in 11 days versus 1.5% for the people who haven't gone into the prize pools, so we've got a little prize pool option there and we'll use for the nutrient density challenge to say okay if you're in the top-3 in the leader board that prize pool gets split.

So, we've got that, and then after that we're looking at doing a lean bulking option which is over longer term that we continue to work with you. So, that the smart macros algorithm says okay you're not gaining enough muscle mass let's up your protein, but you're gaining too much fat let's back your calories off. It's finding that fine balance between a dirty bulk weight who has gained too much fat and not have enough calories to build muscle. So, I think that's where I want to get next once I've continued to cut down and build it up, so we'll take everybody in the journey with us and use the app and continue to develop it.

Danny Lennon: Yeah. It's exciting times for sure. I wanted to ask about a couple of things that I've seen you write about in recent months. One that particularly peaked my interest was centered around meal timing, and when people consumed the percentage of their daily calories, particularly for me as people know I have quite keen interest in circadian biology stuff, and particularly now all the data is coming out in time restrictive feeding. Can you maybe just let people know first of all how that piece came about in terms of what you did to put this together, and then maybe from that the kind of findings that you've wrote about then?

Marty Kendall: Yeah. We kept on playing with, we mentioned the half a million days of MyFitnessPal data that we found the database and downloaded and just kept trying to go okay we've got this massive resource what can we do to try and answer all the questions that we had before. So, one of them was how many times should you eat a day and when should those meals be? I suppose the caveat to this is that some people logging in MyFitnessPal may logged breakfast and lunch, and they get bored not log dinner. We tried to filter those out with if they had very low calorie intake we got rid of that data or hopefully had a very high calorie intake we got rid of that data as well just to eliminate people that had binge day or they were trying to bulk and they're not really trying to lose weight. But what we found was that the people who ate more towards the front of the day and ate more protein towards the front of the day for breakfast lost the most weight or at least had the lowest calorie intake relative to the goal intake which was how we were able to quantify it. So, two meals a day seemed to be better than one meal a day, because I think if you have one meal a day I know when I am hungry you know I've done really well, congratulations to me, I give myself a pat on the back, I'll reach for the peanut butter and cream and all of a sudden you've done 4,000 calories and you're gaining weight at one meal a day.

So, I think what seems to work well for people in the data showed that as well is that two meals a day you can get your protein, you can get your fiber, you can get your high satiety, you're not using a whole lot of willpower and you can get your nutrition in but you seem to lose weight. So, breakfast and lunch tended to be the best option, and we also found more protein in the morning and overall more protein across the day tended to lead people to consume less was the trend we saw in the data, and like you say that really aligns with the circadian biology data that's coming out more and more Satchin Panda and the like. People have gone for this intermittent fasting, and I think intermittent fasting is delaying breakfast, and having bulletproof coffee or having a big meal at night, but it seems that insulin stores energy better at night versus in the morning when more insulin sensitive and use that energy during the day. So, it seems overall better to wake up, have a good protein meal first up like Tim Ferriss' 30 grams of protein within 30 minutes is basically true, but more than 30 seems to be better let it go.

Danny Lennon: Yeah. It is interesting how that lines up, and obviously the time restricted feeding data in humans in still within its infancy but there is a lot of cool stuff going on. But if there is, at least theoretically, what we see in rodent data as well if there is trend for any one type of dietary pattern, at least being physiologically optimal for humans, it does tend to be at least skewing more to calories earlier in the day, eating lighter in the evening, and particularly avoiding eating late at night. So, it's interesting that it lines up with what you saw in those kind of self reported MyFitnessPal data.

Marty Kendall: I think Satchin Panda's data said most people on an average eat their daily calorie requirements by 6:38 at night but then they keep eating until 11 o'clock or when they switch off their Netflix and go to bed. So, it's really easy to sit in front of the TV and just keep on jamming whatever comfort foods you've got. But it's really nice to have a hard stop and go okay I am not somebody who eats beyond 4 o'clock in the day or whatever it is. So, switching your identity to I only eat two meals a day and that's early in the morning and I wake up and have a high protein meal, and believing that will work. It really does work and it's benefited me as well I've really enjoyed that.

Danny Lennon: Yeah. I think this comes down to what may work for an individual versus kind of generally what is true. By that I mean – because I've

talked about this previously with people, and say that it's quite clearly true that just because someone eats at 8 PM, 9 PM it doesn't necessarily mean that is more fattening than eating at a different time. If you control for those overall calories and your activity is the same it's like the same. But on an individual level what we've done with a lot of our coaching clients who are those types of people you outline who most tend to report that they snack quite frequently in the evening then the easiest way around that is instead of saying okay we'll try and moderate that a bit or it doesn't matter when you eat like eating after 7:00 won't make you fat like that's nonsense. I agree with that but for this person a good recommendation was hey look how about we just try this? Have your final meal by 6:30 PM and you don't eat until the next morning and again at 6:30, and you just eat in the evening. And immediately that just takes away that and that it doesn't even become hard. It becomes easier for people because it's a very binary mindset. Okay I'm done. I'm done eating now.

Marty Kendall: Yeah. I'm not someone who eats after 6:30 PM.

Danny Lennon: Whereas, if you have that option then even if you're thinking will I, no I won't.

Marty Kendall: I got the radar covered, should I have some?

Danny Lennon: it's like number of hours where you're going to keep checking. Will I do it? No. Whereas, at least if it's quite binary it works differently, so I find that interesting. The time restricted feeding is an interesting one because it's just so challenging when you come to some of those conclusions to say practically how do we help people with that because a later dinner for a lot of people is just a normal part of their lifestyle.

Marty Kendall: With the family it can be a real challenge for some people.

Danny Lennon: Family, social occasions all those things often dictate eating calories in the evening, and then some people just seem to prefer that, I've talked of before, like I was often in a routine of just preferring to eat more of those calories later in the evening, so I'd like not really eat in early part of the day but I think a lot of it is just a mindset shift and trying stuff out, because I found since trying to partition more earlier in the day than that thing of oh I'm always like eating big in the evening just goes away, right? it was

maybe a think I was just telling myself because I'm just more hungry.

Marty Kendall: It just takes a while to get into that habit and for me I get home on the bus at 6:30, quarter-to-seven or whatever and by that time the family has had dinner, and it's like okay I don't need to have dinner with the family or I can have what the family had for dinner. If they had a nice dinner I can have that for lunch the next day and that's okay, and I have a big breakfast in the morning and that's really good.

Danny Lennon: Yeah. It'll be cool to see where this data goes. Actually, my friend Alan Flanagan who was on the podcast recently, just before Christmas actually, before he moved across to start his Ph.D. he just started his work over in the University of Surrey, essentially looking to answer this question. They're doing human trials looking at calorie skewed towards the early part of the day versus the same calorie skewed later in the day. So, it'll be interesting to see that and other groups and what data emerges from it. The other piece that you've wrote recently that I want to ask about was your breakdown of the EAT Lancet publication. So, before we get into your analysis of that maybe just for people who haven't caught up with that news yet, let them know what EAT Lancet essentially is?

Marty Kendall: How do you summarize EAT Lancet? I suppose it's an effort by on a fairly international basis of people to try and say how do we feed a 2050 population of 10 billion people in a sustainable and nutritious way was the stated goal. And I suppose whether you buy that or not I suppose the outcome very much shuns meats, and eggs, and skewed towards they called it plant based which sounds really good. But when you look at the details it was fairly processed – meant to be wholegrain but grain heavy processed oil, heavy diet that had veggies was number 10 down the list after tree nuts, peanuts, sugars those types of things. So, I suppose I looked at it in detail and I went well this is not so flash and got a bit of a bee on my bonnet and wrote a post on it over the weekend, and it's got a good response. I suppose this could part of the discussion and try to bring my satiety, nutrient density angle to that discussion which I think is solely lacking out there.

Danny Lennon: Yeah. We'll link up to the full piece for people to go and read it in the show notes. But what were some of those main things that

you wanted to get across in that particular article? What were your main issues with the EAT Lancet?

Marty Kendall: Yeah. I suppose somebody asked me what do you think of it from a nutrient density, satiety perspective and it was a really good opportunity for me to throw my quantitative systematized nutrition approach at what that proposed. Walter Willett was the lead nutritional author, and then had some really good environmental science. I suppose the basis is around the idea that meat is extensive from an environmental point of view to manufacture. But when you looked at the detail of what they're recommending, like I said, the number-1 was grains from corn, soya, and wheat, and then unsaturated oils which tend to be soya, corn oil that is extracted using chemical processes. And I went through and I said hey let's look at the nutrient density once you take all those food groups and put them together, and the nutritional outcome was very poor compared to just choosing any whole food and the energy density was incredibly high at the same time. I suppose from a satiety, hyperpalatability point of view it put you at 46% carbohydrates which is basically smack in the middle of hyperpalatable zone. So, I suppose my frustration with it and I vented it in the post was really that this is really just the continuation of manufactured food that's going to be sanctioned into legislation and potentially on an international basis taxed into existence, and the foods that potentially made us healthy before. You can talk about romantically the advent of agriculture, and paleo and before 10,000 years ago when we started domesticating grains. But you know the things that obviously helped to thrive way back then were whole foods, and animal based foods, and hunt together type foods and those foods are going to be become pretty inaccessible to most people, and what's going to be given to us is a more refined agricultural based diet that is the foods of industry potentially quite processed and very much reliant of a fossil fuel fertilizer type inputs that have low spectrum of added nutrients. And we see since they started to use more and more fertilizers since 1920s, 1930s, 1940s that our nutrient density has been depleted massively as we keep on farming the same soil over, and over, and over again. So, I think that's a big reason why these days prioritizing nutrient density is a big deal. And sustainability, and cost of food, and how are we going to feed 10 billion people in 2050 is a really big question and really big challenge, and regenerative agriculture is really a great idea but it's really hard to do and hard to turn back the clock, and it's definitely a challenge. But I think we need to

also prioritize nutrition and looking at quality food and quality humans rather than just growing food fast and animals fast, and the same thing happens with humans. We just grow fast, we grow big, and we get very sick and diabetic and that's also going to cripple our international economies with the health costs, so that burdens…

Danny Lennon: Yeah. It's so difficult for something like this where they have essentially tried to tackle so many different things that the way our food system is setup right now is probably pulling at different ends, right? So, how do you create something that's sustainable and affordable at the same time something that's most nutritious? Obviously, like you said, it came extremely harshly down on red meat, and I think maybe a lot of that was probably weighted from a sustainability point of view, but still given that when you look at what was included obviously you mentioned the surprise of like vegetables where they were placed on the list compared to others. So, I think there are probably some things that are really difficult to tease apart here and I think worth mentioning for people because with anything of this nature we're obviously not talking about these are our recommendation for a diet on an individual level. These guidelines are not setup to do that. They're incapable of doing that, especially when you're talking about worldwide population never mind one country and when you're trying to factor in things like sustainability and economics. So, I don't know if this would ever be the place you would ever send some of this I hear if you want the best nutrition these are the recommendations to go by. I am not sure that's what they're setup to do.

Marty Kendall: Yeah. I suppose like we talked about before there are different perspectives on nutrition whether you are carnivore or paleo or vegan or I think even if you end up with the you know I'm going to follow a sustainable dietary approach and that's a very noble goal and I think let's give people the tool to focus on nutrient density, so that they can find the most nutritious foods within that paradigm. It's not like eat this one food or this group of ten foods it's like let's teach people to prioritize nutrient density within the available foods they've got locally, seasonally in their area within their budget etc, etc, etc, and in a sustainable way. And if you can invest in foods that came from regenerative agriculture then put your money where your mouth is, if you can get your own garden to go around veggies I'm grateful but not everybody has the luxury and I think we just need to give people the knowledge and

the tools to help them move the nutrition forward. Yeah, it's definitely a challenge going forward to feed because really the reason why we've got 10 billion people on the planet is because 10,000 years ago we started an agricultural revolution, and then in 1960s we add that up massively to a point where we're now without fossil fuel fertilizers and pouring non-renewable resources into the ground to grow our food we wouldn't have the same cheap food that makes it really easy for the international population to grow. So, it's a really interesting trajectory that's going to be interesting to unwind one way or the other. Eventually it will, but how we manage that is a really challenging question.

Danny Lennon: Yeah. That's the thing. Can we undo some of where the food system is at because even with meat which is obviously seen as the bad boy in the sustainability world there are methods to produce meat that are obviously extremely sustainable, and in fact probably better for the land, and better for the soil than what we're doing with the crops. However, that's not what has been done at a widespread level when you look at all factory farming and so on. And if we were to move away from that again that's a whole other kind of worms you won't get into, but there are definitely some super smart people that can point us to some of this stuff where maybe it can be done in a more sustainable fashion and actually could be better environmentally than even some of the crop production.

Marty Kendall: Yeah, definitely. And Diana Rodgers and Robb Wolfe are currently writing a book together about regenerative agriculture, and I am not an expert in that but it's completely fascinating and bringing chicken and cows, and your crops back together to have some fertilizer by the cows and to get that symbiotic relationship is really powerful and it's probably the ultimate solution but with 10 billion people that's going to be hard to do everywhere.

Danny Lennon: Yeah. Trying to make that happen is a difficult thing and I agree. I've learned a lot of what I know in that area came from secondhand from reading stuff that Robb has put out and so on. One last thing to cover before we wrap this up Marty, not only accounting for the nutrients themselves but you also have looked at things like micronutrient ratios. Obviously, this can get quite deep and obviously a lot of it is tracked within the app and so on. But from an overview level what would you say to people of just some things to be aware of around micronutrient ratios, maybe

some examples of common ones to be aware of, and then how they might typically play themselves out?

Marty Kendall: Yeah. I suppose the most common ones that people might be aware of is the potassium-sodium balance, and you can too much sodium but that's often related to not enough potassium. So, people focused on getting potassium then that works itself out. Too much sodium doesn't necessarily matter as much. Another one people might be aware of is Omega-6 to Omega-3 ratio and there are a number of similar set of ratios in the diet, and like I said, it can get very deep and very complex very quickly. But the way manage it in the Nutrient Optimizer Program is to say okay that nutrient ratio was out of balance. When we're emphasizing foods for you here are the 10 nutrients we're going to prioritize but we're going to cross two or three of those, so we don't exacerbate those nutrient ratios that are already out of wax. So, we don't really try to actively chase that but we say we're not going to push it any further out with the nutrients we do emphasize in that. So again, just by continually iterating through that connection with you, tracking if you want to do it all the time, you want to do it 2 or 3 days a week we just continually retrain you to go, you don't have to try this new food, try this new meal those things will just work themselves out in time.

Danny Lennon: Awesome! And there's definitely plenty on your site where people can check out more of that. I will link to that in the show notes for those of you listening because we're probably just coming up to time here. So, Marty where can people find the website, more about the app, Facebook group all that type of stuff where should people go and check it out?

Marty Kendall: So, there's Optimizing Nutrition which is where all the long articles are. Nutrient Optimizer they can log-on there and do a free report which will give them a starting point in terms of macros and the micros they'll need to chase based on the current dietary profile, and foods and meals that can get them started all in that direction, and then they'll get emails when things are ready to go. Then there is Optimizing Nutrition Facebook group and Nutrient Optimizer Facebook group and Twitter and whatever, but there are lot of interesting things out there on social media and it's really exciting to be part of the conversation through it all to say yeah.

Danny Lennon: Yeah, absolutely. So, we will leave at that. Thank you so much for the conversation I really enjoyed it.

Marty Kendall: It's been awesome! Thanks Danny.

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