



## Lifestyle and Thyroid Health

Guest: Dr. Guillermo Ruiz

*The contents of this presentation are for informational purposes only and are not intended to be a substitute for professional medical advice, diagnosis, or treatment. This presentation does not provide medical advice, diagnosis, or treatment. Always seek the advice of your physician or other qualified health provider with any questions you may have regarding a medical condition.*

**Dr. Justin Marchegiani:** Hey, there. It's Dr. Justin Marchegiani. Welcome back to the Thyroid Reset Summit. I have Dr. Guillermo Ruiz who is a naturopath physician in Arizona. Dr. Guillermo, welcome to the summit. How are we doing, man?

**Dr. Guillermo Ruiz:** Oh, doing fantastic. The weather is beautiful. It's amazing. Life is good.

**Dr. Marchegiani:** That's good. Well, I appreciate your energy. And I know we're going to have a phenomenally energetic conversation today on thyroid health. So let's dig in. First off, how did you become so inspired and so focused on thyroid health?

**Dr. Ruiz:** Well, just like a lot of the viewers, I had a personal interest in health and evolutionarily sound ways of treating disease. And endocrinology is like a nexus between physiology and lifestyle.

**Dr. Marchegiani:** Ooh, love that. Love that.

**Dr. Ruiz:** Yeah, whatever lifestyle changes you are performing or you are adopting, they are going to impact your hormones. So what happens when you do paleo or keto or any of these really cool things that are working for a lot of people and they don't work for you?

And I was very interested in trying to figure that out. And it turns out that the biggest needle mover is endocrine.

**Dr. Marchegiani:** Yes, very good. So you just looked it as a big lever or nexus point where you could help your patients get better. That's phenomenal.

**Dr. Ruiz:** Yeah, just think about it. What you eat, sleep, exercise—all of those things affect your hormones.

**Dr. Marchegiani:** And when you talk about the thyroid, though, what made you want to focus there over the adrenals or over male or female hormones? What was that [inaudible].

**Dr. Ruiz:** So that's a really big secret. And the reason it's a secret is because functional medicine practitioners, we treat the whole person. But we have to niche out. And we have to look at what people are being afflicted with. And thyroid is a big missed. It's underdiagnosed. And it's something that I can grab someone's attention and bring them in. And once they're in, you're getting more than your thyroid fixed.

**Dr. Marchegiani:** Exactly. Everything is connected. Everything functions and dysfunctions together. I see a lot of people with thyroid issues that a lot of times have adrenal issues. And then many times, there's some kind of a gut issue or malabsorption or some kind of digestive issue. And of course, from there you can have toxicity issues because we know how important the liver is with thyroid health. So that's great. So anything you want to say about that?

**Dr. Ruiz:** Well, another big one is insulin. Insulin is needed for deiodination of T4 to T3. So if you have blood sugar dysregulation, if you have autoimmune disease, if you have anemia, if you have all of these different things, you might have in the middle of all of that your thyroid as a culprit. And being able to identify all of those people who have been underdiagnosed—how many experiences have you had with patients who come in and say, “Yeah, my doctor ordered labs. He looks at me, and he says, ‘Everything looks fine.’”

**Dr. Marchegiani:** Totally.

**Dr. Ruiz:** “But I don't feel fine.” And if you can go in and educate your patients on how this axis—the HPA axis—can effect everything, then you get a lot of buy in. And then doing a paleo diet, sleeping more, and doing all of these things becomes easy.

**Dr. Marchegiani:** Very good. Now, let's dive in a little bit deeper on the insulin. There are a couple of different avenues we're going to take today. I know we'd talked we're going to dive in deep to Graves' as well, which is awesome.

So on the insulin side, insulin is a hormone that helps open up the cells. So carbohydrate and even amino acids can come in. We have insulin resistance on one side from lots of stress and cortisol and carbohydrate. And then we potentially have the low insulin side. Can you talk about how you work on dialing people's insulin in, insulin resistance, and how that affects thyroid conversion?

**Dr. Ruiz:** You might have heard that there are a lot of people who are doing the ketogenic diet and how there's a big spotlight on maybe the ketogenic diet is affecting your thyroid. I've been fortunate enough to work with the guys at Ketogains. I'm not sure if you're familiar with Luis and Tyler.

**Dr. Marchegiani:** Oh, great! Yes.

**Dr. Ruiz:** Yeah, and I was looking at their before and afters. And the before and afters for their program are mostly females, 35 to 60. So it's that premenopausal period, menopausal. The toughest client that you can imagine. And they're having amazing results with their body comp transformations.

And I kept thinking, "How?" We're always hit over the head with, "Oh, you need carbs in order to facilitate this conversion." Well, one of their mottos is chase results. Don't chase ketones. So they're not measuring.

**Dr. Marchegiani:** Yeah, exactly.

**Dr. Ruiz:** And one of the things that they do is they protein as their main micronutrient. And maybe the use of protein in order to activate this insulin mechanisms is what's helping women lose weight and maintain their hormonal status. And being able to have a solid diet is more important than trying to micromanage your hormonal output.

**Dr. Marchegiani:** So these patients are insulin resistant. So they're eating more protein. They're probably eating more fat as a result because usually fat and protein coming together unless you're doing boneless, skinless chicken breasts or a whole bunch of smoothies. And they're probably improving their insulin resistance. Is that the mechanism we're that's improving that thyroid conversion?

**Dr. Ruiz:** So you're increasing the metabolic flexibility of your mitochondria. And then second, you're not completely shutting down that insulin pathway because you are using protein. And some of that protein is going to activate those pathways. So yeah.

It's not even as complicated as trying to fix their insulin pathways. It's just basically fixing their diet which is just fantastic because you're taking someone that was overeating. You put them on a solid diet. They're losing weight. They're getting more nutritional density. And all of a sudden, their hormones become better.

Now, there are some patients who are going to have hormonal output problems. And that's where we can come in and fix that.

**Dr. Marchegiani:** And the blood sugar is really interesting because I see it from both perspectives. I chase results because I'm a functional medicine clinician like yourself. I see patients virtually all over the world. And I see a lot of patients who have thyroid conversion issues that are from an insulin resistance issue. I think probably most people, just because of the fact of the 150 pounds of sugar per person on average—

Just for listeners here, listen to Brian Mowll's interview where we talk a lot about blood sugar. But also listen to Dr. Sarah Ballantyne and Elle Russ's interviews because they talk about how low carbohydrate diets can sometimes cause a thyroid issue.

I want to get your take. My perspective is I think you're going to see more people who benefit from a lower carbohydrate, ketogenic template (because it's reversing the insulin resistance) than you will people who are going too low carb and that benefit by increasing the carbs. What's your perspective?

**Dr. Ruiz:** I agree 100%. I agree 100%. Anyway that you can get a person to spontaneously reduce calories and lose some weight is going to have an overarching benefit in their hormonal output. However you want to splice it—

**Dr. Marchegiani:** Because it's helping with insulin resistance essentially.

**Dr. Ruiz:** Correct.

**Dr. Marchegiani:** You've just got to make sure those calories then are eventually replaced with whole food, nutrient dense things.

**Dr. Ruiz:** High nutrition. Not tablespoons of butter or tablespoons of MCT oil. And that's the crux of the matter. We get so into our heads with things. And we think, "Oh, if I don't eat carbohydrates, then I will go hypothyroid."

Well, if you are doing a nutritionally dense diet, you're automatically going to reduce carbohydrate intake. And if you are doing a ketogenic diet where you're substituting nutrient density with refined oils and then you are adding on top of that carbohydrates, you're back in the standard American diet.

So choose a path. And then work with a practitioner to help you optimize your hormones.

**Dr. Marchegiani:** Excellent. So would you still think, though, things like adding MCT or adding, let's just say something like butter or something to—a butter kind of coffee thing, would that still have some nutrient density to it on the vitamin K, essential fatty acid side?

**Dr. Ruiz:** There's a maybe answer. I don't know if you're familiar with [Stefan Ganne]. Everything is like, "Well, maybe."

**Dr. Marchegiani:** Maybe, right. Yeah.

**Dr. Ruiz:** Would eating some really high quality butter—just as a side note, vitamin K is one of the toughest micronutrients to get. It has to be gotten from a ruminant that's eating green pasture. So for example, in Arizona you can get grass fed milk. But it's usually hay. And that's dry grass. So there's no vitamin K in that. So it's so difficult to get.

So yeah, putting some butter might increase your vitamin K2. The problem is that you give someone an inch, and they take a mile. And I don't think that coconut oil, as awesome as it is for its antimicrobial effects, for its MCT, it's 9 g of calories per gram. We cannot forget that these supplemental fats are very calorie dense. And they can be impeding your weight loss which, in the end is making you a little bit harder to be insulin sensitive.

**Dr. Marchegiani:** And I see you've got the *Wired to Eat* book in the background. That's Rob Wolff's book.

**Dr. Ruiz:** Yeah.

**Dr. Marchegiani:** So on this topic here, because I know you're talking about some of the calorie stuff—calorie in, calorie out stuff—which there's some

truth to that because if we do drop calories a bit we can increase insulin sensitivity and decrease insulin resistance. But also, if we're getting the nutrient density and the good fats, wouldn't that also decrease the urge to also want to consume more, too? So how do you splice that?

**Dr. Ruiz:** Totally. So every single diet has this in common. It makes you reduce calories. So what I see a lot is, even in my own personal experience—I'm sitting in front of you right now because of the paleo diet. People like Rob Wolff, people like Chris Kresser.

And I remember in the beginning—I'm talking about 2008—we didn't know what we were doing. I remember listening to Rob's podcast. And half of the questions were, "Are these things paleo? Are tomatoes paleo? Are potatoes paleo?"

In the end, you're like, "What the h\*\*\* are we doing?" But we didn't know. So we were eating meat and veggies. And meat can be very satiating. And veggies are pretty good.

And then you start feeling better. You lose weight.

**Dr. Marchegiani:** Up micronutrients, yeah.

**Dr. Ruiz:** Yeah, you start going on Pinterest and you download recipes. And now you're making paleo pizza and paleo brownies. They're ain't nothing paleo about pizza. So you start getting into this, not only complex—

**Dr. Marchegiani:** Unless cauliflower pizza. And then maybe not bad.

**Dr. Ruiz:** So what I tell my patients is—and this is something that I learned from Rob. If they want to snack and they want to snack on almonds, how many almonds can you eat if I give you unpeeled, in the shell almonds and a nutcracker? 10?

What if I peel them and I sprout them? Well, that's a little bit more. What if I roast them with a little bit of honey and sea salt?

**Dr. Marchegiani:** Sea salt and all that. Oh, yeah.

**Dr. Ruiz:** And what if I do that plus I process them to make a nut butter? So now you've gone from a snack that was 10 almonds to half a truck load of

almonds. And that's because of processing of foods. So the more processed, the more steps, the more tasty you can make food, the easier it is to consume.

**Dr. Marchegiani:** Very interesting. So you're saying that certain foods, because of how they're processed, it's just easier to overconsume certain things.

**Dr. Ruiz:** Totally. And just think about this. Dr. J, have you every just grabbed a cup of mayonnaise and just gone at it?

**Dr. Marchegiani:** Mayo? Probably not as much with that.

**Dr. Ruiz:** Totally. No, no, no, no. What about just boil a chicken and just pick it off the bone?

**Dr. Marchegiani:** A little bit. But I'm a little crazy like that. But yeah, I get what you're saying. I get what you're saying on this.

**Dr. Ruiz:** What about grab an onion and eating it like an apple?

**Dr. Marchegiani:** Uh, no.

**Dr. Ruiz:** No. What about some celery sticks and just eating the celery sticks? That's more probable.

**Dr. Marchegiani:** Yeah, if there's almond butter on there maybe. Yeah.

**Dr. Ruiz:** But you combine all of those things, and you make chicken salad. And you can eat everything. So the food combination of things makes you eat. It's so crazy that the more calories you add to the something, the more you can eat them.

**Dr. Marchegiani:** Yeah, it makes sense.

**Dr. Ruiz:** So by keeping it simple, by going back to not overthinking it and eating meat and veggies, yeah, it sounds boring. But boring is going to give you satiety. And it's going to be easier not to overeat.

**Dr. Marchegiani:** And I've seen some of the research on some of the ketogenic diets which is interesting. A lot of times they show that when you go ketogenic, you can actually decrease some of the calorie consumption. The difference is with dropping the calories or dropping the carbs and going more

ketogenic, the difference is you're doing it while feeling satiated versus cutting it while feeling hungry because this hunger is going to eventually lead to you having a rebound binge. And usually it's not going to be a nutrient dense food.

**Dr. Ruiz:** Totally, because ketones are inherently—they can make you a little bit—

**Dr. Marchegiani:** Satiating.

**Dr. Ruiz:** Satiating. And they make you a little bit nauseous. So then you're more averse to eat.

**Dr. Marchegiani:** Yeah, that's true.

**Dr. Ruiz:** And then on the side of that, using some quality electrolytes and getting yourself well hydrated. And now, you're a lean machine.

The problem is that there are a lot of versions of keto where you're just chasing that number. You're chasing how many keto bodies you can have. And if you have excess ketones, well, your body is going to process ketones and not burn fat. So the trick is not to get them exogenously. The trick is to make your body produce them.

**Dr. Marchegiani:** That totally makes sense. And this is important. So for everyone listening, I want to anchor everything back because what Dr. Guillermo said earlier is everything is connected. So we're just highlighting this insulin resistance mechanism which is really important for, number one, T4 to T3 conversion. You can go into the peer-reviewed literature and just type in "diabetic" or anything to do with high blood sugar and thyroid. You'll see low thyroid function.

Also, low calorie diets can lead to low thyroid function, too. So we want to choose foods that are nutrient dense and get enough nutrition. And again, not all calories have nutrients. But if we're eating whole food, nutrient dense foods, all those foods will have calories. So if you're getting enough calories, that's a good sign that you're probably getting enough nutrition if it's within that template.

**Dr. Ruiz:** Correct. And don't be afraid nutritional density. You'll see people condemning you if you eat a baked potato. But a baked potato has more minerals, has more vitamins

**Dr. Marchegiani:** A lot.

**Dr. Ruiz:** Than a tablespoon of MCT oil.

**Dr. Marchegiani:** It's got a ton. It's super rich in potassium. Potatoes are actually pretty decently nutrient dense.

**Dr. Ruiz:** Nutrient dense.

**Dr. Marchegiani:** That's why, if I cheat, I'm cheating with a potato or some organic French fries because there's some decent nutrient density in there. That's a very good point.

Now, I want to shift gears and talk a little bit more about iron because you're going to [inaudible] at the end of this summit interview on how to optimize your iron. Iron is super important because it's actually a building block for thyroid hormone. We need to be able to carry oxygen for our thyroid hormone to work. Can you dive more into iron and thyroid?

**Dr. Ruiz:** Well, I started seeing a couple of connections between this nexus of infections and then hormonal issues, specifically things like PCOS or irregular menstrual periods and then women with anemia. And I started like, "Is there a connection?" And I was staring at this problem. And it turns out that iron is needed for so many more things.

So first, let me explain to you. If you have ever been told that you have anemia, what anemia means is the inability for your blood to carry oxygen to cells. Plain and simple, if you cut yourself and you're bleeding out, you're not going to have blood to take oxygen to your cells. And that's anemia.

You can have pernicious anemia which is a B12 deficiency. And now your cells are not going to be well formed. And you're not going to be able to take oxygen to the cells. You can have sickle cell. You can have all of these different types of anemia.

But I was more curious about iron-deficiency anemia because it just seemed that everyone that I was screening was coming out as being anemic. And it turns out that there are so many reasons for you to be anemic. For example, anemia of chronic disease. So if you have a gut infection, iron is so necessary for life that your body hides away iron in order to prevent the bacteria that is attacking you, the virus that is attacking you from taking advantage of that

iron. So now you have this anemia of chronic disease where your iron is hidden. But in reality, you are not anemic. It's just your body protecting you.

And then it's really funny because there was this case study of malaria in Africa where they went and tested kids. And they had low levels of iron. So then they gave them iron. And guess what happened? That hidden malaria infection went through the roof. And then people got really sick.

**Dr. Marchegiani:** Is that because their immune system got boosted because it got increased because now oxygen was there?

**Dr. Ruiz:** No. So what happened is that the body was using an evolutionary adaptation to protect from a fulminant—

**Dr. Marchegiani:** Oh! Yes. Yes. Okay, got it. I understand what you're saying. So what you're saying is that anemia, having that low iron level, helped prevent the malaria from getting into the red blood cells and infecting.

**Dr. Ruiz:** Correct.

**Dr. Marchegiani:** Totally makes sense.

**Dr. Ruiz:** Yeah, so then they gave them the iron. And then the infection went fulminant. And then people got really sick. So now the WHO has specific guidelines for health workers. If you're in a malaria-endemic place and you're testing for iron, you better have a solid anti-malaria program in order to avoid this.

**Dr. Marchegiani:** And I think African Americans as well, in that region that have the sickle cell shape, that sickle cell shape is also an adaptation against malaria, too, isn't it?

**Dr. Ruiz:** Correct. Yeah, so that prevents the malaria from infecting the cell. And it's an evolutionary adaptation. So the people who had this defect—and it's just an amino acid difference—this defect in the shape of the red blood cells that prevented the malaria from entering survived. And now it causes a lot of pain. So it's a maladaptation. But it's protective.

Same thing, if you have been diagnosed with anemia, you can take that little red pill that's going to make you constipated all day long.

**Dr. Marchegiani:** Right, the ferrous sulfate.

**Dr. Ruiz:** Yeah, all day long. But if you don't correct the reason why you're anemic, you're never going to get better.

**Dr. Marchegiani:** And also, we see it a lot with females that are menstruating. They have estrogen dominance. And they're just bleeding too much. They're going above and beyond three or four days of menstruation. And they're going greater than four tampons a day. And they're losing that blood out.

**Dr. Ruiz:** Yeah, so what's their root cause? So now we can make this branching. Okay, if you have been diagnosed with anemia, is it because you have a hidden infection? Is it because you have a bleed somewhere like an ulcer or Crohn's?

**Dr. Marchegiani:** *H. pylori*.

**Dr. Ruiz:** *H. pylori* or celiac. Is it because your hormones are out of whack? Or is it because you have an absorption problem? And at the opposite end, guys, we have a different problem. We tend to—

**Dr. Marchegiani:** Go high.

**Dr. Ruiz:** We go high. We tend to. And this is another evolutionary adaptation because when we were hunters and gatherers, we had a lot of injuries. And we needed to sequester and hold on really tightly to our iron because it's very precious. And because we now live in very cushy environments and we sit in front of computers and we are not shedding blood, now these levels of iron can get so high that it can become a little bit of an irritant. Literally, oxidating you.

**Dr. Marchegiani:** Yes, exactly. And oxidation is, think of cutting a green apple or an apple on the counter. And then it gets brown a little bit later. That's that oxidation. You're losing electrons.

**Dr. Ruiz:** So there are great papers on reversing diabetes with just decreasing iron levels in the body.

**Dr. Marchegiani:** Oh, wow! So it's if the inflammation is creating a stress response. That stress response is mobilizing cortisol and/or glucose because of it. And that's kind of the mechanism?

**Dr. Ruiz:** Yeah, so if we want to just find, why does your body stop accepting sugar into the cell, it's because if you keep burning sugar you create more and more reactive oxygen species. And if you continue doing that, then that cell is

just going to die from all of the reactive oxygen species. So then your body is like, “Okay. No more sugar.”

**Dr. Marchegiani:** Sugar burns dirty. It’s like diesel fuel. Behind a diesel truck, you get that. So your body likes to burn fat more over the sugar. Would you agree?

**Dr. Ruiz:** Well, it depends.

**Dr. Marchegiani:** Exercise, of course. But just steady state.

**Dr. Ruiz:** And as long as you are eating fewer calories than you are expending—well, not really. As long as you’re in a good balance, you can basically use any of the macros to fuel you. As long as you’re in balance. And the preference of what way you want to fuel yourself is going to be individual from person to person. But if any of those things are in excess, then you can start creating mitochondrial damage.

So iron can be very oxidative. And that oxidative damage can make you very sensitive to the oxidative damage caused by burning sugar. So it pushes you into that type 2 diabetes. And there are various studies of people with type 2 diabetes that were given a drug to decrease their iron levels, to chelate their iron levels. And spontaneously became insulin sensitive again.

**Dr. Marchegiani:** So oxidative stress is going to be a big one. And [inaudible] can do it, of course. Of course, there are low antioxidants in your fruit, in your vegetables, or in just your diet. That’s a big one.

And then, how is iron connected to the thyroid? We know we need iron and oxygen. Iron attaches to the hemoglobin. It carries oxygen. But how does the thyroid utilize the iron to perform optimally?

**Dr. Ruiz:** So it’s very important for thyroid peroxidase, which another enzyme that helps build thyroid. And then secondly—and this is more a roundabout way. So whenever you have an infection, your immune system uses iron to create hydrogen peroxide to kill different viruses and bacteria. If you don’t have enough iron, now you can’t be fighting these infections. So having low levels of iron predisposes you to having these chronic infections.

**Dr. Marchegiani:** So the hydrogen peroxide that used, that’s made by the iron to kill infections. Low iron is going to basically compromise your immune

system. And it's going to decrease the TPO enzyme activity which is used for binding up that thyroid hormone. Is that correct?

**Dr. Ruiz:** Correct.

**Dr. Marchegiani:** Very good.

**Dr. Ruiz:** So it's a 1-2 punch. And for a long time, I was like, "Should I treat iron deficiency first? Or should I treat chronic infections first?" It's weird because in my head, I was like, "If I give you iron, then this infection can become fulminant. But if I don't give you iron and I'm just giving you herbals or antibiotics, then you're going to kill 99% of that infection. But at some point, your immune system needs to be responsible for keeping things at bay."

**Dr. Marchegiani:** Exactly. And what about the risk factor of being vegetarian or vegan? Are you going to be able to get enough iron, not having any animal protein or any animal-based heme?

**Dr. Ruiz:** And that's a huge problem because there are things that have high iron levels.

**Dr. Marchegiani:** Spinach.

**Dr. Ruiz:** For example, spinach. The problem is that in order for you to absorb that iron, it has to go through a two-step process where it needs to become first constructed into heme iron. And unfortunately, if you have intestinal permeability or if you have dysbiosis or if you have any digestive problem, you're going to be less able to do that.

**Dr. Marchegiani:** That process happens in the body, though, this two-step process.

**Dr. Ruiz:** Yeah, in the intestinal lining actually.

And then on top of that, you need vitamin C in order for this thing to happen. So the best, easiest way of getting this iron is to eat preformed heme iron which comes from animal products.

**Dr. Marchegiani:** Animal products. And then with that iron, is it a one-to-one conversion in that step? You know how they say flax oil is going to equal fish oil, but it's a pretty inefficient way to get the EPA and DHA fats. Is it kind of like that?

**Dr. Ruiz:** 5% efficiency rate of converting flax to DHA. 5%. Everything else, you know what happens? It burns. And it becomes [inaudible].

**Dr. Marchegiani:** Exactly.

**Dr. Ruiz:** Yeah, and the same thing with non-heme iron.

**Dr. Marchegiani:** Heme iron?

**Dr. Ruiz:** Yeah.

**Dr. Marchegiani:** Is it about 5% as well?

**Dr. Ruiz:** I'm not as fresh on that statistic. But what is not used is going to fuel the bacteria in your body. And if you have bad bacteria, then you're out of luck because that bacteria is going to become better.

**Dr. Marchegiani:** Totally. So let's say someone does have low iron, is there a certain chelated iron that you like to give to help replete stores in patients that you find are low iron which you get to the root cause? Is there a certain chelate.

**Dr. Ruiz:** Yes! And in fact, this ebook, I have specific recommendations.

**Dr. Marchegiani:** Oh, cool.

**Dr. Ruiz:** So the ferrochelate I haven't had really good clinical outcomes with it.

**Dr. Marchegiani:** That's the iron bisglycinate?

**Dr. Ruiz:** Yeah, the bisglycinate.

**Dr. Marchegiani:** Yeah, the Ferrochel?

**Dr. Ruiz:** Yeah, I've had patients do it for three months. And unless you're doing it often and at high doses and with tons of vitamin C, I haven't seen really good outcomes with that. I've seen better outcomes with iron gluconate.

**Dr. Marchegiani:** Gluconate, okay.

**Dr. Ruiz:** Yeah, but there's an old school formulation called Floravital.

**Dr. Marchegiani:** Yeah, by that German company. They also make Floradix, right?

**Dr. Ruiz:** Yeah, yeah. And I don't remember which one is the gluten-free one.

**Dr. Marchegiani:** The one you just said, Floravital, is gluten free. Floradix has a little bit of gluten in there.

**Dr. Ruiz:** And I've had better outcomes with that. Not perfect. Nothing like fixing intestinal permeability, eating a solid paleo diet.

Now, if someone is really iron deficient, IV iron, you can fix them overnight. But IV iron is a bandaid. That is not a curative procedure. You can replete the tank. But if they don't fix either the hormonal problem or the hidden infection or whatever is causing that low iron, you're going to be doing a ton of iron IVs for the rest of your life.

**Dr. Marchegiani:** Yeah, and then do you have to worry about—let's say we see someone's iron is low, and their thyroid could easily be connected with it. But let's say we know there's a lot of inflammation in the system. How do you go about that? Do you wait longer and get the inflammation down before adding the iron? Or the other way?

**Dr. Ruiz:** So thankfully, most of the patients that I see have been doing a paleo diet for a while. So it's often that I see high CRPs. And if I see a high CRP, it's probably the husband—

**Dr. Marchegiani:** That's C-reactive protein.

**Dr. Ruiz:** Yeah, the husband of someone who has been doing paleo for a long time. And they finally convinced their spouse to come see us. And guys don't usually have high iron. But no, not see it a lot. And usually whenever someone ends up at our practices, they have been on this health journey for a while. And they've gotten 90% of the solution. They just need that 10%. And that 10% sometimes is missed. And it can be iron deficiency or nutritional deficiencies in general.

**Dr. Marchegiani:** Very good point. Now, I want to go deeper into the diagnostic aspect of this. And there's a book that people can get. So that's really important to get the full story on that. But in general, when you're looking to pick up someone's low iron, are you just basing off a CBC? Are we doing any deeper iron markers? What does that look like for you?

**Dr. Ruiz:** I like to do a CBC. And a couple things that you can look on the CBC is your MCV (your mean corpuscular volume). And you don't want it above an 89. There are two extremes. You have a 79 to 100, I think is the reference range. The 79 would be really tiny red blood cells.

**Dr. Marchegiani:** That's more iron deficiency.

**Dr. Ruiz:** Yeah, or a bleed.

**Dr. Marchegiani:** Or a bleed, yeah.

**Dr. Ruiz:** Yeah, because you're bleeding out. And those red blood cells remain small. And they're not growing. And then on the 100 side, you see really big red blood cells that can't get in through the crevices of the arterials and get into the cell. So when they're big, that means that they're not dividing.

And a couple of things that can be happening would be low B12, low folate, MTHFR problems, creatine issues, all of those things. Phosphatidylcholine could be very important for those patients. So that would be megaloblastic anemia or microcytic anemia—big cell anemia.

**Dr. Marchegiani:** Big one.

**Dr. Ruiz:** Yeah, and then I would look at the ferritin, make sure that the storage iron is in good levels. And that's just my big screen. And if I see that your ferritin is low, then I need to figure out why it's low. And that would trigger me to order a more specific anemia panel where I look at tIBC (or total iron binding capacity), iron levels. And I actually have a table at the end of the ebook so you can see where you should be for optimal levels, not just reference range levels.

**Dr. Marchegiani:** This is great because I see so many female patients that have estrogen dominance. And they have low iron. And I also see a lot of females and guys who have poor digestion, low stomach acid, chronic inflammation in the gut whether it's from gluten or some kind of autoimmune thing, infection, SIBO. And they're just not absorbing their products and/or people who are coming in who are trying to be health conscious, being vegan or vegetarian, and just not getting enough of these good nutrients. That is so, so important.

I want to shift gears a little bit here to talk a little bit Graves'. We talked a lot about Hashimoto's. And Hashimoto's is an autoimmune condition that can

drive the thyroid to go more hypo. But typically it's more TPO and thyroglobulin based. Graves' is a little bit more unique. So I would like you to break that down for the listeners.

**Dr. Ruiz:** Well, I've been geeking out on this topic lately because I had a patient come in with Graves' disease. And I ordered an ultrasound. And for the code, I did autoimmune thyroid. It was just autoimmune thyroid. I didn't specify that it was Graves'. And when I got the ultrasound report back, it was heterogeneous nodules consistent with Hashimoto's. And I was like, "Wait a minute. This is not Hashimoto's. This is the opposite."

So with Hashimoto's, you are having an autoimmune attack on your thyroid that is just destroying your thyroid and preventing it from producing thyroid hormone.

With Graves', you're having an autoimmune attack on your thyroid that is activating your thyroid and making you produce a lot of hormones. So it's basically the same pathophysiology process with different outcomes.

**Dr. Marchegiani:** Right. So it's like someone trying to burn down the west side of your house versus someone burning down the east side of the house, maybe where your gas tank is. And that fire is the one that blows it up. It's just where the inflammation is. There may be different susceptibility in that area.

**Dr. Ruiz:** And it's like a key. So let's say your immune system is trained, and we have evolved to make immunoglobulins to attack a bunch of things. And they are nonspecific. So you create this perfect immunoglobulin that binds to an EBV [Epstein-Barr] virus. And it destroys it. And it just so happens to fit on your thyroid, too. And that key can either turn on the thyroid or turn off the thyroid.

So in Graves' disease, this immunoglobulin attacks the TSH receptor (the thyroid-stimulating hormone receptor), binds it, and activates.

**Dr. Marchegiani:** Interesting. So EBV (which is a virus) is a big activator. What other activators are there from an infection standpoint, food standpoint? What do you see clinically?

**Dr. Ruiz:** Well, so the molecular mimicry is when your immune system makes an antibody. It binds to something. And that something is similar enough to your own molecules that it binds to you, too. The literature is very clear that

only viral infections can produce that type of molecular mimicry. So EBV, Lyme—

**Dr. Marchegiani:** Cytomegalovirus.

**Dr. Ruiz:** Cytomegalovirus, yeah. Not Lyme. Lyme is—

**Dr. Marchegiani:** Bacteria.

**Dr. Ruiz:** It's a bacteria, yeah. But I have a gut feeling that anything that is pro-immunomodulating, anything that is going to make your autoimmune system go haywire is going to tip the scales closer to you being able to produce these immunoglobulins that are going to activate or deactivate your thyroid.

**Dr. Marchegiani:** Interesting. Okay, so we talked about some of the viral. That's really good. Do you see any other things, food wise? Anything with gluten? Anything with vitamin D? Are there any other factors you see clinically?

**Dr. Ruiz:** So the biggest factor for thyroid autoimmunity is going to be your genetics. So if you have a family history of thyroid disease, specifically your dad—if your dad has a thyroid problem, I think it's like a 75% chance that you will have it, too.

So you've got the loaded gun. What's going to pull the trigger? And this is where an autoimmune paleo diet can be very effective in preventing this trigger in certain things that you should be doing in order to avoid this. Or if you have it, you need to really concentrate on the most autoimmune diet possible, at least for a short period of time, until you fix the problem because this autoimmune loop—the autoimmune you are, the more you activate this autoimmune loop, whether it's for Hashimoto's or for Graves'. The more you are activating your immune system, the more you're going to increase that activation of that autoimmunity to your thyroid.

**Dr. Marchegiani:** So epigenetics is big. Do you also notice—I see a lot of patients who come in who actually have Hashimoto's. But in the early onset, they present like they have Graves'. And you wouldn't know unless you did the testing.

**Dr. Ruiz:** And that's what's very interesting about Graves' disease because it's a destructive process. It's an immunoglobulin that's destroying the TSH receptors. If you can grab someone with Graves' and stabilize them and get

their hormones levels to a reasonable level, about 30% of those patients are going to convert into Hashimoto's.

**Dr. Marchegiani:** Right. I see that.

**Dr. Ruiz:** Without the need to have surgery. And there are some cases of Graves' that are very extreme and can be very dangerous. And of course, in those cases sometimes having surgery is going to be the best option because hyperthyroidism is more dangerous than hypothyroidism.

But there are some inherent dangers of having thyroid surgery. For example, having thyroid radiation increases your chances for colon cancer. Having a thyroid removal can affect your parathyroid or your recurrent laryngeal nerve. And that can cause permanent damage.

So if you're able to control it with medication and you wait long enough, then you're going to be out of that danger zone. And then you'll probably end up needing thyroid hormone in the future.

**Dr. Marchegiani:** What have you noticed from a nutritional standpoint? Because I've had probably about a dozen patients with Graves' in my past. And of course, I think you highlighted. You've got to be really careful with a thyroid storm which could cause a stroke or some kind of a cardiovascular issue because the thyroid ramps up your blood flow and puts more vascular stress on board. I've had some good results with certain nutritional compounds. And we can talk about them. Have you done anything naturally as well to help knock things down?

I imagine maybe you recommend the methimazole or the PTU medications to decrease that conversion. What other natural things are you doing to help that patient avoid, obviously a stroke on one side, but also the surgery and the radioactive iodine on the other?

**Dr. Ruiz:** Well, so I like to act fast. I don't want anyone to say, "Oh." I put myself on a deadline. I want to get you feeling better in a month and a half tops. And feeling better is going to be as soon as you start on medication you're going to start feeling better. I want to have your labs looking better in a month and a half. And unfortunately, because of the dangers of hyperthyroidism, I do like to start with methimazole.

**Dr. Marchegiani:** Stabilize.

**Dr. Ruiz:** Yeah, get them stable. And then using a low-dose lithium carbonate. Or there is a product called Florical that is an over-the-counter fluoride and calcium supplement.

**Dr. Marchegiani:** I see where you're going with that.

**Dr. Ruiz:** Yeah, it's a highlight that can take the place of iodine.

**Dr. Marchegiani:** I see. Wait. Are you saying that maybe drinking water with fluoride in it could be lowering our thyroid function? Is that what you're alluding to?

**Dr. Ruiz:** That is 100% what I'm alluding to, yes. And that's one of the inherent problems with fluoride supplementation. Low levels of iodine and high levels of fluoride could be driving this epidemic of Hashimoto's. But fluoride can be very useful in controlling someone with Graves' because methimazole is an amazing drug, very safe. But it has a couple of problems. It can elevate your liver enzymes. It's contraindicated for someone who wants to get pregnant.

And if we can get it under control, then I like to switch to something that is going to be a little bit more gentle, like lithium carbonate or Florical.

The way methimazole and PTU work is they block your iodine receptors. But meanwhile, you still have all that iodine in your thyroid. And you're just dumping and dumping and dumping and dumping hormone. So it's going to take a good six weeks for your body to balance that input/output. And if you're using something like lithium carbonate or if you're using something like Florical, that's going to take a couple months.

Clinically, I do a lot of research with botanicals. I have never seen good outcomes with lycopodium or *Melissa officinalis*, the classic herbs for Graves'. I have not seen them work. But I've seen very consistent results with lithium or with the Florical.

**Dr. Marchegiani:** Yeah, I do a similar stuff. I do a combination of lithium. I also do high-dose L-carnosine as well, which is helpful. There are a couple herbal tinctures like you mentioned with the *Melissa*. Some have the blue flag. But I always combine them together. I don't ever lean on one thing. So that's interesting with the Florical. I'll have to keep an eye on that as I put it into my clinical toolbox. Really good feedback.

And then I wanted to shift gears a bit, too, because you highlighted something on the iodine. And I know this is a controversial topic out there. And we'll talk about it throughout the summit. We have people like Dr. Alan Christianson, Dr. Kharrazian who are like, "Keep iodine really low."

And then you have some people like Dr. Brownstein—he's one of them. And there are probably more I could think of that go overly super high on the iodine. What's your clinical perspective? And how do you treat patients with iodine?

**Dr. Ruiz:** So iodine is like fuel to the fire. And there are really good studies of people with Hashimoto's that were put on a low iodine diet. And they converted to regular thyroid output. I think that there is a lot very careless over supplementation of iodine that can be very bad for your thyroid. You can be burning your thyroid.

**Dr. Marchegiani:** So can you be more specific? What does that number look like to you? Are we talking 100 mcg? Or are we talking 5 mg?

**Dr. Ruiz:** 110 mcg is the top number that I want to see my patients. Now, this is where it gets really tricky.

**Dr. Marchegiani:** And that's a very low dose, for the listeners. So that's interesting. So my interest is piqued. Keep going.

**Dr. Ruiz:** Yeah, the most interesting thing is the Wolff-Chaikoff mechanism that if you take too much iodine, your thyroid shuts down. Well, this is the crux. If you are on thyroid medication, thyroid medication is made with iodine. T3 and T4. T3 molecules of iodine. And T4 is four molecules of iodine. Around 100 mcg thyroid hormone or one grain or 65 mg of Nature-Throid or WP have around 120 mcg of iodine.

**Dr. Marchegiani:** Oh, they do?

**Dr. Ruiz:** Yeah, so that's why it's so important for anyone taking thyroid medication not to add any more iodine because now you're getting it from your prescription. You're getting it from your diet. And then you're going to get it from a supplement. And that can really easily go too high and shut down your thyroid.

**Dr. Marchegiani:** So what if someone is taking an over-the-counter glandular that doesn't say iodine is in it? Do all glandulars just inherently have the

iodine in the tissue?

**Dr. Ruiz:** So funny enough, iodine is only used in the thyroid. Your thyroid is this factory that compresses iodine into thyroid hormone. That's all it does. No other tissue uses iodine. They use T3 and T4. But they don't use iodine specifically. Unlike things like calcium and things like that.

**Dr. Marchegiani:** And is there a difference between iodine and iodide as well? Because that's a big thing.

**Dr. Ruiz:** So iodine and iodide. The two molecules of iodide make iodine. So it's just two molecules of iodide, iodine. And then I use them interchangeably. But let's stick to iodine which is  $I^2$ . And then any glandular tissue, if you have something that is a glandular with thyroid tissue, now it's going to have some levels of iodine because that's a concentrator.

But most importantly—do you know why we make all of the pharmaceutical-level natural desiccated thyroid out of pigs and not cows?

**Dr. Marchegiani:** Pigs are more biocompatible. I know pig hearts, they use those for the valve. It's a compatibility immune system thing, isn't it?

**Dr. Ruiz:** So I had that question. I was like, "I need to investigate." Well, another reason that the U.S. Pharmacopeia doesn't allow to use beef, cows.

**Dr. Marchegiani:** Oh, wow!

**Dr. Ruiz:** It's because of prion contamination.

**Dr. Marchegiani:** Mad cow disease.

**Dr. Ruiz:** Yeah, it's so close to the brain. And the [inaudible] can contaminate the hormone. So I'm typically very against any sort of glandular for thyroid people. If you really need thyroid, it's just safer to get a prescription.

**Dr. Marchegiani:** But with WP or NP, that's still a glandular tissue, isn't it?

**Dr. Ruiz:** Yeah, but it's from pigs.

**Dr. Marchegiani:** Right. Exactly. Right. So we're talking porcine glandular versus bovine glandular.

**Dr. Ruiz:** Yeah, and then additionally—

**Dr. Marchegiani:** Good points, though.

**Dr. Ruiz:** Additionally, you have your T4, your levothyroxine. That's just T4. But if you're someone who is not converting the T4 into T3, that's not going to serve you very well. Plus, it has a bunch of different binders. And for example, you're getting it from your local pharmacy. And then that local pharmacy changes providers from India to China. Then you might react differently to the same level of medication. So then we prefer to use natural desiccated thyroid because it has T4. It has T3. It has T2 which has been—

**Dr. Marchegiani:** That's important.

**Dr. Ruiz:** Yeah, but it has been associated with weight loss. The problem with Armour or NP Thyroid is they are not as well standardized as WP and Nature-Throid. The USP allows them to have up to 10% variation for each hormone. So each pill could be up to 20% in variation from pill to pill. Where Nature-Throid and WP have a 2% variation. So up to 4% in variation from pill to pill.

**Dr. Marchegiani:** I didn't know about this. I thought they were all USP. So wouldn't they all fall under the USP? USP stands for United States Pharmacopeia. That's the pharmaceutical standards.

**Dr. Ruiz:** Yeah, in the pharmaceutical standard, they were grandfathered to 10%. But Nature-Throid and WP are going above the bar. And they do a 2% standardization.

**Dr. Marchegiani:** Is there an additional symbol on that to say that's the case? Is there an additional certification above USP to show that?

**Dr. Ruiz:** No, it's just internally. They just decided—

**Dr. Marchegiani:** You just have to know. You have to have that insider knowledge like you do.

**Dr. Ruiz:** Yeah, and interestingly, if you were to write a prescription for Armour and then you don't select dispense as written, they can give you—

**Dr. Marchegiani:** Sub it.

**Dr. Ruiz:** Yeah, they can sub it for NP thyroid or Armour but not for WP and

Nature-Throid. They are considered to be completely different, in a different league.

**Dr. Marchegiani:** Interesting because I always went to WP1. I like the fact that it only had three ingredients. It had the MCT, the inulin, and it had just the hormone. And then, Nature-Throid had a little bit of lactose in it. That's why I moved more to WP. But in general, they were cleaner than a lot of the maltodextrin fillers that I saw in Armour and NP. So I went [inaudible].

**Dr. Ruiz:** Another tidbit. The factories that make this thyroid replacement get the thyroid from a different provider, the dessicated thyroid powder. And they use lactulose as a preservative. So every single thyroid product has a little bit of lactose. Every single one of them. And Nature-Throid and WP, same company, RLC Labs, they choose to disclose it. No one else discloses it.

**Dr. Marchegiani:** Well, on WP I don't see it says lactose on the back.

**Dr. Ruiz:** Oh, I'll show you. Well, they're the same company, WP—

**Dr. Marchegiani:** Right. RLC Labs, correct.

**Dr. Ruiz:** Yeah, and you look at the added. And it says lactose. So funny story. RLC Labs is located here in Arizona. Yeah, and we have a very close relationship with them. And they just invited us for an in-service. That's where I learned all of this stuff.

**Dr. Marchegiani:** But I've really studied that. So you say lactose is on the label of the NP. And it's also on the label of the WP.

**Dr. Ruiz:** Yeah, and it's two levels. I never had any problem with someone reacting to those tiny levels of lactose. They are like 5 mcg per [inaudible].

**Dr. Marchegiani:** Oh, okay. That's good to know. That's really good. This has been really eye opening for me as a clinician. That's very good.

So let's finalize things here. Can you just go over just the thyroid medications? You already did briefly. But can you go over the synthetic ones, the glandular ones? And then I just want to hear your clinical opinion of why you like what you like personally. I kind of already have an inkling of where you're at.

**Dr. Ruiz:** Yeah, okay. So we're saying levothyroxine, or Synthroid, just T4. Very well standardized. It's a pharmaceutical grade. Every single pill is going

to be the same. But like we discussed, if they change from pharmacy to pharmacy, you might change binders. And that's very important. That affects your absorption rate. Plus if you cannot convert a T4 into T3, then you might have trouble with that.

Then you have liquid T4, Tirosint.

**Dr. Marchegiani:** Tirosint.

**Dr. Ruiz:** And that's a very pure T4. That is, it's not a generic. It's a brand name. And it's going to be the same. There are no binders. It's very hypoallergenic. But again, you get into trouble of the T4 to T3 conversion.

**Dr. Marchegiani:** It's still basically Synthroid in a liquid, more hypoallergenic form.

**Dr. Ruiz:** Exactly the same. It's just plain T4. Okay. Then you have the natural desiccated thyroid. So you have Nature-Throid, WP. Same company. They are basically the same active ingredients. The only difference is the WP Thyroid only has three ingredients—inulin, MCT, and the thyroid hormone. It has a lower shelf life but very hypoallergenic. And right now, we're going through a shortage of thyroid hormone. And WP is not being produced right now. So we are having to rely on Nature-Throid. And I see that people with dysbiosis or people with digestive issues have needed higher levels of the hormone. [inaudible] Nature-Throid—

**Dr. Marchegiani:** Of Nature-Throid versus WP?

**Dr. Ruiz:** Versus WP, yeah.

**Dr. Marchegiani:** What? Like a quarter grain more, you think?

**Dr. Ruiz:** About half a grain more.

**Dr. Marchegiani:** Wow!

**Dr. Ruiz:** Yeah. Yeah, no. That's another thing that I'm going to hit on. So if you have hypothyroid and you have your TSH is at a 4.7 or at an 11, there is really no difference in how much thyroid I'm going to start you with because it's not a linear relationship. Your pituitary is going to start increasing the signal whether you're a little bit off or a whole lot off. So a difference of 2.8 to 4.2 is not going to be that big. So I would normally start my patients on a

quarter grain of WP, just the tiniest dose. And then you can see where you are. And then you retest. And then you fine tune it.

With Nature-Throid, we have been starting them at half a grain. Yeah. And seeing similar results. But a little bit more aggressive. And I think it's because of the pharmaceutical-level binders that they're using, which remain constant from pharmacy to pharmacy because there's only one company making it, which is a good thing. But I have seen needing to use higher levels of hormone.

**Dr. Marchegiani:** Excellent!

**Dr. Ruiz:** And then you have the compounded. So you have compounded T4 and compounded T3. And not a big fan. You have to rely a lot on human error because there are compounded medications. And my compounding pharmacy is amazing! But I don't want to leave that to chance because you're talking about micrograms of hormone. And I don't want to put my patient in a situation where they're taking a pill. And all of a sudden there was an increase or decrease in hormones.

**Dr. Marchegiani:** Right. Right.

**Dr. Ruiz:** And then we can get really fancy and make extended release or sustained release T3 and b.i.d. medication, meaning taking the thyroid twice a day. And in reality, I think that pushes people into more of a TSH suppression side of things which can cause a lot of symptoms such as palpitations, hair loss. And the thyroid—just like every other hormone in your body is in a circadian rhythm.

And I don't think that we need to be doing multiple dosing throughout the day. And taking it first thing in the morning, 30 minutes away from food on an empty stomach, if you have the correct dose, if your TSH levels are solid and you're not getting better, there is something else. You probably don't need more thyroid medication. They are probably from a [inaudible].

**Dr. Marchegiani:** So you don't like dividing the dose and doing it two times a day or three times a day.

**Dr. Ruiz:** No.

**Dr. Marchegiani:** You think just once is enough.

**Dr. Ruiz:** Whenever I see that, I see more people who are using it like caffeine. They're using it more as a stimulant. And what we see with that is that, just like you can become insulin resistant, if you're running that metabolism too high and creating too many ROSs, you can become thyroid resistant.

And a good indicator of that is this scenario. You have a person with suppressed TSH, so 0.000001. That is tired, some fatigue, hair falling, gaining weight because you are running that engine so hot that your body is reducing thyroid receptors. And they think, "Okay, so I used to feel like this when I was hypo. I added more thyroid medication. I felt better. I'm going to add a little bit more and more and more." And then you start feeling those same symptoms again. And you think that the solution is breaking down through that barrier and increasing your thyroid dosage. So yeah, that's going to work for the short term. But eventually, once your body can't bail out the thyroid, then you start having those same symptoms.

**Dr. Marchegiani:** And so what do you do when someone's T3 numbers are still maybe, let's say, not in the top 50% of the reference range, the top half, but TSH is starting to drop? At what point do you say, "Well, the TSH going too low is more important"? Or hey, is getting the T3 levels up into, let's say, the top half, the top third of the reference range more important than actually getting the symptoms of the thyroid under control?

**Dr. Ruiz:** Well, that's when you use the TSH as a lever. If your T3 and T4 levels are not optimal, there is something else happening.

**Dr. Marchegiani:** So we're always digging in deeper. So let's say we're doing everything. We're not just on the thyroid. We're doing everything else. What do you do now? Do you say, "Well, the TSH is more important"? Or do you say, "The T3 is more important"?

**Dr. Ruiz:** No, TSH is more important because that's your thermostat. That's your thermostat. And then a lot of people are quick to jump and say, "Oh, it's a pituitary problem." But if it was a pituitary problem, you wouldn't see that increasing your thyroid medication would suppress. You would see the opposite.

**Dr. Marchegiani:** So do you like TSH around 1? Is that that general sweet spot you like it at?

**Dr. Ruiz:** 0.5 and 1. 0.5 and 1.

**Dr. Marchegiani:** 0.5 and 1.

**Dr. Ruiz:** Yeah, it's a very narrow window. And that's a 0.5 and 1 for someone who is taking exogenous thyroid hormone. If you're not taking exogenous thyroid hormone, you have a little bit more leeway. And we're not going to have to—

**Dr. Marchegiani:** Up to 2.5 or so?

**Dr. Ruiz:** Yeah, something like that. 2.5, 1.8 maybe. If you're really desperate and you need a win, twist my arm. But that's going to help. Being able to correct the diet, work on the adrenals, sleep. And all of those things—that's going to be so beneficial into fixing the other stuff that's going on.

**Dr. Marchegiani:** And what's your cutoff for recommending thyroid support for someone who doesn't have the typical thyroid symptoms? Would it be above 3? What does that look like for you?

**Dr. Ruiz:** Well, no. 2.5.

**Dr. Marchegiani:** 2.5 So if they're above 2.5, you may recommend a small dose.

**Dr. Ruiz:** Yeah, a small dose, yeah. And not suppress below 1, below 0.5. Be very, very cautious about that. And not making it fancy. Just make sure that you're taking one pill once a day and trying to correct that.

And then we also use body weight calculators for thyroid output. Very well documented on how much output your thyroid should have. Never go super physiological. If you are 100 pounds soaking wet and you're taking 3 grains of Nature-Throid, there's something wrong. There's something wrong.

**Dr. Marchegiani:** The thyroid only makes, what? 2 to 3 grains total a day? So you'd have to have a thyroidectomy for that dose to be—

**Dr. Ruiz:** And I think it's 0.007, I think, mcg per pound of body weight. So yeah, there are calculators online. And so a person that is 100 pounds, their output would be a grain and a quarter or something like, or 1.75 grain. So yeah. Unfortunately, I see 35 year olds CrossFitting, super ripped, very lean taking 3.5 grain. And they're complaining that their hair is falling. And they're getting anxiety. And they feel like crap.

**Dr. Marchegiani:** Very interesting. And then are you always testing them fasting? So taking their support after they test?

**Dr. Ruiz:** Tons of research on that. Not only is it important to be fasting—so this is the thing, okay. It's only important to test fasted. It's the most important to test fasted if you are not taking thyroid medication because that is your output. That is your personal output.

If you're taking thyroid medication, try it next time with your patients. If you test them fasted without thyroid and they are on thyroid support, their T3 and their T4 are going to be low. And then the next time, take their thyroid and test them again. And now, their T3 and their T4 are going to be through the roof because whenever you take an exogenous hormone, the gland that produces that hormone shuts down a little bit which is good in the case of Hashimoto's because that hides the thyroid from the autoimmune process. It shrinks it. It lets it rest. It lets it heal. We see countless patients who used to have nodules who no longer have nodules because we're suppressing the thyroid.

So testing it fasted and then looking at the free levels and they're low, that doesn't mean that you don't have the right amount. That means that there's a 24-hour window of thyroid hormone bioavailability. And you're due for some thyroid. As long as the TSH is within that range.

**Dr. Marchegiani:** So you want to see a normal TSH. The problem is, though, if you're seeing a conventional medical doctor and if they're not educated in that, sometimes if you're taking it in the morning, they may drop your dose thinking it's too high because you're getting that little bounce in that first couple hours.

**Dr. Ruiz:** Yeah, and other things that you have to consider. The menstrual cycle changes. So you want to test around day 17 for your—

**Dr. Marchegiani:** After ovulation because that progesterone is going to increase TPO.

**Dr. Ruiz:** And then you want to—

**Dr. Marchegiani:** Is that the mechanism, though, the TPO with the progesterone?

**Dr. Ruiz:** I don't remember. But yeah. And so you want to test first thing in

the morning, fasted, before you take your thyroid medication, day 17 of ovulation. And pretty much we make that a standard in order to have good consistency.

**Dr. Marchegiani:** Fasting. Day 17. Take your thyroid hormone how many hours before the blood test? One hour?

**Dr. Ruiz:** So I have them not take it.

**Dr. Marchegiani:** Oh, okay.

**Dr. Ruiz:** So first thing in the morning. It just makes it easier. Take it immediately after. Wait 30 minutes and start eating.

**Dr. Marchegiani:** Okay, so you're taking your thyroid support after the test.

**Dr. Ruiz:** Yeah.

**Dr. Marchegiani:** I thought you just said to take it before, though.

**Dr. Ruiz:** No. So I was trying to make the point that it doesn't matter really, once you're taking thyroid hormone.

**Dr. Marchegiani:** I see.

**Dr. Ruiz:** But for simplicity, it's just easier for our staff to educate patients who are not taking thyroid just to do it. But once you start taking thyroid hormone, rule is out the window.

**Dr. Marchegiani:** Dr. Guillermo, you have given us so many great knowledge bombs! I really appreciate a clinician coming on because when you just talk to someone who is just a blogger or just a researcher, you don't get the same kind of information that someone who is in the clinical trenches with their sleeves rolled up in there, working with patients. So I really appreciate your insight and experience.

Again, your site for all the listeners—3030Strong. 3-0-3-0-Strong.com. Very good. Is there anything else you want to leave the Thyroid Reset Summit listeners with here today?

**Dr. Ruiz:** The message I think when we started that it's not your fault. All these different pressures that we have for autoimmune problems, for your

diet, just get yourself a good practitioner, someone who's going to be your advocate. And advocate for yourself. There is a ton of information out there. Make sure you're informing yourself. And keep yourself healthy.

**Dr. Marchegiani:** And do you see patients virtually over phone and Skype and such, too?

**Dr. Ruiz:** Not at this point. We're going to start doing a little bit of virtual consulting. But I'll keep you guys informed.

**Dr. Marchegiani:** Cool. Awesome! Well, make sure you put all that info on the site. Doctor, we appreciate you being a part of the summit. And you have a phenomenal day. We'll talk soon.

**Dr. Ruiz:** Thanks for having me. Talk to you soon.