



## Episode 397: Can Normal Thyroid Function Return by Avoiding Iodine With Dr. Alan Christianson

Child: Welcome to my Mommy's podcast.

This episode is sponsored by Hiya chewable kids vitamins. It's a new company I found that my kids are extremely excited about. Do you know that most typical children's vitamins are essentially just candy in disguise? Many have as much as two teaspoons of sugar, along with some food dyes, some other unhealthy chemicals, or gummy junk that kids should probably never eat as a dentist would probably agree with. Hiya is the complete opposite. It fills the most common gaps in children's diets with full-body nourishment and a yummy taste they love without any of that junk. While most children's vitamins might contain as much as 5 grams of sugar, it can cause a variety of health issues. Hiya has created a zero sugar, zero gummy, junk-free vitamin that tastes great, and as my kids will attest, is delicious. It's perfect even for picky eaters. Also importantly, it's manufactured in the U.S. with globally sourced ingredients, each selected and screened for optimal bioavailability and absorption. What's cool is they send us to your door on the pediatrician recommended schedule. And the first month, you get a reusable glass bottle, that you can personalize with stickers. So every month thereafter, they send a no plastic refill pouch, which means it isn't just good for your kids, it's also good for the environment, and it reduces waste. My kids love the little glass jar that the vitamins are in and I love how it's low waste. You can find out all about them, and their sourcing, and the many benefits by going to [hiyahealth.com/wellnessmama](http://hiyahealth.com/wellnessmama)

This podcast is brought to you by Wellnesse, my new personal care company that is based on the recipes I've been making at home in my kitchen for decades. Many "clean" products simply don't work and this is why I have spent the last decade researching and perfecting recipes for products that not only eliminate toxic chemicals but contain ingredients that work better than their conventional alternatives and that nourish your body from the outside in. I'm so excited to finally share these products with you and wanted to tell you about our brand new dry shampoo! It can be used various ways. You can sprinkle it in clean hair to add volume and to extend time between washes, sprinkle it in hair that has not been washed in a day or two to absorb oil or sweat and you can work it in to color treated hair to maintain color-treated hair by not having to wash as often. It contains oil-absorbing kaolin clay and volume-boosting tapioca which work together to refresh hair at the roots. Lavender oil and cactus flower help to balance scalp and strands' natural pH. We even added hibiscus for healthy hair growth. You can check it out and try it at [wellnesse.com](http://wellnesse.com) and my tip is to grab a bundle to save or subscribe and save as well!

Katie: Hello, and welcome to the "Wellness Mama Podcast." I'm Katie from [wellnessmama.com](http://wellnessmama.com) and [wellnesse.com](http://wellnesse.com). And that's wellness with an E on the end, my new line of good for your body personal care products that nourish you from the outside in. And our newest is dry shampoo that provides the nutrients that your hair and scalp need to be healthy.

I'm here with someone I deeply admire and I'm incredibly grateful for. Dr. Alan Christianson is a naturopathic endocrinologist who focuses on thyroid function and specifically Hashimoto's, which I had, hypothyroidism, and Graves' disease. He's been actively practicing since 1996. And he's the founding physician behind Integrative Health, as well as a "New York Times" bestselling author and a dear friend of mine.

He was the first doctor that started me on my own path to healing from Hashimoto's, and it was how I actually received my initial diagnosis. And I will forever be grateful to him for his work and his education, and for all the things he did that helped me in my recovery, and that he's now also done for thousands of people in his years of practice. He is an incredible researcher, an incredible practitioner, and also one of the more incredible people I've ever met in my life. It's always an honor to share him with you.

And in this episode, we go deep on, of course, thyroid health, but also things like iodine, and especially if you have any kind of thyroid condition, why iodine might be a little more nuanced than you think it is and why you might actually need less and not more. And he also goes through a lot of the data from his clinical experience and his research on how to get thyroid levels back into normal range and some confounding factors that aren't always considered. As always with Dr. Christianson is a very fact-packed episode. I learned a lot and this is a topic I research a lot. So without further ado, I can't wait for us to join Dr. Christianson. Dr. Christianson, welcome back. Thanks for being here.

Dr. Christianson: Hey, Katie, super glad to be with you.

Katie: It's always an honor to speak with you in-person or especially here, a lot of people have heard your name because you were the first person who really helped me on my path to recovery, actually, to diagnosis with Hashimoto's and then to recovery. And I leaned very heavily on you and your work, and especially those early few years of trying to figure everything out. And you have been such a valuable resource now for so many people I know, both personally, and as listeners, and readers of my work and of your work. And I feel like there's just always so much more to talk about when it comes to the topic of thyroid, in general. But especially right now, we're still seeing a lot of thyroid-specific problems on the rise. And I know that you have done an extraordinary amount of research and clinical work with people in recovering from Hashimoto's, and hypothyroidism, and Graves' disease. And it just seems like...especially someone new to this, there's just so much information out there. And I know I was overwhelmed when I started trying to find answers. And I hear from so many listeners who are in that early diagnosis phase or maybe they are even, like, past a diagnosis and still just having trouble trying to figure out how to get the right pieces in order toward recovery for them. So, I think there's 1,000 different things we can touch on in this episode but one that is especially important to me right now that I wanna make sure we tackle first is the idea of iodine. And to start broad, and then I have some very specific follow-ups related to this. But some common knowledge when someone starts just googling, "I have thyroid issues," is take lots of iodine. Like, low thyroid means you probably need more iodine. And I know that you have written about this and educated about this, but walk us through why it's so much more nuanced than just we need more iodine.

Dr. Christianson: Yeah, yeah, great question. You know, nutrients, in general, they serve a particular role. And if they're not there, that role can't work. And I think the best analogy I've ever thought of is just like keys for your car. You know, if you've got no keys, your car won't move. But if you got the keys, the car is turned over, but it's not running well, the answer is not more keys. You know, that solves one particular type of thing. And that's true for nutrients, in general. But for iodine, it's even more so. So what comes down to is that there's a window in which we need some but we can get too much or too little. And either end of the spectrum can be a real problem for thyroid disease.

Katie: And that's such a great analogy. And it makes so much sense. And I know we've talked about this a little bit in previous episodes. But there's also a lot of other, I guess, the analogy of the keys in that equation, besides just iodine as well when it comes to thyroid health, right?

Dr. Christianson: For sure. And the funny thing is that I just mentioned how there's a range of tolerance we have for iodine. And there's a little bit of difference from person to person, but also those prone to thyroid disease, in general, they inherently have a lower range. You know, they're ones that are more apt to have problems if they get too much or too little. And there are some ways in which that's hardwired and there's some ways in which that can be changed. And one of them you just brought up is other keys or other nutrients. So, Selenium is probably first of the list, iron and zinc are relevant. And past that point, any essential micronutrient you can think of has some role in thyroid health. So the

more someone is lacking in those key nutrients, the more narrow their window becomes and the more easily their thyroid function be disturbed by the wrong amounts of iodine.

Katie: That makes sense. Okay. So when it comes to iodine, walk us through that. Like, how can we regulate that? What do we need to know about how much we need or if we're getting too much or too little?

Dr. Christianson: Well, it's a fascinating thing. And I wish I could just say, do a simple test. There's a lot of really good tests that measure iodine levels, and they work at a population level, but few of them really translate into an individual level. So here's what I mean. If you're measuring 500 people, the ways in which a test could fluctuate really mean nothing for the population. You can still be accurate about what the population level is, even though for any one person, it might not pan out. If one person tests themselves, no exaggeration over about 350 times, whether it's random urine, 24-hour urine, blood tests are different. But if you test yourself over 300 times, you can be within 95% confidence of your iodine status. So, the tests aren't great, they're often misleading. The simplest generalization is what's typical for your population. And if we go back to 1992, we had 112 countries on planet earth that were categorized as being severely iodine deficient. And those were areas in which, yeah, they had more thyroid disease. They had more goiter, more nodule formation because of a lack. And if we take those same countries and go forward to 2014, that number goes from 112 down to 0. So, 2014 to now, we now have no nations categorized as at severe deficiency. But we now have 52 nations categorized as at severe excess, in which it can raise the risk of causing thyroid disease by the excess. And yeah, the United States is in that group. So, as a generalization in the modern world, most people who are prone to thyroid disease or developing thyroid problems, have more to gain by reducing iodine than to raising it.

Katie: That definitely does seem to go against... At least with, you know, some of the mainstream sources that someone could Google and find, seemed to present... And this was something I found as well and something that I've learned from you, and then also from self-experimentation. And I know that this is something that you and I recently touched base on a little bit, and I wanna go deep on now is that you've said that people can have their thyroid function improved completely or at least by a lot by closely regulating their iodine intake, specifically, bringing it below a certain level. And I find this fascinating. And it's something I found as well. I think, for me, I had to undo a lot of years of realizing I had symptoms of thyroid problems and trying to take iodine or kelp or different things to fix it. So I had to kind of let my body normalize for a long time after that. But explain why you think that is and what that means for thyroid.

Dr. Christianson: So it's pretty exciting. Yeah, you mentioned how there are disparate views people can find. And that's totally true. In academic research hard, the back base world, wherever you wanna call it, there's a pretty strong consensus on all these things I'm gonna say. There are some different views that emerged about late 90s, early 2000s. And they've still maintained some popularity. But yeah, by and large, there's pretty clear consensus about this in the scientific community. And what happened was that, in 2007, we had the hundred year anniversary of Dr. Hiroko Hashimoto's work. And he identified that most thyroid disease was caused by immune cells. And so, researchers said, "Well, it's been 100 years, you know, what do we have to add to his work? You know, what more have we brought to the table? And they really felt like they're coming up short. There were some big surveys done showing that most people diagnosed have not gotten anywhere near as much better as they would have liked and they're pretty frustrated. You know, a big number of them have seen 10 or more doctors pretty sadly. So, they dug deep and said, "What can we explain about this?" And that launched the new clinical trials. It also launched a lot of reanalysis of existing work. And amongst the clinical trials, some were done on lower iodine diets. And what they found is that thyroid disease, yes, it is, by and large, autoimmune.

The old model was that once the immune system really got the hang of attacking the thyroid, the horse is out of the barn, and it wouldn't stop. You know, it would just keep on going as long as it could. But the new perspective is that, no, it turns out that small amounts of extra iodine stay trapped inside the thyroid, and they basically irritate the cells. You know, iodine is one of the most volatile oxidative active compounds that there is. In terms of elements, you know, like nutritional elements, you've got calcium, magnesium, zinc. If you look on the periodic table of elements, iodine is way down by itself. It's much more active as far as an element occurs. And an excess of it makes the thyroid proteins look foreign. It makes them create high amounts of free radicals. So as long as there's too much of them there, the immune system identifies thyroid proteins as being like invaders or bacteria and keeps attacking them. But what's been super exciting about this new, I call it the thyroid Renaissance stage is that we now know this process can stop. And for many people, those cells can heal. And the gland has a much better chance of working on itself, again, than we ever thought in the past.

Katie: That's fascinating. And I think so hopeful because that's another thing that I've seen in my own life, but a lot of people I think, don't necessarily realize is that a lot of that damage can be undone and that you can recover. So let's talk a little bit more about that. Because I know, in the early days of thyroid diagnosis, for me, it seemed overwhelming and a little bit helpless, until I really realized how the body was gonna be capable of healing and how to support that. And I know you've worked with literally thousands of people on this. So, for anyone who's in that part of a diagnosis, like, what advice would you give and what would you say as far as the body's ability to heal?

Dr. Christianson: Yeah. So, there's two parallel answers I always want people to think about, one of which is, how much better can your thyroid do by itself? And the other is, can you feel as well as you did before this started? And the second one, you know, can you feel better again? It's just a yes across the board. You know, for some people that will also include Replacement Therapy for thyroid medication, for some, it won't. Now, for the first answer, can your thyroid work better by itself? Well, some people their thyroid was taken out. And I would like to say that's universally a case in which their thyroid can never work better again. But I've actually had patients in which their thyroid tissue has regrown. Obviously, trace amounts were left behind. It's come back again. So, that's not common by any means, but yeah. By and large, when the gland was taken out, you can expect longer-term replacement necessary. And with Hashimoto's, there's two main types of it. In one type, the gland swells and gets bumpy. We call that the goitergenic. And the other type, the gland shrivels, and gets holes in it, we call that the atrophic. So if the atrophic version of it is shriveled down to nothing, it can be almost like the gland has been taken out. And in those cases, it may not regrow again. But what we do see is that the iodine status, it not only affects how likely your thyroid is to regrow, but it also affects how your body responds to thyroid hormones. So, there's a lot of people who are on medication, but they don't feel like they're better. Now, they've got a lot of the same symptoms they had before they started. And they can have some level of resistance to thyroid hormones or maybe they only feel kind of okay if they're taking what seems like too much, you know.

But those cases too, regulating iodine can make the body respond better. And the rate of response is just super encouraging. You know, one of the relevant studies took people that had thyroid disease for average of about four years. And to a pretty marked degree, they were pretty severely hypothyroid, like, not at all subtle, like way outside of range. And they did only the iodine regulation. And they saw that within three months, 78.3% had totally normal thyroid function. So almost everyone. But then I looked really deep in, well, who didn't respond, you know. So, of those who didn't respond, they took those people... And I mentioned before, how there's no really good test to see where your iodine status is. You can test well enough to see whether your body is building up your iodine, breaking it even, or lowering, whether it's moving down, right? So they took those who didn't respond and they checked to see if they were where they wanted to be, to where they were lowering their iodine. And most of them weren't. So they didn't get better. So they just actually... They must have missed some sources. Maybe they weren't educated well enough about some things to look out for. So yeah, that's one reason they didn't. Of those who just... The other group who didn't respond, they actually did, but they weren't yet normal. They came from a severe state of disease, close to normal, but

they just hadn't had time to play out all the way. And in the studies that have been done, only a few percent of people that did get to a range, which they were lowering their iodine didn't improve. So the consistency is quite high.

Katie: Wow, that's really fascinating. Okay. So one of those groups, you mentioned that they had missed some sources or you thought they were iodine, but they weren't. On a practical level, when we need to lower iodine, obviously, the obvious one is don't take iodine or do it than that. And also probably there's trace iodine in certain supplements and we know in foods. So what does someone need to know if they're trying to consciously lower their iodine?

Dr. Christianson: Yeah, you mentioned a great point. First thing is just don't take it. And it's in so many products. And it can look like the amounts are small, but because it's such a volatile compound, that affects it, not just in the body, but also in supplements. You know, one big survey looked at... They took popular supplements, and then assay for iodine content and compared the assay results to what was on the label. And not one out of 120 products was within 5% of its targeted amounts. And many had three or four times more than they were supposed to have. So yeah, just don't take things that have iodine on the label. That's an easy first step.

The densest dietary source by far is something that's common for some but not all, and that's sea vegetables. And they do have some other minerals in them, which they can have some positive contribution in that sense, but they've got so much iodine that they're just unsafe to take regularly for those with thyroid disease. A couple of things that listeners probably wouldn't hear otherwise, salts are a big factor. And they're one of the easiest parallel trades because there's tons of great salt options that are essentially iodine-free. Kosher salts are good that way. I have no company affiliations, but Celtic brand and Maldon brand seasalt are a couple that are relatively iodine-free. The Celtic light gray especially. And yeah, Kosher ones are really good, like Morton's and also Diamond brand Kosher salt. One thing that you'd really not come across commonly is just the relative contribution of iodine from cosmetics. There are a lot of things that we would apply to our skin that can carry high amounts as well.

Katie: That's fascinating. And that's not actually what I even really thought about. What are some things to watch out for there when it comes to topical and cosmetic?

Dr. Christianson: Well, the biggest single ingredient is PVP. And there's also a lot of seaweed extracts. And they're really useful ingredients. I mean, they make lotions nice and smooth. They keep them from growing bacteria. They give them a good texture. They keep ingredients emulsified, so they're incredibly useful. But when you run the math on iodine, you know, even a tiny amount of an ingredient that has, like, say, 12% iodine, you'll absorb about 4.5% of that across your skin. So you could take... And there's a lot of things like, for example, like mascara to where they're quite rich in iodine-containing ingredients. But I can't imagine there's any substantial amount entering your body. You know, there's like a few flecks that go on your eyelashes. So there's probably some but then you contrast that to something like a body lotion, to where you could easily have 20, 30 grams that contact your skin and you absorb the bulk of that. So yeah, in those cases, like body lotions, conditioners, face creams, the amounts can be quite relevant. Just a couple of years ago, the FDA banned the use of iodine for hand sanitizers. What they were seeing was that many hospital workers were developing complications from excess iodine exposure using this stuff all day long. And they're now looking at that role in cosmetics. They've not acted yet, but we do know that that's a concern as well for those who are prone to thyroid disease.

Katie: And that's interesting. From the medical perspective, iodine is also a substance they use at different times, right, to sanitize or, like, to sterilize before a surgical procedure ?

Dr. Christianson: They have and that's being phased out. It's mostly been phased out in terms of a topical sanitizer. Yep, it has so many roles in medicine because it is... You know, think about like bleach. I mean, bleach is a great antiseptic, but you don't wanna drink it and you don't wanna bathe in it. And iodine, it's actually... You know, chlorine and iodine are both similar atoms. They're both halides. They both act in the same ways. And yeah, we used it for tons of stuff in medicine, but now, contrast agents. We've tried to find non-iodine versions. It was used a lot as a expectorant, you know, back when for coughs and colds. That's completely gone by the wayside. And more and more for topical sanitizers. It's basically been replaced as well.

Katie: Got it. And I love that you brought up the sea salt equation. I'll put links. I love Maldon Salt and Celtic Salt.

Dr. Christianson: Have you used the Maldon smoked salt?

Katie: I haven't tried that one yet, but I love the regular one. It's such a mild, amazing flavor.

Dr. Christianson: They're both finishing salts. Like, they're these, like, snowflakes. Like, these super, super fine flakes. You just dribble on at the end and you get the crunch and the taste. Yeah, check out their smoked. It's absolutely insanely good.

Katie: I absolutely will. Okay. So also, you mentioned sometimes there's a time period it takes for people to come back into normal range if they've been consuming iodine or their levels have been high. So if someone's been taking iodine or taking things with iodine and is maybe realizing this is something they need to correct, how fast can that normalize, typically, and are there things we can do to help it move back into range more quickly?

Dr. Christianson: Yeah, for sure. So somehow have been taking it in supplemental form, it can be quite a bit longer. And what happens is, there's really no way for getting rid of iodine apart from your thyroid excreting it. And most of what it excretes it puts out in hormone. So if you're not making a lot of thyroid hormone, you're not getting rid of a lot of iodine. And on the other hand, your thyroid can't release a lot of extra thyroid hormone to dump iodine without harming your body. So there's just a speck that's called non-hormonal iodine that is secreted. And that can be as little as a few micrograms per day. It ends up in the urine ultimately. So, if someone's been taking high amounts, it could be 3, 6, 9 months outside a year, there's a medication called amiodarone. It's kind of the poster child for this. And it can take actually a year-and-a-half to have the complications of medicine to clear up. But that's about worst-case scenario. Much more common when the excess is not so much from like iodine supplements per se, but more so iodine in other supplements, like iodine in multis, you know, iodine in dietary sources, cosmetics. In those cases, we're typically thinking about, you know, three to six-month timeframe. And speeding that up, you know, biggest thing is maintaining good status of micronutrients. And of those, Selenium really is just top of the list. Many of the ways in which the body does regulate the breakdown and release of iodine, the thyroid hormones, does just grind to a standstill if there's too little Selenium present.

Katie: Are there any concerns with Selenium on upper limits? Is that one generally considered safe for thyroid patients and how can we know how to get in the optimal range with that?

Dr. Christianson: That's a really good question. I've thought long and hard about that answer. There have been some cases of selenosis, people being toxic from Selenium. I've actually seen that clinically. There was once a man that had symptoms including a thing called ginger bull stippling, which is like these blue lines in the gums. I was sure that he was gonna show up positive for lead poisoning. It was actually Selenium poisoning. So, that's not a common problem, but people can take too much from supplements. There's different forms of Selenium in supplements and in foods. And by and large, supplemental forms are safe, up to a couple of hundred micrograms per day. If you're supplementing above 400 micrograms per day, you can slow your thyroid. You know, you can actually slow things down and work in the wrong direction. Now, foods, there's a pretty obscure thing called Paradise nuts, which are from South America. And they have a version of Selenium, which is more of an oxide. And they're classic for causing Selenium poisoning. Now, on the other hand, we've got Brazil nuts, which are also from South America. And it's so funny because they're just about as rich in Selenium as Paradise nuts, but there's a different chemical form of Selenium called selenocysteine. And up until this one paper was done, I've still been cautious about getting too much from Brazil nuts, but a paper was done. I actually wish they didn't do it because I think it wasn't a safe thing to do. But now, that we have the data... So they gave these preschool kids who were malnourished, they gave them roughly about a quarter of their diets calories from Brazil nuts.

So, like, for an adult, it would be about, like, 30 to 50 nuts per day, like a lot. And they measured them in all these ways for general health, but also for Selenium status. And all the ways of Selenium elimination, you know, urinary, hair levels, nail levels, were all extremely high. But all the markers of Selenium health were fine. You know, their body was able to get rid of the excess and they were actually a lot healthier than their peers that weren't on the same diet. So if anyone would have gotten sick from too much Selenium from Brazil nuts, it would have been these poor, malnourished kids, but they did not. So, once that was shown, more researchers looked at the distinct role of selenocysteine from that particular food, so you really aren't gonna overdose from them. I encourage two to four per day as an easy insurance. And yeah, the amount they have certainly can vary from batch to batch, season per season, but you won't get a harmful excess from them.

Katie: Good to know. That's really helpful. I know, that was one of the things you recommended to me early on, along with broccoli sprouts for the Sulforaphane, which are still a part of my life and something I feel like an easy thing to grow even in the winter at home. And yeah, I love that. I know you've written about some of these things too, and I'll make sure I link to those in the show notes for people who wanna go deep on any of these topics.

Another thing that I always kind of think of in relation to, like, the same mineral equation, and I'm curious, I don't actually know your take on this. But I seem to have found for me that for a long time, I wasn't probably getting enough minerals, specifically, actually from salt. And so, I think I avoided the iodized salt, and then kind of by default avoided salt. And adding in more non-iodized salt and even, like, other types of minerals really made a difference for me. And I'm curious, is that something that's commonly seen in thyroid patients?

Dr. Christianson: That's not uncommon. So, overall, salt intake can be a relevant thing for blood pressure regulation irrelevant to adrenal health. And other minerals can be big factors. And, you know, again, pretty much anyone you shake a stick out, you can draw a good connection between its levels and thyroid function. Selenium, super well-documented. Iron is a lot of data around that. Zinc, magnesium, but iron is probably next up after Selenium. And especially in the demographic most prone to thyroid disease, you know, adult women. There's been paper showing that about 84% of women with thyroid disease are not necessarily anemic, many are, but they're below iron levels that allow for optimal

function. You know, a lot of the thyroid peroxidase, for example, one of the enzymes that helps make thyroid hormone, that's iron or a heme-dependent enzyme, as are many other proteins involved with thyroid hormone production and utilization. So yeah, iron is very critical. And what they've shown is that there's stages of getting low in iron that culminate in a loss of red blood cells, also known as anemia. So, if you can't make blood cells anymore, that's like the last stage of it. But before then, first, you get compromised in how much you've got of cells to fluid and then how much you can make hemoglobin. And then the first thing that tends to go is how much iron you've got in storage. We call it your ferritin in terms of blood levels. And most labs are normal down to 9 nanograms per mil of ferritin. There's been published data saying that people with thyroid disease because of the interactions of iron and thyroid function, this is kind of odd, but they can develop symptoms if they dip below somewhere around 50 to 60 per ferritin, but they may not resolve symptoms until they correct up to 100 nanograms per mil for ferritin. So that's really not intuitive. So yeah, 9 is normal. And you may develop symptoms like fatigue, or hair loss, or poor depth of sleep, or headaches if you've got thyroid disease and you dip below 50 or 60, but they may not resolve until you move back up above 100.

Katie: Wow, I didn't realize it was that high. I'm curious too because I know my ferritin tends to trend high. And there's been concerns about, like, having hyper iron anemia. Is that...? But you're saying like up to 100 is still within the safe range for sure?

Dr. Christianson: Yeah, when you're getting way above 200, 250. We think first and foremost about there being excess ferritin in the storage. And that can come from a lot of things, any low level of inflammation can cause that. Some that are prone to fatty liver syndrome can see that show up. There's also anemia is a chronic disease. And then there are hemochromatosis, and that's where just genetically people store too much iron. That's rather less common amongst the different scenarios. But yeah, higher ferritin doesn't always mean too much iron. It can just mean some type of vague information.

Katie: What about just serum iron? How does that relate?

Dr. Christianson: So serum iron is kind of an in-between marker. So you've got... In terms of sequence, the first abnormality you've got would be what's called latent iron depletion stage 1, and that's where ferritin is below optimal. Serum iron is normal. Hemoglobin hematocrit and red, they're all normal. Then we've got Layton and depletion stage 2, that's where serum iron starts to dip down. But hemoglobin hematocrit and blood counts are still normal. So it's actually not anemic still. There's not a compromise in oxygen-carrying capacity, but there is a compromise in the availability of iron for its direct chemical roles.

Katie: Got it. That makes sense. Just out of pure personal curiosity, I'm also just really interested in... What about potassium? How does that come into play in this equation, and also choline? I don't know if there's any thyroid-specific implications here. I just know, those were both big kind of game-changers for me.

Dr. Christianson: Sure. Potassium is quite relevant with thyroid function. And it's kind of a funny one. So, a lot of things that we know and understand are the limitations of our ability to measure. And potassium is an eye and it's mostly... It's one of the electrolytes. It's mostly inside of ourselves. So we measure potassium levels in the blood and they can be affected, sometimes just by things that have nothing to do with you, just by a blood sample that sits too long before it's analyzed, for example. But if it is compromised in the blood, it's a lagging later stage finding because most of it is inside the cells, we're measuring the blood, what's outside the cells. You'll see potassium in supplements, but not really

enough to be relevant because they can't legally put more than 99 milligrams in supplements. And your body is using a budget of like 3,000, 4,000, 5,000, 6,000 milligrams per day. Yeah, so having healthy amounts of that... You know, general thought is that I think that's one of the big benefits of just high produce diets and adding in lots of fruits and vegetables. For many people... Banana's top of mine, but they're fine, but they're really not exceptional. They're pretty typical for any type of produce you can think of as a good source of that. And that's one of the best ways to help is by adding up a lot of your produce.

In terms of choline, that's a non-essential nutrient that's debated back and forth. The body can make it when things work well, but there are many circumstances which it cannot be made well. And I briefly mentioned fatty liver disease. There's a lot of overlap between thyroid function and how well the liver can burn fuel versus how it stores fuel. And many cases deliver storing much more than it's burning. It's just building up fuel in the form of triglyceride. And those cases can be amongst the circumstances in which choline cannot be well synthesized by the body. And we may be more dependent upon dietary sources of choline. So yeah, that can be relevant for thyroid function.

Katie: Fascinating. Yeah, that was the equation I had to figure out. Over time, I still I'm somewhat sensitive to eggs. And so that's obviously the most common easy source of choline. I had a supplement and that's been really, really helpful for me.

This episode is sponsored by Hiya chewable kids vitamins. It's a new company I found that my kids are extremely excited about. Do you know that most typical children's vitamins are essentially just candy in disguise? Many have as much as two teaspoons of sugar, along with some food dyes, some other unhealthy chemicals, or gummy junk that kids should probably never eat as a dentist would probably agree with. Hiya is the complete opposite. It fills the most common gaps in children's diets with full-body nourishment and a yummy taste they love without any of that junk. While most children's vitamins might contain as much as 5 grams of sugar, it can cause a variety of health issues. Hiya has created a zero sugar, zero gummy, junk-free vitamin that tastes great, and as my kids will attest, is delicious. It's perfect even for picky eaters. Also importantly, it's manufactured in the U.S. with globally sourced ingredients, each selected and screened for optimal bioavailability and absorption. What's cool is they send us to your door on the pediatrician recommended schedule. And the first month, you get a reusable glass bottle, that you can personalize with stickers. So every month thereafter, they send a no plastic refill pouch, which means it isn't just good for your kids, it's also good for the environment, and it reduces waste. My kids love the little glass jar that the vitamins are in and I love how it's low waste. You can find out all about them, and their sourcing, and the many benefits by going to [hiyahealth.com/wellnessmama](http://hiyahealth.com/wellnessmama)

This podcast is brought to you by Wellnesse, my new personal care company that is based on the recipes I've been making at home in my kitchen for decades. Many "clean" products simply don't work and this is why I have spent the last decade researching and perfecting recipes for products that not only eliminate toxic chemicals but contain ingredients that work better than their conventional alternatives and that nourish your body from the outside in. I'm so excited to finally share these products with you and wanted to tell you about our brand new dry shampoo! It can be used various ways. You can sprinkle it in clean hair to add volume and to extend time between washes, sprinkle it in hair that has not been washed in a day or two to absorb oil or sweat and you can work it in to color treated hair to maintain color-treated hair by not having to wash as often. It contains oil-absorbing kaolin clay and volume-boosting tapioca which work together to refresh hair at the roots. Lavender oil and cactus flower help to balance scalp and strands' natural pH. We even added hibiscus for healthy hair growth. You can check it out and try it at [wellnesse.com](http://wellnesse.com) and my tip is to grab a bundle to save or subscribe and save as well!

We've touched on our several different labs. I'd love to... I know in our first podcast, we went really deep on this, and I'll make sure that's linked so people can find it. But when it comes to thyroid disease, in general, I get so many questions related to what should we be testing, which specific markers, and what ranges should they be in? And this is another area where it seems like there are so many opinions. And I know personally, before I found you, I had been to several doctors who only test a couple of the different markers and have their version of what they consider normal. And if you're in that range, they don't consider you to have a thyroid problem and won't test anything beyond that. And I know we went in much more in-depth when I started working with you. So if someone is maybe in that place where I was, and they think they might have thyroid issues, but they're trying to get a diagnosis, or they're trying to, knowing they have thyroid issues, get to optimal, what should we be testing? And what are the most important markers to get within what range?

Dr. Christianson: For sure. And a couple of high-level thoughts to this. So, I see some data points that come out in the popular natural thyroid world, almost like an arms race of the better list of lab tests is the longest list of lab tests. And I wouldn't agree with that. There are a lot of things that we can test that, you know, they may not really change things. You might just get charged a lot when your insurance doesn't wanna cover them. So, not every possible thing is necessarily good. Like Reverse T3, for example, it's one that I don't encourage testing and I could talk more about that. But then the other thought is, how do we decide what are optimal levels? And so, one idea is optimal should be in the middle of the reference range. And I push back on that, and I think that that's a model, it's a theory that can seem to make sense, but is that really where healthy people have their scores? So, most of us who focus on this, we put the most weight in how thyroid scores are in people that are clearly free of thyroid disease and thyroid symptoms. And there's a lot of data answering that question. So, the best single test, if there's one test, which you'd want more than one, but the best single test would be TSH. That's the leading, the first indicator of a change in thyroid status. However, it's also the marker that has the most discrepancy between a normal range and the scores found in healthy people. So the normal range on most labs today is between about 0.4 and 4.5. When I started practicing, that was up to about 12. So that's come down a bunch. But healthy people, they have a very strong tendency to have their TSH scores on the lowest side of normal. Now, it's a backward indicator. So the lower it is, the more active your thyroid is, and the higher it is, the less active it is. So, there is some leeway difference for pregnant, nonpregnant, over 70, cardiovascular disease, you know, kidney function, pediatric, for sure.

But non-pregnant adults under 70, no obvious cardiovascular kidney disease, there's pretty strong data... I'm sorry, one more thing would be existing thyroid enlargement or cancers can change the target too. But barring those things, there's a lot of data saying that somewhere between about 0.4 and 1.9 is where healthy people's TSHs tend to run. And yeah, there's a strong median score of close to 1, so really close to 1. So other tests that have become relevant for early detection of thyroid disease then become thyroid antibodies. There's three that are commonly used clinically. One is more germane to Graves' disease, which is called TSI, but the other two are more common, and that's anti-thyroglobulin, anti-thyroid peroxidase. Now, the antibodies, when they are positive, they do confirm the presence of autoimmune thyroid disease. And the generalization is that they're there because those proteins, the protein and the enzyme, thyroglobulin and thyro proximidades have become excessively iodinated. They've got too much iodine in the bodies now attacking those. But the pitfall about those is that they can be absent in up to half of people with thyroid disease, and they can come and go. So the difficulty with those is that if they are there, they do confirm autoimmunity. But if they're not there, they do not refute autoimmunity. That's a really big point. And they can proceed severe thyroid disease by 5 or 10 years and they're present.

A couple of other things that are good to look at. So the existing hormones, the gland secretes, the T3 and the T4, the free form is most biologically active and more accurate, so free T2, free T4. In healthy people, kind of a curious thing,

healthy people have low normal free T4 scores. They don't tend to be in mid-range or high range. And Healthy People have a full range of T3 scores. There's some that argue that T3 has to be high normal. There's a lot of data saying that if your T3 is consistently high normal, you're more prone to weight gain and other chronic diseases. Healthy people have a big range of T3 scores. So yeah, so with thyroid disease, the first thing to emerge, if antibodies are positive would be the antibodies, but in half the cases, they're not positive. So past that, the second thing that happens is the TSH creeps somewhere above the optimal range of 1.9. And at severe abnormalities, the T3 and T4 can change, but they're generally not the leading indicators. They're more so the lagging indicators because they're buffered. And then the last one I mentioned would be thyroglobulin. And that's a protein that just shows the rate of thyroid cell turnover. And if that's high, there's a higher risk of the gland enlarging or harboring a cancer or other issues like that. But those are the main blood markers. And then the last thing is just structural evaluation through ultrasound can be important.

Katie: Thank you. I was taking notes to put in the show notes about all that. You said like thyroid antibodies, if they're there, that is a sign of thyroid disease, but people can have elevated antibodies long before they have symptoms? Is that one as a general rule, that's just good to monitor with yearly labs to keep an eye on to make sure?

Dr. Christianson: You know, it's a great question. I don't see strong reasons for that. You know, it is nice to know if someone has thyroid disease through autoimmune causes. And if their antibodies are positive, that does answer that question. But then the question you ask is, is it worth tracking the antibodies? And I see many people that they've put a lot of energy on to that... The papers I read, I was just reading several today showing that the antibodies, they just don't correlate with disease progression. You know, one study showed that it was a group of children, they had celiac disease. They were... One group went gluten-free, one group didn't successfully go gluten-free. Those that went gluten-free, their third antibodies were lower than the other group. But they were no better in terms of their likelihood of developing thyroid disease. So there's many examples where the antibodies just don't relate to disease progression. There's a couple of small exceptions. There are some cases to where the antibodies can be in the many, many thousands and the gland can be inflamed and swollen visibly. So, in those cases, it can certainly be affecting just localized pain on the gland. And there are also a few papers showing that also extremely high antibodies of thyroid proximities may be a factor for fertility that's independent of other thyroid levels. So if a woman is trying to get pregnant, she's watching her thyroid already. It's dialed in, but she's still not successful, and her TPO is just through the roof. That may be something to track. But in every other case, I can't find a lot of strong justification for tracking them. And plus, they can bounce up and down somewhat randomly. So, yeah.

Katie: Okay. that's fascinating. And I know it's very hard in that, if anything, my lesson these last few years has been that health is so, so personalized. And I know that you probably agree with me in saying, we're each our own primary healthcare provider. we have the responsibility first. And I know there's always gonna be variation. But have you found any commonalities in your work of things that on a broad spectrum generally should be either avoided or focused on with thyroid disease, that seem to be, in other words, either generally beneficial, or generally harmful, that people should also know to watch out for?

Dr. Christianson: You know, something that's been fascinating, I've been focusing a lot on these iodine levels and its relevance to thyroid disease. And over the years, something that's always puzzled me, I've seen many people that they've done various dietary changes. And some I've found them to be quite helpful and others have found them to be not as helpful. And I tried to see if there was just hard evidence to where there were recommendations I would make across the board. You know, for example, paleo diets, or gluten-free diets, or even vegan diets. There's some that have done any of these and had good success, and others that have had mixed results. And I've not found strong mechanisms why anyone would work just inherently. But when I reanalyzed, the diets considering iodine content, it's pretty easy to cut out some of those categories and end up stumbling onto a lower iodine diet. So, the biggest dietary sources of iodine

are gonna be by far... The biggest two single largest sources are gonna be dairy products and processed grains. And iodine is a contaminant in both of those cases. It's not innate to those foods, but they're generally the highest amounts. So you go paleo and those things are gone. You know, you go gluten-free, and a lot of that is gone. And if you're on a healthier vegan diet, you're not doing, like, you know, vegan croissants or something, those things are gone as well. So yeah, many ways you can cut out certain processed foods, you often inadvertently end up cutting out a lot of the extra iodine along the way.

Katie: That's interesting. That's something people probably haven't considered is, I mean, iodine being present in refined grains and dairy products, but I know also, that certainly seems like a commonality that was really important for me, especially early on and seems to be a recurring theme that removing those two foods is helpful, especially in that intensive healing phase for sure.

We touched on it a little bit, but I just wanna make sure we, like, really highlight that point of that certainly, it seems possible in my experience, and it would seem like from those who have worked with for people to, across the board, improve how they feel with thyroid disease, but you've also seen people actually recover as well. And I always wanna make sure we highlight that because it can seem, like I mentioned, kind of hopeless when you are first diagnosed, and that's why I'm so grateful for people like you who are helping people work through that process.

Dr. Christianson: Well, yeah, and it does happen and it can happen. So now one pitfall to the listeners to be aware of is that if you are on thyroid treatment, you know, and you take some steps suddenly that are quite helpful, you know, you find maybe we're taking some thyroid supplements, and I'm sorry, some iodine supplements, and that was a big part of slowing your thyroid. Well, now your medication needs could change dramatically. And it's unsafe to get a dose that's much higher than you need. So yeah, please do be aware that if you are making some big changes, your needs could shift and it might be necessary to have that adjusted and compensate for that. But the generalization is that your thyroid hormones are just life or death to be in the right range, and the body does all that it can to keep you from making too much. So, I think about, like, current in the house. Like I'm not an electrician, but I don't know, I'm guessing that some of my breakers in the house and our wiring would go off if there's more than 10 amps. You know, so if you've got like massive amounts of extra current, rather than burn down the house, you know, you've got stuff built-in place to shut it off, to stop the current. And that's kind of how iodine stops the thyroid is that if there weren't a set of circuit breakers, all the extra iodine would just passively jam itself in the factory and crank out so much extra thyroid hormone that your heart would give out. Your body would be stimulated to death in a matter of days.

So rather than let that happen, we've got circuit breakers. And it's called the Wolff-Chaikoff effect, that basically, it's a way that your body shuts down, not only how much hormone you would make, but how your cells take up that hormone. And so, on both ends towards the goals of just feeling better, whether you're on medication or not, or helping your gland improve again, that can be shut off, and the body can get to a range in which it allows your thyroid to start to regrow cells, become more metabolically active, and it can allow the rest of your cells to take up that hormone better. So yeah, you can feel better. Many can see their thyroid function improve again, which is good but again, you got to watch for it if you're on medications. But yeah, recovery is possible, and more so than ever thought So in the past.

Katie: That's another really important point. I'm so glad you brought that up. So, for someone who is working on healing, is that just a regular testing thing or how can someone know if they maybe are taking too much medication and need to go up or down?

Dr. Christianson: Yeah, it is testing. And that is looking at the TSH, especially in the free hormones. And a funny paradox is that this is not intuitive. But you'll hear about classic symptoms of too much or too little. So someone might have expectations, if they have too little, they'll be tired. And if they have too much, they'll be overstimulated. And that can happen or they can know that if they have too little, they could gain weight. And if they have way too much, they could have unhealthy weight loss. So, it can seem intuitive to think that, "Oh, I'm not feeling well, I must need more." And the paradox is that you can have the same symptoms on too much or too little. So it's not always intuitive based upon, you can feel off but not always know which way that is. So it's good to check. And then the other relevance to that is too much or too little as a function of the TSH determines how much your thyroid is being stimulated to grow. So if you're ever getting too much hormone, one of many drawbacks is your thyroid is no longer being asked to work and it won't have a chance to regenerate and recover itself. It'll be stuck because the signal to cause to grow new cells is gonna get pushed lower and lower and lower to where it can't really do that. So both in terms of safety concerns and also just towards the goal of your thyroid working better, it's smart to watch your labs and keep those where the TSH is in that healthy normal range and things are well-balanced.

Katie: What would be some of those symptoms someone might run into with too much or too little thyroid hormone?

Dr. Christianson: Well, they can be the same on each end. And that can be the fatigue issues, that can be easier weight gain, hair loss, that can also include a lot of digestive changes. I'll see that quite a bit. Gas, bloating, irregularity, also changes with menstrual cycles. Periods can get heavier, more erratic, tremors, jitteriness, anxiety. And if you're far enough on one side or another, if you're just horribly hypo or horribly, hyperthyroid, the symptoms become more distinct, but yeah, moderate levels are pretty interchangeable. So, any of those types as soon as can be tied to that.

Katie: Got it. And as always, of course, our time flies by whenever we... Whenever I talk to you, I feel like I wanna take notes and learn so much. But I wanna make sure we also touch on, you have a new book coming out in a few months, and I'm gonna absolutely have you back on when that launches to go deep on it. But I wanna make sure we tell people about it today, especially if they can pre-order.

Dr. Christianson: Sure. And they can. This is "The Thyroid Reset Diet". And basically, the clinical trials on reversing thyroid disease with low iodine, they were good. They showed us a possibility of that. But they weren't really meant to be longer-term diets. And they really weren't taking into account a lot of these other sources of iodine. And they weren't really made to be like conference protocols per se. So "The Thyroid Reset Diet," it is that. It's nutritionally complete. You know, you can do this if you're a paleo, or a vegan or just a healthy eater, you can do fine that way. Good recipes. And it kind of walks you through the process on what to test when and, you know, we also get a sense on how much recovery is possible for you personally. But I don't know, I mean, Katie, we've been friends for a long time, and I've gushed about my excitement of various projects before but I think I'm more excited about this than anything I've done in the past. I think this would be a total game-changer for those with thyroid disease.

Katie: Yeah, which we mentioned early in the episode is, unfortunately, still very much on the rise in today's world. And I'm sure all the stress right now is probably not helping us very much. I know that that's another thing I learned the hard way. And one of the factors I think I held out the longest on was realizing how important that stress and mental health equation is for thyroid health, as well or anything on hormones, really. But I love your research and I love how practical you make it. And like I've said on here multiple times, you were the first person to help me find answers and to give me hope. And it's always such an honor to share your work and to share you, just very, very grateful for all the good that you put out into the world and all the people that you help.

Dr. Christianson: You know, and right back at you. You've been a fountain of great guidance for some time and touching a lot of people, and hugely respect that and yeah, keep it up. It's been a good thing.

Katie: Well, thank you, and thank you as always for listening, for sharing your most valuable resource, your time, with both of us today. We're so grateful that you did, and I hope that you will join me again on the next episode of the "Wellness Mama Podcast. "

If you're enjoying these interviews, would you please take two minutes to leave a rating or review on iTunes for me? Doing this helps more people to find the podcast, which means even more moms and families could benefit from the information. I really appreciate your time, and thanks as always for listening.