Introduction to Thyroid Function

under conversion. TSH is normal. T4 is normal, free T3 is normally, but the T 3 is low and the free t3 as low. So, and thyroid antibodies are negative, so now you've got to work on conversion.

Your thyroid's producing plenty of hormone, you just aren't using it. And so vitamin D, liposomal glutathione and superoxide dismutase, SOD, Google the GUGGUL, which is generally considered an Ayurvedic nerve, nerve, herb, but it's very useful for under conversion.

And then you need lots of antioxidants. I listed a few, But you'll need all the antioxidants you can get. Vitamin E, selenium, krill oil for the astaxanthin, matcha, green tea, phosphatidylserine and zinc are critical.

So, hi and welcome to The Balancing Point. i'm Dr. John Needers and I'm here to make traditional Chinese medicine functional medicine and integrative health simple, practical and fun so you can restore balance, boost vitality and enjoy a healthier life every single day.

Hi, this is Dr. John back again with another podcast to help you kind of sort out health and happiness conditions. I want to thank you for joining me.

Uh, and I have a favor to ask. We don't, we're not going to send things out to bug you and you don' never have to watch again, but it really helps us.

in our quest to deliver information. So I've been receiving numerous requests to talk about thyroid function and thyroid disorders. And it is one of the least understood and most poorly treated conditions that I see by the Western medical community.

How the Hypothalamus and Pituitary Control the Thyroid

Yesterday I was interviewed by Dr. Clint Carter, and if you haven't seen his podcasts, I highly recommend them. He's a very, very bright doctor in Texas who switched from emergency room medicine to functional medicine.

That's a big switch. And so today I'm going to talk about an advanced integrative approach to thyroid function. I am going start with a little preamble and talk what actually controls the thyroid and at the end of the presentation I will give you some suggestions on things that you can do to help your thyroid functions.

Now, if you have thyroid disorders, my caveat is you need to have someone working with you that understands that. Probably the best bet is a functional medicine provider, but there are other people that can do it.

But the mainstream Western medicine approaches absolutely miss the majority of thyroid disorder. So, let's take a little dive in here. A little bit about thyroid gland control mechanisms.

The hypothalamus is a tiny, very tiny but critical powerhouse located in the center of your brain. It's above the brainstem and below the thalamis. And it's shocking how small it is for all the things that handles.

So it the control center for most of you functions of survival. And its job primarily is to maintain homeostasis or balance. You need the right level of pH, acid-base balance in your blood.

you need to right amount of different electrolytes in you system. And the hypothalamus is really the gland that controls that. It regulates your body temperature.

When you're too hot, you sweat, which will cool you off. When you're too cold, you'll shiver, which that shivering

actually warms you up. Now, when I say controls, it doesn't do it all by itself, but hypothalamus generally controls the hormones that control hunger.

It controls thirst. It manages your daily rhythms, your circadian rhythms and it controls sleep mechanisms. It controls the pituitary gland, which is often called the master gland.

The pitutary does so much, it's amazing, but I don't call it the Master gland because it is in turn being controlled by the hypothalamus. but there's an anterior and a posterior aspect to the pituitary gland.

But they send out primarily trophic hormones, hormones that are aimed at particular other glands to have them become more active or less active, right?

They control your sex hormone levels, amongst other things. They can control thyroid hormone level, they control adrenal function. It's huge, the thing it does.

And so one of the things it do is it secretes thyroid stimulating hormone. Now doctors will often say, I'm checking your thyroid hormones and then they'll test TSH.

That's a misnomer. TSH is not a thyroid hormone. It's a hormone that controls the thyroid. And so the hypothalamus controls your and regulate your autonomic nervous system, your heart rate, you're blood pressure, and your digestion.

Notice you don't have to think about any of those things. They are autonomics. There are happening kind of behind the scenes. So the thyroid is controlled by the anterior pituitary gland and the release of thyroid stimulating hormone or TSH.

And the, the hypothalamus is constantly reading what's going on and it tells the pitutary, Hey, we need more thyroid hormone, or, hey, We need less thyroid hormones.

and then the Pituitarian responds by altering the thyroid stimulating hormone. So there are a few other little hormones that are secreted, but less important than T4 and T3.

Now this is an easy one to remember. T-4 is four iodine molecules connected together. When you need T3, which is much stronger, a hormone that controls a lot more functions than something called a deiodinase will break off one of the iodine molecules.

And that's kind of easy to remember. It's a D-iodinease. So it breaks off on of of iodide molecules, now the T4 to T 3 ratio that is secreted originally from the thyroid gland, it's about 20 to 1 weighted toward T 4. T4 has a much longer half-life.

T 4 is then converted to T 3 when you need that basic energy function.

T4 to T3 Conversion and Key Nutrients

And T3 is three to four times more bioactive. To me, it seems even more important than that, but I'll go with three two four. That's what the textbooks say.

And so tyrosine and iodine are the critical factors in the production of T4. The tyrocine hole connects the iodide molecules. But selenium is critical for the deiodinases, which are essential for conversion of the T2 to T3.

So, when you get a thyroid supplement that is not levothyroxine sodium, but something you might get from your functional medical doctor, it may contain tyrosine, iodine and selenium, as those are all critical for thyroid function.

Now, symptoms of thyroid disorders. And by the way, from what I've read, now I'm pretty old, but the thyroid stimulating hormone test was around when I first started in medicine.

So it's been around for a while. But from books that I read by doctors that were treating thyroid disorders before TSH, they actually felt thyroid. Disorders were treated better before there was a T SH test because they were trading the symptoms and they got great results with that.

So symptoms of thyroid, disorders, fatigue, right at the top of the list, lethargy. You just don't want to do anything. Shortness of breath. Edema, I'm going to show you some pictures in a little bit about patients that had thyroid disorders that were fixed, and it's shocking.

Their whole facial disposition looks completely different. So edema could be anywhere on the body, often the ankles, but often in the face. Mixed edima, which is kind of a thick eduma, it often happens on lower legs.

And then just general puffiness. I mean, it's shocking, absolutely shocking the difference in physical appearance when people get their thyroid disorders in control.

Weight gain, very hard to lose weight if you have a thyroid disorder, or at least hypo-functioning thyroid. It's very easy to loose weight, if have hyper, an over aggressive thyroid, then it is hard keep weight on.

Cold temperature, poor digestion, pale complexion, insomnia, depression, it's a biggie, thyroid disorders, a lot of depression. And then goiter. Goiter is a swelling in the neck that will happen because the thyroid gland swells.

It's trying to get all the iodine it possibly can because iodide is critical for functioning of the thyroid gland. Other symptoms, poor memory and concentration, or hearing, hoarseness, Slow pulse rate.

Swelling or fluid around the heart. Delayed reflexes. Coldness. Carpal tunnel syndrome can often be related to hypothyroidism. Again, cold, weight gain, poor appetite, hair loss is a biggie.

Shortness of breath. weird sensations, parasthesias on your skin, intestines, a lot of constipation will occur with hypothyroidism, and then the reproductive system.

You'll often get menorrhagia, which is really excessive menstrual periods. And these are all symptoms or potential symptoms of hypathyroid. Now, this is kind of a fun chart that I'm going to walk people through, but if you can see the chart, it actually makes a little more sense.

And so T4, as we mentioned, is released and that can either go to make T3 or reverse T 3. Okay. Now reverse t3 and t 3 bind in the same receptor sites and reverse.

Common Thyroid Symptoms and Reverse T3

T three is produced in when people are under too much stress. It's the body's way of making you slow down. It should always be tested in people with high stress that are having any thyroid problems because you can have perfect TSH, perfect t4, t3, but if you have high reverse t three, you will still have the symptoms of poor thyroid.

And so the proper production of thyroid hormones, a lot of nutrients, I'm going to name just a few, iron. So people, with anemia can often have poor thyroid function.

Iodine, tyrosine as I mentioned, those are kind of the critical molecules, but you need zinc, selenium. vitamin E, C, and several of the B vitamins. Most importantly, B2, B3, and B6, but really you need all of them.

Now, factors that inhibit proper production of thyroid hormones. Number one on the top of list for almost all medical conditions, stress. Stress, Stress.

But infection, trauma, Certain medications can inhibit proper thyroid production. Fluoride is huge. Fluoride is on the same column on periodic table as is iodine, but fluoride has a smaller molecular size, so it can fit into the iodide receptors and block them.

And a lot of times when people start on, like say, taking iodines supplements, and I'm going to get into some more detail, you want to be very careful about iodined supplements.

If they do start taking them, they'll often say, oh, I'm allergic to iodine. But usually what's happening isn't a problem with the iodide. It's the Iodine is pushing out those smaller molecules of fluoride, chloride, and bromine, bromines everywhere.

Chloride or chlorine is everywhere and fluoride is all over the place. So it's very likely and we do testing for this. We have something called an oligo scan, which tells us how much of each of these items are actually in the cells and when you see low iodine you almost always see high fluoride.

Okay, so autoimmune disease, even celiac disease can cause problems, toxins, pesticides, mercury, cadmium, lead, all can inhibit the production of thyroid hormones.

Okay, so now we got T4 out there. What are the factors that increase conversion of T-4 to T3? I'm sorry, T 4 to reverse T 3. Stress, trauma, all the things I mentioned for inhibiting proper production of thyroid hormones can also increase the conversion of T4 to T3.

So I've done a lot of fertility work. I don't do as much now as I used to. because it's quite energy consuming and I'm older now, but I've helped many, many women conceive.

And when they come to me, they've generally been to everybody else already. They come with a diagnosis of unexplained infertility. Well, I'm going to tell you 80 to 90% of those cases are very easily explained.

You just run a complete thyroid panel and you'll see high reverse T3, which is blocking T 3, the energizer bunny, and stress also increases something called sex hormone binding globulin.

And so women can come in with perfect levels of estrogen. and progesterone and testosterone, but the sex hormone binding globulin, if it's too high, will bind those and so you can't even use them.

Once we get the Sex Hormone Binding Globulins down, we got the reverse T3 levels down.

Iodine Deficiency, Goiter, and Tissue Effects

Voila! Many of those women become pregnant very quickly. Now, factors that increase conversion of T4 to T 3, primarily selenium and zinc, And then there's some things that improve cellular sensitivity to thyroid hormones, and I'll get into those later.

So here's a picture of an enlarged, inflamed, hypo- or low-functioning thyroid. And this is called a goiter. You see this swelling around the bottom of the neck.

There's an area in the United States that's called the goiter belt because there's no iodine anymore in soil. So if there is no Iodine in this soil, where are you going to get it from?

Now they did put Iodyne in salt, so you see iodized salt but many people are eating much healthier types of salt, you know, Sal de Mer, the Himalayan pink salt.

The only problem with those is they don't have enough iodine in them. So if you're doing that salt you may need to supplement with additional iodide so that your thyroid gets enough of what it needs.

Now, I'm showing some pictures right now. And so for you that are just listening, i'm going to tell you they're shocking. I am showing a picture of a woman that's probably about 60. In the first picture, she actually looks about 75 or 80. Her entire face is puffy, her eyes are puffing, or throat is swollen.

And then in the next picture she looks decades younger and that was actually from adding iodine. Now the same

thing would happen if you added something like a thyroid.

medicine, it would do basically the same thing, but these were just people who added iodine. There's another one of an older gentleman. Same thing. In fact, he's wearing eyeglasses and in the first picture, they're little round eyewitnesses.

And the picture you can barely see them. His face is so swollen that they kind of hide his glasses almost. The second one, again, looks younger, happier and healthier.

Another one shows a man very similar, kind of drooping. His head's droopping. The second picture, he is upright and looks much happier. Another of a young girl, again, shocking.

Hopefully you can look at these pictures. And the last one is interesting. It's a before picture of a woman that has very few secondary sexual characteristics.

She has almost no breasts. Her body is very thin, very little muscle tone. And then it shows her in a couple months. With iodine, there's a big change.

And then I believe it's at six months, she has fully developed secondary sexual characteristics and her face has changed completely. She went from having a baby face.

she looks maybe 10 to looking like an adult female. So quite shocking. So iodine deficiency symptoms, basically everything I mentioned for thyroid disorders, ADD and ADHD, really common.

Menstrual disorders very common, emotional instability. So this is a very long list and I kind of went over it before, but a couple of things that I want to really point to, and this not well understood, by mainstream medicine, fibrocystic breasts, breast cancer, and prostate cancer.

Well, why would iodine lower those? Well every tissue in your body almost has to have iodide, but the glandular tissues need the highest percentage. So your thyroid needs iodines.

But then the breast tissue also needs iodine and if you don't have enough the breast tissue will grow excessively forming fibrocystic breasts because they're trying to get as big as possible to absorb all the iodide.

Prostate cancer in men, same thing. The prostate needs iodines and it starts to swell and can produce cancers if and also if there's hypothyroid. Every organ that secretes something needs large amounts of iodine to get it excreted from the cell.

So again, the thyroid has the highest concentration, your brain and cerebrospinal fluid, your intestinal mucosa. So your small intestine, you're large intestine.

Your esophagus, stomach, breasts, ovaries, vagina and uterus, prostate, the ciliary body of the eye, nose, sinuses. If you have very dry sinusses, consider iodine.

And then many, many other organs, bone marrow, pancreas, adrenals, etc. They all need iodine, and if you have hypothyroid, all of these organs will be affected.

Okay. Now, many of the hormone levels in our body are activated by negative feedback loops. So, the thyroid stimulating hormone, or I'm sorry, TRH from the hypothalamus, is stimulating the anterior pituitary, that stimulates the thyroid gland.

Thyroid Testing and Different Types of Hypothyroidism

If you have enough iodine, you produce T3 and T4, then there's a negative feedback loop to the hypothalamus and the pitutary saying, hey, we've got enough.

We don't need any more. If you don't have that feedback loop in balance, you won't create enough thyroid hormone and you'll have hypothyroidism. But those are largely dependent on the amount of iodine in your system.

I'm showing a picture of a substance called ioderol. We actually mostly use Lugol's solution, which has two forms of an iodine and an iodide, Which also iodorol has, and those are our preferred things to use.

But again, see a professional before you start doing a bunch of iodide because you can cause thyroid failure if you take too much iodides. Okay. I've got another diagram here.

which I'm not going to go into too much. If you are watching the presentation, you'll see that basically what I've said before is being reiterated. Now, persistent organic pollutants, called POPs for short, Persistent Organic Pollutants.

That's all the crap we've put into our systems into our environment. There are thousands of hormones that we've put out there that are persistent. They don't go away quickly.

they don´t leave your body quickly, they do not leave the soil quickly and so what happens is you get problems in again conversion of T4 to T3 and you'd get more reverse T 3. But the organic pollutants are a huge, huge problem.

And people kind of want to stick their head in the sand. It's like, well, what the heck can I do? Well, there's actually a lot you can do. There are many ways to reduce the exposure to persistent organic pollutants and many way to help clear your body of them once you have them.

So don't give up on POPs. So now thyroid testing, TSH test, thyroid stimulating hormone test. And its applications are very poor. The test is the test but the American Council of Endocrinology a few years ago said that if you get over 3.0, you should be considered hypothyroid.

But some labs say you're normal up to 5.5 and that's actually improvement. It used to be worse but at 5,5 you are hypathyroid And the reason for this is the initial values pool was very poorly selected.

They said, OK, we're going to take this huge group of people. And if they're not on thyroid medication, We will assume that they don't have a thyroid problem.

So they use that to set the numbers. Well, a huge portion of those people had hypothyroid. That's why you see that number for standard range coming down every few years.

I really look 3.0 as the max. For women who are trying to get pregnant, usually fertility doctors want it around 1.5 to 1,75 and even down to one is fine.

It means your thyroid is very high functioning. But it should not be over 3,0. And on top of that, The TSH can be perfect and you still have thyroid disorders.

So there's a thyroid cascade that we run. We run a T SH, we ran T3, We ran reverse T 3, and we were on free T three and free t four. And that's important.

When you're running the free, t three, you are measuring the amount that is not already bound up in the body. So it's available to you to use. That's very important.

We run a T7 index. But we always check for antibodies, TPO, and anti-thyroglobulin. Now I'm going to explain why those are important To me, I look for about eight types of hypothyroid.

Your doctor will almost always check for one. They don't even always for that. And sometimes they'll follow up and test for the second type. Almost none of them, and I put three here, it should have been more, almost none test the other types.

Even if the patient has every symptom of hyperthyroid, the others types are rarely tested for. Datis Karatsian, who I

consider really the total authority on thyroid disorders.

I love his book. Why do I still have thyroid symptoms when my lab tests are normal? And the picture on the front is of a woman pulling her hair out. And I have many of those patients.

So he says 32 types to me, they're kind of breakdowns in what I see and can be accounted for almost all the time with my breakdown of eight. Primary, primary hypothyroidism.

This is actually failure of the thyroid. It burns out, let's say, or it gets damaged. You know, again, you get too many. You get not enough iodine for a long enough period of time, you get pollutants that connect, collect in the thyroid gland.

It stops working. And this one's usually treated pretty well by MDs. They'll usually use levothyroxine sodium, which is a very inexpensive drug. I have patients that have been on that drug for over 60 years and they're still doing fine.

they have no symptoms of that being a problem. So it's generally effective. However, Natural products that have T4 and T3 make 50% of patients feel better, particularly women.

Treatment Approaches for Primary and Pituitary Hypofunction

Because those 50 percent have a secondary pathology of poor T-4 to T 3 conversion. Now the problem is most of the major HMOs, when they say we're going to test your thyroid, either test just for TSH or for TSH and t4.

So they're missing half of these hypothyroid patients by doing that. Again, in this, your TSH will be elevated. Your T4 could be normal or low. You're free T 4 could normal low, you're T3 uptake would be normally low and your reverse T 3 would normal.

So that's a pretty easy one to diagnose, the primary. Pituitary hypofunction is a little bit harder. you can have elevated T H, T S H I'm sorry, but you got to look deeper then.

primary hypothyroidism treatment. Now, this is what we would use for primary hyperthyroid. Again, all those vitamins we mentioned before, the B vitamins, a vitamin A, vitamin D, Vitamin K2, selenium, zinc, thyroid glandulars.

And so those are from animal sources, could be from deer, it could pork, etc. and those are really replacing the thyroid hormone that you're not producing.

We might use herbs also. Now you don't want to just jump to using thyroid glandulars because there are some conditions that can actually get much worse with that.

Then pituitary hypofunction treatment And so, in Chinese medicine, we have to treat the marrow, the stress. And, so there are very clear acupuncture techniques to use for the Marrow Stress Pituitary.

Again, getting anxiety and stress down is critical. We use herbs for pituitaries, for kidney, and for marrow. We use herbs for postpartum depression, et cetera.

So then we try to get people doing a meditation technique of some kind, or there are some devices. There's one called a Muse, M-U-S-E. Uh, there's a heart math program and lots of things to meditate you so that you don't have to do that hard work.

It actually does it for you. You just put the device on and it works for. Again, for this one. pituitary hypofunction, we're going to use vitamin D, short-term thyroid glandulars.

We don't want to us them too long because then you'd get dependent upon them, pitutary glandular, manganese, zinc, magnesium is critical, and L-arginine.

Got to be careful with L arginin because it's argenine the balance with lysine that basically controls whether herpes symptoms come up. So if you get too much L-arginine, it can trigger a herpies outbreak.

Got to be careful with it. Okay, under conversion. TSH is normal, T4 is, normal free T3 is. Normal, but the T three is low and the free. T 3 is so, and thyroid antibodies are negative.

So now you've got to work on conversion. Your, your. Thyroids producing plenty of hormone. You just aren't using it. And so vitamin D. liposomal glutathione and superoxide dismutase, SOD.

Google the GUGGUL, which is generally considered an ayurvedic nerve, nerve herb, but it's very useful for under conversion. And then you need lots of antioxidants.

I listed a few, But you'll need all the antioxidants you can get. Vitamin E, selenium, krill oil for the astaxanthin. matcha, green tea, phosphatidylserine, and zinc are critical?

Under-Conversion, Over-Conversion, and Autoimmunity

I'm going to skip over a couple of these because they're a little too complex. But you see over conversion with decreased thyroid binding globulin. Now this is usually found in insulin resistance.

So you're going treat these people as though they are diabetic even if they aren't formally diagnosed as diabetic. There are many other ways other than glucose and hemoglobin A1C to test for insulin resistant.

And we test all of those. Often women with polycystic ovarian syndrome or PCOS, in that case you'd want to use PCO supplements and high testosterone and PCS is a major problem.

testosterone supplementation, like in bodybuilders, et cetera, can do this. But the real critical thing for the over-conversion with decreased thyroid binding globulin is you have to detox the liver.

Now, that's a term that is grossly, grossy overused. You can find a thousand different sites that will tell you how to de-toxify your liver, but If you're going to do that, go to a clinician because level one and liver two liver detoxification are the critical part.

And if level three is blocked, you'll actually get sicker. So you need someone that actually understands liver, detoxication. Silmarin is one of the main things that's used.

They actually use that milk thistle extract. in patients that have mushroom poisoning to save their liver. And then there are lots of other herbs for liver detox.

I'm gonna skip elevated thyroid binding globulin. Again, that's a little too specific, but I do have supplements listed here for that. If they have elevated, thyroid-binding globilin, again, it's liver-detoxification, L-glutathione, anacetylcysteine or NAC, ginseng, Chinese herbs, milk thistle, You also need healthy bile flow, secretion and formation.

So for that beetroot is excellent because it thins the bile. Artichoke is superb because that thines the Bile. Dandelion probably the number one herb for overall liver functioning, phosphoryl serine, and vitamin C.

Now, for autoimmunity, you run all the same tests, but you need to then run thyroid antibodies and see if you're positive for thyroid peroxidase or thyroglobulin.

And thyroid peroxidases is the peroxyase that is involved in the production of thyroid hormone. So it is affecting the enzyme that makes your thyroid hormones.

It usually shows up first. This is in what's usually called Hashimoto's. And thyroglobulin is the actual thyroid hormon, which is actually a little more severe.

Increasing the output of thyroid hormone can actually increase damage. So you've got to be very, very careful in autoimmune thyroid in people that are taking thyroid supplements, and most of them are.

And it can make it worse. Using animal thyroid problems also may make this worse, sometimes not, but things like armor thyroid, West thyroid and nature thyroid.

because the foreign thyroid you may be allergic to also because it's close enough to human thyroid. So you want to be very, very careful. The takeaway, one size does not fit all for thyroid disorders.

If you're having any of the symptoms I mentioned, go to a doctor that really understands thyroid function, probably a functional medical doctor, and get a complete thyroid cascade.

It is not all that expensive. And then you can zero in on exactly, precisely, what you need to do to treat your problem. So thank you. I appreciate your joining me for this.

but you can go through it at one and a half times speed and probably makes more sense, all right? So thank you, take care. Thank you for joining me on The Balancing Point.

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