

Mayo Clinic Q & A - Dr. Juan Brito

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SPEAKERS

Dr. Halena Gazelka, Dr. Juan Brito, Narrator

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- N** Narrator 00:01
Coming up on Mayo Clinic Q&A. Your thyroid gland is small, about the size of a strawberry, but its job is big, controlling your metabolism.
 - D** Dr. Juan Brito 00:12
Frequency and heart rate, vital movements, energy level, muscle strength, and body temperature.
 - N** Narrator 00:19
So, when the thyroid isn't working well, either too hard, which is hyperthyroidism or not enough, which is hypothyroidism, it can be a big deal. There are treatments but who really needs to get those treatments?
 - D** Dr. Juan Brito 00:32
We know that about 10% of people have some degree of thyroid dysfunction. The majority of people though, have a mild thyroid dysfunction, and only less than 1% of

people in the population they do have what we call a severe thyroid dysfunction that usually this starts treatment.

D Dr. Halena Gazelka 00:53

Welcome, everyone to Mayo Clinic Q&A. I'm Dr. Halena Gazelka. Thanks for joining today. Today we are going to talk about the thyroid gland. The thyroid gland is in the neck, and it creates and produces hormones that play a role in many different systems throughout the body. There are many different types of thyroid diseases. There's hyperthyroidism, or high thyroid; hypothyroidism or low thyroid; Hashimoto's disease and many others. Joining us today to discuss thyroid diseases is Dr. Juan Brito, an endocrinologist at Mayo Clinic. Welcome Juan.

D Dr. Juan Brito 01:26

Oh, thank you for having me, and thank you Dr. Gazelka.

D Dr. Halena Gazelka 01:29

Thanks for being here today. I think that thyroid disease is probably fairly common is that true?

D Dr. Juan Brito 01:34

It is common. We know that about 10% of people have some degree of thyroid dysfunction. The majority of people though, have a mild thyroid dysfunction, and only less than 1% of people in the population they do have what we call a severe thyroid dysfunction that usually this starts treatment.

D Dr. Halena Gazelka 01:58

Well, I guess the one truth one is that everyone has a thyroid gland. So, maybe we can start there with what is the thyroid gland? And what does it do?

D Dr. Juan Brito 02:06

No, yeah, absolutely. So, the thyroid gland, as you were saying, is a small gland it weighs about 15 grams. So, you can think about like a normal strawberry kind of size. It is located in the bottom of the neck. And the thyroid gland produces a hormone, or hormones that control your metabolism. And what it means is that controls your frequency of heart rate,

bowel movements, energy level, muscle strength, and body temperature. And by doing that, it makes sure that you are consuming the calories in a healthy way. The majority of times, you cannot feel the thyroid very well. It's not like it's just there and you can feel it very easily with your fingers. In fact, doctors have two specific maneuvers to find the thyroid and ask patients to swallow. And I'm saying this because as a clinician seeing patients with thyroid problems, many times patients feel that any lump in the neck is a thyroid lump. And it's actually very difficult to palpate the thyroid, and the majority of times it is not a thyroid lump, it is just muscle thickness or maybe lymph nodes. But in the majority of times, nothing is palpable in a way that patients can clearly feel that something is abnormal there.

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Dr. Halena Gazelka 03:26

Oh, that's very interesting. Today, we're going to talk about thyroid diseases. So, who is most at risk of developing an issue with their thyroid?

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Dr. Juan Brito 03:33

We know that women are at higher risk than men to have thyroid diseases. People who have had radiation in their necks are more likely to have a thyroid problem because radiation can affect how the thyroid works. We know that over time there has been some research suggesting that the thyroid might be working less, yet we are just understanding that working less during aging, meaning the older we get the thyroid working less is actually protective.

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Dr. Halena Gazelka 04:04

Interesting. Why, why protective?

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Dr. Juan Brito 04:07

It's unclear the reason why, but what we have seen is that what is normal at a younger age, it starts becoming the number that is considered high at younger ages is actually considered more normal in older ages. And we know that these kind of different thresholds in your system changes in a way that might be protective because you might not need the energy that you needed at different age groups to do different muscle kind of driven activities you might do in other kinds of activities. So, it might be that the energy distribution and the way that we consume energy is different at different ages, different age groups. So, the older we get, the thyroid might not need to work as hard.

D Dr. Halena Gazelka 04:51
That's very interesting. I imagine this varies by what we're talking about, but what causes thyroid disorders or diseases. Do we know that?

D Dr. Juan Brito 05:01
Yes, the vast majority of thyroid problems come from autoimmune problems. So, autoimmune means your immune system recognizing the thyroid as something different, like, if you think about a bacteria or a virus, it recognizes the thyroid and says, you know, this doesn't look okay, and it attacks the thyroid in a way that either makes the thyroid work less, or sometimes makes the thyroid work more. Which is actually interesting because we always think about autoimmune problems as working less or inflammation. But sometimes the autoimmune problems can make the thyroid work more.


D Dr. Halena Gazelka 05:39
Interesting. So, it's not easy to palpate your own thyroid, we already talked about that. How would an individual know if they were having a problem with their thyroid?


D Dr. Juan Brito 05:47
So, there are two big problems with the thyroid. One, if you think about a structural problem, meaning lumps, that's one kind of problem with the thyroid. And the second kind of problem is that one can have is how the thyroid is working. And the majority of times actually both have nothing to do with each other, you can have an atomic problem, meaning lumps in your thyroid, or you can have a thyroid that is not working. And depending on what it is, one can have different symptoms. For instance, a nodule in the thyroid is actually very frequent, almost 50% of people have nodules in the thyroid, and the majority of times, nothing happens. And the majority of times it is just benign lumps. And we never recommend patients to start palpating themselves to find these lumps, like you know, for other conditions in which sometimes we tend to recommend self-palpation.


D Dr. Halena Gazelka 06:35
Oh right, like self-breast exams, for instance?

D Dr. Juan Brito 06:37
Absolutely. For thyroid, we don't recommend that because even in experienced hands, we

are wrong 80% of the time. So, imagine, in 10 patients with a nodule, eight out of 10 patients we will not pick that up or we thought that we felt that when it's not. So, our fingers are not good at that. And that's one thing, so we don't recommend that. So, how do people identify if something is a problem with a nodule is when you can see it. And people are like, oh there is something there, it is a lump there. So, that's different when people are actually recognizing that there is a lump that people can see. And the other one is when the nodule is quite big it starts compressing things around and people start feeling pressure, feeling difficulty swallowing, even changing the tone of their voices. So, that's when we say something is there, of course those symptoms do deserve an ultrasound and seeing a doctor. That is for the nodule part. For the dysfunction part, it is very tricky. And the reason why it is very tricky is that typical hypothyroid symptoms, meaning when your thyroid is not working well. Actually, symptoms that happen regularly, even it just happens because life put us in positions of stress, so fatigue, gaining weight, sometimes constipation, dry skin, hair loss. I can just describe 10 other conditions that do the same.

 Dr. Halena Gazelka 07:59
Yes.

 Dr. Juan Brito 08:00
So, saying that you have to go to the doctor because the type of problem exists because of the symptoms, it's not a good way to tell the patients. Rather, the doctor should pick this up and say you know what, some of those might be due to the thyroid, and let us check that up. Let us make sure the thyroid is working right. And when the thyroid is actually in the opposite direction, it is working too much, those ones are very, very clear. It looks like when patients are drinking 20 cups of coffee, they feel shaky, palpitations, weight loss, they managed to lose 20, 30 pounds despite eating a lot. And also fatigue. So, those ones when the thyroid is working a lot, those ones are actually very easy to pick up because it tends to be more associated with the thyroid.

 Dr. Halena Gazelka 08:44
I can verify that one. I was treated for Grave's disease about 10 years ago. And I thought that maybe I was going crazy. I had terrible anxiety. I had palpitations, I was, you know, had exercise intolerance, but I was really fatigued and had muscle aches. And finally, I went in and said would you check my thyroid? And sure enough, so.

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Dr. Juan Brito 09:08

That's what I said. No, absolutely. And it's exactly the same. You just described how patients come to us, the symptoms, you know, I think something's going on, I cannot handle heat anymore. I'm sweating all the time. You know, it's a very unusual set of symptoms.

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Dr. Halena Gazelka 09:25

Yeah, very interesting. So, you can't palpate necessarily, so how do you diagnose thyroid disorders?

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Dr. Juan Brito 09:32

So, it's mostly about symptoms, we don't recommend because there are two ways to find thyroid problems. One is the screening, you know, finding the condition when symptoms are not present. We don't recommend that. We recommend addressing when the symptoms are present. So, as I told you, when the symptoms of thyroid nodule or thyroid masses, if they're there of course they need to be evaluated with an ultrasound. An ultrasound will take pictures of the neck, particularly the thyroid as well as the lymph nodes, and give a very nice picture to the doctor what's going on there, how many nodules there are, what is the size of the nodules, and even those that looks worrisome enough to do biopsies. So, the ultrasound is key in understanding whether we have to do something else for a nodule or a mass. And the opposite is the checking the thyroid hormones in the blood. So, if someone is presenting with symptoms of hypothyroidism, or hyper, meaning too much thyroid, a simple blood work will reveal what's going on.

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Dr. Halena Gazelka 10:33

Juan, I was thinking about what you said earlier, that the symptoms of hypothyroidism are, my goodness, they're things that you know, happen to all of us at some time during life, maybe feeling tired, feeling dysphoric, gaining weight, and all of those things are so prevalent, so why not screen for thyroid? How do you know? Or that's just what the clinician puts together in the office and then decides to check?

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Dr. Juan Brito 10:58

That's a very good question. And in those instances, we'll be case finding, meaning that we're trying to diagnose rather than the screen, because a screening will be those individuals that we just do the test, and they have no symptoms. And this problem will be

patients that we think already might be something wrong with the thyroid, and we're just trying to diagnose them. But one has to be careful, because having something abnormal with a thyroid level, it doesn't mean that that's the reason for the symptoms. So, you can already tell, you know, if these symptoms are so frequent in the population at one point in our lives, so there is always a point in our lives that we're gaining weight, there is always a point that we feel tired, and sometimes constipated. If we get to the thyroid test and something is abnormal, that doesn't equal that the thyroid is explaining the symptoms.

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Dr. Halena Gazelka 11:54

Sure, sure. But yeah, that makes sense to me, just like I do pain medicine. And so, I tell people that just because I see something on their MRI doesn't mean it hurts on their back.

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Dr. Juan Brito 12:03

Yeah, I think that's the same analogy, is finding something doesn't mean that explains it.

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Dr. Halena Gazelka 12:08

Right. So, Juan how do you treat, we talked about hyperthyroidism is too much. The thyroid is working too hard. Hypothyroidism it's not working hard enough, essentially. And so, how do you treat those different?

D

Dr. Juan Brito 12:21

Yes, there's a very good question. So, we have treatment, which is great compared to other conditions, and we do have a variety of treatments that we can use. When the thyroid is working too much, we actually have treatments that have been available for decades. One is to give a medicine that blocks the thyroid in a way that it is producing too much similar to blood pressure medicine. If the levels are too high, we just give medicine to lower the levels of thyroid hormone. And they are very effective. We can also have medicine that actually destroys the thyroid with radiation. This is a pill that goes into your system, recognizes the thyroid, and destroys the thyroid slowly. So, the end result of that is that you need to take now thyroid hormone because the medicine has been so effective, by destroying the thyroid, you're taking care of the problem that is causing too much thyroid. And the last resort is actually surgery as well when the thyroid is working too much and sometimes people cannot tolerate other medicines, or other pills, they can go straight to surgery as well. So, one is working too much. One is not working enough. What we're trying to do is just replace what is needed. And what it means that is people taking thyroid hormone. The most common thyroid hormone is called levothyroxine. And

that is actually one of the most prescribed medications in the United States. Just to tell you how this has been going on for the last years, and the levothyroxine the hormone is something that has to be taken every day for the rest of their lives.

D Dr. Halena Gazelka 14:01

And then Juan, how do you know whether the medications need to be adjusted? How often does the clinician check to see whether you need your level adjusted of the medication?

D Dr. Juan Brito 14:12

Yes, you know that we have medicines in which we can check the next day or say how is it controlling your pain, we can kind of get a sense of how it's working right away. For the thyroid, we actually need to wait. When we're treating with thyroid medicine, we actually need to wait almost six to eight weeks to get levels that really, really tell us how much extra or less thyroid hormone you need, because it takes that amount of time to get steady levels. So, what we tend to do for patients that need thyroid hormone is to start taking it and then we ask them to come back or have labs in about two months. And once the levels have been adjusted in a way that is in normal range, we usually recommend checking once a year.

D Dr. Halena Gazelka 14:57

Okay.

D Dr. Juan Brito 14:57

For the too much thyroid, it is a little bit more complex because it's different treatments.


D Dr. Halena Gazelka 15:04


Juan, I saw a very interesting study. And here you are to talk about it today. So, I get to ask you, you did a study discussing the fact that levothyroxine, which is the most commonly prescribed, you stated, thyroid replacement hormone, is way over prescribed in the United States. Would you tell us a little bit about that?

D Dr. Juan Brito 15:24

Yes, absolutely. So, what we did in this study is that we used a big data set. And what is a

big data set, it is pretty much a huge list of patients that have been seen by different providers across the United States. And this list has almost 100 million patients. From this list that comes from different areas of United States, we identified who has been treated for with levothyroxine. So, our goal was to understand how frequently were people getting levothyroxine and see what kind of values preceded the prescription from levothyroxine, because this has never been done. And the reason why we wanted to understand that is that although thyroid problems might be a little bit common, it is never to the point that explains why it has become one of the most frequent prescribed drugs. So, it is a gap there, and we have not been able to understand why. So, we wanted to explore the reasons, and from those individuals who were started on thyroid medicine, we realize that in 60% of the time, we couldn't find a strong reason for it.

 Dr. Halena Gazelka 16:33
Wow, that's a lot.

 Dr. Juan Brito 16:35
Yes, and clearly the labs were wrong, and the levothyroxine clearly makes sense. In 1/3, we found that actually thyroid levels were completely normal. And so that tells you that perhaps people are using the levothyroxine in ways that might not be evidence based, or we don't fully understand sometimes how the people use it. For instance, it might be that people are using levothyroxine to get women ready for pregnancy. And what happens is that there are some suggestions that some levels of thyroid hormone might optimize pregnancy in some individuals, and perhaps we are just treating more and more in a younger woman with thyroid hormone to optimize pregnancy outcomes, which is still debatable, it's not that clear that it's helpful. But perhaps we started using levothyroxine in other conditions that they have nothing to do with abnormal thyroid levels. And we also find that again, in a good portion of the population they are treated for very mild thyroid problems. And remember in the beginning I was telling you that actually over time, as we age, we start developing as normal part of physiology, some mild hypothyroidism, and naturally that might be protective. Well, we find that that is actually a trigger of thyroid hormone. So, remember we think we see the labs, patients might have symptoms, it makes sense to treat. But the evidence has shown that only very few, few patients benefit from that. So, the vast majority of patients are receiving thyroid hormone because they don't have a thyroid problem to begin with, or they just have a very mild thyroid dysfunction that is unlikely to bring any benefit to them.

 Dr. Halena Gazelka 18:20

Is there a danger to being on levothyroxine or other thyroid hormone if you don't need to be?

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Dr. Juan Brito 18:25

Yes, there is. First, there is the problem of taking the medicine in the sense that if you're already taking plenty, this will be an extra medicine, that has to be taken in a very specific way. So, this is a medicine that has to be taken on an empty stomach. And we always recommend patients 45 minutes before breakfast, and with just water, nothing else around it, no vitamins, nothing that has calcium or iron. And if you're a 30-year-old person that has no other comorbidities it is actually straightforward to take it. Now think about the 70-80-year-old person that has already 20 more medicines to take. And we are asking them to shift their calendar in a way to make a space for this one. So, just thinking about that, I think we're asking quite a bit of patients as well. Now, there is cost of prescription, there is cost of labs, there is the logistics of going to the lab or going to the doctor doing it, and there is also the understanding that in one in four patients who are taking thyroid hormone at one point, they will have too much thyroid hormone levels in their system. So, it means that at one point the replacement will be too much. And we know when the replacement is too high or too much, they might be at risk of arrhythmias. And there has been some association of strokes and perhaps osteoporosis in patients who have too much thyroid hormone for a long time.

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Dr. Halena Gazelka 19:48

So not a benign thing to take.

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Dr. Juan Brito 19:50

It is not a benign thing. Doctors, we tend to think, and I included sometimes, that we always say you know it's very easy to take, but in reality, and when you think about everything that comes with that, it is not a very easy thing to take.

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Dr. Halena Gazelka 20:06

Juan, you were talking about that as we age that it might be normal for our thyroid to work a little bit less. Do we use the same lab parameters or values for young people as we do for people in later decades? And if so, does that need to change?

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Dr. Juan Brito 20:22

No, that's a fantastic question. Because it has been in the field, that same question, should we have different range. And the reality is that the future will change in that way. Right now, we consider normal this range, which is normal for the majority of people, and the majority of people who actually contribute to that range are 40 to 30-year-old people that usually are healthy. When we understand the ranges in different age groups, and actually, by ethnicity, or even by gender, or by sex, we start seeing differences in this range. And sometimes, and now more research is suggesting that the range for you, for me, might be something actually narrowed within what is normal. So, right now we have a very kind of non-sophisticated way to understand what is normal. And the future, once we have more sophisticated ways to measure what is normal for different populations, and even for different individuals, we might be able to tell exactly when something is abnormal. Because right now this is normal for the majority of people, but it's not what is normal for you.

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Dr. Halena Gazelka 21:30

That's a very interesting one. Do you have anything else to share with our listeners today?

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Dr. Juan Brito 21:34

No, absolutely. So, one thing that I wanted to share with the public is that one big, big thing that's happening is that many patients are developing symptoms, like the ones that we were describing. And some of those patients do have thyroid problems, and some of those patients do deserve thyroid replacement. But there is a large group of people that feel neglected in regards to this treatment because they have symptoms, and the doctor keeps telling them it is not the thyroid because the thyroid might be normal. And I see these patients all the time, and what I was trying to do is that first make sure that it's not the thyroid, so clearly do the right labs. But also understand that if the thyroid is not the problem, the doctor should not abandon the patient and say that's it, go away. It's that the thyroid is not the problem but what else could be the problem. So, investigate the other reasons why somebody is tired, why somebody is gaining weight, why somebody is constipated, understand how they are sleeping, understanding other aspects of their physiology, other aspects of health. So, one big problem that has happened with thyroid is there has been a way to tell patients what they don't have. But it's not the way to take care of patients and help them move forward. And they can see many patients that have been told nothing is wrong with my thyroid go home. When the answer should be nothing's wrong with your thyroid but let me help you in finding what might be wrong.

D Dr. Halena Gazelka 23:04
That's a terrific point. So, having a provider who's willing to help you go the distance and figure it out.

D Dr. Juan Brito 23:10
Yes. That's a big difference. Yes, absolutely.

D Dr. Halena Gazelka 23:13
Thank you for being here today Juan.

D Dr. Juan Brito 23:14
You know I appreciate it. Thank you very much.

D Dr. Halena Gazelka 23:17
It's been a great conversation.

D Dr. Juan Brito 23:18
Thanks.

D Dr. Halena Gazelka 23:19
Our thanks to Dr. Juan Brito, endocrinologist at Mayo Clinic, for being with us today to discuss thyroid diseases. I hope that you learned something. I know that I have. We wish each of you a very wonderful day.

N Narrator 23:31
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