Podcast: The Best Diet for Optimal Thyroid Function Transcript

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NutritionFacts Introduction and Hashimoto's Overview

Doesn't it seem like when it comes to nutrition, there are more opinions than facts to go around? Every day we hear new [music] theories about diets and supplements and best foods to eat. Well, my role is to take the mystery out of good nutrition and look at the science. Welcome to the NutritionFacts podcast. I'm your host, Dr. [music] Michael Greger. One of the most common questions I'm asked is about a natural treatment for Hashimoto's disease, also known as autoimmune thyroiditis, the leading cause of hypothyroidism. So, I did a webinar about it. Here's the whole thing on the best diet for thyroid health, as well as the healthiest natural source of iodine.

Adequate dietary iodine is required for normal thyroid function. In fact, the two thyroid hormones are named after how many iodine atoms they contain, T3 and T4. Now, given that iodine is extensively stored in the thyroid gland itself, it's not something you have to get every day, but your overall diet needs to have some good source.

Unfortunately, the common sources aren't particularly health-promoting. Iodized salt and dairy foods are because iodine-based cleansers like Betadine are used to sanitize the udders, which results in some iodine leaching into the milk. They also add iodine to cattle feed.

And some commercial breads have iodine-containing food additives. So, if you put people on a paleo-type diet and cut out dairy and table salt, they can develop an iodine deficiency, even though they doubled their seafood intake, which can also be a source. What about those switching to diets centered around whole plant foods? I mean, they're also cutting down on ice cream and Wonder Bread. And if they're not eating anything from the sea, seaweed, sea vegetables, they can run into the same problem.

Iodine Basics and Deficiency Risks

Her parents reported striving to feed her only the healthiest foods. The 3-year-old only got plant-based, unsalted, unprocessed foods with no vitamin supplementation. Now, that could have been deadly. I mean, with no vitamin B12, those on strictly plant-based diets can develop irreversible nerve damage. But in this case, a goiter arose first due to inadequate iodine intake. Here's another case of veganism as a cause of iodine-deficient hypothyroidism in a toddler after weaning. Now, before weaning, he was fine because his mother kept taking her prenatal vitamins, which luckily contained iodine. Most vegetarians and vegans are apparently unaware of the importance of iodine in pregnancy, just as clueless as their omnivorous counterparts. The American Thyroid Association and American Academy of Pediatrics have recommended that women even just planning on getting pregnant should ingest a daily supplement that contains 150 micrograms of iodine. Yet, only 60% of prenatal vitamins marketed in the US contain this essential mineral. So, in spite of the recommendations, about 40% lack it. Therefore, it's extremely important that pregnant and breastfeeding women read the labels to ensure they're receiving an adequate amount. Women of reproductive age have an average iodine level 110, which is fine for non-pregnant individuals, but we'd really like to see at least 150 in pregnancy. It's basically a 24-hour urine test in which iodine sufficiency is defined as 100 micrograms per liter of pee in non-pregnant adults, which your average vegan fails to reach in the largest study done to date out of Boston. The recommended average daily intake is 150 micrograms a day for most people, which you can get in like a, you know, cup and a half of cow's milk. Sadly, plant-based milks are typically not fortified with iodine, averaging only about 3 micrograms per cup. In the largest systematic study to date, although many plant-based milks are fortified with calcium, they only found just three of 47 fortified with iodine.

Of those that were had as much as cow's milk, but those that weren't fell short. Plant-based milk companies brag about enriching their milks with calcium and often vitamin B12, D, vitamin A, but only rarely are attempts made to match the iodine content. I mean, the only reason cow's milk has as much as it does because they they enrich the feed or it comes dripping off their udders, right?

So, why don't plant milk companies add iodine, too, right? I was told by a food scientist at Silk that my carrageenan video played a role in them switching to another thickener. Hopefully, they'll see this video and consider adding

iodine, too, or some company will snatch at the market advantage opportunity.

Pregnancy, Vegan Diets, and Iodine Status

The researchers conclude that individuals who consume plant-based milks not fortified with iodine may be at risk for iodine deficiency unless they consume alternative dietary iodine sources, the healthiest of which is sea vegetables. Okay, so to reiterate, one cause of hypothyroidism, an underactive thyroid gland, is inadequate iodine intake. This is especially important for pregnant women and women even considering pregnancy, but that largest study of vegan iodine status in Boston found most vegans have insufficient intake. So, what's the best way to get it? What's the healthiest natural source of iodine? That's the name of the next video.

Dairy milk supplies between a quarter and a half of the daily iodine requirement in the United States. So, milk itself has little native iodine. The milk iodine content is mainly determined by factors like the application of iodine-containing teat disinfectants. The iodine residues in milk appear to originate mainly from the contamination of the teat surface. The teats are are sprayed or dipped with like a Betadine-type disinfectants, and the iodine just kind of leaches into the milk.

Too bad most of the plant-based milks on the market aren't enriched with iodine, too. Fortified soy milk is probably the healthiest of the plant milks, but even if it was enriched with iodine, what about the effects of soy on thyroid function? It's funny, when I searched the medical literature on soy and thyroid, this study popped up. A cost-effective way to train residents to do thyroid biopsies. Just stick the ultrasound probe right on top and go to town. Turns out, on ultrasound, your thyroid gland looks a lot like tofu.

Anyways, the the idea that soy may influence thyroid function originated over eight decades ago, when marked thyroid enlargement was seen in rats fed raw soybeans. Though the observation that people living in Asian countries have consumed soy foods for centuries with no perceptible thyrotoxic effects has certainly suggests their safety. Bottom line, there does not seem to be a problem with people who have normal thyroid function. However, soy foods may inhibit the oral absorption of Synthroid, thyroid hormone replacement drugs, but so do all foods, right? That's why we tell patients to take it on empty stomach. But you also have to be getting enough iodine. So, it may be particularly important for soy food consumers to make sure their intake of iodine is adequate. What's the best way to get iodine? For those who use table salt, make sure it's iodized.

Plant Milks, Iodine Fortification, and Soy

Currently, only half of table salt sold contains iodine, and the salt used in processed foods is typically not iodized. Of course, ideally, we shouldn't add salt at all. Dietary salt is a public health hazard. I think this title is a little over the top. Dietary salt is the number one dietary risk factor for death on the planet Earth.

Why? Beyond more than 3 million people a year. Twice as bad as not eating your vegetables. What's the best source of iodine, then? Sea vegetables, right? You can get a little iodine here and there from a whole variety of foods, but the most concentrated source by far, with up to nearly 2,000% of your daily allowance in just a single gram, which is like the weight of a paper clip, seaweed. Given that iodine is extensively stored in the thyroid, it can be safely consumed intermittently, meaning you don't have to get get it every day, which makes seaweed use in a range of foods attractive, and occasional seaweed intake enough to ensure iodine sufficiency. However, some seaweed should be used with caution due to its overly high iodine content, like kelp.

Too much iodine can cause hyperthyroidism, a hyperactive thyroid gland. A woman presented with a racing heartbeat, insomnia, anxiety, and weight loss, thanks to taking just two tablets a day containing kelp.

In my last video, I noted how the average urinary iodine level of vegans was less than the ideal levels, but there was one kelp-eating vegan with a urinary concentration over 9,000, right? Adequate intake is when you're peeing out 100 to 199. Excessive iodine intake is when you break 300. 9,437, way too much. The recommended average daily intake is 150 micrograms a day for non-pregnant, non-breastfeeding adults. You may want to stay below 600 on a day-to-day basis, whereas a, you know, tablespoon of kelp may contain 2,000, right? I'd stay away from kelp because there's too much, and stay away from hijiki because it contains too much arsenic.

Here's how much of common seaweed preparation should give you an approximate daily allowance. Two nori sheets, you can literally just nibble on them as snacks, like I do. One teaspoon of dulse flakes, which you can just sprinkle on anything. One teaspoon of dried arame, which is great for like adding to soups, or one tablespoon of seaweed salad.

If iodine is concentrated in marine foods, this raises the question of how early hominins living in continental areas could have met their iodine requirements? Well, here's what bonobos do, perhaps our closest relatives. During swamp visits, they all forage aquatic herbs.

Seaweed as the Best Natural Iodine Source

You can munch on aquatic plants yourself by incorporating seaweed into your diet, the healthiest natural source of iodine. Okay. So, we covered thyroid issues caused by either too little or too much iodine intake. But, what about hypothyroidism or hyperthyroidism caused by autoimmune diseases like Hashimoto's thyroiditis? That's what we'll turn to next in my video the best diet for hypothyroidism and hyperthyroidism.

And then I can finish eating my seaweed. There are several autoimmune diseases that affect the thyroid gland, the most common being Graves disease and Hashimoto's thyroiditis. Graves disease results in hyperthyroidism, an overactive thyroid gland. Though slaughterhouses are supposed to remove thyroid glands, should some neck meat slip in, you can suffer a similar syndrome called hamburger thyrotoxicosis, but that's not from your body making too much thyroid hormone, that's from your body eating too much thyroid hormone. Graves disease is much more common, and meat-free diets may be able to help with both as plant-based diets may be associated with a low prevalence of autoimmune disease in general, as observed for example in rural sub-Saharan Africa. Maybe it's because plants are packed with antioxidants, which are possible protective factors against autoimmune diseases. Maybe it's because plants are packed with anti-inflammatory compounds. After all, a whole food plant-based diet is basically synonymous with an anti-inflammatory diet. But, you don't know until you put it to the test. Turns out the exclusion of all animal foods was associated with half the prevalence of hyperthyroidism compared with omnivorous diets. Lacto-ovo vegetarian and fish-only diets were associated with intermediate protection, but a 52% lower odds of hyperthyroidism among those eating strictly plant-based diets.

This apparent protection may be due to the exclusion of animal foods, the benefits of plant foods, or or both. Animal foods like meat, eggs, and dairy products may contain high estrogen concentrations for example, which have been linked to autoimmunity in preclinical studies. Or the decrease in animal protein may downregulate IGF-1, which is not just a cancer-promoting growth hormone, but may play a role in autoimmune diseases as well. Or it could be the good stuff in plants that may protect cells like the polyphenol phytochemicals such as flavonoids found in plant foods. Maybe it's the environmental toxins that build up the food chain, for example. Fish contaminated with industrial pollutants like PCBs are associated with increased frequency of thyroid disorders. Okay, what about the other autoimmune thyroid disease, Hashimoto's thyroiditis, which, assuming you're getting enough iodine, is the primary cause of hypothyroidism, an underactive thyroid gland. Graves disease wasn't the only autoimmune disorder that was rare or virtually unknown among those living in rural sub-Saharan Africa eating near vegan diets. They also appear to have less Hashimoto's. There's evidence that those with Hashimoto's have compromised antioxidant status, but we don't know if it's cause or effect. But, if you look at the dietary factors associated with blood levels of autoimmune antithyroid antibodies, animal fats seem to be associated with higher levels, whereas vegetables and other plant foods are associated with lower levels. So again, anti-inflammatory diets may be useful.

Autoimmune Thyroid Disease and Diet

No surprise as Hashimoto's is an inflammatory disease. That's what thyroiditis means, inflammation of the thyroid gland. Another possibility is the reduction in methionine intake, an amino acid concentrated in animal protein. Thought to be one reason why the consumption of whole plant foods is likely to have a favorable influence on longevity through decreasing the risk of cancer, heart disease, and diabetes. And methionine restriction improves thyroid function in mice, but has yet to be put to the test for Hashimoto's in humans. If you compare the poop of patients with Hashimoto's to controls, the condition appears to be related to a clear reduction in the concentration of Prevotella species.

Prevotella are good fiber-eating bugs known to enhance anti-inflammatory activities. Decreased Prevotella levels are also something you see in other autoimmune conditions such as multiple sclerosis and type 1 diabetes.

How do you get more Prevotella? Eat more plants. But, put a vegetarian on a diet of meat, eggs, and dairy, and within as few as 4 days, you can drive down levels. So, one would expect those eating plant-based diets to have less Hashimoto's. But, in a previous video, I expressed concern about insufficient iodine intake, which could also lead to hypothyroidism. So, which is it? Let's find out. Vegan diets tended to be associated with lower, not higher, risk of hypothyroid disease. Why the word tended? Because the associated protection against hypothyroid incidence and prevalence studies did not reach statistical significance.

It wasn't just because they were slimmer, the lower risk existed even after controlling for body weight. So, they think maybe it's because animal products may induce inflammation. The question I have though is, if someone who already has Hashimoto's, I mean, what happens if you change their diet?

That's exactly what I'll explore next. Okay, so that was about preventing hyperthyroidism or hypothyroidism, preventing Graves disease and Hashimoto's. But, what about a dietary intervention to treat Hashimoto's, treat hypothyroidism? That's what we'll close out with, a natural treatment for Hashimoto's disease. Autoimmune thyroiditis, also known as Hashimoto's disease, is an organ-specific autoimmune disorder where your body attacks your own thyroid gland, often leading to hypothyroidism due to destruction and scarring of the gland itself.

We know there's a genetic component since identical twins are more likely to share the disease than fraternal twins. However, even with identical twins, the concordance rate was only about 50%, meaning even if your identical twin with basically the exact same DNA as you has the disease, there's only like a flip of a coin's chance you'll get it.

Black Cumin for Hashimoto's Treatment

Emphasizing that other factors other than your genes play a role in the development of the disease. Genes load the gun, but environment may pull the trigger. More than 90 chemicals have been noted disrupting hormonal balance or thyroid function. However, only a few such pollutants show evidence that they contribute to autoimmune thyroid disease. These include polyaromatic hydrocarbons, which smokers get a lot from their cigarettes. But, in nonsmokers, exposure comes almost entirely from food. Polycyclic aromatic hydrocarbons are primarily formed when muscle meats such as beef, and pork, fish, or chicken are cooked by high-temperature methods such as grilling.

PBBs are a type of flame-retardant chemical no longer manufactured in the US, but still found in the aquatic food chain. And PCBs are used in a number of industrial processes and end up in people's bodies largely through the consumption of fish as well, but also other meats and eggs. So, one might suspect those eating plant-based diets would have lower rates of hypothyroidism. And indeed, despite their lower iodine intake, vegan diets tended to be protective. But, they've never been put to the test in an interventional trial. A modification of the Paleolithic diet has been tried in Hashimoto's patients, but didn't appear to improve thyroid function. What did though was Nigella sativa. That name should sound familiar to anyone who's read my latest book How Not to Diet or watched my latest live presentation Evidence-Based Weight Loss. Nigella sativa is the science name for black cumin, which is just a simple spice, but it's also used for a variety of medicinal purposes. In this study, a randomized double-blind placebo-controlled trial, 8 weeks of a half teaspoon of powdered black cumin a day in Hashimoto's patients, not only was there a significant reduction in body weight, which is why I profiled it in the book, it also significantly reduced thyroid-stimulating hormone, a sign that thyroid function was improving, and even lowered the level of autoimmune antithyroid antibodies, as well as increasing blood levels of thyroid hormone T3 in these Hashimoto's patients. In addition, there was a significant drop in interleukin-23, a pro-inflammatory cell signal thought to help promote the autoimmune inflammation of the thyroid. So, further confirming the anti-inflammatory nature of the plant. And what were the side effects? A 17% drop in LDL bad cholesterol. And given the fact that patients with Hashimoto's may be at particularly high risk of developing heart disease, this is exactly the kind of side effect we'd want. Considering these health-promoting effects of black cumin, it can be considered as a therapeutic approach in the management of Hashimoto's-related metabolic abnormalities. A similar trial failed to find a benefit, though same dose, same time frame, but no significant changes in thyroid function. In contrast with the last study though, they were not all

Hashimoto's patients, but rather hypothyroid for any reason, and that may have diluted the results.

NutritionFacts Resources and Closing

And it's possible that telling patients to take the black cumin doses with their thyroid hormone replacement therapy may have interfered with its absorption. It's similar to other foods and drugs, which is why patients are normally told to take it on an empty stomach.

Since there are no downsides, I mean it's just a simple spice, I figure, "Hey, why not give it a try?" I mean the worst that can happen is you'll have tastier food. So, a half teaspoon of powdered black cumin seeds once a day on an empty stomach for Hashimoto's sufferers.

For those of you who have this disease, try it out. Let me know how it works. Visit nutritionfacts.org/audio to see all the podcast episodes with descriptions that include links to the associated videos.

Sources cited and other details are available on each video's page. Information about my books, How Not to Die, How Not to Diet, and [music] How Not to Age, is at nutritionfacts.org/books.

All proceeds, which I get, are donated directly to charity. And I've got a new book in the publication pipeline, the manuscript for How Not to Hurt, uh diet and lifestyle approaches to pain management, has been handed in and will be published December 15th. I'm going to be doing a series of webinars to feature some of the new research I discovered. Sign up for our free newsletter at nutritionfacts.org/subscribe to stay updated on when those will be.

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