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This Thyroid Condition Is a Top Public Health Issue

Analysis by Dr. Joseph Mercola Fact Checked | June 14, 2023

STORY AT-A-GLANCE

- The rates of iodine deficiency are increasing worldwide and studies suggest you may be at risk of iodine insufficiency even if you are living in a developed country
- Low iodine levels are associated with fatigue, infertility, thyroid swelling (goiter) and other thyroid and nonthyroid health problems
- Foods high in iodine include cheese, sea vegetables, strawberries and yogurt — as always, raw, grass fed, organic sources are best
- Some of the best ways to determine if you are getting enough iodine include performing a simple skin test, taking an iodine-loading test or by completing bloodwork

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Iodine deficiency and the thyroid conditions related to it are a serious public health concern. Several studies published earlier this year suggest iodine deficiency is re-emerging. While about 40% of the world's population is thought to be at risk of iodine deficiency,[1] residents of developed countries are increasingly found to be lacking this essential nutrient.

Your body cannot produce iodine so you must get if from your diet. Iodine is necessary to make thyroid hormones, which control your metabolism and other vital functions. Because your thyroid hormones also support proper bone and brain development in utero and during infancy, the proper intake of iodine is critically important for pregnant women, nursing mothers and their babies.

What Is Iodine and Why Is It Important?

As mentioned, iodine is an essential element needed for the production of thyroid hormone. Because your body does not make iodine, you need to be intentional to ensure you obtain sufficient amounts of this nutrient on a daily basis. Although iodine can be sourced from the foods you eat or through a supplement, many people eating a standard American diet generally get enough iodine simply by using table salt. I'll say more about salt later in the article.

When your body lacks sufficient iodine, it cannot make enough thyroid hormone. If your deficiency is severe, your thyroid may become enlarged, a condition also known as a goiter. Iodine deficiency can also cause hypothyroidism (low thyroid function). In some cases, lack of sufficient iodine can trigger intellectual disabilities and developmental problems in infants and children whose mothers were iodine deficient during pregnancy.[2]

According to the American Thyroid Association, iodine deficiency has also been linked to "increased difficulty with information processing, diminished fine motor skills, extreme fatigue, depression, weight gain and low basal body temperatures, among other things."[3]

Studies Highlight Iodine Deficiency as an Emerging Problem

A 2018 study published in the journal Nutrients[4] involving 1,007 mothers who gave birth to 1,017 children (including 10 twin pairs; multiple births other than twins were excluded), suggests iodine deficiency is a significant public health issue in Norway. After collecting data multiple times during pregnancy, at birth and during four follow-up points until the babies reached age 18 months, the researchers concluded:

> *"[T]his study adds to the increasing evidence that pregnant women in Norway are iodine deficient and that the diet of pregnant women does not secure a sufficient iodine intake. There is an urgent need for public health strategies to secure adequate iodine nutrition among pregnant women in Norway."*

Another body of 2018 research, published in JAMA,[5] implicated iodine deficiency as a factor associated with impaired fertility. The study included 467 American women who were trying to become pregnant during a four-year span. The researchers, who were associated with the National Institutes of Health, found:[6]

- Slightly more than 44% of the women had urinary iodine to creatinine ratios (UI/Cr) of less than 50 micrograms (mcg)/gram (g)
- Women with UI/Cr ratios lower than 50 mcg/g had a 46% lower chance of becoming pregnant in any menstrual cycle compared to women with normal iodine levels or those suffering from a mild deficiency
- Those experiencing milder iodine deficiencies — between 50 and 99 mcg/g — also took longer to conceive than women with healthy iodine levels, although the difference wasn't statistically significant

An earlier study published in 2013[7] found children of women with a UI/Cr ratio of less than 150 mcg/g during pregnancy were more likely to have lower scores on verbal IQ, reading accuracy and reading comprehension at age 8.

Iodine Is Essential During the First 1,000 Days of Life

In a March 2018 study published in Nutrients,[8] researchers from the U.K.'s University of Surrey and Spain's Hospital Riotinto observed the effects of a mother's iodine deficiency related to various stages of child development — during pregnancy, breastfeeding and the first two years of life. About the outcomes, Health.News noted:[9]

> *"[The researchers] observed iodine deficiency could lead to cognitive consequences such as impaired speech development, learning and reading skills. The negative cognitive outcomes caused by iodine deficiency also led to an increase in behavioral disorders. This was associated with abnormal serum thyroid concentrations during the early stages of pregnancy."*

"Iodine is most critical in the early stages of development, as the fetal brain is extremely dependent on iodine supply and it cannot be replaced by any other nutrient," suggests

study coauthor Dr. Ines Velasco from the pediatrics, obstetrics and gynecology unit of Hospital Riotinto. "[A]n adequate iodine intake in pregnancy is needed to achieve optimal fetal neurodevelopment."

Iodine Deficiency: Its History and Causes

You may associate iodine with salt. There's a long-standing connection between the two mainly because beginning in the U.S. in 1924, iodine (in the form of potassium iodide) was added to table salt to address the skyrocketing rates of deficiency.[10] Many residents of the Appalachian, Great Lakes and Pacific Northwest regions were plagued by goiters.

Due to the lack of iodine in the soil and the alarming rates of thyroid dysfunction found in local populations, these areas became referred to as the "goiter belt." At the time, the addition of iodine to table salt, which was an idea borrowed from the Swiss who were adding it for the same reasons, had a noticeably positive effect, reducing the prevalence of deficiency.[11]

Now, decades later, iodine deficiency is once again showing itself to be a problem. About the issue, Dr. Jacob Teitelbaum, author and nationally recognized expert on chronic fatigue syndrome, fibromyalgia, pain and sleep, asserts:[12]

> *"In the last 30 years, the intake of iodine in America has dropped by around 50 percent. Iodine's main role is to help manufacture thyroid hormones. That's why a subclinical iodine deficiency — enough to prevent a goiter, but not enough for optimal health — can cause hypothyroidism, an under-recognized condition that is epidemic in America."*

Chemicals in Your Environment Can Block Iodine Absorption

While women have a greater incidence of iodine deficiency related to their hormone production, the bodies of both men and women are subject to the poor absorption of iodine and suboptimal use due to environmental contamination. Common contaminants that compete with iodine include:

- **Bromide —** Bromides are known endocrine disruptors found in baked goods, pesticides and plastics, among other sources. Because bromide is a halide, it competes for the same receptors used in your thyroid gland and other body areas to capture iodine, thereby inhibiting thyroid hormone production and resulting in a deficiency.
- **Fluoride —** Fluoride has long been known to displace iodine and studies involving both animals and humans have proven such. As cited by the Fluoride Action Network, Chinese researchers "have repeatedly found that an iodine deficiency coupled with fluoride exposure produces a significantly more damaging effect on neurological development than iodine deficiency alone."[13]
- **Mercury —** Iodine may help detoxify your body of mercury, which is found in dental amalgam fillings and fish like tuna, as well as in consumer products such as antiques, batteries, electronics, light bulbs and pharmaceutical products.
- **Nitrates —** While there are healthy nitrates, such as from vegetables, including beets, the nitrites found in processed meats such as bacon, hot dogs, lunch meat and sausage may interfere with your uptake of iodine, so be sure to avoid them. Nitrates from agricultural fertilizer, present in contaminated drinking water, have also been implicated as a potential cause of thyroid cancer.[14]
- **Perchlorate —** A contaminant found in groundwater across the U.S. and in measurable amounts in milk, fruit and vegetables. In high doses, perchlorate may inhibit the function of your thyroid gland. Even in low doses, it inhibits the uptake of iodine by your thyroid gland, leading to hypothyroidism.[15,16]

How Much Iodine Do You Need and How Can You Get It?

According to the National Institutes of Health, the recommended dietary allowance (RDA) for iodine is:[17]

Age	RDA for Iodine
Birth to 6 months	110 mcg

Age	RDA for Iodine
7 to 12 months	130 mcg
1 to 8 years	90 mcg
9 to 13 years	120 mcg
14 years and older	150 mcg
Pregnant women	220 mcg
Breastfeeding women	290 mcg

I always recommend you get as many nutrients as possible from the food you eat and your intake of iodine is no exception. Always choose fresh, organic fruits and vegetables and raw, organic, grass fed dairy. Below are some of the foods known to be rich in iodine:[18,19]

Cheese — If you are able to tolerate dairy, you'll be pleased to know raw, organic, grass fed cheese is high in iodine. For example, a 1-ounce serving of raw cheddar cheese contains about 10 to 15 mcg.

Cranberries and cranberry juice — Although about 4 ounces of cranberries contain 400 mcg of iodine, as with any fruit, I suggest you consume fresh, organic cranberries or cranberry juice in moderation due to their fructose content. To avoid added sugar, you may want to make your own cranberry juice or buy a brand containing 100% juice and no added sugar. (Avoid cranberries if you have urinary tract stones or take a blood-thinning medication like warfarin.)

Eggs — One large organic, pastured egg contains about 24 mcg of iodine.

Lima beans and navy beans — One cup of cooked lima beans contains about 16 mcg of iodine; one-half cup serving of navy beans contains 32 mcg. While beans are also a great source of fiber, be advised they contain health-damaging lectins. To reduce the

lectin content, always soak beans overnight and change the soaking water a few times. Using a pressure cooker can help reduce lectins. Eat beans only occasionally.

Potatoes — A medium-sized baked potato contains about 60 mcg of iodine, making potatoes one of the richest sources of iodine among vegetables. Because potatoes are heavily sprayed with pesticides, be sure to purchase organic potatoes. Due to their high starch content, I recommend you eat potatoes in moderation.

Sea vegetables — Sea vegetables such as arame, dulse, hiziki, kelp, kombu and wakame are excellent sources of iodine. Kelp, which boasts 2,000 mcg per a 1-tablespoon serving, is the best source of iodine on the planet. At the low end of this group, wakame contains about 80 mcg per tablespoon, a level that outpaces many other sources of iodine.

Strawberries — One cup of strawberries contains about 13 mcg of iodine. As with cranberries, be mindful that strawberries contain fructose. Because strawberries are sprayed with pesticides, always buy organic.

Yogurt — As a superb source of natural probiotics, a 1-cup serving of yogurt provides approximately 90 mcg of iodine. Choose yogurt made from raw, organic, grass fed milk and keep in mind that store bought varieties typically contain added sugar, artificial colors and flavors and other unhealthy ingredients. For the best yogurt, you may want to make your own. Check out my recipe "**How to Make Fresh Homemade Yogurt**."

Health Effects Associated With Iodine Deficiency

Even though the inclusion of iodine in table salt was an effective strategy used to increase iodine levels for decades, it is no longer having effects for a growing portion of the U.S. population. The main reason is that table salt has endured a major loss of popularity and many are choosing to forego this once ubiquitous staple, particularly in developed countries in which other salts have increased in popularity.

In recent years, unprocessed salts, such as sea salt and mineral salts like Himalayan pink salt, which is a personal favorite, have become more popular. While mineral salts are wonderful sources of trace minerals such as calcium, magnesium, phosphorus, potassium and vanadium, they may leave you short on iodine since it is not added.

In years past, iodine was also added to flour, but has since been replaced with bromide and chlorine, which only exacerbates the problem. As noted by Teitelbaum, chlorine further depletes your body of iodine.[20] The most common symptoms/outcomes of iodine deficiency include:[21]

- **Cancer —** Your iodine intake is directly tied to your breast health because this mineral provides a host of antioxidant benefits. Iodine deficiencies are linked to both breast cancer and thyroid cancer. The good news is iodine is involved in apoptosis — programmed cell death that is necessary for the development of new cells and the elimination of diseased cells.
- **Fatigue and weakness —** Because iodine is important for your body's energy production, a lack of it can cause you to feel fatigued and sleepy. Its absence may also cause you to feel cranky and moody.
- **Goiter —** Simply stated, a goiter is abnormal swelling of your thyroid gland due to insufficient iodine. Not only will a goiter cause a noticeable protrusion at the base of your neck, but more serious types may result in a cough and may even make it difficult for you to breathe and swallow.
- **Infertility —** Given its importance for regulating your thyroid function and hormones, iodine also plays a role in infertility.
- **Other concerns —** Because iodine is crucial for proper thyroid function, a lack of it can trigger hypothyroidism. An underactive thyroid gland can cause constipation, dry skin, fatigue, hair loss and unexpected weight gain, among other symptoms.

Given the increasing rates of thyroid deficiencies worldwide, especially in developed countries, you'd be wise to ensure you are getting sufficient daily amounts of iodine. While I do not recommend table salt because it has been stripped of many of its nutrients, there are plenty of healthy sources for iodine. If for any reason you are not

able to consume any of those foods, talk to your doctor about taking a high-quality iodine supplement.

This vital mineral is much too important to ignore. If you have any symptoms of iodine deficiency, you can take one or both of the following actions to determine your iodine status:

- As explained in the video above, conduct a simple skin test at home using an orange-colored iodine tincture
- Ask your health practitioner to check your iodine level using an iodine-loading test or through bloodwork

Sources and References

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