

# Iodine Truth and Lies

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✓ Fact Checked

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## STORY AT-A-GLANCE

- › Your body does not produce iodine, so you must get it from your food. Iodine was added to table salt to reduce the public health threat, but recommendations for a low-salt diet have contributed to a rise in the risk once again
- › Roughly 30% of the world is thought to be deficient. Physicians once prescribed drops of Lugol's solution for iodine supplementation, but that fell out of vogue after two physicians misinterpreted scientific data in 1948
- › The subsequent addition of competing minerals — fluoride to the water supply and substitution of potassium bromate for potassium iodide in bread and pastry flour — increased the risk of hypothyroidism and iodine insufficiency
- › Symptoms of hypothyroidism include fatigue, difficulty learning and remembering, difficulty with weight loss, always feeling cold and difficulty getting pregnant
- › I recommend you get as much iodine from your food as possible, including iodine-rich organic, grass fed dairy products, organic cranberries, eggs, potatoes and sea vegetables, which have more iodine than any other source

Your body cannot produce iodine, so you must get it from your food. Although iodine deficiency is reemerging as a public health threat,<sup>1</sup> it is completely preventable in the Western world. It is a critically important trace mineral, which means that your body needs it in very small doses.

Although many cells use iodine, your thyroid gland uses what's available first to produce the thyroid hormones triiodothyronine (T3) and thyroxine (T4). According to Harvard TH Chan School of Public Health,<sup>2</sup> most people in the U.S. get their dietary iodine from iodized salt and milk.

If a person chooses to follow a low-fat, low-salt diet recommended by the American Heart Association,<sup>3</sup> it drastically reduces the amount of iodine they absorb each day.

This may help explain how iodine deficiency and thyroid conditions have become serious public health concerns. According to the American Thyroid Association,<sup>4</sup> roughly 30% of the world's population is thought to be at risk of deficiency and those in developed countries are increasingly found to be lacking this essential nutrient.

## **Iodine or Iodide?**

Although the words sound similar and you may have used them interchangeably, iodine and iodide are two different compounds.<sup>5</sup> Elemental diatomic iodine (I<sub>2</sub>) has two iodine atoms bound together. In this form, iodine is highly corrosive and can damage tissue on contact.

Iodide (I<sup>-</sup>) is the form of iodine found in nature. It occurs when iodine binds with another element and forms salt. For example, potassium iodide or sodium iodide is iodine bound with potassium or sodium. In this form, it can be used topically or ingested.

According to Dr. Guy Abraham in "The Historical Background of the Iodine Project,"<sup>6</sup> during the first half of the 20th century, physicians used Lugol's solution as an iodine supplement. Each drop delivered 6.25 mg of elemental iodine, which was 40% iodine and 60% potassium iodide salt. At the time, the recommended intake was 2 to 6 drops per day.

This changed in 1948 when Drs. Jan Wolff and Israel Lyon Chaikoff from the University of California Berkeley published their findings on an animal model during which they administered intraperitoneal injections of iodide. When serum levels of inorganic iodide reached 0.2 m/L they noticed the thyroid gland no longer absorbed radioiodide.

According to Abraham, the correct interpretation would have been that the thyroid gland had absorbed a sufficient amount of iodine.

## **What Killed Iodine?**

Despite the results, Wolff and Chaikoff concluded that because the thyroid no longer absorbed the radio iodide, the production of thyroid hormones would be blocked and result in hypothyroidism. However, according to Abraham,<sup>7</sup> the rats did not develop symptoms of hypothyroidism. Since Wolff and Chaikoff could not justify the interpretation, they explained that the rats did not follow “a normal physiological response.”

In 1969, Wolff, working at the National Institutes of Health (NIH), defined levels of iodine excess and concluded that anything above 0.2 mg per day was potentially harmful. Abraham points out that Wolff’s and Chaikoff’s interpretation of the data was incorrect and Wolff’s subsequent extrapolation of the findings to humans without sufficient scientific evidence was “worse.” Abraham went on to write:<sup>8</sup>

*“By the 1970s, physicians concluded that one must avoid inorganic, non-radioactive iodine like leprosy, unless it was incorporated into the toxic, organic iodine-containing drugs. Then iodine could be tolerated because iodine could be blamed for the toxicity of these drugs.”*

By 1993, the beneficial effects of supplementing with iodine for one year in 1,368 patients had been documented. Yet, Wolff’s opinion prevailed. Further research by Drs. Jorge Flechas and David Brownstein did not reproduce the Wolff-Chaikoff effect in roughly 4,000 patients who received supplementation for as long as three years. In 2005, Abraham wrote that medical fear of iodine had reached:<sup>9</sup>

*“... pandemic proportion, is highly contagious, and has wreaked havoc in the practice of medicine and on the U.S. population. More misery and death in the U.S. may have resulted from the Wolff-Chaikoff effect than both World Wars combined.”*

Registered dietitian Jennifer Depew talks about her experience using iodine supplementation in her Substack article, "Iodine and an Old Lie, Still Being Spread."<sup>10</sup> She notes that with supplementation, her fibrocystic breast pain resolved, and she experienced restored energy and an easier time losing weight.

## **Common Environmental Contaminants Compete With Iodine**

Iodine belongs to a class of chemicals called halogens, along with fluorine, chlorine and bromine.<sup>11</sup> Fluorine has the highest reactivity, followed by chlorine, bromine and then iodine. When a halogen combines with another element it's called a halide. For example, sodium chloride is a halide ion.

Exposure to these halides can disrupt thyroid function since the halogen is absorbed by the thyroid gland. Researchers have found that with adequate exposure to iodine, the effect of fluoride exposure can be mitigated.<sup>12</sup> Depew notes<sup>13</sup> that in the 1950s fluoride was added to the drinking water and potassium bromate was substituted for potassium iodide in bread and pastry flour, both of which likely have contributed to iodine insufficiency and deficiency.

Increasing numbers of people with hypothyroidism and goiters triggered public health officials to recommend the addition of iodine to table salt. Yet, as has been noted in the past 10 years, the American Heart Association's push for a low-salt diet has had a significant impact on thyroid health.

According to Abraham's data,<sup>14</sup> this may have also influenced the rate of breast cancer. In a small number of subjects, an iodine-loading test resulted in the excretion of more bromide in women with breast cancer than in normal subjects. 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 in your thyroid gland and other body areas to capture iodine, thereby inhibiting thyroid hormone production.

- **Fluoride** – Fluoride has long been known to displace iodine. 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."<sup>15</sup>
- **Mercury** – Mercury 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. Higher levels of mercury in the body are associated with lower levels of thyroid hormone.<sup>16</sup>
- **Nitrates** – Nitrites found in processed meats such as bacon, hot dogs, lunch meat and sausage may interfere with your uptake of iodine and potentially lead to an increased risk of thyroid and other cancers.<sup>17</sup> Nitrates from agricultural fertilizer, present in contaminated drinking water, have also been implicated as a potential cause of thyroid cancer.<sup>18</sup>
- **Perchlorate** – This is a contaminant found in groundwater across the U.S. and in measurable amounts in milk, fruit and vegetables. Perchlorate blocks iodine uptake and inhibits the production of thyroid hormones, which leads to hypothyroidism.<sup>19,20</sup>

## **Iodine Insufficiency Affects Cognition and Much More**

Your body needs enough iodine to make thyroid hormones. In addition to the effect low thyroid hormone has on your general health, the thyroid can become enlarged, which is a condition known as goiter. A lack of thyroid hormones is called hypothyroidism, which can trigger intellectual disabilities and developmental issues in infants and children whose mothers were deficient during pregnancy.

When an infant is deprived of thyroid hormones in utero, it can have irreversible effects on the child. Babies born to mothers with hypothyroidism during pregnancy have a significantly increased risk of lower IQ scores, learning disabilities and neuropsychological impairment.<sup>21</sup> According to the American Thyroid Association,<sup>22</sup> iodine deficiency is “the most common preventable cause of intellectual disabilities in the world.”

Researchers are just beginning to understand the relationship iodine has with more than the thyroid gland. Micronutrient deficiencies and inadequacies are a global health issue. Many of the symptoms of iodine deficiency are related to hypothyroidism, yet as Depew notes,<sup>23</sup> correcting her iodine level led to a reduction in fibrocystic breast symptoms. Symptoms you may be deficient in iodine include:<sup>24,25,26</sup>

Fatigue	Muscle weakness	Weight gain
Difficulty losing weight	Difficulty learning and remembering	Hair loss
Dry skin	Always feeling cold	Constipation
Slow heart rate	Difficulty getting pregnant	Heavy or irregular periods
Hoarse voice		

## Iodine-Rich Foods

According to the National Institutes of Health,<sup>27</sup> the recommended dietary allowance for iodine is 150 micrograms (mcg) for men and women age 14 and older. I always recommend that you get as many nutrients as possible from the food that you eat, and iodine is no exception. The amount of iodine in your food is directly related to how much is in the soil where the food was grown.

Always choose fresh, organic fruits and vegetables and raw, organic, grass fed dairy. Consider optimizing your iodine absorption by eliminating or significantly reducing your exposure to the common contaminants that compete with iodine. These were bromide, fluoride, nitrates, mercury and perchlorate. Some of the foods that are known to be rich in iodine include:<sup>28</sup>

- **Dairy** – All dairy is rich in iodine and consuming raw, organic, grass-fed dairy is a healthier option. The iodine content in the dairy can vary depending on the season

of the year.<sup>29</sup> According to the National Institutes of Health, 1 cup of nonfat pasteurized milk contains 85 mcg and 1 ounce of pasteurized cheddar cheese contains 15 mcg.<sup>30</sup>

- **Cranberries** – Cranberries are a rich source of iodine. I suggest you consume fresh, organic cranberries or cranberry juice that is 100% juice with no added sugars. If you have a urinary tract stone<sup>31</sup> or take blood thinning medication like warfarin,<sup>32</sup> it is important to avoid cranberries.
- **Eggs** – One large egg contains 26 mcg of iodine.
- **Potatoes** – One medium baked potato with the peel contains 60 mcg of iodine.<sup>33</sup> Potatoes are a heavily sprayed crop, so be sure to purchase organically grown potatoes. Because they are also high in starch, I recommend eating potatoes in moderation.
- **Sea Vegetables** – One-quarter ounce of dried seaweed may contain more than 4,500 mcg of iodine.

## Sources and References

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- <sup>1, 22</sup> [American Thyroid Association, Iodine Deficiency](#)
- <sup>2</sup> [Harvard TH Chan School of Public Health, Iodine](#)
- <sup>3</sup> [American Heart Association](#)
- <sup>4</sup> [American Thyroid Association, Iodine Deficiency, para above purple box table 1](#)
- <sup>5</sup> [Association for the Advancement of Restorative Medicine, April 17, 2017](#)
- <sup>6, 7, 8</sup> [The Historical Background of the Iodine Project, 2005 page 57](#)
- <sup>9</sup> [The Historical Background of the Iodine Project, 2005 pg 64](#)
- <sup>10, 13, 23</sup> [DeNutrients Jennifer Depew, RD, September 25, 2022](#)
- <sup>11</sup> [Sciencing, March 13, 2018](#)
- <sup>12</sup> [Environment International, 2018;121](#)
- <sup>14</sup> [The Historical Background of the Iodine Project, 2005](#)
- <sup>15</sup> [Fluoride Action Network April 2015](#)
- <sup>16</sup> [Environmental Health Perspectives, 2013;121\(2\)](#)
- <sup>17</sup> [Antioxidants, 2020;9\(3\)](#)
- <sup>18</sup> [Epidemiology, 2010;21\(3\)](#)
- <sup>19</sup> [Environmental Health Perspectives April 2016; 124\(4\)](#)
- <sup>20</sup> [Best Practice & Research: Clinical Endocrinology & Metabolism February 2010; 24\(1\)](#)
- <sup>21</sup> [Indian Journal of Endocrinology and Metabolism, 2012; 16\(3\)](#)

- <sup>24</sup> Health Direct, Iodine Deficiency
- <sup>25</sup> American Thyroid Association
- <sup>26</sup> Cleveland Clinic, Iodine Deficiency
- <sup>27, 28, 30</sup> National Institutes of Health, Iodine
- <sup>29</sup> Dairy, 2022;3(2)
- <sup>31</sup> Journal of Urology, 2005;174(2)
- <sup>32</sup> Mayo Clinic, Warfarin diet: What foods should I avoid?
- <sup>33</sup> Oregon State University, Iodine