



## Iodine is Safe and Effective

by Jeffrey Dach MD

### Japanese Reactor Accident and Radiation Leak

In the aftermath of the Japanese Earthquake and Reactor [Accident](#), reports of radiation leakage has spurred interest and demand for iodine tablets [as a preventive agent](#). Iodine tablets prevent the uptake of radioactive I-131 by the thyroid gland, thereby preventing radiation induced thyroid cancer. (1)(2)(1A)

### The Safety of Iodine Tablets

One televised doctor, a toxicologist, appeared on television to warn viewers about possible allergic reactions to iodine.(3) After viewing television [news reports](#) on iodine tablets, calling them unsafe and dangerous, some patients have called into the office asking questions about the safety of iodine tablets. (3)



Left Image: Iodine tablets in Japan, courtesy of Wikimedia Commons (13)

### Can I Have An Allergic Reaction to Iodine?

For thirty years as a radiologist in the hospital, a large part of my job was to inject iodine contrast into people every day, so they could have their X-Ray test. And yes, we had some allergic reactions to the injections, and even some deaths from it. As a precaution, we always asked the patient if they had a pre-existing "iodine allergy". So yes, there is such a thing as "iodine allergy" to iodine X-Ray contrast. However, (and this is the really important part), iodine contrast is **not the same** as elemental iodine. The molecular structures of the two are quite different. And, in addition, there can be no such thing as allergy to elemental iodine. Here is why:

### No Allergy to Elemental Iodine -It's an Essential Nutrient

Elemental iodine is present in iodized salt and in other foods. Iodine is an essential nutrient, which means we need it to live. We have a long list of essential nutrients such as water, oxygen, iron, vitamin C etc., which are all examples of things that we need to live. If we don't get them, we get sick and/or die. Iodine is one of those things. As a result, there can be no such thing as allergy to elemental iodine. Such a person could not take in iodine, would get sick and die. For example, if a developing embryo is iodine deficient, it exhibits growth and mental retardation, a condition known as cretinism. When a population is severely iodine deficient, then there is increased incidence of goiter (thyroid enlargement), cretinism, mental retardation, decreased fertility rate, increased perinatal death, and infant mortality.(11)

## **Adverse Effects From Elemental Iodine**

While there can be no "allergy" to Elemental Iodine, we observe various adverse reactions from elemental iodine in iodine deficient people starting high doses. This has been well described, and can be easily avoided by starting with small doses of iodine and gradually increasing dosage over time. Probably the most common report is a "metallic taste" in the mouth, which is harmless and merely means you are taking the "right stuff". Another possible set of adverse reactions relates to the fact that the severely iodine deficient person may be Bromine toxic, and undergoes rapid Bromine excretion when starting the Iodine tablets. Bromine is irritating and the excretion can cause skin itching or rash, nausea and other symptoms. This is usually transitory and is gone in a few days.

## **Elemental Iodine and the Thyroid Gland**

Another set of warnings appeared on television about possible adverse effects of Iodine for people who are either low thyroid or high thyroid. This will be discussed below in an article I wrote which was published in the "Townsend Letter for Doctors" .  
(9)(10)

## **Iodine is Safe and Effective by Jeffrey Dach MD (10)**

### **Townsend Letter, Feb-March, 2011**

Contrary to the editorial by Alan Gaby in the [December 2010 issue](#) Townsend Letter on iodine supplementation, I have been using iodine in clinical practice and find it both safe and beneficial. We have used iodine supplementation routinely in our practice for the past five years primarily as a safe and effective agent for prevention of breast cancer. And, in fact we have had virtually no breast cancer in our patient population on bioidentical hormones using iodine supplementation.

In terms of iodine testing, we test everybody routinely. We do a simple spot iodine urine level, which is done by one of the large national labs (we have Quest or LabCorp in our area). This is easy, since the patient is already at the lab for a complete blood test panel, and is already providing a spot urine sample for the U/A (routine urinalysis). So, another spot urine in a cup for the iodine level is easy to do. This is easier and more convenient than the 24-hour leading test, and I have found the results of the spot test very useful. In patients already supplementing with iodine, the urine spot iodine test is omitted, since high urinary excretion makes the spot urine test useless. However, as a baseline test before starting iodine, I have found the spot urine iodine extremely useful. If the spot urine test results are high, the patient will usually admit to a diet that includes seaweed, or is already on an iodine supplement of some type. Mostly we find the results at the low end of the range.

As you know, the problem with Iodoral (iodine) relates to the patient with Hashimoto's thyroiditis with elevated TPO and/or thyroglobulin antibodies. These patients may go into Hashitoxicosis after supplementing with iodine, exhibiting hyperthyroid symptoms possibly requiring hospitalization for thyroid storm.

We are finding Hashimoto's thyroiditis to be more common than originally thought, almost epidemic, and it seems to be increasing. On a routine basis, initial evaluation includes thyroid antibody levels. In addition, all patients routinely must have a serum selenium level drawn. I have found that in almost all patients with elevated antibodies, selenium supplementation will normalize and drive down antibody levels on serial lab studies.

In order to prevent the thyroid storm and other adverse effects from iodine in Hashimoto's patients, as you know, these patients must be supplemented with selenium first. This is why we first routinely draw a serum selenium, and for those cases below 135 ng/ml, we give 200-400

meg of selenomethionine for three weeks before starting the iodine supplementation at 6.25 mg (half the 12.5 mg tab) every other day.

Starting with a lower dose of iodine avoids the various adverse effects of skin itching and metallic taste and GI symptoms that can be reported at first. These are usually transient, and after a week or so, the dose can be safely increased to a full tablet daily.

Occasionally, we see a typical Hashimoto's patient with an elevated TSH around 5 or 6, and also an upper range free T3 around 350 to 400. These patients respond to selenium supplementation well, and follow-up labs usually show free T3 coming down to the 280-300 level, which in retrospect indicates the patient initially exhibited a slight thyrotoxic effect of the Hashimoto's thyroiditis, which then cooled down after the selenium. At this point it is safe to start the iodoral. If a Hashi's patient with a slightly overfunctioning thyroid and coexisting low selenium level is then started on iodine without first optimizing the selenium level, this will aggravate the thyroiditis, and possibly throw the patient into thyroid storm.

Leaving the area of Hashimoto's and going to the general patient (with normal antibody levels without Hashi's), another big issue with iodine supplementation is that the TSH may go up, which is then interpreted by the family physician as a sign of hypothyroidism. This interpretation is an error, as the elevated TSH is cosmetic and unrelated to underlying thyroid function in these cases.

A good example of this is a 55-year-old woman who came to see me after taking an iodine supplement from a health food store, hoping to shrink her goiter. The high school kid at the health food store gave her the wrong dosage instructions, and she had been taking a huge overdose of iodine for months. She felt fine, and a routine thyroid lab panel at her primary care physician showed a TSH of 65! The doctor was very concerned and told her that she "blew out" her thyroid with the health food store iodine, that she was severely hypothyroid, and gave her a prescription for Synthroid for her "hypothyroid" state.

Here was a lady sitting in front of me who felt fine and had no symptoms of hypothyroidism. I sent her to the lab for a repeat panel and her Free T3 was normal at 330, indicating that she had normal thyroid function and did not need Synthroid. I explained to the patient that the elevated TSH was an "artifact" of the iodine supplementation, and that nothing else needed to be done other than stop the iodine and retest the TSH every 6 weeks or so. Six weeks later her TSH had come down to 10 and six weeks after that it was down to 4. The lady said thank you and I never saw her again.

All of this information is David Brownstein's Iodine book, which I credit for helping me immensely to figure out the day-to-day practicalities of how to actually do iodine supplementation in our practice. In order to safely use iodine, the biochemistry and physiology of the thyroid gland must be reviewed and understood by the practitioner. Much of this information is newly uncovered, and is beautifully presented in Dr Brownstein's Iodine book.

I would urge all practitioners to routinely test antibody levels, serum selenium, and baseline spot urine for iodine on all patients before starting iodine supplementation. These tests are available at the large national labs and are convenient and easy to do. In patients with elevated antibody levels, supplementation with selenium is critical to avoid adverse effects from the iodine supplementation. Selenium reduces antibody levels, cools down the thyroiditis, and prevents thyroid storm, making it safe to start the iodine. As you know, iodine supplementation is preventive for goiter and breast cancer, and yet there is greater benefit such as utility in normalizing blood sugar in type 2 diabetes, and utility to prevent the many thyroid nodules and cysts common in the population. (10) (above article by Jeffrey Dach MD, courtesy of the Townsend Letter)

## Comment on TSH level and Thyroid Failure

**Regarding the question about the elevated TSH indicating "early" or subclinical " thyroid failure in the above patient:**

I do not believe the above patient with the elevated TSH had thyroid failure because of the following facts:

- 1) Thyroid failure is associated with signs and symptoms of a low thyroid condition. She had none. She felt fine with normal energy and no fatigue.
- 2) Thyroid failure is associated with measurably low levels of thyroid hormone in the blood. This patient had normal levels of blood thyroid hormones on her lab panel.

Iodine puts the "brakes" on thyroid hormone release by the thyroid gland, explaining the benefit and routine use of Lugol's Iodine for thyroid storm and as a pre-operative treatment for Graves' Disease hyperthyroidism. (15-17)

## Dr. Brownstein on Iodine Supplementation as protection after a Nuclear Accident (12)

[David Brownstein's blog](#) is an excellent source of information on iodine and I strongly recommend his series of articles on iodine protection after the Japanese nuclear accident. (12) Dr. David Brownstein is author of an important [book on Iodine](#), an excellent resource for those interested in further reading.

### For articles with related interest:

[Breast Cancer Prevention and Iodine Supplementation by Jeffrey Dach MD](#)

[Iodine Treats Breast Cancer, Overwhelming Evidence by Jeffrey Dach MD](#)

**For more on Iodine Supplementation, see the entire series in the Townsend Letter (4-8):**

[http://findarticles.com/p/articles/mi\\_7396/is\\_329/ai\\_n56436087/?tag=content;col1](http://findarticles.com/p/articles/mi_7396/is_329/ai_n56436087/?tag=content;col1)

Megadose iodine: an idea whose time has gone. Townsend Letter, Dec, 2010 by Alan R. Gaby

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Iodine debate continues Townsend Letter, Feb-March, 2011 by David Brownstein, Guy Abraham

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Alan Gaby replies Townsend Letter, Feb-March, 2011

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(1A) <http://www.nytimes.com/2011/04/07/world/asia/07japan.html?src=me>  
Core of Stricken Reactor Probably Leaked, U.S. Says. The statement came as the Tokyo Electric Power Company, the operator of the Fukushima Daiichi plant, started to inject nitrogen into the reactor containment vessel of unit No. 1 to prevent a possible explosion.

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(3) <http://www.signonsandiego.com/news/2011/mar/22/no-need-to-take-potassium-iodide-at-this-time/> No need to take potassium iodide at this time. Tablets would protect thyroid gland from absorbing iodine contaminated by radiation  
By Union-Tribune Tuesday, March 22, 2011 at 12:01 a.m.

(4) [http://findarticles.com/p/articles/mi\\_7396/is\\_329/ai\\_n56436087/?tag=content:col1](http://findarticles.com/p/articles/mi_7396/is_329/ai_n56436087/?tag=content:col1)  
Megadose iodine: an idea whose time has gone. Townsend Letter, Dec, 2010 by Alan R. Gaby

(5) [http://findarticles.com/p/articles/mi\\_7396/is\\_331-332/ai\\_n57095439/](http://findarticles.com/p/articles/mi_7396/is_331-332/ai_n57095439/)  
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(9) <http://www.townsendletter.com/FebruaryMarch2011/FebruaryMarch2011.html>  
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(10) [http://findarticles.com/p/articles/mi\\_7396/is\\_331-332/ai\\_n57095442/](http://findarticles.com/p/articles/mi_7396/is_331-332/ai_n57095442/)  
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(12) <http://drdavidbrownstein.blogspot.com/2011/04/japanese-radiation-update-7-why-you.html>  
Japanese Radiation Update 1-7: Why You Should Consider Iodine Therapy

## Images

(13) [http://en.wikipedia.org/wiki/File:Japan\\_Nuclear\\_power\\_plants\\_map.gif](http://en.wikipedia.org/wiki/File:Japan_Nuclear_power_plants_map.gif)  
Japan Nuclear power plants map. source : <http://www.insc.anl.gov/pwrmaps/>  
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## Links and References

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