Iodine[1], the Purple Nutrient: Passionate Phobia or Panacea?

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One of the signs of a powerful idea is its simplicity. Einstein's equation for energy, Semmelweis' discovery that washing hands saves new mothers' lives, and Vitamin C to cure scurvy are elegant and dramatic in their permanent effect on humanity.

The role of Iodine in the prevention and treatment of many of our chronic disease epidemics will be attracting growing attention. Why this has not yet occurred is due to a perfect storm of forces; however the scientific evidence is growing rapidly. Like Columbus, Galileo and other pioneers, the human quest for improvement will inevitably lead us around the Earth and into a scientifically-based Universal Truth about the role of Iodine for health.

The only source of Iodine is the ocean. Rain near the ocean delivers iodine to soil; it is absent or depleted in many areas of the world, called "goiter belts". Before Iodine was discovered in 1811, burnt sponge was used to cure goiter. After discovery, iodine was added to flour, milk and other foods, and used successfully as a medicinal.

In the 1960's, "Iodo-phobia"[3] began after certain studies suggested that too much iodine could cause thyroid disease. Iodine was then removed from many foods and only added to salt, which use is limited today.

Since that time, there has developed an epidemic of thyroid disease. This past research is now being questioned. It also may be of limited value due to lack of control for recently discovered factors that affect iodine physiology, especially deficiencies of iron, magnesium, selenium and B vitamins, as well as modern toxins.

Current sources of iodine: salt, kelp and seafood are controversial in their dosing, limits and possible contaminants.

Symptoms of Possible Sub-Clinical Hypothyroidism and/or Iodine Insufficiency
Coldness
Dryness
Fatigue
Hair loss
Poor Skin Healing
Chronic/Recurrent Infections (Yeast, Lyme, H Pylori, Herpes)
Breast Disease
Infertility, Menstrual and Menopausal Disorders, PCOS
Mood Disorders
Brain Fog, Poor Attention, Memory
Gastro-intestinal disorders
Growth Disorders
Weight Loss Resistance
Diabetes
High Cholesterol
High Blood Pressure

Iodine and Thyroid

Thyroid hormone is needed by every cell of the body. It exists in several forms, beyond the scope of this article. All thyroid hormones contain iodine.

The major form of thyroid hormone made by the thyroid gland, as well as the most commonly prescribed thyroid medicine, Synthroid, (T4, levothyroxine), contains four iodine atoms. T4 is activated to T3 (liothyronine or Cytomel) by the removal of one iodine atom; 80% of this activation occurs outside of the thyroid gland. Where this removed iodine atom goes is unclear. Given that every cell of the body has receptors for T4 and T3, every cell implicitly has a need for iodine in more than one form. Many hypo-thyroid patients given Synthroid alone remain symptomatic.

Thyroid medicine is now in the top five medicines prescribed in the world. Even without a formal diagnosis, most adults have at least one of the symptoms of hypo-thyroidism (see table). "Sub-clinical" hypothyroidism, where the basic tests are normal but symptoms or other indicators suggest a sluggish thyroid system, is common. Low thyroid is proven to raise cholesterol, raise blood pressure, worsen diabetes and increase risk of heart disease.

While the thyroid gland concentrates the most iodine per unit of weight, because it is a small organ (1.5 ounces), it only contains about 70% of an adult's total iodine store. Numerous peer-reviewed studies suggest that several tissues require Iodine apart from thyroid hormone (and can strip some iodine from thyroid medicine to use elsewhere).

Tissues that utilize iodine include: the ovaries (2nd highest concentration), salivary glands, breasts, uterus, prostate, adrenal and thymus glands, gastro-intestinal system, pancreas, eyes, muscle, skin, fat, heart, lung and others. The more fat and muscle a person has, the more the iodine requirement. Iodine is excreted in the urine and to a certain extent in the stool. Sweating causes significant loss, demonstrating that the skin utilizes iodine.

Role in Pregnancy and Neurology

The World Health Organization ("WHO") has determined that iodine deficiency is a global pandemic, remains the leading cause of preventable mental retardation and lack of growth ("cretinism") and has created an initiative to resolve this pandemic. Iodine is needed for brain development and function at all stages of life. Thyroid hormone and iodine interact with the growth hormone.

Role in Healing and Aging

Thyroid hormone and iodine have additional roles in general growth and healing throughout life. In thyroid deficiency, wounds don't heal, and there is generalized accelerated aging.

Role in Infections

Iodine is the pre-eminent antiseptic, used before every surgery. Hypo-thyroidism is associated with impaired immune function. Immune cells utilize iodine to fight invasion by bacteria, yeast, parasites, spirochetes and viruses. Chlorine and Bromine, in the same chemical family as Iodine are also used as antiseptics for water and soil (see below).

Role in "Apoptosis"

"Apoptosis" means programmed cell death. In order to build a new kitchen, old structures must first be removed. In the body, every cell has a switch that under specific conditions turns on a self-destruction mechanism. Cancer, in part, is an example of this switch failing due to multiple factors. Apoptosis occurs throughout life, beginning with the fetus, which develops and then loses a tail at certain stages. Iodine has a critical role in apoptosis, which can explain its role in growth, repair and possibly cancer.

Other Roles

Thyroid disorders and iodine deficiency have roles in the epidemics of chronic conditions listed in the table. A search of pubmed.gov, the federal database of peer-reviewed literature will result in hundreds of articles exploring these relationships.

Halides and Halide-Based Toxins

The Halides are elements that share an important column in the Periodic Table of the Elements, and include Chlorine, Fluorine, Bromine and Iodine. They share the ability to ***oxidize***, a reactive chemical process utilized by nature and industry. Because they are similar, halides compete with each other. While Chlorine and Iodine have essential biological roles, Fluorine and Bromine do not.

Iodine has many forms, the two biologically important ones being iodiNe and iodiDe. How these forms are inter-converted and utilized by different tissues (thyroid needs iodiDe while the breast may need iodiNe) remains unclear. This distinction confuses research and nutritional guidelines. Iodine in altered forms is used in drugs and dyes, where it garners significant toxicity. Iodine "allergy" is never to the element but to the surrounding molecule.

Bromine, a known toxin, is still utilized as a soil disinfectant in the USA and is found in bread and many other foods. Its use is outlawed in many countries.

Fluorine's use is ubiquitous, not only for dentistry (which is controversial), but in compounds such as refrigerants, non-stick surfaces and medications[4].

Chlorine is in most drinking water and is absorbed while we shower and swim. Chlorine as perchlorate, used in rocket fuel, is inhaled and then found in breast milk, where it blocks iodine transport into thyroid and other cells. The chloride in salt (sodium chloride), especially in combination with other essential minerals in unrefined salt, may help push out other toxic halides.

The combination of iodine deficiency and halide exposure is a new phenomenon and probably renders past research non-applicable to current disease trends.

Deficiency, Insufficiency and Toxicity

While discussed in detail elsewhere[2], most nutrients in the body have multiple roles. The amount needed for one role is often different than for another role.

For example, while Vitamin D's "RDA" (Recommended Daily Allowance), 400-600 IU, is sufficient to prevent rickets, it is *not* for the other roles or optimal health. Known as *insufficiency,* like giving a plant or child the minimum amount of water, food, love and education—the creature will *survive, but not thrive*. Some people need 16,000 IU, or 40x the RDA on a short- or long-term basis to achieve and maintain adequate levels on repeat testing.

Other nutrients have narrower or wider windows of low and high levels. Each nutrient can affect every other. One person's toxicity is another's insufficiency. The optimal intake for an individual can also change significantly over time, based on many factors. Interpretation of levels is as much art as science. IodiDe in salt does prevent goiter; the chance of this being sufficient is unlikely.

Measuring and Treating Iodine Deficiency

The technology and validity of various methods of testing thyroid hormone, related hormones (TSH, TRH, Reverse T3) and iodine in the blood, cells, urine and body, and the definition of deficient, insufficient, sufficient and toxic levels are highly controversial and will remain subject to intense scientific debate for many years to come. However, this should not preclude the cautious application of testing and treatment on an individual basis by knowledgeable practitioners**.**

Exciting Future

When Iodine was discovered in 1811, it appeared as a purple vapor over burnt seaweed[5]. It was named using the Greek root iod--, which means purple or violet. Classically, the color purple has represented royalty, superiority, elegance, and the highest Chakra. The coming decade of "The Purple Nutrient" is upon us and will significantly impact the health of the planet.

Burning Questions that need to be Resolved:

1) What is the best way of determining Iodine status?
2) What is the optimal maintenance dose for our species, and for an individual?
3) What is the safest method to correct deficiency?
4) What is the relationship of Iodine to other involved nutrients, such as Selenium, Iron, Magnesium, Zinc, Vitamin B1, B2, B3, B5, C and refined and unrefined salt?
5) What is the relationship of Iodine environmental toxins such as bromine, fluorine, lead, pesticides and perchlorates?
6) In the process of repletion, how do we manage detoxification and other possible "negative" reactions?
7) What is the relationship of Iodine to Estrogens?
8) What is the role of Iodine in chronic "stealth" infections?

IMPORTANT NOTE: This general information should not be used to make decisions about medical care without the involvement of a knowledgeable practitioner.

Footnotes and Reading Materials

1. The word "Iodine" is used many ways. To improve clarity in this article, capital-I Iodine or all-small iodine will refer to Iodine as a class in all its forms, while iodiNe with capital-N and iodiDe will refer to these specific forms. Same with Fluorine, Bromine and Chlorine. The literature is hard to interpret!
2. See Dr. Cheikin's prior articles and website www.cheikin.com for related articles and other resources.
3. The seminal and brilliant work of Guy Abraham MD, a Professor of OB/GYN at UCLA is easily found on the internet.
4. For more on fluoride, see fluoridealert.org (not com or net) and nteu280.org.
5. Wikipedia has excellent articles on Iodine, as well as the website stopthethyroidmadness.com
6. Brownstein, David: Iodine: Why You Need It, Why You Can't Live Without It, 2009. (4th Edition) ASIN: B001URN3UG

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