Iodine – The Forgotten Nutrient
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What is iodine and why do we need it?
Iodine is an essential element that is required at every single cell in the human body. It is found in nature in seaweed, especially kelp, and is known to have a wide range of beneficial effects in the human body. Iodine:

- is an anti-oxidant
- is an anti-viral, anti-bacterial and anti-fungal
- moderates the body's cortisol response during stress
- improves sleep
- provides control of estrogen
- supports thyroid function
- increases hormonal sensitivity at all brain/body tissues
- increases elimination of lead, mercury, cadmium, aluminium, fluoride and bromide (Abraham, 2004)
- reduces histamine formation and lowers eisonophil count (Abraham and Flechas, 2002)

Good for dieting, good for muscle growth, good for detoxing estrogen
Athletes and bodybuilders are more likely than most to be short on iodine. A litre of sweat contains around 40mcg iodine, which means we could lose up to 150mcg per day (Cansolazio et al, 1966). Restoring lost stores of iodine will provide a major benefit to any athlete. Whilst the above effects effects are useful for everyone, athletes could benefit more than most from iodine's effect on estrogen and hormonal sensivity. The value of increasing sensitivity to testosterone is a no-brainer, but the attenuation of the body's release of cortisol during stressful times is another important function of iodine that can effect both health and physique.

Iodine levels have a major say in how the body processes estrogen. Not only is their competition between iodine and estrogen at many receptors around the body, iodine also encourages the body to maintain a healthier estrogen balance by increasing estriol whilst reducing estrone and estriadiol (Wright, 2005). Iodine deficiency is the common factor behind estrogen-dependent breast/ovarian cancer, fibrocystic breast disease and estrogen dominance, but it could also be behind male bodybuilders holding onto more water than desired and females holding disproportionate levels of fat around the upper thighs and glutes.

Of course, there are many benefits of iodine beyond it's support for athletic endevours. Individuals are much more likely to stick to diets when they provide their body with sufficient iodine; this is likely to due to the combined effects of increased leptin sensitivity which will moderate hunger sensations, together with the strong control that iodine has over fungal/yeast growths, a common factor in carbohydrate cravings.

What effects can athletes expect from iodine supplementation?

Because of it's widespread effects throughout the body, replenishment of iodine stores can have a number of different effects in athletes. Better mood and concentration are normal improvements, together with deeper sleep and more consistent adherence to the dietary directions I make. Whilst it is great for making fungal nails or athlete's foot disappear, introducing iodine often eliminates long-term complaints that individials did not even realise were fungus-related. The elimination of heavy metals that it encourages can positively effect a wide variety of different body systems, the immune system in particular. As with other nutrients, we are all respond slightly differently to iodine deficiency, thus our experiences upon restoration are also slightly different.

More uniform responses occur in the case of IDDs. This disorders include: goiter, hypothyroidism, hyperthyroidism, fibrocystic breast disease, breast/ovarian cancer, estrogen dominance and PCOS. There is also a uniform inverse correllation to the levels of iodine in the body and the incidence of cancers.

Are we all affected? Well, some individuals are going to be more susceptible to the iodine deficiency than others, but the increased rate of fungal infections, immune system imbalances, estrogenic disorders, poor sleep and breast disease seen across Western society would appear to tell it's own story; even without the appearance of measurable Iodine Deficiency Disorders (IDDs), one can stand to gain in terms of energy and mood levels. The incidence of one such IDD, fibrocystic breast disease, is often used as a gauge of iodine deficiency across a population. Autopsies show that 97% of women in our society now develop cysts in breast tissue, whereas this figure was just 4% in the era of widespread iodine use (Kramer, 1973; Sem, 1928)

Why aren't we getting enough?

Without a shadow of a doubt, we are not getting nearly enough iodine. The recommendations for intake are woefully low, which seems due to a combination of ignorance and political interference. There are a number of current textbooks that shamelessly state that 'the only known role of iodine in humans is to serve as an element essential to the synthesis of hormones secreted by the thyroid gland' (Fink, 2005). Not only is this inaccurate – the thyroid represents only 3% of the body's stores of iodine (Abraham, 2004) - but it is also what is taught in the medical mainstream, which serves to produce a generation of doctors who think that iodine intake is sufficient if there is no goiter present. There is also a creeping culture of iodophobia which pervades through our medical profession, depsite the widely-documented use of high-dose iodine (more than 1g/ day) for more than a century (Abraham, 2004).

This iodiophobia has its roots in the much-criticised 1948 experiment by Wolff and Chaikoff, where it was concluded that excessive iodine intake suppressed thyroid hormone output. Although this was a one-off experiment conducted with rats and that its findings have not been replicated in similar research since (Abraham, 2005), this was considered enough for the powers-that-be to abandon iodine, then the standard treatment for both hypo- and hyper-thyroidism, and use synthetic thyroxine in its place. Thyroxine and other thyroid preparations remain amongst the biggest-selling drugs of our time.

It would seem that political inference persists to this day in making recommendations for iodine intake; having studied the EU's 2002 report on the Tolerable Upper Intake of iodine, I noticed that although the authors were clearly keen to emphasise the side effects of iodine, there was no identification of these side effects or any documentation that any populations had ever suffered problem them. I also noticed that, although the report was happy to discuss population studies from as far and wide as Zimbabwe and the

Democratic Republic of Congo, there was an inexplicable omission of any reference to Iceland and, in 25 pages of analysis, Japan was mentioned in just one sentence. To say that this is a serious flaw is an understatement, as both Japan and Iceland are both universally recognised for both their extremely low rates of iodine deficiency disorders like thyroid issues and breast/ovarian cancer (Cann et al, 2000; Stadel, 1976; Finley and Bogardus, 1960).

A single experiment in 1948 (Wolff and Chaikoff, 1948) and the desire of drug companies to use thyroid drugs ahead of iodine has seen the discussion of iodine pushed very much to the sidelines. The recent EFSA report on iodine backed the EU's 2002 report and made no criticisms of its selection discussion. This selective discussion of iodine use is not the only obstacle for a deficient population; in 2007, the federal government made Lugol's solution – the popular form of iodine - a controlled substance (US DEA, 2007). The basis given was that this solution could be used for the illicit manufacturing of methamphetamine. Naturally, no statement was provided for their expectations this move may have on the health of their already-iodine-deficient population.

What should we do about it?

When it comes to deciding the optimum intake level, there are a number of considerations, not least an individual's constitution. As with all nutrients, the most basic question is: what amount is enough to avoid all the Iodine Deficiency Disorders but also provides margin for any toxicity or side effects, the most common of which is iodism. Two drops of Lugols solution each day was used regularly before WWII to ward off any incidence of thyroid dysfunction and did so very admirably (Abraham, 2004). This dosage provided around 12.5mg of iodine each day but, as your grandmother may tell you, did not cause iodism despite being well above today's recommended intake. The average mainland Japanese citizen consumes 13.8mg of iodine each day, which is higher than most populations, and enjoys minimal iodine deficiency disorders, such as thyroid enlargement, fibrocystic breast disease or cancer. Iodism and iodine toxicity is virtually nil for mainland Japanese. Dr Abraham compared the incidence of iodism reported across long-term trials (Marine, 1923; Ghent, 1993) and found that the rate of iodism was increased at higher daily doses of iodine – it simply did not occur at a daily amount of 1.4-2mg, occurred at a rate of 0.1% with 3-6mg daily, occurred at at rate of 0.5% with 9mg, and at 3% when using 30-60mg each day. There is a fair likelihood that related mineral deficiencies may have increased the appearance rate of iodism, but there is no data available in this area. What can be taken from this summary of the available research is that 13.8mg appears to very adequate to meet our needs, but this level there is still minimal incidence of any iodism.

I take two drops of Lugol's solution each day, which provides 12.5mg, and recommend the same dosage to my clients. This provides the body with sufficient iodine not just for the thyroid, but for every other cell in the human body. The body can only perform the actions it is designed to perform in the presence of the nutrients we have evolved to consume; we have clearly evolved to take in considerably more iodine than we are currently consuming. Iodine is part of the jigsaw puzzle of optimal health but, as proved by the alarming increased in associated deficiency disorders, it is one we really miss when it is absent. Just because the medical world has forgotten the importance of iodine, doesn't mean you have to!

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