

# Iodine Deficiency – The Basics



## The Problem - Iodine Deficiency

Iodine deficiency is a worldwide health problem today. Some important current research indicates:

- ▶ Urinary iodine levels in the US today are about half what they were in the 1970s
- ▶ Some individuals are within the ranges considered by the World Health Organization (WHO) and the Centers for Disease Control (CDC) as mild and moderately deficient
- ▶ In 2004, the New England Journal of Medicine defined our iodine status in the US as “marginal,” based on data acquired from the International Council for the Control of Iodine Deficiency Disorder and the World Health Organization (WHO)

Geographically, one-third of the world's population lives in iodine-deficient areas. The fact is that very little of the earth's iodine is found in top soils, and even where this mineral is present, it may remain tightly bound up in soil particles. This is the main reason why land vegetable crops are generally not good dietary sources of iodine. Due to this, much of the world has addressed iodine deficiency by fortifying foods with iodine and providing iodized salt – but iodine deficiency clearly persists in populations, including in the US.

## Iodine Impact

Because iodine is an essential element in the formation of thyroid hormones, low iodine levels are associated with low thyroid hormone production and enlargement of the thyroid gland (goiter) – as it attempts to maintain production of normal levels of thyroid hormones. The inverse side of the problem is that iodine is an essential nutrient that you can get in excess. So both excess iodine and iodine deficiency can impair thyroid function and lead to elevated thyroid-stimulating hormone (TSH) levels.

## From Intake to Uptake - Who is at Risk?

Iodine deficiency may often be overlooked because the symptoms overlap with those of other illnesses, sometimes masking the problem. Women, in particular, may be at even greater risk. The 2004 National Health and Nutrition Survey helped dispel the assumption that iodine deficiency in women is a myth. Although there was some leveling off of the drop in overall intake, more than a third of women of childbearing age had insufficient iodine levels. From thyroid issues to breast concerns to cognitive function, this could have serious

implications for women's short- and long-term health, as well as that of their children.

More and more researchers are saying that increasing the RDA would greatly benefit breast, thyroid, and nervous system health in women and infants. In the US, the recommended daily allowance (RDA) for iodine for adults is 150 mcg/day and 290 mcg/day for lactating women. This RDA is well below the US Food and Nutrition Board's “upper limit of safety” for iodine (UL = 1,100 mcg).

## Clinical Utility

In summary, iodine intake has decreased significantly over the past thirty years and consequently clinical symptoms have become apparent. Iodine is an essential element that is pivotal to normal function of the thyroid gland and the health and integrity of breast tissue.

Adequate iodine status is essential for the production of normal levels of thyroid hormones and the integrity of thyroid and mammary glands. Thyroid hormones regulate growth, metabolic rate, body heat, energy production, and neuronal and sexual development. Iodine is concentrated in the breasts where it is associated with protection against fibrocystic breast disease and cancer. Sub-clinical iodine/iodide deficiency has been associated with impaired mental function and loss of energy due to hypothyroidism.

## Detecting Iodine Deficiency in Urine - Accuracy of the ZRT Iodine Test

A convenient way to test for iodine deficiency is to measure it in urine since more than 90 % is excreted. However, a problem with urinary iodine measurements has always been in the procedure for collecting it. With most tests, urine produced over 24-hours must be collected, which is logistically very difficult. Upwards of 40% of people who collect urine over 24-hours do not do it correctly and either miss collections or estimate the volume incorrectly.

ZRT has developed a new and simplified test for measuring iodine in urine. This method allows for testing relatively small amounts of urine that have been dried on FDA approved filter paper. This innovative and accurate method for detecting iodine levels is easy to perform, and can be done at home.

With iodine playing so many different roles optimizing health and preventing disease, it is essential that adequate iodine intake is maintained and problems associated with excessive iodine intake are identified.