The Importance of Iodine

Iodine is a key component of the thyroid hormones T3 (tri-iodothyronine) and T4 (tetra-iodothyronine). Thyroid hormones regulate metabolism - the process of converting stored energy into usable energy - and as such are essential for proper development of brain and body. Thus, an inadequate intake of iodine is of particular concern during pregnancy. Although serious deficiencies are uncommon in North America, even mild iodine deficiencies may result in some of the following symptoms:

- **weight gain**: not having enough iodine can slow metabolism and result in weight gain.
- **fatigue**: slowed metabolism results in energy loss and fatigue.
- **depression, mental impairment**: slowed metabolism affects brain function and may lead to impaired mental abilities and/or depression.
- **fibrocystic breast disease**: iodine supplementation has been shown to reduce the signs and symptoms of fibrocystic breast disease.
- **cancer**: adequate iodine intake may provide protection against breast, thyroid and prostate cancer.

Iodine deficiency is considered the number one preventable cause of brain damage in the world according to the World Health Organization (WHO). The Iodine Status of Canadians paper published in 2012 found that nearly three out of every ten Canadians have a mild to moderate iodine deficiency. Iodine is clearly essential for health and well-being and many Canadians don’t get enough but may not know it!

Why Test Iodine & Bromine in Urine?

**The importance of testing iodine:**
- Iodine deficiency is a significant health concern, and measuring iodine in urine is the best method we have for assessing whether iodine intake is sufficient.
- Too much iodine can shut down thyroid hormone production and cause hypothyroidism. Therefore, it is not appropriate to supplement with iodine without testing to see if iodine supplementation is indicated.

**The importance of testing bromine:**
- Bromine competes with iodine for transport into the thyroid, thus interfering with the beneficial effects of iodine. Animal studies show that having adequate iodine decreases the amount of bromine that is taken up by cells.
- Widespread use of bromine (see inset at right) has greatly increased the average person’s exposure to this potential toxin.

Why Rocky Mountain Analytical?

Rocky Mountain Analytical measures iodine and bromine in a first morning urine or a 24-hour urine collection. Both the Canadian Health Measures Study and the WHO agree that a urine iodine level reflects iodine consumed and present in the body. Healthcare professionals who employ the iodine loading test in practice prefer the 24-hour urine specimen over a first morning urine specimen.

Rocky Mountain Analytical meets EQUIP standards (Ensuring the Quality of Urine Iodine Procedures), the international iodine testing program offered by the Center for Disease Control, and is accredited by the College of Physicians and Surgeons of Alberta.

Iodine

Iodine is part of the halogen family of chemical elements. Iodine is considered an essential nutrient, which means humans cannot survive without it.

**Sources**: Iodine is naturally found in seafood and foods grown in iodine-rich soil. Iodine was added to table salt in the early twentieth century in an effort to combat deficiencies due to lack of intake. Iodine is also used as a disinfectant and as a contrast agent in radiology. Deficiencies are most common where access to seafood is lacking and soil is iodine deficient. Sensitivity to non-food sources of iodine is rare, but can occur.

Bromine

Bromine is also a member of the halogen family. The similar chemical properties of bromine and iodine mean they are competitors for transport into cells. An excess of bromine therefore reduces the effectiveness of iodine.

**Sources**: Bromine is found in disinfectants (pool and hot tub chemicals), pesticides, fire retardant chemicals, and in some medications (brominated asthma inhalers).
Iodine and Bromine

The Rise of Iodine Deficiency

Iodine was added to table salt in the 1920’s in an effort to address the growing problem of iodine deficiency. Use of iodized salt has reduced the incidence of goitre (swollen thyroid) in areas with low iodine intake. Unfortunately, decreased intake of iodine is still relatively common in North America. Some of the factors associated with declining iodine intake are:

- increased consumption of commercially-produced foods prepared primarily with non-iodized salt.
- decreased use of iodized salt at the dining room table in compliance with health messages to reduce salt intake.
- declining use of iodine-containing disinfectants by the dairy industry. Iodine disinfectants were absorbed into cow’s milk and increased the iodine content of dairy foods.
- bromine hidden in disinfectants, flame retardants and medications interfering with transport of iodine into thyroid cells.

The Canadian Health Measures Survey of Iodine Status 2009 to 2011 found 22% of Canadians aged 3 and over had mild iodine deficiency while 7% had moderate deficiency.

Why Test?

Good health has a lot to do with maintaining balance: the right balance of work and play, the right balance of nutrients in the diet, and the right kinds of foods.

Ensuring sufficient iodine intake and avoiding excessive bromine exposure is one way to foster good health.

Rocky Mountain Analytical is committed to offering tests that identify imbalances and other conditions - so they can be corrected before disease develops!

Test Results

Rocky Mountain Analytical reports both Iodine and Bromine in either a first morning urine or a 24-hour urine sample. The reference range is based on a normal healthy population. Results are also reported relative to WHO standards for deficiency and sufficiency in males and females of all ages, and in pregnant women.

Measuring your iodine and bromine levels can help your health care professional determine whether supplementing with iodine is right for you. As with all nutrients, balance is important, and too much iodine is just as harmful as not enough.

Reducing exposure to bromine and bromine containing compounds is a good first step in improving your metabolism and overall health. Ask your naturopathic doctor or functional and integrative medicine physician how to improve your balance of iodine and bromine.

About Us

Rocky Mountain Analytical was founded in 2002 with a mission to offer tests that focus on early identification and prevention of disease.

Rocky Mountain Analytical is an accredited medical laboratory located in Calgary, Alberta. Accreditation means tests performed by Rocky Mountain Analytical are regularly reviewed for quality, accuracy and reproducibility by the College of Physicians & Surgeons of Alberta.

Ask your healthcare professional whether a test is right for you.