

The Importance of Iodine & Selenium

Iodine is a key component of the thyroid hormones T3 (tri-iodothyronine) and T4 (tetra-iodothyronine). Selenium is needed to convert T4 to the more active T3 form, a process which frees up iodine that can be reused. Since thyroid hormones regulate metabolism (the process of converting stored energy into usable energy), a lack of iodine and/or selenium may affect energy, metabolism, mood, and development. The following are examples of conditions related to low iodine and/or selenium:

Weight gain: a lack of iodine and/or selenium may slow metabolism and result in weight gain or inability to lose weight.

Fatigue: slowed metabolism results in decreased energy 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. Selenium provides support for immune health and is also important for protection against certain cancers.

The 2012 Iodine Status of Canadians paper found nearly three out of every ten Canadians have a mild to moderate iodine deficiency. Iodine is clearly essential for health and well-being and yet many Canadians don't get enough and don't know it. Selenium is also essential, although true deficiencies are rare.

Iodine

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

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 may reduce the uptake of iodine even if enough iodine is in the diet.

Selenium

Selenium is an essential element required for many enzyme systems. Selenium is needed for glutathione enzymes, which are potent antioxidants, and for deiodinase enzymes, which are needed to convert the thyroid hormone T4 to its active T3 form.

Cadmium

Cadmium is toxic to mitochondria, the 'powerplants' of cells. An excess of cadmium may contribute to symptoms of fatigue. Selenium is needed to protect the body against cadmium toxicity.

Why Order the Iodine Plus?

The importance of testing iodine:

- Too little iodine may contribute to the symptoms listed above, and an excess of iodine can shut down thyroid hormone production and cause hypothyroidism. Urine iodine reflects recent iodine intake, and having consistently low iodine levels in urine suggests iodine intake is insufficient.

The importance of testing selenium:

- Selenium helps the body use iodine more efficiently thus potentially improving thyroid function. Urine selenium levels reflect recent intake and can be used to track selenium supplementation, as high doses of selenium can be toxic.

The importance of testing bromine and cadmium

- Bromine competes with iodine for transport into the thyroid, so it interferes with the beneficial effects of iodine. Animal studies show that having adequate iodine decreases the amount of bromine that is taken up by thyroid cells.
- Cadmium can interfere with the beneficial effects of selenium.

Quality Assurance

- Rocky Mountain Analytical participates in both EQUIP (Ensuring the Quality of Urine Iodine Procedures), an international iodine testing program administered by the Center for Disease Control and QMEQAS (Quality MultiElement Quality Assurance Program), to ensure quality results.

Information is for educational purposes only. It is not meant as medical advice and any treatment decisions should be made with the knowledge or consent of your healthcare professional.

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.

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!

Why Test?

About Selenium Deficiency

Selenium deficiency is rare in those eating a healthy, balanced diet. However, people with gut problems, those who've had gastric bypass surgery and the elderly are more at risk for low levels. Symptoms of selenium deficiency are similar to those of low thyroid hormone levels. The recommended daily intake is between 60 and 75 micrograms, and more than 200 micrograms/day may be toxic for some.

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.

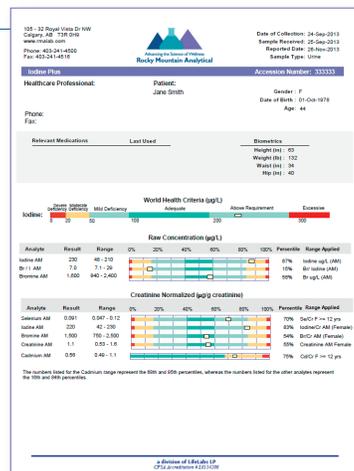
About Us

Test Results

Rocky Mountain Analytical reports iodine, bromine, cadmium and selenium 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, bromine, cadmium and selenium levels can help your healthcare 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 cadmium-containing compounds is a good first step in improving your metabolism and overall health. Ask your healthcare practitioner how to avoid toxic elements and improve your intake of essential elements.



Rocky Mountain Analytical
Changing lives, one test at a time

an accredited medical laboratory