

THYROID FUNCTION KEY TO METABOLISM & HEALTH



IF YOU'VE TRIED TO UNDERSTAND CHANGES IN YOUR HEALTH, OR EVEN TREATED YOUR SYMPTOMS IN WAYS THAT DON'T SEEM TO WORK, TESTING YOUR THYROID FUNCTION MAY BE AN IMPORTANT NEXT STEP



The Thyroid Connection



The thyroid is a small butterfly-shaped gland that sits behind and below your Adam's apple. When it's working properly, you can't feel it.

However, a range of factors from hormone imbalances to mineral deficiencies and environmental pollutants can interfere with thyroid production, leading to health problems.

DYSFUNCTION IS NOTORIOUSLY UNDER-DIAGNOSED

The American Thyroid Association estimates that as many as 60% of people with thyroid disease are not aware of it. Additionally, the landmark Colorado Thyroid Disease Prevalence Study found that almost 10% of subjects with abnormal thyroid test results were not being treated.

Statistics show that women are seven times more likely than men to develop thyroid problems, facing as much as a one in five chance of developing a problem particularly during the peri-menopause years when hormones start to fluctuate.



The Role of Thyroid

Thyroid hormones act throughout the body, influencing metabolism, body temperature, and growth and development.

Healthy thyroid function can be affected by interactions between thyroid hormones and other hormone systems. In particular, excess estrogens can effectively block delivery of thyroid hormones to the cells that need them, as can imbalances of cortisol stress hormones.

Thus, discovering how well our thyroid is actually working requires a big picture assessment of all the hormone levels that matter, and also of key elements that if too high or too low can run interference on thyroid hormone production.

MEET THE PLAYERS

Our bodies produce several thyroid hormones, but two are absolutely essential: thyroxine or T4, the most abundant in the body; and triiodothyronine or T3, the most active of the two. The others are also important for optimal health.

TSH – Thyroid Stimulating Hormone

Produced by the pituitary gland, TSH acts on the thyroid gland to stimulate production of the thyroid hormones T4 and T3.

Free T4 – Thyroxine

The predominant hormone produced by the thyroid gland, T4 is converted to its active form, T3, within cells.

Total T4 – Thyroxine

Total T4 includes both free T4 and protein-bound T4, and is an indicator of the thyroid gland's ability to synthesize, process and release T4 into the bloodstream.

Free T3 – Triiodothyronine

T3 is the active thyroid hormone that regulates the metabolic activity of cells.

TPO – Thyroid Peroxidase

An enzyme involved in thyroid hormone production. The body produces antibodies, including TPOab, that attack the thyroid gland in autoimmune thyroiditis and Hashimoto's. Testing TPOab levels can diagnose these conditions.

Tgbn – Thyroglobulin

A protein rich in tyrosine, the residues of which when bound to iodine become the building blocks of T3 and T4. If iodine levels are low, thyroglobulin accumulates, thus high levels indicate insufficient iodine for healthy thyroid function.



Elements Play a Part, Too

Thyroid health can also be undermined by nutritional deficiencies, particularly of iodine and selenium, or overexposure to bromine, arsenic, selenium, cadmium and mercury. These elements are found all around us: in the food we eat, in the water we drink, in materials we touch, in the air we breathe.

ELEMENTS THAT IMPACT THYROID

Iodine is an essential building block of the key thyroid hormones, T4 and T3, so a deficiency undermines their production and can lead to hypothyroidism, goiter and poor cognition. Iodine deficiency has also been associated with breast cancer. Iodine is present in dairy products, seafood, iodized salt and grains.

Bromine

Bromine is a common component of flame-proofing agents, fumigants, medications and pool/spa sanitizers. High exposure to bromine in our environment can lead to excess accumulation.

Selenium

Selenium plays a vital role in thyroid hormone production, free radical scavenging, DNA synthesis and cancer prevention. While excess selenium intake can result in toxicity, inadequate selenium

affects thyroid function through impaired conversion of T4 to T3 in the body. Brazil nuts, seafood, eggs and grains are common food sources.

Arsenic

Arsenic, an environmental heavy metal with multiple toxic effects in the body, is found in shellfish, seaweed, rice, fruit and well water. In excessive amounts it inhibits selenium and creates a deficiency.

Mercury

Mercury is a highly toxic heavy metal that can damage the brain and nervous system. It impacts thyroid function in the same way as selenium deficiency or arsenic exposure. We can accumulate high levels through dental amalgams, seafood and vaccinations.

Cadmium

Cadmium can accumulate in the thyroid gland, resulting in damage to thyroid tissues with chronic exposure. Smoking is a major source of human exposure, with smokers having about twice the body burden as non-smokers.



Check for Symptoms

Do you have symptoms of thyroid hormone imbalance?

Thyroid disease or dysfunction can explain a wide variety of symptoms you may be experiencing. If these sound familiar, you may want to consider testing your thyroid:

- Weight gain or inability to lose weight despite exercise and diet
- Feeling cold all the time (when others don't)
- Low energy and stamina, especially in the evening
- Memory lapses or slow/fuzzy thinking
- Irregular bowel habits
- Dry, thinning, itchy skin
- Dry/brittle hair and nails
- Menstrual irregularities
- Water retention
- Hair loss
- Insomnia
- Low libido
- Infertility
- Depression



Lifestyle tips for keeping your hormones and health in balance:

- Be active—move about every day
- Eat a rainbow of fresh, colored vegetables every day
- Limit processed foods and those high in simple carbohydrates
- Maintain a stable, healthy body weight
- Get adequate sleep
- Drink plenty of water
- Limit alcohol
- Don't smoke
- Limit exposure to chemicals
- Reduce caffeine intake
- Minimize stress with yoga, deep breathing, meditation
- Make time for friends, family and activities that you enjoy



866.600.1636 or info@zrtlab.com

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