

Hyperthyroidism – Overactive thyroid gland

Hormones made by the thyroid gland act as the “thermostat” for our body, setting the rate at which we make and use energy. Basically, thyroid hormone (TH) increases the activity of every cell in our body. People with low TH have low energy. Too much thyroid hormone can over-stimulate the body and cause trouble.

Normally, our brain and pituitary control the amount of TH the thyroid gland makes. These hormones are released into our bloodstream and supply every cell. In a variety of conditions, the thyroid can make too much hormone. This is called hyperthyroidism – which translates as “high-thyroid” – or thyrotoxicosis. It can effect people several ways.

High thyroid can over-drive the metabolism, so patients both make and use up too much energy. Some eat everything in sight, yet lose weight. They often feel hot and sweaty. Many will have heart palpitations or a rapid heart rate and slightly shaky hands. Not all hyperthyroid patients get such symptoms, though, because the body acts to protect itself.

Our cells deactivate thyroid hormone when the levels get too high. Instead of converting TH to the active form, called T3, our body makes reverse T3. Reverse T3 (RT3) does not stimulate the metabolism but will block T3 – quite potently, in fact. Hyperthyroid people with high RT3 levels may feel as though their thyroid is too low... until this protective system becomes overwhelmed. It is important to slow down the “runaway” thyroid gland before the brakes fail.

There are many causes of hyperthyroidism. Rather commonly, we find people taking **too much thyroid replacement** for their hypothyroidism (low thyroid). This isn't your issue; else we'd simply change your dose, not give you this paper. Let's review the other most frequently encountered problems.

Graves' disease is the most common cause of hyperthyroidism. Normally, the pituitary gland regulates thyroid production by making more or less thyroid stimulating hormone (TSH). In Graves' disease, an immune globulin that mimics TSH is inappropriately released by the immune system. This protein (called an auto-antibody) drives the gland to produce thyroid hormone without any proper control – often resulting in high blood levels.

Hashimoto's disease is also caused by the immune system. In this case, it makes antibodies that kill thyroid cells. This is usually a slow process ending in low-thyroid. If the pace of thyroid destruction is unusually rapid, lots of stored thyroid hormones can be released into the blood, causing hyperthyroidism. This condition is called Hashitoxicosis.

Benign tumors of the thyroid gland (**adenomas**) may produce hormones of their own accord, without stimulation by TSH. When these independently-functioning (autonomous) adenomas get big enough – over an inch (2.5 cm) in diameter – they can release enough hormone to make a person hyperthyroid. These are called “toxic adenomas.” Malignant tumors can also autonomously produce thyroid hormone.

“**Multinodular goiter**” describes a thyroid gland with multiple nodules. These are usually rather harmless but some people's nodules begin to work autonomously. When the multinodular goiter produces too much thyroid hormone, it is also designated “toxic.”

Iodine supplements can cause hyperthyroidism. Once a thyroid gland has been damaged, however long ago, it may be unable “say no” to iodine and can take in toxic amounts. The high doses recommended by some alternative practitioners are risky. Studies suggest 5% of Americans are vulnerable to iodine doses above 1.5 mg/ day (that's ten-times the RDA).

A variety of tests are available to define the cause of your hyperthyroidism, which is important to know. These may include further blood tests, nuclear medicine uptake & scans and ultrasound imaging, urine iodine assay and even fine-needle biopsy. Usually the testimony of several “witnesses” is needed to feel confident in a diagnosis.

Each type of hyperthyroidism may be treated quite differently from the others. Sometimes the gland must be destroyed, making the patient permanently low-thyroid, so it is essential to make the correct diagnosis. We encourage our patients to persevere in getting their work-ups completed, to establish their true diagnosis and receive the best treatment.