Thyroid Health and Nutrients

The thyroid gland, a 2-inch butterfly-shaped organ located at the front of the neck regulates many functions; including: fat and carbohydrate metabolism, respiration, body temperature, brain development, cholesterol levels, the heart and nervous system, blood calcium levels, menstrual cycles, skin integrity, and more.

In the United States, hypothyroidism is usually considered the effect of an autoimmune response known as Hashimoto's disease or autoimmune thyroiditis. As with all autoimmune diseases, the body mistakenly identifies its own tissues as an invader and attacks them until the organ is destroyed. This chronic attack eventually prevents the thyroid from releasing adequate levels of the hormones T3 and T4, which are necessary to keep the body functioning properly. The lack of these hormones can slow down the metabolism resulting in weight gain, fatigue, dry skin and hair, and difficulty concentrating. Hashimoto's affects approximately 5% of the US population, is seven times more prevalent in women than men, and generally occurs during middle age.

Hyperthyroidism is another common thyroid condition. The most prevalent form is Graves' disease in which the body's autoimmune response causes the thyroid gland to produce too much T3 and T4. Symptoms of hyperthyroidism can include weight loss, high blood pressure, diarrhea, and a rapid heartbeat. Graves' disease also disproportionately affects women and typically presents before the age of 40. Hashimoto's is more common than Graves' disease, but both are referred to as autoimmune thyroid disease (ATD), which has a strong genetic link and associated with other autoimmune disorders, such as type 1 diabetes, rheumatoid arthritis, lupus, and celiac disease.

A goiter, or enlargement of the thyroid gland, can be caused by hypothyroidism, hyperthyroidism, excessive or inadequate intake of iodine in the diet, or thyroid cancer — the most common endocrine cancer whose incidence studies indicate is increasing.

Cardiovascular Risk and Diabetes

Patients with hypothyroidism have a greater risk of cardiovascular disease than the risks associated with weight gain alone. Low levels of thyroid hormones lead to a higher blood lipid profile, increased blood pressure, LDL levels, the amino acid homocysteine and the inflammatory marker C reactive protein. Moreover, a strong relationship exists between thyroid disorders, impaired glucose control, and diabetes.

Key Nutrients

Many nutritional factors play a role in optimizing thyroid function. Benefits of various and specific regimens using purified, bio-available concentrates (nutraceuticals) in therapeutic concentrations has proven beneficial and without side effects.

Vitamin D: Vitamin D deficiency is linked to Hashimoto's, and according to one study more than 90% of patients were deficient. However, it is unclear whether the low vitamin D levels were the direct cause of Hashimoto's or the result of the disease process itself. A study published in 2018 in the ***Indian Journal of Endocrinology and Metabolism*** found that vitamin D supplements improved TSH levels in subjects with hypothyroidism as well as thyroid antibodies in people with autoimmune thyroiditis.

Hyperthyroidism, particularly Graves' disease, is known to cause bone loss, which is compounded by the vitamin D deficiency commonly found in people with hyperthyroidism. This bone mass can be regained with treatment for hyperthyroidism, and experts suggest that adequate bone-building nutrients, such as vitamin D, are particularly important during and after treatment. If low serum Vitamin D levels are found, supplemental D3 may be necessary.

Selenium: An essential trace mineral, the highest concentration of selenium is found in the thyroid gland. As a necessary component of enzymes integral to thyroid function, selenium also has a profound effect on the immune system, cognitive function, fertility in both men and women, and mortality rate.

A meta-analysis of randomized, placebo-controlled studies showed that selenium improves both thyroid antibody titers and mood in patients with Hashimoto's disease.

Vitamin B complex: Vitamin B is important for people with hypothyroidism because B vitamins have many interactions with thyroid function and hormone regulation. It is best to take a nutritional supplement that includes the entire vitamin B complex, and one may require additional vitamin B_{12} if a blood test reveals B_{12} levels are low. Good food sources of vitamin B include whole grains, legumes, nuts, milk, yogurt, meat, fish, eggs, seeds, and dark leafy greens.

Zinc: In addition to selenium, zinc plays an important role in the conversion of thyroid hormone T4 to T3. Selenium and zinc are beneficial in improving thyroid function and hormone levels. According to a study in ***Hormones: The Journal of Endocrinology and Metabolism***, zinc improves T3 levels significantly. Food sources of zinc include shellfish, mollusks, meat, legumes, and nuts. The recommended daily intake of zinc is 8 to 11 milligrams for adult women and men, respectively.