



Thyroid Disease and Diabetes

Patient Education Sheet

This sheet focuses on how thyroid disorders affect people with diabetes and the current treatment options available for people with thyroid disorders.

Diabetes Overview

- Diabetes is a disorder characterized by an overabundance of glucose (sugar) in the blood due to insufficient insulin production by the pancreas (type 1 diabetes) or the inability of the body to utilize insulin to transport glucose into the cells (type 2 diabetes).

The Link Between Diabetes and Thyroid Disorders

- Both diabetes and thyroid disorders involve a dysfunction of the endocrine system, which is a group of glands that help regulate various aspects of the body's metabolism.
- Studies have found that diabetes and thyroid disorders tend to co-occur in patients.
- Almost one third of people with type 1 diabetes have been found to have thyroid disease. This is because type 1 diabetes and the most common thyroid disorders are autoimmune diseases, which are diseases in which the immune system attacks a gland or organ of the body.
- People with an autoimmune disease are more likely than the general population to develop other autoimmune diseases, such as Addison disease, pernicious anemia, rheumatoid arthritis, or lupus.
- Thyroid disorders are also common in type 2 diabetes because both of these illnesses tend to occur more frequently as people age.

The Thyroid Gland—The Basics

- The thyroid is a butterfly-shaped gland located at the base of the neck that lies on either side of the windpipe. It produces and releases thyroid hormone.
- Thyroid hormone affects every cell in the body and controls many of the body's functions.
- The amount of thyroid hormone made by the thyroid gland is regulated by the pituitary gland and the hypothalamus in the brain.
- The pituitary gland releases thyroid-stimulating hormone (TSH), which signals the thyroid to produce more thyroid hormone. When the pituitary gland senses that there is the right amount of thyroid hormone in the body, it will decrease thyroid hormone production.
- Physicians can measure the health of the thyroid gland by measuring levels of TSH.
- Too little thyroid hormone production causes a condition known as hypothyroidism; too much thyroid hormone production causes a condition known as hyperthyroidism.

Hypothyroidism and Mild Thyroid Failure

- When a patient has hypothyroidism, he or she may feel tired and cold, have a slow heartbeat, or feel depressed.
- Mild thyroid failure is a mild form of hypothyroidism. In patients who have mild thyroid failure, the thyroid hormone levels are normal, but the TSH level is elevated.
- Patients with mild thyroid failure often do not show any obvious symptoms, but untreated mild thyroid failure may lead to hypothyroidism.

Hyperthyroidism and Mild Hyperthyroidism

- Patients with hyperthyroidism may feel jittery and may experience nervousness, a rapid heartbeat, or unexplained weight loss.
- Patients with mild hyperthyroidism have normal thyroid hormone

levels and a decreased TSH level. Untreated mild hyperthyroidism can progress to hyperthyroidism, and may lead to potentially harmful consequences, such as cardiovascular disorders.

Underlying Thyroid Disorders Can Impact Diabetes Management

- Thyroid disorders can have a major impact on glucose control, and untreated thyroid disorders can affect how diabetes is managed.
- Hypothyroidism can decrease the insulin requirement in patients with diabetes, and hyperthyroidism may worsen glucose tolerance or control.
- Underlying thyroid disorders may go undiagnosed because the common signs and symptoms of thyroid disorders are similar to those for diabetes and can be overlooked or attributed to other medical disorders. Symptoms of hypothyroidism are common in patients with type 2 diabetes and symptoms of hyperthyroidism may be attributed to poor diabetic control in patients with type 1 diabetes.

TSH Testing Is Recommended for People With Diabetes

- Because of the link between diabetes and thyroid disease, the American Diabetes Association has recommended that people with diabetes be tested for thyroid disorders. The TSH test, which measures the amount of TSH being produced in the body, is the best test of thyroid function.
- A TSH test will give the physician knowledge regarding the extent of thyroid function. An elevated TSH level may indicate hypothyroidism; a TSH level that is lower than normal may indicate hyperthyroidism.

Thyroid Disorder Treatment Options

- Hypothyroidism can be treated with thyroid hormone replacement therapy, usually with a synthetic thyroid hormone called levothyroxine sodium. Treatment will continue for the rest of the patient's life, with the physician monitoring TSH levels once a year after the correct dose is achieved.
- Hypothyroidism may decrease the insulin requirement in patients with diabetes, so a patient's insulin dose may need to be adjusted.
- Patients on thyroid hormone replacement therapy should not switch medication brands without checking with their physician. Symptoms of fatigue, weight gain, or any other sign of hypothyroidism should be reported to the physician because it may indicate the need for a dosage change. Patients should never stop taking thyroid hormone replacement therapy without talking to their physician.
- Patients with hyperthyroidism have 3 treatment options. Patients can take antithyroid drugs, which will slow down the thyroid's hormone production. Patients can have radioactive iodine therapy, which will destroy thyroid cells in order to reduce the amount of thyroid hormone being produced. The third treatment option is surgical removal of the thyroid gland.
- Hyperthyroidism has been known to affect control of the amount of glucose in the blood, so treatment for hyperthyroidism should help control blood glucose levels.
- Following treatment for hyperthyroidism, some patients may develop hypothyroidism.

More Information

- Patients who have further questions should contact their physician.