

## Graves' Disease: Causes, Symptoms, Diagnosis

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### DESCRIPTION

Graves' disease, which bears the name of Robert J. Graves, MD, is an autoimmune disorder that affects the thyroid gland and results in excessive thyroid hormone production. This indicates that healthy cells are attacked by the body's immune system, which misidentifies them as foreign, invading bodies. Hyperthyroidism, another name for an overactive thyroid, is a complication of Graves' disease. Thyroid hormones are produced by the thyroid, a little gland in the neck, and they control how the body uses energy. The immune system attacks the thyroid as a result of Graves' illness, which increases the production of thyroid hormones. The condition affects women and people between the ages of 35 and 55 more frequently.

### Symptoms

Many of the symptoms of Graves' disorder and hyperthyroidism are similar. These signs and symptoms can include:

- Tachycardia (fast heartbeat).
- Hand tremors.
- Heat sensitivity or intolerance
- Weight loss.
- Sleep issues (including insomnia).
- Irritability and anxiousness.
- Muscular weakness.
- Goitre (thyroid gland swelling).
- Irregular periods.
- Difficulties getting pregnant.

Some Graves' disease patients will develop Graves' dermopathy. People with this illness will have thicker, reddish skin on the tops of their feet or around their shins. Although Graves' dermopathy is frequently mild, it has the potential to be painful.

Graves' Ophthalmopathy (GO) can also be brought on by Graves' disease. The immune system of the body starts to assault the eye's muscle and tissue, which causes the eye sockets to swell and become inflamed. The eyelids may retract as a result of this inflammation, giving the appearance of larger, bulging eyes.

### Causes

A breakdown in the immune system, which the body uses to combat disease, is the root cause of Graves' disease. Normally, the immune system makes antibodies that are intended to attack a particular virus, bacteria, or other foreign item. The immune system creates an antibody against a portion of the cells in the neck's hormone producing gland in Graves' disease (thyroid gland). Normally, a small gland at the base of the brain releases a hormone that controls thyroid function (pituitary gland). The Thyrotropin Receptor Antibody (TRAb), which is linked to Graves' disease, functions similarly to the regulating pituitary hormone. That indicates that TRAb interferes with the thyroid's natural function, leading to an excess of thyroid hormones being produced (hyperthyroidism).

### Diagnosis and tests

The symptoms, such as an enlarged thyroid, and family history of thyroid or autoimmune disease may be used by the doctor to make a diagnosis. To confirm a Graves' disease diagnosis, a person may also undergo the following tests:

**Blood test:** Thyroid blood tests assess TSI, an antibody that induces the production of thyroid hormones. Blood testing can also measure Thyroid Stimulating Hormone (TSH) levels.

**Radioactive Iodine Uptake (RAIU) test:** To produce thyroid hormone, the thyroid draws iodine from the blood. One takes the RAIU test by ingesting a modest dose of radioactive iodine.

**Thyroid scan:** A thyroid scan is a type of imaging examination that makes use of radioactive substances to examine the thyroid's functioning. Before the test, a substance called technetium is commonly injected, followed by a brief waiting period before thyroid pictures are produced.

Additionally, two types of Graves' disease-related antibodies may be found throughout the examinations. These antibodies consist of TBII (Thyrotropin Binding Inhibitory Immunoglobulin's) and TSI (Thyroid Stimulating Antibodies). In certain people, the antibodies will be negative, and the diagnosis will be made based on the thyroid scan, radioiodine uptake, and test values (mostly TSH, but also FT<sub>4</sub> and FT<sub>3</sub>).

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## Treatment

There are numerous ways to treat Graves' illness. Stopping the overproduction of thyroid hormones and treating the symptoms are the objectives.

Anti-thyroid medication these drugs reduce the quantity of hormone the thyroid produces. One of the easiest ways to treat hyperthyroidism is using this. One of the most widely prescribed anti-thyroid drugs, according to the NIDDK, is methimazole (Northyx, Tapazole).

Radioiodine therapy is the most used form of treatment for Graves' illness. This entails ingesting liquid or capsule forms of

radioactive iodine orally. It targets the thyroid gland and kills the thyroid hormone-producing cells there.

Beta-blockers are advised as the first course of treatment for hyperthyroidism by the American thyroid association. These drugs stop the normal actions of thyroid hormone as it travels through the bloodstream. People can discontinue using beta blockers if their thyroid levels are within a healthy range.

Surgery is a less common therapy for Graves' illness, but doctors may advise it in cases when other therapies have failed or in cases where the patient is pregnant, has a large goitre, or both.