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## Diseases and Conditions

# Graves' disease

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## Causes

By Mayo Clinic Staff

Graves' disease is caused by a malfunction in the body's disease-fighting immune system, although the exact reason why this happens is still unknown.



Thyroid gland

One normal immune system response is the production of antibodies designed to target a specific virus, bacterium or other foreign substance. In Graves' disease — for reasons that aren't well understood — the body produces an antibody to one part of the cells in the thyroid gland, a hormone-producing gland in the neck.

Normally, thyroid function is regulated by a hormone released by a tiny gland at the base of the brain (pituitary gland). The antibody associated with Graves' disease — thyrotropin receptor antibody (TRAb) — acts like the regulatory pituitary hormone. That means that TRAb overrides the normal regulation of the thyroid, causing an overproduction of thyroid hormones (hyperthyroidism).

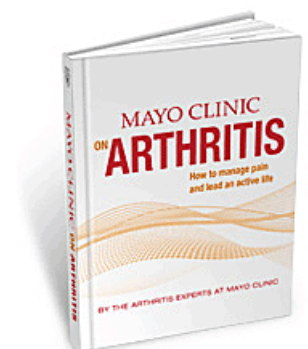
### Cause of Graves' ophthalmopathy

This condition results from a buildup of certain carbohydrates in the skin — the cause of which also isn't known. It appears that the same antibody that can cause thyroid dysfunction may also have an "attraction" to tissues surrounding the eyes.

Graves' ophthalmopathy often appears at the same time as

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hyperthyroidism or several months later. But signs and symptoms of ophthalmopathy may appear years before or after the onset of hyperthyroidism. Graves' ophthalmopathy can also occur even if there's no hyperthyroidism.

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