

# Graves' Eye Disease

## (Graves' Ophthalmopathy or Graves' Orbitopathy)

### WHAT IS THE THYROID GLAND?

The thyroid gland is a butterfly-shaped endocrine gland that is normally located in the lower front of the neck. The thyroid's job is to make thyroid hormones, which are secreted into the blood and then carried to every tissue in the body. Thyroid hormone helps the body use energy, stay warm and keep the brain, heart, muscles, and other organs working as they should.

### WHAT IS GRAVES OPHTHALMOPATHY?

Graves' eye disease, also called Graves' Ophthalmopathy or Thyroid Eye disease, is a problem that usually develops in people with an overactive thyroid caused by Graves' disease (See brochure on *Graves' disease*). Graves' disease is an autoimmune disease caused by antibodies directed against receptors present in the thyroid cells and also on the surface of the cells behind the eyes. Rarely can also affect the skin, usually the front part of the legs. This usually results in a generalized over activity of the thyroid gland (hyperthyroidism). Up to one-half of people with Graves' disease develop eye symptoms. These are usually mild and treatable.

### WHAT ARE THE SYMPTOMS OF GRAVES OPHTHALMOPATHY?

Eye symptoms most often begin within 6 months of diagnosis of Graves' disease. Very rarely eye problems may develop long after the thyroid disease has been treated. In some patients with eye symptoms, hyperthyroidism never develops and, rarely, patients may be hypothyroid. The severity of the eye symptoms is not related to the severity of the hyperthyroidism.

**Symptoms of Graves' eye disease include:** Feeling of irritation or grittiness in the eyes, redness or inflammation of the conjunctiva (the white part of the eyeball), excessive tearing or dry eyes, swelling of the eyelids, sensitivity to light, forward displacement or bulging of the eyes (called proptosis), and double vision. In more advanced eye disease there may also be decreased eye movement and eyelids, incomplete closure of the eye with corneal ulceration, compression of the optic nerve and rarely, loss of vision.

### HOW IS THE DIAGNOSIS MADE?

If you have already been diagnosed with hyperthyroidism, a doctor may diagnose Graves' eye disease by examining your eyes and finding swelling and enlargement of the eye muscles. A computed tomography (CT) scan or magnetic resonance imaging (MRI) scan of the eye muscles may be helpful. Graves' disease usually is associated with other symptoms of overactive thyroid. However, the classic symptoms of hyperthyroidism may not always be present. In fact, Graves' eye disease can occur even when the thyroid is not overactive at that time.

Graves' eye disease often improves on its own. However, in some patients symptoms may persist despite treatment of the overactive thyroid gland and specific eye therapies.

### PREVENTION

Graves' disease and usually the associated eye disease cannot be prevented. However, radioiodine therapy used to treat hyperthyroidism is more likely to worsen the eye disease and should be avoided, if possible in patients with moderate or severe eye disease. Treatment with anti-thyroid drugs or surgery does not affect the course of eye disease.

If radioiodine is used to treat hyperthyroidism in patients with moderate or severe eye disease, taking a corticosteroid drug (prednisone) at the time of the treatment, which is tapered over several weeks may help prevent worsening of Graves' eye disease.

Smokers are more prone to develop Graves' Ophthalmopathy than nonsmokers and they should try to stop smoking. Second hand exposure to smoke has the same effect as active smoking and should be avoided.



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## HOW IS GRAVES OPHTHALMOPATHY TREATED?

If you have Graves' Ophthalmopathy, one or more of the following treatments may help soothe your eyes and improve your vision:

**Apply cool compresses to your eyes.** The extra moisture may provide relief.

**Wear sunglasses.** When you have Graves' eye disease your eyes are more vulnerable to ultraviolet rays and more sensitive to sunlight. Wearing sunglasses helps protect them from both sun and wind.

**Use lubricating eyedrops.** Eyedrops, like artificial tears, may help relieve dryness and scratchiness. Be sure to use eyedrops that do not contain redness removers. A lubricating gel can be used before bed to prevent the cornea from drying out because your eyelids may not cover the entire eye when sleeping.

**Elevate the head of your bed.** Keeping your head higher than the rest of your body may reduce swelling and may help relieve pressure on your eyes.

**Prisms:** If double vision is a problem, glasses containing prisms may be prescribed by your doctor. However, prisms don't work for all people with double vision and your doctor may recommend surgery as a more effective option

**Steroids.** Swelling in the eyes may be improved by treatment with steroids (such as hydrocortisone or prednisone)

**Eyelid surgery.** Because in Graves eye disease, the eyelids are usually more widely open, some patients may have difficulty closing their eyelids, leaving the eyeballs more exposed, which causes excessive tearing and irritation. Surgical repositioning of the eyelid may help reduce the irritation.

**Eye Muscle Surgery.** Sometimes scar tissue from Graves' Ophthalmopathy can cause one or more eye muscles to be too short. This pulls your eyes out of alignment, leading to double vision. Eye muscle surgery may help correct double vision by cutting the affected muscle from the eyeball and reattaching it farther back. The goal is to achieve single vision when you read and look straight ahead. In some cases, you may need more than one operation to get these results. These procedures are performed by an eye specialist called an ophthalmologist.

**Orbital Decompression Surgery.** When eyesight is threatened, a type of surgery called orbital decompression can be done. In this procedure, a bone between the eye socket (orbit) and sinuses is removed to allow more space for the swollen tissues. When the procedure is successful, it improves vision and provides room for your eyes to return to their normal position. There is a risk of complications, including double vision that persists or appears after surgery.

All these surgical interventions should be performed at a medical center with expertise in this area as they require a team approach, and correct timing to ensure best likelihood of success and minimize risks.

It is important that thyroid blood levels be maintained in the normal range. After treatment of an overactive thyroid, there is a high risk of becoming hypothyroid (an underactive gland). Adequate thyroid replacement is essential to help keep Graves' eye disease from getting worse.

## WHEN TO CALL A PROFESSIONAL

Call your doctor if you notice any changes in the appearance of your eyes or if you develop any of the symptoms of Graves' eye disease.

## PROGNOSIS

Most of the symptoms of Graves' disease, including eye symptoms, can be treated successfully.



## FURTHER INFORMATION

Further details on this and other thyroid-related topics are available in the patient thyroid information section on the American Thyroid Association® website at [www.thyroid.org](http://www.thyroid.org).

For information on thyroid patient support organizations, please visit the [Patient Support Links](http://www.thyroid.org) section on the ATA website at [www.thyroid.org](http://www.thyroid.org)

