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## **Education**

### **Hyperthyroidism**

#### **What is hyperthyroidism?**

Hyperthyroidism is overactivity of the thyroid gland. This means the gland makes too much thyroid hormone. Too much hormone speeds up chemical reactions in the body. This causes mental and physical changes.

The thyroid gland is a small gland at the lower front of the neck. This gland takes iodine from the food you eat to make hormones called thyroxine (T4) and triiodothyronine (T3). The hormones control your metabolism (the process of turning the food you eat into energy). The thyroid gland is critical for maintaining body temperature and controlling heart rate, appetite, and digestive tract function.

The most common form of hyperthyroidism is called Graves' disease. It occurs more often in women than men, especially women in the childbearing years between 20 and 40.

#### **How does it occur?**

Possible causes are:

- Your immune system is not working properly.
- Your body may be producing a substance that causes the thyroid gland to make more hormone than your body needs.
- In rare cases there may be a tumor that makes the thyroid gland produce too much hormone.

Some thyroid gland problems may be inherited.

#### **What are the symptoms?**

Symptoms include:

- anxiety, tiredness, or sleeplessness
- feeling shaky, having tremors
- feeling sweaty and hot, even though others around you are comfortable
- shortness of breath
- trouble focusing your eyes
- a bulging of one or both of your eyes
- double vision
- eye irritation
- weight loss
- faster heart rate or palpitations
- enlarged thyroid gland (goiter)
- increased appetite
- diarrhea.

#### **How is it diagnosed?**

Your health care provider will ask about your symptoms and examine you. You will have blood tests. These tests measure hormone levels and check thyroid gland function. Additional tests may be done to check the thyroid gland:

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- A test called a radioactive iodine scan, or RAI uptake, shows if there are areas of the thyroid gland making more or less hormone than normal. For this test you will be given a very tiny amount of a radioactive form of iodine. Because the body uses iodine to make thyroid hormone, the radioactive iodine attaches to thyroid hormone being formed in the thyroid gland. A scan of radioactivity in the thyroid gland then shows areas of the gland making thyroid hormone. (The radioactive iodine becomes nonradioactive in 3 days.) Sometimes a radioactive chemical similar to iodine may be used instead of iodine.
- An ultrasound exam of the thyroid gland is another way to look at the thyroid gland. The ultrasound can show cysts or tumors in the gland and can be used to measure the size of the gland.

Eye problems related to thyroid disease may require tests such as a CT scan or an ultrasound to check the muscles that move the eye. These muscles can become abnormally large in thyroid disease.

### **How is it treated?**

The options for treatment are medicine, radiation, or surgery. These treatments lower the amount of thyroid hormone in your body.

Antithyroid drugs reduce the amount of thyroid hormone made by the gland. They usually control hyperthyroidism in several weeks. Propylthiouracil (PTU) and methimazole (Tapazole) are 3 commonly used drugs. Another type of medicine called a beta blocker may be prescribed to help control the symptoms of hyperthyroidism. You may need to keep taking these drugs for a year or longer, and your health care provider may need to adjust the doses often.

A pill containing radioactive iodine is commonly used to treat some types of hyperthyroidism, especially if you have had hyperthyroidism more than once. The radiation is concentrated in the thyroid gland and destroys the cells that are making too much hormone. The main risk of this treatment is that your thyroid levels will become too low. A low level of thyroid hormone can be dangerous if it is not recognized. Your health care provider will watch your thyroid levels with blood tests after this treatment. Low levels are easily treated with thyroid hormone medicine.

Surgery can be done to remove part or all of the overactive thyroid gland or to remove just a growth (tumor) in the gland. Surgery cures the disease 90% of the time. However, surgery has certain risks. An unavoidable outcome of removing a large part of the thyroid gland is that you will have low thyroid hormone levels after the surgery. You will then most likely need to take thyroid hormone medicine the rest of your life. Nerve damage is an uncommon risk of surgery. When it occurs, the nerve that is damaged is usually the one that goes to the voice box. The nerve damage may cause a soft or raspy voice.

Not everyone with thyroid disease has eye problems. If you do have eye problems, your eyes may dry out easily and need drops to keep them moist. Rarely, crowding of the eye socket can threaten your vision. Sometimes steroid medicine is used for eye problems. Surgery may be needed to treat eye muscle problems and eyelid problems, as well as crowding of the eye socket.

### **How long will the effects last?**

The effects of hyperthyroidism usually last as long as thyroid hormone levels are too high. Sometimes the disease improves without treatment. However, it can cause heart failure and death if it is not treated.

Eye problems related to hyperthyroidism may continue even after the thyroid problem is treated. Sometimes eye problems worsen with treatment of the thyroid disease.

### **How can I take care of myself?**

- Follow the full treatment prescribed by your health care provider.
- Do not stop or change your thyroid medicine without first asking your health care provider.
- Have regular checkups according to your health care provider's recommendations.
- Call your health care provider if your symptoms come back or get worse or you develop new symptoms that concern you.
- Call your eye doctor if you have any changes in your vision.

### **How can I help prevent hyperthyroidism?**

There is no known way to prevent this condition.

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