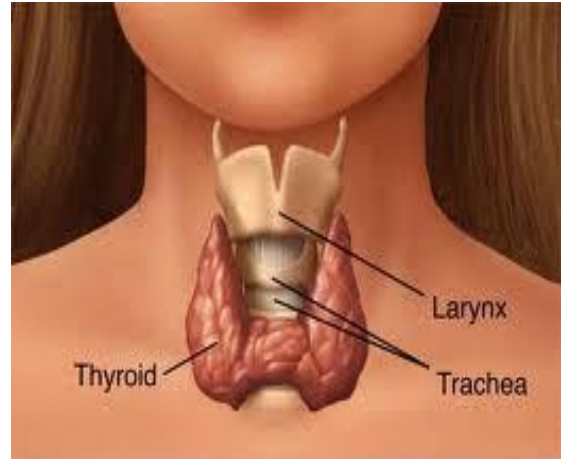


## Thyroid Disorders

### The Thyroid Gland

The thyroid gland is a butterfly shaped organ located in the neck. It is wrapped around the windpipe just below the Adam's apple. The thyroid gland secretes thyroid hormones that regulate metabolism and growth. Thyroid disease occurs when there is an imbalance of thyroid hormones produced. This can be due to either dysfunction of the thyroid gland itself, or structures above the thyroid gland which regulate its function. These structures are the pituitary gland which releases thyroid stimulating hormone, and the hypothalamus which regulates the pituitary gland. The function of the thyroid gland is to convert iodine, an essential nutrient found in dairy products, seafood, kelp, bread and some vegetables, into the thyroid hormones, thyroxine (T4) and triiodothyronine (T3). The thyroid hormones are then released into the blood to regulate the metabolism of virtually every cell.



### Hyperthyroidism

Hyperthyroidism is a term that relates to any condition which results in excessive amounts of thyroid hormones in the blood. In the table below is a description of each of these conditions.

Condition	Description
<b>Graves' Disease</b>	Graves' disease is the most common cause of hyperthyroidism. It is an autoimmune disease, which means the body's immune system launches an immune response against itself. With Graves' disease, this leads to antibodies in the blood overstimulating the thyroid gland, leading to excessive amounts of thyroid hormones in the blood. Experts are not entirely sure why autoimmune conditions occur, however they have identified some risk factors for acquiring Graves' disease. These predisposing factors include: having a relative with the condition, pregnancy, mental stress, being a smoker or being female. Alarmingly, females are seven times more likely to get the condition than their male counterparts.
<b>Functioning Adenoma and Toxic Multi Nodular Goitre</b>	As a patient gets older it is normal for the thyroid gland to become nodular. However, if these nodules become enlarged they can begin producing thyroid hormones independently of the thyroid gland, causing hyperthyroidism.
<b>Thyroiditis</b>	Thyroiditis is a swelling of the thyroid gland due to either an autoimmune response or infection with a virus or bacteria. These two mechanisms result in accumulation of antibodies which cause inflammation. Direct trauma can also cause thyroiditis.
<b>Factitious Hyperthyroidism</b>	Factitious hyperthyroidism is elevated thyroid hormone levels in the blood that occur from taking too much thyroid hormone medication.

## Symptoms of Hyperthyroidism

The thyroid gland controls metabolism of the body and it affects nearly all body functions, therefore symptoms can be varied and are dependent on the duration and severity of the increased thyroid hormones. Hyperthyroidism usually begins slowly, and at first, the symptoms may be mistaken for nerves or anxiety due to stress. As the disease progresses common symptoms include:

- weight loss;
- palpitations;
- brittle hair and hair loss;
- tremor;
- decreased concentration;
- infrequent periods;
- reduced fertility;
- bulging eyes;
- sensitivity to light;
- lower leg swelling;
- anxiety;
- muscle weakness;
- insomnia; and
- goitre – a visibly enlarged thyroid.

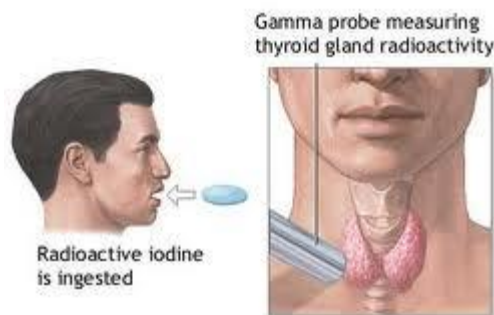
## Diagnosis and Treatment of Hyperthyroidism

After a complete history and physical examination a doctor may order blood tests to check the levels of thyroid hormones. Imaging studies like x-rays and Computed Tomography (CT) Scans of the neck may be done to diagnose the cause.

With Graves' disease, there is no treatment to stop the immune system attacking the body, so treatment is geared at stopping the overactive thyroid gland. Similar therapy is used for functioning adenoma and toxic multi nodular goitre. Beta blockers are used to ease symptoms such as rapid heart rate and anxiety, and anti thyroid drugs such as methimazole and propylthiouracil (PTU) prevent the thyroid gland from producing excess hormones.

Radioactive iodine is a permanent way to treat hyperthyroidism. The cells of the thyroid are the only cells in the body to absorb iodine, therefore these cells are killed by the radioactive material without any harm to the rest of the body. The only issue with radioactive iodine is that it may kill too much of the thyroid gland and lead to hypothyroidism, which is an insufficient amount of thyroid hormones in the blood.

The other permanent treatment for hyperthyroidism is to remove the thyroid gland. This treatment is rarely used anymore, as the aforementioned treatments work really well in most cases of hyperthyroidism. Surgery is usually only used when someone cannot take the medication or refuses the radioactive iodine. Part of a lobe, a whole lobe or the entire thyroid may be removed. When the entire thyroid gland is removed, medical replacement with synthetic thyroid replacement is required.



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## LexiMed Consultants

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Physician

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Sources: [http://www.medicinenet.com/thyroid\\_disease/article.htm](http://www.medicinenet.com/thyroid_disease/article.htm),  
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