

Hypothyroidism - Underactive Thyroid

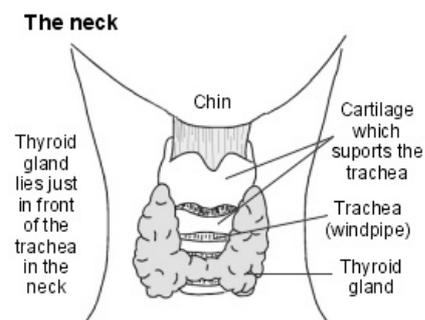
Hypothyroidism (underactive thyroid gland) is the term used to describe a condition in which there is a reduced level of thyroid hormone (thyroxine) in the body. This can cause various symptoms, the most common being: tiredness, weight gain, constipation, aches, dry skin, lifeless hair and feeling cold. Treatment is usually easy by taking a tablet each day to replace the missing thyroxine. Treatment usually works well and symptoms usually go.

What is hypothyroidism?

Thyroxine is a hormone (body chemical) made by the thyroid gland in the neck. It is carried round the body in the bloodstream. It helps to keep the body's functions (the metabolism) working at the correct pace. Many cells and tissues in the body need thyroxine to keep them going correctly.

Hypothyroidism results from the thyroid gland being unable to make enough thyroxine, which causes many of the body's functions to slow down. Hypothyroidism may also occur if there is not enough thyroid gland left to make thyroxine, eg after surgical removal or injury.

(In contrast, if you have **hyperthyroidism**, you make too much thyroxine. This causes many of the body's functions to speed up.)



What are the symptoms of hypothyroidism?

Many symptoms can be caused by a low level of thyroxine. Basically, many body functions slow down. Not all symptoms develop in all cases.

- Symptoms that commonly occur include: tiredness, weight gain, constipation, aches, feeling cold, dry skin, lifeless hair, fluid retention, mental slowing, and depression.
- Less common symptoms include: a hoarse voice, irregular or heavy menstrual periods in women, infertility, loss of sex drive, carpal tunnel syndrome (which causes pains and numbness in the hand), and memory loss or confusion in the elderly.

However, all these symptoms can be caused by other conditions, and sometimes the diagnosis is not obvious. Symptoms usually develop slowly, and gradually become worse over months or years as the level of thyroxine in the body gradually falls.

What are the possible complications of hypothyroidism?

If you have **untreated** hypothyroidism:

- You have an increased risk of developing heart disease. This is because a low thyroxine level causes the blood lipids (cholesterol, etc) to rise.
- If you are pregnant, you have an increased risk of developing some pregnancy complications - for example: pre-eclampsia, anaemia, premature labour, low birth weight, stillbirth, and serious bleeding after the birth.
- Hypothyroid coma (myxoedema coma) is a very rare complication.

However, with treatment, the outlook is excellent. With treatment, symptoms usually go, and you are very unlikely to develop any complications.

Who gets hypothyroidism?

About 1 in 50 women, and about 1 in 1,000 men develop hypothyroidism at some time in their life. It most commonly develops in adult women, and becomes more common with increasing age. However, it can occur at any age and can affect anyone.

What causes hypothyroidism?

Autoimmune thyroiditis - the common cause in the UK

The most common cause is due to an autoimmune disease called autoimmune thyroiditis. The immune system normally makes antibodies to attack bacteria, viruses, and other germs. If you have an autoimmune disease, the immune system makes antibodies against certain tissues of your body.

With autoimmune thyroiditis, you make antibodies that attach to your own thyroid gland, which affect the gland's function. The thyroid gland is then not able to make enough thyroxine, and hypothyroidism gradually develops. It is thought that something triggers the immune system to make antibodies against the thyroid. The trigger is not known.

Autoimmune thyroiditis is more common than usual in people with:

- A family history of hypothyroidism caused by autoimmune thyroiditis.
- Down's syndrome. Hypothyroidism develops in 1 in 3 people with Down's syndrome before the age of 25 years. Symptoms of hypothyroidism may be missed more easily in people with Down's syndrome. Therefore, some doctors recommend that all people with Down's syndrome should have an annual blood test to screen for hypothyroidism.
- Turner syndrome. Again, an annual blood test to screen for hypothyroidism is usually advised for people with this condition.
- An enlarged thyroid gland (diffuse goitre).
- A past history of Graves' disease, or thyroiditis following childbirth.
- A personal or family history of other autoimmune disorders - for example: vitiligo, pernicious anaemia, Addison's disease, type 1 diabetes, premature ovarian failure, coeliac disease, Sjögren's syndrome.

Some people with autoimmune thyroiditis also develop a swollen thyroid gland (goitre). Autoimmune thyroiditis with a goitre is called Hashimoto's disease. Also, people with autoimmune thyroiditis have a small increased risk of developing other autoimmune conditions such as vitiligo, pernicious anaemia, etc.

Surgery or radioactive treatment to the thyroid gland

These are common causes of hypothyroidism in the UK, due to increasing use of these treatments for other thyroid conditions.

Other causes

Other causes of hypothyroidism include:

- Worldwide, iodine deficiency is the most common cause of hypothyroidism. (Your body needs iodine to make thyroxine.) This affects some countries more commonly than others, depending on the level of iodine in the diet.
- A side-effect to some medicines - for example, amiodarone and lithium.
- Other types of thyroiditis (thyroid inflammation) caused by various rare conditions.
- A pituitary gland problem is a rare cause. The pituitary gland that lies just under the brain makes a hormone called thyroid-stimulating hormone (TSH). This stimulates the thyroid gland to make thyroxine. If the pituitary does not make TSH then the thyroid cannot make enough thyroxine.
- Some children are born with an underactive thyroid gland (congenital hypothyroidism).

How is hypothyroidism diagnosed?

A blood test can diagnose hypothyroidism. A normal blood test will also rule it out if symptoms suggest that it may be a possible diagnosis. One or both of the following may be measured:

- **TSH.** This hormone is made in the pituitary gland. It is released into the bloodstream. It stimulates the thyroid gland to make thyroxine. If the level of thyroxine in the blood is low, then the pituitary releases more TSH to try to stimulate the thyroid gland to make more thyroxine. Therefore, a raised level of TSH means the thyroid gland is underactive and is not making enough thyroxine.
- **Thyroxine (T4).** A low level of T4 confirms hypothyroidism.

Note: some people have a raised TSH level but have a normal T4 level. This means that you are making enough thyroxine but the thyroid gland is needing extra stimulation from TSH to make the required amount of thyroxine. In this situation you have an increased risk of developing hypothyroidism in the future. Your doctor may advise a repeat blood test every so often to see if you do eventually develop hypothyroidism.

Other tests are not usually necessary unless a rare cause of hypothyroidism is suspected. For example, tests of the pituitary gland may be done if both the TSH and T4 levels are low.

How is hypothyroidism treated?

The treatment is to take levothyroxine (thyroxine) tablets each day. This replaces the thyroxine which your thyroid gland is not making. Most people feel much better soon after starting treatment. Ideally, take the tablet on an empty stomach (before breakfast). This is because some foods rich in calcium or iron may interfere with the absorption of levothyroxine from the gut. (For the same reason, don't take levothyroxine tablets at the same time of day as calcium or iron tablets.)

What is the dose of levothyroxine?

Most adults need between 50 and 150 micrograms daily. A low dose is sometimes prescribed at first, especially in those aged over 60 or with heart problems, and is then gradually increased over a period of time. Blood tests are usually taken every 2-3 months, and the dose may be adjusted accordingly. The blood test measures TSH (see above). Once the blood TSH level is normal it means you are taking the correct amount of levothyroxine. It is then common practice to check the TSH blood level once a year. The dose may need adjustment in the early stages of pregnancy. Also, as you get into late middle age and older, you may need a reduced dose of levothyroxine.

Missed a tablet?

Everyone forgets to take their tablets from time to time. Don't worry as it is not dangerous to miss the odd forgotten levothyroxine tablet. If you forget to take a dose, take it as soon as you remember if this is within 2 or 3 hours of your usual time. If you do not remember until after this time, skip the forgotten dose and take the next dose at the usual time. Do not take two doses together to make up for a missed dose. However, you should try to take levothyroxine regularly each morning for maximum benefit.

How long is the treatment for?

For most people, treatment is for life. Occasionally, the disease process reverses. This is uncommon, apart from the following:

- *Children.* Sometimes hypothyroidism is a temporary condition in older children. (This is not so for children who are born with an underactive thyroid.)
- *Pregnancy.* Some women develop thyroid imbalance after having a baby. If it occurs, it typically happens about three to six months after the birth. Often this lasts just a few months and corrects itself. Treatment is needed only in a small number of cases. However, afterwards it is wise to have a yearly blood test, as there is an increased risk of developing autoimmune thyroiditis and long-term hypothyroidism in the future.

Are there any side-effects or problems from treatment?

Usually not. Levothyroxine tablets replace the body's natural hormone, so side-effects are uncommon. However, if you have angina, you may find that your angina pains become worse when you first start levothyroxine. Tell a doctor if this happens.

If you take too much levothyroxine it can lead to symptoms and problems of an overactive thyroid - for example, palpitations, diarrhoea, irritability, and sweating - and increase the risk of developing osteoporosis. This is why you need blood tests to check that you are taking the correct dose.

Other medicines may interfere with the action of levothyroxine - for example: carbamazepine, iron tablets, phenytoin, and rifampicin. If you start any of these medicines, or change the dose, then you may need to alter the dose of the levothyroxine. Your doctor will advise. Also, if you take warfarin, the dose may need to be altered if you have a change in your dose of levothyroxine.

Free prescriptions

If you have hypothyroidism, you are entitled to free prescriptions. This is for all your medicines, whether related to the hypothyroidism or not. Ask at your GP surgery for a form to fill in (form FP92A) to claim this benefit.

In summary

- Hypothyroidism is common.
- Symptoms develop gradually. They may be confused with other conditions.
- Treatment with levothyroxine tablets is usually easy and effective.
- Treatment is usually for life.
- Have a blood test once a year if you take levothyroxine tablets once your dose has become stabilised.

Further help and advice

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Further reading & references

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- [Boelaert K, Franklyn JA; Thyroid hormone in health and disease. J Endocrinol. 2005 Oct;187\(1\):1-15.](#)
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