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# Thyroid UK

## Hypothyroidism



## Hypothyroidism

This is when the thyroid produces less thyroid hormone than it should which causes the metabolism to run too slow. This is called hypothyroidism, myxoedema or an underactive thyroid. It may also be called Hashimoto's disease.

The main causes of an underactive thyroid are:

- Hashimoto's disease - an autoimmune disease where the antibodies may first stimulate the thyroid, and then destroy it
- Pituitary or hypothalamic failure, causing secondary hypothyroidism
- Genetic dysfunction - the thyroid may be dysfunctional at birth, or is programmed to fail at some time in adult life (a predisposition)
- Environmental challenges or deficiencies - chemicals and some foods and drinks can cause problems for the thyroid
- Previous thyroid surgery or radioactive iodine treatment
- Treatment for hyperthyroidism
- Inability to absorb synthetic thyroxine adequately
- Lack of conversion from T4 to T3
- Receptor resistance

Hypothyroidism is mostly seen in women between the ages of 40 - 50 and is seen in women ten times more often than men. It often occurs during the menopausal years and symptoms are often ignored during the early stages by both patients and doctors if the patient is at this age.

The Association of Clinical Biochemistry, the British Thyroid Association and the British Thyroid Foundation state in the 'UK Guidelines for the Use of Thyroid Function Tests', "The prevalence of spontaneous hypothyroidism is 1-2%" (approximately 2 in every 100 people) but some doctors feel that the rate is much higher than this.

Dr Thierry Hertoghe, President of the International Hormone Society, which is the third largest hormone society in the world with over 2,300 physicians as members, states that many studies are now showing that people with levels of thyroid hormones (T4 and T3) in the lower fifth, quarter, third or half of the reference range and levels within the upper fifth, quarter, third or half of the TSH reference range have an increased risk of disease or even mortality.

He states that, in his opinion, thyroid deficiency is 20% to 50% (20 - 50 people in every 100) of a standard population.

### **What are the Symptoms?**

There are many signs and symptoms of an underactive thyroid the main ones being:

- Weight gain
- Slow movements, thought and speech
- Pins and needles
- Breathlessness
- Dizziness
- Palpitations
- Loss of libido
- Dry/gritty eyes

### **Your Notes**

There has been a lot of research recently on vitamin D so testing for this vitamin might also be a good idea.

If you have been diagnosed with hypothyroidism, as long as you are not deficient in vitamins and minerals, you are on the thyroid medication that is best for you and the correct dosage of the thyroid medication that is best for you, you should, hopefully, see great improvement in your health.

- Hoarse voice
- Difficulty swallowing
- Hair loss especially outer third of eyebrows
- Dry skin
- Muscle and joint pain
- Carpal tunnel syndrome
- Loss of appetite
- Constipation

See 'Signs and Symptoms of Hypothyroidism' for full list.

## Diagnosis

Blood tests should reveal whether the thyroid gland is underactive although the doctor may not do all the blood tests available. Many areas of the UK only do the TSH test but if all the thyroid tests are done i.e. TSH, FT4, FT3 and thyroid antibodies, then a true picture may be seen.

## Guidelines for the Use of thyroid Function Tests

The 'UK Guidelines for the Use of Thyroid Function Tests' state that although a TSH test may be cost effective for a wide range of clinical purposes it may be inappropriate in patients being tested for the first time, and in some specific clinical settings. The Guidelines say that TSH and FT4 should be done when optimising thyroxine therapy in newly diagnosed patients with hypothyroidism, diagnosing and monitoring thyroid disorders in pregnancy and monitoring patients with hyperthyroidism in the early months after treatment. They also say that both tests should be done in rare situations such as central hypothyroidism, end-organ thyroid hormone resistance and TSH-secreting pituitary adenomas.

The Guidelines also state, “if clinical details are not available that allow the identification of the above categories of patient, then it may be prudent for laboratories to measure serum TSH and FT4 on all specimens rather than embark on a first-line serum TSH testing strategy followed by a cascade to include FT4 and FT3 if indicated.”

Unfortunately, in our experience, many doctors are not aware of either the rarer forms of hypothyroidism or these particular sections of the Guidelines. Therefore, it might be an idea to discuss the Guidelines with your GP.

Thyroid UK feels that in many instances, patients should be referred to an endocrinologist to check for central hypothyroidism and other thyroid disorders. However, patients are very rarely referred to an endocrinologist for hypothyroidism as it is considered that the GP can deal with treatment.

There is controversy in regard to when a patient is classed as hypothyroid and whether they should be treated or not.

In America and some other European countries, they have reduced the TSH level to 2.5 which means that anyone above that figure will be treated if they have symptoms of an underactive thyroid.

The ‘UK Guidelines for the Use of Thyroid Function Tests’ state that, “There is no evidence to support the benefit of routine early treatment with thyroxine in non-pregnant patients with a serum TSH above the reference range but <10mU/L (II,B). Physicians may wish to consider the suitability of a therapeutic trial of thyroxine on an individual patient basis.” If your TSH is above the range but less than 10, discuss a therapeutic trial of thyroxine with your doctor.

Subclinical hypothyroidism (where there are elevated TSH levels, but normal FT4 levels, possibly with symptoms) has been found in approximately 4% to 8% of the general population but in approximately 15% to 18% of women over 60 years of age.

## Drugs increasing clearance of levothyroxine

- Phenytoin - antiepileptics
- Carbamazepine - anticonvulsants
- Phenobarbitone - barbiturates
- Rifampicin - antibiotics

These drugs need to be taken separately from levothyroxine by at least four hours to be sure that there is no interaction.

There has never been any research in respect of which foods, drugs and beverages interfere with NDT.

It takes about 7-10 days for levothyroxine to absorb fully into the body so you may not feel any improvement for a couple of weeks. Improvement may be slow so patience may be needed especially if you have been ill for some time. You may need to take it easy for a while until the correct dosage is achieved.

You will need to have your thyroid tested on an annual basis once you become balanced. It's a good idea to keep a diary and include test results, the amount of thyroid medication and any symptoms you have on a scale of 1-10 so that you can see where you feel best within the range.

If you have Hashimoto's disease, which is an autoimmune disease, it's possible that you may get other autoimmune diseases such as pernicious anaemia, diabetes, lupus etc. It might therefore be an idea to have periodic tests for these conditions too.

The body needs various vitamins and minerals to enable the thyroid to work properly. Deficiency in some of these vitamins and minerals can cause similar symptoms to thyroid disease. It may therefore be a good idea to have other tests such as B12, folate and ferritin.

There are quite a few things that can interfere with levothyroxine such as foods, beverages and drugs.

The main things to watch out for are:

### **Foods**

Goitrogenic foods can act like an antithyroid drug in disabling the thyroid function. They prevent the thyroid from using available iodine. However, if eaten in moderation, you should not have a problem:

- brussel sprouts, swede, turnips, cauliflower, cabbage and kale
- almonds, peanuts and walnuts
- sweetcorn, sorghum and millet
- soya

### **Beverages**

Coffee may interfere with thyroid hormone absorption

### **Drugs preventing absorption of levothyroxine**

- Calcium salts - calcium containing products
- Ferrous sulphate - iron containing products
- Aluminium hydroxide - antacids
- Cholestyramine - bile acid sequestrants

### **Drugs which may reduce the effectiveness of Levothyroxine**

- Proton pump inhibitors
- Oestrogens
- Statins

Subclinical hypothyroidism can progress to overt hypothyroidism (full hypothyroidism with symptoms) especially if there are thyroid antibodies present.

If thyroid antibodies are found, then you may have Hashimoto's disease. If there are thyroid antibodies but the other thyroid tests are normal, there is evidence that treatment will stop full blown hypothyroidism from occurring.

Dr A Toft, consultant physician and endocrinologist at the Royal Infirmary of Edinburgh, has recently written in Pulse Magazine, "The combination of a normal serum T4 and raised serum TSH is known as subclinical hypothyroidism. If measured, serum T3 will also be normal. Repeat the thyroid function tests in two or three months in case the abnormality represents a resolving thyroiditis.<sup>2</sup> But if it persists then antibodies to thyroid peroxidase should be measured. If these are positive – indicative of underlying autoimmune thyroid disease – the patient should be considered to have the mildest form of hypothyroidism.

In the absence of symptoms some would simply recommend annual thyroid function tests until serum TSH is over 10mU/l or symptoms such as tiredness and weight gain develop. But a more pragmatic approach is to recognise that the thyroid failure is likely to become worse and try to nip things in the bud rather than risk loss to follow-up."

### **Treatment Options**

There are various treatment options for hypothyroidism but the "gold standard" treatment is levothyroxine.

**Levothyroxine (T4):** The main treatment for hypothyroidism. Treatment is usually started at either 25mcg or 50mcg per day, depending on the severity of the condition. Testing is carried out at various intervals and dosages increased over the next few months until the test results show within normal range. According to the BMA's booklet, "Understanding Thyroid Disorders", many people do not feel well unless their levels are at the bottom of the TSH range or below and at the top of the FT4 range or a little above.

Dr Toft states in Pulse Magazine, “The appropriate dose of levothyroxine is that which restores euthyroidism and serum TSH to the lower part of the reference range - 0.2-0.5mU/l.

In this case, free thyroxine is likely to be in the upper part of its reference range or even slightly elevated – 18-22pmol/l. Most patients will feel well in that circumstance.

But some need a higher dose of levothyroxine to suppress serum TSH and then the serum-free T4 concentration will be elevated at around 24-28pmol/l.

This ‘exogenous subclinical hyperthyroidism’ is not dangerous as long as serum T3 is unequivocally normal – that is, serum total around T3 1.7nmol/l (reference range 1.0-2.2nmol/l).”

**Lactose Free Levothyroxine:** Some people are lactose intolerant or intolerant of some of the fillers and binders within the levothyroxine tablet. There are brands of tablets that are lactose free or that don't have certain ingredients in them. If you require information on these brands contact us.

**Liothyronine (T3):** Some people see little or no improvement on levothyroxine. The research on whether the addition of T3 is helpful is inconclusive although there has been recent evidence to show that there may be a genetic fault in some people and that these people feel better with the addition of T3.

T3 is the active hormone. It acts much more quickly than T4 and sometimes needs to be taken twice a day because it only lasts a few hours in the body before it runs out.

**Natural Desiccated Thyroid (NDT) i.e. Armour, Nature-Throid, Westhroid and Erfa:** This is the treatment that used to be given before levothyroxine came onto the market. It comes from pigs' glands and has T4 and T3 in it although it has more T3 than a human produces. Some people find that they don't become well unless they are treated with NDT.

NDT is not now available in the UK but there are brands available from America and Canada. Because NDT has been around for so long it never needed to go through the licensing process in America – it was classed as a “grandfathered drug”. It has always been approved by the Food and Drug Administration (FDA) but not licensed in the same way that many other drugs have been.

However, the FDA have recently decided that all approved drugs must now go through the licensing process although it is not known when the branded NDT products will be licensed as this takes some time. Erfa is a brand of NDT that is licensed in Canada which your doctor may prefer to prescribe.

Although there is evidence that levothyroxine is equal in efficacy to NDT and there are some studies that have found some patients do better on Armour thyroid, there are many doctors who do not like the idea of prescribing NDT. It can be prescribed, though, on a “named patient” basis either on the NHS or privately using a normal prescription. (See “Named Patient Basis” leaflet).

For more information on natural desiccated thyroid contact us.

## Disease Management and Lifestyle

There has been a study which shows that smoking is associated with an increased risk of developing thyroid disease and another study that shows cumulative cigarette consumption is a risk factor, mostly in respect of autoimmune thyroid disease. You need to be aware that smoking is not helping your thyroid.

Levothyroxine should be taken every day with water on an empty stomach and food should not be eaten for at least 30 minutes after the tablets. It is usually taken in the morning but some people find it is better taken at night.